IPDS Printing Configuration Guide

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

IPDS Technical Reference 1 (IPDS_TEC1.pdf) *English Only

Explains about commands and functions for IPDS printing.

IPDS Technical Reference 2 (IPDS_TEC2.pdf)*English Only

Explains about IPDS commands.

Note

- For details about the necessary environment and how to install the IPDS card and machine, consult your sales or service representative. For details about the necessary environments and operation of the mainframe, contact IBM.

Notice

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.

How to Read This Manual

Symbols

This manual uses the following symbols:

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.

[ ]

Indicates the names of keys on the machine's display or control panels.

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	Data streams
AIX	TCP/IP	IPDS
System i	TCP/IP	IPDS
z/OS	TCP/IP	IPDS
Windows	TCP/IP	IPDS

Note

- To print IPDS, you will need to install InfoPrint Manager for AIX, InfoPrint Manager for Windows, PSF for z/OS or PSF for i5/OS and OS/400 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. If you are using TCP/IP, see the manual explaining the network functions provided by the supplier.**
2. **Power off the printer and connect the NIC to the LAN cable.**
3. **Power on the printer. Verify the connection to the LAN cable.**
4. **Configure your environment. Refer to one of the chapters in the following list.**

   Windows

   page 11 "InfoPrint Manager for Windows"

   System i

   page 15 "Configuring System i for an IPDS Printer"

   z/OS

   page 25 "Sharing the PSF/400 Printer on the Network"

   AIX

   page 40 "Sharing the Network Printers on z/OS"

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
IPDS port	TCP port 5001	PSF for z/OS PSF for i5/OS and OS/400 InfoPrint Manager

2. InfoPrint Manager for Windows

Requirements - InfoPrint Manager for Windows

This machine supports the following version of InfoPrint Manager for Windows.

- InfoPrint Manager for Windows V2.2 or later.

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 functions 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.

1. **If you have not already done so, install InfoPrint Manager.**
2. **Decide which type of destination you want to define in InfoPrint Manager for this printer. See page 12 "Choosing an InfoPrint Manager Destination Type".**
3. **Define the printer to InfoPrint Manager. See page 12 "Adding a PSF TCP/IP Printer".**
4. **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.

Before adding a PSF TCP/IP printer, complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). This name is case-sensitive.	
Server	The InfoPrint Manager server that controls this actual destination.	
TCP/IP address	The dotted-decimal IP address used to access this printer.	

Wizard Prompt	Description	Value
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. This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. This name is case-sensitive.	
Queue	The queue for the target printer (actual destination). This name is case-sensitive.	__ Default __ Other:

1. **Launch the InfoPrint Manager Administration GUI.**
2. **On the menu bar, select [Printer] / [Create] / [PSF] / [TCP/IP] to start the Create Printer Wizard.**
3. **Provide the worksheet information to the wizard. For assistance, refer to the InfoPrint Manager Administration GUI online help.**
4. **If you did not enable the printer with the Create Printer Wizard, use the InfoPrint Manager Administration GUI to enable it.**

3. Configuring System i for an IPDS Printer

Requirements - System i

This machine supports the following version of PSF for i5/OS and OS/400 (PSF/400).

- PSF for i5/OS and OS/400 (PSF/400) V5.4 or later.

Note

- We recommend that you use the latest System i package and related software.

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 page 22 "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.**

   For details about how to set up the printer, see page 9 "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 a System i TCP/IP interface for Token Ring or Ethernet.**

   For details about System i TCP/IP interface, see page 18 "Configuring a System i TCP/IP Interface".

6. **Configure System i.**

   For details about how to configure System i, see page 21 "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.**

   For details about how to test your configuration, see page 24 "Verifying the IPDS Configuration on System i".

10. **To share the printer on the network, verify that the necessary parameters have been set correctly.**

    For details about sharing the printer on the network, page 25 "Sharing the PSF/400 Printer on the Network".

Note

- If you have problems, see page 28 "Resolving System i Problems".

Configuring a System i TCP/IP Interface

Important

- **Do not enter the IP address of the printer or set the System i interface address to be the same 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.

1. **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')
   ```

2. **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
   ```

3. **The following parameters are required:**

   - Internet Address

     Internet address of the System i Ethernet LAN adapter.

   - 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. Each System i LAN adapter will have its own line description.

Note

- Do not enter the IP address of the printer for Internet Address.

Configuring a TCP/IP Host Table Entry

Although optional, we recommend 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.

Configuring TCP/IP Keep Alive

Although optional, we recommend 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). Setting the value to 1 minute causes System i to detect a lost printer connection faster.

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

```
TCP keep alive . . . . . 1
```


Note

- Please note that changing the TCP/IP Keep-Alive time changes all the System i settings.

Configuring PSF/400 for IPDS

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

CRTDEVPRT

CRTPSFCFG (Optional)

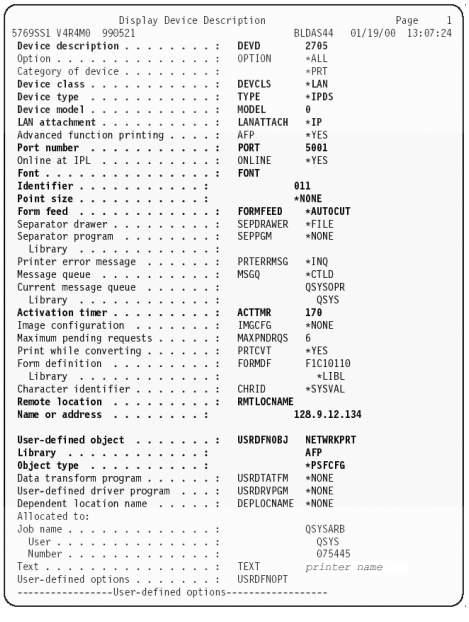
Configuring PSF with CRTDEVPRT

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

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

   ```
   CRTDEVPRT DEVD(2705) 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')
   ```

2. **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 following parameters:**

   - 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

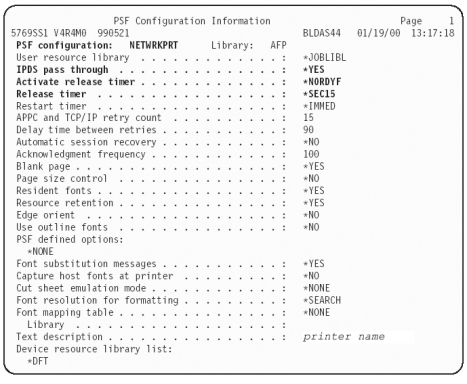
The PSF configuration object created with this command is used by PSF/400 when printing IPDS files only if the object is specified with the USRDFNOBJ parameter in the printer device description.

To configure System i for IPDS printing:

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

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

2. **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
```

3. **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:

1. **Vary on the line description if it is not already on.**
   `VRYCFG CFGOBJ (line) CFGTYPE (*LIN) STATUS(*ON)`
2. **To start TCP/IP, enter:**
   `STRTCP`
3. **Verify that the System i TCP/IP interface is active. Use the command:**
   `WRKTCPSTS`
   and then select option 1.
4. **Turn the printer on and wait until the printer's control panel displays READY.**
5. **To verify that the printer is connected to System i, ping the printer from a 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.
6. **If pings are successful, vary on the printer device description with the command:**
   `VRYCFG (printer-device) CFGTYPE(*DEV) STATUS(*ON)`
   If the pings are not successful, see page 28 "Resolving System i Problems".
7. **To use PSF/400 to send an IPDS file to the printer, enter:**
   `STRPRTWTR DEV (printer device)`
   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.

For details about if sharing an IPDS printer between multiple host systems, see page 53 "Sharing the Printer with IPDS host systems (PSF/400 or z/OS)".

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

Configure the System i to use MID (Managed IPDS Dialog) 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 a 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 a 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. We recommend *SEC15.

Where Set	Parameter	Recommended Value	Description
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.
- Codes 40-59 indicate a logic error between PSF and the printer control unit.

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.

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 z/OS to Print IPDS Files

Requirements - z/OS

This machine supports the following version of PSF for z/OS.

- PSF for z/OS V4.1.0 or later.

Note

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

Configuration Checklist - z/OS

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

- Authority Level Required

  All of the following configuration steps carried out on z/OS require appropriate RACF authority.

1. **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

2. **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.

3. **Configure the host environment.**

   For details about host environment, see page 33 "Configuring PSF to Print IPDS Files".

4. **Verify the configuration.**

   For details about how to verify the configuration, see page 38 "Verifying a TCP/IP-Attached Printer on z/OS".

Note

- For details about how to share the printer, see page 40 "Sharing the Network Printers on z/OS".
- If you have problems, refer to page 42 "Handling z/OS 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:

1. **Define the z/OS communications control unit to z/OS.**

   For details about how to define, see page 33 "Define the Communications Control Unit to z/OS".

2. **Modify the TCP/IP profile on your z/OS system, if necessary.**

   For details about how to modify, see page 34 "Modify the TCP/IP Profile in z/OS".

3. **Ping the printer.**

   For details about how to ping the printer, see page 34 "Verify the Printer Connection".

4. **Define the printer as a writer-controlled printer to JES.**

   For details about how to define, see page 35 "Define the Printer to JES".

5. **Define the printer to PSF with a PRINTDEV statement, including the IP address.**

   For details about how to define, see page 36 "Define the Printer to PSF".

Note

- This section does not provide all the information you need to install and configure TCP/IP on your z/OS 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 z/OS host communicates directly with the TCP/IP-attached printer.

Define the Communications Control Unit to z/OS

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

4

Modify the TCP/IP Profile in z/OS

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.

Sample Parameters in the TCP/IP Profile.

```
TCPIPCONFIG INTERVAL 10 SENDGARBAGE FALSE 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
```

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:

- TCPIPCONFIG

  The TCPIPCONFIG 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 TCPIPCONFIG 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 recommend 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:

  ```
  TCPIPCONFIG INTERVAL 1 SENDGARBAGE FALSE GATEWAY
  ```

- GATEWAY

  The GATEWAY statement defines a static route to the printer.

Verify the Printer Connection

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

From a TSO session, enter the following command:

```
TSO PING ip_address
```

In a TSO session, enter the following command from the Interactive System Productivity Facility (ISPF) 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 page 42 "Handling z/OS Connectivity Problems".

Define the Printer to JES

When a TCP/IP-attached printer is to be used with JES, it must be defined for spool printing mode with JES2 parameter.

- 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 z/OS host.

  ```
  FSSDEF,TYPE=WTR,FSSNAME=FSS1,PNAME=PSFPROC,
  SYSTEM=SYS1,TERM=NO DEVICE,JNAME=PRTL1,
  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 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.

```
//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       */
//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 page 40 "Sharing the Network Printers on z/OS".
  - 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 z/OS

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:

1. **Start TCP/IP.**
2. **Power on the printer.**
3. **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:

1. **The preferred method is to first stop the PSF FSA for the printer by entering the following command from the z/OS operator panel:**
   - JES2:

     ```
     $Pprinter-name
     ```
   - JES3:

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

   where printer-name specifies the name of the printer FSA.
2. **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 specified for the IPDS port matches either the port number specified in the Port number parameter in the printer inventory, or the port number specified in the PORT parameter in the PRINTDEV statement under the PSF start procedure. You can use Web Image Monitor to view or change the IPDS port number.

Sharing the Network Printers on z/OS

For details about sharing an IPDS printer between multiple host systems, see page 53 "Sharing the Printer with IPDS host systems (PSF/400 or z/OS)".

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 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 suggest 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.

Handling z/OS Connectivity Problems

If you encounter problems when pinging a network printer from z/OS, 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 z/OS 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:

1. **Turn the printer off.**
2. **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.)**
3. **Enter the ping command again from the z/OS system.**

Note

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

5. InfoPrint Manager for AIX

Requirements - InfoPrint Manager for AIX

This machine supports the following version of InfoPrint Manager for AIX.

- InfoPrint Manager for AIX V4.2 or later.

Configuration Checklist - InfoPrint Manager for AIX

1. 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.
2. Define the printer to InfoPrint Manager as described in the next section, page 45 "Defining Printers to InfoPrint Manager".

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/IPattached printer. See page 45 "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.

Before configuring network printers, complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). This name is case-sensitive.	
Server	The InfoPrint Manager server that controls this actual destination.	
Model	The printer model.	
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. This name is case-sensitive.	__ Default __ Other:
Logical destination's server	The server that contains the logical destination. This name is case-sensitive.	

Wizard Prompt	Description	Value
Queue	The queue for the target printer (actual destination). This name is case-sensitive.	__ Default __ Other:

1. **On the menu bar, select Printer / Create / PSF– TCP/IP to start the Create Printer Wizard.**
2. **Provide the worksheet information to the wizard. For assistance, refer to the InfoPrint Manager Administration GUI online help.**
3. **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 PostScript driver to a PostScript printer.

Before adding an AIX printer, complete the following worksheet:

Wizard Prompt	Description	Value
Name	The name for the actual destination object (8 character limit). This 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. 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.	

Wizard Prompt	Description	Value
SNMP TCP/IP address	The dotted-decimal IP address used to access this printer. This value is used only for SNMP printers.	
Device	The name of the printer	Specify the printer queue name that was created beforehand with AIX.
Printer Command	The command that InfoPrint Manager issues to send a job to this printer.	uusr/lib/lpd/pio/etc/ pioibmnpm <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).	
Logical destination	The logical destination that directs jobs to this actual destination. 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). The name is case-sensitive.	__ Default __ Other:

To create this type of printer, use the Create Printer Wizard in the InfoPrint Administration GUI.

1. **On the menu bar, click [Printers] / [Create] / [AIX].**
2. **Referring to the work sheet above, provide the information as prompted by the wizard.**

   For assistance, refer to the online help.
3. **If you did not enable the printer with the Create Printer Wizard, use the InfoPrint Manager Administration GUI to enable it.**

6. 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.

Note

- 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:

- Verify that power is going to the printer by checking the printer's control panel.
- Verify that the printer is connected to the network.
- 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.

If you have trouble connecting with the network, refer to the following:

- 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.
- Connect the printer to the network and ping the printer to verify that there is a connection to the network.
- 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.
- A related problem is that the gateway address may be incorrect. Verify the gateway address from the network configuration page.
- 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.

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 settings 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 they 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)

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 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. Appendix

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

- 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 z/OS and the System I host systems support MID. (It is not supported by AIX or InfoPrint Manager).
- For more information, see page 25 "Sharing the printer with other non-IPDS host systems using MID" for z/OS.
- 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.

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