Lexmark
Card for IPDS and SCS/TNe
IPDS Printer and Host Setup Guide

NOTICES

Edition Notice

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EQUIPMENT REQUIREMENTS AND SPECIFICATIONS

This guide provides information to help you configure the host and printer to print IPDS jobs. The information in this guide applies to the following printers and Multifunction Products (MFPs).

- Lexmark C770, C772, C780, C782, C920, C935 (IPDS color and monochrome printing, SCS monochrome printing only)

- Lexmark T640, T642,T644

- Lexmark W840

- Lexmark X644e MFP, X646e MFP

- Lexmark X646ef MFP

- Lexmark X782e MFP

- Lexmark X850e MFP, X852e MFP, X854e MFP

- Lexmark X940e MFP, X945e MFP (IPDS color and monochrome printing, SCS monochrome printing only)

Unless otherwise specified, in the rest of this guide the term "printer" covers both printers and MFPs.

To print IPDS jobs, the printer must have the optional Card for IPDS and SCS/TNe installed, a minimum of 64 MB of user memory (DRAM), and one of the following:

- Standard Network (Ethernet connection integrated into printer system board on selected printer models).

- a MarkNet internal LAN print server (optional card providing Ethernet or Fiber network connection).

- Lexmark 802.11g Wireless Print Adapter

- a Coax/Twinax Adapter for SCS option card for connection to a host via coax or twinax cables. Refer to "Coax/Twinax Adapter for SCS Support" [page 53] for a list of printers which support this adapter.

To install the printer, determine the host, host software, and type of printer connection you will be using. Find the appropriate chapter in the Table of Contents and follow the steps to configure the host and printer.

Customer Support

If you cannot find answers in this guide about using the IPDS emulation, or require firmware updates, please contact your point of purchase, your local Lexmark office, or check the Lexmark support web site at http://support.lexmark.com.

1.   AS/400 and iSeries LAN Printing Using the Printer Standard Network Port or MarkNet Internal Print Server

With the optional Card for IPDS/SCS/TNe and a LAN print server installed, the printer can receive, process, and print AFP/IPDS print jobs over TCP/IP from the following IBM software:

- PSF/400 V3R1-R3, V3R6-R7, V4R1-R5, V5R1-R4, or greater

The information below will lead you through the steps for setting up the AS/400, or iSeries, and the printer to print IPDS jobs over a LAN. The printer must be configured with a Standard Network port or MarkNet internal LAN print server.

Refer to the IPDS User's Guide for detailed instructions on using the control panel to select and change option settings.

Steps

The following steps must be completed to begin printing IPDS jobs.

1   Choose a Printer Port for Use in the Device Description

2   Create a PSFCFG

3   Create a Printer Device Description

4   Configure the Printer's Print Server TCP/IP Settings

5   Configure the Printer's Network Job Timeout

6   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

7   Verify IPDS Printing

8   Troubleshooting

Step 1   Choose a Printer Port for Use in the Device Description

Several printer ports are available for receiving IPDS jobs when using the printer Standard Network port or the MarkNet internal LAN print server. The printer port will be used in one of the following steps.

Port descriptions:

- **Port 5001** - This is the recommended port selection for receiving IPDS jobs. This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** and **Job Buffering** settings are automatically set to the correct settings for receiving IPDS jobs on this port. This port is recommended when a significant performance impact is seen when downloading IPDS resources for each job. With the proper configuration settings on the host and printer, the IPDS resources can be saved in the printer memory while the printer is printing non-IPDS jobs.

- **Port 9100** - This port can receive PCL, Postscript, or IPDS jobs. In order to print IPDS jobs, the printer's **Network Job Timeout** must be manually set to "0" (or to "Disable") and **Job Buffering** must be manually set to "OFF"**.** These settings also affect printing of non-IPDS jobs.

  How to find the Network Job Timeout Option (which is also known as End-of-Job Timeout) on the control panel: On printers, press MENU and then select Settings > Setup Menu > Timeouts > Network Job Timeout. On MFPs, touch Menus and then select Settings > General Settings > Timeouts > Network Job Timeout.

How to find Job Buffering on the control panel: **Job Buffering** *is only visible as a menu setting if there is a hard disk installed in the printer. Press MENU or touch Menus and then select* **Network/Ports > Standard Network > Job Buffering.**

- **Port 9600** - This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** setting is automatically set to the correct setting for receiving IPDS jobs on this port. This port is only provided for compatibility with some older printers. Port 5001 is the recommended port for printing IPDS jobs.

Step 2   Create a PSFCFG

Note: Examples showing parameters displayed on an AS/400 may be different than the parameters displayed on your system. Examples are shown with V5R2 parameters.

Define a PSF configuration object for your printer using **CRTPSFCFG**. The PSFCFG object defined in this step is referenced in the printer device description (**CRTDEVPRT**). More than one printer can use this object.

Below is an example of a PSF configuration. The parameters in **bold** are the parameters which must be changed for printing IPDS jobs.

```
Example PSFCFG with parameters to change shown in bold.


PSF configuration                         PSFCFG       > IPDSPRT
        (Note: IPDSPRT is a user defined name.)
Library...............................                 > QGPL
User resource library list..        USRRSCLIBL    *JOBLIBL
Device resource library list        DEVRSCLIBL    *DFT
         + for more values
IPDS pass through....................  IPDSPASTHR   > *NO      <note1>
Activate release timer...............  ACTRLSTMR     *NORDYF
Release timer........................  RLSTMR       > *SEC15   <note2>
Restart timer........................  RESTRTMR      *IMMED
APPC and TCP/IP retry count..........  RETRY         15
Delay time between APPC retries.......  RETRYDLY      90
Acknowledgement frequency............  ACKFRQ        100
Printer response timer...............  PRTRSPTMR     *NOMAX
Generate PDF output..................  PDFGEN        *NONE
Text 'description'...................  TEXT         > 'IPDS Printer'
        (Note: 'IPDS Printer' is user defined text.)

                    Additional Parameters
Automatic session recovery:              AUTOSSNRCY
    Enabled...........................                *NO
    Message option...................
Blank page...........................  BLANKPAGE     *YES
Page size control....................  PAGSIZCTL     *NO
Resident fonts.......................  RESFONT       *YES
Resource retention...................  RSCRET        *YES
Edge orient..........................  EDGEORIENT    *NO
Use outline fonts....................  USEOUTLFNT    *NO      <note3>
PSF defined option...................  PSFDFNOPT     *NONE
Font substitution messages...........  FNTSUBMSG     *YES
Capture host fonts at printer........  FNTCAPTURE    *NO      <note4>
Font resolution for formatting.......  FNTRSL        *SEARCH
Font mapping table...................  FNTTBL        *NONE
  Library............................
```

```
Example PSFCFG with parameters to change shown in bold.

Cut sheet emulation mode.............. CSEMODE           *NONE
Use DBCS simulation fonts............. MAPIGCFNT         *NO
Replace............................... REPLACE           *YES
Authority............................. AUT               *LIBCRTAUT
```

Note 1:   IPDS pass through may be set to ***YES**. This may increase job performance. Selecting ***YES** may change the fonts downloaded from the host and change paper jam recovery action between the host and printer.

Note 2:   Refer to "Printer and Host Timeout Values" [page 50] for information on selecting the **Release Timer** value.

Note 3:   **Use outline fonts** controls the type of fonts downloaded to the printer. When set to ***YES**, outline fonts are downloaded to the printer. When set to ***NO**, raster fonts are downloaded to the printer. When the outline or raster fonts are marked eligible for capture on the host, the host will send fonts which can be captured at the printer.

Note 4:   **Capture host fonts at printer** must be set to ***YES** and fonts must be marked eligible to be captured before the host will send fonts which can be captured to the printer. Refer to the IPDS Emulation User's Guide for additional information on capturing fonts.

Step 3   Create a Printer Device Description

Note: Examples showing parameters displayed on an AS/400 may be different than the parameters displayed on your system. Examples are shown with V5R2 parameters.

Create a printer device description for your printer using **CRTDEVPRT**.

Below is an example of a device description. The parameters in **bold** are the parameters which must be changed for printing IPDS jobs.

```
Example CRTDEVPRT with parameters to change shown in bold.

Device description.................... DEVD          > IPDSPRT
         (Note: IPDSPRT is a user defined name.)
Device class..........................DEVCLS         > *LAN
Device type...........................TYPE           > *IPDS
Device model..........................MODEL          > 0
LAN attachment........................LANATTACH      > *IP
Switched line list....................SWTLINLST
LAN remote adapter address............ADPTADR
Adapter type..........................ADPTTYPE       *INTERNAL
Adapter connection type...............ADPTCNNTYP     *PARALLEL
Emulated twinaxial device.............EMLDEV
Advanced Function Printing............ AFP           > *YES
AFP attachment........................AFPATTACH      *WSC
Port number...........................PORT           > 5001
         (Note: Port number selected in step 1 above.)
Switch setting........................SWTSET
Local location address................LOCADR
Auxiliary printer.....................AUXPRT
Emulating ASCII device................EMLASCII       *NO
Physical attachment...................ATTACH
```

Example CRTDEVPRT with parameters to change shown in **bold.**

```
Online at IPL..........................ONLINE          *YES
Attached controller....................CTL
Language type..........................LNGTYPE         *SYSVAL
Print quality..........................PRTQLTY         *STD
Font:                                  FONT
   Identifier..........................                 > 11
   Point size..........................                *NONE
Form feed..............................FORMFEED        > *AUTOCUT
Separator drawer.......................SEPDRAWER       *FILE
Separator program......................SEPPGM          *NONE
   Library.............................
Number of drawers......................NBRDRAWER
Printer error message..................PRTERRMSG       *INQ

Message queue..........................MSGQ            *CTLD
   Library.............................
Maximum length of request unit.........MAXLENRU        *CALC
Application type.......................APPTYPE         *NONE
Activation timer.......................ACTTMR          > *NOMAX   <note1>
Inactivity timer.......................INACTTMR        *ATTACH
SNA pass-through device desc...........SNPTDEV         *NONE
SNA pass-through group name............SNPTGRP         *NONE
Host signon/logon command..............LOGON           *NONE
Pacing ................................PACING          7
Line speed.............................LINESPEED       *TYPE
Word length............................WORDLEN         *TYPE
Type of parity.........................PARITY          *TYPE
Stop bits..............................STOPBITS        *TYPE
Host Print Transform...................TRANSFORM       *NO
Manufacturer type and model............MFRTYPMDL
Paper source 1.........................PPRSRC1         *MFRTYPMDL
Paper source 2.........................PPRSRC2         *MFRTYPMDL
Envelope source........................ENVELOPE        *MFRTYPMDL
ASCII code page 899 support............ASCII899        *NO
Maximum pending requests ..............MAXPNDRQS       6
Print while converting.................PRTCVT          *YES
Print request timer....................PRTRQSTMR       *NOMAX
Form definition........................FORMDF          F1C10110
   Library.............................                   *LIBL
   Character identifier:              CHRID
     Graphic character set.............                *SYSVAL
        Code page......................
Remote location:                       RMTLOCNAME
   Name or address.....................                > 157.184.67.102
          (See your Network Administrator for address.)
Local location.........................LCLLOCNAME      *NETATR
Mode...................................MODE            QSPWTR
User-defined options ..................USRDFNOPT       *NONE
User-defined object:                   USRDFNOBJ
   Object..............................                > IPDSPRT
     Library...........................                >  QGPL
   Object type.........................                > *PSFCFG
          (Note: PSFCFG object and library created in prior step.)
Data transform program.................USRDTATFM       *NONE
```

Example CRTDEVPRT with parameters to change shown in **bold.**

```
  Library.............................
User defined driver program........... USRDRVPGM        *NONE
  Library.............................
System driver program................. SYSDRVPGM
Secure connection..................... SECURECNN        *NO
Validation list....................... VLDL             *NONE
    Library...........................
Publishing information: ............... PUBLISHINF
    Support duplex....................                  *UNKNOWN
    Support color.....................                  *UNKNOWN
    Pages per minute black............                  *UNKNOWN
    Pages per minute color............                  *UNKNOWN
    Location..........................                  *BLANK
    Data streams supported ...........                  *UNKNOWN
                          + for more values
Text 'Description'.................... TEXT          >  'IPDS PRINTER'
          (Note: 'IPDS PRINTER' is user defined text.)
Dependent location name............... DEPLOCNAME       *NONE

                    Additional Parameters
Remote network identifier............. RMTNETID         *NETATR
Workstation customizing object........ WSCST            *NONE
    Library...........................
Authority............................. AUT              *LIBCRTAUT
```

Note 1: Setting the **`Activation Timer`** to **`*NOMAX`** allows multiple writers or multiple hosts to use the same printer. The writer does not time out while waiting on the printer to start a new job.

Step 4   Configure the Printer's Print Server TCP/IP Settings

To enable IPDS printing with a Standard Network port or a MarkNet internal LAN print server, several settings must be verified. You can verify these settings from the printer control panel as shown below.

Menus

1   From a **Ready** state press the **MENU** button (printers) or touch ⬚ (**Menus** on MFPs).

2   Use the navigation buttons or icons ▼ ▲ to scroll to **Network/Ports.**

3   Select **Network/Ports**.

   TIp: To do this on printers, press the **Select** button ✓ ; on MFPs just touch **Network/Ports**.

4   Now you will see a list of menus. Select the **TCP/IP** menu**.**

5   Use the navigation buttons or icons to scroll through the options. Check each of the following settings and change them as needed to configure TCP/IP communication.

```
TCP/IP Settings
Parameter            Value

Activate             On
(Printers: Must  be "On" to enable TCP/IP communi-
cations. MFPs: not displayed.)

Address              157.184.67.102
(Address available from your network administrator)

Netmask              255.255.255.0
(Appropriate netmask for your network)

Gateway              157.184.67.1
(IP address of your IP gateway)

Enable DHCP          On or Off
(On, if you use a DHCP server.)
(Off, if you set the IP address another way.)

Enable RARP          On or Off
(On, if you use a RARP server.)
(Off, if you set the IP address another way.)

Enable BOOTP         On or Off
(On, if you use a BOOTP server.)
(Off, if you set the IP address another way.)

AutoIP               On or Off
(Default is On. This is the recommended setting.)


WINS Server Address 157.184.100.20
(Address of your WINS Server)

DNS Server Address  157.184.115.7
(Address of your DNS Server)
```

6   Save/submit any changes and return to the **Ready** screen.

7   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 5   Configure the Printer's Network Job Timeout

Note: If you specified Port 5001 or 9600 in the AS/400 device description, you do not need to configure the printer's **Network Job Timeout.** Go directly to Step 6 [page 12].

Important! If you specified Port 9100 in the AS/400 device description, the printer's **Network Job Timeout** must be manually disabled by setting it to "0" (or to "Disable"). This is necessary to allow the host's **Release Timer** value or the printer's **IPDS Timeout** value to control when print jobs from another protocol, interface,

server, or host can be started. It also prevents the printer from ending the IPDS session if communication is delayed between the host and printer.

Additional information on the printer IPDS Timeout value may be found in the IPDS Emulation User's Guide.

Follow these steps to disable the printer's **Network Job Timeout** from the control panel:

1   Navigate to Network Job Timeout.

To find the Network Job Timeout Option on the control panel: On printers, press MENU and then select **Settings > Setup Menu > Timeouts > Network Job Timeout***. On MFPs, touch Menus and then select* **Settings > General Settings > Timeouts > Network Job Timeout.**

2   Select **0**. This disables the network job timeout.

3   Save/Submit any changes and return to the **Ready** screen.

4   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 6   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

It is important to select the correct emulation in the printer IPDS MENU before sending IPDS jobs.

Guidelines for Choosing the IPDS Emulation Setting

The **IPDS Emulation**, the **BAR CODE** and **Host Resolution** options are found in the printer control panel under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

1   "Resident" is the default setting. If you are replacing a printer that used a Native Emulation setting, "Resident" is the recommended emulation.

2   If you are replacing a printer that used a 4028 Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "4028" under **BARCODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

3   If you are replacing a printer that used a 43xx Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "43xx" under **BAR CODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

4   If you are replacing a printer that used a 3812/3816 Emulation, select the "3812/3816" Emulation. This emulation only accepts 240 dpi resources (fonts, overlays, etc.) from the host and does not support DBCS printing.

On MFPs, you can set the print priority of received faxes. Refer to the IPDS Emulation User's Guide for additional information about **Fax Interrupt**. This option is found under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

Refer to the IPDS Emulation User's Guide for information on these options and other IPDS MENU settings to format IPDS jobs.

Note 1: If the IPDS code release on an MFP is 3.00-01090 or higher, "Copy Interrupt" is supported: an IPDS job can be interrupted by copy jobs and will resume printing automatically. At lower release levels, intervening copy jobs will be spooled to disk (when available) and be processed after the IPDS job is finished.

Note 2: The supported printers and MFPs do not contain an Advanced Function Common Control Unit (AFCCU).

Step 7   Verify IPDS Printing

If you have completed the steps above to configure the host and printer, you are ready to print your first IPDS job.

It is assumed that TCP/IP communications is installed and started on the host.

1   Vary ON the device.

> VRYCFG CFGOBJ(IPDSPRT) CFGTYPE(*DEV) STATUS(*ON)

2   Start the writer.

> STRPRTWTR IPDSPRT

3   Send an IPDS job from your host system.

4   Observe the printer control panel. When the first job data is received, **BUSY** should be displayed in the printer control panel. If the job does not print, go to Step 8 Troubleshooting.

5   After the last page of the IPDS job prints, **BUSY** will remain displayed until the host or printer ends the session. This is controlled by the **Release Timer** on the host or by the **IPDS Timeout** on the printer.

6   You may want to refer to the IPDS Emulation User's Guide to determine if other IPDS MENU settings need to be changed.

Step 8   Troubleshooting

If the IPDS job does not print, try the following.

1   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check to be sure the printer is connected to the network. Try to PING the printer.

2   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check all host and printer settings to be sure they are correct.

3   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '08C1' indicating that the job is printing outside the printer valid printable area, choose one of the following solutions:

a)   Change the **Printable Area** setting to **Physical Page**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Printable Area**.

b)   Change your application to position the text within the printable area. Refer to Printable Area in the IPDS Emulation User's Guide for more information.

c)   Change the **Exception Ctrl** setting to **Sup Beyond VPA**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send a NACK to the host when printing outside the valid printable area.

4   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '0821' indicating there are undefined characters in the job, choose one of the following solutions:

a)   Change your application to send only valid characters and control codes.

b) Change the **Exception Ctrl** setting to **Sup Undef Char**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send undefined character NACKs to the host.

5 If the job prints, but some characters are printed incorrectly, you should check the default code page setting. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Default Codepage**. On printers, the next step is to select **Codepages A-E** or **Codepages F-K** or **Codepages L-Z**, then select the proper code page from these groups. On MFPs, the complete list of code pages appear beside **Default Codepage**.

6 If the job prints, but some bar codes print in the wrong size, refer to the **Bar Code Size** option in the IPDS User's Guide for more information. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > BARCODE > Bar Code Size**.

7 Refer to Chapter 10. Printer Messages and Problems on page 54 for additional problem solutions.

8 Once the job prints, refer to the IPDS Emulation User's Guide for information on changing other IPDS MENU settings.

2.   AS/400 and iSeries Twinax Printing Using the Adapter for SCS

With the optional Card for IPDS/SCS/TNe and the optional Coax/Twinax Adapter for SCS installed, the printer can receive, process, and print AFP/IPDS print jobs over TCP/IP from the following IBM software:

- PSF/400 V3R1-R3, V3R6-R7, V4R1-R5, V5R1-R4, or greater

Some printers do not support the Coax/Twinax Adapter for SCS. Refer to "Coax/Twinax Adapter for SCS Support" [page 53] to determine if your printer supports the adapter. Note that no MFPs support Twinax printing.

The information below will lead you through the steps for setting up the AS/400, or iSeries, and the printer to print IPDS jobs over a direct Twinax connection using the optional Coax/Twinax Adapter for SCS. Refer to the IPDS User's Guide for detailed instructions on using the control panel to select and change option settings.

Steps

The following steps must be completed to begin printing IPDS jobs.

1   Configure the Adapter IPDS and SCS Twinax Addresses

2   Set the Adapter for SCS Twinax Timeout

3   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

4   Modify the Auto-created Twinax Device Description or Use CRTDEVPRT to Create a Printer Device Description

5   Verify IPDS Printing

6   Troubleshooting

Step 1   Configure the Adapter IPDS and SCS Twinax Addresses

When the printer has both the "Card for IPDS and SCS/TNe" and the "Coax/Twinax Adapter for SCS" installed, it is possible to print IPDS jobs using the IPDS emulation in the Card for IPDS and SCS/TNe and SCS jobs using the SCS emulation of the Adapter for SCS.

To use both emulations, when you install and configure the option cards, assign a twinax address for the IPDS device address and a different twinax address for the SCS device address in the Adapter for SCS. This is done using the SCS DEV.ADDR. and IPDS DEV. ADDR. options as shown below. In our examples, we will give address 0 to SCS and address 2 to IPDS.

Important:

> If the IPDS device address and the adapter SCS device address are the same, the Adapter SCS device address will be used and the IPDS device address will be ignored. The word **DUPLICATE** will display in the control panel.

> Be certain to set the correct twinax addresses in the Adapter for SCS for both the SCS device address and the IPDS device address **before** physically connecting your printer to the twinax wiring system. If you were to incorrectly enter the same address used by another device, you would disable that device. **If you do not know your printer's correct address, contact your network administrator.**

Step 1A: Configure the Printer Adapter IPDS Device Address - or Disable IPDS Printing

The following options for the Adapter for SCS only appear when the IPDS emulation is detected in the printer.

The IPDS Device Address is used to select the twinax address for the IPDS emulation or to disable the IPDS emulation.

1   From a **Ready** state, on printers press the **MENU** button.

2   Use the navigation buttons or icons   ▼ ▲   to scroll to **Option Card Menu.**

3   On printers, press the **Select** button   (√) .

4   Navigate to **SCS MENU 1 (or SCS MENU 2) > IPDS Options > IPDS Dev. Addr.**

5   Use the navigation buttons or icons to scroll through the values, which include 0-6 and "Disable". Select the desired value.

> **Note:** If you see the string SCS displayed after one of the numbers, for example "5 SCS", this means that the number - in this example number 5 - has already been set as the SCS Dev. Addr. number.

6   Save/Submit the value and exit to the **Ready** page.

Step 1B: If you are using the IPDS emulation, set IPDS Buffer Size

IPDS Buffer Size is used to select the size of the data/command buffer used by the Adapter for SCS when receiving data/commands from the twinax host. **IPDS Buf. Size** appears as an option in the printer panel only if the **IPDS Dev. Addr.** is enabled (address = 0 - 6).

1   Use the control panel **MENU** as described above to select **Option Card Menu > SCS MENU 1 (or SCS MENU 2) > IPDS Options > IPDS Buf. Size**. Select 256 or 1024.

Note: 256 is the recommended value. The 1024 byte buffer has the fastest transfer rate, but it is not compatible with some older IBM equipment.

2   Save the value and exit to the **Ready** page.

Step 1C: Configure the Printer Adapter SCS Device Address - or Disable SCS Printing

The SCS Device Address is used to select the twinax device address for the adapter SCS emulation or to disable the adapter SCS emulation.

1   Use the control panel **MENU** as described above to select **Option Card Menu > SCS MENU 1 (or SCS MENU 2) > SCS Options > SCS Dev. Addr**.

2   Use the navigation buttons to scroll through the values, which include 0-6 and "Disable". Select the desired value.

> **Note:** If the IPDS emulation and the adapter SCS emulation are given the same address, the SCS emulation in the Adapter for SCS is used and the IPDS emulation is ignored. The word **DUPLICATE** will display in the control panel.

3   Save the value and exit to the **Ready** page.

Step 2   Set the Adapter for SCS Twinax Timeout

The **Twinax Timeout** value specifies the amount of time the printer Adapter for SCS will wait before closing the connection to the host and allowing non-IPDS jobs to print. The default is 10 (= 30 seconds). Values equal to or less than 10 give a 30 second timeout; values equal to or more than 11 give a timeout in seconds as specified in the value used.

To change the **Twinax Timeout** value:

1   Use the control panel **MENU** as described in Step 1A (page 15) to select **Option Card Menu > SCS MENU 1 (or SCS MENU 2) > SCS OPTIONS > Twinax Timeout**.

2   Use the navigation buttons to scroll the display to the desired value - or use the numeric buttons to enter a value.

3   Save the value and return to the **Ready** screen.

Note: The **Option Card Menu > IPDS MENU > EMULATION > IPDS Timeout** value is not active when the printer is connected to a host through an Adapter for SCS card. The IPDS timeout is controlled by the Twinax Timeout value on the Adapter for SCS card.

Additional Information

Please refer to the Adapter for SCS, Coax/Twinax Connection, Installation and User's Guide which came with the adapter for a detailed description of other menu settings which affect job formatting.

Step 3   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

It is important to select the correct emulation in the printer IPDS MENU before sending IPDS jobs.

Guidelines for Choosing the IPDS Emulation Setting

The **IPDS Emulation**, the **BAR CODE** and **Host Resolution** options are found in the printer control panel under **MENU > Option Card Menu > IPDS MENU > EMULATION**.

1   "Resident" is the default setting. If you are replacing a printer that used a Native Emulation setting, "Resident" is the recommended emulation.

2   If you are replacing a printer that used a 4028 Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "4028" under **BARCODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

3   If you are replacing a printer that used a 43xx Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "43xx" under **BAR CODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

4   If you are replacing a printer that used a 3812/3816 Emulation, select the "3812/3816" Emulation. This emulation only accepts 240 dpi resources (fonts, overlays, etc.) from the host and does not support DBCS printing.

Refer to the IPDS Emulation User's Guide for information on these options and other IPDS MENU settings to format IPDS jobs.

Note: The supported printers do not contain an Advanced Function Common Control Unit (AFCCU).

Step 4   Modify the Auto-created Twinax Device Description or Use CRTDEVPRT to Create a Printer Device Description

When you let the host auto-create your IPDS device, you will need to alter the following device description parameters to enable full IPDS printing:

"default values":

	Advanced Function Printing	AFP	*NO
	Form Feed	FORMFEED	*CONT

"altered values":

	Advanced Function Printing	AFP	*YES
	Form Feed	FORMFEED	*AUTOCUT

An example of a device description for Twinax printing is shown below. The *italicized lines* show the *parameters which must be changed for sending IPDS jobs*. Use **CRTDEVPRT** to create the device description if you did not use auto-config on the AS/400.

Note: Examples showing parameters displayed on an AS/400 may be different than the parameters displayed on your system. Examples are shown with V5R2 parameters.

Example **CRTDEVPRT** for OS/400 (locally attached printers)

```
Example CRTDEVPRT with parameters to change shown in bold.

Device description................DEVD          > IPDSPRT
          (Note: IPDSPRT is a user defined name.)
Device class.....................DEVCLS         > *LCL
Device type......................TYPE           > *IPDS
Device model.....................MODEL          > 0
LAN attachment...................LANATTACH        *LEXLINK
Switched line list...............SWTLINLST
LAN remote adapter address.......ADPTADR
Adapter type.....................ADPTTYPE         *INTERNAL
Adapter connection type..........ADPTCNNTYP       *PARALLEL
Emulated twinaxial device........EMLDEV
Advanced Function Printing ......AFP            > *YES
AFP attachment...................AFPATTACH        *WSC
Port number......................PORT           > 2
          (Note: Twinax address selected for IPDS printing.)
Switch setting...................SWTSET         > 0
Local location address...........LOCADR
Auxiliary printer................AUXPRT
Emulating ASCII device...........EMLASCII         *NO
Physical attachment..............ATTACH
Online at IPL....................ONLINE           *YES
Attached controller..............CTL            > CTL01
Language type....................LNGTYPE          *SYSVAL
Print quality....................PRTQLTY          *STD
Font:                           FONT
  Identifier.....................               > 11
  Point size.....................                 *NONE
Form feed........................FORMFEED       > *AUTOCUT
Separator drawer.................SEPDRAWER        *FILE
Separator program................SEPPGM           *NONE
  Library........................
Number of drawers................NBRDRAWER
Printer error message............PRTERRMSG        *INQ
```

```
Example CRTDEVPRT with parameters to change shown in bold.

Message queue.....................MSGQ            QSYSOPR
   Library.........................               *LIBL
Maximum length of request unit....MAXLENRU        *CALC
Application type..................APPTYPE         *NONE
Activation timer..................ACTTMR       >  *NOMAX
Inactivity timer..................INACTTMR        *ATTACH
SNA pass-through device desc......SNPTDEV         *NONE
SNA pass-through group name.......SNPTGRP         *NONE
Host signon/logon command........LOGON           *NONE
Pacing ...........................PACING          7
Line speed .......................LINESPEED       *TYPE
Word length.......................WORDLEN         *TYPE
Type of parity....................PARITY          *TYPE
Stop bits.........................STOPBITS        *TYPE
Host Print Transform..............TRANSFORM       *NO
Manufacturer type and model.......MFRTYPMDL
Paper source 1....................PPRSRC1         *MFRTYPMDL
Paper source 2....................PPRSRC2         *MFRTYPMDL
Envelope source...................ENVELOPE        *MFRTYPMDL
ASCII code page 899 support.......ASCII899        *NO
Maximum pending requests..........MAXPNDRQS       6
Print while converting............PRTCVT          *YES
Print request timer...............PRTRQSTMR       *NOMAX
Form definition...................FORMDF          F1C10110
   Library.........................               *LIBL
   Character identifier:          CHRID
     Graphic character set.........               *SYSVAL
       Code page...................
Remote location:                  RMTLOCNAME
   Name or address.................
Local location....................LCLLOCNAME      *NETATR
Mode .............................MODE            QSPWTR
User-defined options..............USRDFNOPT       *NONE
User-defined object:              USRDFNOBJ
   Object..........................            >  *NONE
      Library......................            >
   Object type.....................            >
Data transform program............USRDTATFM       *NONE
   Library ........................
User-defined driver program ......USRDRVPGM       *NONE
   Library.........................
System driver program.............SYSDRVPGM
Secure connection.................SECURECNN       *NO
Validation list...................VLDL            *NONE
     Library.......................
Publishing information: .........PUBLISHINF
     Support duplex................               *UNKNOWN
     Support color.................               *UNKNOWN
     Pages per minute black........               *UNKNOWN
     Pages per minute color........               *UNKNOWN
     Location......................               *BLANK
     Data streams supported .......               *UNKNOWN
Text 'Description'................TEXT         >  'IPDS PRINTER'
         (Note: 'IPDS PRINTER' is user defined text.)
Dependent location name...........DEPLOCNAME      *NONE
```

```
Example CRTDEVPRT with parameters to change shown in bold.


                        Additional Parameters
Remote network identifier........RMTNETID          *NETATR
Workstation customizing object....WSCST            *NONE
   Library.........................
Authority ........................AUT              *LIBCRTAUT
```

Step 5   Verify IPDS Printing

If you have completed the steps above to configure the host and printer, you are ready to print your first IPDS job.

1   Send an IPDS job from your host system.

2   Observe the printer control panel. When the first job data is received, **BUSY** should be displayed in the printer control panel. If the job does not print, go to Step 6 Troubleshooting.

3   After the last page of the IPDS job prints, **BUSY** will remain displayed until the host or printer ends the session. This is controlled by the **Release Timer** on the host or by the **Twinax Timeout** on the Adapter for SCS.

4   You may want to refer to the IPDS Emulation User's Guide to determine if other IPDS MENU settings need to be changed.

Step 6   Troubleshooting

If the IPDS job does not print, try the following.

1   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check to be sure the printer is connected to the network.

2   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check all host and printer settings to be sure they are correct.

3   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '08C1' indicating that the job is printing outside the printer valid printable area, choose one of the following solutions:

   a)   Change the **Printable Area** setting to **Physical Page**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Printable Area**.

   b)   Change your application to position the text within the printable area. Refer to Printable Area in the IPDS Emulation User's Guide for more information.

   c)   Change the **Exception Ctrl** setting to **Sup Beyond VPA**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send a NACK to the host when printing outside the valid printable area.

4   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '0821' indicating there are undefined characters in the job, choose one of the following solutions:

   a)   Change your application to send only valid characters and control codes.

   b)   Change the **Exception Ctrl** setting to **Sup Undef Char**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send undefined character NACKs to the host.

5 If the job prints, but some characters are printed incorrectly, you should check the default code page setting. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Default Codepage.** On printers, the next step is to select **Codepages A-E** or **Codepages F-K** or **Codepages L-Z**, then select the proper code page from these groups. On MFPs, the complete list of code pages appear beside **Default Codepage**.

6 If the job prints, but some bar codes print in the wrong size, refer to the **Bar Code Size** option in the IPDS User's Guide for more information. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > BARCODE > Bar Code Size**.

7 Refer to for additional problem solutions.

8 Once the job prints, refer to the IPDS Emulation User's Guide for information on changing other IPDS MENU settings.

3.   PSF/MVS LAN Printing Using the Standard Network Port or Internal Print Server

With the optional Card for IPDS/SCS/TNe and a LAN print server installed, the printer can receive, process, and print AFP/IPDS print jobs over TCP/IP directly from an MVS mainframe using the following IBM software:

- PSF/MVS 2.2 or greater

The information below will lead you through the steps for setting up the MVS mainframe and printer to print IPDS jobs over a LAN. The printer must be configured with a Standard Network port or MarkNet internal LAN print server.

Refer to the IPDS User's Guide for detailed instructions on using the control panel to select and change option settings.

Software requirements for MVS are:

- *PSF/MVS Version 2 Release 2.0 with APAR OW15599,OW15018 and OW16442. OW08340 for font capture.*

- *PSF/MVS Version 3.1 or later.*

- *MVS Scheduler APAR OW12236 to support two new PRINTDEV keywords: IPADDR and PORTNO.*

- *TCP/IP Version 3 Release 1, or higher installed and configured on MVS.*

- MVS Maintenance Level Required in TCP/IP Profile

    IBM PTF UQ03848

    IBM PTF UQ11550

For an installation description please refer to the following publications:

Print Service Facility/MVS
Update Guide Version 2, Release 2, Modification 0
Publication No. G544-3984-01

Print Services Facility/MVS
System Programming Guide Version 2, Release 2, Modification 0
Publication No. S544-3672-03

PSF V3R1 for OS/390
Customization
Publication No. S544-5622-00

PSF V3R1 for OS/390
Licensed Program Specifications
Publication No. G544-5626-00

PSF V3R1 for OS/390
Messages and Codes
Publication No. G544-5627-00

PSF V3R1 for OS/390
User's Guide
Publication No. S544-5630-00

Steps

The following steps must be completed to begin printing IPDS jobs.

1 Choose a Printer Port for Printing IPDS Jobs

2 Define the printer to JES

3 Add the printer to the PSF STARTUP PROC

4 Configure the Printer's Print Server TCP/IP Settings

5 Configure the Printer's Network Job Timeout

6 Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

7 Verify IPDS Printing

8 Troubleshooting

Step 1   Choose a Printer Port for Printing IPDS Jobs

Several printer ports are available for receiving IPDS jobs when using the printer Standard Network port or the MarkNet internal LAN print server. The printer port will be used in one of the following steps.

Port descriptions:

- **Port 5001** - This is the recommended port selection for receiving IPDS jobs. This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** and **Job Buffering** settings are automatically set to the correct settings for receiving IPDS jobs on this port. This port is recommended when a significant performance impact is seen when downloading IPDS resources for each job. With the proper configuration settings on the host and printer, the IPDS resources can be saved in the printer memory while the printer is printing non-IPDS jobs.

- **Port 9100** - This port can receive PCL, Postscript, or IPDS jobs. In order to print IPDS jobs, the printer's **Network Job Timeout** must be manually set to "0" (or to "Disable") and **Job Buffering** must be manually set to "OFF"**.** These settings also affect printing of non-IPDS jobs.

  *How to find the Network Job Timeout Option (which is also known as End-of-Job Timeout) on the control panel: On printers, press **MENU** and then select **Settings > Setup Menu > Timeouts > Network Job Timeout**. On MFPs, touch **Menus** and then select **Settings > General Settings > Timeouts > Network Job Timeout.***

  *How to find Job Buffering on the control panel: **Job Buffering** is only visible as a menu setting if there is a hard disk installed in the printer. Press MENU or touch Menus and then select **Network/Ports > Standard Network > Job Buffering.***

- **Port 9600** - This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** setting is automatically set to the correct setting for receiving IPDS jobs on this port. This port is only provided for compatibility with some older printers. Port 5001 is the recommended port for printing IPDS jobs.

Step 2   Define the printer to JES

a) Example for JES2

```
FSS(FSS1)     PROC=PSFPROC,HASPFSSM=HASPFSSM
PRT7          FSS=FSS1,MODE=FSS,
              PRMODE=(LINE,PAGE,SOSI1,SOSI2),
              CLASS=C,UCS=0,SEP,NOSEPDS,CKPTPAGE=100,
              DRAIN,MARK,TRKCELL=YES
```

b) Example for JES3

```
FFSDEF,TYPE=WTR,FSSNAME=FSS3,PNAME=SAMPLE01,
  SYSTEM=SYS1,TERM=NO,
DEVICE,DTYPE=PRTAFP1,NAME=PRT7,
  JUNIT=(,SYS1,,OFF),FSSNAME=FSS3,
  MODE=FSS,PM=(LINE,PAGE,SOSI1,SOSI2),CHARS=(YES,GT12),
  CARRIAGE=(YES,A868),CKPNTGP=100,HEADER=YES,
  WC=(C)
```

Step 3   Add the printer to the PSF STARTUP PROC

```
Add printer to PSFSTARTUP PROC.
Parameters to change are shown in bold.
```

```
// PRT7      CNTL                    /*                             */
// PRT7 PRINTDEV FONTDD=*.FONT01,    /*  FONT                       */
// OVLYDD=*.OLAY01,                  /*  OVERLAY                    */
// PSEGDD=*.PSEG02,                  /*  SEGMENT                    */
// PDEFDD=*.PDEF01,                  /*  PAGEDEF                    */
// FDEFDD=*.FDEF01,                  /*  FORMDEF                    */
// JOBHDR=*.JOBHDR                   /*  JOB HEADER                 */
// JOBTRLR=*.JOBTLR                  /*  JOB TRAILER                */
// DSHDR=*.DSHDR,                    /*  DATA SET HEADER            */
// FORMDEF=A10110,                   /*  FORMDEF                    */
// PIMSG=(YES,16),                   /*  MESSAGES                   */
// DATACK=UNBLOCK,                   /*  REPORT ALL DATA CHECKS     */
// TRACE=NO,                         /*  INTERNAL TRACE             */
// MGMTMODE=OUTAVAIL,                /*  PRINTER MANAGEMENT MODE     */
// CONNINTV=0,                       /*  NO TIMEOUT                 */
// DISCINTV=15,                      /*  TIMEOUT=15 SECONDS         */
// TIMEOUT=REDRIVE,                  /*  PSF ACTION ON TIMEOUT      */
// FAILURE=WCONNECT,                 /*  ATTEMPT RECONNECT          */
// IPADDR='157.184.67.102',          /*  IP ADDRESS FOR PRINTER     */
// PORTNO=5001,                      /*  PORT ADDRESS FOR PRINTER   */
// PRT7 ENDCNTL                      /*                             */
```

The value (15) for **DISCINTV** specifies the time in seconds after which PSF ends the printer session when no output is available. The valid range is from 0 to 8160 seconds. The default value is 0. If **DISCINTV=0**, the PSF does not end the printer session when no output is available. Refer to "Printer and Host Timeout Values" [page 50] for information on selecting the **DISCINTV** value.

Example PSF STARTUP PROC - JCL and PRINTDEV.

```
Example PSF STARTUP PROC

//   SAMPLE PROC
//   *
//   STEP01 EXEC PGM=APSPPIEP,REGION=4096K,TIME=1440
//   STEPLIB DD DSN=PSF.LINKLIB,DISP=SHR
//   JOBHDR OUTPUT PAGEDEF=V06483,              /* JOB HEADER            */
//          FORMDEF=A10110,CHARS=GT12           /*                       */
//   JOBTLR OUTPUT PAGEDEF=V06483,              /* JOB TRAILER           */
//          FORMDEF=A10110,CHARS=GT12           /* FORMDEF               */
//   MSGDS      OUTPUT PAGEDEF=A08682           /* MESSAGE               */
//          FORMDEF=A10110,CHARS=GT15           /*                       */
//   *                                                                   */
//   FONT01  DD DSN=SYS1.FONTLIB,DISP=SHR       /* SYSTEM FONTS          */
//              DD DSN=INST.FONTLIB,DISP=SHR/* USER FONTS                */
//   *
//   PSEG02   DD DSN=INST.PSEGLIB,DISP=SHR      /* PAGE SEGMENTS         */
//   *
//   OLAY01   DD DSN=INST.OVERLIB,DISP=SHR      /* OVERLAYS              */
//   *
//   PDEF01   DD DSN=SYS1.PDEFLIB,DISP=SHR      /* SYSTEM PAGE DEFS      */
//              DD DSN=INST.PDEFLIB,DISP=SHR/* PAGE DEFS                 */
//   *
//   FDEF01   DD DSN=INST.FDEFLIB,DISP=SHR      /* SYSTEM FORM DEFS      */
//              DD DSN=INST.FDEFLIB,DISP=SHR/* FORM DEFS                 */
//   *
//   PRT7    CNTL                               /*                       */
//   PRT7 PRINTDEV FONTDD=*.FONT01,             /* FONT                  */
//   OVLYDD=*.OLAY01,                           /* OVERLAY               */
//   PSEGDD=*.PSEG02,                           /* SEGMENT               */
//   PDEFDD=*.PDEF01,                           /* PAGEDEF               */
//   FDEFDD=*.FDEF01,                           /* FORMDEF               */
//   JOBHDR=*.JOBHDR                            /* JOB HEADER            */
//   JOBTRLR=*.JOBTLR                           /* JOB TRAILER           */
//   DSHDR=*.DSHDR,                             /* DATA SET HEADER       */
//   FORMDEF=A10110,                            /* FORMDEF               */
//   PIMSG=(YES,16),                            /* MESSAGES              */
//   DATACK=UNBLOCK,                            /* PRINT ALL DATA CHECKS */
//   TRACE=NO,                                  /* INTERNAL TRACE        */
//   MGMTMODE=OUTAVAIL,                         /* PRINTER MANAGEMENT MODE */
//   CONNINTV=0,                                /* NO TIMEOUT            */
//   DISCINTV=15,                               /* TIMEOUT=15 SECONDS    */
//   TIMEOUT=REDRIVE,                           /* PSF ACTION TIMEOUT    */
//   FAILURE=WCONNECT,                          /* ATTEMPT RECONNECT     */
//   IPADDR='157.184.67.102',                   /* IP ADDRESS FOR PRINTER */
//   PORTNO=5001,                               /* PORT ADDRESS FOR PRINTER*/
//   PRT7 ENDCNTL                               /*                       */
```

Step 4   Configure the Printer's Print Server TCP/IP Settings

To enable IPDS printing with a Standard Network port or a MarkNet internal LAN print server, several settings must be verified. You can verify these settings from the printer control panel as shown below.

Menus

1   From a **Ready** state press the **MENU** button (printers) or touch _____ (**Menus** on MFPs).

2   Use the navigation buttons or icons ▼ ▲ to scroll to **Network/Ports.**

3   Select **Network/Ports**.

Tlp: To do this on printers, press the **Select** button ✓ ; on MFPs just touch **Network/Ports**.

4   Now you will see a list of menus. Select the **TCP/IP** menu**.**

5   Use the navigation buttons or icons to scroll through the options. Check each of the following settings and change them as needed to configure TCP/IP communication.

```
TCP/IP Settings
Parameter          Value

Activate           On
(Printers: Must  be "On" to enable TCP/IP communi-
cations. MFPs: not displayed.)

Address            157.184.67.102
(Address available from your network administrator)

Netmask            255.255.255.0
(Appropriate netmask for your network)

Gateway            157.184.67.1
(IP address of your IP gateway)

Enable DHCP        On or Off
(On, if you use a DHCP server.)
(Off, if you set the IP address another way.)

Enable RARP        On or Off
(On, if you use a RARP server.)
(Off, if you set the IP address another way.)

Enable BOOTP       On or Off
(On, if you use a BOOTP server.)
(Off, if you set the IP address another way.)

AutoIP             On or Off
(Default is On. This is the recommended setting.)


WINS Server Address 157.184.100.20
(Address of your WINS Server)

DNS Server Address  157.184.115.7
(Address of your DNS Server)
```

6   Save/submit any changes and return to the **Ready** screen.

7   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 5   Configure the Printer's Network Job Timeout

Note: If you specified Port 5001 or 9600 in the PSF STARTUP PROC, you do not need to configure the printer's **Network Job Timeout**. Go to directly to Step 6 [page 27].

Important! If you specified Port 9100 in the PSF STARTUP PROC, the printer's **Network Job Timeout** must be manually disabled by setting it to "0" (or to "Disable"). This is necessary to allow the host **DISCINTV** value or the printer's **IPDS Timeout** value to control when print jobs from another protocol, interface, server, or host can be started. It also prevents the printer from ending the IPDS session if communication is delayed between the host and printer.

Additional information on the printer IPDS Timeout value may be found in the IPDS Emulation User's Guide.

Follow these steps to disable the printer's **Network Job Timeout** from the control panel:

1   **Navigate to Network Job Timeout.**

To find the Network Job Timeout Option on the control panel: On printers, press MENU and then select Settings > Setup Menu > Timeouts > Network Job Timeout. On MFPs, touch Menus and then select Settings > General Settings > Timeouts > Network Job Timeout.

2   Select **0**. This disables the network job timeout.

3   Save/Submit any changes and return to the **Ready** screen.

4   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 6   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

It is important to select the correct emulation in the printer IPDS MENU before sending IPDS jobs.

Guidelines for Choosing the IPDS Emulation Setting

The **IPDS Emulation**, the **BAR CODE** and **Host Resolution** options are found in the printer control panel under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

1   "Resident" is the default setting. If you are replacing a printer that used a Native Emulation setting, "Resident" is the recommended emulation.

2   If you are replacing a printer that used a 4028 Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "4028" under **BARCODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

3   If you are replacing a printer that used a 43xx Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "43xx" under **BAR CODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

4   If you are replacing a printer that used a 3812/3816 Emulation, select the "3812/3816" Emulation. This emulation only accepts 240 dpi resources (fonts, overlays, etc.) from the host and does not support DBCS printing.

On MFPs, you can set the print priority of received faxes. Refer to the IPDS Emulation User's Guide for additional information about **Fax Interrupt**. This option is found under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

Refer to the IPDS Emulation User's Guide for information on these options and other IPDS MENU settings to format IPDS jobs.

Note 1:   If the IPDS code release on an MFP is 3.00-01090 or higher, "Copy Interrupt" is supported: an IPDS job can be interrupted by copy jobs and will resume printing automatically. At lower release levels, intervening copy jobs will be spooled to disk (when available) and be processed after the IPDS job is finished.

Note 2:   The supported printers and MFPs do not contain an Advanced Function Common Control Unit (AFCCU).

Step 7   Verify IPDS Printing

If you have completed the steps above to configure the host and printer, you are ready to print your first IPDS job.

1   Send an IPDS job from your host system.

2   Observe the printer control panel. When the first job data is received, **BUSY** should be displayed in the printer control panel. If the job does not print, go to Step 8 Troubleshooting.

3   After the last page of the IPDS job prints, **BUSY** will remain displayed until the host or printer ends the session. This is controlled by the **DISCINTV** value on the host or by the **IPDS Timeout** on the printer.

4   You may want to refer to the IPDS Emulation User's Guide to determine if other IPDS MENU settings need to be changed.

Step 8   Troubleshooting

If the IPDS job does not print, try the following.

1   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check to be sure the printer is connected to the network. Try to PING the printer.

2   If **BUSY** is not displayed in the printer control panel, or if the printer remains in **Ready** mode, check the status of the printer on the host. The status will be "inactive" if waiting for a print job. If the status is "drained", restart the printer.

3   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check all host and printer settings to be sure they are correct.

4   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '08C1' indicating that the job is printing outside the printer valid printable area, choose one of the following solutions:

a) Change the **Printable Area** setting to **Physical Page**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Printable Area**.

b) Change your application to position the text within the printable area. Refer to Printable Area in the IPDS Emulation User's Guide for more information.

c) Change the **Exception Ctrl** setting to **Sup Beyond VPA**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send a NACK to the host when printing outside the valid printable area.

d) In the PSF STARTUP PROC, set DATACK = BLKPOS. This will block any VPA or position checks.

5   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '0821' indicating there are undefined characters in the job, choose one of the following solutions:

a) Change your application to send only valid characters and control codes.

b) Change the **Exception Ctrl** setting to **Sup Undef Char**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send undefined character NACKs to the host.

c) In the PSF STARTUP PROC, set DATACK = BLKCHAR. This will block any invalid character errors.

6   If the job prints, but some characters are printed incorrectly, you should check the default code page setting. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Default Codepage.** On printers, the next step is to select **Codepages A-E** or **Codepages F-K** or **Codepages L-Z**, then select the proper code page from these groups. On MFPs, the complete list of code pages appear beside **Default Codepage**.

7   If the job prints, but some bar codes print in the wrong size, refer to the **Bar Code Size** option in the IPDS User's Guide for more information. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > BARCODE > Bar Code Size**.

8   Refer to Chapter 10. Printer Messages and Problems on page 54 for additional problem solutions.

9   Once the job prints, refer to the IPDS Emulation User's Guide for information on changing other IPDS MENU settings.

4. MVS Coax Printing Using the Adapter for SCS

With both the optional "Card for IPDS/SCS/TNe" and the optional "Coax/Twinax Adapter for SCS" installed, the printer can receive, process, and print AFP/IPDS print jobs over a Coax connection.

Some printers do not support the Coax/Twinax Adapter for SCS. Refer to "Coax/Twinax Adapter for SCS Support" [page 53] to determine if your printer supports the adapter. Note that no MFPs support Coax printing.

The information below will lead you through the steps for setting up the mainframe and printer to print IPDS jobs over a direct Coax connection using the optional Coax/Twinax Adapter for SCS. Refer to the IPDS User's Guide for detailed instructions on using the control panel to select and change option settings.

Steps

The following steps must be completed to begin printing IPDS jobs.

1 Enable IPDS Printing on the Adapter for SCS (For Reference Only)

2 Set the Adapter for SCS Coax Timeout

3 Verify the Adapter for SCS configuration

4 Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

5 Create the NCP Definition and Define the Printer to VTAM (Remote Users Only)

6 Define the printer to VTAM (Local Users Only)

7 Define the printer to JES

8 Add the printer to the PSF/MVS STARTUP PROC

9 Verify IPDS Printing

10 Troubleshooting

Step 1 Enable IPDS Printing on the Adapter for SCS (For Reference Only)

When coax-attached, the Adapter for SCS will use the IPDS emulation if the IPDS emulation is installed.

To disable or enable IPDS printing, use the control panel **MENU/Menus**.

1 From a **Ready** state press the **MENU** button (printers). Use the navigation buttons or icons ▼ ▲ to scroll to **Option Card Menu.**

2 On printers, press the **Select** button (✓) .

3 Navigate to **SCS MENU 1 (or SCS MENU 2) > IPDS Options > IPDS Enable**.

4 Use the navigation buttons to scroll through the values. Select Yes or No as required.

5 Save/Submit the value.

6 Power the printer OFF and ON to activate the changed setting.

Step 2   Set the Adapter for SCS Coax Timeout

The **Coax Timeout** value specifies the amount of time the printer Adapter for SCS will wait before closing the connection to the host and allowing non-IPDS jobs to print. The default is "0" seconds (disabled). This allows the host to control when the connection is disconnected.

"0" (disabled) is the recommended value. If you choose to use the default value, go to Step 3.

Otherwise, specify how many seconds the adapter will wait before closing the connection to the host. The maximum value is 255.

1   Use the control panel **MENU** as described in Step 1 [page 30]: **Option Card Menu > SCS MENU 1 (or SCS MENU 2) > SCS Options > MISC SETTINGS > Coax Timeout**.

2   Use the navigation buttons to scroll the display to the desired value - or use the numeric buttons to enter a value.

3   Save the value and exit to the **Ready** page.

Note: The **Option Card Menu > IPDS MENU > EMULATION > IPDS Timeout** value is not active when the printer is connected to a host through an Adapter for SCS card. The IPDS timeout is controlled by the **Coax Timeout** value on the Adapter for SCS card.

Step 3   Verify the Adapter for SCS configuration

To verify the Adapter for SCS configuration, print a status page. Select **Option Card Menu > SCS MENU 1 (or SCS MENU 2) > TEST OPTIONS > SCS Status Page > Print**. On the upper right-hand corner is a status for **IPDS Option** where you can see if IPDS is activated.

Additional Information

Please refer to the Adapter for SCS, *Coax/Twinax Connection, Installation and User's Guide* which came with the adapter for a detailed description of other menu settings which affect job formatting.

Step 4   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

It is important to select the correct emulation in the printer IPDS MENU before sending IPDS jobs.

Guidelines for Choosing the IPDS Emulation Setting

The **IPDS Emulation**, the **BAR CODE** and **Host Resolution** options are found in the printer control panel under **MENU > Option Card Menu > IPDS MENU > EMULATION**.

1   "Resident" is the default setting. If you are replacing a printer that used a Native Emulation setting, "Resident" is the recommended emulation.

2   If you are replacing a printer that used a 4028 Emulation setting, choose the "Resident" Emulation and change the following settings:

    a)   Set **Bar Code Size** to "4028" under **BARCODE > Bar Code Size**.

    b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

3   If you are replacing a printer that used a 43xx Emulation setting, choose the "Resident" Emulation and change the following settings:

    a)   Set **Bar Code Size** to "43xx" under **BAR CODE > Bar Code Size**.

b) The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

4 If you are replacing a printer that used a 3812/3816 Emulation, select the "3812/3816" Emulation. This emulation only accepts 240 dpi resources (fonts, overlays, etc.) from the host and does not support DBCS printing.

Refer to the IPDS Emulation User's Guide for information on these options and other IPDS MENU settings to format IPDS jobs.

Note: The supported printers do not contain an Advanced Function Common Control Unit (AFCCU).

Step 5 Create the NCP Definition and Define the Printer to VTAM (Remote Users Only)

Step 5A: Create the NCP (Network Control Program) Definition (Remote Users Only)

```
XYZ       GROUP  TYPE=NCP,...
          LINK   ADDRESS=(032),...
REMPU74 PU       ADDR=C1,...
REM2450 LU       LOCADDR=#, (Where # relates to 3174 port number)
                 DLOGMOD=PSFR2450,MODETAB=PRTTABLE
```

Step 5B: Define the Printer to VTAM (Remote Users Only)

With PSF, use LU1-IPDS mode with FM Header support.

```
PSFR2450          MODEENT LOGMODE=PSFR2450,
                  FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
                  SECPROT=X'B0',COMPROT=X'7080',RUSIZES=X'8585,
                  PSERVIC=X'01400001000000001000000',
                  PSNDPAC=X'03',SRCVPAC=X'03',SSNDPAC=X'00'
```

Step 6 Define the printer to VTAM (Local Users Only)

With PSF, use LU1-IPDS mode with FM Header support

```
LOC3174      VBUILD TYPE=LOCAL
LOCPU74      PU    CUADDRESS=NNN,MAXBFRU=2
LOCT630      LU    LOCADDR=8,MODETAB=MODTABL,
                   DLOGMODE=SNAT630,ISTATUS=ACTIVE
SNAT630          MODEENT LOGMODE=SNAT630,
                 FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
                 SECPROT=X'B0',COMPROT=X'7080',RUSIZES=X'85C7,
                 PSERVIC=X'01400001000000001000000',
                 PSNDPAC=X'02',SRCVPAC=X'02',SSNDPAC=X'00'
```

Step 7   Define the printer to JES

JES2 Definition Example
```
FSSDEF    FSSNAME=FSS1,...
PRT2      FSS=FSS1,Mode=FSS,PRMODE=(LINE,PAGE,SOSI1,SOSI2),
          CLASS=B,UCS=0,SEP,NOSEPDS,CKPTPAGE=100, DRAIN,MARK
```

JES3 Definition Example
```
FSSDEF    TYPE=WTR,FSSNAME=FSS2,PNAME=SAMPRO2,SYST4EM=SYS1,TERM=NODEVICE,
          DTYPE=PRTAFP1,JNAME=PRT2,JUNIT=(,SYS1,,OFF),FSSNAME=FSS2,MODE=FS
          S,PM=(LINE,PAGE,SOSI1,SOSI2),CHARS=(YES,60D8),
          CARRIAGE=(YES,A868),CKPNTG=100,HEADER=YES,WC=(B)
```

Step 8   Add the printer to the PSF/MVS STARTUP PROC

```
Add the printer to the PSF/MVS Startup Proc.
Example PSF STARTUP PROC with parameters to change shown in bold.
```

```
//   PRT2 PRINTDEV              /* FONT LIBRARY DD                 */
//   FONTDD=*,FONT01,           /*                                 */
//   OVLYDD=*,OLAY01,           /* OVERLAY LIBARY DD               */
//   PSEGDD=*,PSEG02,           /* SEGMENT LIBRARY DD              */
//   PDEFDD=*,PDEF01,           /* PAGEDEF LIBARY DD               */
//   FDEFDD=*,FDEF01,           /* FORMDEF LIBARY DD               */
//   JOBHDR=*,JOBHDR            /* JOB HEADER SEPARATOR OUTPUT     */
//   JOBTRLR=*,JOBTLR           /* JOB TRAILER SEPARATOR OUTPUT    */
//   DSHDR=*,DSHDR,             /* DATA SET HEADER SEPARATOR       */
//   FORMDEF=A10110,            /* DEVICE FORMDEF DEFAULT          */
//   PIMSG=(YES,16),            /* ACCUMULATE DATA SET MESSAGES    */
//   DATACK=UNBLOCK,            /* REPORT ALL DATA CHECKS          */
//   TRACE=NO,                  /* INTERNAL TRACE                  */
//   FAILURE=WCONNECT,          /* ATTEMPT RECONNECT               */
//   DISCINTV=15,               /* TIMEOUT = 15 SECONDS            */
//   TIMEOUT=REDRIVE            /* PSF ACTION ON TIMEOUT           */
//   MGMTMODE=OUTAVAIL,         /* PRINTER MANAGEMENT MODE         */
//   APPLID=PSFAPP1,            /* VTAM: APPLID OF PSF             */
//   LUNAME=SNAT630,            /* VTAM: PRINTER LOGICAL UNIT NAME */
//   PRT2 ENDCNTL               /*                                 */
```

Step 9   Verify IPDS Printing

If you have completed the steps above to configure the host and printer, you are ready to print your first IPDS job.

1   Send an IPDS job from your host system.

2   Observe the printer control panel. When the first job data is received, **BUSY** should be displayed in the printer control panel. If the job does not print, go to Step 10 Troubleshooting.

3   After the last page of the IPDS job prints, **BUSY** will remain displayed until the host or printer ends the session. This is controlled by the **DISCINTV** value on the host or by the **Coax Timeout** on the Adapter for SCS.

4   You may want to refer to the IPDS Emulation User's Guide to determine if other IPDS MENU settings need to be changed.

Step 10   Troubleshooting

If the IPDS job does not print, try the following.

1   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check to be sure the printer is connected to the network.

2   If **BUSY** is not displayed in the printer control panel, or if the printer remains in **Ready** mode, check the status of the printer on the host. The status will be "inactive" if waiting for a print job. If the status is "drained", restart the printer.

3   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check all host and printer settings to be sure they are correct.

4   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '08C1' indicating that the job is printing outside the printer valid printable area, choose one of the following solutions:

a)   Change the **Printable Area** setting to **Physical Page**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Printable Area**.

b)   Change your application to position the text within the printable area. Refer to Printable Area in the IPDS Emulation User's Guide for more information.

c)   Change the **Exception Ctrl** setting to **Sup Beyond VPA**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send a NACK to the host when printing outside the valid printable area.

d)   In the PSF STARTUP PROC, set DATACK = BLKPOS. This will block any VPA or position checks.

5   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '0821' indicating there are undefined characters in the job, choose one of the following solutions:

a)   Change your application to send only valid characters and control codes.

b)   Change the **Exception Ctrl** setting to **Sup Undef Char**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send undefined character NACKs to the host.

c)   In the PSF STARTUP PROC, set DATACK = BLKCHAR. This will block any invalid character errors.

6   If the job prints, but some characters are printed incorrectly, you should check the default code page setting. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Default Codepage**. On printers, the next step is to select **Codepages A-E** or **Codepages F-K** or **Codepages L-Z**, then select the proper code page from these groups. On MFPs, the complete list of code pages appear beside **Default Codepage**.

7   If the job prints, but some bar codes print in the wrong size, refer to the **Bar Code Size** option in the IPDS User's Guide for more information. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > BARCODE > Bar Code Size**.

8   Refer to Chapter 10. Printer Messages and Problems on page 54 for additional problem solutions.

9   Once the job prints, refer to the IPDS Emulation User's Guide for information on changing other IPDS MENU settings.

5.   PSF/2 LAN Printing Using an Internal LAN Print Server

With the optional Card for IPDS/SCS/TNe and an internal LAN print server installed, the printer can receive, process, and print AFP/IPDS print jobs over TCP/IP directly from PSF/2.

The information below will lead you through the steps for setting up PSF/2 and the printer to print IPDS jobs over a LAN. The printer must be configured with a Standard Network port or a MarkNet internal LAN print server. Refer to the IPDS User's Guide for detailed instructions on using the control panel to select and change option settings.

Refer to the PSF/2 documentation if you need a description of how to connect PSF/2 to a host to receive AFP and IPDS data.

System requirements

OS/2^{TM} version 2.11 or newer

DB/2 version 1.0 or newer

PSF/2 version 2.0 or newer

TCP/IP version 2.0 (CSD UN56401) or newer

Steps

The following steps must be completed to begin printing IPDS jobs.

1   Choose a Printer Port for Printing IPDS Jobs

2   Create a Printer in PSF/2

3   Enable Printer Sharing With the Job Interval Shutdown Timer

4   Configure the Printer's Print Server TCP/IP Settings

5   Configure the Printer's Network Job Timeout

6   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

7   Verify IPDS Printing

8   Troubleshooting

Step 1   Choose a Printer Port for Printing IPDS Jobs

Several printer ports are available for receiving IPDS jobs when using the printer Standard Network port or the MarkNet internal LAN print server. The printer port will be used in one of the following steps.

Port descriptions:

- **Port 5001** - This is the recommended port selection for receiving IPDS jobs. This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** and **Job Buffering** settings are automatically set to the correct settings for receiving IPDS jobs on this port. This port is recommended when a significant performance impact is seen when downloading IPDS resources for each job. With the proper configuration settings on the host and printer, the IPDS resources can be saved in the printer memory while the printer is printing non-IPDS jobs.

- **Port 9100** - This port can receive PCL, Postscript, or IPDS jobs. In order to print IPDS jobs, the printer's **Network Job Timeout** must be manually set to "0" (or to "Disable") and **Job Buffering** must be manually set to "OFF"**.** These settings also affect printing of non-IPDS jobs.
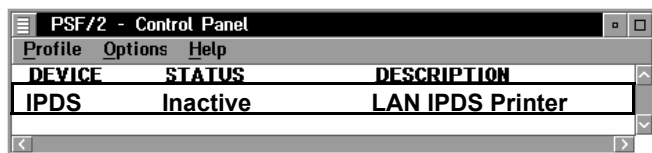
*How to find the Network Job Timeout Option (which is also known as End-of-Job Timeout) on the control panel: On printers, press **MENU** and then select **Settings > Setup Menu > Timeouts > Network Job Timeout**. On MFPs, touch **Menus** and then select **Settings > General Settings > Timeouts > Network Job Timeout**.*

*How to find Job Buffering on the control panel: **Job Buffering** is only visible as a menu setting if there is a hard disk installed in the printer. Press MENU or touch Menus and then select **Network/Ports > Standard Network > Job Buffering**.*

- **Port 9600** - This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** setting is automatically set to the correct setting for receiving IPDS jobs on this port. This port is only provided for compatibility with some older printers. Port 5001 is the recommended port for printing IPDS jobs.

Step 2   Create a Printer in PSF/2

a) Start PSF/2 control panel by selecting the PSF/2 Folder and then selecting the PSF/2 Control Panel icon.
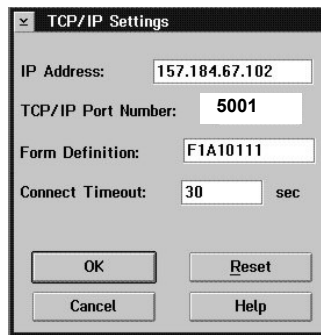

b) On the PSF/2 Control Panel select Profile and then New. The PSF/2 New Device menu appears.
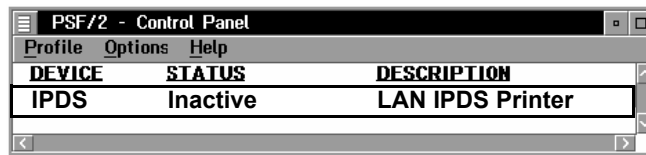

Enter the device name and the device description and select a Device Resolution of 300 pel.

c) Select TCP/IP as Attachment Type and select Settings. The TCP/IP Settings menu appears.
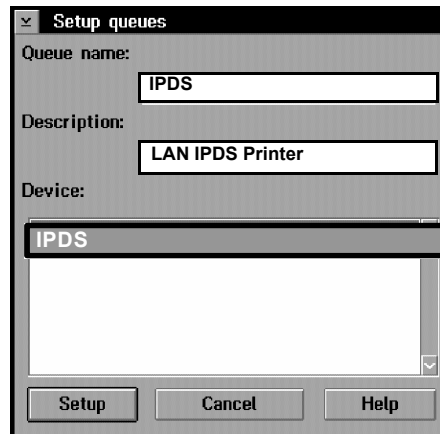
Enter the IP address of the printer. The IP address should be obtained from your network administrator. Enter the TCP/IP port selected in Step 1.
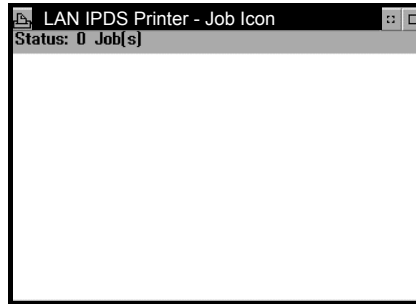
d) Select OK and then Create. The PSF/2 printer device is now created and is ready to print from a PSF/2 connected host.

e) On the PSF/2 Control Panel select Options and Setup queues.

The Setup queues menu will appear. It will be blank at first. Enter the Queue name, description and select the Device and then select Setup.

An OS/2 printer queue is now created and the printer is ready to print IPDS from OS/2 and a PSF/2 connected host.
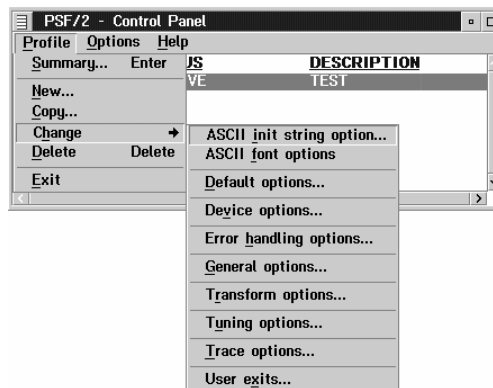
Note: You can check the connection using the PSF/2 Print Submitter. A number of AFP print files are delivered with the PSF/2 package. Any of these files can be submitted to the newly created print queue.

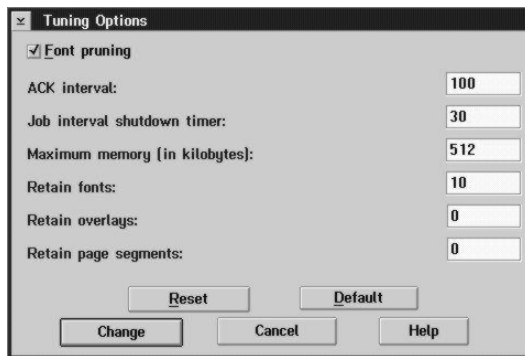## Step 3   Enable Printer Sharing With the Job Interval Shutdown Timer

To enable the printer to start other print jobs from another protocol, interface or server, the PSF/2 tuning option Job Interval Shutdown Timer is used.

Use the following steps to set the Job Interval Shutdown Timer option:

  a) Start the PSF/2 control panel by selecting the PSF/2 folder and then the PSF/2 Control Panel icon.

  b) On the PSF/2 Control Panel select <u>P</u>rofile and then <u>C</u>hange.

c) Now select Tuning Options.

The Job Interval Shutdown Timer indicates the number of seconds PSF/2 waits before shutting down when there are no jobs in the queue. In other words this is the amount of time that PSF/2 remains active after the last job is printed.

Valid values: integers 1 to 9999

1-9998 time in seconds to wait between jobs

9999 wait indefinitely for the next job to be received.

Step 4   Configure the Printer's Print Server TCP/IP Settings

To enable IPDS printing with a Standard Network port or a MarkNet internal LAN print server, several settings must be verified. You can verify these settings from the printer control panel as shown below.

Menus

1   From a **Ready** state press the **MENU** button (printers) or touch ⬛ (**Menus** on MFPs).

2   Use the navigation buttons or icons ▼ ▲ to scroll to **Network/Ports.**

3   Select **Network/Ports**.

TIp: To do this on printers, press the **Select** button ⓥ ; on MFPs just touch **Network/Ports**.

4   Now you will see a list of menus. Select the **TCP/IP** menu**.**

5   Use the navigation buttons or icons to scroll through the options. Check each of the following settings and change them as needed to configure TCP/IP communication.

```
TCP/IP Settings
Parameter           Value

Activate            On
(Printers: Must  be "On" to enable TCP/IP communi-
cations. MFPs: not displayed.)
```

```
TCP/IP Settings
Parameter            Value
Address              157.184.67.102
(Address available from your network administrator)

Netmask              255.255.255.0
(Appropriate netmask for your network)

Gateway              157.184.67.1
(IP address of your IP gateway)

Enable DHCP          On or Off
(On, if you use a DHCP server.)
(Off, if you set the IP address another way.)

Enable RARP          On or Off
(On, if you use a RARP server.)
(Off, if you set the IP address another way.)

Enable BOOTP         On or Off
(On, if you use a BOOTP server.)
(Off, if you set the IP address another way.)

AutoIP               On or Off
(Default is On. This is the recommended setting.)


WINS Server Address 157.184.100.20
(Address of your WINS Server)

DNS Server Address  157.184.115.7
(Address of your DNS Server)
```

6   Save/submit any changes and return to the **Ready** screen.

7   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 5   Configure the Printer's Network Job Timeout

Note: If you specified Port 5001 or 9600 as the TCP/IP port number in the printer created in Step 2 [page 36], you do not need to configure the printer's Network Job Timeout. Go directly to Step 6 [page 41] .

Important! If you specified Port 9100 as the TCP/IP port number, the printer's **Network Job Timeout** must be manually disabled by setting it to "0" (or to "Disable"). This is necessary to allow the host's **Release Timer** value or the printer's **IPDS Timeout** value to control when print jobs from another protocol, interface, server, or host can be started. It also prevents the printer from ending the IPDS session if communication is delayed between the host and printer.

Additional information on the printer IPDS Timeout value may be found in the IPDS Emulation User's Guide.

Follow these steps to disable the printer's **Network Job Timeout** from the control panel:

1 **Navigate to Network Job Timeout.**

To find the Network Job Timeout Option on the control panel: On printers, press MENU and then select **Settings > Setup Menu > Timeouts > Network Job Timeout**. *On MFPs, touch Menus and then select* **Settings > General Settings > Timeouts > Network Job Timeout.**

2 Select **0**. This disables the network job timeout.

3 Save/Submit any changes and return to the **Ready** screen.

4 To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 6 Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

It is important to select the correct emulation in the printer IPDS MENU before sending IPDS jobs.

Guidelines for Choosing the IPDS Emulation Setting

The **IPDS Emulation**, the **BAR CODE** and **Host Resolution** options are found in the printer control panel under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

1 "Resident" is the default setting. If you are replacing a printer that used a Native Emulation setting, "Resident" is the recommended emulation.

2 If you are replacing a printer that used a 4028 Emulation setting, choose the "Resident" Emulation and change the following settings:

a) Set **Bar Code Size** to "4028" under **BARCODE > Bar Code Size**.

b) The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

3 If you are replacing a printer that used a 43xx Emulation setting, choose the "Resident" Emulation and change the following settings:

a) Set **Bar Code Size** to "43xx" under **BAR CODE > Bar Code Size**.

b) The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

4 If you are replacing a printer that used a 3812/3816 Emulation, select the "3812/3816" Emulation. This emulation only accepts 240 dpi resources (fonts, overlays, etc.) from the host and does not support DBCS printing.

On MFPs, you can set the print priority of received faxes. Refer to the IPDS Emulation User's Guide for additional information about **Fax Interrupt**. This option is found under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

Refer to the IPDS Emulation User's Guide for information on these options and other IPDS MENU settings to format IPDS jobs.

Note 1: If the IPDS code release on an MFP is 3.00-01090 or higher, "Copy Interrupt" is supported: an IPDS job can be interrupted by copy jobs and will resume printing automatically. At lower release levels, intervening copy jobs will be spooled to disk (when available) and be processed after the IPDS job is finished.

Note 2:   The supported printers and MFPs do not contain an Advanced Function Common Control Unit (AFCCU).

Step 7   Verify IPDS Printing

If you have completed the steps above to configure the host and printer, you are ready to print your first IPDS job.

1   Send an IPDS job from your host system.

2   Observe the printer control panel. When the first job data is received, BUSY should be displayed in the printer control panel. If the job does not print, go to Step 8 Troubleshooting.

3   After the last page of the IPDS job prints, **BUSY** will remain displayed until the host or printer ends the session. This is controlled by the **Release Timer** on the host or by the **IPDS Timeout** on the printer.

4   You may want to refer to the IPDS Emulation User's Guide to determine if other IPDS MENU settings need to be changed.

Step 8   Troubleshooting

If the IPDS job does not print, try the following.

1   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check to be sure the printer is connected to the network. Try to PING the printer.

2   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check all host and printer settings to be sure they are correct.

3   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '08C1' indicating that the job is printing outside the printer valid printable area, choose one of the following solutions:

a)   Change the **Printable Area** setting to **Physical Page**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Printable Area**.

b)   Change your application to position the text within the printable area. Refer to Printable Area in the IPDS Emulation User's Guide for more information.

c)   Change the **Exception Ctrl** setting to **Sup Beyond VPA**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send a NACK to the host when printing outside the valid printable area.

4   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '0821' indicating there are undefined characters in the job, choose one of the following solutions:

a)   Change your application to send only valid characters and control codes.

b)   Change the **Exception Ctrl** setting to **Sup Undef Char**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send undefined character NACKs to the host.

5   If the job prints, but some characters are printed incorrectly, you should check the default code page setting. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Default Codepage.** On printers, the next step is to select **Codepages A-E** or **Codepages F-K** or **Codepages L-Z**, then select the proper code page from these groups. On MFPs, the complete list of code pages appear beside **Default Codepage**.

6   If the job prints, but some bar codes print in the wrong size, refer to the **Bar Code Size** option in the IPDS User's Guide for more information. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > BARCODE > Bar Code Size**.

7   Refer to Chapter 10. Printer Messages and Problems on page 54 for additional problem solutions.

8   Once the job prints, refer to the IPDS Emulation User's Guide for information on changing other IPDS MENU settings.

6.   PSF/AIX LAN Printing Using an Internal LAN Print Server

With the optional Card for IPDS/SCS/TNe and an internal LAN print server installed, the printer can receive, process, and print AFP/IPDS print jobs over TCP/IP from PSF/AIX

The information below will lead you through the steps for setting up PSF/AIX and the printer to print IPDS jobs over a LAN. The printer must be configured with a Standard Network port or MarkNet internal LAN print server.

Refer to the IPDS User's Guide for detailed instructions on using the control panel to select and change option settings.

Steps

The following steps must be completed to begin printing IPDS jobs.

1   Choose a Printer Port for Printing IPDS Jobs

2   Define the Printer to PSF/AIX

3   Configure the Printer's Print Server TCP/IP Settings

4   Configure the Printer's Network Job Timeout

5   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

6   Verify IPDS Printing

7   Troubleshooting

Step 1   Choose a Printer Port for Printing IPDS Jobs

Several printer ports are available for receiving IPDS jobs when using the printer Standard Network port or the MarkNet internal LAN print server. The printer port will be used in one of the following steps.

Port descriptions:

- **Port 5001** - This is the recommended port selection for receiving IPDS jobs. This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** and **Job Buffering** settings are automatically set to the correct settings for receiving IPDS jobs on this port. This port is recommended when a significant performance impact is seen when downloading IPDS resources for each job. With the proper configuration settings on the host and printer, the IPDS resources can be saved in the printer memory while the printer is printing non-IPDS jobs.

- **Port 9100** - This port can receive PCL, Postscript, or IPDS jobs. In order to print IPDS jobs, the printer's **Network Job Timeout** must be manually set to "0" (or to "Disable") and **Job Buffering** must be manually set to "OFF"**.** These settings also affect printing of non-IPDS jobs.

  *How to find the Network Job Timeout Option (which is also known as End-of-Job Timeout) on the control panel: On printers, press **MENU** and then select **Settings > Setup Menu > Timeouts > Network Job Timeout**. On MFPs, touch **Menus** and then select **Settings > General Settings > Timeouts > Network Job Timeout.***

  *How to find Job Buffering on the control panel: **Job Buffering** is only visible as a menu setting if there is a hard disk installed in the printer. Press MENU or touch Menus and then select **Network/Ports > Standard Network > Job Buffering.***

- **Port 9600** - This port should only be used for receiving IPDS jobs. The printer's **Network Job Timeout** setting is automatically set to the correct setting for receiving IPDS jobs on this port. This port is only provided for compatibility with some older printers. Port 5001 is the recommended port for printing IPDS jobs.

Step 2   Define the Printer to PSF/AIX

To create a new IPDS printer definition in PSF/AIX perform the following actions:

a) Execute the command **smit psf_add_prt_tcpip** to get the PSF/AIX SMIT Printer Definition for TCP/IP attached printers.

b) Configure the following:

Connect TIMEOUT: Enter a name for the IPDS printer. This name will also be used for the print queue associated with the printer.

Internet ADDRESS: Enter the host name (preferred) or IP address you have assigned to the MarkNet adapter (e.g. 157.184.67.102). If you use the host name, PSF/AIX will resolve it into an IP address either through the Host file or through a Domain Naming Service (DNS) Server.

PORT Number: 5001   (Port number selected in Step 1.)

Number of QUEUE DEVICES: Leave this at the default value (4 devices) initially. You can tune this option later, according to the throughput of the printer.

Connect TIMEOUT: Initially leave this at the default value (30 seconds). Refer to the PSF/AIX on-line help for information about when to increase this value.

DESCRIPTION: Enter an optional description for the printer.

c) Press Enter to create the new IPDS printer definition.

Note: You can check the connection by using the enq command to place jobs in the queue. Example:

```
enq -P'psfqueue' -odatatype=AFPDS /etc/motd
```

You can also use the command **smit psf_data_type_sel** to queue the job.

See also the *Installing a TCP/IP-attached IPDS printer* in the IBM AIX *Print Service Facility/6000: Print Administration Version 1.2* manual for further information about this task.

Step 3   Configure the Printer's Print Server TCP/IP Settings

To enable IPDS printing with a Standard Network port or a MarkNet internal LAN print server, several settings must be verified. You can verify these settings from the printer control panel as shown below.

1   From a **Ready** state press the **MENU** button (printers) or touch   (**Menus** on MFPs).

2   Use the navigation buttons or icons ▼ ▲ to scroll to **Network/Ports.**

3   Select **Network/Ports**.

TIp: To do this on printers, press the **Select** button   ⊘   ; on MFPs just touch **Network/Ports**.

4   Now you will see a list of menus. Select the **TCP/IP** menu**.**

5   Use the navigation buttons or icons to scroll through the options. Check each of the following settings and change them as needed to configure TCP/IP communication.

```
TCP/IP Settings
Parameter           Value

Activate            On
(Printers: Must  be "On" to enable TCP/IP communi-
cations. MFPs: not displayed.)

Address             157.184.67.102
(Address available from your network administrator)

Netmask             255.255.255.0
(Appropriate netmask for your network)

Gateway             157.184.67.1
(IP address of your IP gateway)

Enable DHCP         On or Off
(On, if you use a DHCP server.)
(Off, if you set the IP address another way.)

Enable RARP         On or Off
(On, if you use a RARP server.)
(Off, if you set the IP address another way.)

Enable BOOTP        On or Off
(On, if you use a BOOTP server.)
(Off, if you set the IP address another way.)

AutoIP              On or Off
(Default is On. This is the recommended setting.)


WINS Server Address 157.184.100.20
(Address of your WINS Server)

DNS Server Address  157.184.115.7
(Address of your DNS Server)
```

6   Save/submit any changes and return to the **Ready** screen.

7   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 4   Configure the Printer's Network Job Timeout

Note: If you specified Port 5001 or 9600 as the TCP/IP port number in the printer created in Step 2 [page 45], you do not need to configure the printer's **Network Job Timeout**. Go directly to Step 5 [page 47].

Important! If you specified Port 9100 as the TCP/IP port number, the printer's **Network Job Timeout** must be manually disabled by setting it to "0" (or to "Disable"). This is necessary to allow the host's **Release Timer** value or the printer's **IPDS Timeout** value to control when print jobs from another protocol, interface, server, or host can be started. It also prevents the printer from ending the IPDS session if communication is delayed between the host and printer.

Additional information on the printer IPDS Timeout value may be found in the IPDS Emulation User's Guide.

Follow these steps to disable the printer's **Network Job Timeout** from the control panel:

1   **Navigate to Network Job Timeout.**

   To find the Network Job Timeout Option on the control panel: On printers, press MENU and then select **Settings > Setup Menu > Timeouts > Network Job Timeout**. *On MFPs, touch Menus and then select* **Settings > General Settings > Timeouts > Network Job Timeout.**

2   Select **0**. This disables the network job timeout.

3   Save/Submit any changes and return to the **Ready** screen.

4   To verify the new print server settings, print a Network Setup Page. Using the control panel **MENU/Menus**, select **Reports > Network Setup Page**. This can be **Network Setup Page**, **Network 1 Setup Page**, or **Network 2 Setup Page**. Note that the **Network Job Timeout** is identified as **End-of-job Timeout** on this report.

Step 5   Select the IPDS Emulation, Bar Code Size, Host Resolution, and Fax Interrupt Settings

It is important to select the correct emulation in the printer IPDS MENU before sending IPDS jobs.

Guidelines for Choosing the IPDS Emulation Setting

The **IPDS Emulation**, the **BAR CODE** and **Host Resolution** options are found in the printer control panel under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

1   "Resident" is the default setting. If you are replacing a printer that used a Native Emulation setting, "Resident" is the recommended emulation.

2   If you are replacing a printer that used a 4028 Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "4028" under **BARCODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

3   If you are replacing a printer that used a 43xx Emulation setting, choose the "Resident" Emulation and change the following settings:

   a)   Set **Bar Code Size** to "43xx" under **BAR CODE > Bar Code Size**.

   b)   The recommended **Host Resolution** setting is "Auto". If you experience printing problems, set Host Resolution to "300".

4   If you are replacing a printer that used a 3812/3816 Emulation, select the "3812/3816" Emulation. This emulation only accepts 240 dpi resources (fonts, overlays, etc.) from the host and does not support DBCS printing.

On MFPs, you can set the print priority of received faxes. Refer to the IPDS Emulation User's Guide for additional information about **Fax Interrupt**. This option is found under **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**.

Refer to the IPDS Emulation User's Guide for information on these options and other IPDS MENU settings to format IPDS jobs.

Note 1:   If the IPDS code release on an MFP is 3.00-01090 or higher, "Copy Interrupt" is supported: an IPDS job can be interrupted by copy jobs and will resume printing automatically. At lower release levels, intervening copy jobs will be spooled to disk (when available) and be processed after the IPDS job is finished.

Note 2:   The supported printers and MFPs do not contain an Advanced Function Common Control Unit (AFCCU).

Step 6   Verify IPDS Printing

If you have completed the steps above to configure the host and printer, you are ready to print your first IPDS job.

1   Send an IPDS job from your host system.

2   Observe the printer control panel. When the first job data is received, **BUSY** should be displayed in the printer control panel. If the job does not print, go to Step 7 Troubleshooting.

3   After the last page of the IPDS job prints, **BUSY** will remain displayed until the host or printer ends the session. This is controlled by the **Release Timer** on the host or by the **IPDS Timeout** on the printer.

4   You may want to refer to the IPDS Emulation User's Guide to determine if other IPDS MENU settings need to be changed.

Step 7   Troubleshooting

If the IPDS job does not print, try the following.

1   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check to be sure the printer is connected to the network. Try to PING the printer.

2   If **BUSY** is not displayed in the printer control panel or if the printer remains in **Ready** mode, check all host and printer settings to be sure they are correct.

3   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '08C1' indicating that the job is printing outside the printer valid printable area, choose one of the following solutions:

   a)   Change the **Printable Area** setting to **Physical Page**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Printable Area**.

   b)   Change your application to position the text within the printable area. Refer to Printable Area in the IPDS Emulation User's Guide for more information.

   c)   Change the **Exception Ctrl** setting to **Sup Beyond VPA**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send a NACK to the host when printing outside the valid printable area.

4   If you receive an IPDS Negative Acknowledgement (NACK) beginning with '0821' indicating there are undefined characters in the job, choose one of the following solutions:

    a) Change your application to send only valid characters and control codes.

    b) Change the **Exception Ctrl** setting to **Sup Undef Char**. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Exception Ctrl**. The printer will not send undefined character NACKs to the host.

5 If the job prints, but some characters are printed incorrectly, you should check the default code page setting. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > Default Codepage.** On printers, the next step is to select **Codepages A-E** or **Codepages F-K** or **Codepages L-Z**, then select the proper code page from these groups. On MFPs, the complete list of code pages appear beside **Default Codepage**.

6 If the job prints, but some bar codes print in the wrong size, refer to the **Bar Code Size** option in the IPDS User's Guide for more information. Using the control panel **MENU/Menus,** select **Option Card Menu > IPDS MENU > EMULATION > BARCODE > Bar Code Size**.

7 Refer to for additional problem solutions.

8 Once the job prints, refer to the IPDS Emulation User's Guide for information on changing other IPDS MENU settings.

7.   Printer and Host Timeout Values

Selecting compatible values of the printer IPDS Timeout value and host release timers is very important when printing IPDS jobs. Selection of some values will cause communication problems between the printer and the host. Use the tables below to verify the timeout settings in the printer and on the host.

AS/400 or iSeries and Printer Timeout Values

Printer IPDS Timeout	AS/400 or iSeries Release Timer	AS/400 or iSeries Device Description Valid Port Number	Note
Host Controlled	*SEC15	5001, 9100, 9600	
	*SEC30	5001, 9100, 9600	
	Specific Number of Seconds	5001, 9100, 9600	1
	*NOMAX	None	2
15 sec to 10 Min	*SEC15	5001, 9600	3
	*SEC30	5001, 9600	3
	Specific Number of Seconds	5001, 9600	3
	*NOMAX	5001, 9600	4

Note 1:   The number of seconds should be greater than or equal to 15 seconds.

Note 2:   The Release Timer and IPDS Timeout value are not compatible. The printer will remain busy after the IPDS job has completed. Jobs from other IPDS sessions and non-IPDS jobs waiting on other ports will not print.

Note 3:   These Release Timer values are not recommended when the IPDS Timeout is set to a specific value. If used, the difference between the two timers should be a minimum of 30 seconds.

Note 4:   An IPDS Timeout value of 15 sec or 30 sec is recommended. This allows 15 or 30 seconds for the host to send another job before the printer times out and starts printing jobs waiting on other ports.

MVS and Printer Timeout Values - see next page

MVS and Printer Timeout Values

Printer IPDS Timeout	STARTUP PROC Disconnect Interval (DISCINTV)	STARTUP PROC Valid Port Number (PORTNO)	Note
Host Controlled	Specific Number of Seconds	5001, 9100, 9600	1
	0	None	2
15 sec to 10 Min	Specific Number of Seconds	5001, 9600	3
	0	5001, 9600	4

Note 1: The number of seconds should be greater than or equal to 15 seconds.

Note 2: The DISCINTV value and IPDS Timeout value are not compatible. The printer will remain busy after the IPDS job has completed. Jobs from other IPDS sessions and non-IPDS jobs waiting on other ports will not print.

Note 3: This DISCINTV value is not recommended when the IPDS Timeout is set to a specific value. If used, the difference between the two timers should be a minimum of 30 seconds.

Note 4: An IPDS Timeout value of 15 sec or 30 sec is recommended. This allows 15 or 30 seconds for the host to send another job before the printer times out and starts printing jobs waiting on other ports.

8.   Port Support for IPDS Printing

Several ports are available for printing IPDS jobs. The 5001 port is the recommended port selection for printing IPDS jobs. Use the table below to determine the ports supported on your printer for printing IPDS jobs.

✔ = supported

✗ = not supported

Printer or MFP	Port 5001	Port 9100	Port 9600
Lexmark C770, C772	✔	✔	✔
Lexmark C780, C782	✔	✔	✔
Lexmark C920	✔	✔	✔
Lexmark C935	✔	✔	✔
Lexmark T640, T642, T644	✔	✔	✔
Lexmark W840	✔	✔	✔
Lexmark X644e MFP, X646e MFP	✔	✔	✔
Lexmark X646ef MFP	✔	✔	✔
Lexmark X782e MFP	✔	✔	✔
Lexmark X850e MFP, X852e MFP, X854e MFP	✔	✔	✔
Lexmark X940e MFP, X945e MFP	✔	✔	✔

9.   Coax/Twinax Adapter for SCS Support

The table below shows the printers which support the Coax/Twinax Adapter for SCS.

✔   = supported (see note)

✗ = not supported

Printer or MFP	Support	
Lexmark C770, C772	✗	
Lexmark C780, C782	✗	
Lexmark C920	✗	
Lexmark C935	✗	
Lexmark T640, T642, T644	✔	(See note)
Lexmark W840	✔	(See note)
Lexmark X644e MFP, X646e MFP	✗	
Lexmark X646ef MFP	✗	
Lexmark X782e MFP	✗	
Lexmark X850e MFP, X852e MFP, X854e MFP	✗	
Lexmark X940e MFP, X945e MFP	✗	

Note: If a "55 Unsupported Card" or "55 Unsupported Option in Slot 1 or 2" message is displayed on a Lexmark T64x or Lexmark W840 printer when the adapter is installed, contact printer technical support for updated printer code. This message can also appear on other printers. Code updates are only available for Lexmark T64x and Lexmark W840 printers

10.   Printer Messages and Problems

Review these problems and solutions for possible answers to your questions.

Use the table below if you are searching for information on a printer message or for keywords for a problem.

Message (bold) or Problem	Problem Number	Page
34 Short Paper	16	61
34 Wrong Paper Size	16	61
36 Resolution Reduced	2	57
38I Memory Full	4	57
55 Unsupported Option in Slot X	21	62
1565 EMUL ERROR	14	60
Active IPDS Ses. Ignoring Request	18	61
Bad Memory System	9	59
Busy	1	55
Disk Full	20	62
Disk protected, Fonts Not Erased	19	62
Fatal error in print queue	1	55
Flash Full	20	62
Flash Protected, Fonts Not Erased	19	62
Intervention Required messages	8	59
IPDS memory exception	3	57
Job Buffering	10	59
Memory Full	4	57
Not enough free space in flash/disk memory for resources	20	62
Not enough memory for IPDS	11	60
PostScript jobs don't print	6	58
PCL jobs don't print	6	58
Slot locations for options (Adapter for SCS)	5	58
Recycle Power	12	60
Remote output queue (name clash)	7	59
Resources Lost	13	60
Standard Network port not working	17	61
Timeout (**IPDS Timeout; Busy Timeout** etc.)	1	55

Message (bold) or Problem	Problem Number	Page
Update Option Card Firmware	15	61

Problem 1: Fatal error in print queue; incorrect Busy / Timeout

The print queue stops with a fatal error which requires operator intervention or the printer stays **BUSY** even when no IPDS jobs are printing.

Solution to Problem 1

The host still has control of the printer.

You need to adjust the **Adapter for SCS timeout,** the **Network Job Timeout** on the printer, the printer **IPDS Timeout** value, the **host port** value, or the appropriate **timer/timeout value on your IPDS host**.

You may have to adjust a combination of these to solve the problem.

Adapter for SCS timeout

Refer to the appropriate section in this guide for information on changing the timeout value.

- for Twinax: "Set the Adapter for SCS Twinax Timeout", page 16
- for Coax: "Set the Adapter for SCS Coax Timeout" on page 31

IPDS Timeout = Host Controlled
(when using Standard Network port or MarkNet internal LAN print server)

> **Note:** The printer defaults to **Host Controlled** when receiving IPDS jobs on port 9100.

If you selected any other **IPDS Timeout** value go to *IPDS Timeout = 15 seconds to 10 minutes* below (page 56).

If you selected the **IPDS Timeout** value of **Host Controlled** in order to allow the host to directly control ending (disconnecting) a LAN session, follow the steps below to correct the problem.

1   Disable the printer's **Network Job Timeout** by setting it to 0. For instructions on how to do this, see the "Configure the Printer's Network Job Timeout" step in the chapter in this guide that describes your host environment.

2   Change the **host port setting** to 9100, 5001, or 9600. See "Printer and Host Timeout Values" [page 50] for valid values. Additional information on the **IPDS Timeout** and port settings may be found in the IPDS Emulation User's Guide.

3   After changing the host port settings, correct the appropriate **host timer/timeout** value as shown below.

```
PSF/400 with OS/400 V3R1 or V3R6
WRKAFP2: Inactivity Timer (INACTTMR)                    *SEC15 or *SEC30

PSF/400 with OS/400 V3R2, V3R7, V4R1-R5, or V5R1-R4
or greater                                             *SEC15 or *SEC30
CRTPSFCFG: Release Timer (RLSTMR)
```

```
PSF/MVS
PSF Startup Proc: Disconnect Interval (DISCINTV)      15 seconds

PSF/2
TCP/IP Settings: Connect Timeout                      30 seconds
Tuning Option: Job Interval Shutdown Timer            30 seconds

PSF/AIX
SMIT Printer Def: Connect Timeout                     30 seconds
```

IPDS Timeout = 15 seconds to 10 minutes
(when using the Standard Network port or a MarkNet internal LAN print server)

> **Note:** The printer defaults to **Host Controlled** when receiving IPDS jobs on port 9100.

If you selected the **IPDS Timeout** value of **Host Controlled** in order to allow the host to directly control ending (disconnecting) a LAN session, go to *IPDS Timeout = Host Controlled* above (page 55).

If you selected an **IPDS Timeou**t value of **15 seconds to 10 minutes** in order to allow the printer IPDS emulation to determine when an IPDS LAN session times out, follow the steps below to correct the problem.

1   Disable the printer's **Network Job Timeout** by setting it to 0. For instructions on how to do this, see the "Configure the Printer's Network Job Timeout" step in the chapter in this guide that describes your host environment.

2   Change the **host port setting** to 5001 or 9600. Refer to "Printer and Host Timeout Values" [page 50] for valid values. Additional information on the **IPDS Timeout** and port settings may be found in the IPDS Emulation User's Guide.

3   After changing the host port setting to 5001 or 9600, correct the appropriate **host timer/timeout** value as shown below.

> **Note:** The **host timer/timeout** values below should **not** be used with a host port value of 9100.

```
PSF/400 with OS/400 V3R1 or V3R6
WRKAFP2: Inactivity Timer (INACTTMR)                  *NOMAX

PSF/400 with OS/400 V3R2, V3R7, V4R1-R5, or V5R1-R4
or greater                                            *NOMAX
CRTPSFCFG: Release Timer (RLSTMR)

PSF/MVS
PSF Startup Proc: Disconnect Interval (DISCINTV)      0

PSF/2
TCP/IP Settings: Connect Timeout                      0
Tuning Option: Job Interval Shutdown Timer            9999

PSF/AIX
SMIT Printer Def: Connect Timeout                     0
```

Problem 2:   36 Resolution Reduced

The message **36 Resolution Reduced** displays and the printer stops.

Solution to Problem 2

The printer memory is full and the page cannot be printed at the selected print resolution setting. Press **Go** and the page is printed at a lower resolution. If this is a constant problem and you want to print at the higher resolution, you need to add more memory to the printer.

This message is an informational message on some models. The printer will display the message and continue printing the job without operator intervention. If this message continues to appear when printing jobs, add more memory to the printer.

Requirements vary greatly according to type of printing and types of resources being used. For information on the minimum recommended installed memory for various printing requirements on each supported printer, refer to the appendix on memory requirements and recommendations in the IPDS Emulation User's Guide.

Problem 3:   IPDS memory exception

Sometimes an IPDS memory exception is reported to the host.

Solution to Problem 3

You need to do one or more of the following:

A. Postscript or PCL resources may be saved in the printer memory. The memory cannot be used by IPDS. Set **Resource Save** to "Off" to allow permanent downloaded resources from PostScript and PCL jobs to be deleted. On printers, **Resource Save** is found under **MENU > Setup Menu > Settings**. On MFPs, it is found under **Menus > Settings > Print Settings > Setup Menu**. Try reprinting the job after powering the printer OFF and ON.

B. There may be insufficient printer memory to print the IPDS job with print resolution selected in the printer's **MENU/Menus > Option Card Menu > IPDS MENU > EMULATION >IPDS Print Res** menu item. Select a lower print resolution and try reprinting the job. If using the Adapter for SCS, you must power the printer OFF and ON for this change to take effect.

C. There may be insufficient printer memory to temporarily store IPDS resources and print non-IPDS jobs. Add more memory to the printer. Requirements vary greatly according to type of printing and types of resources being used. For information on the minimum recommended installed memory for various printing requirements on each supported printer, refer to the appendix on memory requirements and recommendations in the IPDS Emulation User's Guide.

D. The host may be downloading more IPDS resources than can be held in the printer's memory. Add more memory to the printer. Requirements vary greatly according to type of printing and types of resources being used. For information on the minimum recommended installed memory for various printing requirements on each supported printer, refer to the appendix on memory requirements and recommendations in the IPDS Emulation User's Guide.

Problem 4:   Memory Full; 38I Memory Full

Sometimes the message **38I Memory Full** or **Memory Full** displays on the printer control panel and the connection with the printer is lost. What do these messages mean? What should I try?

Solution to Problem 4

38I Memory Full - this message is generated when there is insufficient memory to print the page.

Memory Full - this message means the printer could not reestablish connection to PSF, the resources have been lost. The printer is disconnected from the host.

These messages appear because there is insufficient memory to print the IPDS job or to temporarily store the resources. The memory is probably being used to store PostScript, PCL and/or IPDS resources.

A. Set **Resource Save** to **Off** to allow permanent downloaded resources from PostScript and PCL jobs to be deleted. On printers, **Resource Save** is found under **MENU > Setup Menu > Settings**. On MFPs, it is found under **Menus > Settings > Print Settings > Setup Menu**. Try reprinting the job after powering the printer OFF and then ON.

B. Add more memory to the printer. Requirements vary greatly according to type of printing and types of resources being used. For information on the minimum recommended installed memory for various printing requirements on each supported printer, refer to the appendix on memory requirements and recommendations in the IPDS Emulation User's Guide.

C. If a LAN connection is used through the Standard Network port or a MarkNet internal LAN print server, try setting **IPDS Timeout** to **Host Controlled** and set the **host release timer** to a small value. This means that the host deletes the downloaded IPDS resources when disconnecting. When a new IPDS job is sent from the host new IPDS resources are downloaded to the printer.

Problem 5: Menu Choices for Adapter for SCS

I am using the Card for IPDS and SCS/TNe together with the Coax/Twinax Adapter for SCS. Where are the menus for the Adapter for SCS?

Solution to Problem 5

Use the control panel to navigate to the **Option Card Menu**. If the Card for IPDS and SCS/TNe and the Coax/Twinax Adapter for SCS are both installed, **SCS MENU 1** or **SCS MENU 2** will be displayed along with **IPDS MENU** and **SCS/TNe MENU**. The Adapter for SCS menu system is called **SCS MENU**. Depending on the slot in which the Adapter for SCS is installed, **SCS MENU** will be found under **SCS MENU 1** or **SCS MENU 2**.

Tip: Place a label on the front of the printer indicating the connector locations of all installed options.

Problem 6: Large or complex PostScript or PCL jobs do not print after installing IPDS emulation

Before installing the IPDS emulation, my PostScript and PCL jobs printed correctly. Now some large Post-Script and PCL jobs do not print.

Solution to Problem 6

A. If you have set host and printer settings to temporarily store IPDS resources when printing non-IPDS jobs, change these settings to allow the host to delete the IPDS resources before printing non-IPDS jobs. Refer to **IPDS Timeout** in the IPDS Emulation User's Guide for more information on setting printer values and see the appropriate host installation section in this guide to change the **host timeout** value.

B. Add more memory to the printer. This will allow IPDS resources to be temporarily stored and more complex non-IPDS jobs to print. Requirements vary greatly according to type of printing and types of resources being used. For information on the minimum recommended installed memory for various printing requirements on

each supported printer, refer to the appendix on memory requirements and recommendations in the IPDS Emulation User's Guide.

Problem 7:   Remote output queue (name clash)

I'm trying to set up a remote printer with the Standard Network port or a MarkNet internal LAN print server (named IPDSPRT) from my AS/400. When I try to print to it, I get an error message such as:

- **"All sessions ended for device IPDSPRT"**
- **"Bind sense code ... received for mode QSPWTR device IPDSPRT"**
- **"Writer...did not end normally"**

Solution to Problem 7

A remote output queue created using CRTOUTQ and a PSFCFG device created using WRKAFP2 or CRTPS-FCFG have the same user defined name. You must use a unique name for the remote output queue for an ASCII device using TCP/IP and the AS/400 Host Print Transform. This cannot be the same name used to define the printer as an IPDS printer with WRKAFP2 or CRTPSFCFG.

Problem 8:   Intervention Required messages

Intervention Required messages (printer offline, paper jam, out of paper, cover open, etc.) from the printer are causing problems on the IPDS host.

Solution to Problem 8

You can suppress this message reporting by selecting the value **Do Not Report** for the option **Intervention Required** in the IPDS menu system **- MENU/Menus > Option Card Menu > IPDS MENU > EMULATION**. You would then rely on users noticing the status of the printer.

Problem 9:   Bad Memory System

The message **Bad Memory System** displays and the printer stops.

Solution to Problem 9

The IPDS memory has been corrupted. Power the printer OFF and then ON.

Problem 10: Job Buffering (= On or = Off?)

IPDS jobs will not work with **Job Buffering** set to **On**.

Solution to Problem 10

The host expects immediate responses from the printer during IPDS job processing. Buffering an IPDS job to the disk delays the return of these responses. Choose one of the following options.

A. Change the port setting to 5001 on the host. The **Job Buffering** setting does not affect IPDS jobs received on this port. Non-IPDS jobs, which are received on other ports, can still be buffered.

B. Set **Job Buffering** to **Off** under the **Standard Network**, **Network 1,** or **Network 2** menu in the printer's

Network/Ports menu.

Problem 11: Not enough memory for IPDS

I get the message **Not enough memory for IPDS**.

Solution to Problem 11

If less than 64 MB printer memory is installed, the IPDS Menu settings can be accessed and configured, but IPDS jobs can not be printed from the host (jobs may be printed using other emulations). To activate IPDS printing, make sure that there is at least 64 MB printer memory installed.

Problem 12: Recycle Power

After I change a setting, the control panel displays not only **Submitting Selection** , but also **Recycle Power.**

Solution to Problem 12

An established host session was idle when you changed settings.

Power the printer OFF then ON. This causes the host to request the new printer settings and make them active.

Alternatively, end the current IPDS session at the host and start a new one.

Problem 13: Resources Lost

The message **Resources Lost** appears on the display before an IPDS job prints.

Solution to Problem 13

IPDS resources were deleted by the printer.

A. Try to determine what is causing the resources to be deleted. For more information, refer to the section on IPDS Timeout in the IPDS Emulation User's Guide.

B. Non-IPDS jobs may cause IPDS resources to be deleted. Add additional memory. Requirements vary greatly according to type of printing and types of resources being used. For information on the minimum recommended installed memory for various printing requirements on each supported printer, refer to the appendix on memory requirements and recommendations in the IPDS Emulation User's Guide.

Problem 14: 1565 EMUL ERROR LOAD EMUL OPTION

1565 EMUL ERROR LOAD EMUL OPTION appears on the display after updating the printer code.

Solution to Problem 14

The IPDS emulation version contained in the Card will not function with the printer code. Download the correct IPDS emulation version. See the section on support (page 5) for firmware update information.

Problem 15: Update Option Card Firmware

Update Option Card Firmware appears on the display.

Solution to Problem 15

This message indicates that the IPDS/SCS/TNe or printer firmware on the option card must be updated. See the section on support (page 5) for firmware update information.

Warning: Continuing to use the printer without updating the firmware may result in jobs not printing correctly or hardware options (such as output bins or finishers) not operating correctly.

Problem 16: 34 Short Paper

34 Short Paper appears on the display

Solution to Problem 16

A. Load the correct paper size and/or check tray paper guides to be sure the correct size is sensed by the printer.

B. Select **Continue** and the job will be printed.

Note: The host is notified of the paper change. Several jobs may print formatted for the wrong paper size before the host changes to the new paper size.

Problem 17: Standard Network port not working

I have a Standard Network port and a MarkNet internal LAN print server installed. My Standard Network port is not working.

Solution to Problem 17

The Standard Network port cannot be used when a MarkNet internal LAN print server is installed. Try the following.

A. Obtain an unused network address from your administrator.

B. Remove the MarkNet internal LAN print server.

C. Use the new address and other information to configure the Standard Network port.

D. Attach the Standard Network port to the network.

E. Send a job to the printer.

F. If the job does not print, you should recheck all settings on the printer and host.

G. If the job prints, you must decide which port to use for receiving jobs.

Problem 18: Active IPDS Ses. Ignoring Request

The message **Active IPDS Ses. Ignoring Request** is displayed when selecting **Yes** to print the IPDS fonts.

Solution to Problem 18

An IPDS session is active with the host. End the session to print the IPDS fonts page. For more information, refer to the section Print IPDS Fonts in the IPDS Emulation User's Guide.

Problem 19: Disk Protected, Fonts Not Erased *or* Flash Protected, Fonts Not Erased

One of the above messages is displayed when I select **Yes** under the **Remove Fonts** menu item.

Solution to Problem 19

The disk or the flash is password protected. Remove the password protection to remove the IPDS fonts and then restore the password protection.

Problem 20: Disk Full or Flash Full

The printer control panel displays a disk full or flash full message and the printer stops printing.

Solution to Problem 20

The hard disk or user flash became full before all font resources from the host were captured. Select **Continue** to resume printing. When the printer returns to **Ready,** disable capturing of IPDS fonts. To disable capturing, select **MENU/Menus > Option Card Menu > IPDS MENU > FONT CAPTURE > Capture Fonts > Disable**.

If additional resources must be captured, install a larger user flash or hard disk. Note that MFPs do not allow installation of user hard disks. Most MFPs are delivered with hard disks installed.

You may also choose to capture fewer fonts, reformat the user flash or remove IPDS fonts from the disk and capture the fonts again.

To remove IPDS fonts from a disk, select **MENU/Menus > Option Card Menu > IPDS MENU > FONT CAP-TURE > Remove Fonts > Yes**.

Removing fonts by using the IPDS MENU does not free space on a user flash, it only marks the fonts as unusable. The same fonts can be downloaded again if space is available. To actually clear IPDS fonts from a user flash, reformat the flash. This will remove all information stored on the flash.

On printers, select **MENU > Settings > Utilities Menu > Format Flash > Yes**.

On MFPs, select **Menus > Settings > Print Settings > Utilities Menu > Format Flash > Yes**.

Problem 21: 55 Unsupported Option in Slot X

The message "55 Unsupported Card" or "55 Unsupported Option in Slot 1 or 2" appears when the Coax /Twinax Adapter for SCS is installed.

Please see "Coax/Twinax Adapter for SCS Support" [page 53].

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END OF GUIDE

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