



IBM InfoPrint Manager for AIX PSF Direct Network Configuration Guide for System/370

Version 2.1.0



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First Edition (September, 1997)

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| ACF/VTAM | OS/2 |
| Advanced Function Presentation | OS/400 |
| Advanced Peer-to-Peer Networking | POWERserver |
| AFP | POWERstation |
| APPN | Print Services Facility for AIX |
| AIX® | Proprinter® |
| AIXwindows® | PS/2® |
| AIX/6000 | PSF for AIX |
| Application System/400 | QuietWriter® |
| AS/400 | RS/6000® |
| Bar Code Object Content Architecture | System/370 |
| BCOCA | SNA Gateway/6000 |
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About This Publication

This publication contains examples and guidelines for configuring an PSF Direct host receiver with a InfoPrint printer to print data from a host PSF program (MVS, VSE, or VM). PSF Direct also can be used to print from PSF/400; however, this publication does not describe OS/400 examples and guidelines.

These configurations represent Systems Network Architecture (SNA) communications networks of the following types:

- SDLC
- token-ring

PSF Direct also can be used with other types of SNA networks that provide an LU 6.2 session with a host PSF program. Examples of other network types include Ethernet and X.25. These network types are not described in this publication.

Who Should Use This Publication

Any systems administrator or networking specialist responsible for designing an SNA configuration to print host PSF data on an InfoPrint printer, using a PSF Direct host receiver as the conduit.

About the Documentation for InfoPrint

InfoPrint provides the following types of documentation:

- Hardcopy publications
- **readme.txt** files
- Online help for the InfoPrint administrative graphical user interface (GUI)
- Online help for the InfoPrint SMIT production printing system interface
- Online help for the InfoPrint SMIT production print operations interface
- Online help for the InfoPrint SMIT job-submission interface
- Manual (man) pages
- InfoPrint online message catalog
- InfoPrint library in portable document format (PDF)

The InfoPrint Publication Library

InfoPrint provides the following publications. You can order printed copies of any of the publications from IBM by requesting the form number for the publication:

- *IBM InfoPrint Manager for AIX: Executive Summary*, G544-5478. For print shop managers and administrators, this publication describes the print shop environment and the role that InfoPrint plays. It provides an executive-level overview of the InfoPrint product and introduces the terminology that applies to printing in both a data-center and a print-for-profit environment. A PDF file of this publication is provided on a CD-ROM with the InfoPrint installation materials.
- *Planning for and Installing IBM InfoPrint Manager for AIX*, G544-5471. For administrators responsible for setting up the default environment for both data-center and print-for-profit customers. It provides pre-configuration planning issues that should be decided before installing and configuring IBM InfoPrint Manager for AIX. The text expands upon the terminology introduced in the *IBM InfoPrint Manager for AIX: Executive Summary*. A PDF file of this publication is provided on a CD-ROM with the InfoPrint installation materials.

- *IBM InfoPrint Manager for AIX: Using IBM InfoPrint Control for Production Printing*, S544-5473. For administrators and operators responsible for running InfoPrint in a data-center environment, it covers the primary administrator and operator tasks necessary for setting up an InfoPrint environment, scheduling and submitting jobs, as well as managing the output. The job-scheduling information also applies to job submitters. A copy of this publication is provided with the InfoPrint installation materials. A PDF file of this publication is also provided on CD-ROM with InfoPrint.
- *IBM InfoPrint Manager for AIX: Using InfoPrint for Commercial Printing*, S544-5476. For administrators and operators responsible for running InfoPrint in a print-for-profit environment, it is the primary hardcopy information unit that introduces the software concepts of InfoPrint and provides configuration information and troubleshooting tips. A copy of this publication is provided with the InfoPrint installation materials. A PDF file of this publication is also provided on CD-ROM with InfoPrint.
- *PSF Direct Network Configuration Guide for System/370*, S544-5486. For system administrators or network specialists responsible for configuring a system for PSF Direct, which is a function of IBM InfoPrint Manager for AIX that allows another PSF program (PSF/VM, PSF/MVS, or PSF/VSE) to print remotely, using the SNA LU 6.2 protocol, on printers supported by InfoPrint. The PSF program sends the print data stream directly to the InfoPrint printer. A PDF file of this publication is provided on a CD-ROM with the InfoPrint installation materials.
- *IBM InfoPrint Manager for AIX: Printing from SAP R/3*, S544-5477. For production printing administrators, operators, and application programmers with the need to print PCL or PostScript output from the SAP R/3 application or print AFP data through the **sap2afp** data stream transform. This publication describes the installation, configuration, and printing capabilities available at SAP R/3 installations through IBM InfoPrint Manager for AIX.

Note: This is an optional feature of InfoPrint.

- *IBM InfoPrint Manager for AIX: Configuring and Using PostScript Extreme*, S544-5488. For administrators responsible for configuring the Parallel raster image processing System that uses the Adobe PostScript Extreme technology to create a combined hardware and software solution for transforming and printing PostScript input data quickly and efficiently.

Note: This is an optional feature of InfoPrint.

InfoPrint Publications Available through Your IBM Printing Systems Company Representative

The following publications are available from your IBM Printing Systems Company representative. Because these publications are regularly updated to provide the latest information, you must contact your IBM Printing Systems Company representative to obtain the latest version.

- *IBM InfoPrint Manager for AIX: Reference Guide*, S544-5475. For production printing administrators, operators, and application programmers with the need to perform command-line functions, this publication describes the commands, utilities, transforms, attributes, and attribute values associated with InfoPrint.
- *IBM InfoPrint Manager for AIX: IBM InfoPrint Control Diagnostics Guide*, G544-5472. For production printing administrators and operators, this publication includes diagnostic procedures for isolating and correcting problems with InfoPrint, including configuration and printing problems.

Other Publications Related to InfoPrint

The following publications contain information you might find useful while installing, administrating, and using InfoPrint:

- *PSF/MVS MVS Download Guide*, G544-5294. For administrators and job submitters, this publication provides instructions for setting up the MVS Download support on PSF/MVS so that data can be transmitted from the Job Entry Subsystem (JES) spool on MVS for printing on an InfoPrint system.
- *IBM Page Printer Formatting Aid: User's Guide*, S544-5284. For administrators and job submitters, it provides instructions for creating form definitions and page definitions with Page Printer Formatting Aid for AIX (PPFA).

Note: This is an optional feature of InfoPrint.

- *Advanced Function Presentation: Printer Information*, G544-3290. For administrators and job submitters, it provides information on IBM printer devices.
- *IBM Data Stream and Object Architectures Mixed Object Document Content Architecture Reference*, SC31-6802. For administrators and job submitters, it provides information on the MOD:CA data stream.
- *IBM Data Stream and Object Architectures Image Object Content Architecture Reference*, SC31-6805. For administrators and job submitters, it provides information on the IOCA data stream.

Ordering Hardcopy Publications

To order additional printed copies of the InfoPrint publications, or to order printed copies of any IBM publication, contact IBM and request the publications by their associated order numbers.

readme.txt Files

The following files contain last-minute information about InfoPrint that the hardcopy publications or the online information do not contain:

```
/cdrom/readme.txt  
/cdrom/aix/readme.txt  
/cdrom/win/readme.txt  
/cdrom/mac/readme.txt  
/cdrom/books/readme.txt
```

You can use the AIX **more** command or an AIX editor, such as **vi**, to view the contents of the **readme.txt** files.

Online Help for the InfoPrint Administrative GUI

Online help is available for each InfoPrint administrative GUI application window. This help contains information about window areas, window buttons, templates, objects, actions, and tasks. The InfoPrint administrative GUI provides online help through:

- The **Help** button
- The ? Item Help action icon
- Text in the information area at the bottom of each window

InfoPrint places the online help for the InfoPrint administrative GUI in the **/usr/lpp/pd/help/LANG**, directory, where **LANG** is the name of a locale, such as **fr_CA** for Canadian French (ISO-8859-1).

Manual (man) Pages for InfoPrint Commands, Utilities, and Transforms

Online information, in manual (man) page format, is available for all InfoPrint commands and utilities. You can use the AIX **man** command to view man pages for the following InfoPrint commands:

| | |
|------------------|-------------------|
| lprafp | pdpromote |
| mkfntmap | pdq |
| pdclean | pdreorder |
| pdcreate | pdresubmit |
| pddelete | pdresume |
| pddisable | pdrm |
| pdenable | pdset |
| pdls | pdshutdown |
| pdmod | pdspace |
| pdpause | psfstat |
| pdpr | |

For example, to view online information for the **pdpr** command, enter:

```
man pdpr
```

You can use the AIX **man** command to view the following man page for the **-o** flag used to pass information to InfoPrint on AIX print commands:

oflag

You can use the AIX **man** command to view man pages for the following InfoPrint utilities:

| | |
|-----------------|---------------------|
| admingui | pdinitports |
| afpsplit | pdmigpp |
| ainurpt1 | pdmincfg |
| ainurpt2 | pdmsg |
| ainurpt3 | rc.pd |
| ainurpt4 | sense |
| ainurpt5 | startppo |
| ainurpt6 | start_server |
| cfu | startsrv |
| jsmigr | stop_server |
| opergui | tdump |
| pdcrdflt | tlist |
| pdcrmed | t2file |

You can use the AIX **man** command to view man pages for the following InfoPrint daemon utilities:

| | |
|-----------------|----------------|
| mvsprsd | ps2afpd |
| pcl2afpd | |

You can use the AIX **man** command to view man pages for the following InfoPrint transform commands:

| | |
|-----------------|-----------------|
| db2afp | pcl2afp |
| d2afp | pdf2afp |
| gif2afp | ps2afp |
| jpeg2afp | sap2afp |
| line2afp | tiff2afp |

InfoPrint provides the man pages for commands, utilities, and transforms in seven languages: Canadian French, English, French, German, Italian, Japanese, and Spanish. Installed man pages reside in the

`/usr/share/man/LANG/cat7` directory, where *LANG* is the name of a locale, such as **en_US** for English (ISO-8859-1) or **de_DE** for German (ISO-8859-1).

During installation, InfoPrint appends `:/usr/share/man/LANG` to the **MANPATH** environment variable, making the InfoPrint man pages available.

For information about the flags you can use with the **man** command, refer to the **man** man page or to the AIX Version 4.2 *Commands Reference*.

Manual (man) Pages for InfoPrint Attributes

InfoPrint also provides you with online information about the attributes supported by each object. To view the various attributes, enter the following command:

```
man pd_att
```

A list displays containing file names of attribute man pages. You can then display the desired file and view the information about specific attributes.

Use the AIX **man** command to view the following InfoPrint man pages for attributes:

| | |
|-------------------------|---------------------------|
| pd_att_aux_sheet | pd_att_medium |
| pd_att_document | pd_att_phy_ptr |
| pd_att_job | pd_att_queue |
| pd_att_log | pd_att_res_context |
| pd_att_log_ptr | pd_att_server |

InfoPrint Online Message Catalog

InfoPrint supplies a message catalog for the messages issued during its operation. For each message, the message catalog includes the text of the message, an explanation, a system action, and a response. You can view all information for a specific InfoPrint error message by issuing the InfoPrint **pdmsg** utility followed by the message number.

For example, from the command line enter:

```
pdmsg 5010-096
```

Messages issued by InfoPrint have the following prefixes:

```
0420  
0421  
0422  
0423  
0424  
0425  
5010
```

See the InfoPrint **pdmsg** man page for a complete description of the **pdmsg** utility.

To view information about an AIX message, issue the AIX **info** command with the **-h** flag, followed by the message number. For example, from the command line enter:

```
info -h message-number
```

where *message-number* is the number of the AIX message.

Note: InfoPrint provides message catalogs in seven different languages. InfoPrint installs the message catalog in the `/usr/lib/nls/msg/locale` directory. The locale in which your session is running determines the catalog installed.

PDF Versions of the InfoPrint Library

InfoPrint provides software and hardware publications in PDF files on the publications CD-ROM. To view or print these publications:

1. Log in to AIX as **root** or as a member of the **system** group.
2. Insert the InfoPrint publications CD-ROM into the drive.
3. To determine the identifier of your CD-ROM drive, enter on the AIX command line:

```
lsdev -C -c cdrom
```

4. Then enter:

```
mount -v cdrfs -r /dev/cdn /cdrom
```

where *cdn* is the identifier of your CD-ROM drive and */cdrom* is the file system that was created to install InfoPrint.

5. Read the **readme.txt** file in the **/cdrom/books** directory.
6. The publications reside in the **/cdrom/books** directory. Use the Adobe Acrobat Viewer to view the publications, or use InfoPrint to print them.

The Organization of This Publication

This publication provides five detailed examples to help you configure your SNA environment to use PSF Direct:

Part 1, Overview and General Configuration Information

Read all of **Part 1** because it contains an overview and general configuration information.

Part 2, SNA Network Configuration Examples and Guidelines

Read the chapter in **Part 2** that offers an example and guidelines for configuring an SNA network that most closely resembles your own SNA network.

Part 3, PSF Direct Host Receiver Information

Read all of **Part 3** for information about configuring and using a PSF Direct host receiver.

Related Publications

This section contains lists of publications, by category, that may be helpful to you as you install and use IBM InfoPrint Manager for AIX.

IBM Printing

The following publications contain information about or related to general concepts and procedures about IBM printing:

Why Enterprise Printing?, G544-3642

Printing for Fun and Profit Under AIX Version 4, GG24-3570

Printing and Publishing: Collection, SK2T-2921

Host System Print Services Facility Programs

The following publications contain information about or related to host system PSF programs:

Print Services Facility/MVS: System Programming Guide, S544-3672

Print Services Facility: System Programming's Guide for VSE, S544-3103

Print Services Facility: System Programming's Guide for VM, S544-3511

Distributed Printing

The following publications contain information about or related to distributed printing:

Distributing AFP Printing from a Host System, GG24-4493

AIX Operating System

The following publications contain information about or related to AIX general concepts and procedures:

IBM AIX Getting Started, GC23-2521

AIX General Concepts and Procedures, GC23-2202

IBM AIX Version System Management Guide: Communications and Networks, GC23-2487

AIX Version 4 Commands Reference, SBOF-1851

AIX Hypertext Information Base Library, SC23-2163

SNA Server/6000

The following publications contain information about or related to SNA Server/6000:

AIX SNA Server/6000: User's Guide, SC31-7002

AIX SNA Server/6000: Configuration Reference, SC31-7014

AIX SNA Server/6000: Command Reference, SC31-7100

AIX SNA Server/6000: Diagnostic Guide and Messages, SC31-7101

A Guided Tour of SNA Server/6000 Version 2.1, GG24-4189

General SNA Communications

The following publications contain information about or related to SNA communications:

- Systems Network Architecture: Technical Overview*, GC30-3073
- Systems Network Architecture: Network Product Formats*, LY43-0081
- Systems Network Architecture: Guide to SNA Publications*, GC30-3438

VTAM

The following publications contain information about or related to Virtual Telecommunications Access Method (VTAM) definitions:

- VTAM V4R1: Network Implementation Guide*, SC31-6419
- VTAM V4R1: Resource Definition Reference*, SC31-6427
- VTAM V4R1: Resource Definition Samples*, SC31-6428
- VTAM V4R1: Messages and Codes*, SC31-6418

NCP

The following publications contain information about or related to Network Control Program (NCP) definitions:

- NCP V7R1, SSP V4R1 EP R12 Resource Definition*, SC31-6224

Controller Guides

The following publications contain information about or related to the 3172 Interconnect Controller and the 3174 Establishment Controller.

- 3172 Program User's Guide*, SC30-3543
- 3174 Planning Guide*, GA27-3918

Conventions Used in This Publication

This publication uses conventions for the following:

- Highlighting
- InfoPrint command notation

Highlighting

This publication uses four different types of highlighting:

- Bold** When used in the text of the publication, bold highlighting identifies commands, attributes, files, directories, and other items whose names the system predefines, such as **pdpr** and **notification-profile**.
- Italic* When used in running text, italic highlighting identifies a variable item whose actual name or value you supply, such as *AttributesFileName* or *Notification*. Italics also identify publication titles.

Bold *Italic* When enclosed in double quotation marks, combined bold and italic highlighting identifies a specific attribute name that you enter exactly as shown and a variable value that you supply with the attribute. For example:

"copy-count=*Number*"

Monospace When used in command examples, information in a monospaced font identifies the exact content and the specific values entered with the command.

InfoPrint Command Notation

Command syntax notation uses symbols to show specific conditions. Do not enter the following symbols, unless specifically instructed to do so, when actually issuing a InfoPrint command:

Bar |
Braces { }

Note: There are some situations in which you will actually type the brace characters. See "Special Characters That Are Included in Commands" on page xxvi.

Brackets []
Underscore _
Ellipsis ...

These symbols have the following meanings when used in the publications and in the online information:

- A vertical bar, |, between values means that you can only enter one of the values with the command. For example:

pdmod [*Flags*] {*LocalJobId* ... | *GlobalJobId* ...}

means that when you issue the **pdmod** command, you can specify either a *LocalJobId* or a *GlobalJobId*, but not both.

- Braces, { }, around values identify required items that you must supply with the command. For example:

pdmod [*Flags*] {*LocalJobId* ... | *GlobalJobId* ...}

means that you must enter either a *LocalJobId* or a *GlobalJobId* with the **pdmod** command.

- Brackets, [], around values identify that they are optional. For example:

pdmod [*Flags*] {*LocalJobId* ... | *GlobalJobId* ...}

means that you do not have to enter any of the available **pdmod** flags with the **pdmod** command.

- An ellipsis, ... , means that you can supply more than one occurrence of a particular type of value with the command. For example:

pdmod [*Flags*] {*LocalJobId* ... | *GlobalJobId* ...}

means that you can supply more than one local job identifier value or more than one global job identifier value with the **pdmod** command.

- Underscored text identifies the default fixed value that InfoPrint uses if you do not specify a value. For example:

requested-attributes={**brief**, **verbose**, **all**, **archive**, "*attributes list*", | **none**}

means that **brief** is the default value.

Special Characters That Are Included in Commands: When colons, dashes, the equals sign, double quotation marks, single quotation marks, and braces are shown in command syntax notation, you will include them when you issue the command in most cases. These special characters have the following meanings:

- Colons, :, separate related values. For example:

```
pdmod -x "sides=2" DivSpool12:1011230045
```

1011230045 is a global job identifier on the **DivSpool12** server.

- A dash, -, always precedes a flag, for example, **-x**.
- The equals sign, =, separates attribute and value pairs. For example:

```
pdmod -x "sides=2" DivSpool12:1011230045
```

means that **2** is the value assigned to the **sides** attribute.

- Double quotation marks, " ", surround multiple attribute and value pairs, such as:

```
-x "sides=2 print-quality=draft"
```

For consistency, this publication also shows double quotation marks around single attribute and value pairs in all examples, although they are not required.

- Double quotation marks, " ", surround text strings that contain spaces, such as:

```
-m "Down for maintenance"
```

- Single quotation marks, ' ', surround a text string that contains spaces when the text string is imbedded in a statement already enclosed in double quotation marks. An example is:

```
-x "sides=2 job-print-after='08:00:00 03/09/95'"
```

- Braces, { }, surround a value in a notification profile. An example is:

```
-x "notification-profile={delivery-method=electronic-mail}"
```

Global Character Used in Examples and Shell Information

The examples using a global character and other examples shown within the InfoPrint publications relate to the Korn shell. Depending on the shell you are using, the examples shown may or may not work, or show that you should enter some control characters that are not necessary. Adjust the examples as necessary for the shell you are using.

Examples of Commands and Attributes

- This publication shows examples of commands in a format designed for ease of reading. When entering the command, allow the command to wrap characters from one line to the next.
- Many examples in this publication use spacing of attributes and values for ease of reading and formatting considerations. When entering the attributes and their values on the command line or in attributes files, use the correct syntax.

Part 1. Overview and General Configuration Information

Chapter 1. Configuration Overview

This chapter contains an overview of the components you need to configure PSF Direct on SNA networks. This chapter contains these sections:

- What is PSF Direct?
- What is SNA Server/6000?
- An overview of network configurations

What is PSF Direct?

PSF Direct provides a direct-print connection between an MVS, VSE, VM, or AS/400 system and a printer defined to IBM InfoPrint Manager for AIX. PSF Direct gives you control of key print processes from your mainframe console. An InfoPrint physical printer appears to be directly attached to your mainframe system. Jobs print without delay because they are not spooled by the AIX workstation. Because the mainframe controls the print process, it returns job-completion and error messages to you.

Figure 1 shows how PSF Direct can be used as a protocol converter for printing on AIX. PSF Direct uses SNA LU6.2 protocols to communicate between the mainframe and the AIX system; then PSF Direct uses one of several protocols to communicate between the AIX system and the printer. For example, PSF Direct can communicate with the printer using TCP/IP, Channel, or Parallel/Serial protocols. This provides you with access to TCP/IP, Channel, or Parallel/Serial printers that otherwise you might not be able to attach from the mainframe.

To use PSF Direct, you need the AIX SNA Server/6000 product to communicate between the mainframe and AIX. (See “What is SNA Server/6000?” on page 4.) You create printer definitions on the mainframe so that print jobs can be directed to the AIX printer. Then you define the printer to IBM InfoPrint Control on AIX.

After PSF Direct is installed, you simply 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 mainframe or from IBM InfoPrint Control.

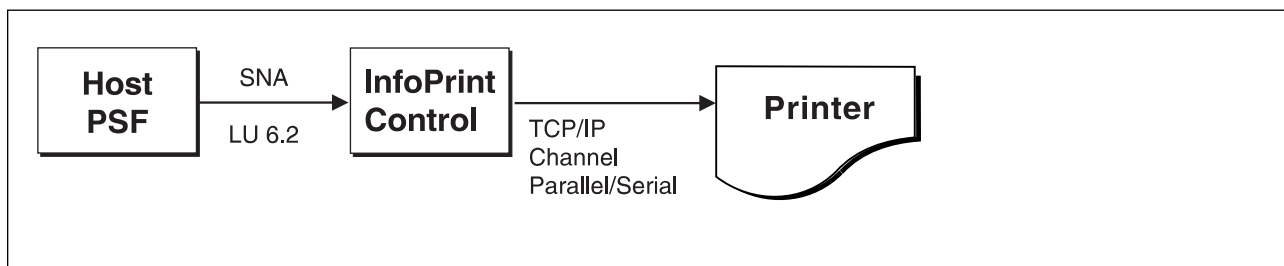


Figure 1. PSF Direct Communications Protocols

What is SNA Server/6000?

SNA Server/6000 is required to configure and to use PSF Direct. SNA Server/6000 is an implementation of SNA for the AIX operating system running on the RS/6000 workstation. It enables a RS/6000 workstation to communicate with other nodes in an SNA network.

SNA Server/6000 contains a set of AIX utilities that includes the following components:

- Device drivers
- Kernel extensions
- Daemon processes

For more information about SNA Server/6000 and an overview of SNA terms and concepts, you can order these IBM publications by calling 1-800-879-2755 (US only):

- *AIX SNA Server/6000: User's Guide*, SC31-7002
- *AIX SNA Server/6000: Configuration Reference*, SC31-7014

An Overview of Network Configurations

This publication includes detailed examples and guidelines for five common SNA configurations. The diagrams in this section illustrate the five network configurations.

Local 37xx Token-Ring Configuration

A detailed example of this configuration is displayed in “Local or Remote 37xx Token-Ring Example” on page 24. Guidelines for defining this configuration are provided in “Guidelines for Configuring Local or Remote 37xx Token-Ring” on page 38.

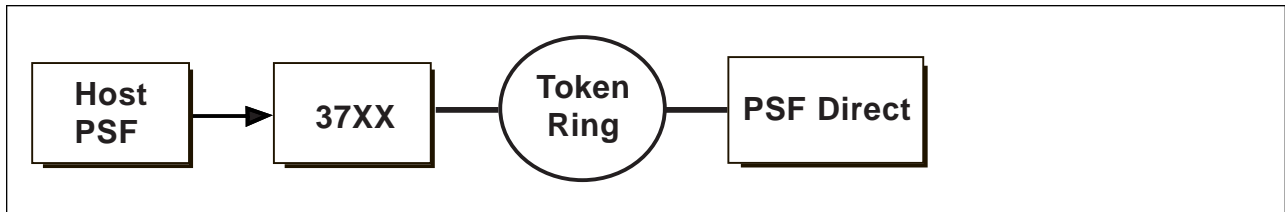


Figure 2. Local 37xx Token-Ring

Local 3172 Token-Ring Configuration

A detailed example of this configuration is displayed in “Local 3172 Token-Ring Example” on page 66. Guidelines for defining this configuration are provided in “Guidelines for Configuring Local 3172 Token-Ring” on page 79.

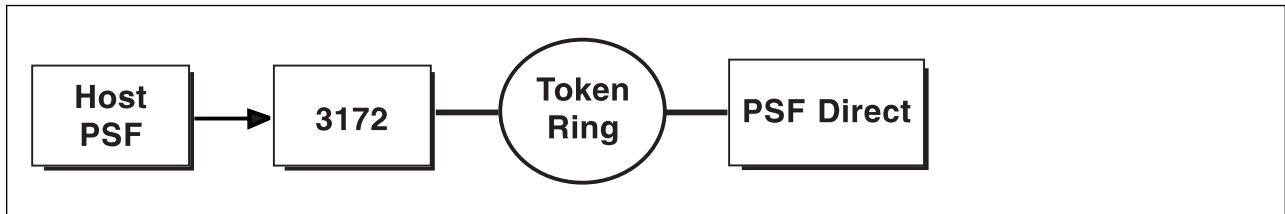


Figure 3. Local 3172 Token-Ring

Local 3174 Token-Ring Gateway Configuration

A detailed example of this configuration is displayed in “Local 3174 Token-Ring Gateway Example” on page 106. Guidelines for defining this configuration are provided in “Guidelines for Configuring Local 3174 Token-Ring Gateway” on page 121.

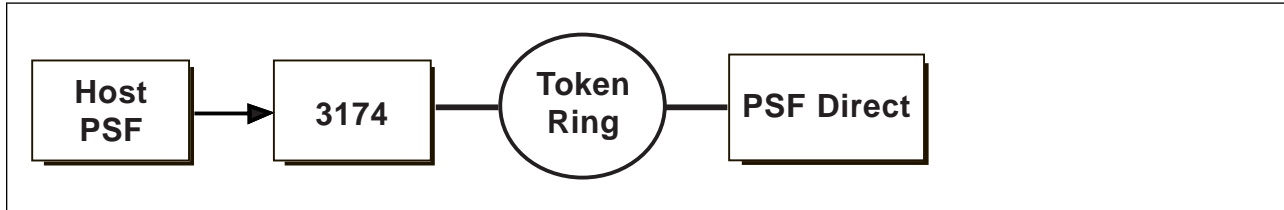


Figure 4. Local 3174 Token-Ring Gateway

Remote 3174 Token-Ring Gateway Configuration

A detailed example of this configuration is displayed in “Remote 3174 Token-Ring Gateway Example” on page 148. Guidelines for defining this configuration are provided in “Guidelines for Configuring Remote 3174 Token-Ring Gateway” on page 163.

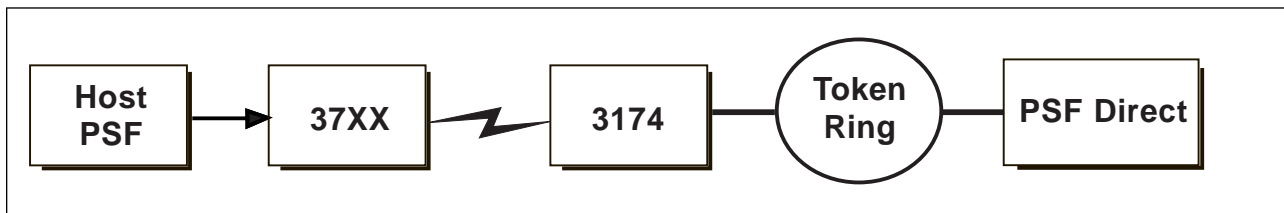


Figure 5. Remote 3174 Token-Ring Gateway

Local 37xx SDLC Configuration

A detailed example of this configuration is displayed in “Local or Remote 37xx SDLC Example” on page 190. Guidelines for defining this configuration are provided in “Guidelines for Configuring Local or Remote 37xx SDLC” on page 203.



Figure 6. Local 37xx SDLC

Chapter 2. General Configuration Tasks and Considerations

This chapter describes important AIX and SNA Server/6000 system administration tasks and considerations that you might need to understand as you install and configure PSF Direct. For more detailed information about the AIX operating system and SNA Server/6000, refer to the publications listed in “Related Publications” on page xxii.

SNA System Software for the RS/6000

The IBM SNA system software for the RS/6000 has undergone several name changes, including the following:

- SNA Services/6000 Version 1
- SNA Server/6000 Version 2
- SNA Server for AIX Version 3
- Communication Manager for AIX Version 4
- Communication Server for AIX Version 4

The minimum version of IBM SNA system software that PSF Direct requires is SNA Server/6000 Version 2 Release 1. Note that panel names in the examples provided in Part 2, “SNA Network Configuration Examples and Guidelines” on page 15 use this product name. Later products can also be used.

Note that AIX software management facilities might report SNA Server/6000 Version 2 Release 1 components as level 1.3; for example, if you use SMIT to list installed software, you might observe components in the form:

```
sna.xxx.xxx 01.03.nn.nnn
```

SNA Server/6000 Prerequisites

PSF Direct requires SNA Server/6000 Version 2 Release 1 with maintenance that includes the following authorized program analysis report (APAR) fixes:

- APAR IX44683
- APAR IX44984
- APAR IX45510
- APAR IX49039

These fixes are contained in SNA Server/6000 2.1 PTF U437491 and subsequent PTFs.

PSF Direct does not require a separate product named SNA Gateway/6000; however, you can choose to install the SNA Gateway/6000 product in addition to the SNA Server/6000 product. If you install both products, note that SNA Server/6000 requires that both products be at the same maintenance level.

Verifying and Updating SNA Server/6000 Configuration Profiles

SNA Server/6000 maintains two databases of configuration profiles:

- **working** configuration database
- **committed** configuration database

When you add or change SNA Server/6000 profiles, the **working** configuration database is modified. However, the **working** configuration database does not affect SNA Server/6000 operation; the **committed** configuration database controls SNA Server/6000 operation.

To cause profiles you add or change to affect SNA Server/6000 operation, you must:

- **Verify** the profiles in the **working** configuration database
- **Update** the profiles in the **committed** configuration database

Several procedures can be used to perform these verify and update actions. Here is one such procedure:

Note: You must have **root** authority to perform this procedure.

1. Stop SNA Server/6000.

If no sessions are active, enter the following at the AIX command-line prompt:

```
sna -stop sna
```

If sessions are active, end them and enter:

```
sna -stop sna
```

2. At the AIX command-line prompt, enter:

```
smit
```

3. From the System Management menu, select **Communications Applications and Services**.
4. From the Communications Applications and Services menu, select **SNA Server/6000**.
5. From the SNA Server/6000 menu, select **Configure SNA Profiles**.
6. From the Configure SNA Profiles menu, select **Advanced Configuration**.
7. From the Advanced Configuration menu, select **Verify Configuration Profiles**.
8. From the Verify Configuration Profiles menu, select **normal_update** for the Update action if verification successful parameter.
9. Press Enter (ASCII interface) or select **Do** (AIXwindows interface).
10. Exit SMIT.
11. Start SNA Server/6000.

At the AIX command-line prompt, enter:

```
sna -start sna
```

SNA Server/6000 configuration profiles also can be updated while SNA Server/6000 is running; however, there are some restrictions in these dynamic updates.

For more information about verifying and updating SNA Server/6000 configuration profiles, see *SNA Server/6000: Configuration Reference*.

SNA Server/6000 Use of Space in /var File System

By default, SNA Server/6000 maintains as many as ten service log files in the **/var** file system. Each service log file can be as large as 1.5 MB, for a maximum total of 15 MBs.

You can configure the amount of space SNA Server/6000 uses in the **/var** file system for service log files. For example, to cause SNA Server/6000 to use a maximum of 1 MB in the **/var** file system for service log files, perform the following procedure:

Note: You must have **root** authority to perform this procedure.

1. At the AIX command-line prompt, enter:

```
smit
```

2. From the System Management menu, select **Communications Applications and Services**.
3. From the Communications Applications and Services menu, select **SNA Server/6000**.
4. From the SNA Server/6000 menu, select **Problem Determination Aids**.
5. From the Problem Determination Aids menu, select **Configure SNA Log and Trace Files**.

SMIT displays a panel similar to the following:

Configure SNA Log and Trace Files

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

| | [Entry Fields] |
|--|-----------------------|
| Set file and names sizes | |
| Use SNA or System file as service log? | SNA |
| Service log file name | [/var/sna/snbservice] |
| Service log file size | [1500000] |
| SNA event/flow trace log file name | [/var/sna/snatrace] |
| SNA event/flow trace log file size | [0] |
| SNA failure log file name | [/var/sna/snafailure] |
| SNA failure log file size | [0] |
| File wrap limit | [10] |

Figure 7. Configure SNA Log and Trace Files Panel

6. Change the Service log file size parameter to **500000**.
7. Change the File wrap limit parameter to **2**.
8. Press Enter (ASCII interface) or select **Do** (AIXwindows interface).
9. Exit SMIT.

For more information about how to configure the space in your **/var** file system for service log files, see *SNA Server/6000: Diagnosis Guide and Messages*.

Making a Data Link Control (DLC) Available

Data link control (DLC) functions are normally provided by an AIX device that must be in “Available” state for SNA Server/6000 to use the DLC functions. Usually, a DLC device must be made available once and then remains available, even after the RS/6000 is shutdown and restarted. To identify available DLC devices on a system, enter:

```
lsdev -C | grep dlc
```

The following procedure makes the token-ring DLC available (other DLCs are similar):

Note: You must have **root** authority to perform this procedure.

1. At the AIX command-line prompt, enter:

```
smit
```

2. From the System Management menu, select **Devices**.
3. From the Devices menu, select **Communication**.
4. From the Communication menu, select **Token Ring Adapter**.
5. From the Token Ring Adapter menu, select **Services**.
6. From the Services menu, select **Token Ring Data Link Controls**.
7. From the Token Ring Data Link Controls menu, select **Add a Token Ring Data Link Control**.
8. Select the name of the device to add.
9. Press Enter (ASCII interface) or select **Do** (AIXwindows interface).
10. Exit SMIT.

“Calling” Versus “Listening” Link Stations

Before sessions can be established with a physical unit (PU) or a logical unit (LU) on an SNA node, a link connection must be started with the node. You can configure an SNA Server/6000 link station either:

- To call another node with a link connection request
-- or --
- To listen for a link connection request from another node

To define a **calling** link station, specify **yes** for the `Initiate call` when link station is activated? parameter in the link station profile.

To define a **listening** link station, specify **no** for the `Initiate call` when link station is activated? parameter in the link station profile.

Token-ring examples in this publication use **calling** link stations. Using a **calling** link station causes VTAM to send PU and LU activation commands promptly in all configurations. In contrast, when you use a **listening** link station, VTAM does not send PU and LU activation commands in some configurations until the host PSF program is started.

A **calling** link station must know the address of the adjacent node with which it should initiate a link connection.

A **listening** link station can be either selective or non-selective. A selective listening link station accepts link connection requests only from a node at a specific address. A non-selective listening link station accepts link connection requests from any node.

For both selective and non-selective listening link stations, the adjacent node must know the address of the listening link station. For example in 37xx token-ring configurations, the address is specified in the `DIALNO` operand in the VTAM switched major node **PATH** statement.

Using an Alternate Token-Ring Address for a RS/6000

A token-ring address, often called a **MAC address**, has 12 hexadecimal digits, for example **10005AC8B0EA**. Each device in a token-ring network must have a unique address. To facilitate unique token-ring addressing, every manufacturer assigns a distinct address called a **universal MAC address** to each token-ring adapter. By default, a token-ring adapter in a RS/6000 uses the token-ring address that the manufacturer assigned when the adapter was made. However, AIX systems provide **root** users the ability to define an **alternate token-ring address**, also called a **local MAC address**.

In some configurations, an alternate token-ring address might be necessary. For example, if the DIALNO operand is included in a VTAM switched major node **PATH** statement, an alternate token-ring address is generally required. The DIALNO operand accepts only digits in the 0-9 range; however, most universal MAC addresses (assigned by the manufacturers) include at least one digit in the A-F range. In these instances, it might be necessary to use an alternate token-ring address that does not contain any digits in the A-F range. Generally, the first four digits of alternate token-ring addresses must be **4000**.

Follow these steps to assign an alternate token-ring address to a token-ring adapter in a RS/6000:

Note: You must have **root** authority to perform this procedure.

1. At the AIX command-line prompt, enter:

```
smit
```

2. From the System Management menu, select **Devices**.
3. From the Devices menu, select **Communication**.
4. From the Communication menu, select **Token Ring Adapter**.
5. From the Token Ring Adapter menu, select **Adapter**.
6. From the Adapter menu, select **Change / Show Characteristics of a Token Ring Adapter** and select the adapter that you want to change.
7. From the Change / Show Characteristics of a Token Ring Adapter menu, update the parameters as illustrated in Figure 8.

| | | |
|-------------------------------------|------------------|---|
| Enable ALTERNATE TOKEN RING address | yes | + |
| ALTERNATE TOKEN RING address | [0x4000nnnnnnnn] | |
| Apply change to DATABASE only | yes | + |

Figure 8. Token-Ring Adapter Values to Change

8. Specify **yes** for the Enable ALTERNATE TOKEN RING address parameter.
9. Specify the ALTERNATE TOKEN RING address parameter.

The 12-digit alternate token-ring address must be preceded by **0x**. Generally, the first four digits of the 12-digit alternate address must be 4000.

10. Specify **yes** for the Apply change to DATABASE only parameter.

Selecting **no** causes the AIX operating system to attempt to update the adapter immediately. Such an update normally fails because the adapter is active and active adapters cannot be updated.

11. Press Enter (ASCII interface) or select **Do** (AIXwindows interface).

12. Exit SMIT.

13. Shut down and then restart the RS/6000.

Note: The alternate token-ring address does not become effective until the RS/6000 is restarted.

“Dependent” Versus “Independent” Logical Units - Required SNA Server/6000 Profiles

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.

You must also configure an LU 6.2 Partner LU profile for each logical unit used by a host PSF program. Some SNA Server/6000 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, SNA Server/6000 requires an LU 6.2 profile in PSF Direct configurations even if the local LU is an independent logical unit.

Finally, you must configure an LU 6.2 Side Information profile if the local LU is a dependent logical unit. An LU 6.2 Side Information profile is not required if the local LU is an independent logical unit.

Part 2. SNA Network Configuration Examples and Guidelines

Chapter 3. Local or Remote 37xx Token-Ring

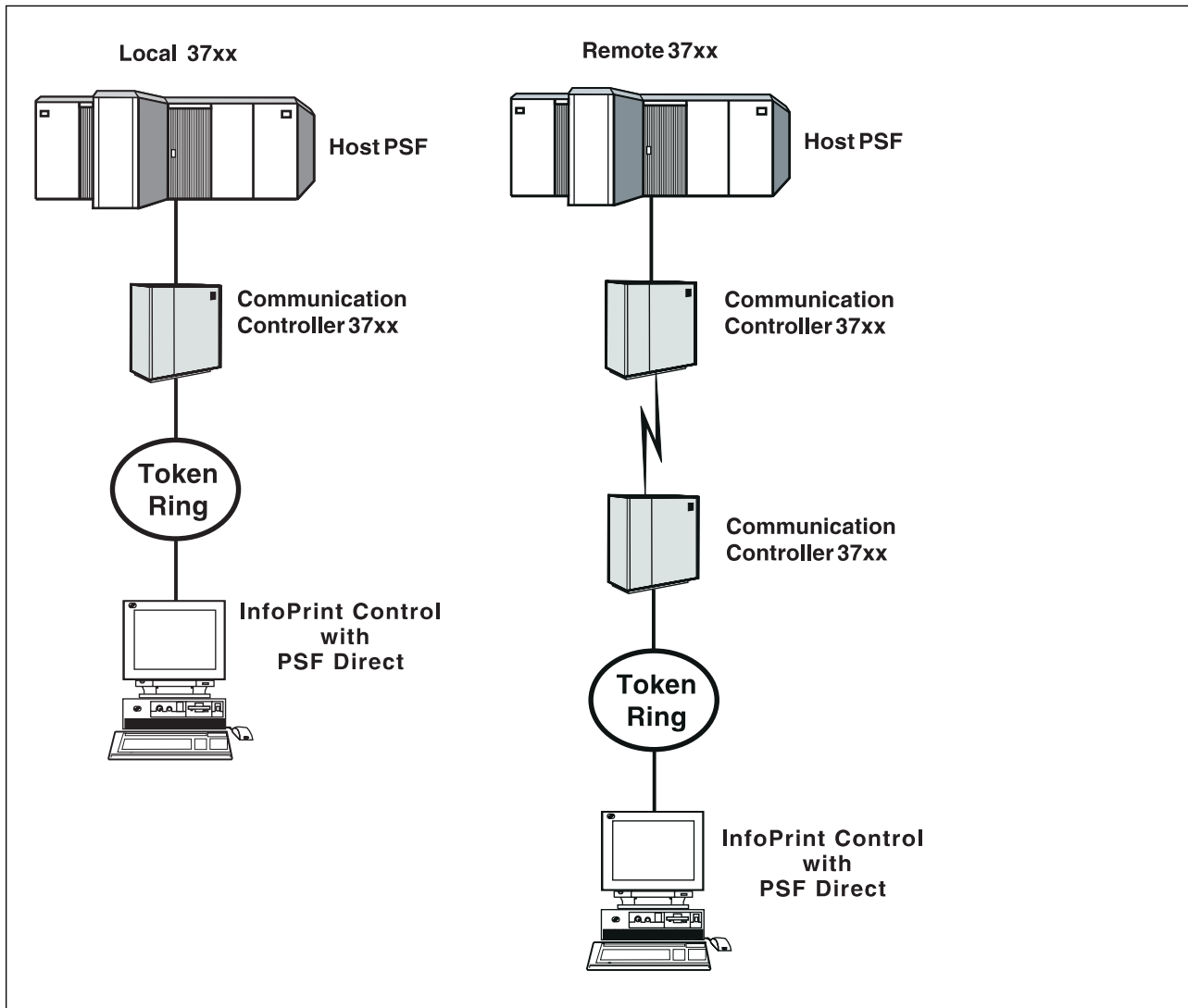


Figure 9. Local Or Remote 37xx Token-Ring

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, the internal components of the network and details of their operation must be described.

Considering two views of an SNA network, an **application view** and a **network internals view**, aids in understanding PSF Direct configuration requirements.

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) and the connection between them is a **session**. A **mode** describes a session's characteristics, or guidelines for exchanging data.

The application view (Figure 10) illustrates the interface that SNA provides to applications, such as the host PSF program and the PSF Direct component of InfoPrint. These applications are isolated from details of the internal components of the SNA network.

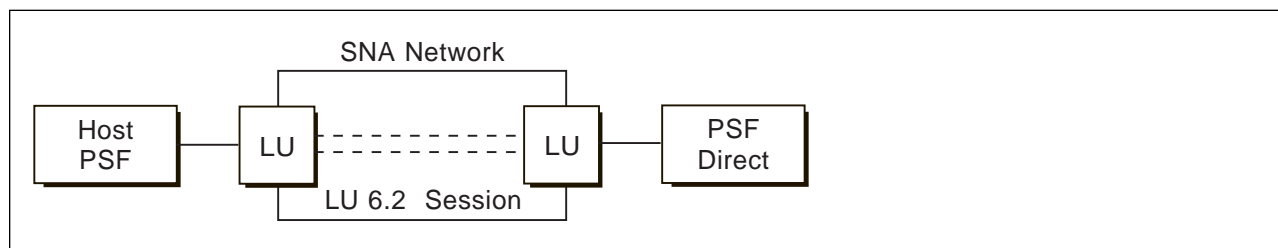


Figure 10. Application View of a PSF Direct Attachment

As the application view suggests, only a few values are required to configure the host PSF program and PSF Direct so that they can communicate. Figure 11 on page 19 displays the values used by both applications. Note that each configuration parameter references a logical unit or mode provided by the SNA network.

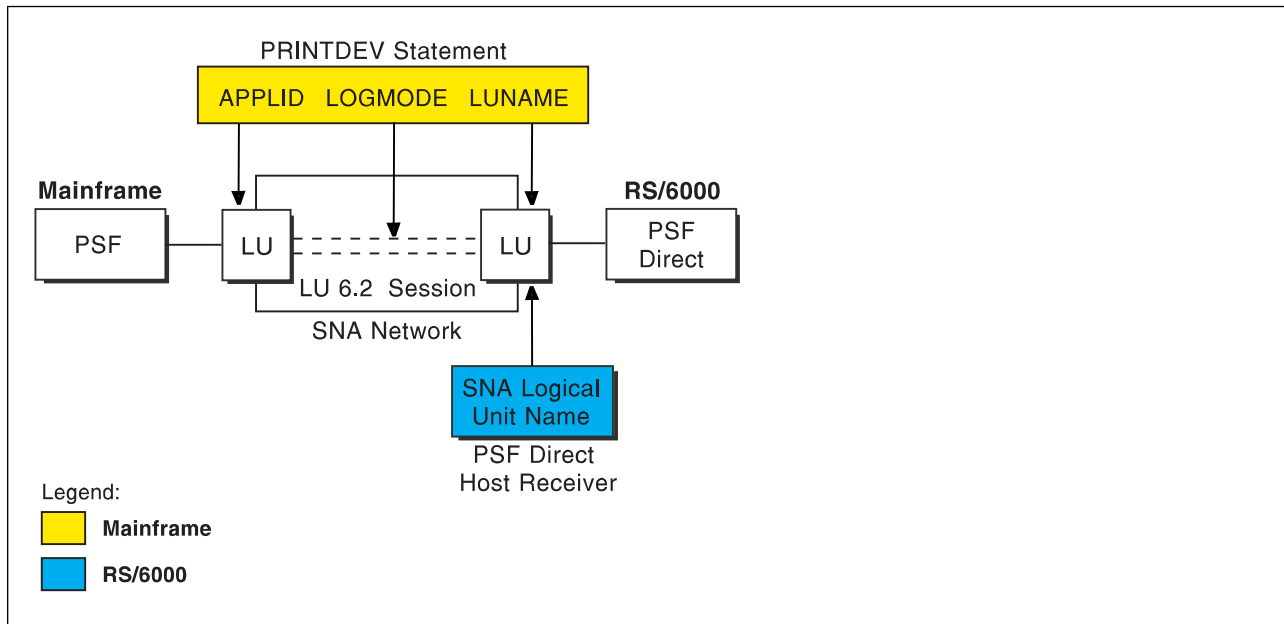


Figure 11. Application View With Configuration Parameters

Host PSF PRINTDEV Statement Parameters

APPLID

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

LUNAME

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

LOGMODE

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. LOGMODE 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

SNA Logical Unit name

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

Because there may be several PSF Direct host receivers on a RS/6000 and several RS/6000's 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.

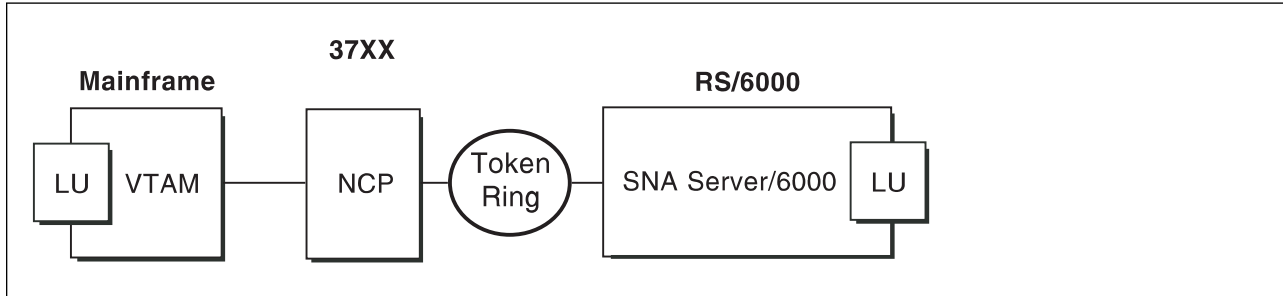


Figure 12. Network Internals View of a PSF Direct Attachment

The network internals view illustrates that many components comprise an SNA network. Most of the components have detailed configuration requirements. Many of those requirements are described in this chapter.

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. These interrelated parameters must be configured consistently to make end-to-end communication possible.

Several figures follow. They illustrate some of the key interrelationships among configuration parameters for SNA network components.

Key Configuration Parameter Interrelationships: Figure 13 illustrates the interrelationships in defining logical unit (LU) names.

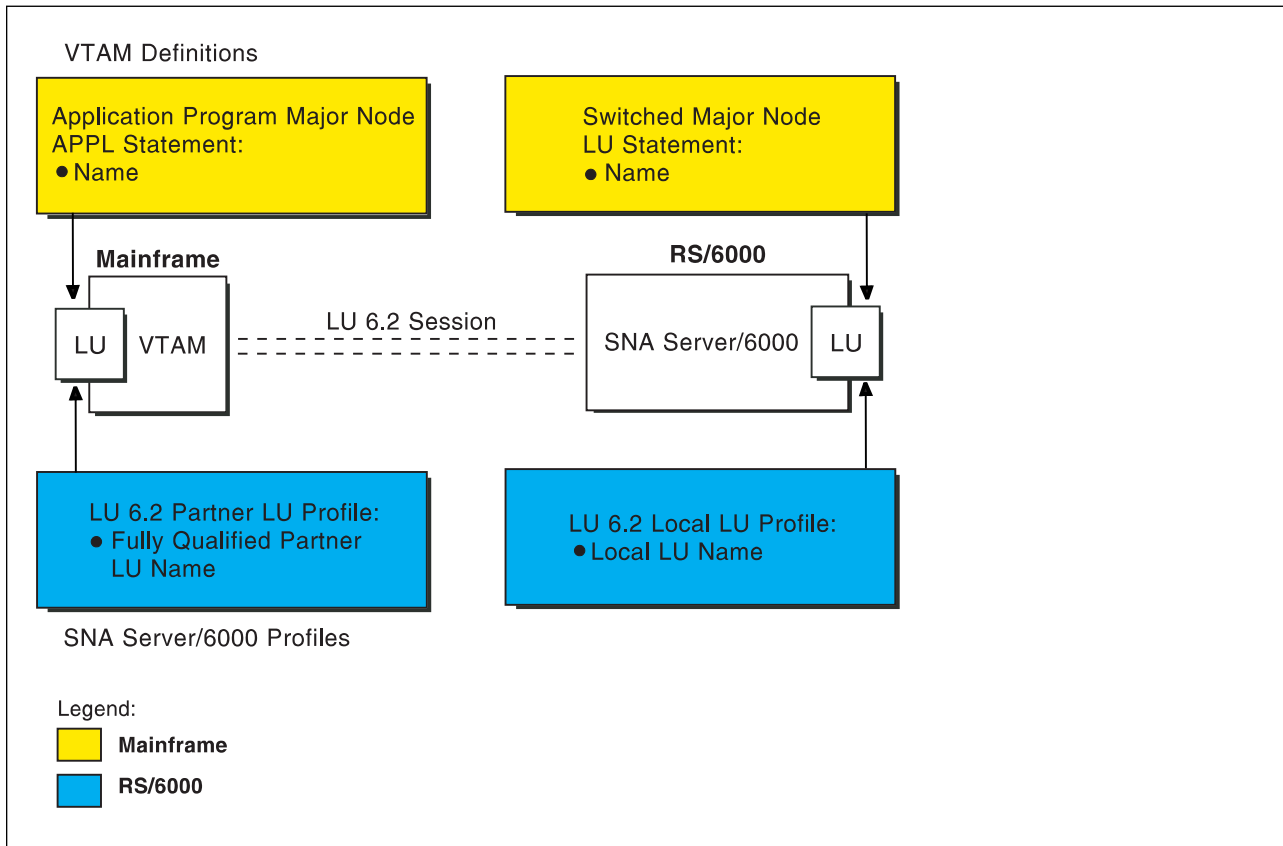


Figure 13. Logical Unit Names

Local or Remote 37xx Token-Ring

Figure 14 illustrates the interrelationships in defining the local address of the logical unit provided by SNA Server/6000.

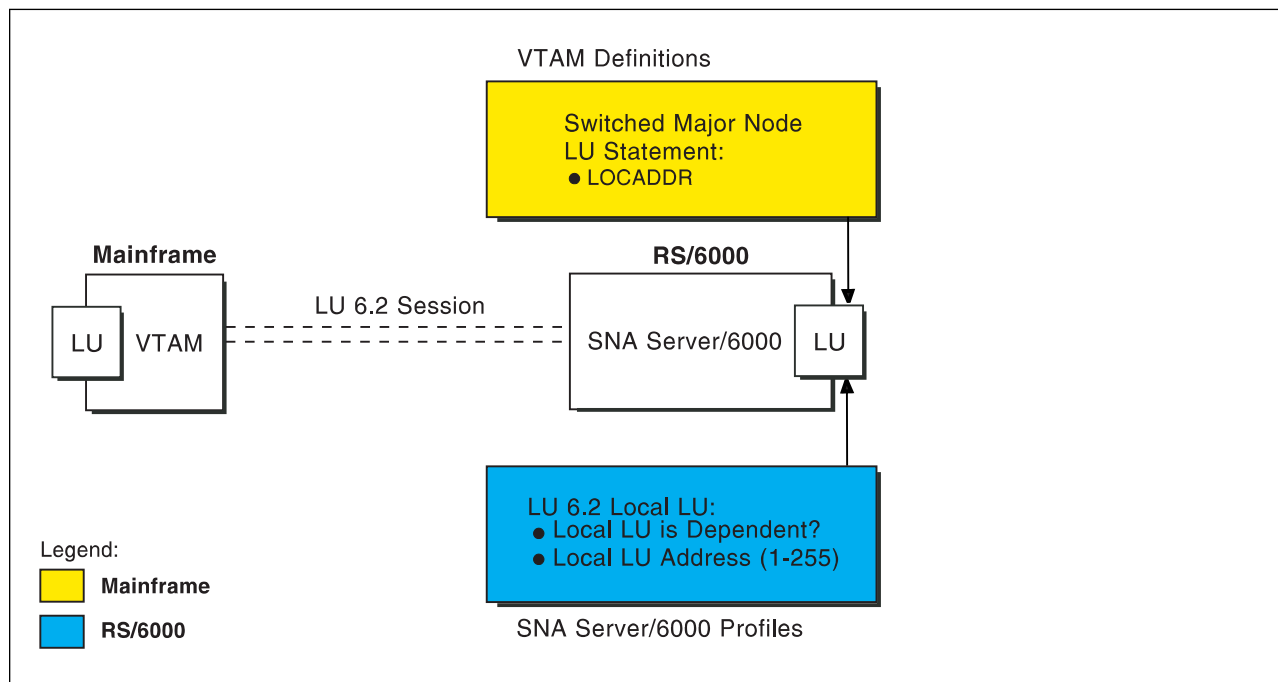


Figure 14. Local Address of Logical Unit

Figure 15 illustrates the interrelationships in defining session characteristics.

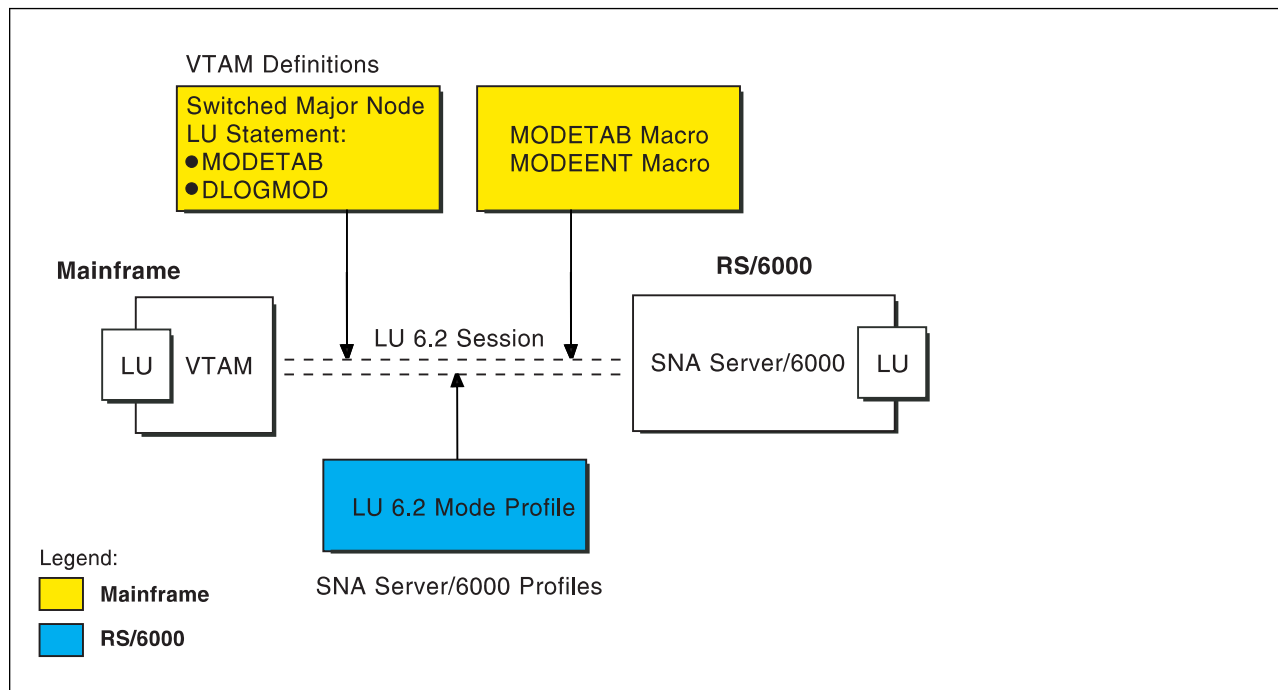


Figure 15. Session Characteristics

Figure 16 illustrates the interrelationships in defining the name of the physical unit/control point provided by SNA Server/6000.

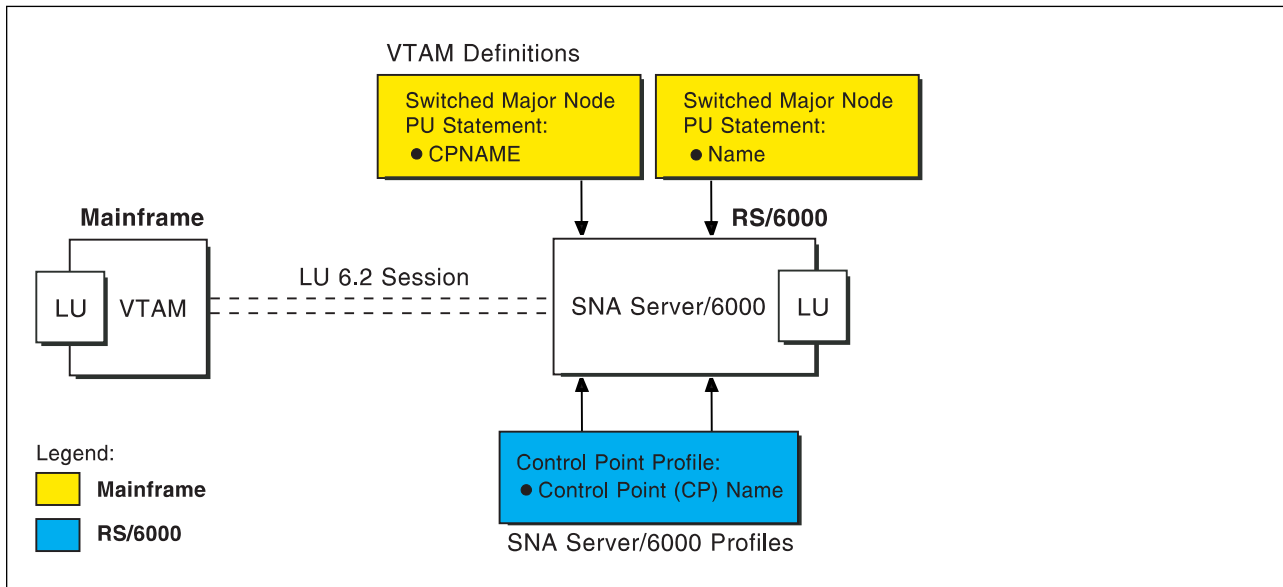


Figure 16. Physical Unit/Control Point Name

Figure 17 illustrates the interrelationships in defining the token-ring addresses used in this configuration.

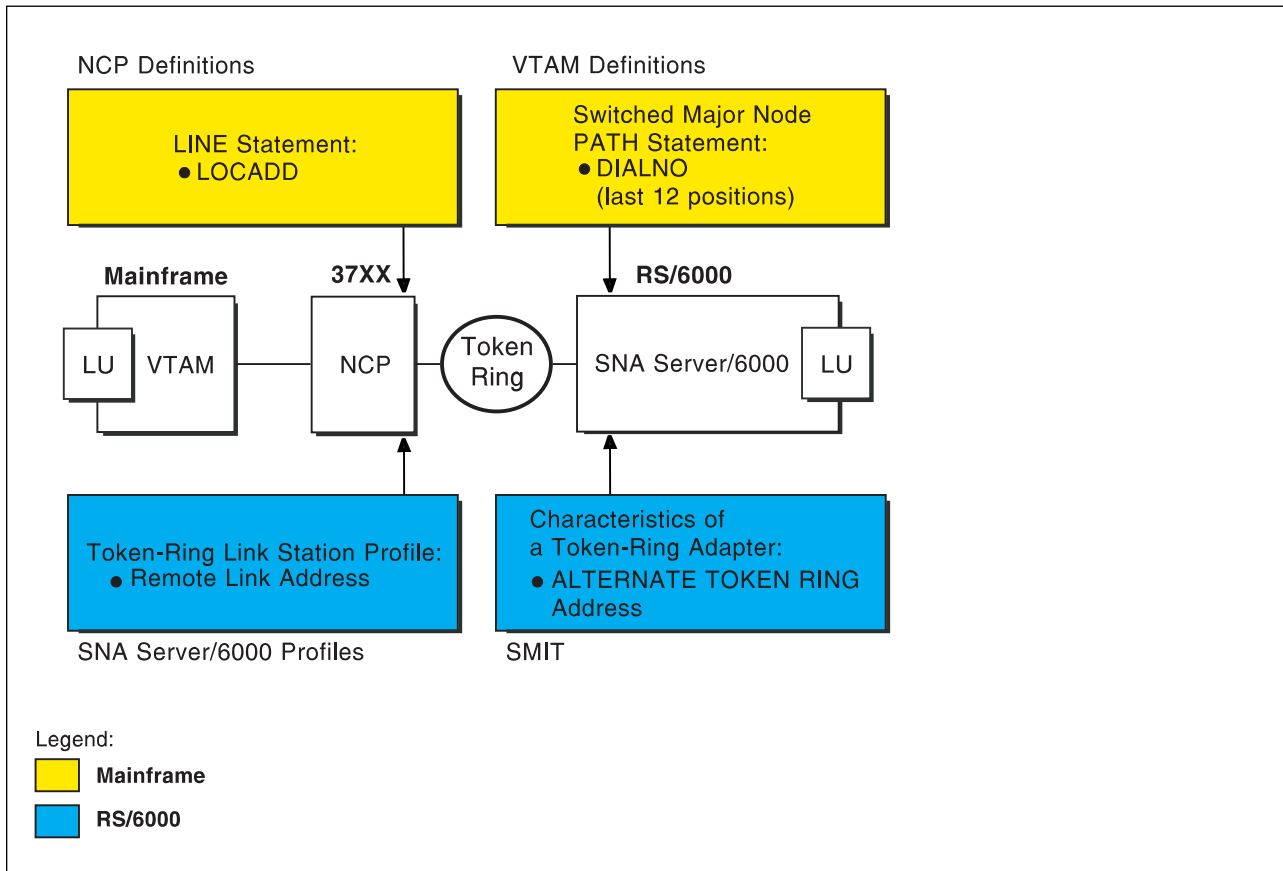


Figure 17. Token-Ring Addresses

Local or Remote 37xx Token-Ring Example

The following local 37xx Token-Ring example uses MVS and JES2. For an explanation of pertinent configuration parameters, see “Guidelines for Configuring Local or Remote 37xx Token-Ring” on page 38 .

JES2 Initialization Statement Example

Figure 18 shows the JES2 printer definition initialization member, located in the system parmlib. For more information about specifying this statement, see “Specifying the JES2 Initialization Statement” on page 38.

```
PRT833 CLASS=Y,MARK=YES,START=NO,MODE=FSS,FSS=WTR833,      X
PRMODE=(LINE,PAGE),UCS=0
```

Figure 18. Sample PSF/MVS JES2 Printer Definition

JES2 External Writer Procedure Example

For more information on specifying these values, see “Configuring the Host PSF Printer” on page 38.

```

//WTR833 PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K
//*
//STEPLIB DD DSN=SYSTEM.PSF.V220.LINKLIB,DISP=SHR
//*
//JOBHDR OUTPUT PAGEDEF=A06462, /* JOB HEADER PAGEDEF */
// FORMDEF=A10110 /* JOB HEADER FORMDEF */
//JOBTLR OUTPUT PAGEDEF=A06462, /* JOB TRAILER PAGEDEF */
// FORMDEF=A10110 /* JOB TRAILER FORMDEF */
//DSHDR OUTPUT PAGEDEF=A06462, /* DATA SET HEADER PAGEDEF */
// FORMDEF=A10110 /* DATA SET HEADER FORMDEF */
//MSGDS OUTPUT PAGEDEF=A06462, /* MESSAGE DATASET PAGEDEF */
// FORMDEF=A10110 /* MESSAGE DATASET FORMDEF */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR
//OLAY01 DD DSN=SYS1.OVERLIB,DISP=SHR
//PSEG01 DD DSN=SYS1.PSEGLIB,DISP=SHR
//FDEF01 DD DSN=SYS1.FDEFLIB,DISP=SHR
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR
//*
//PRT833 PRINTDEV FONTDD=*.FONT01, /* FONT LIBRARY DD */
// OVLYDD=*.OLAY01, /* OVERLAY LIBRARY DD */
// PSEGDD=*.PSEG01, /* SEGMENT LIBRARY DD */
// PDEFDD=*.PDEF01, /* PAGEDEF LIBRARY DD */
// FDEFDD=*.FDEF01, /* FORMDEF LIBRARY DD */
// JOBHDR=*.JOBHDR, /* JOB HEADER DD */
// JOBTRLR=*.JOBTLR, /* JOB TRAILER DD */
// DSHDR=*.DSHDR, /* DATA SET HEADER DD */
// MESSAGE=*.MSGDS, /* MESSAGE DATA DD */
// PAGEDEF=A06462, /* DEFAULT PAGEDEF */
// FORMDEF=A10110, /* DEFAULT FORMDEF */
// CHARS=(GT10,GC15,GB10,GR10), /* DEFAULT FONT SET */
// PIMSG=YES, /* ACCUMULATE DATA SET MSGS */
// SETUP=FORMS, /* ISSUE FORMS SETUP MSGS */
// MGMTMODE=OUTAVAIL, /* START WHEN OUTPUT AVAIL. */
// DISCINTV=60, /* DISCONNECT INTERVAL--SECS*/
// LOGMODE=IBM3820T, /* LOGON MODE TABLE ENTRY */
// APPLID=FSAES833, /* APPLICATION PGM NAME */
// LUNAME=PSFD0101 /* LOGICAL UNIT NAME */
//PRT833 ENDCNTL

```

Figure 19. Sample PSF/MVS Start Up Procedure

VTAM Start Option List (ATCSTRxx) Example

For an explanation of these values, refer to “Specifying the VTAM Start Option List (ATCSTRxx)” on page 40.

| | | |
|----------------|--------------------------|---|
| CONFIG=00, | ATCCON MEMBER OF VTAMLST | X |
| NETID=USIBMBQ, | NETWORK IDENTIFIER | X |
| SSCPID=1, | SSCP IDENTIFIER | X |
| : | | |

Figure 20. Sample VTAM Start Option List

VTAM Configuration List (ATCCONnn) Example

For an explanation of these values, refer to “Specifying the VTAM Configuration List (ATCCONnn)” on page 40.

| | |
|----------|---|
| PSFAPPLS | X |
| : | |

Figure 21. Sample VTAM Configuration List

VTAM Application Program Major Node and Application Program Example

For an explanation of these values, refer to “Specifying the VTAM Application Program Major Node and Application Program” on page 41.

| | |
|----------|---------------------------------|
| PSFAPPLS | VBUILD TYPE=APPL |
| FSAES833 | APPL AUTH=ACQ,EAS=1,SONSCIP=YES |
| : | |

Figure 22. Sample VTAM Application Program Major Node and Application Program

VTAM Mode Table and Entry Example

For an explanation of these values, refer to “Specifying the VTAM Mode Table and Entry” on page 41.

| | | |
|----------|---|---|
| MODEIBM | MODETAB | |
| IBM3820T | MODEENT LOGMODE=IBM3820T,FMPROF=X'13',TSPROF=X'07', | X |
| | PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' | X |
| | PSERVIC=X'060200000000000000002000', | X |
| | PSNDPAC=X'10',SRCVPAC=X'10',SSNDPAC=X'00', | X |
| | RUSIZES=X'8787' | |

Figure 23. Sample VTAM Mode Table and Entry

VTAM Switched Major Node Example

For an explanation of these values, see “Specifying the VTAM Switched Major Node” on page 42.

| | | | |
|----------|--------|-------------------|---------------------------------|
| SWAIX01 | VBUILD | TYPE=SWNET | |
| * | | | |
| AIX01 | PU | ADDR=04, | ADDRESS REQUIRED, BUT IGNORED X |
| | | CPNAME=AIX01, | CONTROL POINT NAME X |
| | | MAXOUT=7, | LINK LEVEL WINDOW X |
| | | MODETAB=MODEIBM, | LOGON MODE TABLE X |
| | | DLOGMOD=IBM3820T, | LOGON MODE TABLE ENTRY X |
| | | VPACING=0 | NO PACING TO BOUNDARY NODE |
| * | | | |
| PSFD0101 | LU | LOCADDR=0 | INDEPENDENT LU |

Figure 24. Sample VTAM Switched Major Node

Network Control Program (NCP) Definitions Example

For an explanation of these values, refer to “Specifying the Network Control Program Definitions” on page 45.

| | | | |
|------|-------|----------------------|--------------------------------|
| : | | | |
| G31P | GROUP | ECLTYPE=PHYSICAL, | PHYSICAL GROUP X |
| | | ISTATUS=ACTIVE | INITIAL STATUS |
| LN31 | LINE | ADDRESS=(1088,FULL), | LINE NUM AND DATA TRANS MODE X |
| | | LOCADD=400023101088, | TOKEN RING ADDRESS FOR LINE X |
| | | MAXTSL=1033, | MAXIMUM BYTES OF DATA X |
| | | PORTADD=1, | PORT ADDRESS X |
| | | RCVBUFC=4095 | BUFFER CAPACITY |
| PU31 | PU | | |
| LU31 | LU | ISTATUS=INACTIVE | INITIAL STATUS |
| * | | | |
| G31L | GROUP | ECLTYPE=LOGICAL, | LOGICAL GROUP X |
| | | ISTATUS=ACTIVE, | INITIAL STATUS X |
| | | AUTOGEN=8, | # OF LINE AND PU PAIRS GENED X |
| | | CALL=INOUT, | CALL IN OR OUT X |
| | | PHYPORT=1 | CORRELATES WITH PORTADD |
| : | | | |

Figure 25. Sample NCP Definitions

SNA Server/6000 Configuration Profile Examples

This section lists sample SNA Server/6000 profiles. Each profile is preceded by the sequence of SMIT panels to access the profile.

- SNA Node
- Control Point
- Token-Ring SNA DLC
- Token-Ring Link Station
- LU 6.2 Local LU
- LU 6.2 Partner LU
- LU 6.2 Mode
- LU 6.2 Transaction Program Name

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          SNA System Defaults
            Change/Show a Profile
```

Figure 26. SMIT Panel Sequence For SNA Node Profile

| | | |
|---|-----------------------|---|
| Profile name | sna | |
| Maximum number of sessions (1-5000) | [200] | # |
| Maximum number of conversations (1-5000) | [200] | # |
| Restart action | once | + |
| Recovery resource manager (RRM) enabled? | no | + |
| Dynamic inbound partner LU definitions allowed? | yes | + |
| NMVT action when no NMVT process | reject | + |
| Standard output file/device | [/dev/console] | |
| Standard error file/device | [/var/sna/sna.stderr] | |
| Comments | [] | |

Figure 27. Sample SNA Node Profile


```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Control Point
            Change/Show a Profile

```

Figure 28. SMIT Panel Sequence For Control Point Profile

| | | |
|---|-----------------|---|
| Profile name | node_cp | |
| XID node ID | [*] | |
| Network name | [USIBMBQ] | |
| Control Point (CP) name | [AIX01] | |
| Control Point alias | [AIX01] | |
| Control Point type | appn_end_node + | |
| Maximum number of cached routing trees | [500] | # |
| Maximum number of nodes in the TRS database | [500] | # |
| Route addition resistance | [128] | # |
| Comments | [] | |

Figure 29. Sample Control Point Profile

Local or Remote 37xx Token-Ring

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring
              Token-Ring SNA DLC
                Add a Profile
```

Figure 30. SMIT Panel Sequence For Token-Ring SNA DLC Profile

| | | |
|---|-----------|---|
| * Profile name | [tr3745] | |
| Data link device name | [tok0] | + |
| Force disconnect time-out (1-600 seconds) | [120] | # |
| User-defined maximum I-Field size? | no | + |
| If yes, Max. I-Field size (265-30729) | [30729] | # |
| Max. num of active link stations (1-255) | [100] | # |
| Number reserved for inbound activation | [0] | # |
| Number reserved for outbound activation | [0] | # |
| Transmit window count (1-127) | [16] | # |
| Dynamic window increment (1-127) | [1] | # |
| Retransmit count (1-30) | [8] | # |
| Receive window count (1-127) | [7] | # |
| Ring access priority | [0] | + |
| Inactivity time-out (1-120 seconds) | [48] | # |
| Response time-out (1-40, 500 msec intervals) | [4] | # |
| Acknowledge time-out (1-40, 500 msec intervals) | [1] | # |
| Local link name | [] | |
| Local SAP address (04-ec) | [04] | X |
| Trace base listening link station? | no | + |
| If yes, Trace format | long | + |
| Dynamic link stations supported? | yes | + |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |
| Dynamic Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| CP-CP sessions supported? | yes | + |
| Partner required to support CP-CP sessions? | no | + |
| Dynamic Link TG COS Characteristics | | |
| Effective capacity | [4300800] | # |
| Cost per connect time | [0] | # |
| Cost per byte | [0] | # |
| Security | nonsecure | + |
| Propagation delay | lan | + |
| User-defined 1 | [128] | # |
| User-defined 2 | [128] | # |
| User-defined 3 | [128] | # |
| Comments | [] | |

Figure 31. Sample Token-Ring SNA DLC Profile

Local or Remote 37xx Token-Ring

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring Link Station
              Add a Profile
```

Figure 32. SMIT Panel Sequence For Token-Ring Link Station Profile

| | | | |
|---|----------------|---|--|
| * Profile name | [tr3745] | | |
| Use APPN Control Point's XID node ID? | yes | + | |
| If no, XID node ID | [*] | | |
| * SNA DLC Profile name | [tr3745] | + | |
| Stop link station on inactivity? | no | + | |
| If yes, Inactivity time-out (0-10 minutes) | [0] | # | |
| LU address registration? | no | + | |
| If yes, LU Address Registration Profile name | [] | + | |
| Trace link? | no | + | |
| If yes, Trace size | long | + | |
| Adjacent Node Address Parameters | | | |
| Access routing | link_address | + | |
| If link_name, Remote link name | [] | | |
| If link_address, | | | |
| Remote link address | [400023101088] | X | |
| Remote SAP address (04-ec) | [04] | X | |
| Adjacent Node Identification Parameters | | | |
| Verify adjacent node? | no | + | |
| Network ID of adjacent node | [] | | |
| CP name of adjacent node | [] | | |
| XID node ID of adjacent node (LEN node only) | [*] | | |
| Node type of adjacent node | learn | + | |
| Link Activation Parameters | | | |
| Solicit SSCP sessions? | yes | + | |
| Initiate call when link station is activated? | yes | + | |
| Activate link station at SNA start up? | yes | + | |
| Activate on demand? | no | + | |
| CP-CP sessions supported? | yes | + | |
| If yes, | | | |
| Adjacent network node preferred server? | no | + | |
| Partner required to support CP-CP sessions? | no | + | |
| Initial TG number (0-20) | [0] | # | |
| Restart Parameters | | | |
| Restart on activation? | no | + | |
| Restart on normal deactivation? | yes | + | |
| Restart on abnormal deactivation? | yes | + | |
| Transmission Group COS Characteristics | | | |
| Effective capacity | [4300800] | # | |
| Cost per connect time | [0] | # | |
| Cost per byte | [0] | # | |
| Security | nonsecure | + | |
| Propagation delay | lan | + | |
| User-defined 1 | [128] | # | |
| User-defined 2 | [128] | # | |
| User-defined 3 | [128] | # | |
| Comments | [] | | |

Figure 33. Sample Token-Ring Link Station Profile

Local or Remote 37xx Token-Ring

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Local LU
                Add a Profile
```

Figure 34. SMIT Panel Sequence For LU 6.2 Local LU Profile

```
* Profile name                [PSFD0101]
Local LU name                 [PSFD0101]
Local LU alias                [PSFD0101]
Local LU is dependent?       no          +
  If yes,
    Local LU address (1-255)  []          #
    System services control point
      (SSCP) ID (*, 0-65535)  [*]
    Link Station Profile name  []          +
Conversation Security Access List Profile name  []

Comments                      []
```

Figure 35. Sample LU 6.2 Local LU Profile

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Partner LU
                Add a Profile
```

Figure 36. SMIT Panel Sequence For LU 6.2 Partner LU Profile

```
* Profile name                [FSAES833]
Fully qualified partner LU name  [USIBMBQ.FSAES833]
Partner LU alias                [FSAES833]
  Parallel sessions supported?   no          +
  Session security supported?    no          +
  Conversation security level     none        +

Comments                      []
```

Figure 37. Sample LU 6.2 Partner LU Profile

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Mode
                Change/Show a Profile
```

Figure 38. LU 6.2 Mode Profile

Local or Remote 37xx Token-Ring

| | |
|--|------------|
| Current profile name | BLANK |
| New profile name | [] |
| Mode name | [] |
| Maximum number of sessions (1-5000) | [8] # |
| Minimum contention winners (0-5000) | [4] # |
| Minimum contention losers (0-5000) | [0] # |
| Auto activate limit (0-500) | [0] # |
| Upper bound for adaptive receive pacing window | [16] # |
| Receive pacing window (0-63) | [16] # |
| Maximum RU size (128,...,32768: multiples of 32) | [1024] # |
| Minimum RU size (128,...,32768: multiples of 32) | [256] # |
| Class of Service (COS) name | [#CONNECT] |
| Comments | [] |

Figure 39. Sample LU 6.2 Mode Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Transaction Program Name (TPN)
                Add a Profile
  
```

Figure 40. LU 6.2 Transaction Program Name (TPN) Profile

| | |
|---|-----------------------------|
| * Profile name | [psfdirect] |
| Transaction program name (TPN) | [30F0F0F0] |
| Transaction program name (TPN) is in hexadecimal? | yes + |
| PIP data? | no + |
| If yes, Subfields (0-99) | [0] # |
| Conversation type | basic + |
| Sync level | none + |
| Resource security level | none + |
| If access, Resource Security Access List Prof. | [] |
| Full path to TP executable | [/usr/lpp/psf/bin/ainpsfhr] |
| Multiple instances supported? | yes |
| User ID | [0] # |
| Server synonym name | [] |
| Restart action | once + |
| Communication type | signals + |
| If IPC, Communication IPC queue key | [0] # |
| Standard input file/device | [/dev/console] |
| Standard output file/device | [/dev/console] |
| Standard error file/device | [/dev/console] |
| Comments | [] |

Figure 41. Sample LU 6.2 Transaction Program Name (TPN) Profile

Configuration Worksheet Example

The following worksheet records values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 1. Sample Configuration Worksheet</i> | | | | |
|---|-------------------|------------|-------------------------------------|-----------------|
| SNA Server/6000 | Value | PSF | VTAM | NCP |
| Control Point: Control Point (CP) name | AIX01 | | PU: name PU: CPNAME | |
| Token-Ring SNA DLC: Receive window count | 7 | | PU: MAXOUT | |
| Token-Ring Link Station: Remote link address | 400023101088 | | | LINE: LOCADD |
| LU 6.2 Local LU: Local LU name | PSFD0101 | LUNAME | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | no | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | n/a | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | n/a | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | 16 | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | 1024 | | MODEENT: RUSIZES | |

Guidelines for Configuring Local or Remote 37xx Token-Ring

The following provides guidance for implementing the examples displayed in “Local or Remote 37xx Token-Ring Example” on page 24. Note that a subset of the example is displayed below, displaying the pertinent parameters and describing which of these require you to specify *variable_names* and which require a specific name or number, such as **MODETAB=MODEIBM** or **FMPROF=X'13'**.

Specifying the JES2 Initialization Statement

Define the Host PSF printer as you would any other SNA-attached printer. For example, on an MVS system you must provide either JES2 or JES3 initialization statements.

Configuring the Host PSF Printer

The manner in which a host PSF printer is configured depends upon the operating system. You will use one of the following statements:

- PSF/MVS PRINTDEV statement
- PSF/VSE PRINTDEV statement
- Parameters in the PSF/VM OPTIONS PDM file

On each operating system, PSF supports specification of both the application program ID (APPLID) and the logical unit name (LUNAME):

```
:  
  APPLID=appl_prog  
  LUNAME=lu_name  
:
```

On some operating systems, PSF also supports other configuration parameters. The following text describes these parameters and notes whether they are required or optional:

APPLID (required)

Specifies the application program that is the SNA logical unit provided by VTAM and used by PSF.

The APPLID value must match:

- An APPL statement name in a VTAM application program major node
- The second portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile

LUNAME (required)

Specifies the SNA logical unit with which PSF tries to initiate a session.

The LUNAME value must match:

- An LU statement name in a VTAM switched major node
- The **Local LU name** parameter in an SNA Server/6000 LU 6.2 Local LU profile

LOGMODE (optional)

Specifies the VTAM logon mode table entry that defines characteristics of the session between the logical units identified by the APPLID and LUNAME parameters.

The LOGMODE parameter identifies an entry within a logon mode table. The MODETAB operand on the VTAM switched major node LU statement identifies the logon mode table. If you omit the

LOGMODE parameter, the DLOGMOD operand on the VTAM switched major node LU statement identifies the entry within the logon mode table.

Note that if the logical unit identified by the LUNAME parameter is a cross-domain resource, you must not use the LOGMODE parameter.

SETUP (optional)

Specify SETUP=FORMS to cause JES to issue forms setup messages to the operator.

By default, JES issues forms setup messages to the operator for channel-attached printers, but does not issue forms setup messages to the operator for SNA-attached printers.

MGMTMODE={IMMED | OUTAVAIL | DIALIN} (optional)

Determines how the host PSF program and PSF Direct initiate communication.

IMMED

Causes the host PSF program to initiate communication when it is started.

OUTAVAIL

Causes the host PSF program to initiate communication when there is available output to print.

DIALIN

Causes the host PSF program to initiate communication only after a switched line becomes available. The switched line can become available either when VTAM dials out or the remote node dials in.

Note that if you specify DIALIN:

- Do not use the LOGMODE parameter
- Include the LOGAPPL operand on the VTAM switched major node LU statement
- Ensure that the LOGAPPL operand on the VTAM switched major node LU statement matches the APPLID value

If you do not specify a value for the MGMTMODE parameter, it defaults to OUTAVAIL.

FAILURE={WCONNECT | STOP} (optional)

Specifies whether or not the host PSF program re-attempts communication after a printer or communication failure.

WCONNECT

Specifies that the host PSF program attempts to communicate again.

STOP

Specifies that the host PSF program must be restarted by the operator.

If you do not specify a value for the FAILURE parameter, it defaults to WCONNECT.

DISCINTV (optional)

Specifies the interval (in seconds) that the host PSF program waits for output to become available to print. If no output becomes available, the host PSF program ends communication with the printer.

Specify 0 to cause the host PSF program to maintain communication indefinitely. If you do not specify a value for DISCINTV, it defaults to 0.

Specifying the VTAM Start Option List (ATCSTRxx)

You must specify the values illustrated in Figure 42 and described below:

| | | |
|----------------------------|--------------------------|---|
| CONFIG= <i>nn</i> , | ATCCON MEMBER OF VTAMLST | X |
| NETID= <i>network_id</i> , | NETWORK IDENTIFIER | X |
| SSCPID= <i>nn</i> , | SSCP IDENTIFIER | X |
| ⋮ | | |

Figure 42. VTAM Start Option List Guidelines

CONFIG

Specifies the ATCCON*nn* member to use.

NETID

Specifies the network identifier for the host system. The first portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile must match the NETID value.

SSCPID

Specifies the System Services Control Point (SSCP) at the host. The SSCPID is a decimal integer from 0 to 65535.

The SSCP, normally VTAM, provides several network management functions. They include managing dependent logical units and accepting Network Management Vector Transports, such as alerts. Alerts often include information about devices that are unavailable or require corrective action.

To configure a PSF Direct host receiver to send alerts to this SSCP, the least significant portion of the **SNA System Services Control Point ID** value in the PSF Direct Host Receiver profile must be the hexadecimal equivalent of the SSCPID value. The **SNA System Services Control Point ID** must be in the form 05xxxxxxxx where x is a hexadecimal digit.

For example, to configure a PSF Direct host receiver to send alerts to an SSCP with an SSCPID value of 283, the host receiver's **SNA System Services Control Point ID** value must be 05000000011B.

Specifying the VTAM Configuration List (ATCCONnn)

The VTAM configuration list indicates the application program major nodes that should be made available when VTAM is started. Include the application program major node that contains the application program that PSF uses:

```
appl_prog_major_node      X
⋮
```

Specifying the VTAM Application Program Major Node and Application Program

The pertinent operands for the VTAM Application Program Major Node and Application Program are illustrated in Figure 43 and described below:

```

appl_prog_major_node VBUILD TYPE=APPL
appl_prog           APPL AUTH=ACQ,EAS=1,SONSCIP=YES
:
```

Figure 43. VTAM Application Program Major Node and Application Program Guidelines

The host PSF program does not support application programs that use APPC=YES or PARSESS=YES. The default value for both APPC and PARSESS is NO.

Specifying the VTAM Mode Table and Entry

The operands for the VTAM Mode Table are illustrated in Figure 44 and described below:

```

table_name MODETAB
entry_name MODEENT LOGMODE=entry_name,           X
      FMPROF=X'13',TSPROF=X'07',                 X
      PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' X
      PSERVIC=X'060200000000000000002000',      X
      PSNDPAC=X'nn',SRCVPAC=X'nn',SSNDPAC=X'00', X
      RUSIZES=X'nnnn'
```

Figure 44. VTAM Mode Table and Entry Guidelines

PSNDPAC

Specifies the primary send pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

SRCVPAC

Specifies the secondary receive pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

RUSIZES

Specifies the maximum Request Unit (RU) sizes from the primary and secondary logical units. The RU sizes influence performance and can be adjusted as desired. Specifying X'8787' means 1024 bytes for both RU sizes and yields good throughput in most configurations.

Other configuration parameters are influenced by the RUSIZES specification. These include:

- the **Maximum RU size** parameter in the SNA Server/6000 Mode profile
- The MAXTSL operand in the NCP LINE statement

Specifying the VTAM Switched Major Node

The following statements and values must be specified (as illustrated in Figure 45) if a **calling** SNA Server/6000 link station initiates a link connection with the 37xx communication controller:

```
node_name VBUILD TYPE=SWNET
*
pu_name  PU  ADDR=nn,                X
          CPNAME=cp_name,            X
          MAXOUT=7,                   X
          MODETAB=mode_table,         X
          DLOGMOD=mode_entry,         X
          VPACING=0
*
lu_name  LU  LOCADDR=nn
```

Figure 45. VTAM Switched Major Node Guidelines for SNA Server/6000 Calling Link Station

The following statements and values must be specified (as illustrated in Figure 46) if a **listening** SNA Server/6000 link station waits for the 37xx communication controller to initiate a link connection:

```
node_name VBUILD TYPE=SWNET,MAXGRP=1,MAXNO=1
*
pu_name  PU  ADDR=nn,                X
          CPNAME=cp_name,            X
          MAXOUT=7,                   X
          MAXPATH=1,                  X
          MODETAB=mode_table,         X
          DLOGMOD=mode_entry,         X
          VPACING=0
*
path_name PATH DIALNO=xx044000nnnnnnnn, X
          GRPNM=ncp_group
*
lu_name  LU  LOCADDR=nn
```

Figure 46. VTAM Switched Major Node Guidelines for SNA Server/6000 Listening Link Station

The following describes the pertinent operands on the **VBUILD** statement:

TYPE

Specify "SWNET" to indicate that the node is a switched major node.

MAXGRP

Specifies the number of unique path groups (GROUP names) that are defined in the GRPNM operand of all PATH statements within the switched major node. There is one unique path group in the switched major node guideline presented in Figure 46 for an SNA Server/6000 listening link station.

MAXNO

Specifies the number of unique Token-Ring addresses that are defined in the DIALNO operand of all PATH statements within the switched major node. There is one unique Token-Ring address in the switched major node guideline presented in Figure 46 for an SNA Server/6000 listening link station.

The following describes the pertinent operands on the **PU** statement:

Note that the DLOGMOD, MODETAB, and VPACING operands are LU operands, but are included here on the PU statement. VTAM definitions support a "sift-down effect" that allows you to code an operand on a higher-level statement so you do not need to code it on each lower-level statement for which the same value is desired. There is only one logical unit in the guideline presented here, so the sift-down effect is for demonstration only. If the DLOGMOD, MODETAB, and VPACING operands are specified on the PU statement, they do not have to be specified on any of the LU statements.

ADDR

Specifies the address of the physical unit. Note that this operand is required, but ignored.

CPNAME

Identifies the control point. The value specified for CPNAME must match the **Control Point (CP) name** value in the SNA Server/6000 Control Point profile. By convention, the CPNAME value usually matches the PU name.

Either the CPNAME operand or both the IDBLK and the IDNUM operands are required. CPNAME can only be used with PU type 2.1 nodes, such as SNA Server/6000.

MAXDATA

Specifies the maximum amount of data (in bytes) that the physical unit can receive in one path information unit (PIU). This amount includes the transmission header (TH) and the request/response header (RH).

Note: MAXDATA is ignored for type 2.1 nodes, such as SNA Server/6000, that are attached through an NCP with peripheral node type 2.1 support. The type 2.1 node indicates the maximum PIU size when the connection is established. The value that SNA Server/6000 supplies can be configured using the Token-Ring SNA DLC profile's **User-defined maximum I-Field size?** and **Max. I-Field size** parameters.

MAXOUT

Specifies the maximum number of path information units (PIUs) that are sent to the physical unit before waiting for a response from that physical unit.

For optimum performance, the MAXOUT value must be equal to, or greater than, the **Receive window count** in the SNA Server/6000 Token-Ring SNA DLC profile. The **Receive window count** parameter specifies how many frames are received by the link station before SNA Server/6000 sends an acknowledgement.

MAXPATH

Specifies the number of dial-out paths to the physical unit. There is one dial-out path presented in Figure 46 on page 42 for an SNA Server/6000 listening link station.

MODETAB

Specifies the name of the logon mode table that contains entries that describe session characteristics.

DLOGMOD

Specifies the name of the logon mode table entry that describes session characteristics.

VPACING

Determines how VTAM paces the flow of the data from VTAM to the boundary node to which the logical unit is connected. In this configuration, the boundary node is the communication controller.

A value of zero means that no pacing is performed for sessions with the logical unit, or that the largest possible pacing is used if the session is adaptively paced.

Local or Remote 37xx Token-Ring

The following describes the pertinent operands on the **PATH** statement:

DIALNO=xx044000nnnnnnnn

This parameter value has three parts:

xx Specifies the Token-Ring Interface Coupler (TIC) number in the communication controller.

04 Specifies the Service Access Point (SAP). This value must always be *04*.

4000nnnnnnnn

Specifies the Token-Ring address of the Token-Ring adapter in the RS/6000.

Although Token-Ring addresses include twelve hexadecimal digits, the VTAM DIALNO operand only accepts digits in the range 0-9. Therefore, an **alternate token-ring address** that contains only digits in the range 0-9 must be assigned to the Token-Ring adapter in the RS/6000. For instructions on configuring an alternate Token-Ring address, see "Using an Alternate Token-Ring Address for a RS/6000" on page 12.

GRPNM

Refers to a logical GROUP statement in the NCP definitions.

The following describes the pertinent operands on the **LU** statement:

LOCADDR

LOCADDR=0 specifies that this logical unit is an independent logical unit. An SSCP-LU session does not have to be established prior to an LU-LU session with an independent logical unit. For independent logical units, the **Local LU is dependent?** parameter in the SNA Server/6000 LU 6.2 Local LU profile must be no.

To use a dependent logical unit, specify a value between 1 and 255 for LOCADDR. Also, in the SNA Server/6000 LU 6.2 Local LU profile, specify yes for the **Local LU is dependent?** parameter, and the LOCADDR value for the **Local LU address** parameter.

SSCPFM

The SSCPFM operand indicates the type of request units (RUs) that the logical unit supports over its SSCP-LU session.

The guidelines illustrated in Figure 45 on page 42 and Figure 46 on page 42 use an independent logical unit. Therefore, the SSCPFM operand is not specified. If you require a dependent logical unit, specify SSCPFM=USSSCS.

Specifying the Network Control Program Definitions

The keywords and values for the Network Control Program (NCP) definitions are illustrated in Figure 47 and described below:

| | | |
|--------------------|--|------------------|
| <i>pgroup_name</i> | GROUP ECLTYPE=PHYSICAL, ISTATUS=ACTIVE | X |
| <i>line_name</i> | LINE ADDRESS=(<i>line_number</i> ,FULL), LOCADD=4000nnnnnnnn, MAXTSL=nnnn, PORTADD= <i>port_number</i> , RCVBUFC=4095 | X X X |
| <i>pu_name</i> | PU | |
| <i>lu_name</i> | LU ISTATUS=INACTIVE | |
| * | | |
| <i>lgroup_name</i> | GROUP ECLTYPE=LOGICAL, ISTATUS=ACTIVE, AUTOGEN= <i>n</i> , CALL=INOUT, PHYPORT= <i>port_number</i> | X X X X |

Figure 47. NCP Definition Guidelines

The Network Control Program (NCP) definitions include a **physical group** and a **logical group**. The PORTADD keyword on the LINE statement and the PHYPORT keyword on the logical GROUP statement both refer to the same port number.

The following describes the pertinent keywords on the **LINE** statement:

ADDRESS

Specifies the relative line number and data transfer mode for the line.

LOCADD

Indicates the Token-Ring address that the Token-Ring Interface Coupler (TIC) uses.

MAXTSL

Specifies the maximum amount of data (in bytes) that can be transmitted over the Token-Ring connection. Note that this amount includes both the transmission header (TH) and the request/response header (RH).

MAXTSL must be greater than or equal to the maximum size of a path information unit (PIU).

PORTADD

Assigns a port number to the physical line.

RCVBUFC

Specifies the NTRI (NCP token-ring interconnect) buffer capacity for receiving data from a telecommunication link during one data transfer. The value must be greater than or equal to the maximum size of a path information unit (PIU).

The following describes the pertinent keywords on the logical **GROUP** statement:

AUTOGEN

Specifies how many LINE and PU statements the NCP Definition Facility (NDF) should automatically add to this group.

Local or Remote 37xx Token-Ring

CALL

Specifies whether the link station in the communication controller should call out to the remote link station, or whether the remote link station should call into the communication controller link station.

Specify CALL=INOUT, which enables either **calling** or **listening** link stations to be configured in SNA Server/6000.

CALL is a LINE statement operand that sifts down to each of the automatically-generated LINE statements.

PHYPORT

Associates the logical lines in this group with a particular physical line. The PHYPORT value must match the PORTADD value on the LINE statement for the physical line.

Specifying the SNA Server/6000 Profiles

This section contains guidelines on configuring the SNA Server/6000 Profiles. Configure these profiles through the System Management Interface Tool (SMIT) panels. Examples of these panels and the hierarchical paths to each SNA definition are illustrated in “SNA Server/6000 Configuration Profile Examples” on page 28.

Note: You must have **root** authority to add or change SNA Server/6000 configuration profiles. After you add or change SNA Server/6000 configuration profiles, you must **verify** and **update** them. For more information about performing this task, see “Verifying and Updating SNA Server/6000 Configuration Profiles” on page 8

Specifying the SNA Node Profile for PSF Direct: PSF Direct requires no modifications to the SNA Node profile.

Specifying the Control Point Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Control Point Profile. Note that all values refer to Figure 48.

| | |
|-------------------------|-----------------|
| XID node ID | [*] |
| Control Point (CP) name | [cp_name] |
| Control Point type | appn_end_node + |

Figure 48. Control Point Profile Guidelines

XID node ID

If the IDBLK and IDNUM operands are used in the VTAM switched major node PU statement (rather than CPNAME), then the **XID node ID** value in the Control Point profile or Token-Ring Link Station profile must match the combined IDBLK and IDNUM operands. The IDBLK operand is normally 071 for SNA Server/6000.

Either the CPNAME operand or both the IDBLK and IDNUM operands are required. CPNAME can only be used with PU type 2.1 nodes, such as SNA Server/6000.

Control Point (CP) name

If the CPNAME operand is used in the VTAM switched major node PU statement (rather than IDBLK and IDNUM), then the **Control Point (CP) name** must match the CPNAME operand. By convention, the CPNAME is usually the same as the PU name.

Either the CPNAME operand or both the IDBLK and the IDNUM operands are required. CPNAME can only be used with PU type 2.1 nodes, such as SNA Server/6000.

Control Point type

Specify either appn_end_node or appn_network_node.

Local or Remote 37xx Token-Ring

Specifying the Token-Ring SNA DLC Profile for PSF Direct: The following displays how to specify the values PSF Direct requires in the Token-Ring SNA DLC Profile. Note that all values refer to Figure 49.

| | | |
|----------------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Data link device name | [<i>tokn</i>] | + |
| Receive window count (1-127) | [7] | # |
| Local SAP address (04-ec) | [04] | X |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |

Figure 49. Token-Ring SNA DLC Profile Guidelines

Profile name

Choose any meaningful value.

Data link device name

Select one of the available adapters.

Receive window count (1-127)

This value should be equal to the MAXOUT value in the VTAM switched major node PU statement.

The **Receive window count** defines the size of the link-level window. It specifies the maximum number of frames to receive before sending a link-level acknowledgement.

The VTAM PU MAXOUT value indicates the number of frames the 37xx communication controller sends before waiting for a link-level acknowledgement.

If the MAXOUT operand is less than the **Receive window count** parameter, extremely poor throughput can result. The default MAXOUT value is 1. The default **Receive window count** value is 8. These defaults must be adjusted to yield acceptable throughput.

Local SAP address (04-ec)

Specify 04.

Link Recovery Parameters - Retry interval (1-10000 seconds)

Specify 60. If the link station is a **calling** link station, this value causes it to try to establish a link connection with the 37xx communication controller every 60 seconds, until a link connection can be established.

Link Recovery Parameters - Retry limit (0-500 attempts)

Specify 0. If the link station is a **calling** link station, this value indicates that there is no limit on the number of attempts the link station makes to establish a link connection with the 37xx communication controller. The interval between the attempts is defined by the previous parameter.

Specifying the Token-Ring Link Station Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Token-Ring Link Station Profile. Note that all values refer to Figure 50.

| | | |
|---|-----------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Use APPN Control Point's XID node ID? | yes | + |
| If no, XID node ID | [*] | |
| * SNA DLC Profile name | [<i>DLC_profile_name</i>] | + |
| Stop link station on inactivity? | no | + |
| LU address registration? | no | + |
| Adjacent Node Address Parameters | | |
| Access routing | link_address | + |
| If link_address, | | |
| Remote link address | [4000nnnnnnnn] | X |
| Remote SAP address (04-ec) | [04] | X |
| Adjacent Node Identification Parameters | | |
| Verify adjacent node? | no | + |
| Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| Initiate call when link station is activated? | yes | + |
| Activate link station at SNA start up? | yes | + |
| Restart Parameters | | |
| Restart on activation? | no | + |
| Restart on normal deactivation? | yes | + |
| Restart on abnormal deactivation? | yes | + |

Figure 50. Token-Ring Link Station Profile Guidelines

Profile name

Choose any meaningful value.

Use APPN Control Point's XID node ID?

Select yes if the CPNAME operand is used in the VTAM switched major node PU statement or IDBLK and IDNUM are used and these operands match the Control Point's **XID node ID**.

Select no if the VTAM switched major node PU statement uses IDBLK and IDNUM and these values do not match the Control Point's **XID node ID**.

Local or Remote 37xx Token-Ring

If no, XID node ID

If **Use APPN Control Point's XID node ID?** is no, this parameter must match the combined IDBLK and IDNUM operands in the VTAM switched major node PU statement.

The **XID node ID** has form xxxxxxxx, where x is a hexadecimal digit (0-F). The first three positions correspond to the IDBLK operand. The last five positions correspond to the IDNUM operand.

Normally, the first three hexadecimal digits should be 071 for SNA Server/6000.

SNA DLC Profile name

Select the name of the SNA DLC profile.

Stop link station on inactivity?

Select no.

LU address registration?

Select no.

Adjacent Node Address Parameters - Access routing

Select link_address.

This parameter is referenced only for **calling** link stations and selective **listening** link stations. For more information, refer to ““Calling” Versus “Listening” Link Stations” on page 11.

Adjacent Node Address Parameters - Remote link address

For **calling** link stations and selective **listening** link stations, specify the Token-Ring address of the 37xx communication controller Token-Ring interface coupler (TIC). The Token-Ring address is 12 hexadecimal digits and is specified through the NCP definitions in the LOCADD operand on the LINE statement in the physical group.

For non-selective **listening** link stations, leave this parameter blank.

Adjacent Node Address Parameters - Remote SAP address

Specify 04.

Adjacent Node Identification Parameters - Verify adjacent node?

Select no.

Link Activation Parameters - Solicit SSCP sessions?

Select yes.

Link Activation Parameters - Initiate call when link station is activated?

To define a **calling** link station, select yes.

To define a **listening** link station, select no.

Link Activation Parameters - Activate link station at SNA start up?

Select yes.

Restart Parameters - Restart on activation?

Select no.

Restart Parameters - Restart on normal deactivation?

Select yes.

Restart Parameters - Restart on abnormal deactivation?

Select yes.

Specifying the LU 6.2 Local LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Local LU Profile. Note that all values refer to Figure 51.

| | | |
|---------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU name | [<i>lu_name</i>] | |
| Local LU alias | [<i>lu_alias</i>] | |
| Local LU is dependent? | no | + |
| If yes, | | |
| Local LU address (1-255) | [] | # |
| Link Station Profile name | [] | + |

Figure 51. LU 6.2 Local LU Profile Guidelines

Profile name

Choose any meaningful value.

Local LU name

This value must match both the name on the LU statement in the VTAM switched major node and the LUNAME parameter in the host PSF printer configuration (the PRINTDEV statement or OPTIONS PDM file).

Local LU alias

Choose any meaningful value.

Local LU is dependent?

The logical unit can be either dependent (yes) or independent (no). Dependent logical units are managed by an SSCP. In general, independent logical units offer more flexibility.

For dependent logical units, the LOCADDR value in the VTAM switched major node LU statement is non-zero. For independent logical units, LOCADDR=0.

If yes, Local LU address (1-255)

If the logical unit is dependent, the **Local LU address** parameter must match the LOCADDR value in the VTAM switched major node LU statement.

If yes, Link Station Profile name

If the logical unit is dependent, select the profile name of the link station through which SNA Server/6000 communicates with the host system.

Local or Remote 37xx Token-Ring

Specifying the LU 6.2 Partner LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Partner LU Profile. Note that all values refer to Figure 52.

Note: You must configure an LU 6.2 Partner LU profile. Some SNA Server/6000 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, SNA Server/6000 requires an LU 6.2 Partner LU profile in PSF Direct configurations even if the local LU is an independent logical unit.

| | | |
|---------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Partner LU alias | [<i>partner_lu_alias</i>] | |
| Parallel sessions supported? | no | + |
| Session security supported? | no | + |
| Conversation security level | none | + |

Figure 52. LU 6.2 Partner LU Profile Guidelines

Profile name

Choose any meaningful value.

Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Partner LU alias

Choose any meaningful value.

Parallel sessions supported?

Select no.

Session security supported?

Select no.

Conversation security level

Select none.

Specifying the LU 6.2 Side Information Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Side Information Profile. Note that all values refer to Figure 53.

Note: You must configure an LU 6.2 Side Information profile if the local LU is a dependent logical unit. If the local LU is an independent logical unit, an LU 6.2 Side Information profile is not required.

| | | |
|------------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU or Control Point alias | [<i>lu_alias</i>] | + |
| Provide only one of the following: | | |
| Partner LU alias | [] | + |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Mode name | [] | + |

Figure 53. LU 6.2 Side Information Profile Guidelines

Profile name

Choose any meaningful value.

Local LU or Control Point alias

Select the local LU alias that you specified in the LU 6.2 Local LU profile.

Partner LU alias

You can either select the partner LU alias that you specified in the LU 6.2 Partner LU profile or you can specify a value for the **Fully qualified partner LU name** parameter.

Fully qualified partner LU name

You can either specify a fully qualified partner LU name or you can select a value for the **Partner LU alias** parameter.

The **Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Mode name

Do not provide a value for the **Mode name** parameter.

Local or Remote 37xx Token-Ring

Specifying the LU 6.2 Mode Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Mode Profile. Note that all values refer to Figure 54.

| | | |
|--|------------|---|
| Current profile name | BLANK | |
| Mode name | [] | |
| Receive pacing window (0-63) | [16] | # |
| Maximum RU size (128,...,32768: multiples of 32) | [1024] | # |
| Minimum RU size (128,...,32768: multiples of 32) | [256] | # |
| Class of Service (COS) name | [#CONNECT] | |

Figure 54. Sample LU 6.2 Mode Profile Guidelines

Current profile name

The BIND image provided by PSF/MVS, PSF/VSE, and PSF/VM does not include a mode name. Therefore, SNA Server/6000 uses the predefined Mode profile named BLANK.

Mode name

The **Mode name** in the BLANK profile is 8 spaces.

Receive pacing window (0-63)

The receive pacing window used in the LU-LU session is the lesser of this parameter's value and the SRCVPAC value in the VTAM MODEENT statement.

Specifying 16 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Maximum RU size

The maximum RU size used in the LU-LU session is the lesser of this parameter's value and the RUSIZES value in the VTAM MODEENT statement.

Specifying 1024 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Minimum RU size

Specify 256.

Class of Service (COS) name

Select #CONNECT.

Specifying the LU 6.2 Transaction Program Name Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Transaction Program Name (TPN) Profile. Note that all values refer to Figure 55.

| | | |
|---|-----------------------------|---|
| * Profile name | [psfdirect] | |
| Transaction program name (TPN) | [30F0F0F0] | |
| Transaction program name (TPN) is in hexadecimal? | yes | + |
| PIP data? | no | + |
| Conversation type | basic | + |
| Sync level | none | + |
| Resource security level | none | + |
| Full path to TP executable | [/usr/lpp/psf/bin/ainpsfhr] | |
| Multiple instances supported? | yes | |
| User ID | [0] | # |
| Communication type | signals | + |

Figure 55. LU 6.2 Transaction Program Name (TPN) Guidelines

Profile name

Choose any meaningful value.

Transaction Program name (TPN)

Specify 30F0F0F0. This matches the value provided in the FMH 5 (Attach) from the host PSF system.

Transaction Program name (TPN) is in hexadecimal?

Select yes.

PIP data?

Select no.

Conversation type

Select basic.

The host PSF program and the PSF Direct host receiver communicate using a basic conversation. SNA Server/6000 supports both basic and mapped conversation types.

Sync level

Select none.

The PSF Direct host receiver does not send or respond to CONFIRM requests.

Local or Remote 37xx Token-Ring

Resource security level

Select none.

The host PSF programs do not support security verification.

Full path to TP executable

Specify `/usr/lpp/psf/bin/ainpsfhr`. The IBM InfoPrint Manager for AIX installation procedure places the PSF Direct host receiver in this location.

Multiple instances supported?

Select yes so that more than one PSF Direct host receiver can run concurrently.

User ID

Specify 0. The effective uid of the PSF Direct host receiver must be "0," indicating **root** or super-user.

Communication type

Select signals.

Configuration Worksheet

Use the following worksheet to record values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 2. Configuration Worksheet</i> | | | | |
|---|--------------|------------|-------------------------------------|-----------------|
| SNA Server/6000 | Value | PSF | VTAM | NCP |
| Control Point: Control Point (CP) name | | | PU: name PU: CPNAME | |
| Token-Ring SNA DLC: Receive window count | | | PU: MAXOUT | |
| Token-Ring Link Station: Remote link address | | | | LINE: LOCADD |
| LU 6.2 Local LU: Local LU name | | LUNAME | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | | | MODEENT: RUSIZES | |

Local or Remote 37xx Token-Ring

Chapter 4. Local 3172 Token-Ring

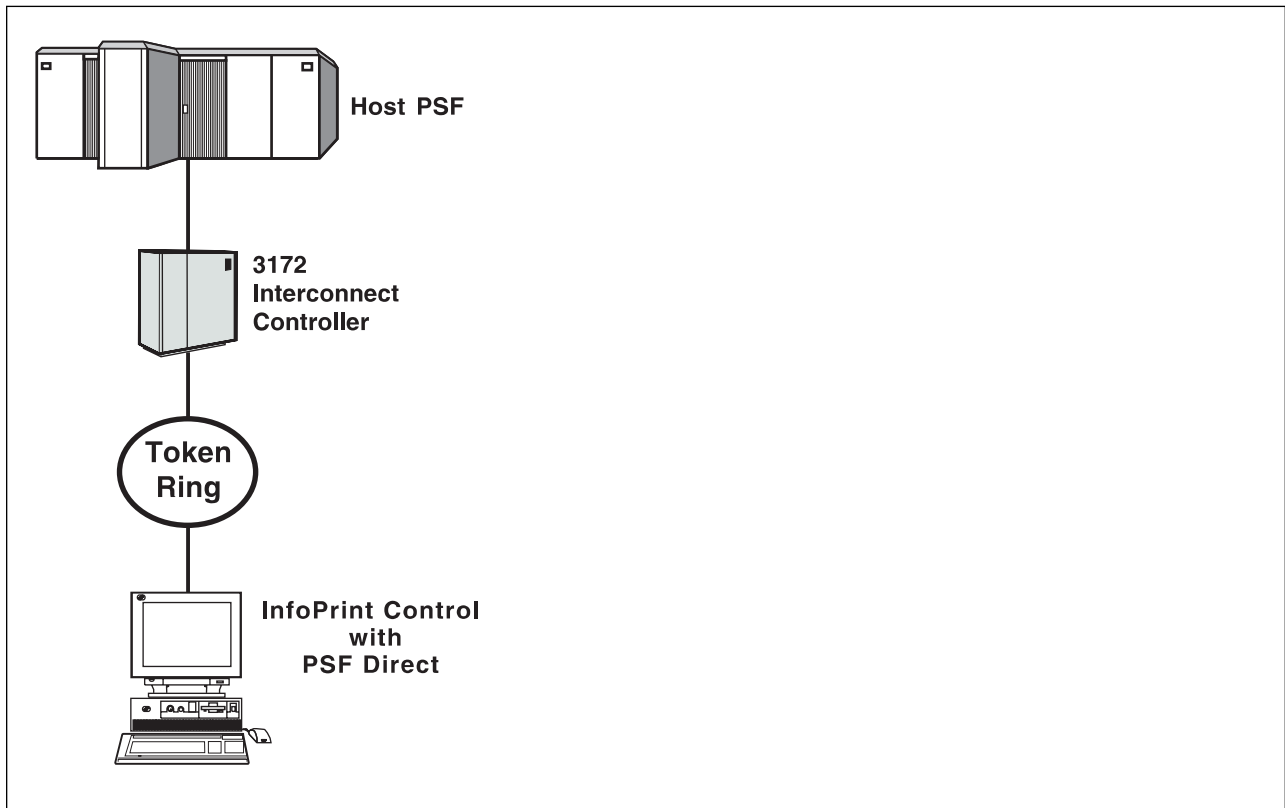


Figure 56. Local 3172 Token-Ring

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, the internal components of the network and details of their operation must be described.

Considering two views of an SNA network, an **application view** and a **network internals view**, aids in understanding PSF Direct configuration requirements.

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)** and the connection between them is a **session**. A **mode** describes a session's characteristics, or guidelines for exchanging data.

The application view (Figure 57) illustrates the interface that SNA provides to applications, such as the host PSF program and the PSF Direct component of InfoPrint. These applications are isolated from details of the internal components of the SNA network.

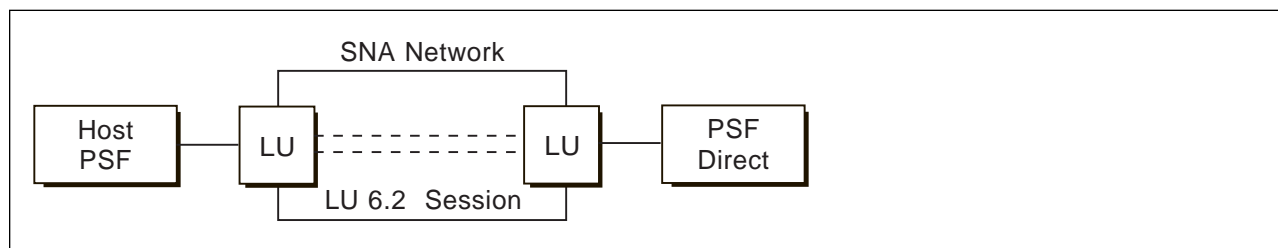


Figure 57. Application View of a PSF Direct Attachment

As the application view suggests, only a few values are required to configure the host PSF program and PSF Direct so that they can communicate. Figure 58 on page 61 displays the values used by both applications. Note that each configuration parameter references a logical unit or mode provided by the SNA network.

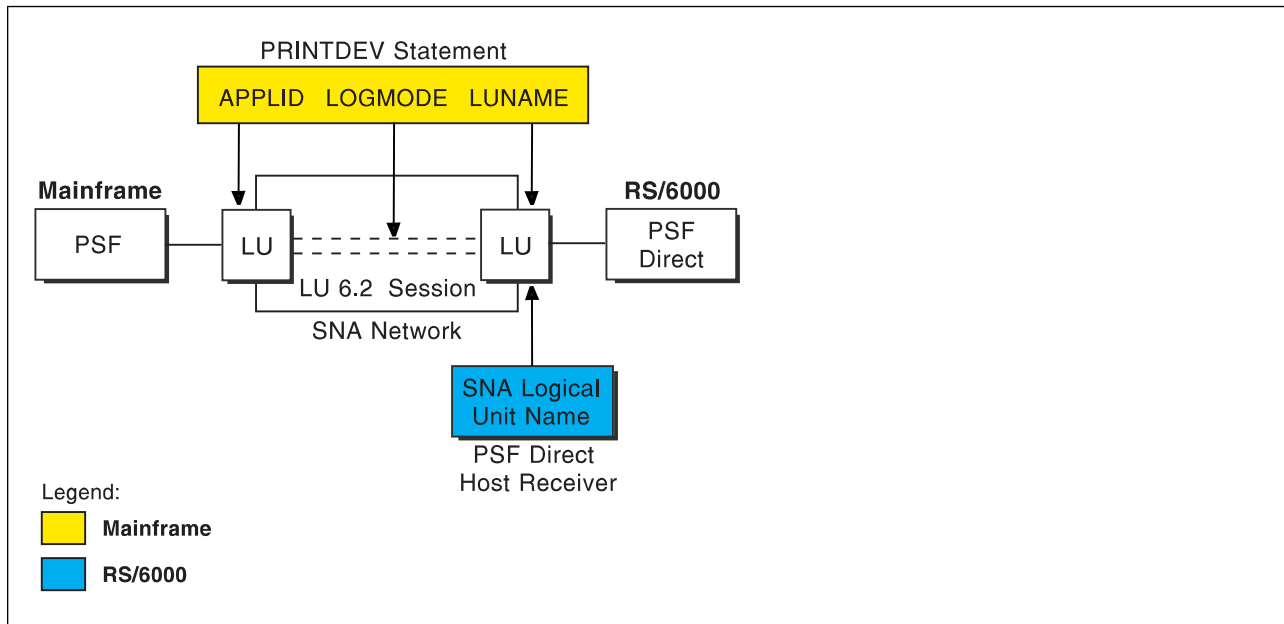


Figure 58. Application View With Configuration Parameters

Host PSF PRINTDEV Statement Parameters

APPLID

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

LUNAME

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

LOGMODE

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. LOGMODE 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

SNA Logical Unit name

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

Because there may be several PSF Direct host receivers on a RS/6000 and several RS/6000's 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.

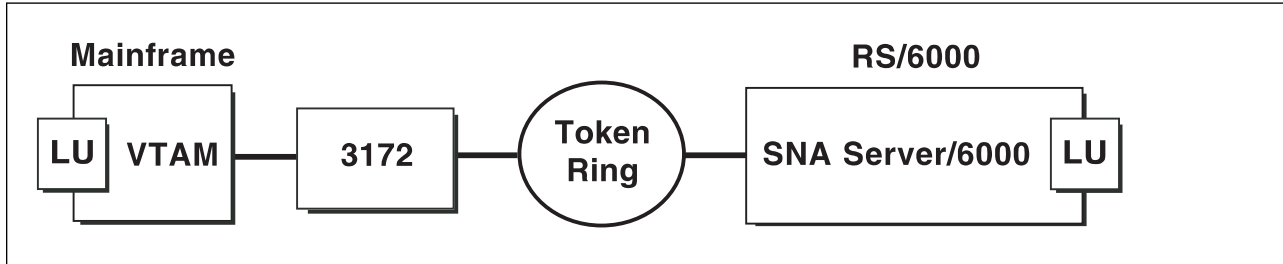


Figure 59. Network Internals View of a PSF Direct Attachment

The network internals view illustrates that many components comprise an SNA network. Most of the components have detailed configuration requirements. Many of those requirements are described in this chapter.

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. These interrelated parameters must be configured consistently to make end-to-end communication possible.

Several figures follow. They illustrate some of the key interrelationships among configuration parameters for SNA network components.

Key Configuration Parameter Interrelationships: Figure 60 illustrates the interrelationships in defining logical unit (LU) names.

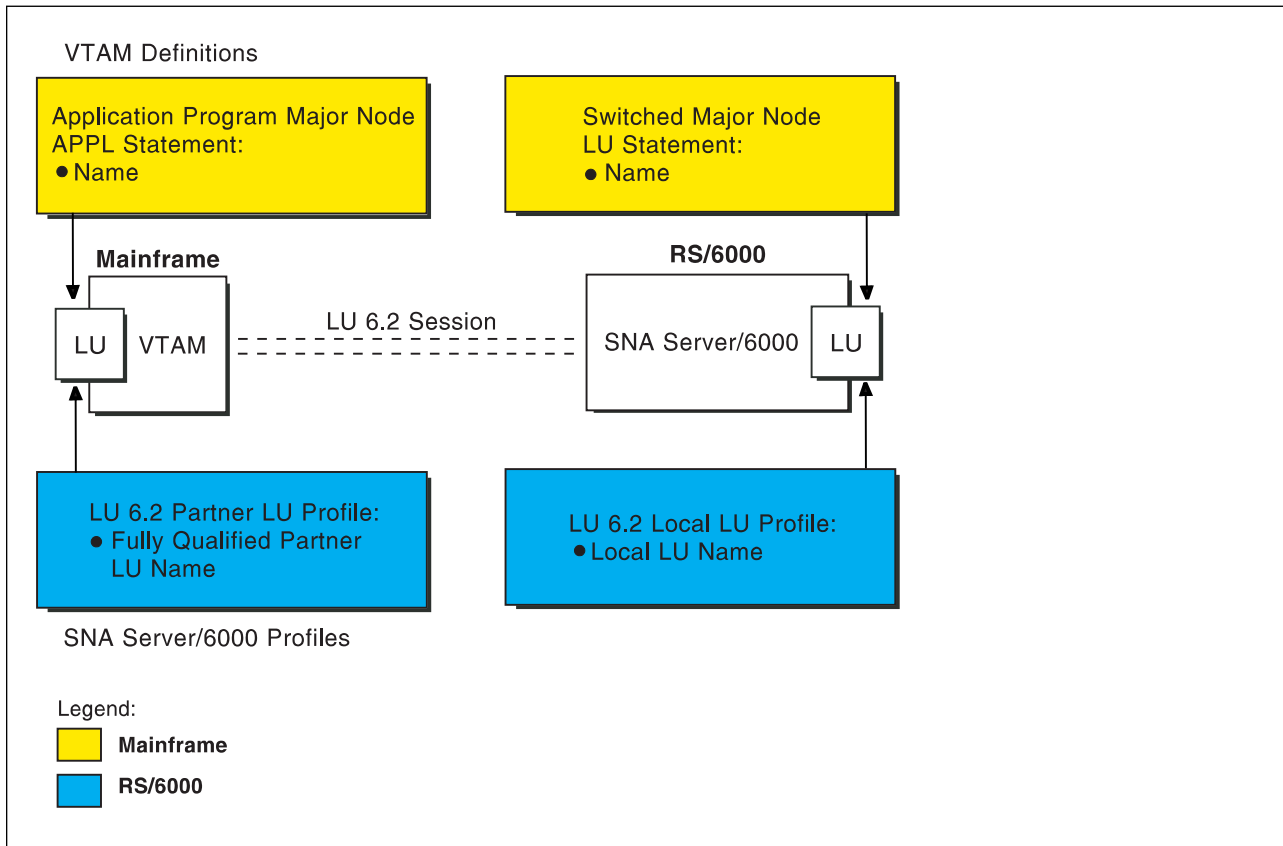


Figure 60. Logical Unit Names

Local 3172 Token-Ring

Figure 61 illustrates the interrelationships in defining the local address of the logical unit provided by SNA Server/6000.

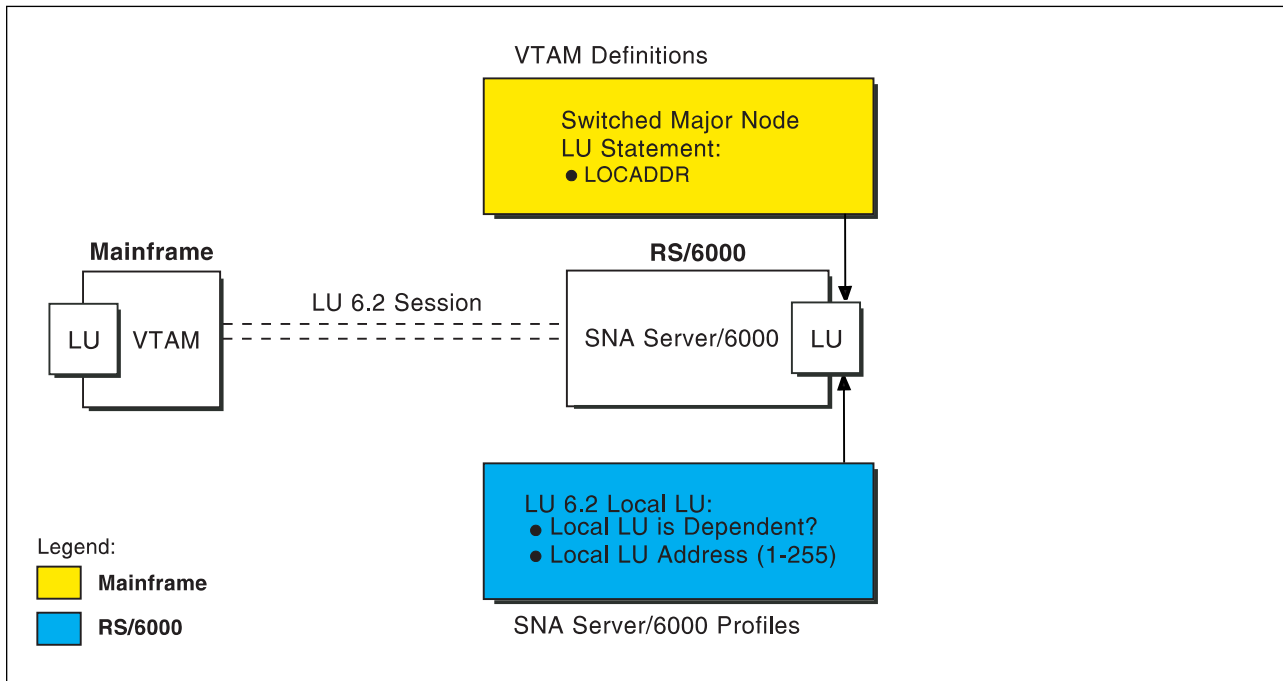


Figure 61. Local Address of Logical Unit

Figure 62 illustrates the interrelationships in defining session characteristics.

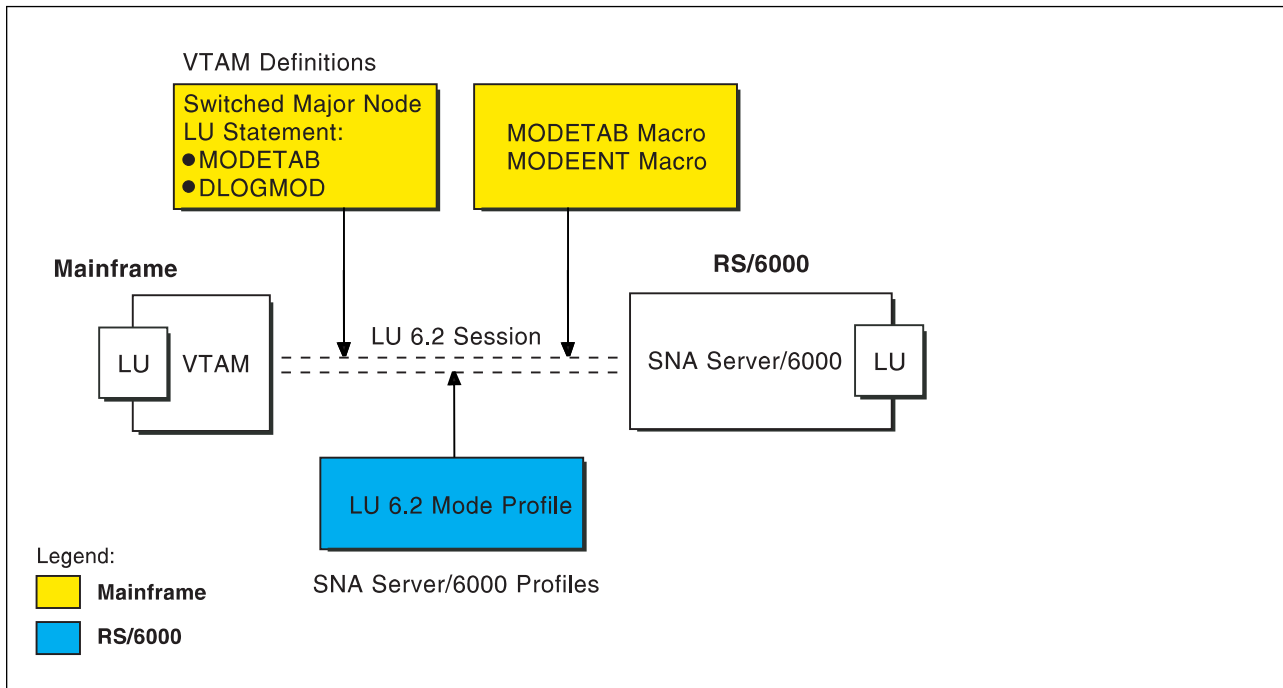


Figure 62. Session Characteristics

Figure 63 illustrates the interrelationships in defining the name of the physical unit/control point provided by SNA Server/6000.

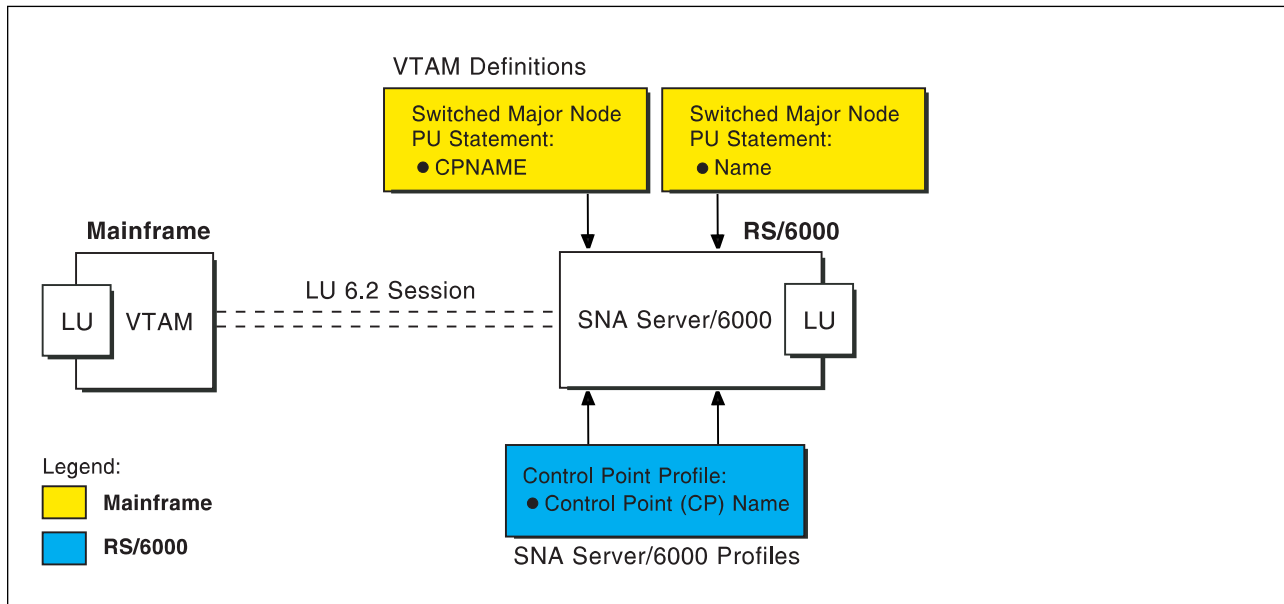


Figure 63. Physical Unit/Control Point Name

Figure 64 illustrates the interrelationships in defining token-ring addresses used in this configuration.

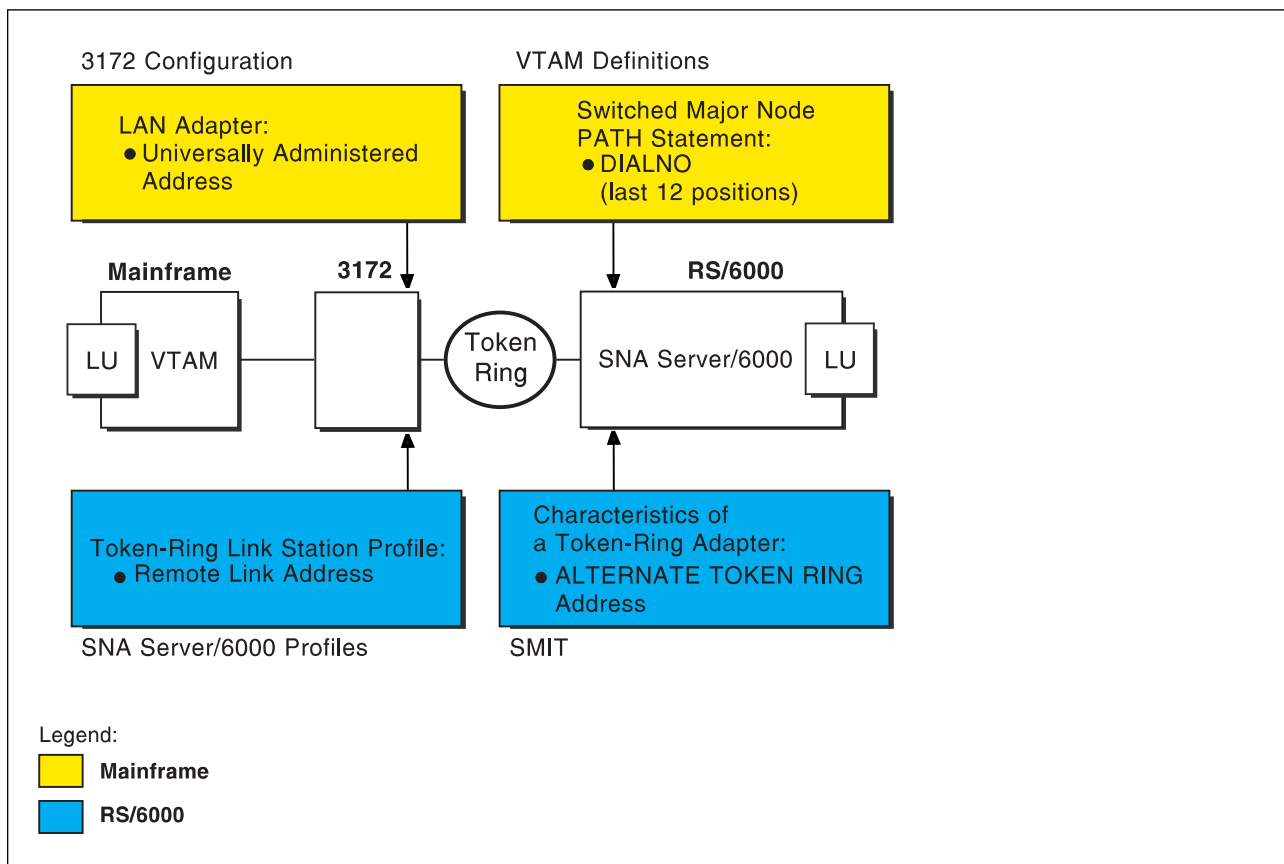


Figure 64. Token-Ring Addresses

Local 3172 Token-Ring Example

The following local 3172 interconnect controller example uses MVS and JES2. For an explanation of pertinent configuration parameters, see “Guidelines for Configuring Local 3172 Token-Ring” on page 79.

JES2 Initialization Statement Example

Figure 65 shows the JES2 printer definition initialization member, located in the system parmlib. For more information about specifying this statement, see “Specifying the JES2 Initialization Statement” on page 79.

```
PRT833 CLASS=Y,MARK=YES,START=NO,MODE=FSS,FSS=WTR833,      X
PRMODE=(LINE,PAGE),UCS=0
```

Figure 65. Sample PSF/MVS JES2 Printer Definition

JES2 External Writer Procedure Example

For more information on specifying these values, see “Configuring the Host PSF Printer” on page 79.

```

//WTR833 PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K
//*
//STEPLIB DD DSN=SYSTEM.PSF.V220.LINKLIB,DISP=SHR
//*
//JOBHDR OUTPUT PAGEDEF=A06462, /* JOB HEADER PAGEDEF */
// FORMDEF=A10110 /* JOB HEADER FORMDEF */
//JOBTLR OUTPUT PAGEDEF=A06462, /* JOB TRAILER PAGEDEF */
// FORMDEF=A10110 /* JOB TRAILER FORMDEF */
//DSHDR OUTPUT PAGEDEF=A06462, /* DATA SET HEADER PAGEDEF */
// FORMDEF=A10110 /* DATA SET HEADER FORMDEF */
//MSGDS OUTPUT PAGEDEF=A06462, /* MESSAGE DATASET PAGEDEF */
// FORMDEF=A10110 /* MESSAGE DATASET FORMDEF */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR
//OLAY01 DD DSN=SYS1.OVERLIB,DISP=SHR
//PSEG01 DD DSN=SYS1.PSEGLIB,DISP=SHR
//FDEF01 DD DSN=SYS1.FDEFLIB,DISP=SHR
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR
//*
//PRT833 PRINTDEV FONTDD=*.FONT01, /* FONT LIBRARY DD */
// OVLYDD=*.OLAY01, /* OVERLAY LIBRARY DD */
// PSEGDD=*.PSEG01, /* SEGMENT LIBRARY DD */
// PDEFDD=*.PDEF01, /* PAGEDEF LIBRARY DD */
// FDEFDD=*.FDEF01, /* FORMDEF LIBRARY DD */
// JOBHDR=*.JOBHDR, /* JOB HEADER DD */
// JOBTRLR=*.JOBTLR, /* JOB TRAILER DD */
// DSHDR=*.DSHDR, /* DATA SET HEADER DD */
// MESSAGE=*.MSGDS, /* MESSAGE DATA DD */
// PAGEDEF=A06462, /* DEFAULT PAGEDEF */
// FORMDEF=A10110, /* DEFAULT FORMDEF */
// CHARS=(GT10,GC15,GB10,GR10), /* DEFAULT FONT SET */
// PIMSG=YES, /* ACCUMULATE DATA SET MSGS */
// SETUP=FORMS, /* ISSUE FORMS SETUP MSGS */
// MGMTMODE=OUTAVAIL, /* START WHEN OUTPUT AVAIL. */
// DISINTV=60, /* DISCONNECT INTERVAL--SECS*/
// LOGMODE=IBM3820T, /* LOGON MODE TABLE ENTRY */
// APPLID=FSAES833, /* APPLICATION PGM NAME */
// LUNAME=PSFD0101 /* LOGICAL UNIT NAME */
//PRT833 ENDCNTL

```

Figure 66. Sample PSF/MVS Start Up Procedure

VTAM Start Option List (ATCSTRxx) Example

For an explanation of these values, refer to “Specifying the VTAM Start Option List (ATCSTRxx)” on page 81.

| | | |
|----------------|--------------------------|---|
| CONFIG=00, | ATCCON MEMBER OF VTAMLST | X |
| NETID=USIBMBQ, | NETWORK IDENTIFIER | X |
| SSCPID=1, | SSCP IDENTIFIER | X |
| : | | |

Figure 67. Sample VTAM Start Option List

VTAM Configuration List (ATCCONnn) Example

For an explanation of these values, refer to “Specifying the VTAM Configuration List (ATCCONnn)” on page 81.

| | |
|----------|---|
| PSFAPPLS | X |
| : | |

Figure 68. Sample VTAM Configuration List

VTAM Application Program Major Node and Application Program Example

For an explanation of these values, refer to “Specifying the VTAM Application Program Major Node and Application Program” on page 82.

| | |
|----------|---------------------------------|
| PSFAPPLS | VBUILD TYPE=APPL |
| FSAES833 | APPL AUTH=ACQ,EAS=1,SONSCIP=YES |
| : | |

Figure 69. Sample VTAM Application Program Major Node and Application Program

VTAM Mode Table and Entry Example

For an explanation of these values, refer to “Specifying the VTAM Mode Table and Entry” on page 82.

| | | |
|----------|---|---|
| MODEIBM | MODETAB | |
| IBM3820T | MODEENT LOGMODE=IBM3820T,FMPROF=X'13',TSPROF=X'07', | X |
| | PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' | X |
| | PSERVIC=X'060200000000000000002000', | X |
| | PSNDPAC=X'10',SRCVPAC=X'10',SSNDPAC=X'00', | X |
| | RUSIZES=X'8787' | |

Figure 70. Sample VTAM Mode Table and Entry

VTAM Switched Major Node Example

For an explanation of these values, see “Specifying the VTAM Switched Major Node” on page 83.

```

SWAIX01  VBUILD  TYPE=SWNET
*
AIX01    PU      ADDR=04,          ADDRESS REQUIRED, BUT IGNORED X
          CPNAME=AIX01,        CONTROL POINT NAME           X
          MAXDATA=1033,        MAXIMUM PIU SIZE             X
          MODETAB=MODEIBM,     LOGON MODE TABLE            X
          DLOGMOD=IBM3820T,    LOGON MODE TABLE ENTRY      X
          VPACING=0            NO PACING TO BOUNDARY NODE
*
PSFD0101 LU      LOCADDR=0          INDEPENDENT LU

```

Figure 71. Sample VTAM Switched Major Node

VTAM External Communication Adapter (XCA) Major Node Example

For an explanation of these values, refer to “Specifying the VTAM External Communication Adapter (XCA) Major Node” on page 86.

```

B3172    VBUILD  TYPE=XCA
*
B3172P01 PORT    ADAPNO=0,          X
          CUADDR=5EC,             X
          MEDIUM=RING
*
B3172GR1 GROUP   DIAL=YES
*
B3172LN1 LINE    CALL=INOUT
*
B3172PU1 PU

```

Figure 72. Sample VTAM External Communication Adapter (XCA) Major Node Example

SNA Server/6000 Configuration Profile Examples

This section lists sample SNA Server/6000 profiles. Each profile is preceded by the sequence of SMIT panels to access the profile.

- SNA Node
- Control Point
- Token-Ring SNA DLC
- Token-Ring Link Station
- LU 6.2 Local LU
- LU 6.2 Partner LU
- LU 6.2 Mode
- LU 6.2 Transaction Program Name

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          SNA System Defaults
            Change/Show a Profile
```

Figure 73. SMIT Panel Sequence For SNA Node Profile

| | | |
|---|-----------------------|---|
| Profile name | sna | |
| Maximum number of sessions (1-5000) | [200] | # |
| Maximum number of conversations (1-5000) | [200] | # |
| Restart action | once | + |
| Recovery resource manager (RRM) enabled? | no | + |
| Dynamic inbound partner LU definitions allowed? | yes | + |
| NMVT action when no NMVT process | reject | + |
| Standard output file/device | [/dev/console] | |
| Standard error file/device | [/var/sna/sna.stderr] | |
| Comments | [] | |

Figure 74. Sample SNA Node Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Control Point
            Change/Show a Profile

```

Figure 75. SMIT Panel Sequence For Control Point Profile

| | | |
|---|-----------------|---|
| Profile name | node_cp | |
| XID node ID | [*] | |
| Network name | [USIBMBQ] | |
| Control Point (CP) name | [AIX01] | |
| Control Point alias | [AIX01] | |
| Control Point type | appn_end_node + | |
| Maximum number of cached routing trees | [500] | # |
| Maximum number of nodes in the TRS database | [500] | # |
| Route addition resistance | [128] | # |
| Comments | [] | |

Figure 76. Sample Control Point Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring
              Token-Ring SNA DLC
                Add a Profile

```

Figure 77. SMIT Panel Sequence For Token-Ring SNA DLC Profile

Local 3172 Token-Ring

| | | |
|---|-----------|---|
| * Profile name | [tr3172] | |
| Data link device name | [tok0] | + |
| Force disconnect time-out (1-600 seconds) | [120] | # |
| User-defined maximum I-Field size? | no | + |
| If yes, Max. I-Field size (265-30729) | [30729] | # |
| Max. num of active link stations (1-255) | [100] | # |
| Number reserved for inbound activation | [0] | # |
| Number reserved for outbound activation | [0] | # |
| Transmit window count (1-127) | [16] | # |
| Dynamic window increment (1-127) | [1] | # |
| Retransmit count (1-30) | [8] | # |
| Receive window count (1-127) | [1] | # |
| Ring access priority | [0] | + |
| Inactivity time-out (1-120 seconds) | [48] | # |
| Response time-out (1-40, 500 msec intervals) | [4] | # |
| Acknowledge time-out (1-40, 500 msec intervals) | [1] | # |
| Local link name | [] | |
| Local SAP address (04-ec) | [04] | X |
| Trace base listening link station? | no | + |
| If yes, Trace format | long | + |
| Dynamic link stations supported? | yes | + |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |
| Dynamic Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| CP-CP sessions supported? | yes | + |
| Partner required to support CP-CP sessions? | no | + |
| Dynamic Link TG COS Characteristics | | |
| Effective capacity | [4300800] | # |
| Cost per connect time | [0] | # |
| Cost per byte | [0] | # |
| Security | nonsecure | + |
| Propagation delay | lan | + |
| User-defined 1 | [128] | # |
| User-defined 2 | [128] | # |
| User-defined 3 | [128] | # |
| Comments | [] | |

Figure 78. Sample Token-Ring SNA DLC Profile

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring Link Station
              Add a Profile
```

Figure 79. SMIT Panel Sequence For Token-Ring Link Station Profile

Local 3172 Token-Ring

| | | | |
|---|----------------|---|--|
| * Profile name | [tr3172] | | |
| Use APPN Control Point's XID node ID? | yes | + | |
| If no, XID node ID | [*] | | |
| * SNA DLC Profile name | [tr3172] | + | |
| Stop link station on inactivity? | no | + | |
| If yes, Inactivity time-out (0-10 minutes) | [0] | # | |
| LU address registration? | no | + | |
| If yes, LU Address Registration Profile name | [] | + | |
| Trace link? | no | + | |
| If yes, Trace size | long | + | |
| Adjacent Node Address Parameters | | | |
| Access routing | link_address | + | |
| If link_name, Remote link name | [] | | |
| If link_address, | | | |
| Remote link address | [08005A946169] | X | |
| Remote SAP address (04-ec) | [04] | X | |
| Adjacent Node Identification Parameters | | | |
| Verify adjacent node? | no | + | |
| Network ID of adjacent node | [] | | |
| CP name of adjacent node | [] | | |
| XID node ID of adjacent node (LEN node only) | [*] | | |
| Node type of adjacent node | learn | + | |
| Link Activation Parameters | | | |
| Solicit SSCP sessions? | yes | + | |
| Initiate call when link station is activated? | yes | + | |
| Activate link station at SNA start up? | yes | + | |
| Activate on demand? | no | + | |
| CP-CP sessions supported? | yes | + | |
| If yes, | | | |
| Adjacent network node preferred server? | no | + | |
| Partner required to support CP-CP sessions? | no | + | |
| Initial TG number (0-20) | [0] | # | |
| Restart Parameters | | | |
| Restart on activation? | no | + | |
| Restart on normal deactivation? | yes | + | |
| Restart on abnormal deactivation? | yes | + | |
| Transmission Group COS Characteristics | | | |
| Effective capacity | [4300800] | # | |
| Cost per connect time | [0] | # | |
| Cost per byte | [0] | # | |
| Security | nonsecure | + | |
| Propagation delay | lan | + | |
| User-defined 1 | [128] | # | |
| User-defined 2 | [128] | # | |
| User-defined 3 | [128] | # | |
| Comments | [] | | |

Figure 80. Sample Token-Ring Link Station Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Local LU
                Add a Profile

```

Figure 81. SMIT Panel Sequence For LU 6.2 Local LU Profile

```

* Profile name                [PSFD0101]
Local LU name                 [PSFD0101]
Local LU alias                [PSFD0101]
Local LU is dependent?       no      +
  If yes,
    Local LU address (1-255)  []      #
    System services control point
      (SSCP) ID (*, 0-65535)  [*]
    Link Station Profile name  []      +
Conversation Security Access List Profile name  []
Comments                      []

```

Figure 82. Sample LU 6.2 Local LU Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Partner LU
                Add a Profile

```

Figure 83. SMIT Panel Sequence For LU 6.2 Partner LU Profile

```

* Profile name                [FSAES833]
Fully qualified partner LU name  [USIBMBQ.FSAES833]
Partner LU alias                [FSAES833]
  Parallel sessions supported?   no      +
  Session security supported?    no      +
  Conversation security level     none    +
Comments                        []

```

Figure 84. Sample LU 6.2 Partner LU Profile

Local 3172 Token-Ring

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Mode
                Change/Show a Profile
```

Figure 85. LU 6.2 Mode Profile

```
Current profile name          BLANK
New profile name              []
Mode name                     [      ]
Maximum number of sessions (1-5000) [8]      #
Minimum contention winners (0-5000) [4]      #
Minimum contention losers (0-5000)  [0]      #
Auto activate limit (0-500)        [0]      #
Upper bound for adaptive receive pacing window [16]    #
Receive pacing window (0-63)       [16]    #
Maximum RU size (128,...,32768: multiples of 32) [1024]  #
Minimum RU size (128,...,32768: multiples of 32) [256]   #
Class of Service (COS) name       [#CONNECT]
Comments                        []
```

Figure 86. Sample LU 6.2 Mode Profile


```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Transaction Program Name (TPN)
                Add a Profile

```

Figure 87. LU 6.2 Transaction Program Name (TPN) Profile

```

* Profile name                [psfdirect]
Transaction program name (TPN) [30F0F0F0]
Transaction program name (TPN) is in hexadecimal? yes      +
PIP data?                     no        +
  If yes, Subfields (0-99)    [0]      #
Conversation type              basic     +
Sync level                    none      +
Resource security level       none      +
  If access, Resource Security Access List Prof. []
Full path to TP executable    [/usr/lpp/psf/bin/ainpsfhr]
Multiple instances supported? yes
User ID                       [0]      #
Server synonym name           []
Restart action                once     +
Communication type            signals  +
  If IPC, Communication IPC queue key [0]      #
Standard input file/device    [/dev/console]
Standard output file/device   [/dev/console]
Standard error file/device    [/dev/console]

Comments                      []

```

Figure 88. Sample LU 6.2 Transaction Program Name (TPN) Profile

Configuration Worksheet Example

The following worksheet records values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 3. Sample Configuration Worksheet</i> | | | | |
|---|-------------------|------------|-------------------------------------|----------------------|
| SNA Server/6000 | Value | PSF | VTAM | 3172 |
| Control Point: Control Point (CP) name | AIX01 | | PU: name PU: CPNAME | |
| Token-Ring Link Station: Remote link address | 08005A946169 | | | universal address |
| LU 6.2 Local LU: Local LU name | PSFD0101 | LUNAME | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | no | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | n/a | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | n/a | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | 16 | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | 1024 | | MODEENT: RUSIZES | |

Guidelines for Configuring Local 3172 Token-Ring

The following provides guidance for implementing the examples displayed in “Local 3172 Token-Ring Example” on page 66. Note that a subset of the example is displayed below, displaying the pertinent parameters and describing which of these require you to specify *variable_names* and which require a specific name or number, such as **MODETAB=MODEIBM** or **FMPROF=X'13'**.

Specifying the JES2 Initialization Statement

Define the PSF printer as you would any other SNA-attached printer. For example, on an MVS system you must provide either JES2 or JES3 initialization statements.

Configuring the Host PSF Printer

The manner in which a host PSF printer is configured depends upon the operating system. You will use one of the following statements:

- PSF/MVS PRINTDEV statement
- PSF/VSE PRINTDEV statement
- Parameters in the PSF/VM OPTIONS PDM file

On each operating system, PSF supports specification of both the application program ID (APPLID) and the logical unit name (LUNAME):

```

:
  APPLID=appl_prog
  LUNAME=lu_name
:

```

On some operating systems, PSF also supports other configuration parameters. The following text describes these parameters and notes whether they are required or optional:

APPLID (required)

Specifies the application program that is the SNA logical unit provided by VTAM and used by PSF.

The APPLID value must match:

- An APPL statement name in a VTAM application program major node
- The second portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile

LUNAME (required)

Specifies the SNA logical unit with which PSF tries to initiate a session.

The LUNAME value must match:

- An LU statement name in a VTAM switched major node
- The **Local LU name** parameter in an SNA Server/6000 LU 6.2 Local LU profile

LOGMODE (optional)

Specifies the VTAM logon mode table entry that defines characteristics of the session between the logical units identified by the APPLID and LUNAME parameters.

The LOGMODE parameter identifies an entry within a logon mode table. The MODETAB operand on the VTAM switched major node LU statement identifies the logon mode table. If you omit the

Local 3172 Token-Ring

LOGMODE parameter, the DLOGMOD operand on the VTAM switched major node LU statement identifies the entry within the logon mode table.

Note that if the logical unit identified by the LUNAME parameter is a cross-domain resource, you must not use the LOGMODE parameter.

SETUP (optional)

Specify SETUP=FORMS to cause JES to issue forms setup messages to the operator.

By default, JES issues forms setup messages to the operator for channel-attached printers, but does not issue forms setup messages to the operator for SNA-attached printers.

MGMTMODE={IMMED | OUTAVAIL | DIALIN} (optional)

Determines how the host PSF program and PSF Direct initiate communication.

IMMED

Causes the host PSF program to initiate communication when it is started.

OUTAVAIL

Causes the host PSF program to initiate communication when there is available output to print.

DIALIN

Causes the host PSF program to initiate communication only after a switched line becomes available. The switched line can become available either when VTAM dials out or the remote node dials in.

Note that if you specify DIALIN:

- Do not use the LOGMODE parameter
- Include the LOGAPPL operand on the VTAM switched major node LU statement
- Ensure that the LOGAPPL operand on the VTAM switched major node LU statement matches the APPLID value

If you do not specify a value for the MGMTMODE parameter, it defaults to OUTAVAIL.

FAILURE={WCONNECT | STOP} (optional)

Specifies whether or not the host PSF program re-attempts communication after a printer or communication failure.

WCONNECT

Specifies that the host PSF program attempts to communicate again.

STOP

Specifies that the host PSF program must be restarted by the operator.

If you do not specify a value for the FAILURE parameter, it defaults to WCONNECT.

DISCINTV (optional)

Specifies the interval (in seconds) that the host PSF program waits for output to become available to print. If no output becomes available, the host PSF program ends communication with the printer.

Specify 0 to cause the host PSF program to maintain communication indefinitely. If you do not specify a value for DISCINTV, it defaults to 0.

Specifying the VTAM Start Option List (ATCSTRxx)

You must specify the values illustrated in Figure 89 and described below:

| | | |
|----------------------------|--------------------------|---|
| CONFIG= <i>nn</i> , | ATCCON MEMBER OF VTAMLST | X |
| NETID= <i>network_id</i> , | NETWORK IDENTIFIER | X |
| SSCPID= <i>nn</i> , | SSCP IDENTIFIER | X |
| ⋮ | | |

Figure 89. VTAM Start Option List Guidelines

CONFIG

Specifies the ATCCON*nn* member to use.

NETID

Specifies the network identifier for the host system. The first portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile must match the NETID value.

SSCPID

Specifies the System Services Control Point (SSCP) at the host. The SSCPID is a decimal integer from 0 to 65535.

The SSCP, normally VTAM, provides several network management functions. They include managing dependent logical units and accepting Network Management Vector Transports, such as alerts. Alerts often include information about devices that are unavailable or require corrective action.

To configure a PSF Direct host receiver to send alerts to this SSCP, the least significant portion of the **SNA System Services Control Point ID** value in the PSF Direct Host Receiver profile must be the hexadecimal equivalent of the SSCPID value. The **SNA System Services Control Point ID** must be in the form 05xxxxxxxx where x is a hexadecimal digit.

For example, to configure a PSF Direct host receiver to send alerts to an SSCP with an SSCPID value of 283, the host receiver's **SNA System Services Control Point ID** value must be 0500000011B.

Specifying the VTAM Configuration List (ATCCONnn)

The VTAM configuration list indicates the application program major nodes that should be made available when VTAM is started. Include the application program major node that contains the application program that PSF uses:

| | |
|-----------------------------|---|
| <i>appl_prog_major_node</i> | X |
| ⋮ | |

Specifying the VTAM Application Program Major Node and Application Program

The pertinent operands for the VTAM Application Program Major Node and Application Program are illustrated in Figure 90 and described below:

```

appl_prog_major_node  VBUILD TYPE=APPL
appl_prog             APPL  AUTH=ACQ,EAS=1,SONSCIP=YES
:

```

Figure 90. VTAM Application Program Major Node and Application Program Guidelines

The host PSF program does not support application programs that use APPC=YES or PARSESS=YES. The default value for both APPC and PARSESS is NO..

Specifying the VTAM Mode Table and Entry

The operands for the VTAM Mode Table are illustrated in Figure 91 and described below:

```

table_name  MODETAB
entry_name  MODEENT LOGMODE=entry_name,           X
            FMPROF=X'13',TSPROF=X'07',           X
            PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' X
            PSERVIC=X'060200000000000000002000', X
            PSNDPAC=X'nn',SRCVPAC=X'nn',SSNDPAC=X'00', X
            RUSIZES=X'nnnn'

```

Figure 91. VTAM Mode Table and Entry Guidelines

PSNDPAC

Specifies the primary send pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

SRCVPAC

Specifies the secondary receive pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

RUSIZES

Specifies the maximum Request Unit (RU) sizes from the primary and secondary logical units. The RU sizes influence performance and can be adjusted as desired. Specifying X'8787' means 1024 bytes for both RU sizes and yields good throughput in most configurations.

Other configuration parameters are influenced by the RUSIZES specification. These include:

- the **Maximum RU size** parameter in the SNA Server/6000 Mode profile
- The MAXDATA operand in the VTAM switched major node PU statement

Specifying the VTAM Switched Major Node

The following statements and values must be specified (as illustrated in Figure 92) if a **calling** SNA Server/6000 link station initiates a link connection with the 3172 interconnect controller:

```
node_name VBUILD TYPE=SWNET
*
pu_name  PU   ADDR=nn,           X
         CPNAME=cp_name,       X
         MAXDATA=nnnn,         X
         MODETAB=mode_table,   X
         DLOGMOD=mode_entry,   X
         VPACING=0
*
lu_name  LU   LOCADDR=nn
```

Figure 92. VTAM Switched Major Node Guidelines for SNA Server/6000 Calling Link Station

The following statements and values must be specified (as illustrated in Figure 93) if a **listening** SNA Server/6000 link station waits for the 3172 interconnect controller to initiate a link connection:

```
node_name VBUILD TYPE=SWNET,MAXGRP=1,MAXNO=1
*
pu_name  PU   ADDR=nn,           X
         CPNAME=cp_name,       X
         MAXDATA=nnnn,         X
         MAXPATH=1,           X
         MODETAB=mode_table,   X
         DLOGMOD=mode_entry,   X
         VPACING=0
*
path_name PATH DIALNO=xx044000nnnnnnnn, X
         GRPNM=xca_group
*
lu_name  LU   LOCADDR=nn
```

Figure 93. VTAM Switched Major Node Guidelines for SNA Server/6000 Listening Link Station

The following describes the pertinent operands on the **VBUILD** statement:

TYPE

Specify "SWNET" to indicate that the node is a switched major node.

MAXGRP

Specifies the number of unique path groups (GROUP names) that are defined in the GRPNM operand of all PATH statements within the switched major node. There is one unique path group in the switched major node guideline presented in Figure 93 for an SNA Server/6000 listening link station.

MAXNO

Specifies the number of unique token-ring addresses that are defined in the DIALNO operand of all PATH statements within the switched major node. There is one unique token-ring address in the switched major node guideline presented in Figure 93 for an SNA Server/6000 listening link station.

Local 3172 Token-Ring

The following describes the pertinent operands on the **PU** statement:

Note that the DLOGMOD, MODETAB, and VPACING operands are LU operands, but are included here on the PU statement. VTAM definitions support a "sift-down effect" that allows you to code an operand on a higher-level statement so you do not need to code it on each lower-level statement for which the same value is desired. There is only one logical unit in the guideline presented here, so the sift-down effect is for demonstration only. If the DLOGMOD, MODETAB, and VPACING operands are specified on the PU statement, they do not have to be specified on any of the LU statements.

ADDR

Specifies the address of the physical unit. Note that this operand is required, but ignored.

CPNAME

Identifies the control point. The value specified for CPNAME must match the **Control Point (CP) name** value in the SNA Server/6000 Control Point profile. By convention, the CPNAME value usually matches the PU name.

Either the CPNAME operand or both the IDBLK and the IDNUM operands are required. CPNAME can only be used with PU type 2.1 nodes, such as SNA Server/6000.

MAXDATA

Specifies the maximum amount of data (in bytes) that the physical unit can receive in one path information unit (PIU). This amount includes the transmission header (TH) and the request/response header (RH).

To prevent basic information units (BIUs) from being segmented, specify a MAXDATA value that is at least 9 bytes greater than the maximum RU size in the logon mode table entry.

MAXOUT

Specifies the maximum number of path information units (PIUs) that are sent to the physical unit before waiting for a response from that physical unit.

Note: VTAM ignores the MAXOUT operand for a type 2.1 physical unit (PU), such as SNA Server/6000, connected through a 3172 interconnect controller.

MAXPATH

Specifies the number of dial-out paths to the physical unit. There is one dial-out path presented in Figure 93 on page 83 for an SNA Server/6000 listening link station.

MODETAB

Specifies the name of the logon mode table that contains entries that describe session characteristics.

DLOGMOD

Specifies the name of the logon mode table entry that describes session characteristics.

VPACING

Determines how VTAM paces the flow of data from VTAM to the boundary node that performs pacing for the channel-attached SNA device.

A value of zero means that no pacing is performed for sessions with the logical unit, or that the largest possible pacing is used if the session is adaptively paced.

The following describes the pertinent operands on the **PATH** statement:

DIALNO=xx044000nnnnnnnn

This parameter value has three parts:

xx These two digits are required but ignored for the 3172 interconnect controller.

04 Specifies the Service Access Point (SAP). This value must always be *04*.

4000nnnnnnnn

Specifies the token-ring address of the token-ring adapter in the rs6..

Although token-ring addresses include twelve hexadecimal digits, the VTAM DIALNO operand only accepts digits in the range 0-9. Therefore, an **alternate token-ring address** that contains only digits in the range 0-9 must be assigned to the token-ring adapter in the RS/6000. For instructions on configuring an alternate token-ring address, see "Using an Alternate Token-Ring Address for a RS/6000" on page 12.

GRPNM

Refers to a GROUP statement in an External Communication Adapter (XCA) major node.

The following describes the pertinent operands on the **LU** statement:

LOCADDR

LOCADDR=0 specifies that this logical unit is an independent logical unit. An SSCP-LU session does not have to be established prior to an LU-LU session with an independent logical unit. For independent logical units, the **Local LU is dependent?** parameter in the SNA Server/6000 LU 6.2 Local LU profile must be no.

To use a dependent logical unit, specify a value between 1 and 255 for LOCADDR. Also, in the SNA Server/6000 LU 6.2 Local LU profile, specify yes for the **Local LU is dependent?** parameter, and the LOCADDR value for the **Local LU address** parameter.

SSCPFM

The SSCPFM operand indicates the type of request units (RUs) that the logical unit supports over its SSCP-LU session.

The guidelines illustrated in Figure 92 on page 83 and Figure 93 on page 83 use an independent logical unit. Therefore, the SSCPFM operand is not specified. If you require a dependent logical unit, specify SSCPFM=USSSCS.

Specifying the VTAM External Communication Adapter (XCA) Major Node

The operands for the VTAM External Communication Adapter (XCA) major node are illustrated in Figure 94 and described below:

| | | | |
|-------------------|--------|----------------------|---|
| <i>node_name</i> | VBUILD | TYPE=XCA | |
| <i>port_name</i> | PORT | ADAPNO= <i>n</i> , | X |
| | | CUADDR= <i>nnn</i> , | X |
| | | MEDIUM=RING | |
| <i>group_name</i> | GROUP | DIAL=YES | |
| <i>line_name</i> | LINE | CALL=INOUT | |
| <i>pu_name</i> | PU | | |

Figure 94. VTAM External Communication Adapter (XCA) Major Node Guidelines

The following describes the pertinent operands on the **VBUILD** statement:

TYPE

Specify XCA to indicate that the node is an External Communication Adapter major node.

The following describes the pertinent operands on the **PORT** statement:

ADAPNO

Specifies the adapter number in the 3172 interconnect controller.

CUADDR

Defines the 3-digit hexadecimal channel control unit address that is used for the attached local area network (LAN).

MEDIUM

Specify RING for a token-ring network.

The following describes the pertinent operands on the **GROUP** statement:

DIAL

Specify YES to indicate that the lines in the group require switched line control protocols.

The following describes the pertinent operands on the **LINE** statement:

CALL

Specifies whether the link station in the 3172 interconnect controller should call out to the remote link station, or whether the remote link station should call into the 3172 interconnect controller link station.

Specify CALL=INOUT, which enables either **calling** or **listening** link stations to be configured in SNA Server/6000.

Specifying the SNA Server/6000 Profiles

This section contains guidelines on configuring the SNA Server/6000 Profiles. Configure these profiles through the System Management Interface Tool (SMIT) panels. Examples of these panels and the hierarchical paths to each SNA definition are illustrated in “SNA Server/6000 Configuration Profile Examples” on page 70.

Note: You must have **root** authority to add or change SNA Server/6000 configuration profiles. After you add or change SNA Server/6000 configuration profiles, you must **verify** and **update** them. For more information about performing this task, see “Verifying and Updating SNA Server/6000 Configuration Profiles” on page 8.

Specifying the SNA Node Profile for PSF Direct: PSF Direct requires no modifications to the SNA Node profile.

Specifying the Control Point Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Control Point Profile. Note that all values refer to Figure 95.

| | |
|-------------------------|-----------------|
| XID node ID | [*] |
| Control Point (CP) name | [cp_name] |
| Control Point type | appn_end_node + |

Figure 95. Control Point Profile Guidelines

XID node ID

If the IDBLK and IDNUM operands are used in the VTAM switched major node PU statement (rather than CPNAME), then the **XID node ID** value in the Control Point profile or Token-Ring Link Station profile must match the combined IDBLK and IDNUM operands. The IDBLK operand is normally 071 for SNA Server/6000.

Either the CPNAME operand or both the IDBLK and IDNUM operands are required. CPNAME can only be used with PU type 2.1 nodes, such as SNA Server/6000.

Control Point (CP) name

If the CPNAME operand is used in the VTAM switched major node PU statement (rather than IDBLK and IDNUM), then the **Control Point (CP) name** must match the CPNAME operand. By convention, the CPNAME is usually the same as the PU name.

Either the CPNAME operand or both the IDBLK and the IDNUM operands are required. CPNAME can only be used with PU type 2.1 nodes, such as SNA Server/6000.

Control Point type

Specify either `appn_end_node` or `appn_network_node`.

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Specifying the Token-Ring SNA DLC Profile for PSF Direct: The following displays how to specify the values PSF Direct requires in the Token-Ring SNA DLC Profile. Note that all values refer to Figure 96.

| | | |
|----------------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Data link device name | [<i>tokn</i>] | + |
| Receive window count (1-127) | [1] | # |
| Local SAP address (04-ec) | [04] | X |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |

Figure 96. Token-Ring SNA DLC Profile Guidelines

Profile name

Choose any meaningful value.

Data link device name

Select one of the available adapters.

Receive window count (1-127)

Specify 1.

The **Receive window count** defines the size of the link-level window. It specifies the maximum number of frames to receive before sending a link-level acknowledgement.

Because VTAM ignores the MAXOUT operand for a type 2.1 physical unit (PU) connected through a 3172 interconnect controller, it is not clear how many frames the 3172 interconnect controller sends before waiting for a link-level acknowledgement.

Specifying 1 for the **Receive window count** parameter ensures that the 3172 interconnect controller does not wait for prolonged periods for a link-level acknowledgement.

The default **Receive window count** value is 8; extremely poor performance can result if you do not set this value to 1.

Local SAP address (04-ec)

Specify 04.

Link Recovery Parameters - Retry interval (1-10000 seconds)

Specify 60. If the link station is a **calling** link station, this value causes it to try to establish a link connection with the 3172 interconnect controller every 60 seconds, until a link connection can be established.

Link Recovery Parameters - Retry limit (0-500 attempts)

Specify 0. If the link station is a **calling** link station, this value indicates that there is no limit on the number of attempts the link station makes to establish a link connection with the 3172 interconnect controller. The interval between the attempts is defined by the previous parameter.

Specifying the Token-Ring Link Station Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Token-Ring Link Station Profile. Note that all values refer to Figure 97.

| | | |
|---|-----------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Use APPN Control Point's XID node ID? | yes | + |
| If no, XID node ID | [*] | |
| * SNA DLC Profile name | [<i>DLC_profile_name</i>] | + |
| Stop link station on inactivity? | no | + |
| LU address registration? | no | + |
| Adjacent Node Address Parameters | | |
| Access routing | link_address | + |
| If link_address, | | |
| Remote link address | [<i>nnnnnnnnnnnn</i>] | X |
| Remote SAP address (04-ec) | [04] | X |
| Adjacent Node Identification Parameters | | |
| Verify adjacent node? | no | + |
| Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| Initiate call when link station is activated? | yes | + |
| Activate link station at SNA start up? | yes | + |
| Restart Parameters | | |
| Restart on activation? | no | + |
| Restart on normal deactivation? | yes | + |
| Restart on abnormal deactivation? | yes | + |

Figure 97. Token-Ring Link Station Profile Guidelines

Local 3172 Token-Ring

Profile name

Choose any meaningful value.

Use APPN Control Point's XID node ID?

Select yes if the CPNAME operand is used in the VTAM switched major node PU statement or IDBLK and IDNUM are used and these operands match the Control Point's **XID node ID**.

Select no if the VTAM switched major node PU statement uses IDBLK and IDNUM and these values do not match the Control Point's **XID node ID**.

If no, XID node ID

If **Use APPN Control Point's XID node ID?** is no, this parameter must match the combined IDBLK and IDNUM operands in the VTAM switched major node PU statement.

The **XID node ID** has form xxxxxxxx, where x is a hexadecimal digit (0-F). The first three positions correspond to the IDBLK operand. The last five positions correspond to the IDNUM operand.

Normally, the first three hexadecimal digits should be 071 for SNA Server/6000.

SNA DLC Profile name

Select the name of the SNA DLC profile.

Stop link station on inactivity?

Select no.

LU address registration?

Select no.

Adjacent Node Address Parameters - Access routing

Select link_address.

This parameter is referenced only for **calling** link stations and selective **listening** link stations. For more information, refer to ““Calling” Versus “Listening” Link Stations” on page 11.

Adjacent Node Address Parameters - Remote link address

For **calling** link stations, specify the Token-Ring address of the 3172 interconnect controller's Token-Ring adapter. The token-ring address is 12 hexadecimal digits. Normally, the adapter uses its universal MAC address.

To display an adapter's universal MAC address, see the topic “Show Universally Administered Address of LAN Adapter in Slot n” in the “IBM 3172 Commands” section of the *3172 Program User's Guide*. It describes the following procedure:

1. Specify from the display console:

D0n

where *n* is the slot number of the LAN adapter.

The console displays Fd0n.

2. Press the ENTER key to execute the command.

The console displays the first four digits of the address.

3. Press the ENTER key a second time.

The console displays the second four digits of the address.

4. Press the ENTER key a third time.

The console displays the third four digits of the address.

5. Press the CLEAR key to end the display.

For **listening** link stations, leave this parameter blank.

Adjacent Node Address Parameters - Remote SAP address

Specify 04.

Adjacent Node Identification Parameters - Verify adjacent node?

Select no.

Link Activation Parameters - Solicit SSCP sessions?

Select yes.

Link Activation Parameters - Initiate call when link station is activated?

To define a **calling** link station, select yes.

To define a **listening** link station, select no.

Link Activation Parameters - Activate link station at SNA start up?

Select yes.

Restart Parameters - Restart on activation?

Select no.

Restart Parameters - Restart on normal deactivation?

Select yes.

Restart Parameters - Restart on abnormal deactivation?

Select yes.

Local 3172 Token-Ring

Specifying the LU 6.2 Local LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Local LU Profile. Note that all values refer to Figure 98.

| | | |
|---------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU name | [<i>lu_name</i>] | |
| Local LU alias | [<i>lu_alias</i>] | |
| Local LU is dependent? | no | + |
| If yes, | | |
| Local LU address (1-255) | [] | # |
| Link Station Profile name | [] | + |

Figure 98. LU 6.2 Local LU Profile Guidelines

Profile name

Choose any meaningful value.

Local LU name

This value must match both the name on the LU statement in the VTAM switched major node and the LUNAME parameter in the host PSF printer configuration (the PRINTDEV statement or OPTIONS PDM file).

Local LU alias

Choose any meaningful value.

Local LU is dependent?

The logical unit can be either dependent (yes) or independent (no). Dependent logical units are managed by an SSCP. In general, independent logical units offer more flexibility.

For dependent logical units, the LOCADDR value in the VTAM switched major node LU statement is non-zero. For independent logical units, LOCADDR=0.

If yes, Local LU address (1-255)

If the logical unit is dependent, the **Local LU address** parameter must match the LOCADDR value in the VTAM switched major node LU statement.

If yes, Link Station Profile name

If the logical unit is dependent, select the profile name of the link station through which SNA Server/6000 communicates with the host system.

Specifying the LU 6.2 Partner LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Partner LU Profile. Note that all values refer to Figure 99.

Note: You must configure an LU 6.2 Partner LU profile. Some SNA Server/6000 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, SNA Server/6000 requires an LU 6.2 Partner LU profile in PSF Direct configurations even if the local LU is an independent logical unit.

| | | |
|---------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Partner LU alias | [<i>partner_lu_alias</i>] | |
| Parallel sessions supported? | no | + |
| Session security supported? | no | + |
| Conversation security level | none | + |

Figure 99. LU 6.2 Partner LU Profile Guidelines

Profile name

Choose any meaningful value.

Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Partner LU alias

Choose any meaningful value.

Parallel sessions supported?

Select no.

Session security supported?

Select no.

Conversation security level

Select none.

Local 3172 Token-Ring

Specifying the LU 6.2 Side Information Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Side Information Profile. Note that all values refer to Figure 100.

Note: You must configure an LU 6.2 Side Information profile if the local LU is a dependent logical unit. If the local LU is an independent logical unit, an LU 6.2 Side Information profile is not required.

| | | |
|------------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU or Control Point alias | [<i>lu_alias</i>] | + |
| Provide only one of the following: | | |
| Partner LU alias | [] | + |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Mode name | [] | + |

Figure 100. LU 6.2 Side Information Profile Guidelines

Profile name

Choose any meaningful value.

Local LU or Control Point alias

Select the local LU alias that you specified in the LU 6.2 Local LU profile.

Partner LU alias

You can either select the partner LU alias that you specified in the LU 6.2 Partner LU profile or you can specify a value for the **Fully qualified partner LU name** parameter.

Fully qualified partner LU name

You can either specify a fully qualified partner LU name or you can select a value for the **Partner LU alias** parameter.

The **Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Mode name

Do not provide a value for the **Mode name** parameter.

Specifying the LU 6.2 Mode Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Mode Profile. Note that all values refer to Figure 101.

| | | | |
|--|------------|--|---|
| Current profile name | BLANK | | |
| Mode name | [] | | |
| Receive pacing window (0-63) | [16] | | # |
| Maximum RU size (128,...,32768: multiples of 32) | [1024] | | # |
| Minimum RU size (128,...,32768: multiples of 32) | [256] | | # |
| Class of Service (COS) name | [#CONNECT] | | |

Figure 101. Sample LU 6.2 Mode Profile Guidelines

Current profile name

The BIND image provided by PSF/MVS, PSF/VSE, and PSF/VM does not include a mode name. Therefore, SNA Server/6000 uses the predefined Mode profile named BLANK.

Mode name

The **Mode name** in the BLANK profile is 8 spaces.

Receive pacing window (0-63)

The receive pacing window used in the LU-LU session is the lesser of this parameter's value and the SRCVPAC value in the VTAM MODEENT statement.

Specifying 16 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Maximum RU size

The maximum RU size used in the LU-LU session is the lesser of this parameter's value and the RUSIZES value in the VTAM MODEENT statement.

Specifying 1024 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Minimum RU size

Specify 256.

Class of Service (COS) name

Select #CONNECT.

Specifying the LU 6.2 Transaction Program Name Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Transaction Program Name (TPN) Profile. Note that all values refer to Figure 102.

| | | |
|---|-----------------------------|---|
| * Profile name | [psfdirect] | |
| Transaction program name (TPN) | [30F0F0F0] | |
| Transaction program name (TPN) is in hexadecimal? | yes | + |
| PIP data? | no | + |
| Conversation type | basic | + |
| Sync level | none | + |
| Resource security level | none | + |
| Full path to TP executable | [/usr/lpp/psf/bin/ainpsfhr] | |
| Multiple instances supported? | yes | |
| User ID | [0] | # |
| Communication type | signals | + |

Figure 102. LU 6.2 Transaction Program Name (TPN) Guidelines

Profile name

Choose any meaningful value.

Transaction Program name (TPN)

Specify 30F0F0F0. This matches the value provided in the FMH 5 (Attach) from the host PSF system.

Transaction Program name (TPN) is in hexadecimal?

Select yes.

PIP data?

Select no.

Conversation type

Select basic.

The host PSF program and the PSF Direct host receiver communicate using a basic conversation. SNA Server/6000 supports both basic and mapped conversation types.

Sync level

Select none.

The PSF Direct host receiver does not send or respond to CONFIRM requests.

Resource security level

Select none.

The host PSF programs do not support security verification.

Full path to TP executable

Specify /usr/lpp/psf/bin/ainpsfhr. The IBM InfoPrint Manager for AIX installation procedure places the PSF Direct host receiver in this location.

Multiple instances supported?

Select yes so that more than one PSF Direct host receiver can run concurrently.

User ID

Specify 0. The effective uid of the PSF Direct host receiver must be "0", indicating **root** or super-user.

Communication type

Select signals.

Configuration Worksheet

Use the following worksheet to record values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 4. Configuration Worksheet</i> | | | | |
|---|--------------|------------|-------------------------------------|----------------------|
| SNA Server/6000 | Value | PSF | VTAM | 3172 |
| Control Point: Control Point (CP) name | | | PU: name PU: CPNAME | |
| Token-Ring Link Station: Remote link address | | | | universal address |
| LU 6.2 Local LU: Local LU name | | LUNAME | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | | | MODEENT: RUSIZES | |

Chapter 5. Local 3174 Token-Ring Gateway

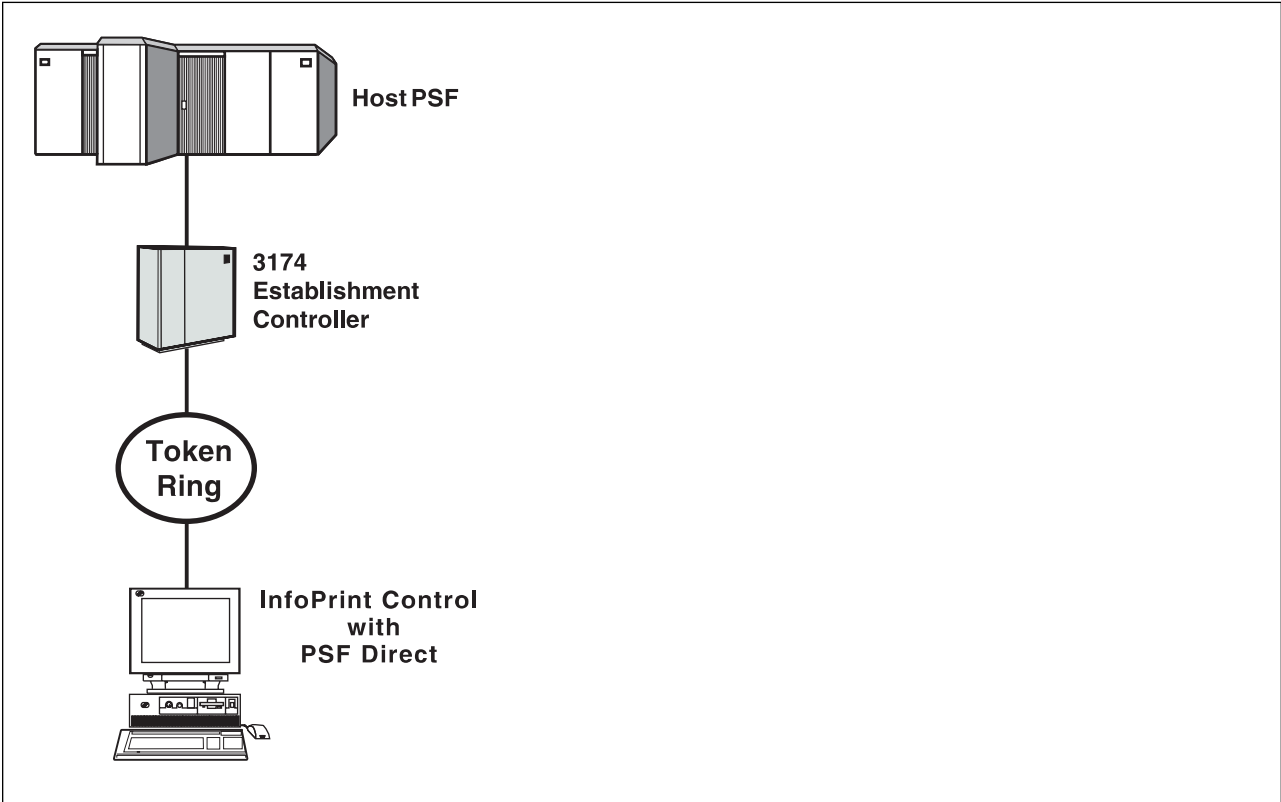


Figure 103. Local 3174 Token-Ring Gateway

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, the internal components of the network and details of their operation must be described.

Considering two views of an SNA network, an **application view** and a **network internals view**, aids in understanding PSF Direct configuration requirements.

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) and the connection between them is a **session**. A **mode** describes a session's characteristics, or guidelines for exchanging data.

The application view (Figure 104) illustrates the interface that SNA provides to applications, such as the host PSF program and the PSF Direct component of InfoPrint. These applications are isolated from details of the internal components of the SNA network.

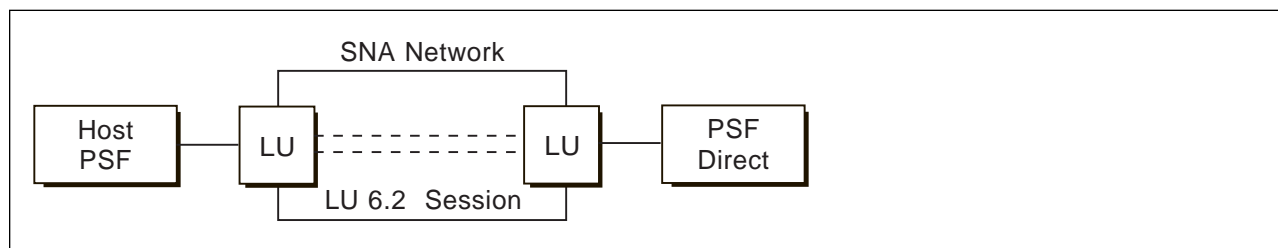


Figure 104. Application View of a PSF Direct Attachment

As the application view suggests, only a few values are required to configure the host PSF program and PSF Direct so that they can communicate. Figure 105 on page 101 displays the values used by both applications. Note that each configuration parameter references a logical unit or mode provided by the SNA network.

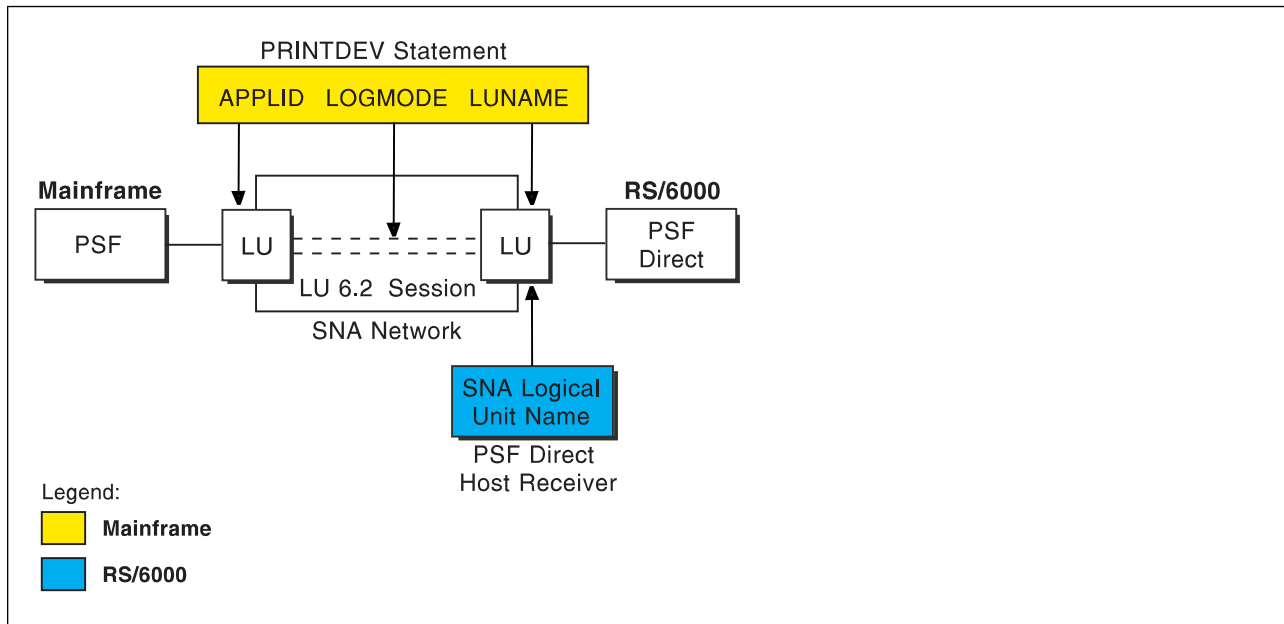


Figure 105. Application View With Configuration Parameters

Host PSF PRINTDEV Statement Parameters

APPLID

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

LUNAME

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

LOGMODE

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. LOGMODE 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

SNA Logical Unit name

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

Because there may be several PSF Direct host receivers on a RS/6000 and several RS/6000's 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.

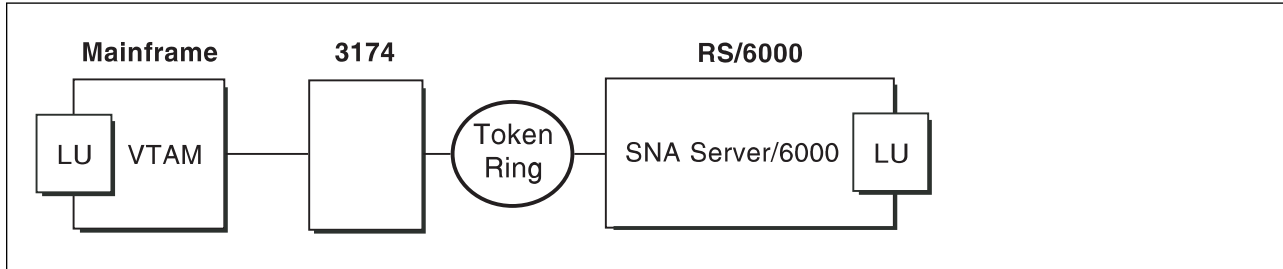


Figure 106. Network Internals View With Some Configuration Requirements

The network internals view illustrates that many components comprise an SNA network. Most of the components have detailed configuration requirements. Many of those requirements are described in this chapter.

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. These interrelated parameters must be configured consistently to make end-to-end communication possible.

Several figures follow. They illustrate some of the key interrelationships among configuration parameters for SNA network components.

Key Configuration Parameter Interrelationships: Figure 107 illustrates the interrelationships in defining logical unit (LU) names.

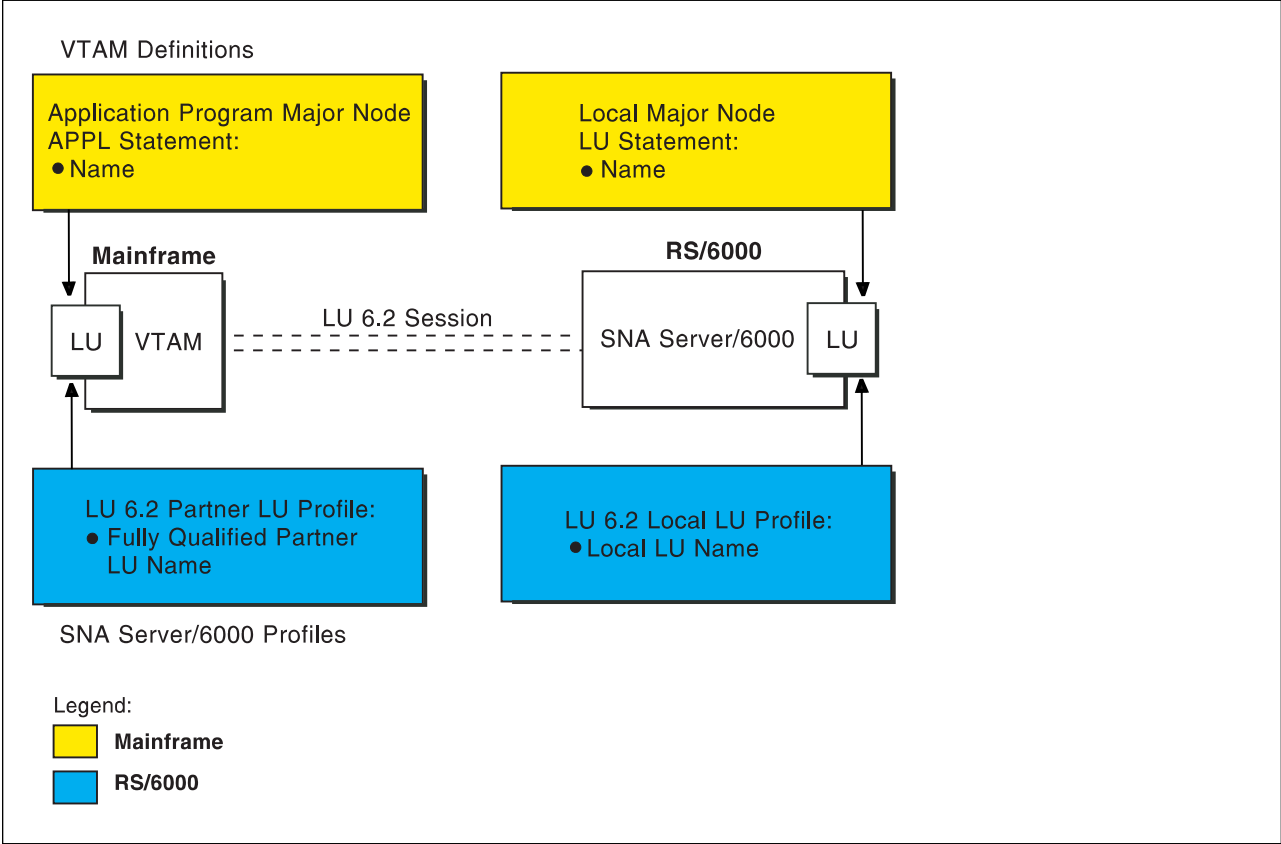


Figure 107. Logical Unit Names

Local 3174 Token-Ring Gateway

Figure 108 illustrates the interrelationships in defining the local address of the logical unit provided by SNA Server/6000.

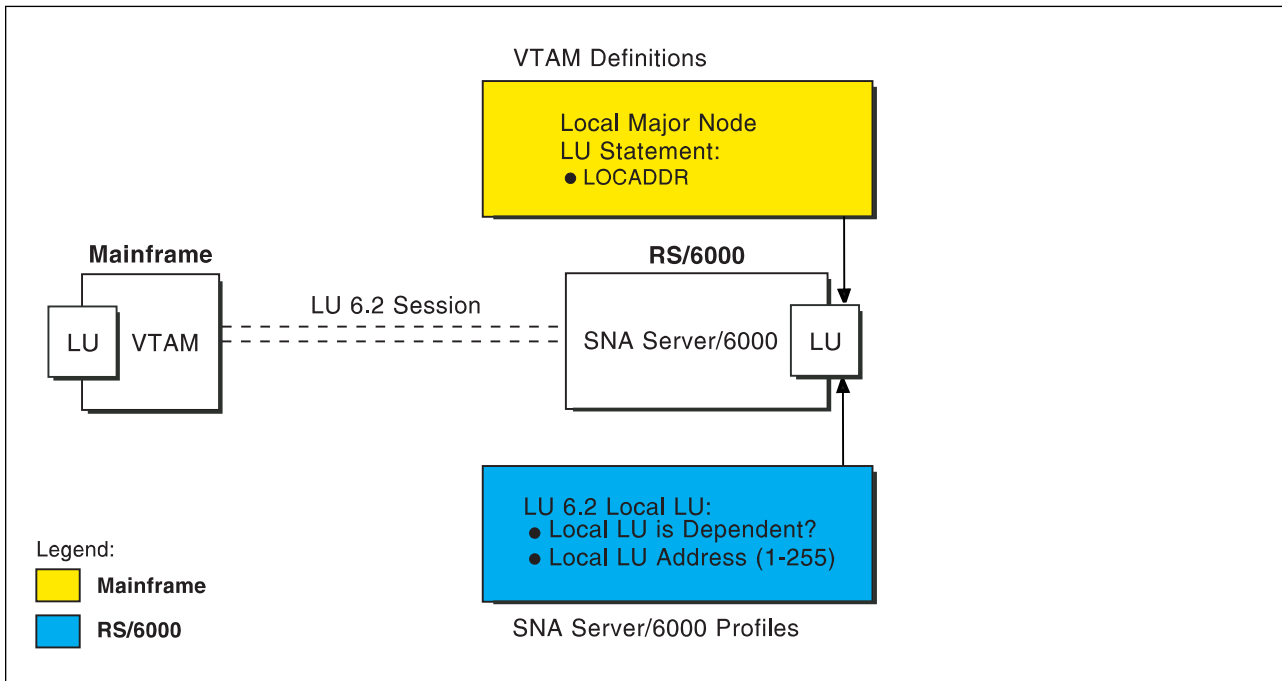


Figure 108. Local Address of Logical Unit

Figure 109 illustrates the interrelationships in defining session characteristics.

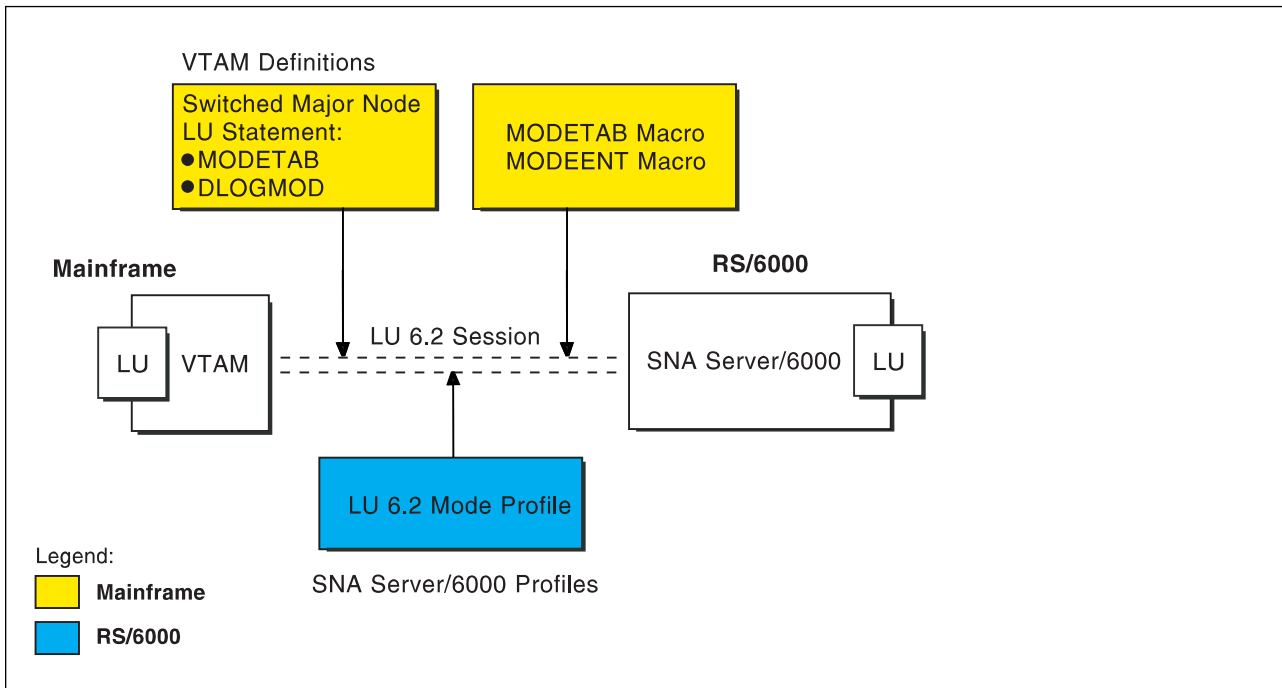


Figure 109. Session Characteristics

Figure 110 illustrates the interrelationships in defining the name of the physical unit/control point provided by SNA Server/6000.

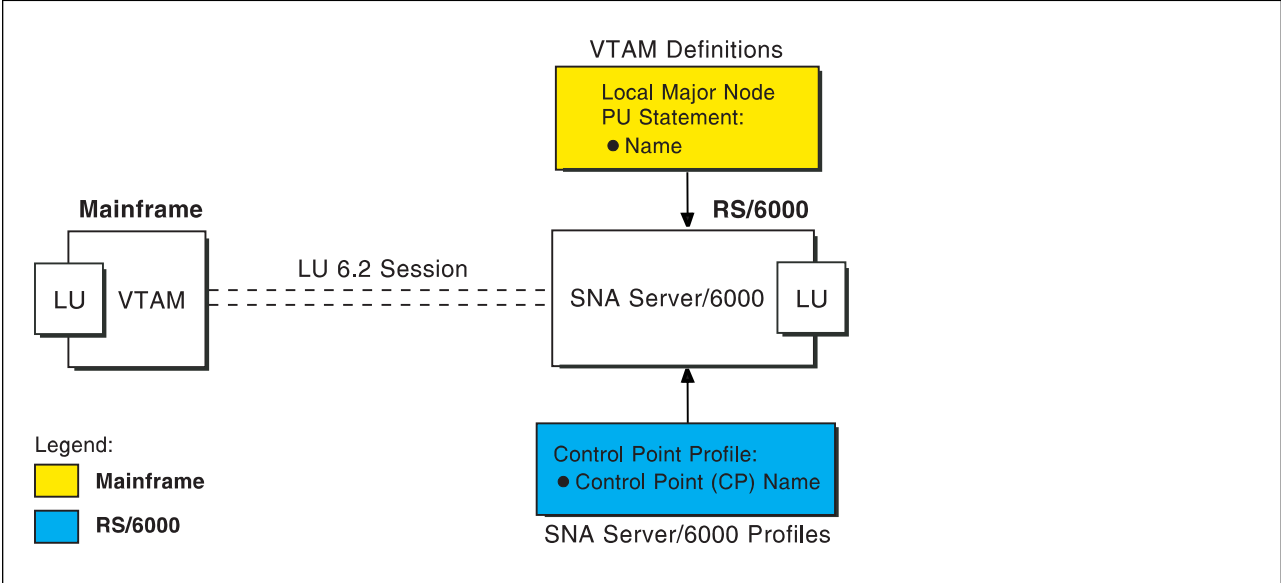


Figure 110. Physical Unit/Control Point Name

Figure 111 illustrates the interrelationships in defining token-ring addresses used in this configuration.

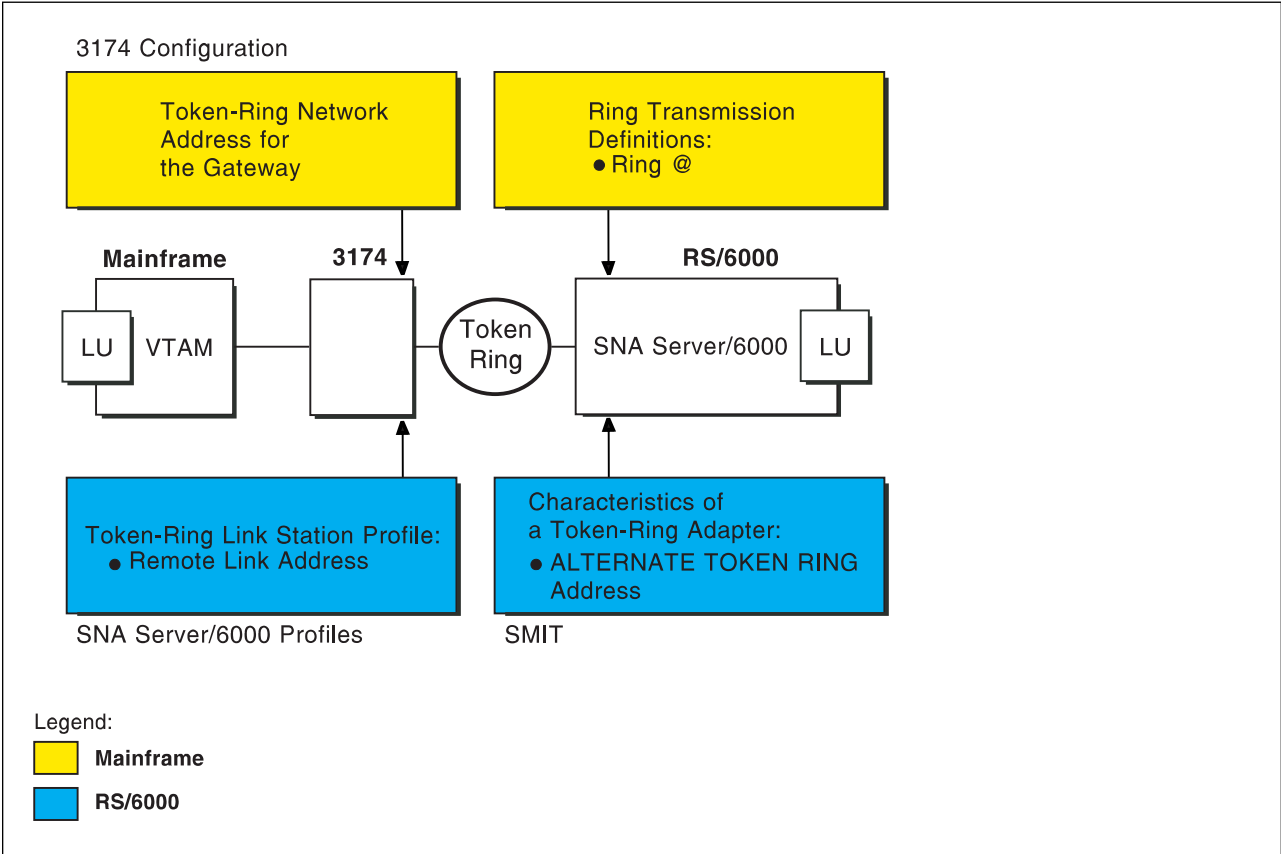


Figure 111. Token-Ring Addresses

Local 3174 Token-Ring Gateway Example

The following local 3174 token-ring gateway example uses MVS and JES2. For an explanation of pertinent configuration parameters, see “Guidelines for Configuring Local 3174 Token-Ring Gateway” on page 121.

JES2 Initialization Statement Example

Figure 112 shows the JES2 printer definition initialization member, located in the system parmlib. For more information about specifying this statement, see “Specifying the JES2 Initialization Statement” on page 121.

```
PRT833 CLASS=Y,MARK=YES,START=NO,MODE=FSS,FSS=WTR833,      X
PRMODE=(LINE,PAGE),UCS=0
```

Figure 112. Sample PSF/MVS JES2 Printer Definition

JES2 External Writer Procedure Example

For more information on specifying these values, see “Configuring the Host PSF Printer” on page 121.

```

//WTR833 PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K
//*
//STEPLIB DD DSN=SYSTEM.PSF.V220.LINKLIB,DISP=SHR
//*
//JOBHDR OUTPUT PAGEDEF=A06462, /* JOB HEADER PAGEDEF */
// FORMDEF=A10110 /* JOB HEADER FORMDEF */
//JOBTLR OUTPUT PAGEDEF=A06462, /* JOB TRAILER PAGEDEF */
// FORMDEF=A10110 /* JOB TRAILER FORMDEF */
//DSHDR OUTPUT PAGEDEF=A06462, /* DATA SET HEADER PAGEDEF */
// FORMDEF=A10110 /* DATA SET HEADER FORMDEF */
//MSGDS OUTPUT PAGEDEF=A06462, /* MESSAGE DATASET PAGEDEF */
// FORMDEF=A10110 /* MESSAGE DATASET FORMDEF */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR
//OLAY01 DD DSN=SYS1.OVERLIB,DISP=SHR
//PSEG01 DD DSN=SYS1.PSEGLIB,DISP=SHR
//FDEF01 DD DSN=SYS1.FDEFLIB,DISP=SHR
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR
//*
//PRT833 PRINTDEV FONTDD=*.FONT01, /* FONT LIBRARY DD */
// OVLYDD=*.OLAY01, /* OVERLAY LIBRARY DD */
// PSEGDD=*.PSEG01, /* SEGMENT LIBRARY DD */
// PDEFDD=*.PDEF01, /* PAGEDEF LIBRARY DD */
// FDEFDD=*.FDEF01, /* FORMDEF LIBRARY DD */
// JOBHDR=*.JOBHDR, /* JOB HEADER DD */
// JOBTRLR=*.JOBTLR, /* JOB TRAILER DD */
// DSHDR=*.DSHDR, /* DATA SET HEADER DD */
// MESSAGE=*.MSGDS, /* MESSAGE DATA DD */
// PAGEDEF=A06462, /* DEFAULT PAGEDEF */
// FORMDEF=A10110, /* DEFAULT FORMDEF */
// CHARS=(GT10,GC15,GB10,GR10), /* DEFAULT FONT SET */
// PIMSG=YES, /* ACCUMULATE DATA SET MSGS */
// SETUP=FORMS, /* ISSUE FORMS SETUP MSGS */
// MGMTMODE=OUTAVAIL, /* START WHEN OUTPUT AVAIL. */
// DISCINTV=60, /* DISCONNECT INTERVAL--SECS*/
// LOGMODE=IBM3820T, /* LOGON MODE TABLE ENTRY */
// APPLID=FSAES833, /* APPLICATION PGM NAME */
// LUNAME=PSFD0101 /* LOGICAL UNIT NAME */
//PRT833 ENDCNTL

```

Figure 113. Sample PSF/MVS Start Up Procedure

VTAM Start Option List (ATCSTRxx) Example

For an explanation of these values, refer to “Specifying the VTAM Start Option List (ATCSTRxx)” on page 123.

| | | |
|----------------|--------------------------|---|
| CONFIG=00, | ATCCON MEMBER OF VTAMLST | X |
| NETID=USIBMBQ, | NETWORK IDENTIFIER | X |
| SSCPID=1, | SSCP IDENTIFIER | X |
| : | | |

Figure 114. Sample VTAM Start Option List

VTAM Configuration List (ATCCONnn) Example

For an explanation of these values, refer to “Specifying the VTAM Configuration List (ATCCONnn)” on page 123.

| | |
|----------|---|
| PSFAPPLS | X |
| : | |

Figure 115. Sample VTAM Configuration List

VTAM Application Program Major Node and Application Program Example

For an explanation of these values, refer to “Specifying the VTAM Application Program Major Node and Application Program” on page 124.

| | |
|----------|---------------------------------|
| PSFAPPLS | VBUILD TYPE=APPL |
| FSAES833 | APPL AUTH=ACQ,EAS=1,SONSCIP=YES |
| : | |

Figure 116. Sample VTAM Application Program Major Node and Application Program

VTAM Mode Table and Entry Example

For an explanation of these values, refer to “Specifying the VTAM Mode Table and Entry” on page 124.

| | | |
|----------|---|---|
| MODEIBM | MODETAB | |
| IBM3820T | MODEENT LOGMODE=IBM3820T,FMPROF=X'13',TSPROF=X'07', | X |
| | PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' | X |
| | PSERVIC=X'060200000000000000002000', | X |
| | PSNDPAC=X'10',SRCVPAC=X'10',SSNDPAC=X'00', | X |
| | RUSIZES=X'8787' | |

Figure 117. Sample VTAM Mode Table and Entry

VTAM Local Major Node Example

For an explanation of these values, see “Specifying the VTAM Local Major Node” on page 125.

```

LOCAIX01  VBUILD TYPE=LOCAL
*
AIX01     PU     CUADDR=3C2,          CHANNEL CONTROL UNIT ADDRESS  X
           MAXBFRU=10,              VTAM BUFFERS FOR RECEIVING   X
           MODETAB=MODEIBM,         LOGON MODE TABLE            X
           DLOGMOD=IBM3820T,       LOGON MODE TABLE ENTRY     X
           VPACING=0                NO PACING TO BOUNDARY NODE
*
PSFD0101  LU     LOCADDR=1           DEPENDENT LU

```

Figure 118. Sample VTAM Local Major Node

3174 Establishment Controller Configuration Example

For an explanation of these values, refer to “Specifying the 3174 Establishment Controller Configuration” on page 127.

```

Configuration Support C Release 3

900: Token-Ring Network Address for the Gateway

    4000 3000 1001

940: Ring Address Assignment

    S@   Ring@           SAP
    C1   4000 3000 1001
    C2   4000 3000 1002   04

941: Ring Transmission Definition

           F   W
    C1   4000 3000 1001
    C2   4000 3000 1002   2   7

```

Figure 119. Sample 3174 Establishment Controller Configuration

SNA Server/6000 Configuration Profile Examples

This section lists sample SNA Server/6000 profiles. Each profile is preceded by the sequence of SMIT panels to access the profile.

- SNA Node
- Control Point
- Token-Ring SNA DLC
- Token-Ring Link Station
- LU 6.2 Local LU
- LU 6.2 Partner LU
- LU 6.2 Side Information
- LU 6.2 Mode
- LU 6.2 Transaction Program Name

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          SNA System Defaults
            Change/Show a Profile
```

Figure 120. SMIT Panel Sequence For SNA Node Profile

| | | |
|---|-----------------------|---|
| Profile name | sna | |
| Maximum number of sessions (1-5000) | [200] | # |
| Maximum number of conversations (1-5000) | [200] | # |
| Restart action | once | + |
| Recovery resource manager (RRM) enabled? | no | + |
| Dynamic inbound partner LU definitions allowed? | yes | + |
| NMVT action when no NMVT process | reject | + |
| Standard output file/device | [/dev/console] | |
| Standard error file/device | [/var/sna/sna.stderr] | |
| Comments | [] | |

Figure 121. Sample SNA Node Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Control Point
            Change/Show a Profile

```

Figure 122. SMIT Panel Sequence For Control Point Profile

| | | |
|---|-----------------|---|
| Profile name | node_cp | |
| XID node ID | [*] | |
| Network name | [USIBMBQ] | |
| Control Point (CP) name | [AIX01] | |
| Control Point alias | [AIX01] | |
| Control Point type | appn_end_node + | |
| Maximum number of cached routing trees | [500] | # |
| Maximum number of nodes in the TRS database | [500] | # |
| Route addition resistance | [128] | # |
| Comments | [] | |

Figure 123. Sample Control Point Profile

Local 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring
              Token-Ring SNA DLC
                Add a Profile
```

Figure 124. SMIT Panel Sequence For Token-Ring SNA DLC Profile

| | | |
|---|-----------|---|
| * Profile name | [tr3174] | |
| Data link device name | [tok0] | + |
| Force disconnect time-out (1-600 seconds) | [120] | # |
| User-defined maximum I-Field size? | no | + |
| If yes, Max. I-Field size (265-30729) | [30729] | # |
| Max. num of active link stations (1-255) | [100] | # |
| Number reserved for inbound activation | [0] | # |
| Number reserved for outbound activation | [0] | # |
| Transmit window count (1-127) | [16] | # |
| Dynamic window increment (1-127) | [1] | # |
| Retransmit count (1-30) | [8] | # |
| Receive window count (1-127) | [7] | # |
| Ring access priority | [0] | + |
| Inactivity time-out (1-120 seconds) | [48] | # |
| Response time-out (1-40, 500 msec intervals) | [4] | # |
| Acknowledge time-out (1-40, 500 msec intervals) | [1] | # |
| Local link name | [] | |
| Local SAP address (04-ec) | [04] | X |
| Trace base listening link station? | no | + |
| If yes, Trace format | long | + |
| Dynamic link stations supported? | yes | + |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |
| Dynamic Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| CP-CP sessions supported? | yes | + |
| Partner required to support CP-CP sessions? | no | + |
| Dynamic Link TG COS Characteristics | | |
| Effective capacity | [4300800] | # |
| Cost per connect time | [0] | # |
| Cost per byte | [0] | # |
| Security | nonsecure | + |
| Propagation delay | lan | + |
| User-defined 1 | [128] | # |
| User-defined 2 | [128] | # |
| User-defined 3 | [128] | # |
| Comments | [] | |

Figure 125. Sample Token-Ring SNA DLC Profile

Local 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring Link Station
              Add a Profile
```

Figure 126. SMIT Panel Sequence For Token-Ring Link Station Profile

| | | | |
|---|----------------|---|--|
| * Profile name | [tr3174] | | |
| Use APPN Control Point's XID node ID? | yes | + | |
| If no, XID node ID | [*] | | |
| * SNA DLC Profile name | [tr3174] | + | |
| Stop link station on inactivity? | no | + | |
| If yes, Inactivity time-out (0-10 minutes) | [0] | # | |
| LU address registration? | no | + | |
| If yes, LU Address Registration Profile name | [] | + | |
| Trace link? | no | + | |
| If yes, Trace size | long | + | |
| Adjacent Node Address Parameters | | | |
| Access routing | link_address | + | |
| If link_name, Remote link name | [] | | |
| If link_address, | | | |
| Remote link address | [400030001001] | X | |
| Remote SAP address (04-ec) | [04] | X | |
| Adjacent Node Identification Parameters | | | |
| Verify adjacent node? | no | + | |
| Network ID of adjacent node | [] | | |
| CP name of adjacent node | [] | | |
| XID node ID of adjacent node (LEN node only) | [*] | | |
| Node type of adjacent node | learn | + | |
| Link Activation Parameters | | | |
| Solicit SSCP sessions? | yes | + | |
| Initiate call when link station is activated? | yes | + | |
| Activate link station at SNA start up? | yes | + | |
| Activate on demand? | no | + | |
| CP-CP sessions supported? | yes | + | |
| If yes, | | | |
| Adjacent network node preferred server? | no | + | |
| Partner required to support CP-CP sessions? | no | + | |
| Initial TG number (0-20) | [0] | # | |
| Restart Parameters | | | |
| Restart on activation? | no | + | |
| Restart on normal deactivation? | yes | + | |
| Restart on abnormal deactivation? | yes | + | |
| Transmission Group COS Characteristics | | | |
| Effective capacity | [4300800] | # | |
| Cost per connect time | [0] | # | |
| Cost per byte | [0] | # | |
| Security | nonsecure | + | |
| Propagation delay | lan | + | |
| User-defined 1 | [128] | # | |
| User-defined 2 | [128] | # | |
| User-defined 3 | [128] | # | |
| Comments | [] | | |

Figure 127. Sample Token-Ring Link Station Profile

Local 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Local LU
                Add a Profile
```

Figure 128. SMIT Panel Sequence For LU 6.2 Local LU Profile

```
* Profile name                [PSFD0101]
Local LU name                 [PSFD0101]
Local LU alias                [PSFD0101]
Local LU is dependent?       yes      +
  If yes,
    Local LU address (1-255)  [1]      #
    System services control point
      (SSCP) ID (*, 0-65535)  [*]
    Link Station Profile name [tr3174] +
Conversation Security Access List Profile name []

Comments                      []
```

Figure 129. Sample LU 6.2 Local LU Profile

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Partner LU
                Add a Profile
```

Figure 130. SMIT Panel Sequence For LU 6.2 Partner LU Profile

```
* Profile name                [FSAES833]
Fully qualified partner LU name [USIBMBQ.FSAES833]
Partner LU alias              [FSAES833]
  Parallel sessions supported?  no      +
  Session security supported?   no      +
  Conversation security level    none    +

Comments                      []
```

Figure 131. Sample LU 6.2 Partner LU Profile


```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Side Information
                Add a Profile

```

Figure 132. SMIT Panel Sequence for LU 6.2 Side Information Profile

| | | |
|--|--------------------|---|
| * Profile name | [PSFD0101] | |
| Local LU or Control Point alias | [PSFD0101] | + |
| Provide only one of the following: | | |
| Partner LU alias | [] | + |
| Fully qualified partner LU name | [USIBMBQ.FSAES833] | |
| Mode name | [] | + |
| Remote transaction program name (RTPN) | [] | |
| RTPN in hexadecimal? | no | + |
| Comments | [] | |

Figure 133. Sample LU 6.2 Side Information Profile

Local 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Mode
                Change/Show a Profile
```

Figure 134. LU 6.2 Mode Profile

```
Current profile name          BLANK
Mode name                    [      ]
Maximum number of sessions (1-5000) [8]      #
Minimum contention winners (0-5000) [4]      #
Minimum contention losers (0-5000)  [0]      #
Auto activate limit (0-500)        [0]      #
Upper bound for adaptive receive pacing window [16]    #
Receive pacing window (0-63)       [16]    #
Maximum RU size (128,...,32768: multiples of 32) [1024]  #
Minimum RU size (128,...,32768: multiples of 32) [256]   #
Class of Service (COS) name       [#CONNECT]
Comments                        []
```

Figure 135. Sample LU 6.2 Mode Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Transaction Program Name (TPN)
                Add a Profile

```

Figure 136. LU 6.2 Transaction Program Name (TPN) Profile

```

* Profile name                [psfdirect]
Transaction program name (TPN) [30F0F0F0]
Transaction program name (TPN) is in hexadecimal? yes      +
PIP data?                     no        +
  If yes, Subfields (0-99)    [0]      #
Conversation type             basic     +
Sync level                    none      +
Resource security level      none      +
  If access, Resource Security Access List Prof. []
Full path to TP executable   [/usr/lpp/psf/bin/ainpsfhr]
Multiple instances supported? yes
User ID                       [0]      #
Server synonym name          []
Restart action                once      +
Communication type           signals   +
  If IPC, Communication IPC queue key [0]      #
Standard input file/device   [/dev/console]
Standard output file/device  [/dev/console]
Standard error file/device   [/dev/console]

Comments                      []

```

Figure 137. Sample LU 6.2 Transaction Program Name (TPN) Profile

Configuration Worksheet Example

The following worksheet records values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 5. Sample Configuration Worksheet</i> | | | | |
|---|-------------------|------------|-------------------------------------|----------------|
| SNA Server/6000 | Value | PSF | VTAM | 3174 |
| Control Point: Control Point (CP) name | AIX01 | | PU: name | |
| Token-Ring DLC: Receive window count | 7 | | | item 941: W |
| Token-Ring Link Station: Remote link address | 400030001001 | | | item 900 |
| LU 6.2 Local LU: Local LU name | PSFD0101 | LUNAME | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | yes | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | 1 | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | 16 | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | 1024 | | MODEENT: RUSIZES | |

Guidelines for Configuring Local 3174 Token-Ring Gateway

The following provides guidance for implementing the examples displayed in “Local 3174 Token-Ring Gateway Example” on page 106. Note that a subset of the example is displayed below, displaying the pertinent parameters and describing which of these require you to specify *variable_names* and which require a specific name or number, such as **MODETAB=MODEIBM** or **FMPROF=X'13'**

Specifying the JES2 Initialization Statement

Define the Host PSF printer as you would any other SNA-attached printer. For example, on an MVS system you must provide either JES2 or JES3 initialization statements.

Configuring the Host PSF Printer

The manner in which a host PSF printer is configured depends upon the operating system. You will use one of the following statements:

- PSF/MVS PRINTDEV statement
- PSF/VSE PRINTDEV statement
- Parameters in the PSF/VM OPTIONS PDM file

On each operating system, PSF supports specification of both the application program ID (APPLID) and the logical unit name (LUNAME):

```

:
  APPLID=appl_prog
  LUNAME=lu_name
:

```

On some operating systems, PSF also supports other configuration parameters. The following text describes these parameters and notes whether they are required or optional:

APPLID (required)

Specifies the application program that is the SNA logical unit provided by VTAM and used by PSF.

The APPLID value must match:

- An APPL statement name in a VTAM application program major node
- The second portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile

LUNAME (required)

Specifies the SNA logical unit with which PSF tries to initiate a session.

The LUNAME value must match:

- An LU statement name in a VTAM local major node
- The **Local LU name** parameter in an SNA Server/6000 LU 6.2 Local LU profile

Local 3174 Token-Ring Gateway

LOGMODE (optional)

Specifies the VTAM logon mode table entry that defines characteristics of the session between the logical units identified by the APPLID and LUNAME parameters.

The LOGMODE parameter identifies an entry within a logon mode table. The MODETAB operand on the VTAM local major node LU statement identifies the logon mode table. If you omit the LOGMODE parameter, the DLOGMOD operand on the VTAM local major node LU statement identifies the entry within the logon mode table.

Note that if the logical unit identified by the LUNAME parameter is a cross-domain resource, you must not use the LOGMODE parameter.

SETUP (optional)

Specify SETUP=FORMS to cause JES to issue forms setup messages to the operator.

By default, JES issues forms setup messages to the operator for channel-attached printers, but does not issue forms setup messages to the operator for SNA-attached printers.

MGMTMODE={IMMED | OUTAVAIL | DIALIN} (optional)

Determines how the host PSF program and PSF Direct initiate communication.

IMMED

Causes the host PSF program to initiate communication when it is started.

OUTAVAIL

Causes the host PSF program to initiate communication when there is available output to print.

DIALIN

Causes the host PSF program to initiate communication only after a switched line becomes available. The switched line can become available either when VTAM dials out or the remote node dials in.

Note that the 3174 Establishment Controller does not use switched protocols. Do not use MGMTMODE=DIALIN in 3174 Establishment Controller configurations.

If you do not specify a value for the MGMTMODE parameter, it defaults to OUTAVAIL.

FAILURE={WCONNECT | STOP} (optional)

Specifies whether or not the host PSF program re-attempts communication after a printer or communication failure.

WCONNECT

Specifies that the host PSF program attempts to communicate again.

STOP

Specifies that the host PSF program must be restarted by the operator.

If you do not specify a value for the FAILURE parameter, it defaults to WCONNECT.

DISCINTV (optional)

Specifies the interval (in seconds) that the host PSF program waits for output to become available to print. If no output becomes available, the host PSF program ends communication with the printer.

Specify 0 to cause the host PSF program to maintain communication indefinitely. If you do not specify a value for DISCINTV, it defaults to 0.

Specifying the VTAM Start Option List (ATCSTRxx)

You must specify the values illustrated in Figure 138 and described below:

| | | |
|----------------------------|--------------------------|---|
| CONFIG= <i>nn</i> , | ATCCON MEMBER OF VTAMLST | X |
| NETID= <i>network_id</i> , | NETWORK IDENTIFIER | X |
| SSCPID= <i>nn</i> , | SSCP IDENTIFIER | X |
| ⋮ | | |

Figure 138. VTAM Start Option List Guidelines

CONFIG

Specifies the ATCCON*nn* member to use.

NETID

Specifies the network identifier for the host system. The first portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile must match the NETID value.

SSCPID

Specifies the System Services Control Point (SSCP) at the host. The SSCPID is a decimal integer from 0 to 65535.

The SSCP, normally VTAM, provides several network management functions. They include managing dependent logical units and accepting Network Management Vector Transports, such as alerts. Alerts often include information about devices that are unavailable or require corrective action.

To configure a PSF Direct host receiver to send alerts to this SSCP, the least significant portion of the **SNA System Services Control Point ID** value in the PSF Direct Host Receiver profile must be the hexadecimal equivalent of the SSCPID value. The **SNA System Services Control Point ID** must be in the form 05xxxxxxxx where x is a hexadecimal digit.

For example, to configure a PSF Direct host receiver to send alerts to an SSCP with an SSCPID value of 283, the host receiver's **SNA System Services Control Point ID** value must be 0500000011B.

Specifying the VTAM Configuration List (ATCCONnn)

The VTAM configuration list indicates the application program major nodes that should be made available when VTAM is started. Include the application program major node that contains the application program that PSF uses:

| | |
|-----------------------------|---|
| <i>appl_prog_major_node</i> | X |
| ⋮ | |

Specifying the VTAM Application Program Major Node and Application Program

The pertinent operands for the VTAM Application Program Major Node and Application Program are illustrated in Figure 139 and described below:

```

appl_prog_major_node  VBUILD TYPE=APPL
appl_prog              APPL  AUTH=ACQ,EAS=1,SONSCIP=YES
:

```

Figure 139. VTAM Application Program Major Node and Application Program Guidelines

The host PSF program does not support application programs that use APPC=YES or PARSESS=YES. The default value for both APPC and PARSESS is NO.

Specifying the VTAM Mode Table and Entry

The operands for the VTAM Mode Table are illustrated in Figure 140 and described below:

```

table_name  MODETAB
entry_name  MODEENT LOGMODE=entry_name,           X
            FMPROF=X'13',TSPROF=X'07',           X
            PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' X
            PSERVIC=X'060200000000000000002000', X
            PSNDPAC=X'nn',SRCVPAC=X'nn',SSNDPAC=X'00', X
            RUSIZES=X'nnnn'

```

Figure 140. VTAM Mode Table and Entry Guidelines

PSNDPAC

Specifies the primary send pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

SRCVPAC

Specifies the secondary receive pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

RUSIZES

Specifies the maximum Request Unit (RU) sizes from the primary and secondary logical units. The RU sizes influence performance and can be adjusted as desired. Specifying X'8787' means 1024 bytes for both RU sizes and yields good throughput in most configurations.

Other configuration parameters are influenced by the RUSIZES specification. These include:

- the **Maximum RU size** parameter in the SNA Server/6000 Mode profile
- the MAXBFRU operand in the VTAM local major node PU statement

Specifying the VTAM Local Major Node

The pertinent operands for the VTAM local major node are illustrated in Figure 141 and described below:

```

node_name VBUILD TYPE=LOCAL
*
pu_name PU      CUADDR=nn,           X
                MAXBFRU=nn,         X
                MODETAB=mode_table,  X
                DLOGMOD=mode_entry,  X
                VPACING=0
*
lu_name LU      LOCADDR=nn

```

Figure 141. VTAM Local Major Node Guidelines

The following describes the pertinent parameters on the **VBUILD** statement:

TYPE

Specify **LOCAL** to indicate that the node is a local major node.

The following describes the pertinent operands on the **PU** statement:

Note that the **DLOGMOD**, **MODETAB**, and **VPACING** operands are LU operands, but are included here on the PU statement. VTAM definitions support a "sift-down effect" that allows you to code an operand on a higher-level statement so you do not need to code it on each lower-level statement for which the same value is desired. There is only one logical unit in the guideline presented here, so the sift-down effect is for demonstration only. If the **DLOGMOD**, **MODETAB**, and **VPACING** operands are specified on the PU statement, they do not have to be specified on any of the LU statements.

CUADDR

Specifies the 3-digit hexadecimal number that identifies the channel control unit address used when activating the physical unit. The value must match a channel control unit address supplied when the operating system was generated.

MAXBFRU

Specifies the number of buffer units that VTAM uses to receive data from the physical unit. These buffer units are elements of the IOBUF buffer pool.

Always specify **MAXBFRU** so that the **baseno** value for the IOBUF multiplied by **MAXBFRU** is equal to or greater than the maximum RU size used by the controller:

$$\text{baseno} \times \text{MAXBFRU} \Rightarrow \text{maximum_RU_size}$$

For example, a **MAXBFRU** value of 10 is adequate for a **baseno** value of 128 and a maximum RU size of 1024.

MODETAB

Specifies the name of the logon mode table that contains entries that describe session characteristics.

DLOGMOD

Specifies the name of the logon mode table entry that describes session characteristics.

Local 3174 Token-Ring Gateway

VPACING

Determines how VTAM paces the flow of data from VTAM to the boundary node that performs pacing for the channel-attached SNA device.

A value of zero means that no pacing is performed for sessions with the logical unit, or that the largest possible pacing is used if the session is adaptively paced.

The following describes the pertinent operands on the **LU** statement:

LOCADDR

LOCADDR=0 specifies that this logical unit is an independent logical unit. An SSCP-LU session does not have to be established prior to an LU-LU session with an independent logical unit. For independent logical units, the **Local LU is dependent?** parameter in the SNA Server/6000 LU 6.2 Local LU profile must be no.

To use a dependent logical unit, specify a value between 1 and 255 for LOCADDR. Also, in the SNA Server/6000 LU 6.2 Local LU profile, specify yes for the **Local LU is dependent?** parameter, and the LOCADDR value for the **Local LU address** parameter.

Specifying the 3174 Establishment Controller Configuration

The pertinent configuration parameters are illustrated in Figure 142 and described below:

```

Configuration Support C Release 3

900: Token-Ring Network Address for the Gateway

    4000 nnnn nnnn

940: Ring Address Assignment

    S@   Ring@           SAP
    nn   4000 nnnn nnnn
    nn   nnnn nnnn nnnn   nn

941: Ring Transmission Definition

                F   W
    nn   4000 nnnn nnnn
    nn   nnnn nnnn nnnn   n   n
  
```

Figure 142. Sample 3174 Establishment Controller Configuration

900: Token-Ring Network Address for the Gateway

Specify the token-ring address for the Gateway. The address must be a local MAC address in the form 4000 nnnn nnnn.

940: Ring Address Assignment

This configuration item includes several pertinent parameters:

S@

Indicates the subchannel address. Values are supplied automatically when the Ring Address Assignment panel is presented. The first S@ value specifies the subchannel address for the Gateway. The remaining S@ values specify subchannel addresses for ring-attached physical units.

Ring@

Indicates the token-ring address. The first Ring@ value specifies the token-ring address for the Gateway and is supplied automatically when the Ring Address Assignment panel is presented.

Specify a token-ring address for each ring-attached physical unit. Local MAC addresses are suggested over universal MAC addresses. Local MAC addresses are in the form 4000 nnnn nnnn.

SAP

Accept the default Service Access Point value, 04, or specify it explicitly.

941: Ring Transmission Definition

This configuration item includes two pertinent parameters:

F Indirectly specifies the transmit I-frame size.

To prevent segmentation of basic information units (BIUs), choose a transmit I-frame size that is at least 9 bytes larger than the maximum RU size. The maximum RU size is the lesser of the value represented by the VTAM MODEENT statement RUSIZES operand and the **Maximum RU size** parameter in the SNA Server/6000 LU 6.2 Mode profile.

Local 3174 Token-Ring Gateway

W Specifies the transmit window size. The transmit window size is the number of frames that the 3174 sends to the physical unit before waiting for a link-level acknowledgement.

The **Receive window count** parameter in the SNA Server/6000 Token-Ring SNA DLC profile specifies the maximum number of frames SNA Server/6000 receives before sending a link-level acknowledgement.

For optimum performance, the transmit window size (**W**) should be equal to the **Receive window count** parameter.

If the transmit window size (**W**) is less than the **Receive window count** parameter, extremely poor throughput can result. In most cases, the default transmit window size (**W**) value is 2. The default **Receive window count** value is 8. You must adjust these default values to yield acceptable throughput.

Specifying the SNA Server/6000 Profiles

This section contains guidelines on configuring the SNA Server/6000 Profiles. Configure these profiles through the System Management Interface Tool (SMIT) panels. Examples of these panels and the hierarchical paths to each SNA definition are illustrated in “SNA Server/6000 Configuration Profile Examples” on page 110.

Note: You must have **root** authority to add or change SNA Server/6000 configuration profiles. After you add or change SNA Server/6000 configuration profiles, you must **verify** and **update** them. For more information about performing this task, see “Verifying and Updating SNA Server/6000 Configuration Profiles” on page 8.

Specifying the SNA Node Profile for PSF Direct: PSF Direct requires no modifications to the SNA Node profile.

Specifying the Control Point Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Control Point Profile. Note that all values refer to Figure 143.

| | |
|-------------------------|-----------------|
| XID node ID | [*] |
| Control Point (CP) name | [cp_name] |
| Control Point type | appn_end_node + |

Figure 143. Control Point Profile Guidelines

XID node ID

The **XID node ID** parameter pertains to switched protocols. Because the 3174 establishment controller does not use switched protocols, the **XID node ID** value is not relevant in 3174 establishment controller configurations.

Control Point (CP) name

The **Control Point (CP) name** parameter pertains to switched protocols. Because the 3174 establishment controller does not use switched protocols, the **Control Point (CP) name ID** value is not relevant in 3174 establishment controller configurations. However, by convention the **Control Point (CP) name** is usually the same as the PU name.

Control Point type

Specify either `appn_end_node` or `appn_network_node`.

Local 3174 Token-Ring Gateway

Specifying the Token-Ring SNA DLC Profile for PSF Direct: The following displays how to specify the values PSF Direct requires in the Token-Ring SNA DLC Profile. Note that all values refer to Figure 144.

| | | |
|----------------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Data link device name | [<i>tokn</i>] | + |
| Receive window count (1-127) | [<i>n</i>] | # |
| Local SAP address (04-ec) | [04] | X |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |

Figure 144. Token-Ring SNA DLC Profile Guidelines

Profile name

Choose any meaningful value.

Data link device name

Select one of the available adapters.

Receive window count (1-127)

Defines the size of the link-level window. It specifies the maximum number of frames to receive before sending a link-level acknowledgement.

The window (**W**) value in 3174 establishment controller configuration item 941 indicates the number of frames that the 3174 sends before waiting for a link-level acknowledgement.

For optimum performance, the **Receive window count** value should be equal to the window (**W**) value in 3174 establishment controller configuration item 941.

If the window (**W**) value is less than the **Receive window count** parameter, extremely poor throughput can result. In most cases, the default window (**W**) value is 2. The default **Receive window count** value is 8. You must adjust these default values to yield acceptable throughput.

Local SAP address (04-ec)

Specify 04.

Link Recovery Parameters - Retry interval (1-10000 seconds)

Specify 60. If the link station is a **calling** link station, this value causes it to try to establish a link connection with the 3174 establishment controller every 60 seconds, until a link connection can be established.

Link Recovery Parameters - Retry limit (0-500 attempts)

Specify 0. If the link station is a **calling** link station, this value indicates that there is no limit on the number of attempts the link station makes to establish a link connection with the 3174 establishment controller. The interval between the attempts is defined by the previous parameter.

Specifying the Token-Ring Link Station Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Token-Ring Link Station Profile. Note that all values refer to Figure 145.

| | | |
|---|--------------------|---|
| * Profile name | [profile_name] | |
| Use APPN Control Point's XID node ID? | yes | + |
| * SNA DLC Profile name | [DLC_profile_name] | + |
| Stop link station on inactivity? | no | + |
| LU address registration? | no | + |
| Adjacent Node Address Parameters | | |
| Access routing | link_address | + |
| If link_address, | | |
| Remote link address | [4000nnnnnnnn] | X |
| Remote SAP address (04-ec) | [04] | X |
| Adjacent Node Identification Parameters | | |
| Verify adjacent node? | no | + |
| Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| Initiate call when link station is activated? | yes | + |
| Activate link station at SNA start up? | yes | + |
| Restart Parameters | | |
| Restart on activation? | no | + |
| Restart on normal deactivation? | yes | + |
| Restart on abnormal deactivation? | yes | + |

Figure 145. Token-Ring Link Station Profile Guidelines

Profile name

Choose any meaningful value.

Use APPN Control Point's XID node ID?

Select yes.

SNA DLC Profile name

Select the name of the SNA DLC profile.

Stop link station on inactivity?

Select no.

LU address registration?

Select no.

Adjacent Node Address Parameters - Access routing

Select link_address.

This parameter is referenced only for **calling** link stations and selective **listening** link stations. For more information, refer to ““Calling” Versus “Listening” Link Stations” on page 11.

Adjacent Node Address Parameters - Remote link address

For **calling** link stations and selective **listening** link stations, the **Remote link address** parameter must match the token-ring address of the 3174 establishment controller token-ring gateway. The token-ring address of the 3174 token-ring gateway is specified in 3174 configuration item 900.

Local 3174 Token-Ring Gateway

Adjacent Node Address Parameters - Remote SAP address

Specify 04.

Adjacent Node Identification Parameters - Verify adjacent node?

Select no.

Link Activation Parameters - Solicit SSCP sessions?

Select yes.

Link Activation Parameters - Initiate call when link station is activated?

To define a **calling** link station, select yes.

To define a **listening** link station, select no.

Link Activation Parameters - Activate link station at SNA start up?

Select yes.

Restart Parameters - Restart on activation?

Select no.

Restart Parameters - Restart on normal deactivation?

Select yes.

Restart Parameters - Restart on abnormal deactivation?

Select yes.

Specifying the LU 6.2 Local LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Local LU Profile. Note that all values refer to Figure 146.

| | | |
|---------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU name | [<i>lu_name</i>] | |
| Local LU alias | [<i>lu_alias</i>] | |
| Local LU is dependent? | yes | + |
| If yes, | | |
| Local LU address (1-255) | [<i>nn</i>] | # |
| Link Station Profile name | [<i>link_station</i>] | + |

Figure 146. LU 6.2 Local LU Profile Guidelines

Profile name

Choose any meaningful value.

Local LU name

This value must match both the name on the LU statement in the VTAM local major node and the LUNAME parameter in the host PSF printer configuration (the PRINTDEV statement or OPTIONS PDM file).

Local LU alias

Choose any meaningful value.

Local LU is dependent?

The logical unit can be either dependent (yes) or independent (no). Dependent logical units are managed by an SSCP. In general, independent logical units offer more flexibility.

For dependent logical units, the LOCADDR value in the VTAM local major node LU statement is non-zero. For independent logical units, LOCADDR=0.

If yes, Local LU address (1-255)

If the logical unit is dependent, the **Local LU address** parameter must match the LOCADDR value in the VTAM local major node LU statement.

If yes, Link Station Profile name

If the logical unit is dependent, select the profile name of the link station through which SNA Server/6000 communicates with the host system.

Specifying the LU 6.2 Partner LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Partner LU Profile. Note that all values refer to Figure 147.

Note: You must configure an LU 6.2 Partner LU profile. Some SNA Server/6000 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, SNA Server/6000 requires an LU 6.2 Partner LU profile in PSF Direct configurations even if the local LU is an independent logical unit.

| | | |
|---------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Partner LU alias | [<i>partner_lu_alias</i>] | |
| Parallel sessions supported? | no | + |
| Session security supported? | no | + |
| Conversation security level | none | + |

Figure 147. LU 6.2 Partner LU Profile Guidelines

Profile name

Choose any meaningful value.

Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Partner LU alias

Choose any meaningful value.

Parallel sessions supported?

Select no.

Session security supported?

Select no.

Conversation security level

Select none.

Specifying the LU 6.2 Side Information Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Side Information Profile. Note that all values refer to Figure 148.

Note: You must configure an LU 6.2 Side Information profile if the local LU is a dependent logical unit. If the local LU is an independent logical unit, an LU 6.2 Side Information profile is not required.

| | | |
|------------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU or Control Point alias | [<i>lu_alias</i>] | + |
| Provide only one of the following: | | |
| Partner LU alias | [] | + |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Mode name | [] | + |

Figure 148. LU 6.2 Side Information Profile Guidelines

Profile name

Choose any meaningful value.

Local LU or Control Point alias

Select the local LU alias that you specified in the LU 6.2 Local LU profile.

Partner LU alias

You can either select the partner LU alias that you specified in the LU 6.2 Partner LU profile or you can specify a value for the **Fully qualified partner LU name** parameter.

Fully qualified partner LU name

You can either specify a fully qualified partner LU name or you can select a value for the **Partner LU alias** parameter.

The **Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Mode name

Do not provide a value for the **Mode name** parameter.

Local 3174 Token-Ring Gateway

Specifying the LU 6.2 Mode Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Mode Profile. Note that all values refer to Figure 149.

| | | |
|--|------------|---|
| Current profile name | BLANK | |
| Mode name | [] | |
| Receive pacing window (0-63) | [16] | # |
| Maximum RU size (128,...,32768: multiples of 32) | [1024] | # |
| Minimum RU size (128,...,32768: multiples of 32) | [256] | # |
| Class of Service (COS) name | [#CONNECT] | |

Figure 149. Sample LU 6.2 Mode Profile Guidelines

Current profile name

The BIND image provided by PSF/MVS, PSF/VSE, and PSF/VM does not include a mode name. Therefore, SNA Server/6000 uses the predefined Mode profile named BLANK.

Mode name

The **Mode name** in the BLANK profile is 8 spaces.

Receive pacing window (0-63)

The receive pacing window used in the LU-LU session is the lesser of this parameter's value and the SRCVPAC value in the VTAM MODEENT statement.

Specifying 16 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Maximum RU size

The maximum RU size used in the LU-LU session is the lesser of this parameter's value and the RUSIZES value in the VTAM MODEENT statement.

Specifying 1024 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Minimum RU size

Specify 256.

Class of Service (COS) name

Select #CONNECT.

Specifying the LU 6.2 Transaction Program Name Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Transaction Program Name (TPN) Profile. Note that all values refer to Figure 150.

| | | |
|---|-----------------------------|---|
| * Profile name | [psfdirect] | |
| Transaction program name (TPN) | [30F0F0F0] | |
| Transaction program name (TPN) is in hexadecimal? | yes | + |
| PIP data? | no | + |
| Conversation type | basic | + |
| Sync level | none | + |
| Resource security level | none | + |
| Full path to TP executable | [/usr/lpp/psf/bin/ainpsfhr] | |
| Multiple instances supported? | yes | |
| User ID | [0] | # |
| Communication type | signals | + |

Figure 150. LU 6.2 Transaction Program Name (TPN) Guidelines

Profile name

Choose any meaningful value.

Transaction Program name (TPN)

Specify 30F0F0F0. This matches the value provided in the FMH 5 (Attach) from the host PSF system.

Transaction Program name (TPN) is in hexadecimal?

Select yes.

PIP data?

Select no.

Conversation type

Select basic.

The host PSF program and the PSF Direct host receiver communicate using a basic conversation. SNA Server/6000 supports both basic and mapped conversation types.

Sync level

Select none.

The PSF Direct host receiver does not send or respond to CONFIRM requests.

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Resource security level

Select none.

The host PSF programs do not support security verification.

Full path to TP executable

Specify `/usr/lpp/psf/bin/ainpsfhr`. The IBM InfoPrint Manager for AIX installation procedure places the PSF Direct host receiver in this location.

Multiple instances supported?

Select yes so that more than one PSF Direct host receiver can run concurrently.

User ID

Specify 0. The effective uid of the PSF Direct host receiver must be "0", indicating **root** or super-user.

Communication type

Select signals.

Configuration Worksheet

Use the following worksheet to record values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 6. Configuration Worksheet</i> | | | | |
|---|--------------|------------|-------------------------------------|----------------|
| SNA Server/6000 | Value | PSF | VTAM | 3174 |
| Control Point: Control Point (CP) name | | | PU: name | |
| Token-Ring DLC: Receive window count | | | | item 941: W |
| Token-Ring Link Station: Remote link address | | | | item 900 |
| LU 6.2 Local LU: Local LU name | | LUNAME | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | | | MODEENT: RUSIZES | |

Local 3174 Token-Ring Gateway

Chapter 6. Remote 3174 Token-Ring Gateway

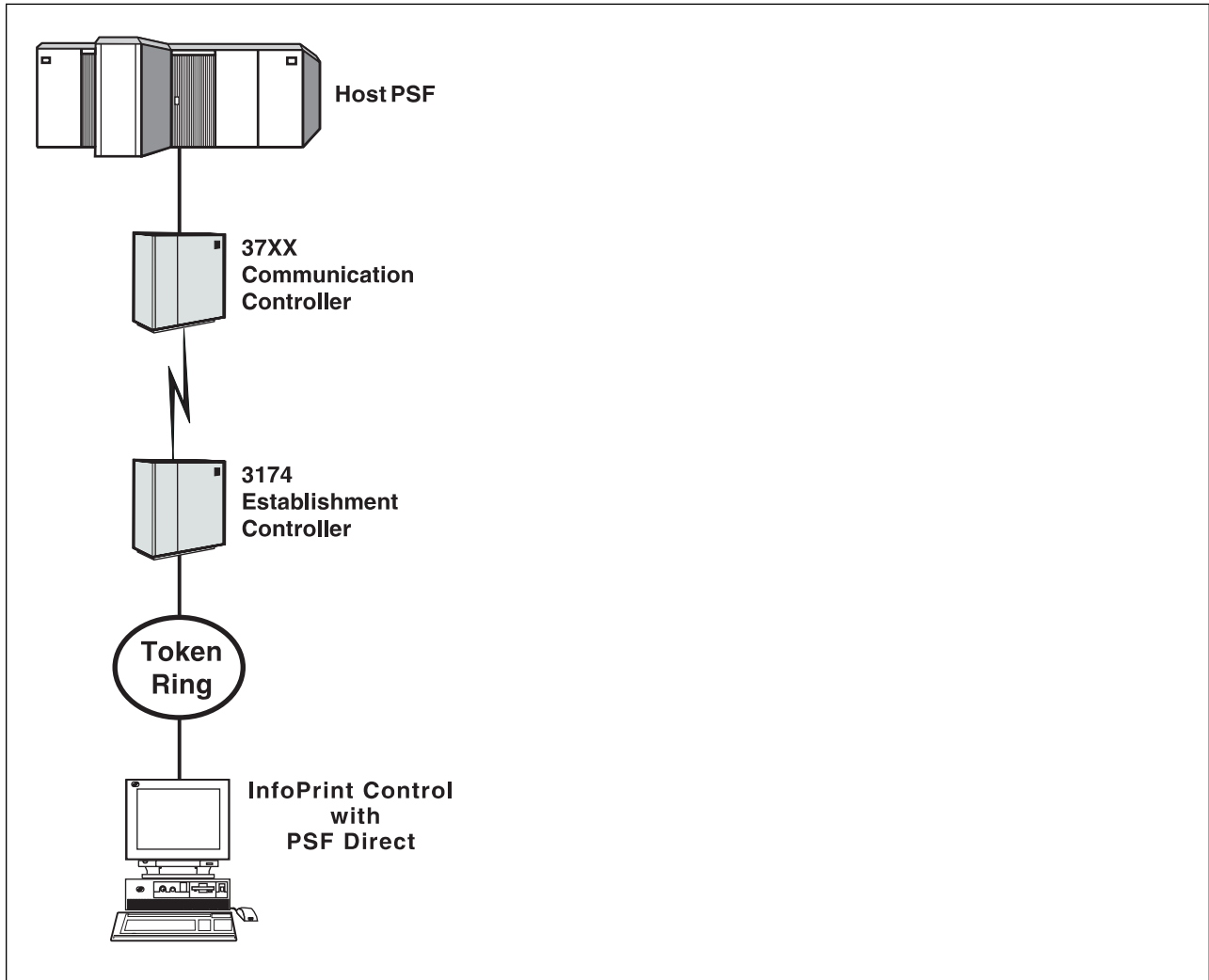


Figure 151. Remote 3174 Token-Ring Gateway

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, the internal components of the network and details of their operation must be described.

Considering two views of an SNA network, an **application view** and a **network internals view**, aids in understanding PSF Direct configuration requirements.

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)** and the connection between them is a **session**. A **mode** describes a session's characteristics, or guidelines for exchanging data.

The application view (Figure 152) illustrates the interface that SNA provides to applications, such as the host PSF program and the PSF Direct component of InfoPrint. These applications are isolated from details of the internal components of the SNA network.

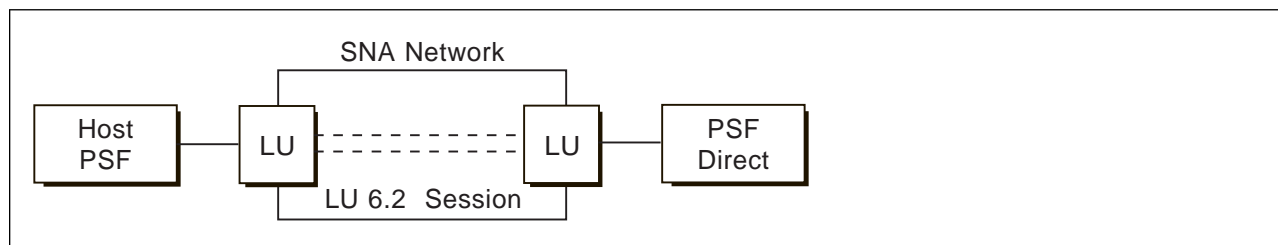


Figure 152. Application View of a PSF Direct Attachment

As the application view suggests, only a few values are required to configure the host PSF program and PSF Direct so that they can communicate. Figure 153 on page 143 displays the values used by both applications. Note that each configuration parameter references a logical unit or mode provided by the SNA network.

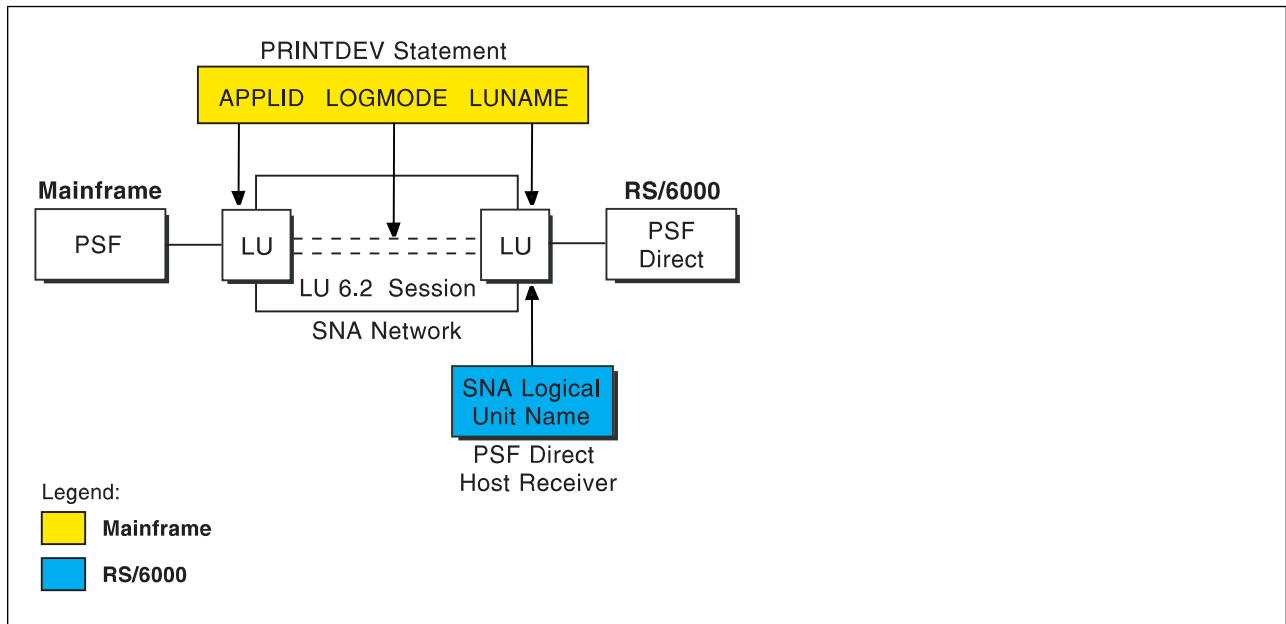


Figure 153. Application View With Configuration Parameters

Host PSF PRINTDEV Statement Parameters

APPLID

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

LUNAME

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

LOGMODE

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. LOGMODE 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

SNA Logical Unit name

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

Because there may be several PSF Direct host receivers on a RS/6000 and several RS/6000's 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.

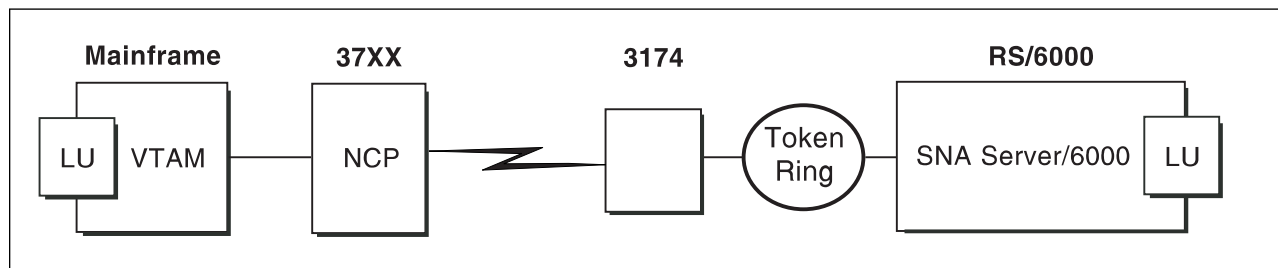


Figure 154. Network Internals View With Some Configuration Requirements

The network internals view illustrates that many components comprise an SNA network. Most of the components have detailed configuration requirements. Many of those requirements are described in this chapter.

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. These interrelated parameters must be configured consistently to make end-to-end communication possible.

Several figures follow. They illustrate some of the key interrelationships among configuration parameters for SNA network components.

Key Configuration Parameter Interrelationships: Figure 155 illustrates the interrelationships in defining logical unit (LU) names.

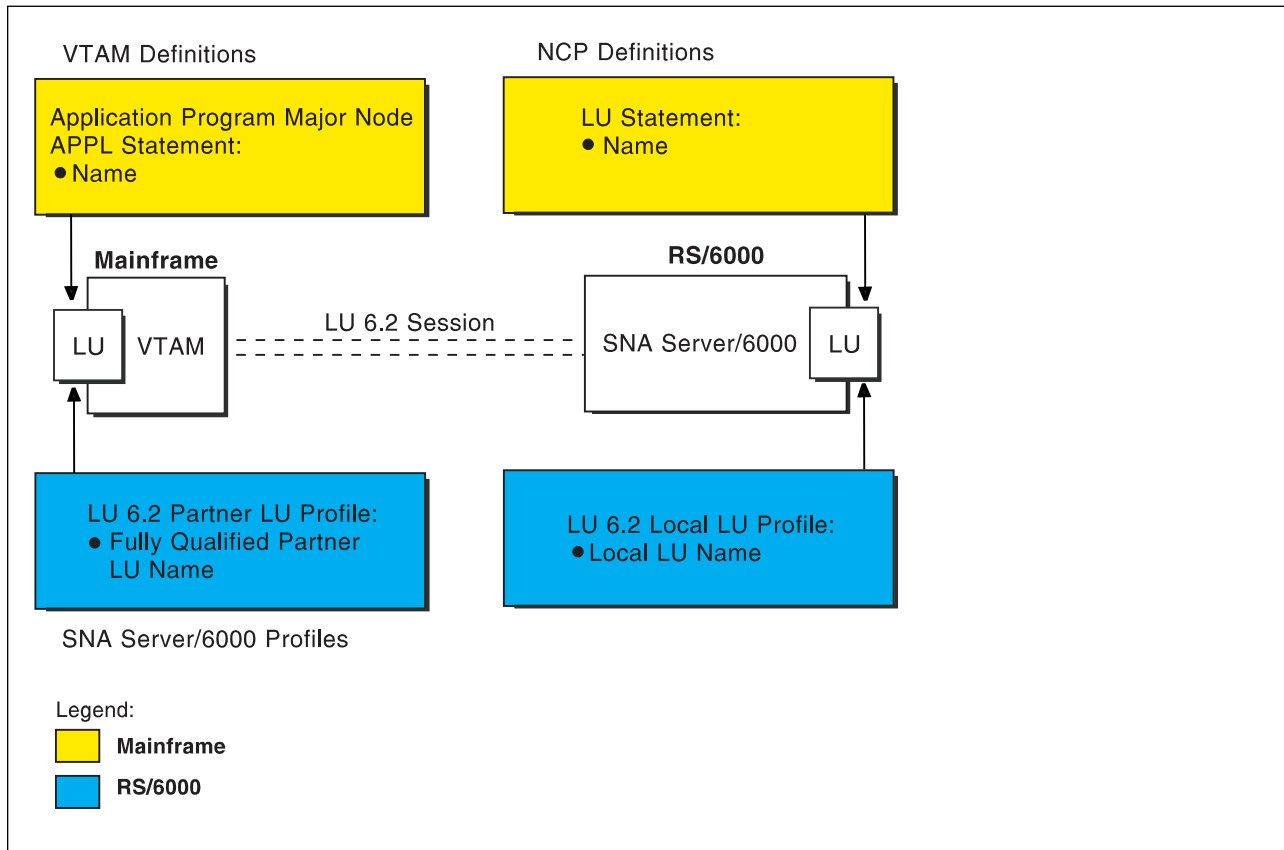


Figure 155. Logical Unit Names

Remote 3174 Token-Ring Gateway

Figure 156 illustrates the interrelationships in defining the local address of the logical unit provided by SNA Server/6000.

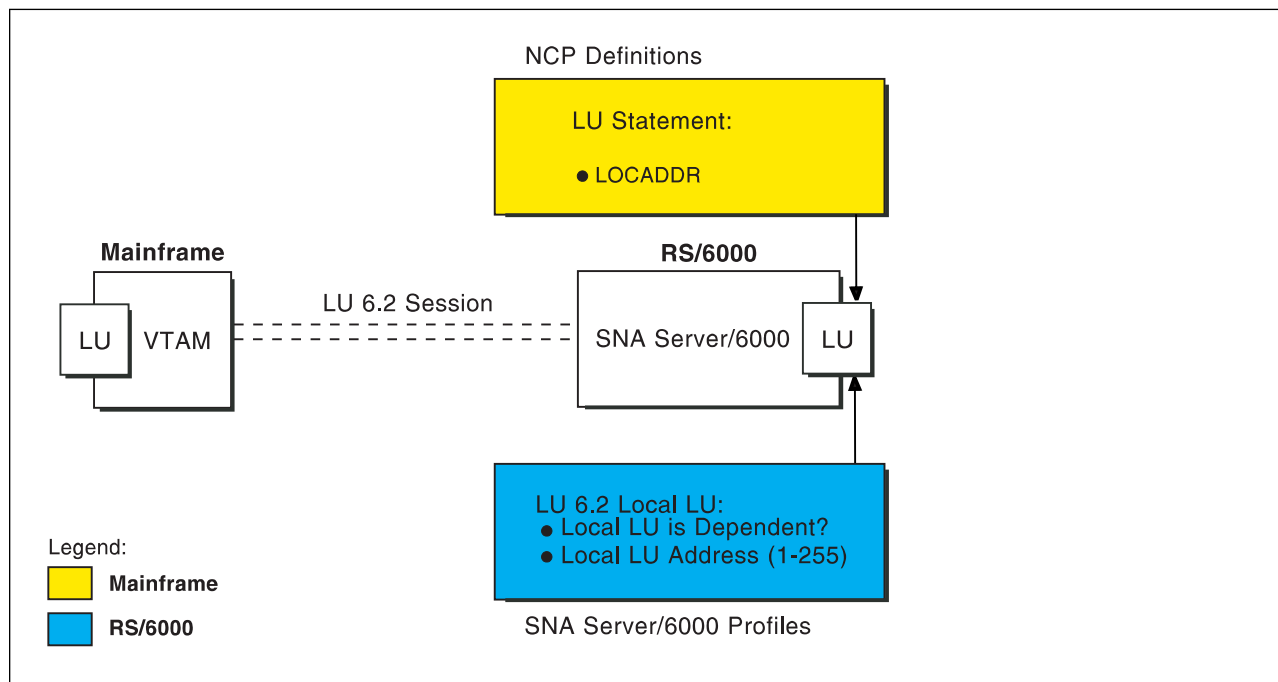


Figure 156. Local Address of Logical Unit

Figure 157 illustrates the interrelationships in defining session characteristics.

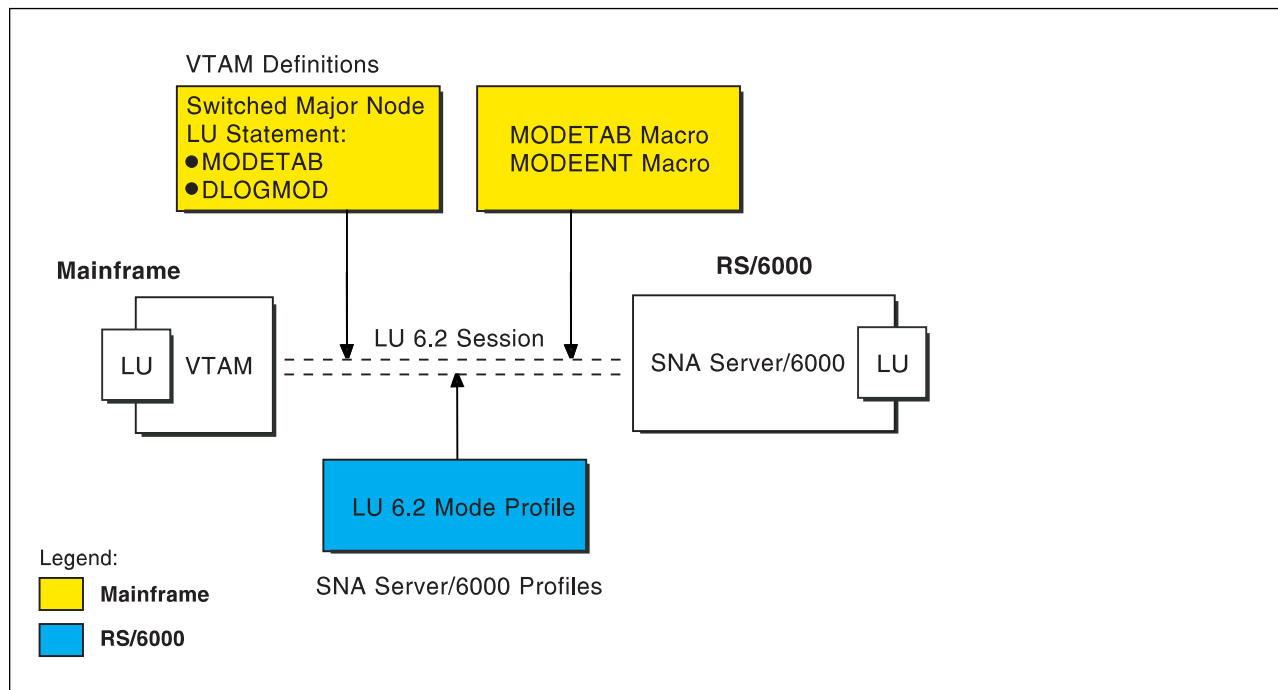


Figure 157. Session Characteristics

Figure 158 illustrates the interrelationships in defining the name of the physical unit/control point provided by SNA Server/6000.

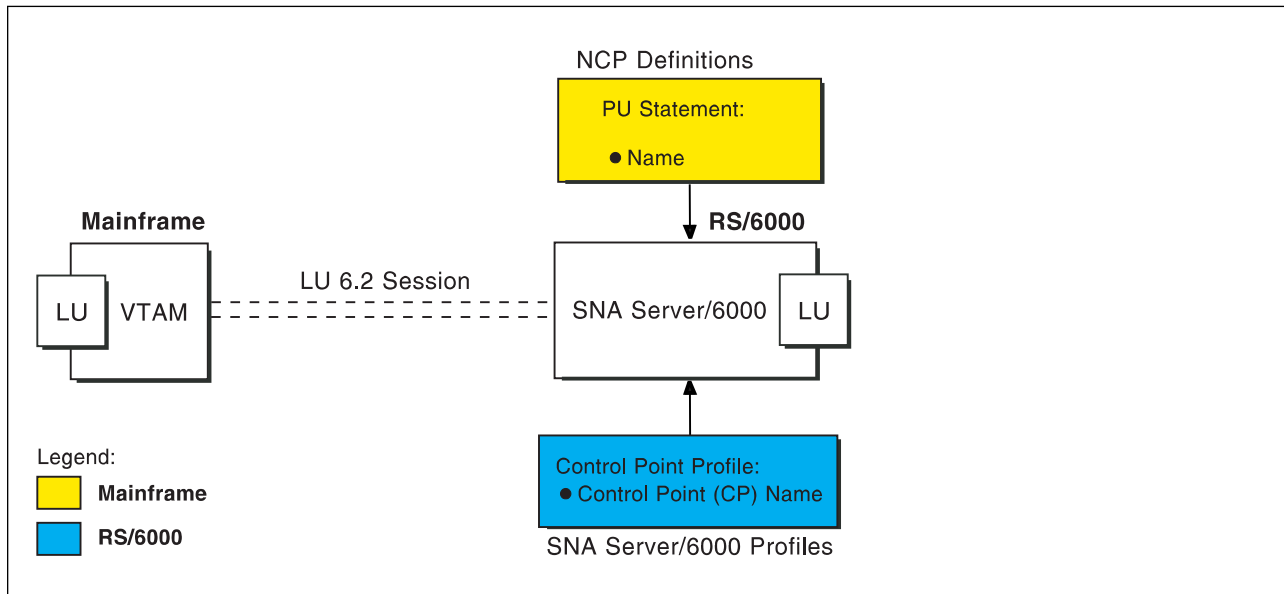


Figure 158. Physical Units/Control Point Name

Figure 159 illustrates the interrelationships in defining token-ring addresses used in this configuration.

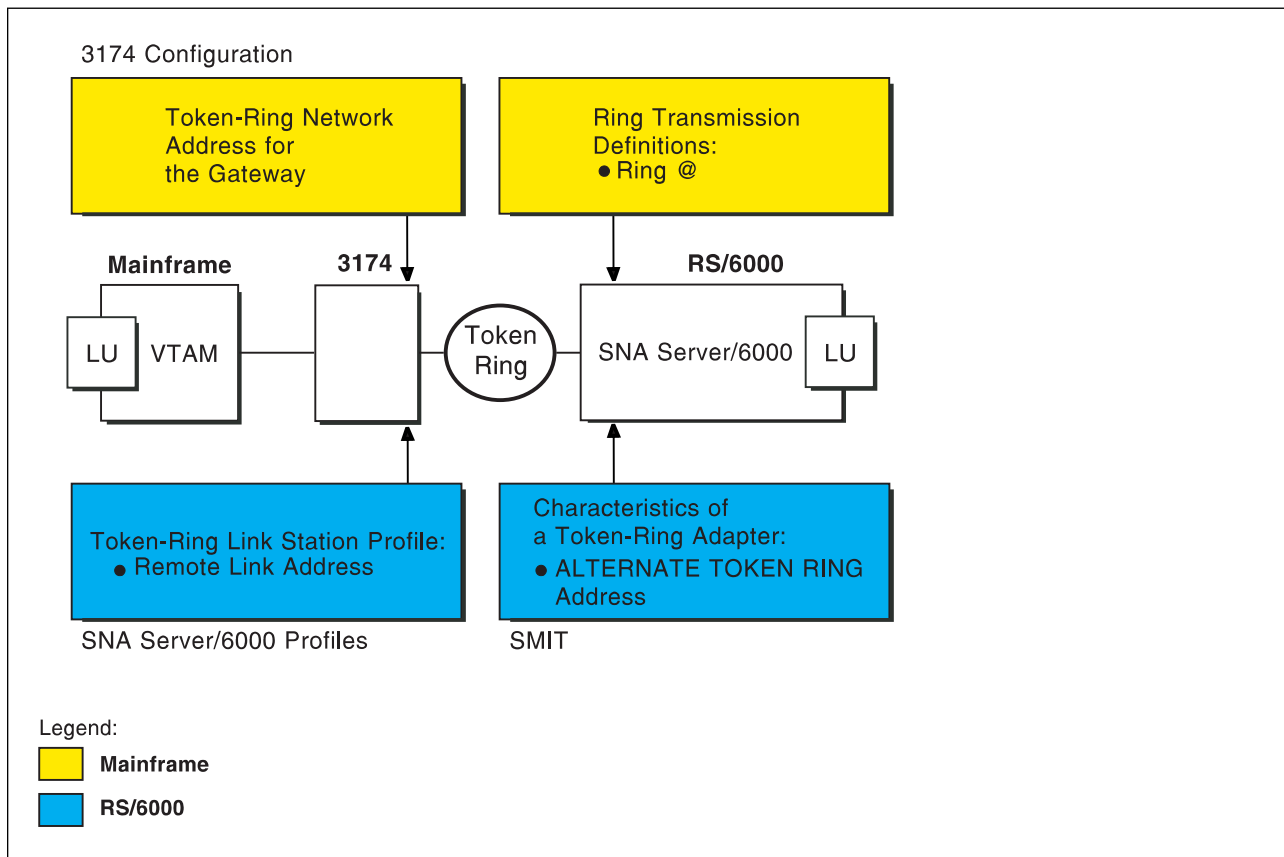


Figure 159. Token-Ring Addresses

Remote 3174 Token-Ring Gateway Example

The following remote 3174 token-ring gateway example uses MVS and JES2. For an explanation of pertinent configuration parameters, see “Guidelines for Configuring Remote 3174 Token-Ring Gateway” on page 163.

JES2 Initialization Statement Example

Figure 160 shows the JES2 printer definition initialization member, located in the system parmlib. For more information about specifying this statement, see “Specifying the JES2 Initialization Statement” on page 163.

```
PRT833 CLASS=Y,MARK=YES,START=NO,MODE=FSS,FSS=WTR833,      X
PRMODE=(LINE,PAGE),UCS=0
```

Figure 160. Sample PSF/MVS JES2 Printer Definition

JES2 External Writer Procedure Example

For more information on specifying these values, see “Configuring the Host PSF Printer” on page 163.

```

//WTR833 PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K
//*
//STEPLIB DD DSN=SYSTEM.PSF.V220.LINKLIB,DISP=SHR
//*
//JOBHDR OUTPUT PAGEDEF=A06462, /* JOB HEADER PAGEDEF */
// FORMDEF=A10110 /* JOB HEADER FORMDEF */
//JOBTLR OUTPUT PAGEDEF=A06462, /* JOB TRAILER PAGEDEF */
// FORMDEF=A10110 /* JOB TRAILER FORMDEF */
//DSHDR OUTPUT PAGEDEF=A06462, /* DATA SET HEADER PAGEDEF */
// FORMDEF=A10110 /* DATA SET HEADER FORMDEF */
//MSGDS OUTPUT PAGEDEF=A06462, /* MESSAGE DATASET PAGEDEF */
// FORMDEF=A10110 /* MESSAGE DATASET FORMDEF */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR
//OLAY01 DD DSN=SYS1.OVERLIB,DISP=SHR
//PSEG01 DD DSN=SYS1.PSEGLIB,DISP=SHR
//FDEF01 DD DSN=SYS1.FDEFLIB,DISP=SHR
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR
//*
//PRT833 PRINTDEV FONTDD=*.FONT01, /* FONT LIBRARY DD */
// OVLYDD=*.OLAY01, /* OVERLAY LIBRARY DD */
// PSEGDD=*.PSEG01, /* SEGMENT LIBRARY DD */
// PDEFDD=*.PDEF01, /* PAGEDEF LIBRARY DD */
// FDEFDD=*.FDEF01, /* FORMDEF LIBRARY DD */
// JOBHDR=*.JOBHDR, /* JOB HEADER DD */
// JOBTRLR=*.JOBTLR, /* JOB TRAILER DD */
// DSHDR=*.DSHDR, /* DATA SET HEADER DD */
// MESSAGE=*.MSGDS, /* MESSAGE DATA DD */
// PAGEDEF=A06462, /* DEFAULT PAGEDEF */
// FORMDEF=A10110, /* DEFAULT FORMDEF */
// CHARS=(GT10,GC15,GB10,GR10), /* DEFAULT FONT SET */
// PIMSG=YES, /* ACCUMULATE DATA SET MSGS */
// SETUP=FORMS, /* ISSUE FORMS SETUP MSGS */
// MGMTMODE=OUTAVAIL, /* START WHEN OUTPUT AVAIL. */
// DISCINTV=60, /* DISCONNECT INTERVAL--SECS*/
// LOGMODE=IBM3820T, /* LOGON MODE TABLE ENTRY */
// APPLID=FSAES833, /* APPLICATION PGM NAME */
// LUNAME=PSFD0101 /* LOGICAL UNIT NAME */
//PRT833 ENDCNTL

```

Figure 161. Sample PSF/MVS Start Up Procedure

VTAM Start Option List (ATCSTRxx) Example

For an explanation of these values, refer to “Specifying the VTAM Start Option List (ATCSTRxx)” on page 165.

| | | |
|----------------|--------------------------|---|
| CONFIG=00, | ATCCON MEMBER OF VTAMLST | X |
| NETID=USIBMBQ, | NETWORK IDENTIFIER | X |
| SSCPID=1, | SSCP IDENTIFIER | X |
| : | | |

Figure 162. Sample VTAM Start Option List

VTAM Configuration List (ATCCONnn) Example

For an explanation of these values, refer to “Specifying the VTAM Configuration List (ATCCONnn)” on page 165.

| | |
|----------|---|
| PSFAPPLS | X |
| : | |

Figure 163. Sample VTAM Configuration List

VTAM Application Program Major Node and Application Program Example

For an explanation of these values, refer to “Specifying the VTAM Application Program Major Node and Application Program” on page 166.

| | |
|----------|---------------------------------|
| PSFAPPLS | VBUILD TYPE=APPL |
| FSAES833 | APPL AUTH=ACQ,EAS=1,SONSCIP=YES |
| : | |

Figure 164. Sample VTAM Application Program Major Node and Application Program

VTAM Mode Table and Entry Example

For an explanation of these values, refer to “Specifying the VTAM Mode Table and Entry” on page 166.

| | | |
|----------|---|---|
| MODEIBM | MODETAB | |
| IBM3820C | MODEENT LOGMODE=IBM3820C,FMPROF=X'13',TSPROF=X'07', | X |
| | PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' | X |
| | PSERVIC=X'060200000000000000002000', | X |
| | PSNDPAC=X'10',SRVCPAC=X'10',SSNDPAC=X'00', | X |
| | RUSIZES=X'8686' | |

Figure 165. Sample VTAM Mode Table and Entry

Network Control Program (NCP) Definitions Example

For an explanation of these values, refer to "Specifying the Network Control Program Definitions" on "Specifying the Network Control Program Definitions" on page 167.

| | | | |
|----------|------------------------------|------------------|---|
| LN3174 | LINE | ADDRESS=012, | X |
| | | DUPLEX=FULL, | X |
| | | CLOCKNG=EXT, | X |
| | | SPEED=56000, | X |
| | | RETRIES=(5,1,2) | |
| * | | | |
| | SERVICE ORDER=(PU3174,AIX01) | | |
| * | | | |
| PU3174 | PU | ADDR=C1, | X |
| | | PUTYPE=2, | X |
| | | MAXDATA=521, | X |
| | | MAXOUT=7, | X |
| | | PASSLIM=7 | |
| * | | | |
| LU3270 | LU | LOCADDR=2, | X |
| | | MODETAB=MODEIBM, | X |
| | | DLOGMOD=S32782, | X |
| | | USSTAB=USSTAB1 | |
| * | | | |
| AIX01 | PU | ADDR=C2, | X |
| | | PUTYPE=2, | X |
| | | MAXDATA=521, | X |
| | | MAXOUT=7, | X |
| | | PASSLIM=7 | |
| * | | | |
| PSFD0101 | LU | LOCADDR=1, | X |
| | | MODETAB=MODEIBM, | X |
| | | DLOGMOD=IBM3820C | |

Figure 166. Sample NCP Definitions

3174 Establishment Controller Configuration Example

For an explanation of these values, refer to “Specifying the 3174 Establishment Controller Configuration” on page 170.

```
Configuration Support C Release 3

900: Token-Ring Network Address for the Gateway

    4000 3000 1001

940: Ring Address Assignment

S@   Ring@           SAP
C1   4000 3000 1001
C2   4000 3000 1002    04

941: Ring Transmission Definition

           F   W
C1   4000 3000 1001
C2   4000 3000 1002    1   7
```

Figure 167. Sample 3174 Establishment Controller Configuration

SNA Server/6000 Configuration Profile Examples

This section lists sample SNA Server/6000 profiles. Each profile is preceded by the sequence of SMIT panels to access the profile.

- SNA Node
- Control Point
- Token-Ring SNA DLC
- Token-Ring Link Station
- LU 6.2 Local LU
- LU 6.2 Partner LU
- LU 6.2 Side Information
- LU 6.2 Mode
- LU 6.2 Transaction Program Name

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          SNA System Defaults
            Change/Show a Profile
  
```

Figure 168. SMIT Panel Sequence For SNA Node Profile

| | | |
|---|-----------------------|---|
| Profile name | sna | |
| Maximum number of sessions (1-5000) | [200] | # |
| Maximum number of conversations (1-5000) | [200] | # |
| Restart action | once | + |
| Recovery resource manager (RRM) enabled? | no | + |
| Dynamic inbound partner LU definitions allowed? | yes | + |
| NMVT action when no NMVT process | reject | + |
| Standard output file/device | [/dev/console] | |
| Standard error file/device | [/var/sna/sna.stderr] | |
| Comments | [] | |

Figure 169. Sample SNA Node Profile

Remote 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Control Point
            Change/Show a Profile
```

Figure 170. SMIT Panel Sequence For Control Point Profile

| | |
|---|-----------------|
| Profile name | node_cp |
| XID node ID | [*] |
| Network name | [USIBMBQ] |
| Control Point (CP) name | [AIX01] |
| Control Point alias | [AIX01] |
| Control Point type | appn_end_node + |
| Maximum number of cached routing trees | [500] # |
| Maximum number of nodes in the TRS database | [500] # |
| Route addition resistance | [128] # |
| Comments | [] |

Figure 171. Sample Control Point Profile

```
smit  
  Communications Applications and Services  
    SNA Server/6000  
      Configure SNA Profiles  
        Advanced Configuration  
          Links  
            Token-Ring  
              Token-Ring SNA DLC  
                Add a Profile
```

Figure 172. SMIT Panel Sequence For Token-Ring SNA DLC Profile

Remote 3174 Token-Ring Gateway

| | | |
|---|-----------|---|
| * Profile name | [tr3174] | |
| Data link device name | [tok0] | + |
| Force disconnect time-out (1-600 seconds) | [120] | # |
| User-defined maximum I-Field size? | no | + |
| If yes, Max. I-Field size (265-30729) | [30729] | # |
| Max. num of active link stations (1-255) | [100] | # |
| Number reserved for inbound activation | [0] | # |
| Number reserved for outbound activation | [0] | # |
| Transmit window count (1-127) | [16] | # |
| Dynamic window increment (1-127) | [1] | # |
| Retransmit count (1-30) | [8] | # |
| Receive window count (1-127) | [7] | # |
| Ring access priority | [0] | + |
| Inactivity time-out (1-120 seconds) | [48] | # |
| Response time-out (1-40, 500 msec intervals) | [4] | # |
| Acknowledge time-out (1-40, 500 msec intervals) | [1] | # |
| Local link name | [] | |
| Local SAP address (04-ec) | [04] | X |
| Trace base listening link station? | no | + |
| If yes, Trace format | long | + |
| Dynamic link stations supported? | yes | + |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |
| Dynamic Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| CP-CP sessions supported? | yes | + |
| Partner required to support CP-CP sessions? | no | + |
| Dynamic Link TG COS Characteristics | | |
| Effective capacity | [4300800] | # |
| Cost per connect time | [0] | # |
| Cost per byte | [0] | # |
| Security | nonsecure | + |
| Propagation delay | lan | + |
| User-defined 1 | [128] | # |
| User-defined 2 | [128] | # |
| User-defined 3 | [128] | # |
| Comments | [] | |

Figure 173. Sample Token-Ring SNA DLC Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            Token-Ring Link Station
              Add a Profile
  
```

Figure 174. SMIT Panel Sequence For Token-Ring Link Station Profile

| | | | |
|---|----------------|--|---|
| * Profile name | [tr3174] | | |
| Use APPN Control Point's XID node ID? | yes | | + |
| If no, XID node ID | [*] | | |
| * SNA DLC Profile name | [tr3174] | | + |
| Stop link station on inactivity? | no | | + |
| If yes, Inactivity time-out (0-10 minutes) | [0] | | # |
| LU address registration? | no | | + |
| If yes, LU Address Registration Profile name | [] | | + |
| Trace link? | no | | + |
| If yes, Trace size | long | | + |
| Adjacent Node Address Parameters | | | |
| Access routing | link_address | | + |
| If link_name, Remote link name | [] | | |
| If link_address, | | | |
| Remote link address | [400030001001] | | X |
| Remote SAP address (04-ec) | [04] | | X |
| Adjacent Node Identification Parameters | | | |
| Verify adjacent node? | no | | + |
| Network ID of adjacent node | [] | | |
| CP name of adjacent node | [] | | |
| XID node ID of adjacent node (LEN node only) | [*] | | |
| Node type of adjacent node | learn | | + |
| Link Activation Parameters | | | |
| Solicit SSCP sessions? | yes | | + |
| Initiate call when link station is activated? | yes | | + |
| Activate link station at SNA start up? | yes | | + |
| Activate on demand? | no | | + |
| CP-CP sessions supported? | yes | | + |
| If yes, | | | |
| Adjacent network node preferred server? | no | | + |
| Partner required to support CP-CP sessions? | no | | + |
| Initial TG number (0-20) | [0] | | # |
| Restart Parameters | | | |
| Restart on activation? | no | | + |
| Restart on normal deactivation? | yes | | + |
| Restart on abnormal deactivation? | yes | | + |
| Transmission Group COS Characteristics | | | |
| Effective capacity | [4300800] | | # |
| Cost per connect time | [0] | | # |
| Cost per byte | [0] | | # |
| Security | nonsecure | | + |
| Propagation delay | lan | | + |
| User-defined 1 | [128] | | # |
| User-defined 2 | [128] | | # |
| User-defined 3 | [128] | | # |
| Comments | [] | | |

Figure 175. Sample Token-Ring Link Station Profile

Remote 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Local LU
                Add a Profile
```

Figure 176. SMIT Panel Sequence For LU 6.2 Local LU Profile

```
* Profile name                [PSFD0101]
Local LU name                 [PSFD0101]
Local LU alias                [PSFD0101]
Local LU is dependent?       yes      +
  If yes,
    Local LU address (1-255)  [1]      #
    System services control point
      (SSCP) ID (*, 0-65535)  [*]
    Link Station Profile name [tr3174] +
Conversation Security Access List Profile name []

Comments                      []
```

Figure 177. Sample LU 6.2 Local LU Profile

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Partner LU
                Add a Profile
```

Figure 178. SMIT Panel Sequence For LU 6.2 Partner LU Profile

```
* Profile name                [FSAES833]
Fully qualified partner LU name [USIBMBQ.FSAES833]
Partner LU alias              [FSAES833]
  Parallel sessions supported?  no      +
  Session security supported?   no      +
  Conversation security level    none    +

Comments                      []
```

Figure 179. Sample LU 6.2 Partner LU Profile

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Side Information
                Add a Profile
```

Figure 180. SMIT Panel Sequence for LU 6.2 Side Information Profile

```
* Profile name                [PSFD0101]
Local LU or Control Point alias [PSFD0101]      +
Provide only one of the following:
  Partner LU alias                            +
  Fully qualified partner LU name [USIBMBQ.FSAES833]
Mode name                                     +
Remote transaction program name (RTPN) 
RTPN in hexadecimal?         no                        +

Comments                       
```

Figure 181. Sample LU 6.2 Side Information Profile

Remote 3174 Token-Ring Gateway

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Mode
                Change/Show a Profile
```

Figure 182. LU 6.2 Mode Profile

```
Current profile name          BLANK
Mode name                    [      ]
Maximum number of sessions (1-5000) [8]      #
Minimum contention winners (0-5000) [4]      #
Minimum contention losers (0-5000)  [0]      #
Auto activate limit (0-500)        [0]      #
Upper bound for adaptive receive pacing window [16]     #
Receive pacing window (0-63)       [16]     #
Maximum RU size (128,...,32768: multiples of 32) [512]    #
Minimum RU size (128,...,32768: multiples of 32) [256]    #
Class of Service (COS) name       [#CONNECT]
Comments                       []
```

Figure 183. Sample LU 6.2 Mode Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Transaction Program Name (TPN)
                Add a Profile

```

Figure 184. LU 6.2 Transaction Program Name (TPN) Profile

```

* Profile name                [psfdirect]
Transaction program name (TPN) [30F0F0F0]
Transaction program name (TPN) is in hexadecimal?  yes      +
PIP data?                    no        +
  If yes, Subfields (0-99)    [0]      #
Conversation type              basic      +
Sync level                     none     +
Resource security level       none     +
  If access, Resource Security Access List Prof.  []
Full path to TP executable    [/usr/lpp/psf/bin/ainpsfhr]
Multiple instances supported?  yes
User ID                        [0]      #
Server synonym name           []
Restart action                 once     +
Communication type             signals  +
  If IPC, Communication IPC queue key             [0]      #
Standard input file/device     [/dev/console]
Standard output file/device    [/dev/console]
Standard error file/device     [/dev/console]

Comments                       []

```

Figure 185. Sample LU 6.2 Transaction Program Name (TPN) Profile

Configuration Worksheet Example

The following worksheet records values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 7. Sample Configuration Worksheet</i> | | | | | |
|--|----------------------|------------|-------------------------------------|----------------|----------------|
| SNA Server/6000 | Value | PSF | VTAM | NCP | 3174 |
| Control Point: Control Point (CP) name | AIX01 | | | PU: name | |
| Token-Ring SNA DLC: Receive window count | 7 | | | PU: MAXOUT | item 941: W |
| Token-Ring Link Station: Remote link address | 400030001001 | | | | item 900 |
| LU 6.2 Local LU: Local LU name | PSFD0101 | LUNAME | | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | yes | | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | 1 | | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | | |
| LU 6.2 Side Information: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | | |
| LU 6.2 Mode: Receive pacing window | 16 | | MODEENT: SRCVPAC | | |
| LU 6.2 Mode: Maximum RU size | 512 | | MODEENT: RUSIZES | | |

Guidelines for Configuring Remote 3174 Token-Ring Gateway

The following provides guidance for implementing the examples displayed in “Remote 3174 Token-Ring Gateway Example” on page 148. Note that a subset of the example is displayed below, displaying the pertinent parameters and describing which of these require you to specify *variable_names* and which require a specific name or number, such as **MODETAB=MODEIBM** or **FMPROF=X'13'**.

Specifying the JES2 Initialization Statement

Define the PSF printer as you would any other SNA-attached printer. For example, on an MVS system you must provide either JES2 or JES3 initialization statements.

Configuring the Host PSF Printer

The manner in which a host PSF printer is configured depends upon the operating system. You will use one of the following statements:

- PSF/MVS PRINTDEV statement
- PSF/VSE PRINTDEV statement
- Parameters in the PSF/VM OPTIONS PDM file

On each operating system, PSF supports specification of both the application program ID (APPLID) and the logical unit name (LUNAME):

```

:
APPLID=appl_prog
LUNAME=lu_name
:

```

On some operating systems, PSF also supports other configuration parameters. The following text describes these parameters and notes whether they are required or optional:

APPLID (required)

Specifies the application program that is the SNA logical unit provided by VTAM and used by PSF.

The APPLID value must match:

- An APPL statement name in a VTAM application program major node
- The second portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile

LUNAME (required)

Specifies the SNA logical unit with which PSF tries to initiate a session.

The LUNAME value must match:

- An LU statement name in the NCP definitions
- The **Local LU name** parameter in an SNA Server/6000 LU 6.2 Local LU profile

Remote 3174 Token-Ring Gateway

LOGMODE (optional)

Specifies the VTAM logon mode table entry that defines characteristics of the session between the logical units identified by the APPLID and LUNAME parameters.

The LOGMODE parameter identifies an entry within a logon mode table. The MODETAB operand on the NCP LU statement identifies the logon mode table. If you omit the LOGMODE parameter, the DLOGMOD operand on the NCP LU statement identifies the entry within the logon mode table.

Note that if the logical unit identified by the LUNAME parameter is a cross-domain resource, you must not use the LOGMODE parameter.

SETUP (optional)

Specify SETUP=FORMS to cause JES to issue forms setup messages to the operator.

By default, JES issues forms setup messages to the operator for channel-attached printers, but does not issue forms setup messages to the operator for SNA-attached printers.

MGMTMODE={IMMED | OUTAVAIL | DIALIN} (optional)

Determines how the host PSF program and PSF Direct initiate communication.

IMMED

Causes the host PSF program to initiate communication when it is started.

OUTAVAIL

Causes the host PSF program to initiate communication when there is available output to print.

DIALIN

Causes the host PSF program to initiate communication only after a switched line becomes available. The switched line can become available either when VTAM dials out or the remote node dials in.

Note that the 3174 Establishment Controller does not use switched protocols. Do not use MGMTMODE=DIALIN in 3174 Establishment Controller configurations.

If you do not specify a value for the MGMTMODE parameter, it defaults to OUTAVAIL.

FAILURE={WCONNECT | STOP} (optional)

Specifies whether or not the host PSF program re-attempts communication after a printer or communication failure.

WCONNECT

Specifies that the host PSF program attempts to communicate again.

STOP

Specifies that the host PSF program must be restarted by the operator.

If you do not specify a value for the FAILURE parameter, it defaults to WCONNECT.

DISCINTV (optional)

Specifies the interval (in seconds) that the host PSF program waits for output to become available to print. If no output becomes available, the host PSF program ends communication with the printer.

Specify 0 to cause the host PSF program to maintain communication indefinitely. If you do not specify a value for DISCINTV, it defaults to 0.

Specifying the VTAM Start Option List (ATCSTRxx)

You must specify the values illustrated in Figure 186 and described below:

| | | |
|----------------------------|--------------------------|---|
| CONFIG= <i>nn</i> , | ATCCON MEMBER OF VTAMLST | X |
| NETID= <i>network_id</i> , | NETWORK IDENTIFIER | X |
| SSCPID= <i>nn</i> , | SSCP IDENTIFIER | X |
| ⋮ | | |

Figure 186. VTAM Start Option List Guidelines

CONFIG

Specifies the ATCCON*nn* member to use.

NETID

Specifies the network identifier for the host system. The first portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile must match the NETID value.

SSCPID

Specifies the System Services Control Point (SSCP) at the host. The SSCPID is a decimal integer from 0 to 65535.

The SSCP, normally VTAM, provides several network management functions. They include managing dependent logical units and accepting Network Management Vector Transports, such as alerts. Alerts often include information about devices that are unavailable or require corrective action.

To configure a PSF Direct host receiver to send alerts to this SSCP, the least significant portion of the **SNA System Services Control Point ID** value in the PSF Direct Host Receiver profile must be the hexadecimal equivalent of the SSCPID value. The **SNA System Services Control Point ID** must be in the form 05xxxxxxxx where x is a hexadecimal digit.

For example, to configure a PSF Direct host receiver to send alerts to an SSCP with an SSCPID value of 283, the host receiver's **SNA System Services Control Point ID** value must be 0500000011B.

Specifying the VTAM Configuration List (ATCCONnn)

The VTAM configuration list indicates the application program major nodes that should be made available when VTAM is started. Include the application program major node that contains the application program that PSF uses:

```

appl_prog_major_node      X
⋮

```

Specifying the VTAM Application Program Major Node and Application Program

The pertinent operands for the VTAM Application Program Major Node and Application Program are illustrated in Figure 187 and described below:

```

appl_prog_major_node  VBUILD TYPE=APPL
appl_prog             APPL AUTH=ACQ,EAS=1,SONSCIP=YES
:

```

Figure 187. VTAM Application Program Major Node and Application Program Guidelines

The host PSF program does not support application programs that use APPC=YES or PARSESS=YES. The default value for both APPC and PARSESS is NO.

Specifying the VTAM Mode Table and Entry

The operands for the VTAM Mode Table are illustrated in Figure 188 and described below:

```

table_name  MODETAB
entry_name  MODEENT LOGMODE=entry_name,           X
            FMPROF=X'13',TSPROF=X'07',           X
            PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' X
            PSERVIC=X'060200000000000000002000', X
            PSNDPAC=X'nn',SRCVPAC=X'nn',SSNDPAC=X'00', X
            RUSIZES=X'nnnn'

```

Figure 188. VTAM Mode Table and Entry Guidelines

PSNDPAC

Specifies the primary send pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

SRCVPAC

Specifies the secondary receive pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

RUSIZES

Specifies the maximum Request Unit (RU) sizes from the primary and secondary logical units. The RU sizes influence performance and can be adjusted as desired. Specifying X'8686' means 512 bytes for both RU sizes and yields good throughput in most configurations.

Other configuration parameters are influenced by the RUSIZES specification. These include:

- the **Maximum RU size** parameter in the SNA Server/6000 Mode profile
- the MAXDATA operand in the NCP PU statement

Specifying the Network Control Program Definitions

The following keywords and values must be specified if the 3174 establishment controller supports both terminals and PSF Direct:

| | | |
|---------------------|---|---|
| <i>line_name</i> | LINE ADDRESS=(<i>nnn</i>), | X |
| | CLOCKNG= <i>xxx</i> , | X |
| | SPEED= <i>nnnnn</i> | |
| * | SERVICE ORDER=(<i>3174_pu_name</i> , <i>RISC_pu_name</i>) | |
| * | | |
| <i>3174_pu_name</i> | PU ADDR= <i>nn</i> , | X |
| : | | |
| * | | |
| <i>term_lu_name</i> | LU LOCADDR= <i>nn</i> , | X |
| : | | |
| * | | |
| <i>RISC_pu_name</i> | PU ADDR= <i>nn</i> , | X |
| | PUTYPE=2, | X |
| | MAXDATA= <i>nnnn</i> , | X |
| | MAXOUT=7, | X |
| | PASSLIM=7 | |
| * | | |
| <i>lu_name</i> | LU LOCADDR= <i>nn</i> , | X |
| | MODETAB= <i>mode_name</i> , | X |
| | DLOGMOD= <i>mode_entry</i> | |

Figure 189. NCP Definitions for a Multi-point Configuration

The following keywords and values must be specified if the 3174 establishment controller supports one PSF Direct connection and no terminals:

| | | |
|------------------|------------------------------|---|
| <i>line_name</i> | LINE ADDRESS=(<i>nnn</i>), | X |
| | CLOCKNG= <i>xxx</i> , | X |
| | SPEED= <i>nnnnn</i> | |
| * | | |
| <i>pu_name</i> | PU ADDR= <i>nn</i> , | X |
| | PUTYPE=2, | X |
| | MAXDATA= <i>nnnn</i> , | X |
| | MAXOUT=7, | X |
| | PASSLIM=7 | |
| * | | |
| <i>lu_name</i> | LU LOCADDR= <i>nn</i> , | X |
| | MODETAB= <i>mode_table</i> , | X |
| | DLOGMOD= <i>mode_entry</i> | |

Figure 190. NCP Definitions for a Point-to-Point Configuration

The following describes the pertinent keywords on the **LINE** statement:

ADDRESS

Specifies the relative line number for this line. The relative line number depends upon the port and line adapter type used in the 37xx communication controller.

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CLOCKNG

Specifies whether the modem (EXT) or the communication scanner for the line (INT) provides clocking.

Ensure that the CLOCKNG keyword is spelled without the letter l.

SPEED

Specifies the data rate for the line in bits per second. The SPEED keyword is required if CLOCKNG=INT. The SPEED keyword is also required if you use NetView Performance Monitor (NPM) to collect NCP performance data, even when CLOCKNG=EXT.

The following describes the pertinent keywords on the **SERVICE** statement:

ORDER

Specifies the order in which the devices on the line are serviced in a multi-point configuration. In these guidelines the devices are physical units.

The following describes the pertinent keywords on the **PU** statement:

ADDR

Specifies the hexadecimal representation of the 8-bit address of the physical unit. For a 3174 establishment controller, the ADDR keyword refers to the S@ parameter in 3174 configuration item 940.

PUTYPE

Specify 2, which represents either a type 2 physical unit (PU), or a type 2.1 physical unit such as SNA Server/6000.

MAXDATA

Specifies the maximum amount of data (in bytes) that the physical unit can receive in one path information unit (PIU). This amount includes the transmission header (TH) and the request/response header (RH).

To prevent basic information units (BIUs) from being segmented, specify a MAXDATA value that is at least 9 bytes greater than the maximum RU size in the logon mode table entry.

MAXOUT

Specifies the maximum number of path information units (PIUs) that are sent to the physical unit before waiting for a response from that physical unit.

For optimum performance, the MAXOUT value should be equal to the **Receive window count** in the SNA Server/6000 Token-Ring SNA DLC profile and to the window (W) value in 3174 establishment controller configuration item 941.

The **Receive window count** defines the size of the link-level window. It specifies the maximum number of frames that SNA Server/6000 receives before sending a link-level acknowledgement.

The window (W) value in 3174 configuration item 941 indicates the number of frames that the 3174 sends before waiting for a link-level acknowledgement.

If the MAXOUT value or the 3174 window (W) value is less than the **Receive window count** parameter, extremely poor throughput can result. The default MAXOUT value is 1. In most cases, the default window (W) value is 2. The default Receive window count value is 8. You must adjust these default values to yield acceptable throughput.

PASSLIM

Specifies the maximum number of frames NCP sends at one time to this physical unit.

The following describes the pertinent keywords on the **LU** statement:

LOCADDR

LOCADDR=0 specifies that this logical unit is an independent logical unit. An SSCP-LU session does not have to be established prior to an LU-LU session with an independent logical unit. For independent logical units, the **Local LU is dependent?** parameter in the SNA Server/6000 LU 6.2 Local LU profile must be no.

To use a dependent logical unit, specify a value between 1 and 255 for LOCADDR. Also, in the SNA Server/6000 LU 6.2 Local LU profile, specify yes for the **Local LU is dependent?** parameter, and the LOCADDR value for the **Local LU address** parameter.

MODETAB

Specifies the name of the logon mode table that contains entries that describe session characteristics.

DLOGMOD

Specifies the name of the logon mode table entry that describes session characteristics.

Specifying the 3174 Establishment Controller Configuration

The pertinent configuration parameters are illustrated in Figure 191 and described below:

```
Configuration Support C Release 3

900: Token-Ring Network Address for the Gateway

    4000 nnnn nnnn

940: Ring Address Assignment

    S@   Ring@           SAP
    nn   4000 nnnn nnnn
    nn   nnnn nnnn nnnn   nn

941: Ring Transmission Definition

                F   W
    nn   4000 nnnn nnnn
    nn   nnnn nnnn nnnn   n   n
```

Figure 191. Sample 3174 Establishment Controller Configuration

900: Token-Ring Network Address for the Gateway

Specify the token-ring address for the Gateway. The address must be a local MAC address in the form 4000 nnnn nnnn.

940: Ring Address Assignment

This configuration item includes several pertinent parameters:

S@

Indicates the subchannel address. Values are supplied automatically when the Ring Address Assignment panel is presented. The first S@ value specifies the subchannel address for the Gateway. The remaining S@ values specify subchannel addresses for ring-attached physical units.

Ring@

Indicates the token-ring address. The first Ring@ value specifies the token-ring address for the Gateway and is supplied automatically when the Ring Address Assignment panel is presented.

Specify a token-ring address for each ring-attached physical unit. Local MAC addresses are suggested over universal MAC addresses. Local MAC addresses are in the form 4000 nnnn nnnn.

SAP

Accept the default Service Access Point value, 04, or specify it explicitly.

940: Ring Transmission Definition

This configuration item includes two pertinent parameters:

- F** Indirectly specifies the transmit I-frame size.

To prevent segmentation of basic information units (BIUs), choose a transmit I-frame size that is at least 9 bytes larger than the maximum RU size. The maximum RU size is the lesser of the value represented by the VTAM MODEENT statement RUSIZES operand and the **Maximum RU size** parameter in the SNA Server/6000 LU 6.2 Mode profile.

- W** Specifies the transmit window size. The transmit window size is the number of frames that the 3174 sends to the physical unit before waiting for a link-level acknowledgement.

The **Receive window count** parameter in the SNA Server/6000 Token-Ring SNA DLC profile specifies the maximum number of frames SNA Server/6000 receives before sending a link-level acknowledgement.

For optimum performance, the transmit window size (**W**) should be equal to the **Receive window count** parameter.

If the transmit window size (**W**) is less than the **Receive window count** parameter, extremely poor throughput can result. In most cases, the default transmit window size (**W**) value is 2. The default **Receive window count** value is 8. You must adjust these default values to yield acceptable throughput.

Specifying the SNA Server/6000 Profiles

This section contains guidelines on configuring the SNA Server/6000 Profiles. Configure these profiles through the System Management Interface Tool (SMIT) panels. Examples of these panels and the hierarchical paths to each SNA definition are illustrated in “SNA Server/6000 Configuration Profile Examples” on page 153.

Note: You must have **root** authority to add or change SNA Server/6000 configuration profiles. After you add or change SNA Server/6000 configuration profiles, you must **verify** and **update** them. For more information about performing this task, see “Verifying and Updating SNA Server/6000 Configuration Profiles” on page 8.

Specifying the SNA Node Profile for PSF Direct: PSF Direct requires no modifications to the SNA Node profile.

Specifying the Control Point Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Control Point Profile. Note that all values refer to Figure 192.

| | |
|-------------------------|-----------------|
| XID node ID | [*] |
| Control Point (CP) name | [cp_name] |
| Control Point type | appn_end_node + |

Figure 192. Control Point Profile Guidelines

XID node ID

The **XID node ID** parameter pertains to switched protocols. Because the 3174 establishment controller does not use switched protocols, the **XID node ID** value is not relevant in 3174 establishment controller configurations.

Control Point (CP) name

The **Control Point (CP) name** parameter pertains to switched protocols. Because the 3174 establishment controller does not use switched protocols, the **Control Point (CP) name ID** value is not relevant in 3174 establishment controller configurations. However, by convention the **Control Point (CP) name** is usually the same as the PU name.

Control Point type

Specify either `appn_end_node` or `appn_network_node`.

Specifying the Token-Ring SNA DLC Profile for PSF Direct: The following displays how to specify the values PSF Direct requires in the Token-Ring SNA DLC Profile. Note that all values refer to Figure 193.

| | | |
|----------------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Data link device name | [<i>tokn</i>] | + |
| Receive window count (1-127) | [<i>n</i>] | # |
| Local SAP address (04-ec) | [04] | X |
| Link Recovery Parameters | | |
| Retry interval (1-10000 seconds) | [60] | # |
| Retry limit (0-500 attempts) | [0] | # |

Figure 193. Token-Ring SNA DLC Profile Guidelines

Profile name

Choose any meaningful value.

Data link device name

Select one of the available adapters.

Receive Window Count (1-127)

The Receive window count defines the size of the link-level window. It specifies the maximum number of frames to receive before sending a link-level acknowledgement.

The MAXOUT keyword specifies the maximum number of path information units (PIUs) that are sent to the physical unit before waiting for a response from that physical unit.

The window (W) value in 3174 configuration item 941 indicates the number of frames that the 3174 sends before waiting for a link-level acknowledgement.

For optimum performance, the **Receive window count** should be equal to the MAXOUT value in the NCP PU statement and to the window (W) value in 3174 establishment controller configuration item 941.

If the MAXOUT value or the 3174 window (W) value is less than the **Receive window count** parameter, extremely poor throughput can result. The default MAXOUT value is 1. In most cases, the default window (W) value is 2. The default **Receive window count** value is 8. You must adjust these default values to yield acceptable throughput.

Local SAP address (04-ec)

Specify 04.

Link Recovery Parameters - Retry interval (1-10000 seconds)

Specify 60. If the link station is a **calling** link station, this value causes it to try to establish a link connection with the 3174 establishment controller every 60 seconds, until a link connection can be established.

Link Recovery Parameters - Retry limit (0-500 attempts)

Specify 0. If the link station is a **calling** link station, this value indicates that there is no limit on the number of attempts the link station makes to establish a link connection with the 3174 establishment controller. The interval between the attempts is defined by the previous parameter.

Specifying the Token-Ring Link Station Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Token-Ring Link Station Profile. Note that all values refer to Figure 194 on page 174.

Remote 3174 Token-Ring Gateway

| | | |
|---|--------------------|---|
| * Profile name | [profile_name] | |
| Use APPN Control Point's XID node ID? | yes | + |
| * SNA DLC Profile name | [DLC_profile_name] | + |
| Stop link station on inactivity? | no | + |
| LU address registration? | no | + |
| Adjacent Node Address Parameters | | |
| Access routing | link_address | + |
| If link_address, | | |
| Remote link address | [4000nnnnnnnn] | X |
| Remote SAP address (04-ec) | [04] | X |
| Adjacent Node Identification Parameters | | |
| Verify adjacent node? | no | + |
| Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| Initiate call when link station is activated? | yes | + |
| Activate link station at SNA start up? | yes | + |
| Restart Parameters | | |
| Restart on activation? | no | + |
| Restart on normal deactivation? | yes | + |
| Restart on abnormal deactivation? | yes | + |

Figure 194. Token-Ring Link Station Profile Guidelines

Profile name

Choose any meaningful value.

Use APPN Control Point's XID node ID?

Select yes.

SNA DLC Profile name

Select the name of the SNA DLC profile.

Stop link station on inactivity?

Select no.

LU address registration?

Select no.

Adjacent Node Address Parameters - Access routing

Select link_address.

This parameter is referenced only for **calling** link stations and selective **listening** link stations. For more information, refer to ““Calling” Versus “Listening” Link Stations” on page 11.

Adjacent Node Address Parameters - Remote link address

For **calling** link stations and selective **listening** link stations, the **Remote link address** parameter must match the token-ring address of the 3174 establishment controller token-ring gateway. The token-ring address of the 3174 token-ring gateway is specified in 3174 configuration item 900.

Adjacent Node Address Parameters - Remote SAP address

Specify 04.

Adjacent Node Identification Parameters - Verify adjacent node?

Select no.

Link Activation Parameters - Solicit SSCP sessions?

Select yes.

Link Activation Parameters - Initiate call when link station is activated?

To define a **calling** link station, select yes.

To define a **listening** link station, select no.

Link Activation Parameters - Activate link station at SNA start up?

Select yes.

Restart Parameters - Restart on activation?

Select no.

Restart Parameters - Restart on normal deactivation?

Select yes.

Restart Parameters - Restart on abnormal deactivation?

Select yes.

Specifying the LU 6.2 Local LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Local LU Profile. Note that all values refer to Figure 195.

| | | |
|---------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU name | [<i>lu_name</i>] | |
| Local LU alias | [<i>lu_alias</i>] | |
| Local LU is dependent? | yes | + |
| If yes, | | |
| Local LU address (1-255) | [<i>nn</i>] | # |
| Link Station Profile name | [<i>link_station</i>] | + |

Figure 195. LU 6.2 Local LU Profile Guidelines

Profile name

Choose any meaningful value.

Local LU name

This value must match both the name on the LU statement in the NCP definitions and the LUNAME parameter in the host PSF printer configuration (the PRINTDEV statement or OPTIONS PDM file).

Local LU alias

Choose any meaningful value.

Local LU is dependent?

The logical unit can be either dependent (yes) or independent (no). Dependent logical units are managed by an SSCP. In general, independent logical units offer more flexibility.

For dependent logical units, the LOCADDR value on the LU statement in the NCP definitions is non-zero. For independent logical units, LOCADDR=0.

If yes, Local LU address (1-255)

If the logical unit is dependent, the **Local LU address** parameter must match the LOCADDR value on the LU statement in the NCP definitions.

If yes, Link Station Profile name

If the logical unit is dependent, select the profile name of the link station through which SNA Server/6000 communicates with the host system.

Specifying the LU 6.2 Partner LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Partner LU Profile. Note that all values refer to Figure 196.

Note: You must configure an LU 6.2 Partner LU profile. Some SNA Server/6000 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, SNA Server/6000 requires an LU 6.2 Partner LU profile in PSF Direct configurations even if the local LU is an independent logical unit.

| | | |
|---------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Partner LU alias | [<i>partner_lu_alias</i>] | |
| Parallel sessions supported? | no | + |
| Session security supported? | no | + |
| Conversation security level | none | + |

Figure 196. LU 6.2 Partner LU Profile Guidelines

Profile name

Choose any meaningful value.

Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Partner LU alias

Choose any meaningful value.

Parallel sessions supported?

Select no.

Session security supported?

Select no.

Conversation security level

Select none.

Specifying the LU 6.2 Side Information Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Side Information Profile. Note that all values refer to Figure 197.

Note: You must configure an LU 6.2 Side Information profile if the local LU is a dependent logical unit. If the local LU is an independent logical unit, an LU 6.2 Side Information profile is not required.

| | |
|------------------------------------|---------------------------------------|
| * Profile name | [<i>profile_name</i>] |
| Local LU or Control Point alias | [<i>lu_alias</i>] |
| Provide only one of the following: | |
| Partner LU alias | [] |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] |
| Mode name | [] |

Figure 197. LU 6.2 Side Information Profile Guidelines

Profile name

Choose any meaningful value.

Local LU or Control Point alias

Select the local LU alias that you specified in the LU 6.2 Local LU profile.

Partner LU alias

You can either select the partner LU alias that you specified in the LU 6.2 Partner LU profile or you can specify a value for the **Fully qualified partner LU name** parameter.

Fully qualified partner LU name

You can either specify a fully qualified partner LU name or you can select a value for the **Partner LU alias** parameter.

The **Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Mode name

Do not provide a value for the **Mode name** parameter.

Specifying the LU 6.2 Mode Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Mode Profile. Note that all values refer to Figure 198.

| | | |
|--|------------|---|
| Current profile name | BLANK | |
| Mode name | [] | |
| Receive pacing window (0-63) | [16] | # |
| Maximum RU size (128,...,32768: multiples of 32) | [512] | # |
| Minimum RU size (128,...,32768: multiples of 32) | [256] | # |
| Class of Service (COS) name | [#CONNECT] | |

Figure 198. Sample LU 6.2 Mode Profile Guidelines

Current profile name

The BIND image provided by PSF/MVS, PSF/VSE, and PSF/VM does not include a mode name. Therefore, SNA Server/6000 uses the predefined Mode profile named BLANK.

Mode name

The **Mode name** in the BLANK profile is 8 spaces.

Receive pacing window (0-63)

The receive pacing window used in the LU-LU session is the lesser of this parameter's value and the SRCVPAC value in the VTAM MODEENT statement.

Specifying 16 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Maximum RU size

The maximum RU size used in the LU-LU session is the lesser of this parameter's value and the RUSIZES value in the VTAM MODEENT statement.

Specifying 512 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Minimum RU size

Specify 256.

Class of Service (COS) name

Select #CONNECT.

Specifying the LU 6.2 Transaction Program Name Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Transaction Program Name (TPN) Profile. Note that all values refer to Figure 199.

| | | |
|---|-----------------------------|---|
| * Profile name | [psfdirect] | |
| Transaction program name (TPN) | [30F0F0F0] | |
| Transaction program name (TPN) is in hexadecimal? | yes | + |
| PIP data? | no | + |
| Conversation type | basic | + |
| Sync level | none | + |
| Resource security level | none | + |
| Full path to TP executable | [/usr/lpp/psf/bin/ainpsfhr] | |
| Multiple instances supported? | yes | |
| User ID | [0] | # |
| Communication type | signals | + |

Figure 199. LU 6.2 Transaction Program Name (TPN) Guidelines

Profile name

Choose any meaningful value.

Transaction Program name (TPN)

Specify 30F0F0F0. This matches the value provided in the FMH 5 (Attach) from the host PSF system.

Transaction Program name (TPN) is in hexadecimal?

Select yes.

PIP data?

Select no.

Conversation type

Select basic.

The host PSF program and the PSF Direct host receiver communicate using a basic conversation. SNA Server/6000 supports both basic and mapped conversation types.

Sync level

Select none.

The PSF Direct host receiver does not send or respond to CONFIRM requests.

Resource security level

Select none.

The host PSF programs do not support security verification.

Full path to TP executable

Specify /usr/lpp/psf/bin/ainpsfhr. The IBM InfoPrint Manager for AIX installation procedure places the PSF Direct host receiver in this location.

Multiple instances supported?

Select yes so that more than one PSF Direct host receiver can run concurrently.

User ID

Specify 0. The effective uid of the PSF Direct host receiver must be "0", indicating **root** or super-user.

Communication type

Select signals.

Configuration Worksheet

Use the following worksheet to record values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 8. Sample Configuration Worksheet</i> | | | | | |
|---|--------------|------------|-------------------------------------|----------------|----------------|
| SNA Server/6000 | Value | PSF | VTAM | NCP | 3174 |
| Control Point: Control Point (CP) name | | | | PU: name | |
| Token-Ring SNA DLC: Receive window count | | | | PU: MAXOUT | item 941: W |
| Token-Ring Link Station: Remote link address | | | | | item 900 |
| LU 6.2 Local LU: Local LU name | | LUNAME | | LU: name | |
| LU 6.2 Local LU: Local LU is dependent? | | | | LU: LOCADDR | |
| LU 6.2 Local LU: Local LU address | | | | LU: LOCADDR | |
| LU 6.2 Partner LU: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | | |
| LU 6.2 Side Information: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | | |
| LU 6.2 Mode: Receive pacing window | | | MODEENT: SRCVPAC | | |
| LU 6.2 Mode: Maximum RU size | | | MODEENT: RUSIZES | | |

Chapter 7. Local and Remote 37xx SDLC

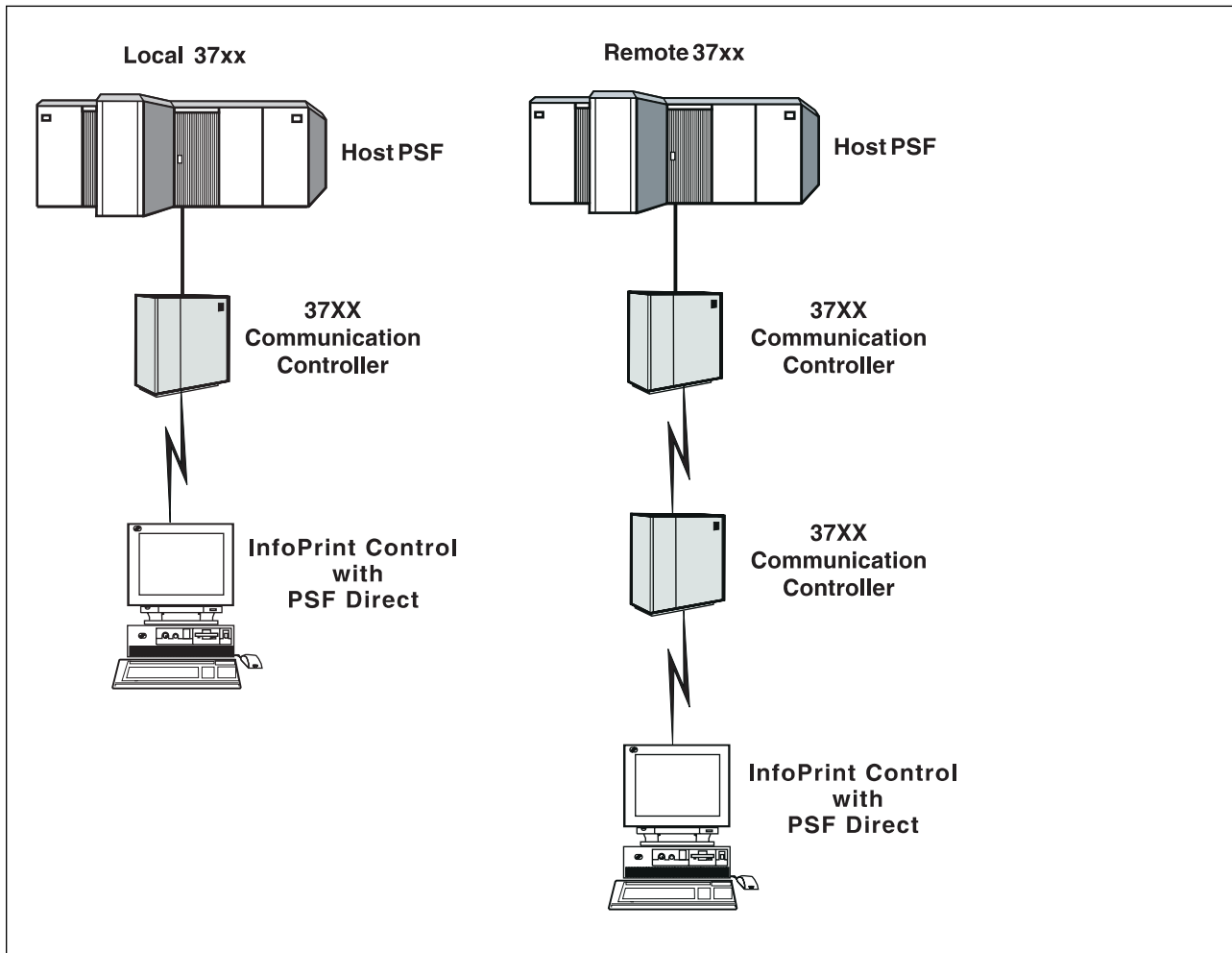


Figure 200. Local and Remote 37xx SDLC

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, the internal components of the network and details of their operation must be described.

Considering two views of an SNA network, an **application view** and a **network internals view**, aids in understanding PSF Direct configuration requirements.

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)** and the connection between them is a **session**. A **mode** describes a session's characteristics, or guidelines for exchanging data.

The application view (Figure 201) illustrates the interface that SNA provides to applications, such as the host PSF program and the PSF Direct component of InfoPrint. These applications are isolated from details of the internal components of the SNA network.

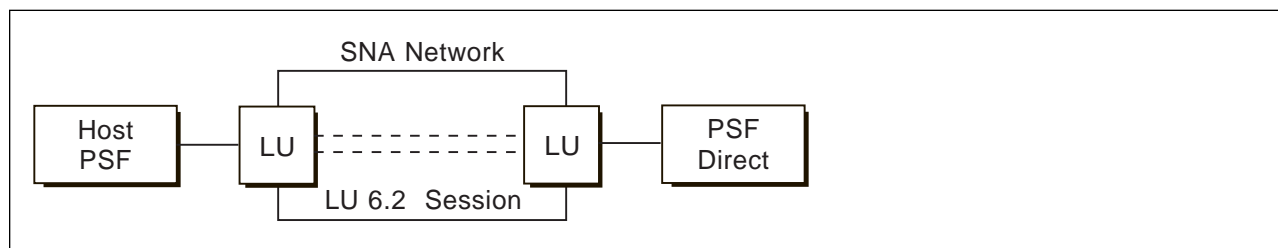


Figure 201. Application View of a PSF Direct Attachment

As the application view suggests, only a few values are required to configure the host PSF program and PSF Direct so that they can communicate. Figure 202 on page 185 displays the values used by both applications. Note that each configuration parameter references a logical unit or mode provided by the SNA network.

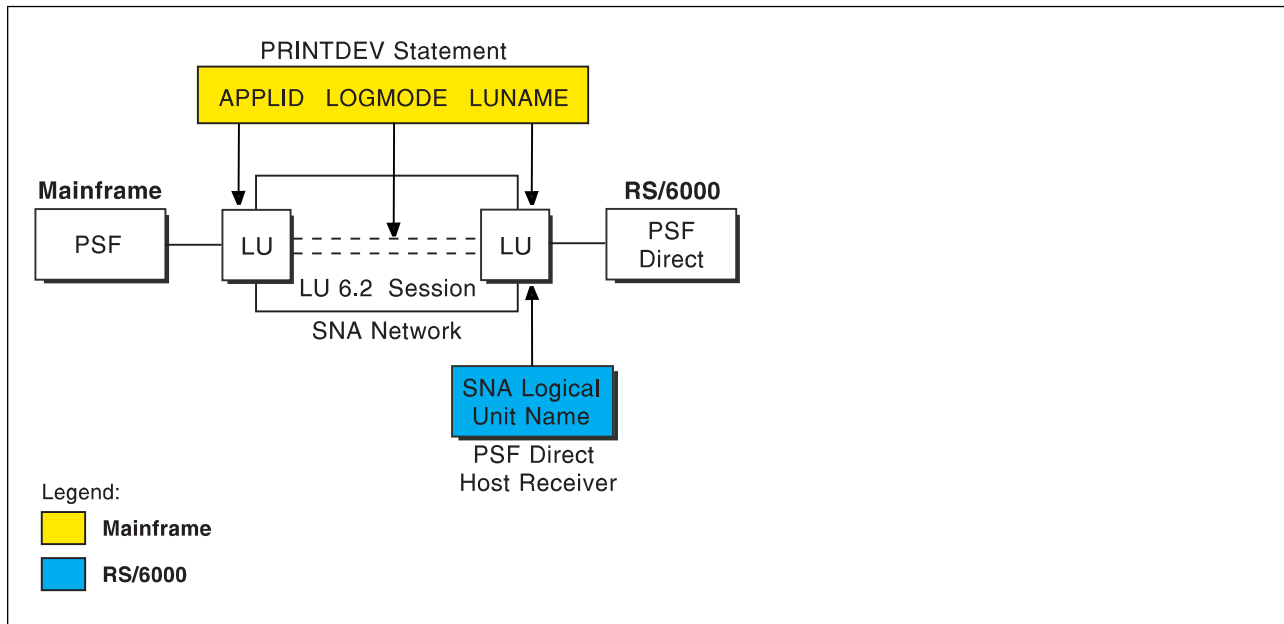


Figure 202. Application View With Configuration Parameters

Host PSF PRINTDEV Statement Parameters

APPLID

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

LUNAME

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

LOGMODE

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. LOGMODE 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

SNA Logical Unit name

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

Because there may be several PSF Direct host receivers on a RS/6000 and several RS/6000's 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.

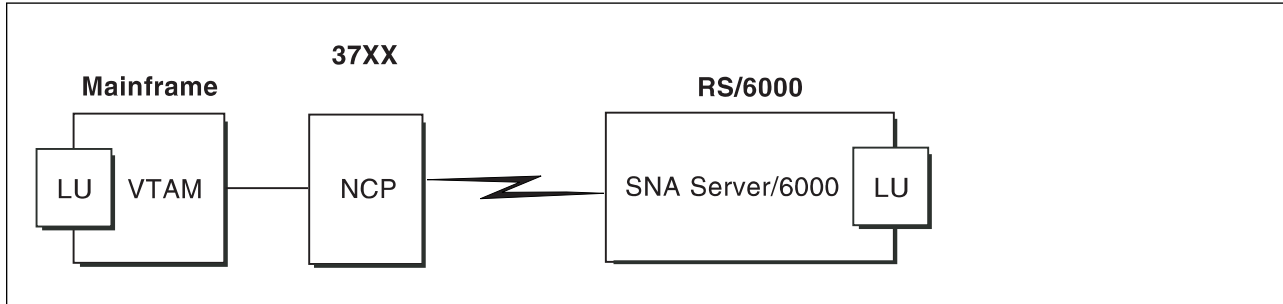


Figure 203. Network Internals View With Some Configuration Requirements

The network internals view illustrates that many components comprise an SNA network. Most of the components have detailed configuration requirements. Many of those requirements are described in this chapter.

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. These interrelated parameters must be configured consistently to make end-to-end communication possible.

Several figures follow. They illustrate some of the key interrelationships among configuration parameters for SNA network components.

Key Configuration Parameter Interrelationships: Figure 204 illustrates the interrelationships in defining logical unit (LU) names.

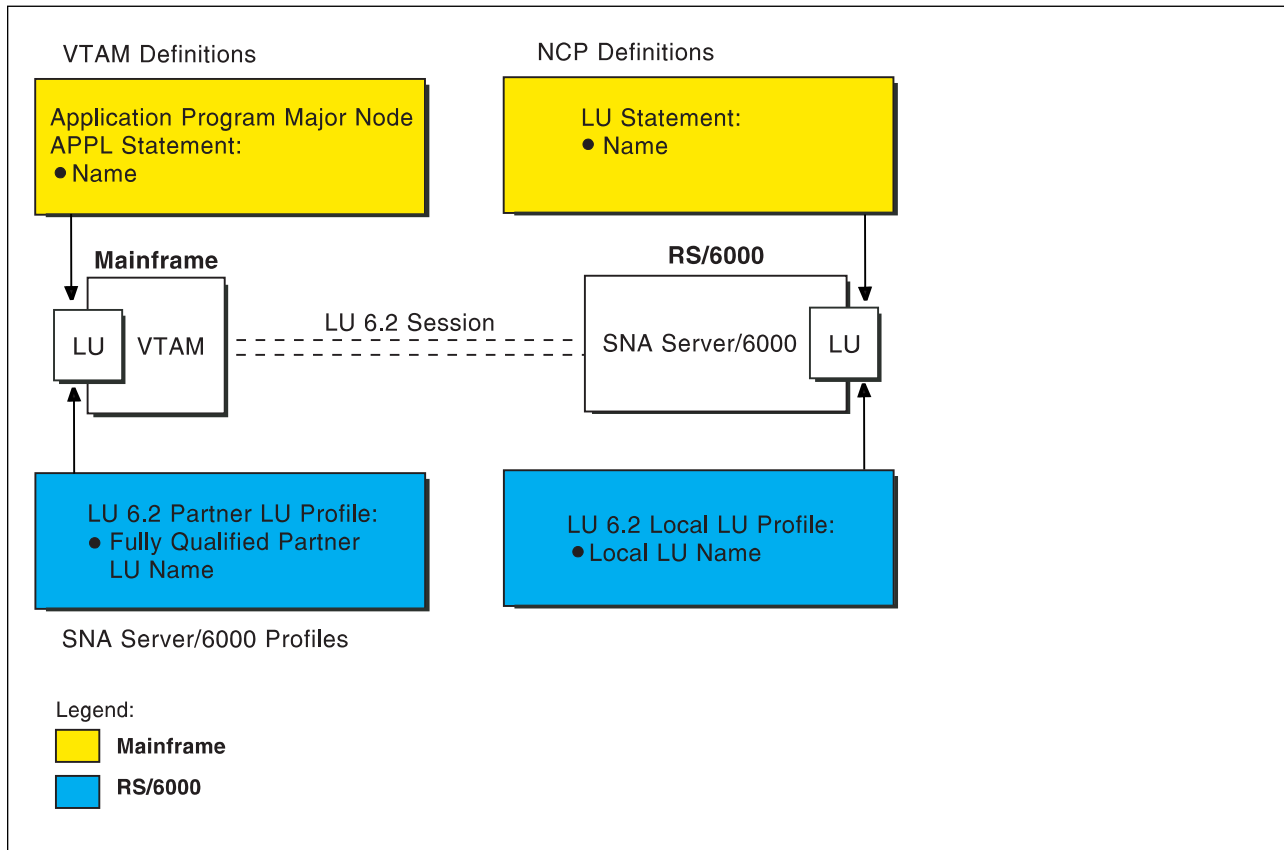


Figure 204. Logical Unit Names

Local or Remote 37xx SDLC

Figure 205 illustrates the interrelationships in defining the local address of the logical unit provided by SNA Server/6000.

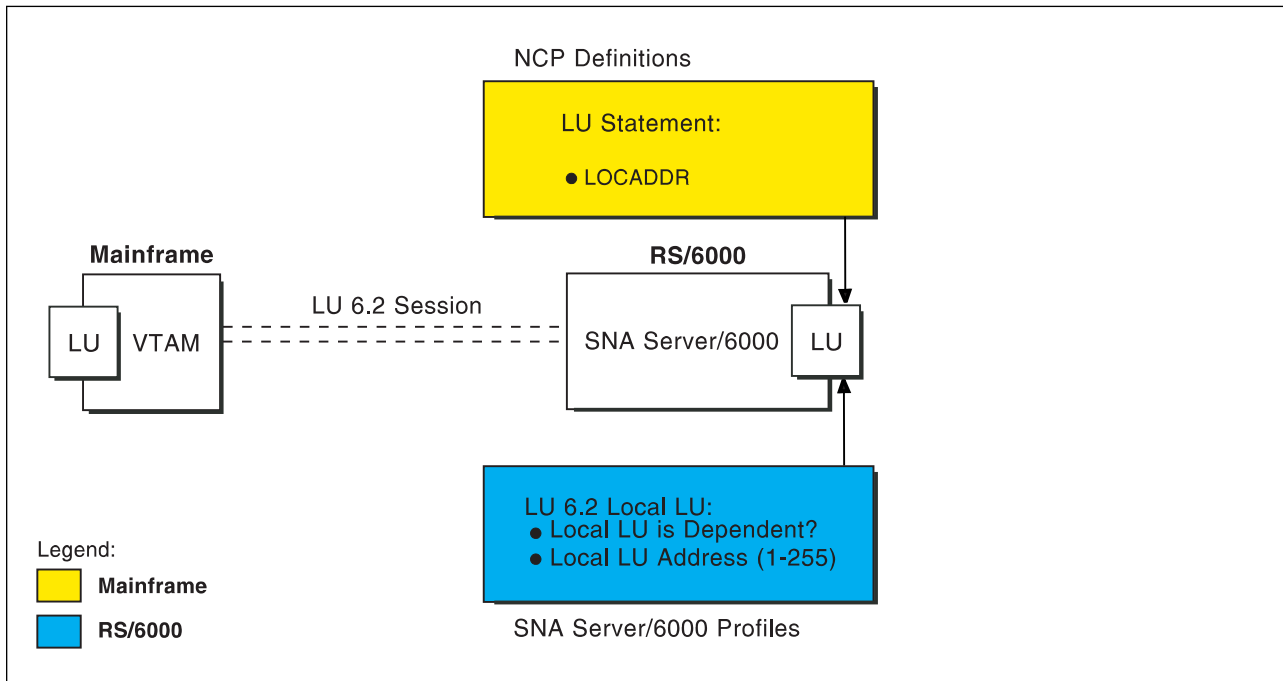


Figure 205. Local Address of Logical Unit

Figure 206 illustrates the interrelationships in defining session characteristics.

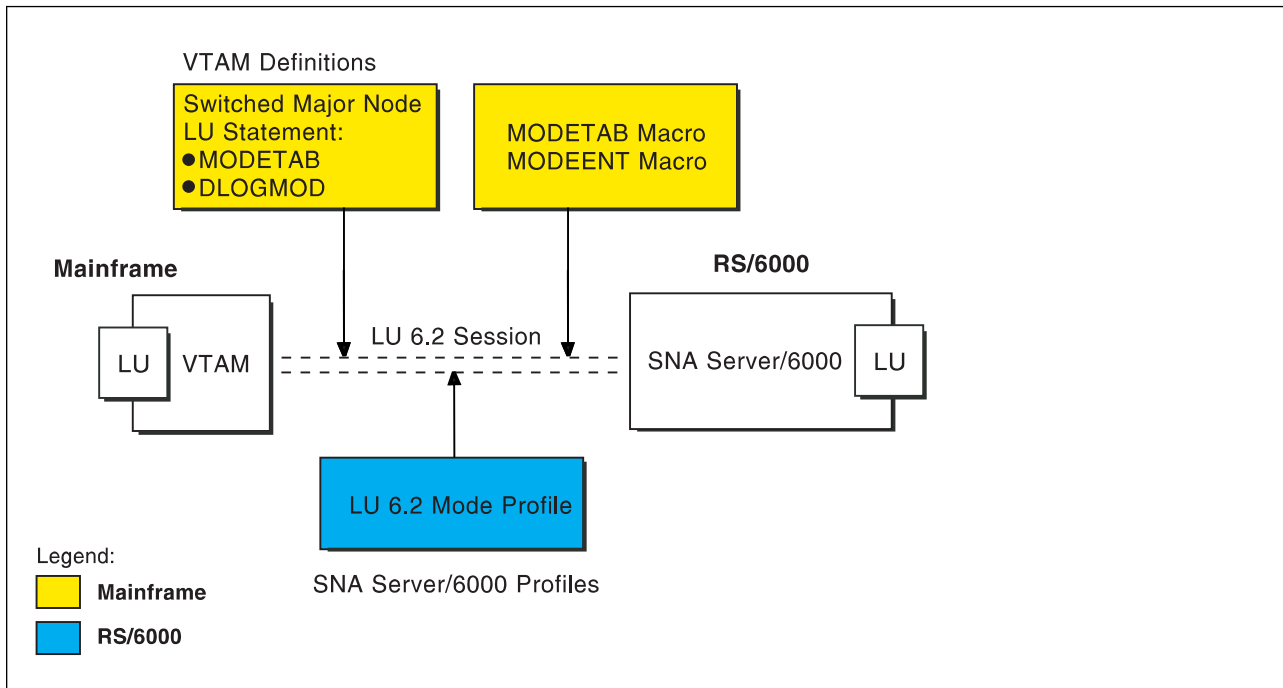


Figure 206. Session Characteristics

Figure 207 illustrates the interrelationships in defining the name of the physical unit/control point provided by SNA Server/6000.

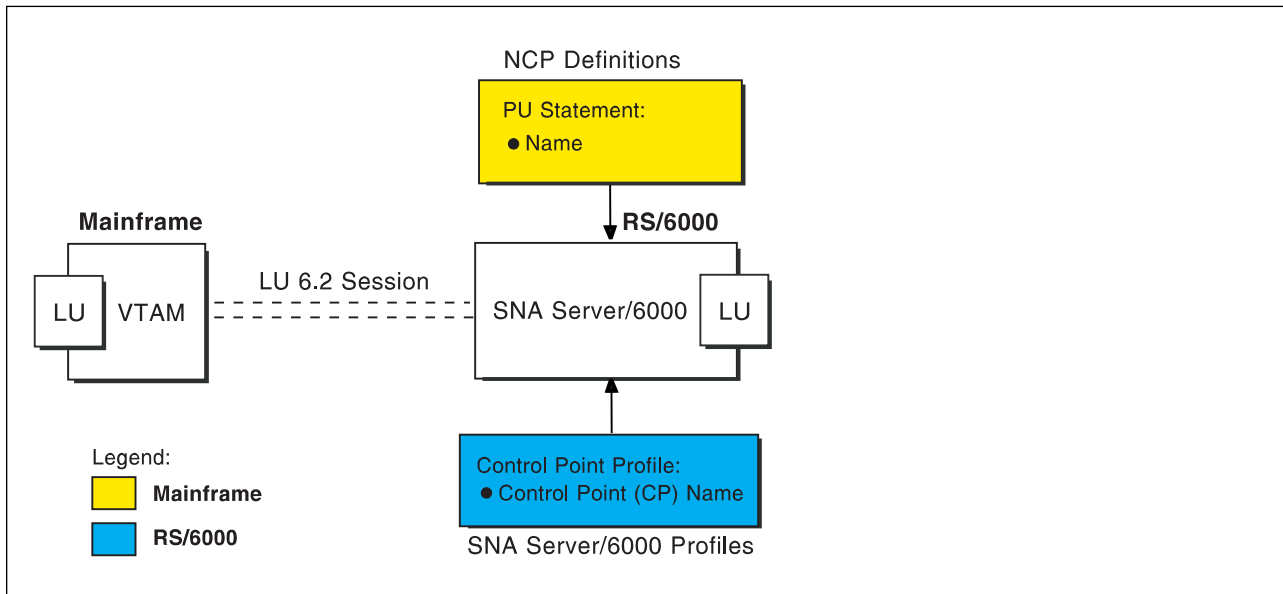


Figure 207. Physical Unit/Control Point Name

Figure 208 illustrates the interrelationships in defining the station address of the link station provided by SNA Server/6000.

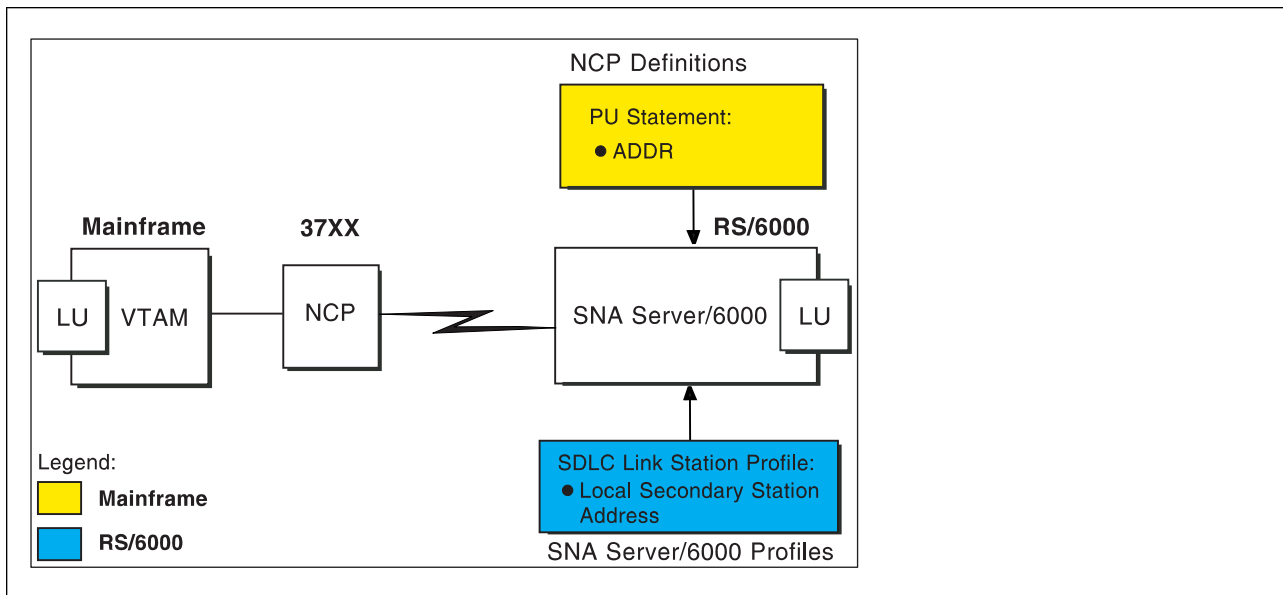


Figure 208. Station Address

Local or Remote 37xx SDLC Example

The following local 37xx SDLC example uses MVS, JES2, and a **non-switched** line. A **non-switched** line is also sometimes called a **private** line or a **leased** line. For an explanation of pertinent configuration parameters, see “Guidelines for Configuring Local or Remote 37xx SDLC” on page 203.

JES2 Initialization Statement Example

Figure 209 shows the JES2 printer definition initialization member, located in the system parmlib. For more information about specifying this statement, see “Specifying the JES2 Initialization Statement” on page 203.

```
PRT833 CLASS=Y,MARK=YES,START=NO,MODE=FSS,FSS=WTR833,      X
PRMODE=(LINE,PAGE),UCS=0
```

Figure 209. Sample PSF/MVS JES2 Printer Definition

JES2 External Writer Procedure Example

For more information on specifying these values, see “Configuring the Host PSF Printer” on page 203.

```

//WTR833 PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K
//*
//STEPLIB DD DSN=SYSTEM.PSF.V220.LINKLIB,DISP=SHR
//*
//JOBHDR OUTPUT PAGEDEF=A06462, /* JOB HEADER PAGEDEF */
// FORMDEF=A10110 /* JOB HEADER FORMDEF */
//JOBTLR OUTPUT PAGEDEF=A06462, /* JOB TRAILER PAGEDEF */
// FORMDEF=A10110 /* JOB TRAILER FORMDEF */
//DSHDR OUTPUT PAGEDEF=A06462, /* DATA SET HEADER PAGEDEF */
// FORMDEF=A10110 /* DATA SET HEADER FORMDEF */
//MSGDS OUTPUT PAGEDEF=A06462, /* MESSAGE DATASET PAGEDEF */
// FORMDEF=A10110 /* MESSAGE DATASET FORMDEF */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR
//OLAY01 DD DSN=SYS1.OVERLIB,DISP=SHR
//PSEG01 DD DSN=SYS1.PSEGLIB,DISP=SHR
//FDEF01 DD DSN=SYS1.FDEFLIB,DISP=SHR
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR
//*
//PRT833 PRINTDEV FONTDD=*.FONT01, /* FONT LIBRARY DD */
// OVLYDD=*.OLAY01, /* OVERLAY LIBRARY DD */
// PSEGDD=*.PSEG01, /* SEGMENT LIBRARY DD */
// PDEFDD=*.PDEF01, /* PAGEDEF LIBRARY DD */
// FDEFDD=*.FDEF01, /* FORMDEF LIBRARY DD */
// JOBHDR=*.JOBHDR, /* JOB HEADER DD */
// JOBTRLR=*.JOBTLR, /* JOB TRAILER DD */
// DSHDR=*.DSHDR, /* DATA SET HEADER DD */
// MESSAGE=*.MSGDS, /* MESSAGE DATA DD */
// PAGEDEF=A06462, /* DEFAULT PAGEDEF */
// FORMDEF=A10110, /* DEFAULT FORMDEF */
// CHARS=(GT10,GC15,GB10,GR10), /* DEFAULT FONT SET */
// PIMSG=YES, /* ACCUMULATE DATA SET MSGS */
// SETUP=FORMS, /* ISSUE FORMS SETUP MSGS */
// MGMTMODE=OUTAVAIL, /* START WHEN OUTPUT AVAIL. */
// DISCINTV=60, /* DISCONNECT INTERVAL--SECS*/
// LOGMODE=IBM3820R, /* LOGON MODE TABLE ENTRY */
// APPLID=FSAES833, /* APPLICATION PGM NAME */
// LUNAME=PSFD0101 /* LOGICAL UNIT NAME */
//PRT833 ENDCNTL

```

Figure 210. Sample PSF/MVS Start Up Procedure

VTAM Start Option List (ATCSTRxx) Example

For an explanation of these values, refer to “Specifying the VTAM Start Option List (ATCSTRxx)” on page 205.

| | | |
|----------------|--------------------------|---|
| CONFIG=00, | ATCCON MEMBER OF VTAMLST | X |
| NETID=USIBMBQ, | NETWORK IDENTIFIER | X |
| SSCPID=1, | SSCP IDENTIFIER | X |
| : | | |

Figure 211. Sample VTAM Start Option List

VTAM Configuration List (ATCCONnn) Example

For an explanation of these values, refer to “Specifying the VTAM Configuration List (ATCCONnn)” on page 205.

| | |
|----------|---|
| PSFAPPLS | X |
| : | |

Figure 212. Sample VTAM Configuration List

VTAM Application Program Major Node and Application Program Example

For an explanation of these values, refer to “Specifying the VTAM Application Program Major Node and Application Program” on page 206.

| | |
|----------|---------------------------------|
| PSFAPPLS | VBUILD TYPE=APPL |
| FSAES833 | APPL AUTH=ACQ,EAS=1,SONSCIP=YES |
| : | |

Figure 213. Sample VTAM Application Program Major Node and Application Program

VTAM Mode Table and Entry Example

For an explanation of these values, refer to “Specifying the VTAM Mode Table and Entry” on page 206.

| | | |
|----------|---|---|
| MODEIBM | MODETAB | |
| IBM3820R | MODEENT LOGMODE=IBM3820R,FMPROF=X'13',TSPROF=X'07', | X |
| | PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' | X |
| | PSERVIC=X'060200000000000000002000', | X |
| | PSNDPAC=X'10',SRVCPAC=X'10',SSNDPAC=X'00', | X |
| | RUSIZES=X'B7B7' | |

Figure 214. Sample VTAM Mode Table and Entry

Network Control Program (NCP) Definitions Example

For an explanation of these values, refer to "Specifying the Network Control Program Definitions" on page 207.

| | | | | |
|----------|-------|---|--|-----------------------|
| : | | | | |
| GRPAIX | GROUP | LNCTL=SDLC, TYPE=NCP | LINE CONTROL NETWORK CONTROL MODE | X |
| * | | | | |
| LNAIX | LINE | ADDRESS=(000), CLOCKNG=EXT, SPEED=19200, RETRIES=(5,1,2) | RELATIVE LINE NUMBER MODEM DICTATES SPEED USED BY NPM FOR TRANSMISSION ERRORS | X X X |
| * | | | | |
| AIX01 | PU | ADDR=1, ANS=STOP, PUTYPE=2, XID=YES, MODETAB=MODEIBM, DLOGMOD=IBM3820R | STATION ADDRESS AUTOMATIC NETWORK SHUTDOWN PU TYPE 2 OR PU TYPE 2.1 PU TYPE 2.1 LOGON MODE TABLE LOGON MODE TABLE ENTRY | X X X X X |
| * | | | | |
| PSFD0101 | LU | LOCADDR=0 | INDEPENDENT LU | |
| : | | | | |

Figure 215. Sample NCP Definitions

SNA Server/6000 Configuration Profile Examples

This section lists sample SNA Server/6000 profiles. Each profile is preceded by the sequence of SMIT panels to access the profile.

- SNA Node
- Control Point
- SDLC EIA232D SNA DLC
- SDLC EIA232D Link Station
- LU 6.2 Local LU
- LU 6.2 Partner LU
- LU 6.2 Mode
- LU 6.2 Transaction Program Name

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          SNA System Defaults
            Change/Show a Profile
```

Figure 216. SMIT Panel Sequence For SNA Node Profile

| | | |
|---|-----------------------|---|
| Profile name | sna | |
| Maximum number of sessions (1-5000) | [200] | # |
| Maximum number of conversations (1-5000) | [200] | # |
| Restart action | once | + |
| Recovery resource manager (RRM) enabled? | no | + |
| Dynamic inbound partner LU definitions allowed? | yes | + |
| NMVT action when no NMVT process | reject | + |
| Standard output file/device | [/dev/console] | |
| Standard error file/device | [/var/sna/sna.stderr] | |
| Comments | [] | |

Figure 217. Sample SNA Node Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Control Point
            Change/Show a Profile

```

Figure 218. SMIT Panel Sequence For Control Point Profile

| | |
|---|-----------------|
| Profile name | node_cp |
| XID node ID | [*] |
| Network name | [USIBMBQ] |
| Control Point (CP) name | [AIX01] |
| Control Point alias | [AIX01] |
| Control Point type | appn_end_node + |
| Maximum number of cached routing trees | [500] # |
| Maximum number of nodes in the TRS database | [500] # |
| Route addition resistance | [128] # |
| Comments | [] |

Figure 219. Sample Control Point Profile

Local or Remote 37xx SDLC

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            SDLC
              EIA232D
                EIA232D SNA DLC
                  Add a Profile
  
```

Figure 220. SMIT Panel Sequence For SDLC EIA232D SNA DLC Profile

```

* Profile name                [sd1c3745]
Data link device name         [mpq0]          +
Force disconnect time-out (1-600 seconds) [120]          #
User-defined maximum I-Field size?      no            +
  If yes, Max. I-Field size (265-30729) [256]          #
Max. num of active link stations (1-255) [1]            #
  Number reserved for inbound activation [0]            #
  Number reserved for outbound activation [0]            #
Serial encoding                nrzi                +
Request to send (RTS)          controlled          +
DTR control                    DTR                 +
Bit clocking                   external            +
  If internal, Transmit rate (600-38400) [1200]         #
Network type                   nonswitched        +
Answer mode                    automatic           +
Transmit window count          7              +
Retransmit count (1-50)        [10]           #
Retransmit threshold (0-100)   [10]           #

Secondary and Negotiable stations
  Secondary inactivity time-out (1-120 sec) [30]          #

Primary and Negotiable stations
  Primary repoll frequency (1-250, .1 sec) [30]           #
  Primary repoll threshold (1-100%)        [10]           #
  Primary repoll count (3-50 repols)       [15]           #

Primary Stations
  Link type                               point_to_point+
  Primary idle list poll frequency (30-180 sec) [60]          #
  Primary slow list poll frequency (1-60 sec) [1]            #

Link Recovery Parameters
  Retry interval (1-10000 seconds)          [60]           #
  Retry limit (0-500 attempts)             [20]           #

Comments                          []
  
```

Figure 221. Sample SDLC EIA232D SNA DLC Profile


```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Links
            SDLC
              EIA232D
                EIA232D Link Station
                  Add a Profile
```

Figure 222. SMIT Panel Sequence For Token-Ring Link Station Profile

Local or Remote 37xx SDLC

| | | |
|---|------------|---|
| * Profile name | [sd1c3745] | |
| Use Control Point's XID node ID? | yes | + |
| If no, XID node ID | [*] | |
| * SNA DLC Profile name | [sd1c3745] | + |
| Stop link station on inactivity? | no | + |
| If yes, Inactivity time-out (0-10 minutes) | [0] | # |
| LU address registration? | no | + |
| If yes, LU Address Registration Profile name | [] | + |
| Trace link? | no | + |
| If yes, Trace size | long | + |
| Local secondary station address | [1] | + |
| Station type | secondary | + |
| If primary, | | |
| Remote secondary station address (1-255) | [1] | + |
| Adjacent Node Identification Parameters | | |
| Verify adjacent node? | no | + |
| Network ID of adjacent node | [] | |
| CP name of adjacent node | [] | |
| XID node ID of adjacent node (LEN node only) | [*] | |
| Node type of adjacent node | learn | + |
| Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| Initiate call when link station is activated? | no | + |
| Activate link station at SNA start up? | yes | + |
| Activate on demand? | no | + |
| CP-CP sessions supported? | no | + |
| If yes, | | |
| Adjacent network node preferred server? | no | + |
| Partner required to support CP-CP sessions? | no | + |
| Initial TG number (0-20) | [0] | # |
| Restart Parameters | | |
| Restart on normal deactivation? | yes | + |
| Restart on abnormal deactivation? | yes | + |
| Transmission Group COS Characteristics | | |
| Effective capacity | [9600] | # |
| Cost per connect time | [0] | # |
| Cost per byte | [0] | # |
| Security | nonsecure | + |
| Propagation delay | telephone | + |
| User-defined 1 | [128] | # |
| User-defined 2 | [128] | # |
| User-defined 3 | [128] | # |
| Comments | [] | |

Figure 223. Sample SDLC EIA232D Link Station Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Local LU
                Add a Profile

```

Figure 224. SMIT Panel Sequence For LU 6.2 Local LU Profile

```

* Profile name                [PSFD0101]
Local LU name                 [PSFD0101]
Local LU alias                [PSFD0101]
Local LU is dependent?      no      +
  If yes,
    Local LU address (1-255)  []      #
    System services control point
      (SSCP) ID (*, 0-65535)  [*]
    Link Station Profile name  []      +
Conversation Security Access List Profile name  []

Comments                     []

```

Figure 225. Sample LU 6.2 Local LU Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Partner LU
                Add a Profile

```

Figure 226. SMIT Panel Sequence For LU 6.2 Partner LU Profile

```

* Profile name                [FSAES833]
Fully qualified partner LU name  [USIBMBQ.FSAES833]
Partner LU alias                [FSAES833]
  Parallel sessions supported?  no      +
  Session security supported?   no      +
  Conversation security level    none    +

Comments                     []

```

Figure 227. Sample LU 6.2 Partner LU Profile

Local or Remote 37xx SDLC

```
smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Mode
                Change/Show a Profile
```

Figure 228. LU 6.2 Mode Profile

```
Current profile name          BLANK
Mode name                     [      ]
Maximum number of sessions (1-5000) [8]      #
Minimum contention winners (0-5000) [4]      #
Minimum contention losers (0-5000) [0]      #
Auto activate limit (0-500)      [0]      #
Upper bound for adaptive receive pacing window [16]    #
Receive pacing window (0-63)     [16]    #
Maximum RU size (128,...,32768: multiples of 32) [1408]  #
Minimum RU size (128,...,32768: multiples of 32) [256]   #
Class of Service (COS) name     [#CONNECT]
Comments                       []
```

Figure 229. Sample LU 6.2 Mode Profile

```

smit
  Communications Applications and Services
    SNA Server/6000
      Configure SNA Profiles
        Advanced Configuration
          Sessions
            LU 6.2
              LU 6.2 Transaction Program Name (TPN)
                Add a Profile

```

Figure 230. LU 6.2 Transaction Program Name (TPN) Profile

```

* Profile name                [psfdirect]
Transaction program name (TPN) [30F0F0F0]
Transaction program name (TPN) is in hexadecimal? yes      +
PIP data?                     no        +
  If yes, Subfields (0-99)    [0]      #
Conversation type              basic     +
Sync level                     none     +
Resource security level       none     +
  If access, Resource Security Access List Prof. []
Full path to TP executable    [/usr/lpp/psf/bin/ainpsfhr]
Multiple instances supported? yes
User ID                        [0]      #
Server synonym name           []
Restart action                 once     +
Communication type             signals  +
  If IPC, Communication IPC queue key [0]      #
Standard input file/device     [/dev/console]
Standard output file/device    [/dev/console]
Standard error file/device     [/dev/console]

Comments                       []

```

Figure 231. Sample LU 6.2 Transaction Program Name (TPN) Profile

Configuration Worksheet Example

The following worksheet records values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 9. Sample Configuration Worksheet</i> | | | | |
|--|-------------------|------------|-------------------------------------|----------------|
| SNA Server/6000 | Value | PSF | VTAM | NCP |
| Control Point: Control Point (CP) name | AIX01 | | | PU: name |
| SDLC Link Station: Local secondary station address | 1 | | | PU: ADDR |
| LU 6.2 Local LU: Local LU name | PSFD0101 | LUNAME | | LU: name |
| LU 6.2 Local LU: Local LU is dependent? | no | | | LU: LOCADDR |
| LU 6.2 Local LU: Local LU address | n/a | | | LU: LOCADDR |
| LU 6.2 Partner LU: Fully qualified partner LU name | USIBMBQ. FSAES833 | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | n/a | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | 16 | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | 1408 | | MODEENT: RUSIZES | |

Guidelines for Configuring Local or Remote 37xx SDLC

The following provides guidance for implementing the examples displayed in “Local or Remote 37xx SDLC Example” on page 190. Note that a subset of the example is displayed below, displaying the pertinent parameters and describing which of these require you to specify *variable_names* and which require a specific name or number, such as **MODETAB=MODEIBM** or **FMPROF=X'13'**.

The guidelines describe how to configure a **non-switched** line. A **non-switched** line is also sometimes called a **private** line or a **leased** line.

Note: These guidelines do not describe how to configure a **switched** line.

Specifying the JES2 Initialization Statement

Define the PSF printer as you would any other SNA-attached printer. For example, on an MVS system you must provide either JES2 or JES3 initialization statements.

Configuring the Host PSF Printer

The manner in which a host PSF printer is configured depends upon the operating system. You will use one of the following statements:

- PSF/MVS PRINTDEV statement
- PSF/VSE PRINTDEV statement
- Parameters in the PSF/VM OPTIONS PDM file

On each operating system, PSF supports specification of both the application program ID (APPLID) and the logical unit name (LUNAME):

```

:
APPLID=appl_prog
LUNAME=lu_name
:

```

On some operating systems, PSF also supports other configuration parameters. The following text describes these parameters and notes whether they are required or optional:

APPLID (required)

Specifies the application program that is the SNA logical unit provided by VTAM and used by PSF.

The APPLID value must match:

- An APPL statement name in a VTAM application program major node
- The second portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile

LUNAME (required)

Specifies the SNA logical unit with which PSF tries to initiate a session.

The LUNAME value must match:

- An LU statement name in the NCP definitions
- The **Local LU name** parameter in an SNA Server/6000 LU 6.2 Local LU profile

LOGMODE (optional)

Specifies the VTAM logon mode table entry that defines characteristics of the session between the logical units identified by the APPLID and LUNAME parameters.

Local or Remote 37xx SDLC

The LOGMODE parameter identifies an entry within a logon mode table. The MODETAB operand on the NCP LU statement identifies the logon mode table. If you omit the LOGMODE parameter, the DLOGMOD operand on the NCP LU statement identifies the entry within the logon mode table.

Note that if the logical unit identified by the LUNAME parameter is a cross-domain resource, you must not use the LOGMODE parameter.

SETUP (optional)

Specify SETUP=FORMS to cause JES to issue forms setup messages to the operator.

By default, JES issues forms setup messages to the operator for channel-attached printers, but does not issue forms setup messages to the operator for SNA-attached printers.

MGMTMODE={IMMED | OUTAVAIL | DIALIN} (optional)

Determines how the host PSF program and PSF Direct initiate communication.

IMMED

Causes the host PSF program to initiate communication when it is started.

OUTAVAIL

Causes the host PSF program to initiate communication when there is available output to print.

DIALIN

Causes the host PSF program to initiate communication only after a switched line becomes available. The switched line can become available either when VTAM dials out or the remote node dials in.

Do not use MGMTMODE=DIALIN in non-switched configurations.

If you do not specify a value for the MGMTMODE parameter, it defaults to OUTAVAIL.

FAILURE={CONNECT | STOP} (optional)

Specifies whether or not the host PSF program re-attempts communication after a printer or communication failure.

WCONNECT

Specifies that the host PSF program attempts to communicate again.

STOP

Specifies that the host PSF program must be restarted by the operator.

If you do not specify a value for the FAILURE parameter, it defaults to WCONNECT.

DISCINTV (optional)

Specifies the interval (in seconds) that the host PSF program waits for output to become available to print. If no output becomes available, the host PSF program ends communication with the printer.

Specify 0 to cause the host PSF program to maintain communication indefinitely. If you do not specify a value for DISCINTV, it defaults to 0.

Specifying the VTAM Start Option List (ATCSTRxx)

You must specify the values illustrated in Figure 232 and described below:

| | | |
|----------------------------|--------------------------|---|
| CONFIG= <i>nn</i> , | ATCCON MEMBER OF VTAMLST | X |
| NETID= <i>network_id</i> , | NETWORK IDENTIFIER | X |
| SSCPID= <i>nn</i> , | SSCP IDENTIFIER | X |
| ⋮ | | |

Figure 232. VTAM Start Option List Guidelines

CONFIG

Specifies the ATCCON*nn* member to use.

NETID

Specifies the network identifier for the host system. The first portion of the **Fully qualified partner LU name** parameter in the SNA Server/6000 LU 6.2 Partner LU profile must match the NETID value.

SSCPID

Specifies the System Services Control Point (SSCP) at the host. The SSCPID is a decimal integer from 0 to 65535.

The SSCP, normally VTAM, provides several network management functions. They include managing dependent logical units and accepting Network Management Vector Transports, such as alerts. Alerts often include information about devices that are unavailable or require corrective action.

To configure a PSF Direct host receiver to send alerts to this SSCP, the least significant portion of the **SNA System Services Control Point ID** value in the PSF Direct Host Receiver profile must be the hexadecimal equivalent of the SSCPID value. The **SNA System Services Control Point ID** must be in the form 05xxxxxxxx where x is a hexadecimal digit.

For example, to configure a PSF Direct host receiver to send alerts to an SSCP with an SSCPID value of 283, the host receiver's **SNA System Services Control Point ID** value must be 05000000011B.

Specifying the VTAM Configuration List (ATCCONnn)

The VTAM configuration list indicates the application program major nodes that should be made available when VTAM is started. Include the application program major node that contains the application program that PSF uses:

| | |
|-----------------------------|---|
| <i>appl_prog_major_node</i> | X |
| ⋮ | |

Specifying the VTAM Application Program Major Node and Application Program

The pertinent operands for the VTAM Application Program Major Node and Application Program are illustrated in Figure 233 and described below:

```

appl_prog_major_node  VBUILD TYPE=APPL
appl_prog             APPL AUTH=ACQ,EAS=1,SONSCIP=YES
:

```

Figure 233. VTAM Application Program Major Node and Application Program Guidelines

The host PSF program does not support application programs that use APPC=YES or PARSESS=YES. The default value for both APPC and PARSESS is NO.

Specifying the VTAM Mode Table and Entry

The operands for the VTAM Mode Table are illustrated in Figure 234 and described below:

```

table_name  MODETAB
entry_name  MODEENT LOGMODE=entry_name,           X
            FMPROF=X'13',TSPROF=X'07',           X
            PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1' X
            PSERVIC=X'06020000000000000000000000000000', X
            PSNDPAC=X'nn',SRCVPAC=X'nn',SSNDPAC=X'00', X
            RUSIZES=X'nnnn'

```

Figure 234. VTAM Mode Table and Entry Guidelines

PSNDPAC

Specifies the primary send pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

SRCVPAC

Specifies the secondary receive pacing count. This value influences performance and can be adjusted as desired. Specifying X'10' yields good throughput in most configurations.

RUSIZES

Specifies the maximum Request Unit (RU) sizes from the primary and secondary logical units. The RU sizes influence performance and can be adjusted as desired. Specifying X'B7B7' means 1408 bytes for both RU sizes and yields good throughput in most configurations.

Other configuration parameters are influenced by the RUSIZES specification, including:

- the **Maximum RU size** parameter in the SNA Server/6000 Mode profile

Specifying the Network Control Program Definitions

The keywords and values for the Network Control Program (NCP) definitions are illustrated in Figure 235 and described below:

| | | |
|-------------------|---|------------------|
| <i>group_name</i> | GROUP LNCTL=SDLC, TYPE=NCP | X |
| * | | |
| <i>line_name</i> | LINE ADDRESS=(<i>nnn</i>), CLOCKNG= <i>xxx</i> , SPEED= <i>nnnnn</i> | X X |
| * | | |
| <i>pu_name</i> | PU ADDR= <i>nn</i> , PUTYPE=2, XID=YES, MODETAB= <i>mode_table</i> , DLOGMOD= <i>mode_entry</i> | X X X X |
| * | | |
| <i>lu_name</i> | LU LOCADDR= <i>nn</i> | |

Figure 235. NCP Definition Guidelines

The following describes the pertinent keywords on the **GROUP** statement:

LNCTL

Specify SDLC.

TYPE

Specify NCP.

The following describes the pertinent keywords on the **LINE** statement:

ADDRESS

Specifies the relative line number for this line. The relative line number depends upon the port and line adapter type used in the 37xx communication controller.

CLOCKNG

Specifies whether the modem (EXT) or the communication scanner for the line (INT) provides clocking.

Ensure that the CLOCKNG keyword is spelled without the letter I.

SPEED

Specifies the data rate for the line in bits per second. The SPEED keyword is required if CLOCKNG=INT. The SPEED keyword is also required if you use NetView Performance Monitor (NPM) to collect NCP performance data, even when CLOCKNG=EXT.

The following describes the pertinent keywords on the **PU** statement.

Note that DLOGMOD and MODETAB are LU keywords, but are included on the PU statement. NCP definitions support a *sift-down* effect that allows you to code a keyword on a higher-level statement, so that you do not need to code it on each lower-level statement for which the same value is used. There is only one logical unit in the guideline presented here, so the *sift-down* effect is for demonstration only. If the DLOGMOD and MODETAB keywords are specified on the PU statement, they do not have to be specified on any of the LU statements.

Local or Remote 37xx SDLC

ADDR

Specifies the link station address used by SNA Server/6000 on the RS/6000. This value must equal the **Local secondary station address** in the SNA Server/6000 SDLC Link Station Profile.

Note: The ADDR value is recorded using hexadecimal digits while the **Local secondary station address** value is recorded using decimal digits.

MAXDATA

Specifies the maximum amount of data (in bytes) that the physical unit can receive in one path information unit (PIU). This amount includes the transmission header (TH) and the request/response header (RH).

Note: It is not necessary to include the MAXDATA keyword for a type 2.1 physical unit, such as SNA Server/6000. A type 2.1 physical unit (PU) provides a value for MAXDATA during format-3 XID exchange.

MAXOUT

Specifies the maximum number of path information units (PIUs) that are sent to the physical unit before waiting for a response from that physical unit.

Note: It is not necessary to include the MAXOUT keyword for a type 2.1 physical unit, such as SNA Server/6000. A type 2.1 physical unit (PU) provides a value for MAXDATA during format-3 XID exchange.

PUTYPE

Specify 2, which represents either a type 2 physical unit (PU), or a type 2.1 physical unit such as SNA Server/6000.

XID

Specify YES. This indicates that the physical unit can receive and respond to an XID while in normal disconnected mode (NDM). XID=YES is required for a type 2.1 physical unit, such as SNA Server/6000.

MODETAB

Specifies the name of the logon mode table that contains entries that describe session characteristics.

DLOGMOD

Specifies the name of the logon mode table entry that describes session characteristics.

LOCADDR

LOCADDR=0 specifies that this logical unit is an independent logical unit. An SSCP-LU session does not have to be established prior to an LU-LU session with an independent logical unit. For independent logical units, the **Local LU is dependent?** parameter in the SNA Server/6000 LU 6.2 Local LU profile must be no.

To use a dependent logical unit, specify a value between 1 and 255 for LOCADDR. Also, in the SNA Server/6000 LU 6.2 Local LU profile, specify yes for the **Local LU is dependent?** parameter and the LOCADDR value for the **Local LU address** parameter.

Specifying the SNA Server/6000 Profiles

This section contains guidelines on configuring the SNA Server/6000 Profiles. Configure these profiles through the System Management Interface Tool (SMIT) panels. Examples of these panels and the hierarchical paths to each SNA definition are illustrated in “SNA Server/6000 Configuration Profile Examples” on page 194.

Note: You must have **root** authority to add or change SNA Server/6000 configuration profiles. After you add or change SNA Server/6000 configuration profiles, you must **verify** and **update** them. For more information about performing this task, see “Verifying and Updating SNA Server/6000 Configuration Profiles” on page 8.

Specifying the SNA Node Profile for PSF Direct: PSF Direct requires no modifications to the SNA Node profile.

Specifying the Control Point Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the Control Point Profile. Note that all values refer to Figure 236.

| | | |
|------------------------|---------------|---|
| XID node ID | [*] | |
| ControlPoint (CP) name | [cp_name] | |
| Control Point type | appn_end_node | + |

Figure 236. Control Point Profile Guidelines

XID node ID

Pertains to switched protocols. The **XID Node ID** value is not relevant in non-switched line configurations.

Control Point (CP) name

Pertains to switched protocols. The **Control Point (CP) name** value is not relevant in non-switched line configurations. By convention, however, the **Control Point (CP) name** value is usually the same as the PU name value.

Control Point type

Specify either `appn_end_node` or `appn_network_node`.

Local or Remote 37xx SDLC

Specifying the SDLC SNA DLC Profile for PSF Direct: The following displays how to specify the values PSF Direct requires in the SDLC SNA DLC Profile. Note that all values refer to Figure 237.

There are several varieties of SDLC SNA DLC profile, for example EIA232D, V.35, V.25, and many others. A similar set of configuration parameters is pertinent in most of the varieties.

| | | |
|---|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Data link device name | [<i>mpqn</i>] | + |
| Serial encoding | <i>xxxx</i> | + |
| Request to send (RTS) | <i>xxxx</i> | + |
| DTR control | <i>xxxx</i> | + |
| Bit clocking | <i>xxxx</i> | |
| If internal, Transmit rate (600-38400) | [<i>nnnn</i>] | # |
| Network type | nonswitched | + |
| Answer mode | automatic | + |

Figure 237. SDLC SNA DLC Profile Guidelines

Profile name

Choose any meaningful value.

Data link device name

Select one of the available adapters.

Serial encoding

The value you select must be consistent with the NRZI value on the NCP LINE statement.

Select nrzi (non-return to zero inverted) if the NRZI value is YES. The NRZI value defaults to YES for an SDLC LINE statement. Select nrz (non-return to zero) if the NRZI value is NO.

Request to send (RTS)

Indicates whether SNA Server/6000 activates and deactivates the RTS signal (controlled) or holds it active at all times (continuous).

The appropriate setting depends upon the modem's requirements.

DTR control

Indicates how SNA Server/6000 operates the Data Terminal Ready (DTR) signal. The appropriate setting depends upon the modem's requirements.

Bit clocking

Indicates whether the modem provides clocking (external) or the RS/6000 provides clocking (internal).

If internal, Transmit rate (600-38400)

In cases where **Bit clocking** is internal, indicates the transmission rate in bits per second.

Network type

Select nonswitched.

Answer mode

Select automatic.

Local or Remote 37xx SDLC

Specifying the SDLC Link Station Profile for PSF Direct: The following displays how to specify the values PSF Direct requires in the SDLC Link Station Profile. Note that all values refer to Figure 238.

There are several varieties of SDLC Link Station profile, for example EIA232D, V.35, V.25, etc. A similar set of configuration parameters is pertinent in most of the varieties.

| | | |
|---|-----------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| * SNA DLC Profile name | [<i>DLC_profile_name</i>] | |
| Stop link station on inactivity? | no | + |
| LU address registration? | no | + |
| Local secondary station address | [<i>nn</i>] | |
| Station type | secondary | + |
| Adjacent Node Identification Parameters | | |
| Verify adjacent node? | no | + |
| Link Activation Parameters | | |
| Solicit SSCP sessions? | yes | + |
| Initiate call when link station is activated? | no | + |
| Activate link station at SNA start up? | yes | + |
| Restart Parameters | | |
| Restart on normal deactivation? | yes | + |
| Restart on abnormal deactivation? | yes | + |

Figure 238. SDLC SNA DLC Profile Guidelines

Profile name

Choose any meaningful value.

SNA DLC Profile name

Select the name of the SNA DLC profile.

Stop link station on inactivity?

Select no.

LU address registration?

Select no.

Local secondary station address

This value must equal the ADDR value on the NCP PU statement.

Note: The ADDR keyword uses hexadecimal notation while the **Local secondary station address** uses decimal notation. For example, if ADDR=C1 then the **Local secondary station address** must be 193.

Station type

Select secondary.

Adjacent Node Identification Parameters - Verify adjacent node?

Select no.

Link Activation Parameters - Solicit SSCP sessions?

Select yes.

Link Activation Parameters - Initiate call when link station is activated?

Select no.

Link Activation Parameters - Activate link station at SNA start up?

Select yes.

Restart Parameters - Restart on normal deactivation?

Select yes.

Restart Parameters - Restart on abnormal deactivation?

Select yes.

Local or Remote 37xx SDLC

Specifying the LU 6.2 Local LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Local LU Profile. Note that all values refer to Figure 239.

| | | |
|---------------------------|-------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU name | [<i>lu_name</i>] | |
| Local LU alias | [<i>lu_alias</i>] | |
| Local LU is dependent? | no | + |
| If yes, | | |
| Local LU address (1-255) | [] | # |
| Link Station Profile name | [] | + |

Figure 239. LU 6.2 Local LU Profile Guidelines

Profile name

Choose any meaningful value.

Local LU name

This value must match both the name on the LU statement in the NCP definitions and the LUNAME parameter in the host PSF printer configuration (the PRINTDEV statement or OPTIONS PDM file).

Local LU alias

Choose any meaningful value.

Local LU is dependent?

The logical unit can be either dependent (yes) or independent (no). Dependent logical units are managed by an SSCP. In general, independent logical units offer more flexibility.

For dependent logical units, the LOCADDR value in the NCP LU statement is non-zero. For independent logical units, LOCADDR=0.

If yes, Local LU address (1-255)

If the logical unit is dependent, the **Local LU address** parameter must match the LOCADDR value in the NCP LU statement.

If yes, Link Station Profile name

If the logical unit is dependent, select the profile name of the link station through which SNA Server/6000 communicates with the host system.

Specifying the LU 6.2 Partner LU Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Partner LU Profile. Note that all values refer to Figure 240.

Note: You must configure an LU 6.2 Partner LU profile. Some SNA Server/6000 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, SNA Server/6000 requires an LU 6.2 Partner LU profile in PSF Direct configurations even if the local LU is an independent logical unit.

| | | |
|---------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Partner LU alias | [<i>partner_lu_alias</i>] | |
| Parallel sessions supported? | no | + |
| Session security supported? | no | + |
| Conversation security level | none | + |

Figure 240. LU 6.2 Partner LU Profile Guidelines

Profile name

Choose any meaningful value.

Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Partner LU alias

Choose any meaningful value.

Parallel sessions supported?

Select no.

Session security supported?

Select no.

Conversation security level

Select none.

Local or Remote 37xx SDLC

Specifying the LU 6.2 Side Information Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Side Information Profile. Note that all values refer to Figure 241.

Note: You must configure an LU 6.2 Side Information profile if the local LU is a dependent logical unit. If the local LU is an independent logical unit, an LU 6.2 Side Information profile is not required.

| | | |
|------------------------------------|---------------------------------------|---|
| * Profile name | [<i>profile_name</i>] | |
| Local LU or Control Point alias | [<i>lu_alias</i>] | + |
| Provide only one of the following: | | |
| Partner LU alias | [] | + |
| Fully qualified partner LU name | [<i>network_id.partner_lu_name</i>] | |
| Mode name | [] | + |

Figure 241. LU 6.2 Side Information Profile Guidelines

Profile name

Choose any meaningful value.

Local LU or Control Point alias

Select the local LU alias that you specified in the LU 6.2 Local LU profile.

Partner LU alias

You can either select the partner LU alias that you specified in the LU 6.2 Partner LU profile or you can specify a value for the **Fully qualified partner LU name** parameter.

Fully qualified partner LU name

You can either specify a fully qualified partner LU name or you can select a value for the **Partner LU alias** parameter.

The **Fully qualified 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.

The network identifier portion must match the NETID value in the VTAM start option list (ATCSTRxx).

The logical unit name portion must match the APPLID parameter on the PSF/MVS PRINTDEV statement, the PSF/VSE PRINTDEV statement, or the PSF/VM OPTIONS PDM file. That APPLID parameter on the PSF host system must also match an APPL statement in a VTAM application program major node.

Mode name

Do not provide a value for the **Mode name** parameter.

Specifying the LU 6.2 Mode Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Mode Profile. Note that all values refer to Figure 242.

| | | |
|--|------------|---|
| Current profile name | BLANK | |
| Mode name | [] | |
| Receive pacing window (0-63) | [16] | # |
| Maximum RU size (128,...,32768: multiples of 32) | [1408] | # |
| Minimum RU size (128,...,32768: multiples of 32) | [256] | # |
| Class of Service (COS) name | [#CONNECT] | |

Figure 242. Sample LU 6.2 Mode Profile Guidelines

Current profile name

The BIND image provided by PSF/MVS, PSF/VSE, and PSF/VM does not include a mode name. Therefore, the SNA Server/6000 uses the predefined mode profile named BLANK.

Mode name

The **Mode name** in the BLANK profile is 8 spaces.

Receive pacing window (0-63)

The receive pacing window used in the LU-LU session is the lesser of this parameter's value and the SRCVPAC value in the VTAM MODEENT statement.

Specifying 16 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Maximum RU size

The maximum RU size used in the LU-LU session is the lesser of this parameter's value and the RUSIZES value in the VTAM MODEENT statement.

Specifying 1408 yields good throughput in most configurations.

This parameter influences performance and can be adjusted as desired.

Minimum RU size

Specify 256.

Class of Service (COS) name

Select #CONNECT.

Local or Remote 37xx SDLC

Specifying the LU 6.2 Transaction Program Name Profile for PSF Direct: The following describes how to specify the values PSF Direct requires in the LU 6.2 Transaction Program Name (TPN) Profile. Note that all values refer to Figure 243.

| | | |
|---|-----------------------------|---|
| * Profile name | [psfdirect] | |
| Transaction program name (TPN) | [30F0F0F0] | |
| Transaction program name (TPN) is in hexadecimal? | yes | + |
| PIP data? | no | + |
| Conversation type | basic | + |
| Sync level | none | + |
| Resource security level | none | + |
| Full path to TP executable | [/usr/lpp/psf/bin/ainpsfhr] | |
| Multiple instances supported? | yes | |
| User ID | [0] | # |
| Communication type | signals | + |

Figure 243. LU 6.2 Transaction Program Name (TPN) Guidelines

Profile name

Choose any meaningful value.

Transaction Program name (TPN)

Specify 30F0F0F0. This matches the value provided in the FMH 5 (Attach) from the host PSF system.

Transaction Program name (TPN) is in hexadecimal?

Select yes.

PIP data?

Select no.

Conversation type

Select basic.

The host PSF program and the PSF Direct host receiver communicate using a basic conversation. SNA Server/6000 supports both basic and mapped conversation types.

Sync level

Select none.

The PSF Direct host receiver does not send or respond to CONFIRM requests.

Resource security level

Select none.

The host PSF programs do not support security verification.

Full path to TP executable

Specify /usr/lpp/psf/bin/ainpsfhr. The InfoPrint installation procedure places the PSF Direct host receiver in this location.

Multiple instances supported?

Select yes so that more than one PSF Direct host receiver can run concurrently.

User ID

Specify 0. The effective uid of the PSF Direct host receiver must be "0", indicating **root** or super-user.

Communication type

Select signals.

Configuration Worksheet

Use the following worksheet to record values for SNA Server/6000 configuration parameters that are related to other configuration settings:

| <i>Table 10. Configuration Worksheet</i> | | | | |
|---|--------------|------------|-------------------------------------|----------------|
| SNA Server/6000 | Value | PSF | VTAM | NCP |
| Control Point: Control Point (CP) name | | | | PU: name |
| SDLC Link Station: Local secondary station address | | | | PU: ADDR |
| LU 6.2 Local LU: Local LU name | | LUNAME | | LU: name |
| LU 6.2 Local LU: Local LU is dependent? | | | | LU: LOCADDR |
| LU 6.2 Local LU: Local LU address | | | | LU: LOCADDR |
| LU 6.2 Partner LU: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Side Information: Fully qualified partner LU name | | APPLID | ATCSTRxx: NETID APPL: name | |
| LU 6.2 Mode: Receive pacing window | | | MODEENT: SRCVPAC | |
| LU 6.2 Mode: Maximum RU size | | | MODEENT: RUSIZES | |

Part 3. PSF Direct Host Receiver Information

Chapter 8. Configuring a PSF Direct Host Receiver

As described earlier, PSF Direct acts as a communication protocol converter that exchanges data with a host PSF program using an SNA LU 6.2 session, and relays the data to an InfoPrint physical printer.

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

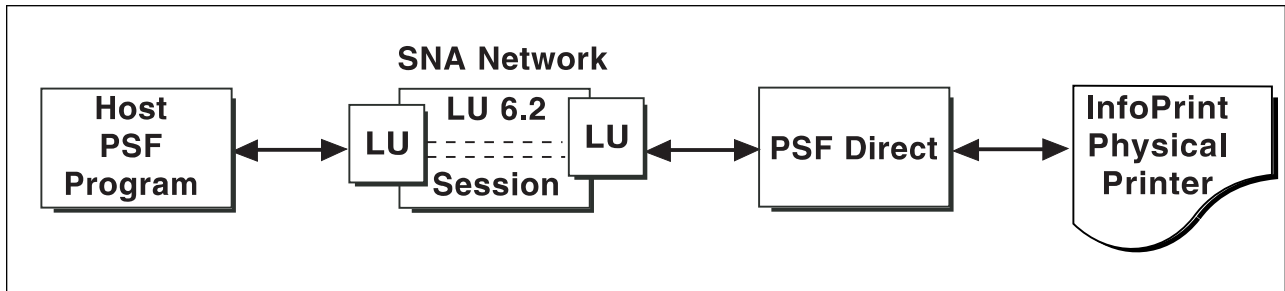


Figure 244. End-to-End Logical Components of a PSF Direct Configuration

So, when you configure a PSF Direct Host Receiver, you associate a logical unit with an InfoPrint physical printer.

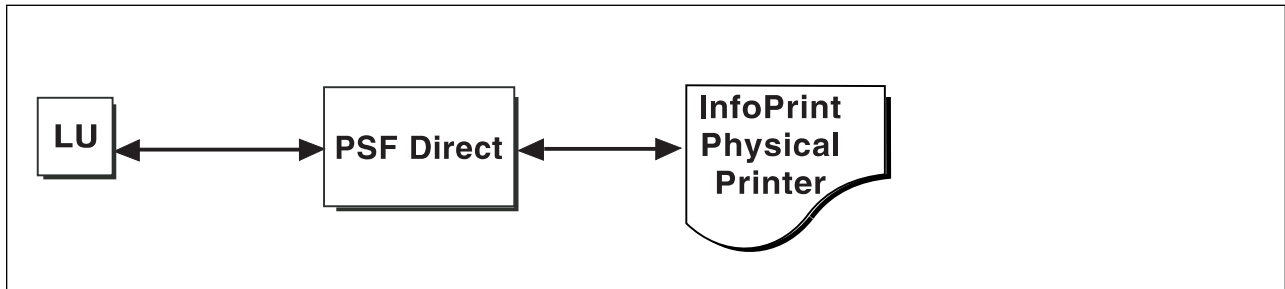


Figure 245. PSF Direct Interfaces

Figure 246 shows the SMIT panel to add a PSF Direct host receiver.

```

Add a Host Receiver

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

* SNA Logical Unit name                +
  (used as a Host Receiver name)
Description                            []
* Physical Printer Name                +
Inactivity limit (seconds)              [9999] #
Printer busy limit (seconds)            [120] #
SNA System Services Control Point ID    [050000000000] X
NMVT Subsystem name                     [NMVT]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command     F7=Edit       F8=Image
F9=Shell     F10=Exit        Enter=Do
  
```

Figure 246. SMIT Panel to Add a PSF Direct Host Receiver

The two required parameters are SNA Logical Unit name and Physical Printer name.

In general, adding a PSF Direct Host Receiver requires three steps on the RS/6000:

1. Add an InfoPrint physical printer.

To add an InfoPrint physical printer, you must define a logical printer, a queue, and a physical printer. Then you can either print through the PSF Host program, print through IBM InfoPrint Control on AIX, or print to the same physical printer from both the Host PSF program and InfoPrint, using a funnel configuration.

For more information about adding an InfoPrint physical printer and different methods of configuring your InfoPrint system, see *IBM InfoPrint Manager for AIX: Using IBM InfoPrint Control for Production Printing*.

2. Add SNA Server/6000 profiles to support LU 6.2 communication with an MVS, VSE, or VM system. One of the required profiles is an LU 6.2 Local LU profile.
3. Add a PSF Direct Host Receiver that references the SNA Server/6000 LU 6.2 Local LU and the InfoPrint physical printer.

PSF Direct Host Receiver Configuration Example

Figure 247 shows the sequence of SMIT panels for adding a PSF Direct host receiver.

```
smit
  Communications Applications and Services
    PSF Direct
      Add a Host Receiver
```

Figure 247. SMIT Panel Sequence to Add a PSF Direct Host Receiver

Figure 248 shows a completed Add a Host Receiver panel.

```
                Add a Host Receiver

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

* SNA Logical Unit name          PSFD0101      +
  (used as a Host Receiver name)
Description                     [Boulder 3900 Wide]
* Physical Printer Name         3900w        +
Inactivity limit (seconds)     [9999]      #
Printer busy limit (seconds)   [120]       #
SNA System Services Control Point ID [050000000000] X
NMVT Subsystem name           [NMVT]

F1=Help      F2=Refresh    F3=Cancel    F4=List
F5=Undo      F6=Command   F7=Edit      F8=Image
F9=Shell     F10=Exit      Enter=Do
```

Figure 248. Sample PSF Direct Host Receiver

Guidelines for Configuring a PSF Direct Host Receiver

```

                                Add a Host Receiver

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

* SNA Logical Unit name          lu_name      +
  (used as a Host Receiver name)
Description                      []
* Physical Printer name          printer_name  +
Inactivity limit (seconds)       [nnnn]    #
Printer busy limit (seconds)     [nnnn]    #
SNA System Services Control Point ID [05xxxxxxxx] X
NMVT Subsystem name             [xxxx]

F1=Help      F2=Refresh   F3=Cancel   F4=List
F5=Undo      F6=Command   F7=Edit     F8=Image
F9=Shell     F10=Exit      Enter=Do

```

Figure 249. Sample PSF Direct Host Receiver

The following describes the pertinent operands on the panels used to configure a PSF Direct host receiver:

SNA Logical Unit name

Select the name of an existing SNA Server/6000 LU 6.2 Local LU. The PSF Direct host receiver uses the logical unit name as its identifier.

Description

Choose any meaningful value.

Physical Printer Name

Select the name of an existing InfoPrint physical printer.

Inactivity limit (seconds)

Specifies the number of seconds that the PSF Direct host receiver waits for data from a host PSF program. If this limit is exceeded, the PSF Direct host receiver ends the SNA session with the host system. After the session is ended, most host PSF programs re-try communication if additional print data becomes available.

The **Inactivity limit** facilitates sharing of a single printer by multiple host systems and by the IBM InfoPrint Control. In causing inactive sessions to be ended, it ensures that the printer becomes available for other printing.

Most host PSF programs provide a Disconnect Interval parameter (DISCINTV) that provides a similar facility. The Disconnect Interval parameter provided by the host PSF programs is usually preferable to using the host receiver's **Inactivity limit**. For example, the **Inactivity limit** can cause a session to be ended before a file is completely printed if the host PSF program is temporarily stopped.

The **Inactivity limit** defaults to 9999, which means no limit. This value is appropriate in configurations where the InfoPrint printer is not shared or the host PSF program's Disconnect Interval parameter is used.

Printer busy limit (seconds)

Specifies the number of seconds that the PSF Direct host receiver waits for the InfoPrint physical printer to become available. If this limit is exceeded, the PSF Direct host receiver ends the SNA conversation with the host PSF program. After the conversation is ended, most host PSF programs end and must be restarted by an operator.

The **Printer busy limit** facilitates sharing of a single printer by multiple host systems and by the IBM InfoPrint Control. It allows a session with a host system to be maintained while waiting for the InfoPrint physical printer to become available.

If the **Printer busy limit** is 9999, the PSF Direct host receiver waits indefinitely for the InfoPrint physical printer to become available.

The **Printer busy limit** defaults to 120 seconds. This value is appropriate in configurations where the InfoPrint physical printer is not shared.

SNA System Services Control Point ID

Specifies the SSCP ID to which SNA alerts are sent. If you want SNA alerts to be sent to a host system, the least significant portion of the **SNA System Services Control Point ID** value must be the hexadecimal equivalent of the SSCPID value in the VTAM Start Option List (ATCSTRxx). The **SNA System Services Control Point ID** must be in the form 05xxxxxxxxx, where x is a hexadecimal digit.

For example, to configure a PSF Direct receiver to send alerts to an SSCP with a ATCSTRxx SSCPID value of 283, the host receiver's **SNA System Services Control Point ID** value must be 05000000011B.

The **SNA System Services Control Point ID** defaults to 050000000000. This value need only be modified if SNA alerts must be sent to a host system.

NMVT Subsystem name

Specifies the name of a System Resource Controller (SRC) subsystem that PSF Direct creates and uses to send alerts to a host system.

The **NMVT Subsystem** name defaults to NMVT. This value should be appropriate in all configurations and need not be modified.

Chapter 9. Understanding How PSF Direct Operates

This chapter describes how PSF Direct operates. Understanding how PSF Direct operates may help you define procedures for printers attached by PSF Direct.

PSF Direct Can Run Unattended at the RS/6000

PSF Direct is designed to run without requiring that an operator be present at the RS/6000. The operator at the host PSF system can use the same host commands to control IPDS printers attached directly to the host system and IPDS printers attached by PSF Direct. Of course, printers occasionally require intervention and either a printer operator or a user may need to add paper or clear jams on printers attached by PSF Direct.

Understanding How PSF Direct Uses an InfoPrint Physical Printer

When you create an InfoPrint physical printer, InfoPrint adds the facilities required for InfoPrint to communicate with the printer. These include a subdirectory and files in the */var/psf* directory.

To set up IBM InfoPrint Control to enable you to place files on the InfoPrint physical printer, refer to both Chapter 8, "Configuring a PSF Direct Host Receiver" on page 223 and *IBM InfoPrint Manager for AIX: Using IBM InfoPrint Control for Production Printing*.

When you add a PSF Direct host receiver, you must indicate which InfoPrint physical printer the host receiver should use. This procedure is described in Chapter 8, "Configuring a PSF Direct Host Receiver" on page 223.

To communicate with an InfoPrint physical printer, PSF Direct uses the facilities 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. Rather than obtaining print data from the InfoPrint queue, PSF Direct uses an SNA LU 6.2 session to obtain print data from a host PSF program.

Understanding How PSF Direct Is Started

SNA Server/6000 starts a PSF Direct host receiver when a host PSF program causes an SNA LU 6.2 session to be established with SNA Server/6000 and allocates an SNA conversation on that session.

When the host PSF program initiates the conversation, it indicates the name of the Transaction Program that SNA Server/6000 should start. SNA Server/6000 finds that the requested name matches the name in the SNA Server/6000 Transaction Program Name profile you created for PSF Direct. That profile indicates the fully qualified name of the PSF Direct host receiver program. SNA Server/6000 starts the program.

When you print files from IBM InfoPrint Control, all related AIX processes are started from IBM InfoPrint Control.

Displaying the Status of a PSF Direct-Attached Printer on AIX

InfoPrint provides the **pdls** command to display the status of printers, jobs and queues started by IBM InfoPrint Control. An operator can use the **pdls** command to display the status of this IBM InfoPrint Control program and the printer it uses. If you have started a physical printer for use with PSF Direct only, **pdls** provides no meaningful status.

InfoPrint includes a command to display the status of a PSF Direct host receiver: **psfstat**. For more information about the **psfstat** command, see Appendix A, “Displaying the Status of InfoPrint Physical Printers and PSF Direct Receivers” on page 237.

The **psfstat** command can be used to display information about any InfoPrint physical printer, not just those used by PSF Direct host receivers.

Displaying the Status of a PSF Direct-Attached Printer on a Host System

A host system operator can display the status of any printer managed by the host PSF program, including printers attached by PSF Direct. For example, an MVS operator can use the JES2 \$DU command to display printer status.

Intervention Conditions at the Printer

To the host PSF program, printers attached by PSF Direct behave like conventional SNA LU 6.2-attached printers, such as the IBM 3935 Page Printer and the IBM 3820 Page Printer. SNA LU 6.2-attached printers do not immediately report intervention conditions to the host PSF program. The printers have a configuration parameter that controls when the host PSF program is notified of intervention conditions. If an operator does not correct an intervention condition within this configurable period, the printer notifies the host PSF program of a “permanent” condition. The host PSF program issues a message to the operator and ends the communication session with the printer.

PSF Direct handles printer intervention conditions like other SNA LU 6.2-attached printers do. PSF Direct does not immediately notify the host PSF program of an intervention condition. PSF Direct waits for a period defined by the **intervention-timer** attribute. The length of the **intervention-timer** attribute is defined in the InfoPrint physical printer's PSF Tuning tab of the physical printer's notebook. If the intervention condition is not corrected within this period, PSF Direct notifies the host PSF program of a “permanent” condition. The host PSF program issues a message to the operator and ends the communication session with the printer.

Although the host PSF program is not notified of an intervention condition until the **intervention-timer** expires, information about the intervention condition becomes available immediately at the printer and on the AIX system.

Most printers that can be attached by PSF Direct have a status screen that displays messages about intervention conditions.

In addition, PSF Direct immediately issues informational messages about the intervention condition to the AIX console screen and to the **error.log** file for the printer. The **error.log** for a printer is in a directory named */var/psf/printername*, where *printername* is the name of the InfoPrint physical printer used by PSF Direct.

The InfoPrint **psfstat** command can also be used on the AIX system to obtain status information about InfoPrint physical printers and PSF Direct host receivers.

Starting a PSF Direct Host Receiver

SNA Server/6000 starts a PSF Direct host 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. So, a host system operator indirectly causes a PSF Direct host receiver to be run by starting a host PSF program that causes SNA Server/6000 to begin the PSF Direct host receiver.

The operator does not need to do anything on the AIX system to start a PSF Direct host receiver. Of course, SNA Server/6000 must be active on the AIX system.

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, 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**, the PSF Direct host receiver UNBINDs the SNA session with the host system.

The **Inactivity Limit** defaults to infinite and should only be used in some configurations where a printer is shared. Printer sharing is described in Chapter 10, "Using One InfoPrint Physical Printer to Print Data from Multiple Sources" on page 231.

- If an operator at the AIX system stops SNA Server/6000, all SNA sessions end, causing all PSF Direct host receivers to end. An operator can also use SNA Server/6000 to stop an individual SNA session. If the session was used by a PSF Direct host receiver, that PSF Direct host receiver ends.

Chapter 10. Using One InfoPrint Physical Printer to Print Data from Multiple Sources

One InfoPrint Physical printer can print data from more than one host PSF program and from the IBM InfoPrint Control. At any point in time, however, the InfoPrint physical printer can only be dedicated to printing data from a single source: one host PSF program or the IBM InfoPrint Control.

This chapter describes how to configure and manage the switching of an InfoPrint physical printer between data sources.

Switching Between Data Sources

Switching an InfoPrint physical printer between data sources requires two steps:

1. The PSF Direct host receiver using an InfoPrint physical printer must end; or the InfoPrint process printing from the IBM InfoPrint Control must end. When this process ends, the InfoPrint physical printer becomes available to another program.

A PSF Direct host receiver or the InfoPrint process that prints from the IBM InfoPrint Control can be ended either manually or automatically.

2. A PSF Direct host receiver or InfoPrint process that prints from the IBM InfoPrint Control must wait for the InfoPrint physical printer while it is used by another program.

How to Manually Stop 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.

For example, an MVS host operator can “purge” the printer using the `$PPRTnnn` JES2 command; or the operator can cancel the writer procedure.

Chapter 9, “Understanding How PSF Direct Operates” on page 227 describes how to stop a PSF Direct host receiver in greater detail.

To end the IBM InfoPrint Control process manually from InfoPrint, refer to the **pdshutdown** command as described in *IBM InfoPrint Manager for AIX: Reference Guide*. 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.

How to Automatically Stop a PSF Direct Host Receiver

Most host PSF programs have a “Disconnect Interval” configuration parameter, such as the DISCINTV PRINTDEV statement parameter in PSF/MVS. 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/400, do not offer a “Disconnect Interval” configuration parameter. To enable PSF Direct host receivers to be automatically ended when they communicate with a host PSF program that does not offer a “Disconnect Interval” configuration parameter, 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” is preferable to using the PSF Direct host receiver **Inactivity limit** parameter.

How to Automatically Stop Printing from the IBM InfoPrint Control

Each InfoPrint physical printer has a physical printer attribute called the **printer-release-timer** attribute. This attribute causes InfoPrint to stop printing from IBM InfoPrint Control if it has completed the InfoPrint spool data and the specified interval elapses with no new IBM InfoPrint Control data.

How to Control the Wait Period for a PSF Direct Host Receiver

The PSF Direct host receiver **Printer busy limit** parameter controls how long a host receiver waits for an InfoPrint physical printer to become available. The **Printer busy limit** parameter is specified on the **Show or change a Host Receiver characteristics** SMIT panel. The default value is 120 seconds. If an InfoPrint physical printer is used to print from several sources, increase the **Printer busy limit** parameter to 9999, which means that the host receiver should wait indefinitely.

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

How to Control the Wait Period for Printing from the IBM InfoPrint Control

By default, the InfoPrint program that prints from the IBM InfoPrint Control waits indefinitely for an InfoPrint physical printer to become available. There is no configuration attribute that controls how long the program waits.

Table 11 on page 233 and Table 12 on page 233 summarize the time limits for InfoPrint printing.

| <i>Table 11. Selected Time Limit Parameters for a PSF Direct Host Receiver</i> | | | |
|--|---|-----------------------------------|----------------------------|
| Function | Option | User Interface | Default Value |
| Wait for printer | Printer busy limit on Host Receiver SMIT panel | PSF Direct Host Receiver | 120 seconds |
| End program, making printer available | DISCINTV | Host PSF program configuration | 0 seconds (infinite) |
| | Inactivity limit on Host Receiver SMIT panel | PSF Direct Host Receiver | 9999 seconds (infinite) |

| <i>Table 12. Selected Time Limit Parameters for an InfoPrint Program That Prints from IBM InfoPrint Control</i> | | | |
|---|---|--|----------------------------|
| Function | Option | User Interface | Default Value |
| Wait for printer | None | None | Infinite |
| End program, making printer available | printer-release-timer attribute | InfoPrint physical printer PSF Tuning Option | 9999 seconds (infinite) |

Example of Sharing an InfoPrint Physical Printer

The following example illustrates how an InfoPrint physical printer could be shared between two host PSF programs using PSF Direct and also print data from the IBM InfoPrint Control.

The configuration parameters cause the printer to be switched automatically.

Host PSF Program Configuration

Figure 250 and Figure 251 show how to configure two host PSF programs to share an InfoPrint physical printer.

```
//PRT833 PRINTDEV
:
//      DISCINTV=60,          /* DISCONNECT INTERVAL - SECONDS */
:
//PRT833 ENDCNTL
```

Figure 250. Selected PSF/MVS PRINTDEV Parameters

```
PRT1000 PRINTDEV
:
      DISCINTV=60,          DISCONNECT INTERVAL - SECONDS
:
```

Figure 251. Selected PSF/VSE PRINTDEV Parameters

Setting the DISCINTV to 60 seconds for both host PSF programs 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 physical printer becomes available to other programs.

If additional host data becomes available for the InfoPrint Physical printer, the host PSF program starts again and waits, if necessary, for the printer to become available.

InfoPrint Physical Printer: PSF Tuning Options

To allow InfoPrint to share the printer with two host PSFs, you must adjust the InfoPrint physical printer's PSF tuning options on the Tuning tab of the physical printer notebook. You can access this tab through the following procedure:

1. From the **Servers** window, drag the **notebook** action icon onto the appropriate InfoPrint physical printer.
2. From the **View and Change PSF Physical Printer Properties** window that appears, select the **Summary** push button in the upper left corner.
3. From the drop down menu that appears, select the **PSF Tuning** tab.

Tune your InfoPrint physical printer, using the appropriate values.

The **Release printer timer** label (or **printer-release-timer** attribute) specifies the amount of time between jobs (in seconds) that InfoPrint waits before giving up control of a physical printer. Setting this value to 60 seconds causes the InfoPrint program that prints from the IBM InfoPrint Control to end if it has printed the files in the printer's queue and no additional files become available for 60 seconds. When the program ends, the InfoPrint printer becomes available to other programs such as PSF Direct host receivers.

If additional files are added to the printer's queue on the IBM InfoPrint Control, the InfoPrint program that prints from the IBM InfoPrint Control starts again and 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 AIX system but not to report intervention conditions to the host PSF program.

If an **intervention-timer** value of 3600 were used instead, the PSF Direct host receivers that use this printer would notify the host PSF program if an intervention condition were not addressed within an hour. The host PSF program would issue an operator message and end the SNA session with the PSF Direct host receiver. The **intervention-timer** would also cause the PSF program that prints from the IBM InfoPrint Control to end if an intervention condition were not addressed within an hour.

For continuous-forms printers, set the **non-process-runout-timer** attribute at a lower value than what is set for the **printer-release-timer** attribute. For example, if the **printer-release-timer** = 60 seconds, the **non-process-runout-timer** attribute should be reduced to 30 seconds.

PSF Direct Host Receiver Examples

Finally, you must configure the PSF Direct host receivers for each host that will share the printer. Figure 252 on page 235 shows the sequence of SMIT panels you must select.

```

smit
  Communications Applications and Services
    PSF Direct
      Add a Host Receiver

```

Figure 252. SMIT Panel Sequence to Add a PSF Direct Host Receiver

Figure 253 shows a panel filled out for an MVS host.

```

                          Add a Host Receiver

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

* SNA Logical Unit name          MVS1          +
  (used as a Host Receiver name)
Description                      [Boulder PSF/MVS]
* Physical Printer Name          3900w          +
Inactivity limit (seconds)      [9999]          #
Printer busy limit (seconds)    [9999]          #
SNA System Services Control Point ID [050000000000] X
NMVT Subsystem name            [NMVT]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit       Enter=Do

```

Figure 253. PSF Direct Host Receiver: MVS Host

Figure 254 shows a panel filled out for a VSE host.

```

                          Add a Host Receiver

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

* SNA Logical Unit name          VSE1          +
  (used as a Host Receiver name)
Description                      [Boulder PSF/VSE]
* Physical Printer Name          3900w          +
Inactivity limit (seconds)      [9999]          #
Printer busy limit (seconds)    [9999]          #
SNA System Services Control Point ID [050000000000] X
NMVT Subsystem name            [NMVT]

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Undo      F6=Command      F7=Edit        F8=Image
F9=Shell     F10=Exit       Enter=Do

```

Figure 254. PSF Direct Host Receiver: VSE Host

Setting the **Printer busy limit** to 9999 causes the host receivers to wait indefinitely if the printer is not available.

The **Inactivity limit** default value, 9999, means that the host receivers do not end during periods of inactivity. The “Disconnect Interval” parameter for the host PSF programs causes the host receivers to end when no host data is available to print.

Displaying the Status of a Shared InfoPrint Physical Printer

The InfoPrint **psfstat** command displays status information about InfoPrint physical printers and PSF Direct host receivers. The information **psfstat** displays about an InfoPrint physical printer includes the program that currently controls the printer and a list of the programs waiting to gain control of the printer.

For example, **psfstat** might display the information in Figure 255 on page 236.

| Printer | Attachment | Data | Printer status | Active | Waiting |
|---------|------------|------|----------------|--------|--------------|
| 3900w | TCP/IP | IPDS | intervention | MVS1 | [Queue],VSE1 |

| LU name | Printer | Attachment | Data | Printer status | Receiver status |
|---------|---------|------------|------|----------------|-----------------|
| MVS1 | 3900w | TCP/IP | IPDS | intervention | sess/prtr_conn |
| VSE1 | 3900w | TCP/IP | IPDS | intervention | sess/prtr_busy |

Figure 255. InfoPrint Physical Printer Status Information

This **psfstat** output shows that the printer is currently dedicated to printing data from the MVS spool. There is also data on the IBM InfoPrint Control ([Queue]) and the VSE spool waiting to print.

When the MVS host system releases the printer, the printer will print data either from the IBM InfoPrint Control or the VSE host system. The order in which the two waiting sources are listed does not imply that the IBM InfoPrint Control has been waiting longer or will acquire the printer next.

The **psfstat** output also indicates that the printer requires intervention.

For more information about the **psfstat** command, see Appendix A, “Displaying the Status of InfoPrint Physical Printers and PSF Direct Receivers” on page 237.

Appendix A. Displaying the Status of InfoPrint Physical Printers and PSF Direct Receivers

The **psfstat** command displays information about the status of InfoPrint physical printers and PSF Direct receivers. It tells you whether each InfoPrint printer is receiving data from the IBM InfoPrint Control or from a PSF Direct receiver.

In the example, entering **psfstat** displays the following:

| Printer | Attachment | Data | Printer status | Active | Waiting |
|---------|-------------|------|----------------|---------|-----------------|
| 3827 | channel | IPDS | - | - | - |
| 3900wa | TCP/IP | IPDS | intervention | [Queue] | - |
| 3900wb | TCP/IP | IPDS | ok | PSFVM1 | [Queue],PSFMVS1 |
| pcl4 | AIX-Defined | PCL4 | ok | [Queue] | - |

| LU name | Printer | Attachment | Data | Printer status | Receiver status |
|---------|---------|------------|------|----------------|-----------------|
| PSFMVS1 | 3900wb | TCP/IP | IPDS | ok | sess/prtr_busy |
| PSFVM1 | 3900wb | TCP/IP | IPDS | ok | sess/prtr_conn |
| PSFVSE1 | 3900wb | TCP/IP | IPDS | ok | idle |

The display indicates that

1. Printer 3827 is not active.
2. Printer 3900wa is printing data from the IBM InfoPrint Control **[Queue]**. Operator intervention is required at the printer.
3. Printer 3900wb is printing data from a PSF Direct receiver that uses SNA logical unit name PSFVM1. Additional data is also available on the InfoPrint physical printer and from a PSF Direct receiver that uses SNA logical unit name PSFMVS1. The order of the waiting data sources does not indicate which source will access the printer next.
4. Printer pcl4 is printing data from the IBM InfoPrint Control.
5. Receiver PSFMVS1 is in session with the host system and is waiting for printer 3900wb.
6. Receiver PSFVM1 is in session with the host system and is connected to printer 3900wb.
7. Receiver PSFVSE1 is in session with the host system and is idle, but connected to printer 3900wb.

psfstat Command

Purpose

Displays information about the status of InfoPrint physical printers and PSF Direct receivers.

Syntax

```
psfstat [-c] [-n] [-p | -P physical_printername] [-r | -R receivername] [-w seconds]
```

Description

The **psfstat** command displays information that is useful in monitoring the operation of InfoPrint physical printers and PSF Direct receivers.

An InfoPrint printer can accept data from either IBM InfoPrint Control or a PSF Direct receiver. An InfoPrint printer can, however, only accept data from one of these sources at a time. The InfoPrint **pdlis** command provides complete information about InfoPrint physical printers as they accept data from IBM InfoPrint Control. The **psfstat** command provides information about InfoPrint printers as they accept data from PSF Direct receivers, as well as limited information about InfoPrint physical printers as they accept data from the IBM InfoPrint Control.

The **psfstat** command also provides information about whether each InfoPrint printer is receiving data from IBM InfoPrint Control. or a PSF Direct receiver.

The **psfstat** command displays the following information:

- Printer (InfoPrint physical printer name)
The print administrator assigned the InfoPrint physical printer name when the administrator created the InfoPrint printer object in the IBM InfoPrint Control program.
- Attachment (attachment type for the printer)
The print administrator designated the attachment type when the administrator created the InfoPrint printer object in the IBM InfoPrint Control program.
- Data (data stream type accepted by the printer)
The print administrator selected the data stream type when the administrator created the InfoPrint printer object in the IBM InfoPrint Control program.
- Printer status (intervention status of the printer)

Values:

- | | |
|---------------------|--|
| – | The InfoPrint printer is not currently accepting data. |
| ok | The InfoPrint printer is currently accepting data and does not require printer intervention. |
| intervention | The InfoPrint printer is currently accepting data, but requires printer intervention. |

- Active (current source for print data)

Values:

- The InfoPrint printer is not currently accepting data from IBM InfoPrint Control or from a PSF Direct receiver.

[Queue] The InfoPrint printer is accepting data from the IBM InfoPrint Control server.

lu_name The InfoPrint printer is accepting data from the PSF Direct receiver that uses the given SNA logical unit name.

- Waiting (sources waiting to access the printer)

The InfoPrint printer is currently accepting data from the active source for print data. Other sources that try to access the printer must wait for it to become available.

Values:

- Neither the IBM InfoPrint Control nor a PSF Direct receiver are waiting to access the printer.

[Queue] IBM InfoPrint Control has data for the InfoPrint printer.

lu_name The PSF Direct receiver that uses the given SNA logical unit name has data for the InfoPrint printer.

- Printer Description (InfoPrint printer description)

The print administrator provided the InfoPrint printer description when the administrator specified a **Descriptor** label on the **General** tab of the **View and Change PSF Physical Printer Properties** window while adding the InfoPrint printer definition. For more information, see *IBM InfoPrint Manager for AIX: Using IBM InfoPrint Control for Production Printing*.

- LU name (Host Receiver description)

The print administrator indicated the SNA logical unit name that a PSF Direct instance uses when the administrator added the PSF Direct receiver definition. The SNA LU name identifies the PSF Direct receiver instance.

- Receiver status (PSF Direct receiver connection status)

Values:

idle The PSF Direct receiver is not currently in session with an MVS, VSE, or VM system.

sess/prtr_conn The PSF Direct receiver is in session with an MVS, VSE, or VM system. The PSF Direct receiver is also the active source for the InfoPrint printer.

sess/prtr_busy The PSF Direct receiver is in session with an MVS, VSE, or VM system. Because the InfoPrint printer is accepting data from another source, the PSF Direct receiver is waiting to access the InfoPrint printer.

- Receiver Description (PSF Direct receiver description)

The print administrator provided the PSF Direct receiver description when the administrator added the PSF Direct receiver (see “PSF Direct Host Receiver Configuration Example” on page 224).

Flags

- c** Displays brief configuration information only. For printers, only the printer name, attachment type, data type, and description fields are displayed. For PSF Direct host receivers, only the LU name and the description are displayed.
- n** Displays all requested information without column titles. If you do not specify this flag, **psfstat** provides column titles in the display.
- p | -P *physical_printername***
Displays all defined InfoPrint physical printers (**-p**) or a specific InfoPrint printer (**-P *physical_printername***). If you do not select a flag, **psfstat** defaults to **-p**.
- r | -R *receivername***
Displays all defined PSF Direct receivers (**-r**) or a specific PSF Direct receiver (**-R *receivername***). If you do not select a flag, **psfstat** defaults to **-r**.
- w *seconds***
Specifies the repetition interval (in seconds) after which **psfstat** refreshes the display of printer status.

Examples

1. To display information about all defined InfoPrint physical printers and all defined PSF Direct receivers that is refreshed every four seconds, enter:

```
psfstat -w4
```

2. To display information about InfoPrint printer **3900wb** and the PSF Direct receiver that uses SNA logical unit name **PSFMVS1** that is refreshed every four seconds, enter:

```
psfstat -P 3900wb -R PSFMVS1 -w4
```

Implementation Specifics

psfstat is part of IBM InfoPrint Manager for AIX; it is installed with the **psf.base** option.

Files

/usr/lpp/psf/bin/psfstat Executable program file

/usr/lpp/msg/En_US/psfstat.cat Message catalog for AIX 3.2.5

/usr/lib/nls/msg/en_US/psfstat.cat Message catalog for AIX 4.1.x

Related Information

The man page for the InfoPrint **pdlis** command

Glossary

This glossary includes terms and definitions from:

- The *American National Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies can be purchased from the American Standards Institute, 11 West 42nd Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.
- The ANSI/EIA Standard--440-A, *Fiber Optic Terminology* Copies may be purchased from the Electric Industries Association, 2001 Pennsylvania Avenue, N.W., Washington, DC 20006. Definitions are identified by the symbol (E) after the definition.
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.
- The Network Working Group Request for Comments: 1208.

References

The following cross references are used in this glossary:

Contrast with. This refers to a term that has an opposed or substantively different meaning.

Synonym for. This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the glossary.

Synonymous with. This is a backward reference from a defined term to all other terms that have the same meaning.

See. This refers the reader to multiple-word terms that have the same last word.

See also. This refers the reader to terms that have a related, but not synonymous, meaning.

Deprecated term for. This indicates that the term should not be used. It refers to a preferred term, which is defined in its proper place in the glossary.

A

ACF/NCP. Advanced Communications Function for the Network Control Program. Synonym for *NCP*.

ACF/VTAM. Advanced Communications Function for the Virtual Telecommunications Access Method. Synonym for *VTAM*.

Advanced Peer-to-Peer Networking (APPN). An extension to SNA featuring (a) greater distributed network control that avoids critical hierarchical dependencies, thereby isolating the effects of single points of failure; (b) dynamic exchange of network topology information to foster ease of connection, reconfiguration, and adaptive route selection; (c) dynamic definition of network resources; and (d) automated resource registration and directory lookup. APPN extends the LU 6.2 peer orientation for end-user services to network control and supports multiple LU types, including LU 2, LU 3, and LU 6.2.

advanced program-to-program communication (APPC). (1) The general facility characterizing the LU 6.2 architecture and its various implementation in products. (2) Sometimes used to refer to the LU 6.2 architecture and its product implementations as a whole, or to an LU 6.2 product feature in particular, such as an APPC application program interface.

alert. A message sent to a management services focal point in a network to identify a problem or an impending problem.

APPC. Advanced program-to-program communication.

application transaction program. A program written for or by a user to process the user's application; in an SNA network, an end user of a type 6.2 logical unit.

APPN. Advanced Peer-to-Peer Networking.

B

basic conversation. An LU 6.2 conversation type specified by the allocating transaction program. Transaction programs using basic conversation have available to them a wider variety of LU 6.2 functions, but they are responsible for more of their own error recovery and must manage details of the data stream used on the conversation. Contrast with *mapped conversation*.

basic information unit (BIU). In SNA, the unit of data and control information passed between help-session. It consists of a request/response header (RH) followed by a request/response unit (RU).

basic link unit (BLU). In SNA, the unit of data and control information transmitted over a link by data link control.

basic transmission unit (BTU). In SNA, the unit of data and control information passed between path control components. A BTU can consist of one or more path information units (PIUs). See also *blocking of PIUs*.

BF. Boundary function.

BIU. Basic information unit.

BIU segment. In SNA, the portion of a basic information unit (BIU) that is contained within a path information unit (PIU). It consists of either a request/response header (RH) followed by all or part of a request/response unit (RU), or of only a part of an RU.

blocking of PIUs. In SNA, an optional function of path control that combines multiple path information units (PIUs) in a single basic transmission unit (BTU).

Note: When blocking is not done, a BTU consists of one PIU.

BLU. Basic link unit.

border node. An APPN network node that interconnects APPN networks having independent topology databases in order to support LU-LU sessions between these networks.

boundary function. (1) In SNA, a capability of a subarea node to provide protocol support for attached peripheral nodes, such as: (a) interconnecting subarea path control and peripheral path control elements, (b) performing session sequence numbering for low-function peripheral nodes, and (c) providing session-level pacing support. (2) In SNA, the component that provides these capabilities.

boundary node (BN). In SNA, a subarea node with boundary function.

Note: A subarea node may be a boundary node, an intermediate routing node, both, or neither, depending on how it is used in the network.

BTU. Basic transmission unit.

C

chain. (1) A group of logically linked user data records processed by LU 6.2. (2) A group of request units delimited by begin-chain and end-chain. Responses are always single-unit chains.

class of service (COS). A set of characteristics (such as route security, transmission priority, and bandwidth) used to construct a route between session partners. The class of service is derived from a mode name specified by the initiator of a session.

communication controller. A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. It manages the details of line control and the routing of data through a network.

control point (CP). (1) A component of an APPN or LEN node that manages the resources of that node. In an APPN node, the CP is capable of engaging in CP-CP session with other APPN nodes. In an APPN network node, the CP also provides services to adjacent end nodes in the APPN network. (2) A component of a node that manages resources of that node and optionally provides services to other nodes in the network. Examples are a system services control point (SSCP) in a type 5 subarea node, a network node control point (NNCP) in an APPN network node, and an end node control point (ENCP) in an APPN or LEN end node. An SSCP and an NNCP can provide services to other nodes.

conversation. A logical connection between two transaction programs using an LU 6.2 session. Conversations are delimited by brackets to gain exclusive use of a session.

COS. Class of service.

CP. Control point.

CP name. A network-qualified name of a control point (CP), consisting of a network ID qualifier identifying the network (or name space) to which the CP's node belongs, and a unique name within the scope of that network ID identifying the CP. Each APPN or LEN node has one CP name, assigned to it at system-definition time.

cross-domain. In SNA, pertaining to control or resources involving more than one domain.

D

data link control (DLC). A set of rules used by nodes on a data link (such as an SDLC link or a token-ring) to accomplish an orderly exchange of information.

dependent LU. See *SSCP-dependent LU*.

DLC. Data link control.

E

Ethernet. A 10-Mbps baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and transmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

exchange identification (XID). A specific type of basic link unit that is used to convey node and link characteristics between adjacent nodes. XIDs are exchanges between link stations before and during link activation to establish and negotiate link and node characteristics, and after link activation to communicate changes in these characteristics.

H

half-duplex (HD, HDX). In data communication, pertaining to transmission in only one direction at a time. Contrast with *duplex*. See also *half-duplex operation* and *half-duplex transmission*.

half-duplex operation. A mode of operation of a data link in which data can be transmitted in both directions, one way at a time. (T)

half-duplex transmission. Data transmission in either direction, one direction at a time. (I) (A)

I

independent LU. See *SSCP-independent LU*.

L

link. The combination of the link connection (the transmission medium) and two link stations, one at each end of the link connection. A link connection can be shared among multiple links in a multipoint or token-ring configuration.

link connection. The physical equipment providing two-way communication between one link station and one or more other link stations; for example, a

telecommunication line and data circuit-terminating equipment (DCE).

link station. The hardware and software components within a node representing a connection to an adjacent node over a specific link. For example, if node A is the primary end of a multipoint line that connects to three adjacent nodes, node A will have three link stations representing the connection to the adjacent nodes.

local address. In SNA, an address used in a peripheral node in place of a network address and transformed to or from a network address by the boundary function in a subarea node.

local area network (LAN). (1) A computer network located on a user's premises within a limited geographical area. Communication within a local area network is not subject to external regulation; however, communication across the LAN boundary may be subject to some form of regulation (T). (2) A network in which a set of devices are connected to one another for communication and that can be connected to a larger network. See also *Ethernet* and *token-ring*.

logical link control (LLC). The data link control (DLC) LAN sublayer that provides two types of DLC operation for the orderly exchange of information. The first type is connectionless service, which allows information to be sent and received without establishing a link. The LLC sublayer does not perform error recovery or flow control for connectionless service. The second type is connection-oriented service, which requires establishing a link prior to the exchange of information. Connection-oriented service provides sequenced information transfer, flow control, and error recovery.

logical unit (LU). A type of network accessible unit that enables end users to gain access to network resources and communicate with each other.

logical unit (LU) 6.2. A type of logical unit that supports general communication between programs in a distributed processing environment. LU 6.2 is characterized by (a) a peer relationship between session partners, (b) efficient utilization of a session for multiple transactions, (c) comprehensive end-to-end error processing, and (d) a generic application program interface (API) consisting of structured verbs that are mapped into a product implementation.

LU. Logical unit.

LU-LU session. A logical connection between two logical units (LUs) in an SNA network that typically provides communication between two end users.

LU type. The classification of an LU in terms of the specific subset of SNA protocols and options it supports for a given session, namely:

- The mandatory and optional values allowed in the session activation request
- The usage of data stream controls, function management headers (FMHs), request unit parameters, and sense data values.
- Presentation services protocols such as those associated with FMH usage

LU types 0, 1, 2, 3, 4, 6.1, 6.2, and 7 are defined.

LU type 6.2 (LU 6.2). A type of logical unit that supports general communication between programs in a distributed processing environment. LU 6.2 is characterized by (a) peer relationship between session partners, (b) efficient utilization of a session for multiple transactions, (c) comprehensive end-to-end processing, and (d) a generic application program interface consisting of structured verbs that are mapped into a product implementation.

LU 6.2. Logical unit 6.2.

LU 6.2 session. A session that is initiated by VTAM on behalf of a logical unit (LU) 6.2 application program, or a session initiated by a remote LU in which the application program specifies that VTAM is to control the session by using the APPCCMD macroinstruction.

M

MAC. Medium access control.

mapped conversation. An LU 6.2 conversation type specified by the allocating transaction program. Transaction programs using a mapped conversation can exchange messages of arbitrary format regardless of the underlying data stream. System-defined or user-defined mappers can perform data transformation for the transaction programs. See also *conversation*. Contrast with *basic conversation*.

medium access control (MAC). In LANs, the sublayer of the data link control layer that support medium-dependent functions and uses the services of the physical layer to provide services to the logical link control (LLC) sublayer. The MAC sublayer includes the method of determining when a device has access to the transmission medium.

MVS. Multiple Virtual Storage. Implies MVS/370, the MVS/XA product, and the MVS/ESA product.

N

NCP. Network Control Program.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

network identifier. A one- to eight-byte customer-selected name or an eight-byte IBM-registered name that uniquely identifies a specific subnetwork.

node. (1) Any device, attached to a network, that transmits and receives data. (2) An endpoint of a link or a junction common to two or more links in a network. Nodes can be processors, communication controllers, cluster controllers, or terminals. Nodes can vary in routing and other functional capabilities.

node type. A designation of a node according to the protocols it supports or the role it plays in a network. Node type was originally denoted numerically (as 1, 2.0, 2.1, 4, and 5) but is now characterized more specifically by protocol type (APPN network node, LEN node, subarea node, and interchange node, for example) because type 2.1 nodes and type 5 nodes support multiple protocol types and roles.

P

pacing. A technique by which a receiving component controls the rate of transmission of a sending component to prevent overrun or congestion.

pacing window. (1) The path information units (PIUs) that can be transmitted on a virtual route before a virtual-route pacing response is received, indicating that the virtual route receiver is ready to receive more PIUs on the route. (2) The requests that can be transmitted on the normal flow in one direction on a session before a session-level pacing response is received, indicating that the receiver is ready to accept the next group of requests. (3) Synonymous with *pacing group*.

path information unit (PIU). A message unit consisting of a transmission header (TH) alone, or a TH followed by a basic information unit (BIU) or a BIU segment. See also *transmission header*.

peripheral link. In SNA, a link between a subarea and a peripheral node.

peripheral node. A node that uses local addresses for routing and therefore is not affected by changes in network addresses. A peripheral node requires boundary-function assistance from an adjacent subarea node. A peripheral node can be a type 1, 2.0, or 2.1 node connected to a subarea boundary node.

physical unit (PU). The component that manages and monitors the resources (such as attached links and adjacent link stations) associated with a node, as requested by an SSCP via an SSCP-PU session. An SSCP activates a session with the physical unit in order to indirectly manage, through the PU, resources of the node such as attached links. This term applies to type 2.0, type 4, and type 5 nodes only.

PIU. Path information unit.

R

request header (RH). The control information that precedes a request unit (RU). See also *request/response header (RH)*.

request/response header (RH). Control information associated with a particular RU. The RH precedes the request/response unit (RU) and specifies the type of RU (request unit or response unit).

request unit (RU). A message unit that contains control information, end-user data, or both.

response header (RH). A header, optionally followed by a response unit (RU), that indicates whether the response is positive or negative and that may contain a pacing response.

response unit (RU). A message unit that acknowledges a request unit. It may contain prefix information received in a request unit. If positive, the response unit may contain additional information (such as session parameters in response to BIND SESSION). If negative, the response unit contains sense data defining the exception condition.

RH. Request/response header.

ring station. The functions necessary for connecting to the local area network and for operating with the token-ring protocols. These include token handling, transferring copied frames from the ring to the using node's storage, maintaining error counters, observing Medium Access Control (MAC) sublayer protocols (for address acquisition, error reporting, or other duties), and (in the full-function native mode) directing frames to the correct Data Link Control link station. A ring station is an instance of a MAC sublayer in a node attached to a ring.

RU. Request/response unit.

S

SDLC. Synchronous Data Link Control.

segmentation. A process by which path control (PC) divides basic information units (BIUs) into smaller units, called BIU segments, to accommodate smaller buffer sizes in adjacent nodes. Both segmentation and segment assembly are optional PC features. The support for either or both is indicated in the BIND request and response.

session. (1) In network architecture, for the purpose of data communication between functional units, all the activities which take place during the establishment, maintenance, and release of the connection. (T) (2) A logical connection between two network accessible units (NAUs) that can be activated, tailored to provide various protocols, and deactivated, as requested. Each session is uniquely identified in a transmission header (TH) accompanying any transmissions exchanged during the session.

SNA. Systems Network Architecture.

SNA network. The part of a user-application network that conforms to the formats and protocols of Systems Network Architecture. It enables reliable transfer of data among end users and provides protocols for controlling the resources of various network configurations. The SNA network consists of network accessible units (NAUs), boundary function, gateway function, and intermediate session routing function components; and the transport network.

SSCP. System services control point.

SSCP-dependent LU. An LU that requires assistance from a system services control point (SSCP) in order to initiate an LU-LU session. It requires an SSCP-LU session.

SSCP-independent LU. An LU that is able to activate an LU-LU session (that is, send a BIND request) without assistance from an SSCP. It does not have an SSCP-LU session. Currently, only an LU 6.2 can be an independent LU.

SSCP-LU session. In SNA, a session between a system services control point (SSCP) and a logical unit (LU). The session enables the LU to request the SSCP to help initiate LU-LU sessions.

SSCP-PU session. In SNA, a session between a system services control point (SSCP) and a physical unit (PU); SSCP-PU sessions allow SSCPs to send requests to and receive status information from individual nodes in order to control the network configuration.

subarea. A portion of the SNA network consisting of a subarea node, attached peripheral nodes, and associated resources. Within a subarea node, all network accessible units (NAUs), links, and adjacent link stations (in attached peripheral or subarea nodes) that are addressable within the subarea share a common subarea address and have distinct element addresses.

system services control point (SSCP). A component within a subarea network for managing the configuration, coordinating network operator and problem determination requests, and providing directory services and other session services for end users of the network. Multiple SSCPs, cooperating as peers with one another, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its own domain.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks. The layered structure of SNA allows the ultimate origins and destinations of information, that is, the end users, to be independent of and unaffected by the specific SNA network services and facilities used for information exchange.

T

TH. Transmission header.

token-ring. (1) According to IEEE 802.5, network technology that control media access by passing a token (special packet or frame) between media-attached stations. (2) A FDDI or IEEE 802.5 network with a ring topology that passes tokens from one attaching ring station (node) to another. (3) See also *local area network (LAN)*.

token-ring network. (1) A ring network that allows unidirectional data transmission between data stations, by a token passing procedure, such that the transmitted data return to the transmitting station. (T) (2) A network that uses a ring topology, in which tokens are passed in a circuit from node to node. A node that is ready to send can capture the token and insert data for transmission.

TP. Transaction program.

transaction program. A program that processes transactions in an SNA network. There are two kinds of transaction programs: application transaction programs and service transaction programs. See also *conversation*.

transmission header (TH). Control information, optionally followed by a basic information unit (BIU) or a BIU segment, that is created and used by path control to route message units and to control their flow within the network. See also *path information unit*.

type 2.0 node. A node that attaches to a subarea network as a peripheral node and provides a range of end-user services but no intermediate routing services.

type 2.1 node. A node that can be an APPN network node, an APPN end node, or a LEN node. It can also attach as a peripheral node to a subarea boundary node in the same way as a type 2.0 node.

V

virtual machine (VM). In VM, a functional equivalent of a computing system. On the 370 Feature of VM, a virtual machine operates in System/370 mode. On the ESA Feature of VM, a virtual machine operates in System/370, 370-XA, ESA/370, or ESA/390 mode. Each virtual machine is controlled by an operating system. VM controls the concurrent execution of multiple virtual machines on an actual processor complex.

Virtual Telecommunications Access Method (VTAM). An IBM licensed program that controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability.

VM. Virtual machine.

VTAM. Virtual Telecommunications Access Method. Synonymous with *ACF/VTAM*.

W

XID. Exchange identification.

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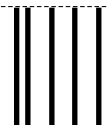


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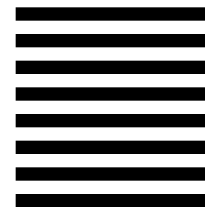
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