IPDS Printing Configuration Guide

Read this manual carefully before you use this product and keep it handy for future reference.

Introduction

This manual contains detailed instructions and notes on the operation and use of this machine. For your safety and benefit, read this manual carefully before using the machine. Keep this manual in a handy place for quick reference.

Important

Contents of this manual are subject to change without prior notice. In no event will the company be liable for direct, indirect, special, incidental, or consequential damages as a result of handling or operating the machine.

Notes

This manual covers all models, and therefore contains functions and settings that may not be available for your model.

Functions and supported operating systems may differ from those of your model.

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TABLE OF CONTENTS

4. Configuring OS/390 to Print IPDS Files

5. Configuring PSF/VM to print IPDS files

6. Infoprint Manager for AIX

7. Handling Network Problems

8. Appendix

Manuals for the IPDS card

Refer to the manuals that are relevant to what you want to do with the IPDS card.

⚙️**Important**

❐ Adobe Acrobat Reader/Adobe Reader must be installed in order to view the manuals as PDF files.

❖ **IPDS Supplement (IPDS.pdf)**

Explains about how to configure the IPDS card for the machine, and about items selectable from the Web browser.

❖ **IPDS Printing Configuration Guide (IPDS_CONF.pdf)** *English Only

Explains about environment necessary for connecting the mainframe to the machine, and performing IPDS printing.

❖ **IPDS Technical Reference (IPDS_TEC.pdf)** *English Only

Explains about commands necessary for IPDS printing.

🖉 **Note**

❐ For details about the necessary environment, and installation of the IPDS card and machine, consult your sales or service representative. For details about necessary environment and operation of the mainframe, consult IBM.

How to Read This Manual

Symbols

This manual uses the following symbols:

⚠ *WARNING:*

Indicates important safety notes.

Ignoring these notes could result in serious injury or death. Be sure to read these notes. They can be found in the "Safety Information" section of About This Machine.

⚠ *CAUTION:*

Indicates important safety notes.

Ignoring these notes could result in moderate or minor injury, or damage to the machine or to property. Be sure to read these notes. They can be found in the "Safety Information" section of About This Machine.

🔆Important

Indicates points to pay attention to when using the machine, and explanations of likely causes of paper misfeeds, damage to originals, or loss of data. Be sure to read these explanations.

✐ Note

Indicates supplementary explanations of the machine's functions, and instructions on resolving user errors.

🔎Reference

This symbol is located at the end of sections. It indicates where you can find further relevant information.

[ ]

Indicates the names of keys that appear on the machine's display panel.

【 】

Indicates the names of keys on the machine's control panel.

1. Getting Started

Book at a Glance

This book is designed to help you configure the Ethernet Attachment for your printer.

Server-to-Printer Attachments Described in this Book

This book describes the server-to-printer attachments described in the following table. Direct attachment of multiple machines to the printer, without the use of a print server, is also described for Windows systems.

Server Environment	Server-to-Printer Protocol	Datastreams
AIX	TCP/IP	IPDS
System i	TCP/IP	IPDS
OS/390	TCP/IP	IPDS
VM	TCP/IP	IPDS
Windows	TCP/IP	IPDS

Note

❒ To print IPDS, you will need to install Infoprint Manager for AIX (or Windows), Infoprint Server for OS/390, PSF/400, or PSF for OS/390 on the host.

❒ IPDS must use the TCP/IP protocol.

Configuration Checklist

The information in this chapter applies to all users.

1 **Write down the NIC MAC address. The Ethernet MAC address is on the printer controller.**

2 **If you are using TCP/IP, see the manual explaining the network functions provided by the supplier.**

3 **Power off the printer and connect the NIC to the LAN cable. Power on the printer.**

4 **Verify the connection to the LAN cable.**

5 **Configure your environment. Refer to one of the chapters in the following list.**

❖ **Windows**
The machine contains a setup utility that runs in all Windows environments. The Setup Utility includes a printer setup wizard that can guide you through the network configuration steps. To run the Setup Utility, type:

`drive: setup`
at a command prompt, where "drive" is the letter of your CD-ROM drive.

🔎 **Reference**
p.9 "Infoprint Manager for Windows"

❖ **System i**

🔎 **Reference**
p.13 "Configuring System i for an IPDS Printer"

❖ **OS/390, VM**

🔎 **Reference**
p.27 "Configuring OS/390 to Print IPDS Files"
p.39 "Configuring PSF/VM to print IPDS files"

❖ **UNIX**

🔎 **Reference**
p.45 "Infoprint Manager for AIX"

Default Parameter Values

The following lists the default parameter values and other information for a NIC.

Parameter/Limit	Values	Affected Area
LPD port	TCP port 515	LPR printing
Raw port for printing	TCP port 2501 TCP port 9100	AIX System i Infoprint Server for OS/390
IPDS port	TCP port 5001	PSF/400 PSF for OS/390 Infoprint Manager

2. Infoprint Manager for Windows

Requirements - Infoprint Manager for Windows

- Infoprint Manager for Windows V2.1.0

✎ **Note**

❒ When you install the Infoprint Manager server software, you automatically install the Infoprint Manager Administration GUI and the Infoprint Manager Operations GUI on the same system. You can also install either the Infoprint Manager Administration GUI or the Infoprint Manager Operations GUI on remote systems. The Infoprint Manager Operations GUI provides a subset of the functionality available in the Infoprint Manager Administration GUI. This subset includes operator tasks.

Configuration Checklist- Infoprint Manager for Windows

Use this chapter to configure Infoprint Manager to print using your printer.

A **If you have not already done so, install the IBM Infoprint Manager Server.**

B **Decide which type of destination you want to define in Infoprint Manager for this printer. See p.10 "Choosing an Infoprint Manager Destination Type".**

C **Define the printer to Infoprint Manager. See p.11 "Adding a PSF TCP/IP Printer"**

D **Verify the configuration by submitting a print job.**

Choosing an Infoprint Manager Destination Type

Infoprint Manager provides various Destination Support Systems (DSSs). The type that is most appropriate for your environment is based on what data stream you want to print (IPDS, PCL, or PostScript). Use the following table to determine what type to use.

Data Stream From Application	Data Stream To Printer	Infoprint Manager Destination
IPDS, PCL, PS, ASCII, line data, DBCS ASCII, PDF, AFP	IPDS	PSF TCP/IP Printer

Adding a PSF TCP/IP Printer

Create a PSF TCP/IP destination to define a printer that receives IPDS jobs using the TCP/IP protocol.

A Complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual desti-nation object (8 character limit). 📎 **Note** ❒ This name is case-sensitive.	
Server	The Infoprint Manager serv-er that controls this actual destination.	
TCP/IP address	The dotted-decimal IP address used to access this printer.	
TCP/IP port	The port used by the printer for communication. (Typical-ly, port 5001 is used.)	
Logical destination	📎 **Note** ❒ This name is case-sensitive.	__ Default __ Other:
Logical destination's server	📎 **Note** ❒ This name is case-sensitive.	
Queue	The queue for the target printer (actual destination). 📎 **Note** ❒ This name is case-sensitive.	__ Default __ Other:

B Launch the Infoprint Manager Administration GUI.

C On the menu bar, select [Printer] -> [Create] -> [PSF] -> [TCP/IP] to start the Create Printer Wizard.

D Provide the worksheet information to the wizard. For assistance, refer to the Infoprint Manager Administration GUI online help.

E If you did not enable the printer with the Create Printer Wizard, use the Infoprint Manager Administration GUI to enable it.

2

3. Configuring System i for an IPDS Printer

Requirements - System i

Print Services Facility for OS/400 (PSF/400) Feature

- System i and Related Software Levels
  We recommends that you apply the latest cumulative fix package for System i or a related software feature.

- If you have a support line contract, visit the System i web site at:
  http://www-03.ibm.com/systems/i/

- If you do not have a support line contract, please contact your service or sales representative.

Printing AFP, IPDS, PDF, PCL, and PostScript Files

Use this chapter to configure the printer on System i as an IPDS printer.

The printer configured as IPDS will print only IPDS files. With the Infoprint Server for System i, PostScript, PDF, and PCL data streams can be transformed to AFP and printed to the printer as IPDS.

- AFP files are transformed directly by Print Services Facility (PSF/400 – an integrated feature of OS/400), which then sends the transformed file to the printer.

- SCS files are transformed into IPDS by one of two conversion paths. The path recommended by IBM – a straight SCS to device-independent IPDS transform – is controlled by setting the IPDSPASTHR parameter to YES (see step 1 on p.21 "Configuring PSF/400 with CRTPSFCFG"). Setting IPDSPASTHR to YES provides the best performance because IPDS files are sent directly to the printer with no transform. If your SCS file requires any AFP processing, PSF/400 will automatically provide the requisite conversion.

Configuration Checklist - System i

- Authority Level Required
  All of the following configuration steps carried out on the System i may require "create" or "change" authority.

1 **Make sure the printer is set up. See p.7 "Configuration Checklist".**

2 **Using the printer's control panel or Web Image Monitor, set up the printer for IPDS by setting the parameters and values shown in the following table.**

Menu	Item	Setting
IPDS	Emulation Mode	Native
IPDS	Font Substitution	Off

3 **Set TCP/IP addresses for the printer, such as an IP address, gateway address, or subnet mask. See the manual explaining the network functions provided by the supplier**

4 **If the printer and System i are not on the same LAN segment, verify that there is a route defined in the TCP/IP route list on the System i. If necessary, use the ADDTCPRTE command on the System i to create a route definition.**

5 **Create or verify the existence of an System i TCP/IP interface for Token Ring or Ethernet. See p.16 "Configuring an System i TCP/IP Interface".**

6 **Configure System i with p.19 "Configuring PSF/400 for IPDS".**

7 **Vary the printer ON using the VFYCFG command.**

8 **Verify that TCP/IP has been started using the STRTCP command.**

9 **Test your configuration. See p.22 "Verifying the IPDS Configuration on System i".**

10 **To share the printer on the network, verify that the necessary parameters have been set correctly. See p.23 "Sharing the PSF/400 Printer on the Network".**

11 **If you have problems, refer to p.25 "Resolving System i Problems".**

Configuring an System i TCP/IP Interface

⚠️Important

❒ Do not enter the IP address of the printer or set the System i interface address to the same address as the printer IP address. Also, do not add the printer to the System i TCP/IP interface list.

Configuring the System i Interface with ADDTCPIFC

ADDTCPIFC is used to add a TCP/IP interface to System i. This step configures the System i for attachment to a TCP/IP network.

A **At the System i command line, enter a command in the form:**

```
ADDTCPIFC INTNETADR('9.99.15.188') LIND(ETHLAN)
SUBNETMASK('255.255.255.0')
```

B **A completed screen should look like the following:**

```
System:   BLDD60
Internet address . . . . . . . . . . . . . . :    9.99.15.188
Subnet mask  . . . . . . . . . . . . . . . . :    255.255.255.0
Line description . . . . . . . . . . . . . . :    ETHLAN
Line type  . . . . . . . . . . . . . . . . . :    *ELAN
Interface status . . . . . . . . . . . . . . :    Inactive
Type of service  . . . . . . . . . . . . . . :    *NORMAL
Maximum transmission unit  . . . . . . . . . :    *LIND
Automatic start  . . . . . . . . . . . . . . :    *YES
```

C **The following parameters are required:**

- Internet Address
  Internet address of the System i Ethernet LAN adapter.

📝 Note

❒ Do not enter the IP address of the printer.

- Subnet Mask
  The subnet mask for this System i TCP/IP interface (for example, 255.255.255.0).

- Line description
  The name assigned to the System i line description as described in "Developing Line Descriptions with CRTLINETH or CRTLINTRN" on page 65. Each System i LAN adapter will have its own line description.

16

Configuring a TCP/IP Host Table Entry

Although optional, we recommends that you create a TCP/IP host table entry. Add the System i name and the IP address of the LAN adapter to the "Host Table Entries". Also, add the hostname and IP address of the printer to the list. You can access the host table entries function by using the CFGTCP command, then selecting option 10 from the menu.

You can also add entries to your host table for both the hostname and the fully qualified network name for your system. The entry should match what you configured for host and domain name. For example, if your hostname is "RCHASM03" and your domain name is "RCHLAND.IBM.COM ", your fully qualified network name is "RCHASM03.RCHLAND.IBM.COM". In your host entry table, enter both RCHASM03 and RCHASM03.RCHLAND.IBM.COM.

3

Configuring TCP/IP Keep Alive

Although optional, we recommends that you set the TCP/IP Keep-Alive time to 1 minute. This is the minimum value that can be set; the default is 120 minutes (2 hours). A setting of 1 minute causes the System i system to detect a lost printer connection in a shorter period of time.

To change the keep alive time, enter the command CHGTCPA. Change the first entry as shown below:

TCP keep alive 1

3

Configuring PSF/400 for IPDS

To configure IPDS on System i, you use the following commands:

CRTDEVPRT

CRTPSFCFG (Optional)

Configuring PSF with CRTDEVPRT

This section describes how to set up a device description on System i.

A **At the System i command line, enter a command in the form:**

```
CRTDEVPRT DEVD(P2705) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(5001) FONT(11)
FORMFEED(*AUTOCUT)
RMTLOCNAME('128.9.12.134') USRDFNOBJ(AFP/NETWRKPRT *PSFCFG)
TEXT('printer name')
```

B **A completed screen looks like this:**

```
            Display Device Description                    Page    1
5769SS1 V4R4M0  990521                      BLDAS44  01/19/00 13:07:24
  Device description . . . . . . . :   DEVD       2705
  Option . . . . . . . . . . . . . :   OPTION     *ALL
  Category of device . . . . . . . :              *PRT
  Device class . . . . . . . . . . :   DEVCLS     *LAN
  Device type  . . . . . . . . . . :   TYPE       *IPDS
  Device model . . . . . . . . . . :   MODEL      0
  LAN attachment . . . . . . . . . :   LANATTACH  *IP
  Advanced function printing . . . . :  AFP       *YES
  Port number  . . . . . . . . . . :   PORT       5001
  Online at IPL  . . . . . . . . . :   ONLINE     *YES
  Font . . . . . . . . . . . . . . :   FONT
  Identifier . . . . . . . . . . . :              011
  Point size . . . . . . . . . . . :              *NONE
  Form feed  . . . . . . . . . . . :   FORMFEED   *AUTOCUT
  Separator drawer . . . . . . . . :   SEPDRAWER  *FILE
  Separator program  . . . . . . . :   SEPPGM     *NONE
    Library  . . . . . . . . . . . :
  Printer error message  . . . . . :   PRTERRMSG  *INQ
  Message queue  . . . . . . . . . :   MSGQ       *CTLD
  Current message queue  . . . . . :              QSYSOPR
    Library  . . . . . . . . . . . :              QSYS
  Activation timer . . . . . . . . :   ACTTMR     170
  Image configuration  . . . . . . :   IMGCFG     *NONE
  Maximum pending requests . . . . :   MAXPNDRQS  6
  Print while converting . . . . . :   PRTCVT     *YES
  Form definition  . . . . . . . . :   FORMDF     F1C10110
    Library  . . . . . . . . . . . :              *LIBL
  Character identifier . . . . . . :   CHRID      *SYSVAL
  Remote location  . . . . . . . . :   RMTLOCNAME
  Name or address  . . . . . . . . :              128.9.12.134

  User-defined object  . . . . . . :   USRDFNOBJ  NETWRKPRT
  Library  . . . . . . . . . . . . :              AFP
  Object type  . . . . . . . . . . :              *PSFCFG
  Data transform program . . . . . :   USRDTATFM  *NONE
  User-defined driver program  . . . :  USRDRVPGM *NONE
  Dependent location name  . . . . :   DEPLOCNAME *NONE
  Allocated to:
  Job name . . . . . . . . . . . . :              QSYSARB
    User . . . . . . . . . . . . . :              QSYS
    Number . . . . . . . . . . . . :              075445
  Text . . . . . . . . . . . . . . :   TEXT       printer name
  User-defined options . . . . . . :   USRDFNOPT
  ----------------User-defined options-----------------
```

3 **Enter values for the followingparameters:**

- Device Description (DEVD)
  The device description or name.

- Device Class(DEVCLS)
  Specify *LAN.

- Device Type (TYPE)
  Specify *IPDS.

- Device Model (MODEL)
  Specify 0.

- LAN attachment (LANATTACH)
  Specify *IP.

- Port Number (PORT)
  Specify 5001, which is the printer's default port number. Use Web Image Monitor to set or view the IPDS port number.

- Font (FONT)
  Enter an appropriate value.

- Form Feed (FORMFEED)
  Specify *AUTOCUT

- Activation timer(ACTTMR)
  This value specifies the number of seconds that PSF/400 waits for a printer to respond to an activation request. If only one system will be using the printer, use the default value (170 seconds). If more than one system will be using the printer, specify *NOMAX, which will cause PSF/400 to wait indefinitely for a response to an activation request.

- Remote Location (RMTLOCNAME)
  Enter the IP address or hostname of the printer.

- User-Defined Object (USRDFNOBJ)
  To use a PSF configuration object, specify its name and library here. The object type must be *PSFCFG. A single PSF configuration object may be referenced by multiple device descriptions, if required.

Configuring PSF/400 with CRTPSFCFG

The PSF configuration object created with this command is used by PSF/400 when printing IPDS files only if the object is specified with the USRDFNOBJ parameter in the printer device description.

To configure System i for IPDS printing:

A **At the System i command line, enter a command in the form:**

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('printer name')
```

B **A completed screen looks like this:**

```
                    PSF Configuration Information                    Page    1
5769SS1 V4R4M0  990521                      BLDAS44   01/19/00  13:17:18
PSF configuration:   NETWRKPRT      Library:   AFP
User resource library . . . . . . . . . . . . :   *JOBLIBL
IPDS pass through . . . . . . . . . . . . . :   *YES
Activate release timer . . . . . . . . . . . :   *NORDYF
Release timer . . . . . . . . . . . . . . . :   *SEC15
Restart timer . . . . . . . . . . . . . . . :   *IMMED
APPC and TCP/IP retry count . . . . . . . . . :   15
Delay time between retries . . . . . . . . . :   90
Automatic session recovery . . . . . . . . . :   *NO
Acknowledgment frequency . . . . . . . . . . :   100
Blank page . . . . . . . . . . . . . . . . . :   *YES
Page size control . . . . . . . . . . . . . :   *NO
Resident fonts . . . . . . . . . . . . . . . :   *YES
Resource retention . . . . . . . . . . . . . :   *YES
Edge orient . . . . . . . . . . . . . . . . :   *NO
Use outline fonts . . . . . . . . . . . . . :   *NO
PSF defined options:
   *NONE
Font substitution messages . . . . . . . . . :   *YES
Capture host fonts at printer . . . . . . . . :   *NO
Cut sheet emulation mode . . . . . . . . . . :   *NONE
Font resolution for formatting . . . . . . . :   *SEARCH
Font mapping table . . . . . . . . . . . . . :   *NONE
   Library . . . . . . . . . . . . . . . . . :
Text description . . . . . . . . . . . . . . :   printer name
Device resource library list:
   *DFT
```

C **The following parameters are recommended:**

- PSF configuration (PSFCFG)
  The name used for this PSF configuration object. The name must match the user-defined object name (USRDFNOBJ) in the printer DEVD.

- IPDS pass through (IPDSPASTHR)
  To print SCS and IPDS files (which do not use AFP functions) with minimal processing, specify *YES. PSF/400 transforms SCS into IPDS before printing.

- Activate release timer (ACTRLSTMR)
  Specifies the point at which the release timer (RLSTMR) is activated. Set to *NORDYF.

- Release timer (RLSTMR)
  Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Verify that the IPDS TIMEOUT value on the printer is "0" or "OFF". Set the System i parameter to *SEC15.
  This releases the printer to service other jobs from other ports 15 seconds after the last IPDS job has printed.

Verifying the IPDS Configuration on System i

To test IPDS printing, do the following:

A **Vary on the line description—VRYCFG CFGTYPE(*LIN)—if it is not already on.**

B **To start TCP/IP, enter:**

`STRTCP`

C **Verify that the System i TCP/IP interface is active. Use the command:**

`WRKTCPSTS`

and then select option 1.

D **Turn the printer on and wait until the printer's control panel displays READY.**

E **To verify that the printer is connected to System i, ping the printer from an System i workstation with one of the following commands:**

`PING ip_address'`

or

`PING hostname`

where ip_address is the TCP/IP address of the remote system printer, and hostname is the hostname you defined for the printer, if any.

F **If the pings are not successful, refer to p.25 "Printer Cannot be PINGed".**

G **If pings are successful, vary on the printer device description with the command:**

`VRYCFG (printer-device) CFGTYPE(*DEV) STATUS(*ON)`

H **To use PSF/400 to send an IPDS file to the printer, enter:**

`STRPRTWTR DEV (printer device)`

where printer device is the name of the printer.

If you have problems printing, do the following:

- Print a network configuration page, see the manual explaining the network functions provided by the supplier.
- Verify that the IPDS port number matches the port number in the device description.

If you are still unable to print IPDS files, contact your service or sales representative.

Sharing the PSF/400 Printer on the Network

To support printer sharing, the printer automatically switches among all logical ports. Basically, the printer prints one job at a time, and chooses the next job from the highest priority port. If the client does not end a job, then the printer applies the timeout value set for the print port.

To change the "time out" value, update the timeout value on Web Image Monitor for the appropriate port.

See p.55 "Sharing the Printer with IPDS host systems (PSF/400 or OS/390)", for a description of concepts associated with sharing an IPDS printer between multiple host systems.

Sharing the printer with other non-IPDS host systems using MID

Configure the System i to use MID in order for the printer to be shared between the IPDS System i system and other non-IPDS systems, such as desktop PCs. The following PSF configuration parameters must be set on the System i in order for it to support MID requests from the printer.

Here is an System i example with MID Enabled:

```
PSF configuration:
User resource library....................:    *JOBLIBL
IPDS pass through ........................:    *NO
+
Activate release timer....................:    *PRTNORDYF
Release timer.............................:    *SEC15
Restart timer.............................:    *IMMED
APPC and TCP/IP retry count...............: 15
Delay time between retries................: 90
Auto Session Recovery.....................: *YES
Acknowledge Fequency......................: 100
Blank page................................: *YES
Page size control.........................: *NO
Resident fonts............................: *YES
Resource retention........................: *YES
Edge orient...............................: *NO
Use outline fonts.........................: *NO
Remote Location:

Text description..........................:
Device resource library list .............:  (List of names)
```

Sharing the printer with other IPDS host systems

Configure the System i without MID in order for the printer to be shared between multiple IPDS host systems. This configuration can also be used for sharing the printer with desktop PCs. The following PSF configuration does not grant MID requests from the printer.

Here is an System i example without MID:

```
Activate release timer.: *NORDYF
DISCINTV=25,
     Release timer.................: *SEC15
     Restart timer.................: *IMMED
```

To set up PSF/400 for shared printing without MID, set the following parameters:

Where Set	Parameter	Recommended Value	Description
CRTPSFCFG CHGPSFCFG	ACTRLSTMR	NORDYF	Specifies the point at which the release timer (RLSTMR) is activated. Set to *NORDYF. This means that the release timer is activated when there are no spooled files in the printer's output queue with a status of RDY and the last page of the last spooled file processed has printed. *NORDYF is used so that all files with a status of RDY are printed before releasing the session (which does not terminate the writer, however).
CRTPSFCFG CHGPSFCFG	RLSTMR	*SEC15	Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. IBM recommends *SEC15.
CRTDEVPRT CHGDEVPRT	ACTTMR	*NOMAX	The value specifies the number of seconds that PSF/400 will wait for a printer to respond to an activation request. If only one system will be using the printer, use the default value (170 seconds). If more than one system will be using the printer, set the value to *NOMAX, which will cause PSF/400 to wait indefinitely for a response to an activation request.

Resolving System i Problems

Use this section to resolve problems configuring System i on TCP/IP networks.

Printer Cannot be PINGed

If you have problems pinging the printer:

- Verify the configuration of System i, including the printer and any intervening devices such as routers and bridges.
- Verify that the System i line description is varied on and the printer is turned on and displays a status of READY.
- Verify that the System i TCP/IP interface is active.

If PSF/400 Terminates When Initialized

If PSF/400 terminates when you initialize it for IPDS printing and issues message PQT3603, check for the following error codes.

- 10 means an incorrect RMTLOCNAME has been specified for the printer.
- 15 means that PSF/400 timed out waiting for the printer's response. You should check the value you entered for Activation Timer when using CRTDEVPRT.
- Codes 20-39 indicate a general communications failure. Make sure all of the components in your network are operational, such as routers. If necessary, call IBM Technical Support.
- Codes 40-59 indicate a logic error between PSF and the printer control unit. Contact IBM support.

Spooled Print File Remains in PND Status

Check the output queue with the command:

```
WRKOUTQ OUTQ (queuename)
```

This typically indicates that PSF/400 is waiting for a response from the printer. This can be verified by displaying the QSPL subsystem, WRKACTJOB SBS(QSPL). If the status of the PDJ job for the printer is SELW, then PSF/400 is waiting for a response from the printer. Make sure that the printer is online and in READY status and that all network connections (for example, routers) between the System i and the printer are active.

Spooled Files Disappear Without Printing

To resolve this problem:

- Check that the correct printer queue name and correct IP address have been used.
- Ping the IP address. If the ping is successful, disconnect the network cable from the printer/print server, and ping the address again. If the ping is still successful, there is another printer with that IP address on the network.

3

Data is Being Clipped

To resolve this problem, you may want to set the PSC (Page Size Control) parameter to *YES in the CRTPSFCFG command.

Printer Powered Off While Writer Is Active

The printer should not be powered off while the PSF writer is active. If this happens, you must stop and then restart the writer.

Optionally, you may specify *YES for Automatic session recovery in the PSF configuration object. When *YES is specified and the printer connection is lost (whether caused by accidentally powering off the printer or an unexpected network problem), PSF/400 will attempt to reconnect to the printer and resume printing at the last known point. You may have pages reprinted if the connection can be established. You can control the reprinting of pages by adjusting the value for the Acknowledgment frequency parameter in the PSF configuration object.

4. Configuring OS/390 to Print IPDS Files

Requirements - OS/390

Verify that you have the following required software:

- PSF 3.1.0 for OS/390
  OW39102 outline font support

- PSF 3.4.0 for OS/390 or above

- TCP/IP Version 3 Release 2, or higher, installed and configured on OS/390

🖉 Note

❒ To obtain the PTFs associated with these APARs, contact your service or sales representative.

Configuration Checklist - OS/390

Use this chapter to configure OS/390 or z/OS to print IPDS files on your network printer.

- Authority Level Required
All of the following configuration steps carried out on OS/390 require appropriate RACF authority.

A **Using the printer's control panel, set up the printer for IPDS by setting the parameters and values shown in the following table.**

Menu	Item	Setting
IPDS	Emulation Mode	Native
IPDS	Font Substitution	Off

B **Set TCP/IP addresses for the printer, such as an IP address, gateway address, or subnet mask. See the manual explaining the network functions provided by the supplier**

C **Configure the host environment. See p.29 "Configuring PSF to Print IPDS Files".**

D **Verify the configuration. See p.34 "Verifying a TCP/IP-Attached Printer on OS/390".**

E **If you want to share the printer, do the procedure in p.35 "Sharing the Network Printers on OS/390".**

F **If you have problems, refer to p.37 "Handling OS/390 Connectivity Problems".**

Configuring PSF to Print IPDS Files

Data Requirements

You need the IP address of the printer.

Configuration Procedure

Configuring PSF to print IPDS files includes the following steps:

A **Define the OS/390 communications control unit to OS/390. See p.29 "Define the Communications Control Unit to OS/390".**

B **Modify the TCP/IP profile on your OS/390 system, if necessary. See p.30 "Modify the TCP/IP Profile in OS/390".**

C **Ping the printer. See p.31 "Verify the Printer Connection".**

D **Define the printer as a writer-controlled printer to JES. See p.31 "Define the Printer to JES".**

E **Define the printer to PSF with a PRINTDEV statement, including the IP address. See p.32 "Define the Printer to PSF".**

🖉 Note

❒ This section does not provide all the information you need to install and configure TCP/IP on your OS/390 system.

❒ The routing of information is determined on the basis of the IP address, and is performed by IP gateways. After the network is configured correctly, the OS/390 host appears to be communicating directly with the TCP/IP-attached printer.

Define the Communications Control Unit to OS/390

If you have not already done so, use a hardware configuration definition (HCD) to define the communications control unit for the OS/390® host, such as the 3172 or the 3745 control unit, to OS/390.

Modify the TCP/IP Profile in OS/390

The TCP/IP profile contains system configuration statements used to initialize the TCP/IP address space. The following statements in the TCP/IP profile; however, this example is not a complete profile.

Note

❒ If you change any of the values in the TCP/IP profile, restart TCP/IP to pick up the changes.

```
KEEPALIVEOPTIONS INTERVAL 10 SENDGARBAGE FALSE ENDKEEPALIVEOPTIONS
GATEWAY
; * Network  First hop   Linkname  Packet size Subnet mask Subnet value
   9          =          BPCLAN 4096         0.255.255.0  0.99.12.0
   DEFAULTNET 9.99.12.254 BPCLAN   4096        0.255.255.0  0
```

Sample Parameters in the TCP/IP Profile. This example is not a complete TCP/IP profile.

The statements require special considerations when you are printing from PSF on TCP/IP-attached printers:

- KEEPALIVEOPTIONS
  The KEEPALIVEOPTIONS statement defines the interval between keep-alive transmissions. PSF relies on TCP to detect when a connection with a TCP/IP-attached printer or an i-data 7913 IPDS™ Printer LAN Attachment is no longer usable. When no data has been exchanged between PSF and its connection partner, TCP sends keep-alive probes to the connection partner periodically. These periodic probes, called keep-alive transmissions, enable TCP to discover when a connection is no longer usable even if the connection partner is abruptly powered off or is no longer accessible through the network.
  The frequency of keep-alive transmissions is controlled by the INTERVAL parameter on the KEEPALIVEOPTIONS statement. The frequency applies to all TCP applications that direct TCP to send keep-alive transmissions. The default frequency is after about two hours of inactivity.
  For printing on TCP/IP-attached printers, we recommends that you specify a shorter interval than the default, such as 1 minute, for the interval between keep-alive transmissions.
  Also, if any target host requires that the keep-alive packet contain data, specify SENDGARBAGE TRUE. For example:

  **KEEPALIVEOPTIONS INTERVAL 1 SENDGARBAGE TRUE
  ENDKEEPALIVEOPTIONS**

- GATEWAY
  The GATEWAY statement defines a static route to the printer.

Verify the Printer Connection

To verify that OS/390 can establish a connection with the TCP/IP-attached printer, ping the printer from the OS/390 system.

From a TSO session, enter the following command:

`TSO PING ip_address`

In JES2, enter the following command from the System Display and Search Facility (SDSF) command menu:

`ping ip_address`

- ip_address
  Specifies the IP address or host name of the printer.
  Here are examples of a successful ping and an unsuccessful ping.
  Successful ping:

```
EZA0458I Ping V3R1: Pinging host 9.99.12.33 (Use ATTN to interrupt.)
EZA0463I PING: Ping #1 response took 0.084 seconds. Successes
so far = 1.
```
  Unsuccessful ping:

```
EZA0458I Ping V3R1: Pinging host 9.99.12.33 (Use ATTN to
interrupt.) EZA0464I PING: Ping #1 timed out
```

✎ Note

❒ If you have problems pinging a printer, see.

Define the Printer to JES

When a TCP/IP-attached printer is to be used with JES, it must be defined for deferred printing mode with JES.

- JES2 Printer Definitions:
  The following example shows the JES2 printer definition initialization member, located in the system PARMLIB.

```
FSS(FSS1),PROC=PSFPROC,HASPFSSM=HASPFSSM
PRT1  FSS=FSS1,MODE=FSS,PRMODE=(LINE,PAGE,SOSI1),
CLASS=C,UCS=0,SEP=YES,SEPDS=NO,CKPTPAGE=100,
START=NO,MARK=YES,TRKCELL=YES
```

- JES3 Printer Definitions:
  The following shows an example of a JES3 printer definition. This example is not executable, but it is intended to help the JES3 systems programmer define the printer to the OS/390 host.

```
FSSDEF,TYPE=WTR,FSSNAME=FSS1,PNAME=PSFPROC,SYSTEM=SYS1,
TERM=NO DEVICE,JNAME=PRT1,JUNIT=(,SYS1,,OFF),FSSNAME=FSS1,
MODE=FSS,PM=(LINE,PAGE,SOSI1),CHARS=(YES,GT12),DTYPE=PRT
AFP1 CARRIAGE=(YES,A868),CKPNTPG=100,HEADER=YES,WC=(C)
```

Define the Printer to PSF

Each TCP/IP-attached printer must be defined to PSF in the Printer Inventory component of Infoprint Server for OS/390 or with a PRINTDEV statement in the PSF startup procedure.

The following proc shows a sample procedure, PSFPROC that you can modify to suit your installation. The PRINTDEV statement shows the required IPADDR keyword.

No network printer-specific writer procedure is currently supplied. You can, however, copy the APSWPROT sample from the APAR medium and modify it for the network printers. Make sure that you specify 300-pel font libraries. Your printer is a high resolution devices that appear to PSF as 300-pel devices.)

```
//PSFPROC PROC
//**************** IBM NETWORK PRINTERS WRITER PROCEDURE **************
//*
//*01* MODULE-NAME = PSFPROC
//*
//*01* DESCRIPTIVE-NAME = START PROCEDURE FOR PSF:
//*           TCP/IP ATTACHED IBM NETWORK PRINTERS
//*
//*01* NOTES = THE FULL NAME OF THE DEFAULT PAGEDEF IS
//*           P1A06462.
//*           THE FULL NAME OF THE DEFAULT FORMDEF IS
//*           F1A10110.
//*           THE FULL NAMES OF THE DEFAULT FONTS ARE
//*           X0GF10, X0GS10, X0TU10, AND X0GU10.
//*           THE FULL NAME OF THE SEPARATOR PAGE PAGEDEF IS
//*           P1V06483.
//*           THE FULL NAME OF THE SEPARATOR PAGE FONT IS
//*           X0GT15.
//*
//*
//*01* CHANGE-ACTIVITY :
//*
//**** END OF SPECIFICATIONS ***/
//STEP1   EXEC  PGM=APSPPIEP,REGION=4096K,TIME=1440,PARM=(,,,,TCPIP) */
//JOBHDR OUTPUT PAGEDEF=V06483,     /* JOB SEPARATOR PAGEDEF        */
//        FORMDEF=A10110,CHARS=GT15 /* JOB SEPARATOR FORMDEF        */
//JOBTLR OUTPUT PAGEDEF=V06483,     /* JOB SEPARATOR PAGEDEF        */
//        FORMDEF=A10110,CHARS=GT15 /* JOB SEPARATOR FORMDEF        */
//DSHDR  OUTPUT PAGEDEF=V06483,     /* DS  SEPARATOR PAGEDEF        */
//        FORMDEF=A10110,CHARS=GT15 /* DS  SEPARATOR FORMDEF        */
//MSGDS  OUTPUT PAGEDEF=A06462,     /* MESSAGE DATASET PAGEDEF      */
//        FORMDEF=A10110            /* MESSAGE DATASET FORMDEF      */
//FONT300 DD   DSN=SYS1.FONT300,    /* SYSTEM FONTS - 300 PEL       */
//         DISP=SHR
//PSEG01  DD   DSN=SYS1.PSEGLIB,    /* SYSTEM PAGE SEGMENTS         */
//         DISP=SHR
//OLAY01  DD   DSN=SYS1.OVERLIB,    /* SYSTEM MEDIUM OVERLAYS       */
//         DISP=SHR                 /*                              */
//PDEF01  DD   DSN=SYS1.PDEFLIB,    /* SYSTEM PAGEDEFS              */
//         DISP=SHR
//FDEF01  DD   DSN=SYS1.FDEFLIB,    /* SYSTEM FORMDEFS              */
//         DISP=SHR


//* ***********************************************************    */
//*          PRINTDEV                                              */
//* ***********************************************************    */
//PRT1    CNTL
//PRT1      PRINTDEV FONTDD=*.FONT300,/* 300 PEL 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 SEPARATOR        */
//*                                  /*    OUTPUT                   */
//          JOBTRLR=*.JOBTLR,        /* JOB TRAILER SEPARATOR       */
//*                                  /*    OUTPUT                   */
//          DSHDR=*.DSHDR,           /* DATA SET HEADER             */
//*                                  /*    SEPARATOR                */
//          MESSAGE=*.MSGDS,         /* MESSAGE DATA SET OUTPUT     */
//          PAGEDEF=A06462,          /* DEVICE PAGEDEF DEFAULT      */
//          FORMDEF=A10110,          /* DEVICE FORMDEF DEFAULT      */
//          CHARS=(GF10,             /* DEVICE                      */
//          GS10,TU10,GU10),         /* DEFAULT FONT SET            */
//          PIMSG=YES,               /* ACCUMULATE DATA SET         */
//*                                  /*    MESSAGES                 */
//          DATACK=BLOCK,            /* REPORT ALL DATA-CHECK       */
//*                                  /*    ERRORS                   */
//          TRACE=YES,               /* CREATE INTERNAL TRACE       */
//          FAILURE=WCONNECT,        /* PSF ACTION ON PRINTER       */
//*                                  /*    FAILURE                  */
//          TIMEOUT=REDRIVE,         /* PSF ACTION ON TIMEOUT       */
//          MGMTMODE=OUTAVAIL,       /* PRINTER MANAGEMENT MODE     */
//          DISCINTV=15,             /* DISCONNECT INTERVAL IN      */
//                                   /*    SECONDS                  */
//          IPADDR='xxx.xxx.xxx.xxx' /* IP ADDRESS FOR TCP/IP       */
//PRT1      ENDCNTL
```

✍ **Note**

❒ To specify a TCP/IP address space name other than the default, TCPIP, code the following exec statement in the writer procedure:

`//STEP01 EXEC PGM=APSPPIEP,REGION=4096K,PARM=(,,,,tcpip_name)`

❒ where tcpip_name is the name of the TCP/IP address space. If this parameter is not coded, PSF uses the default name, "TCPIP".

❒ The IP address is the only required parameter. Other parameters may be set to facilitate printer sharing as described in p.35 "Sharing the Network Printers on OS/390".

- IPADDR
  Specifies the IP address for the printer NIC, in dotted-decimal notation. The hostname can be specified in place of the dotted-decimal address.

Verifying a TCP/IP-Attached Printer on OS/390

To operate a TCP/IP-attached printer, you use JES operator commands.

Starting a TCP/IP-attached Printer

To start a TCP/IP-attached printer, do the following:

A **Start TCP/IP.**

B **Power on the printer.**

C **Start the printer FSA.**

- On JES2, the command is:

    `$Sprinter-name`

- On JES3, the command is:

    `*CALL WTR,OUT=printer-name`

Stopping a TCP/IP-attached Printer

You can stop a TCP/IP-attached printer in several ways:

- The preferred method is to first stop the PSF FSA for the printer by entering the following command from the OS/390 operator panel:

JES2:

`$Pprinter-name`

JES3:

`*VARY,printer-name,OFF`
`*CANCEL,printer-name`

where printer-name specifies the name of the printer FSA.

Then you can turn off power to the printer.

- To end the PSF FSA for the printer, use the JES commands. If you are unable to purge or cancel the printer by use of the JES commands, enter the following command:

    `MODIFY FSSname,FORCE,printer-name`

Resolving IPDS Printing Problems

If you have problems printing, do the following:

- Print a network configuration page, see the manual explaining the network functions provided by the supplier.
- Verify that the port number set for the IPDS port matches the port number specified in the Port number parameter in the printer inventory. You can use Web Image Monitor to view or change the IPDS port number.

If you are still unable to print IPDS files, contact your service or sales representative.

Sharing the Network Printers on OS/390

See p.55 "Sharing the Printer with IPDS host systems (PSF/400 or OS/390)" for a description of concepts associated with sharing an IPDS printer between multiple host systems.

The printer may be shared with PSF in one of two ways:

- Sharing the printer with other non-IPDS host systems using MID and the JES Spool

- Sharing the printer with other IPDS host systems, without MID. This method also shares the printer with non-IPDS host systems.

Sharing the printer with other IPDS host systems, without MID JES Spool Printer Sharing

JES spool printer sharing is valid for TCP/IP attached network printers. A session with the printer is maintained while there is output on the JES spool and the printer is available. When there is no more output on the spool and the disconnect interval expires, PSF ends the session with the printer. This allows any other IPDS host, such as System i, VSE, or VM to share this printer. PSF attempts to restart the session when there is more work on the spool for the printer. After the session is restarted, PSF must reload the resources required for the print jobs. When using this method of network printer sharing, PSF cannot determine if another printer driver is active.

You can request this method of network printer sharing by specifying the following parameters in the PSF Startup Proc.

MGMTMODE=OUTAVAIL
FAILURE=WCONNECT
TIMEOUT=REDRIVE
DISCINTV=nn

- MGMTMODE
Set this parameter to "OUTAVAIL". "OUTAVAIL" requests that PSF start a communications session with the printer only when output is available on the JES spool.

- FAILURE
Specifies the action PSF is to take after a printer failure or a TCP/IP network failure. If FAILURE=WCONNECT and the printer is connected to another host when PSF attempts to establish a connection on TCP/IP, PSF continuously retries (up to the limit specified by CONNINTV) until the printer becomes available. If FAILURE=STOP, PSF must be restarted by an operator command.

- TIMEOUT
  Specifies the action that PSF is to take after a timeout when no output is available on JES. The DISCINTV parameter specifies the timeout interval. TIMEOUT=REDRIVE requests that PSF redrive the printer FSA using the value of the MGMTMODE parameter. TIMEOUT=STOP requests that PSF stop the printer FSA, which can then be restarted only by an operator command.

- DISCINTV
  Specifies the disconnect interval in seconds. The value can range from zero to 86400. We suggests you set the value to "15". When no output is available from JES for this time period, PSF ends the session with the network printer. If the value is set to zero, PSF does not end the session because of lack of output, and other IPDS hosts will not be able to share the printer.

4

Handling OS/390 Connectivity Problems

If you encounter problems when pinging a network printer from OS/390, here is how to resolve them.

Ping Is Not Successful

If the ping is not successful, verify the following:

- The printer is powered on.
- The IP address is unique in the TCP/IP network.

If the IP address of the printer is not unique, see your network administrator to resolve the IP address problem.

If problems remain, consult your TCP/IP network administrator about a possible network problem.

Ping Is Successful

A successful ping usually indicates that the OS/390 system can communicate with the printer; however, you might receive a successful ping even though the IP address of the TCP/IP-attached printer is a duplicate of another IP address.

If PSF is unable to establish a network connection with the TCP/IP-attached printer or if PSF output for this printer prints elsewhere, follow these steps to determine whether the IP address of the printer is unique:

A **Turn the printer off.**

B **Wait at least 5 minutes for TCP/IP to clear the Address Resolution Protocol (ARP) tables. (If your installation specified a longer interval on the ARPAGE configuration statement in the TCP/IP profile, you may need to wait longer.**

C **Enter the ping command again from the OS/390 system.**

Note
❒ If you receive a successful response to the ping command, there is a duplicate IP address. Consult your TCP/IP network administrator.

37

4

5. Configuring PSF/VM to print IPDS files

Requirements - PSF/VM

Use this chapter to configure VM to print IPDS files.

1 **TCP/IP for VM must be installed and operational.**

2 **For PSF/VM Release 2.1.1, the Group 4 PDM PTFs must be applied. Contact your software support center to make sure your PSF/VM software is up-to-date.**

The TCP/IP support is available in the PSF/VM Group 4 PDM only.

Configuration Verification

The frequency of keep-alive transmissions is controlled by the interval value on the KEEPALIVEOPTIONS statement in the PROFILE TCPIP file on the TCP/IP service machine. The interval value applies to all applications that use TCP/IP to send keep-alive transmissions. The default frequency is 120 minutes. This means it would take PSF/VM 120 minutes to discover a printer is no longer usable.

For printing on TCP/IP-attached printers, you might want to specify a shorter interval time, such as 1 minute. If a shorter interval time would adversely affect other devices, you might consider setting up a separate TCP/IP service machine for driving only your printers.

To verify the VM system can establish a connection with the TCP/IP-attached printer, ping the printer from the VM system. From CMS, enter the following command:

`ping ip_addr`

where ip_addr is the IP address of the printer.

- Successful ping :
  Ping Level 320: Pinging host 9.99.176.212. Enter #CP EXT to interrupt.

  PING: Ping #1 response took 0.016 seconds. Successes so far 1.

- Unsuccessful ping :
  Ping Level 320: Pinging host 8.93.182.222. Enter #CP EXT to interrupt.

  PING: Ping #1 timed out

Define the Printer to PSF/VM

The printers described in this book appear to PSF/VM as 300-pixel devices. PSF/VM will use the 300 pixel font library.

Add the TCP/IP printer to the OPTIONS PDM file. For example:

TASKPRTID PRT123 TCPIP

Set the options in the OPTIONS <taskprtid> file relevant to the TCP/IP attachment:

IPADDR ip_addr
PORTNO port_no
CONNRTRY connrtry_no
TCPIPUID user_id

- ip_addr is the IP address of the printer. Specify the IP address in dotted decimal format (nn.nn.nn.nn). Do not specify a host name.
- port_no is the printer's port number. The default port number is 5001.
- user_id is the Userid of the VM TCP service machine. The default is TCPIP.
- connrtry_no is the number of time PSF will attempt to connect to the TCP/IP printer if FAILURE=WCONNECT. PSF waits 20 seconds before each retry. The Default value is 30.

5

Sharing the Network Printers on VM

Spool printer sharing is valid for TCP/IP attached network printers. A session with the printer is maintained while there is output on the spool and the printer is available. When there is no more output on the spool and the disconnect interval timer expires, PSF ends the session with the printer. When there is more work on the spool for the printer, PSF attempts to restart the session. After the session is restarted, PSF must reload the resources required for the print job.

To take advantage of this method of network printer sharing, specify the following options in the OPTIONS taskprtid file:

MGMTMODE OUTAVAIL
FAILURE WCONNECT
TIMEOUT REDRIVE
DISCINTV 15

5

Problem Determination

If you can ping the printer but PSF/VM cannot connect to it, make sure IPDS is installed and verify the IPDS port number. To verify the port number, telnet to the printer from the VM command line. For example:

```
telnet 9.99.12.160 5001 (linemode
```

where 9.99.12.160 is the printer's IP address and 5001 is its port number. If you get a timeout message, the telnet was unsuccessful. A successful telnet returns something like this:

```
VM TCP/IP telnet level 320
Connecting to 9.99.12.160
Using Line Mode
Notes on using telnet when in line mode...
```

5

5

6. Infoprint Manager for AIX

Requirements - Infoprint Manager for AIX

Use this chapter to configure Infoprint Manager to print.

- Infoprint Manager Version 4.1

Configuration Checklist - Infoprint Manager for AIX

A **Set TCP/IP addresses for the printer, such as an IP address, gateway address, or subnet mask. See the manual explaining the network functions provided by the supplier**

B **Define the printer to Infoprint Manager as described in the next section, p.47 "Defining Printers to Infoprint Manager".**

6

Defining Printers to Infoprint Manager

The configuration procedure to use depends on what data stream you want to send:

- To send IPDS to the printer, configure Infoprint Manager for a PSF TCP/IP-attached printer. See p.47 "Configuring Network Printers as PSF TCP/IP-Attached Printer".

Configuring Network Printers as PSF TCP/IP-Attached Printer

Create a PSF TCP/IP destination to define a printer that receives IPDS jobs using the TCP/IP protocol.

A **Complete the following work sheet:**

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). 📝 **Note** ❐ This name is case-sensitive.	
Server	The Infoprint Manager server that controls this actual destination.	
Model	The printer model, for example Infoprint2090.	
TCP/IP address	The dotted-decimal IP address used to access this printer.	
TCP/IP port	The port used by the printer for communication. (Typically, port 5001 is used.)	
Logical destination	The logical destination that directs jobs to this actual destination. 📝 **Note** ❐ This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. 📝 **Note** ❐ This name is case-sensitive.	
Queue	The queue for the target printer (actual destination). 📝 **Note** ❐ This name is case-sensitive.	__ Default __ Other:

6

B On the menu bar, select Printer–> Create–> PSF– TCP/IP to start the Create Printer Wizard.

C Provide the worksheet information to the wizard. For assistance, refer to the Infoprint Manager Administration GUI online help.

D If you did not enable the printer with the Create Printer Wizard, use the Infoprint Manager Administration GUI to enable it.

Adding an AIX Printer

Create an AIX printer to represent a printer that will accept the data stream that comes out of the printer driver without transforming it. For example, to send the output of a Post Script driver to a PostScript printer.

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). ✎ **Note** ❒ The name is case-sensitive.	
Server	The server that controls this actual destination. The server name is the same as the name of the host system where the server is installed. ✎ **Note** ❒ This name is case-sensitive	
Model	Select the printer model from the pull-down list in the Infoprint Manager Administration GUI. If the printer you are working with is not in the pull-down list, enter the name as it appears on the printer.	
SNMP TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used only for SNMP printers.	
Device or Windows port name		
Printer Command	The command that Infoprint Manager issues to send a job to this printer.	uusr/lib/lpd/pio/etc/pioib-mnpm <the value you listed for server above> or SNMPTC/IP address
Data stream	The data stream expected by the printer (for example, PCL5 or PPDS).	

Wizard Prompt	Description	Value
Logical destination	The logical destination that directs jobs to this actual destination. **✎ Note** ❐ The name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. **✎ Note** ❐ The name is case-sensitive.	
Queue	The queue for the target printer (actual destination). **✎ Note** ❐ The name is case-sensitive.	__ Default __ Other:

To create this type of printer use the Create Printer Wizard in the Infoprint Administration GUI. On the menu bar, click **[Printers]**-> **[Create]**-> **[AIX]**. Referring to the work sheet above, provide the information as prompted by the wizard. For assistance, refer to the online help.

If you did not enable the printer with the Create Printer Wizard, use the Infoprint Manager Administration GUI to enable it.

6

6

7. Handling Network Problems

Introduction

Use this chapter as a guide for finding and resolving printer and NIC printing problems on TCP/IP networks.

The following types of problems are described here:

- Hardware
- Connectivity
- Formatting
- Printing

Network Setup

Before doing anything else to try to resolve problems, you should verify that you have entered the correct configuration data.

⌕Reference

For details about network configuration, see the manual explaining the network functions provided by the supplier.

Hardware Problems

When printing problems occur, the first task is to check the physical condition of the printer and related hardware.

Hardware Problems Introduction

The hardware is where diagnosis of printer problems begins. The hardware includes the following elements:

- The printer itself
- The physical connection of the hardware to the network
- The cabling system
- The network interface

Resolving Hardware Problems

To determine whether a problem is a hardware problem or not, check the following:

1 **Verify that power is going to the printer by checking the printer's control panel.**

2 **Verify that the printer is connected to the network.**

3 **Verify that the printer is Ready.**

Connectivity Problems

The network/transport level of a network provides the capability of routing packets from one device to another device on the network or to a different network on an internetwork system.

A **Verify that there is no duplicate IP address on the network by:**

- Disconnecting the printer from the network.
- Using the Ping command to try to communicate with the IP address of the printer.

B **Connect the printer to the network and ping the printer to verify that there is a connection to the network.**

C **Printing problems may occur if the subnet mask has not been set correctly. Verify that the subnet mask is correct either by printing a network configuration page or checking with the network administrator.**

D **A related problem is that the gateway address may be incorrect. Verify the gateway address from the network configuration page printed in the previous step.**

E **Verify that the printer is configured to accept print jobs from your client system by checking the "Accept IP Jobs From" heading in the IP section on the network configuration page. The IP addresses from which jobs are accepted can be set on [Access Control] in Web Image Monitor.**

7

Ethernet Connectivity Problems

The Ethernet adapter supports Auto-negotiation and fixed settings for speed and duplex. The IEEE standard does not provide the ability to auto-detect the speed or duplex setting of the connected partner (a hub or switch) in a number of configurations. In these cases, the following conditions may occur:

- The Link light falsely appears on the printer adapter. No communication is established.
- The Link light appears, and communication is established, but communication may be very slow due to collisions or lost packets.

The table below identifies various printer and switch or hub configuration settings. OK indicates that a good Link is established and normal communications should occur. These are the only supported configurations. NG indicates that a Link is established, but a speed or duplex mismatch occurs. The mismatched configuration cannot be detected by the printer. Communications may or may not work. If communications appear to work, data transfers may be slow due to collisions and lost packets. These configurations are particularly bad because it cannot be detected by either partner. Administrators must be aware of these situations and avoid these configurations. The cells marked as "No Connection" are detectable invalid configurations and no link is established.

Printer Setting	Ethernet Switch or Hub Setting				
	Auto	**10 HD**	**10 FD**	**100 HD**	**100 FD**
Auto Select	OK (100 Full) (1000 Full)	OK (10 Half)	NG (10 Half / Full) duplex mismatch	OK (100 Half)	NG (100 Half / Full) duplex mismatch
10Mbps Half Duplex	OK (10 Half)	OK (10 Half)	NG (10 Half / Full) duplex mismatch	NG, Link light is false. Speed mismatch, no communication	NG, Link light is false. Speed mismatch, no communication
10Mbps Full Duplex	OK (10 Full)	NG (10 Full / Half) duplex mismatch	OK (10 Full)	NG, Link light is false. Speed mismatch, no communication	NG, Link light is false. Speed mismatch, no communication
100Mbps Half Duplex	OK (100 Half)	No connection	No connection	OK (100 Half)	NG (100 Half / Full) duplex mismatch
100Mbps Full Duplex	OK (100 Full)	No connection	No connection	NG (100 Full / Half) duplex mismatch	OK (100 Full)

7

Note

❒ To run the 10/100/1000 Ethernet Adapter at 1000 MB/sec, you must select the Auto/Auto setting.

Formatting Problems

One possible problem is the value of the Personality item for the TCP/IP port. The Personality value is set for each TCP/IP port using the Data stream item on the printer's control panel or Web Image Monitor. The possible values are **[Auto]** (default value), **[PCL]**, and **[PS]**. If the Personality value is set to **[PCL]** or **[PS]**, all data coming in through this port will be interpreted as that data stream (for example, PostScript data received when the Personality value is set to **[PCL]** will not print correctly). Ensure that the Personality value is set to **[Auto]** if more than one data stream will be received through this port.

7

8. Appendix

Sharing the Printer with IPDS host systems (PSF/400 or OS/390)

- The printer accepts jobs from multiple logical ports (such as TCP/IP LPR, Port 2501, or IPDS). The printer automatically chooses the next job to print from the highest priority port that has a job ready to print. The printer chooses the next job when the client closes the port that was used for the previous job. If the client does not close the port, the printer automatically closes it after a period of time called the timeout interval. For details, see the Web Image Monitor Help.

- Unlike PostScript and PCL, the IPDS data stream is tightly controlled by the host system. For proper operation when printing IPDS, the host system must terminate the TCP/IP connection. Host system output writers post an error if the printer closes the port. Therefore, for printing IPDS, the printer must be configured for an infinite timeout, and the host system is configured to close the connection after the output queue is empty for some period of time.

- The drawback of this method is that the IPDS host system must retransmit downloaded PSF resources each time a new connection with the printer is established. This issue can be corrected by using a feature called MID (Managed IPDS Dialog). MID allows the TCP/IP connection to remain active and it allows the printer to retain the IPDS resources while freeing the printer to process PostScript and PCL jobs from other ports. Only OS/390 and the System i host systems support MID. (It is not supported by VSE, VM, AIX or Infoprint Manager).

- For more information, see p.23 "Sharing the printer with other non-IPDS host systems using MID" for OS/390.

- MID is a negotiated sequence between the printer and the host system. The printer requests the suspension of IPDS activity. At an appropriate time the host system grants the request. When suspended, the IPDS TCP/IP connection between the host and the printer remains open, and the downloaded IPDS resources are retained by the printer. When the printer receives the grant it is free to process PostScript and PCL jobs from other ports. IPDS activity resumes when the host system has another IPDS job to print.

- The MID feature should not be used if multiple IPDS host systems send jobs to the same printer because the first IPDS host system that gains access to the printer will block the other IPDS host systems from obtaining an IPDS TCP/IP connection to the printer.

- To share the printer with one IPDS host and other non-IPDS hosts (for Postscript and PCL printing), the writers for the IPDS host system (System i or OS/390) must be configured to use MID as described in the following chapters.

INDEX

IPDS Printing Configuration Guide