

IBM Network Printers  
IBM InfoPrint 20  
IBM InfoPrint 32



# Twinax/Coax Configuration Guide

**Note**

Before using this information and the product it supports, be sure to read the general information under "Appendix A. Notices" on page 121.

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## About This Book

This book is designed to help you install and configure the IBM Twinax SCS Interface card and the IBM Coax SCS/DSC/DSE Interface card for the following IBM printers: IBM Network Printer 12, IBM Network Printer 17, IBM Network Printer 24, IBM InfoPrint 20, and IBM InfoPrint 32.

**Note:** The rest of this book refers to these cards as the twinax card and coax card. It refers to the printers as IBM network printers.

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## Audience

This book is intended for the personnel responsible for doing the following:

- Installing the twinax card or coax card
- Configuring printer menus to use the twinax card or coax card
- Configuring the host to send data to the network printer

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## Other Publications

Each network printer ships with setup documentation and a CD-ROM which includes the entire printer library for viewing and printing. The following books may be of particular interest:

- *IBM Network Printers: PCL and PostScript Technical Reference, S544-5344*
- *IBM Network Printers: IPDS and SCS Technical Reference, S544-5312*

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## Using This Book

This book has three parts:

- “Part 1. Twinax Attachments” on page 1—use this section if you are installing a twinax card.
- “Part 2. Coax Attachments” on page 43—use this section if you are installing a coax card.
- “Part 3. Using Your Printer” on page 85—use this section to learn about using the printer operator panel, printer sharing, the unprintable area on network printers, font support, and other topics.

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## Technical Support

If you run into a problem, see the “Troubleshooting” section of the User’s Guide for your printer. If you still cannot solve the problem, IBM customer technical support is available at no additional charge during the warranty period. In the U.S.A. and Canada, call 1-800-358-6661.

**Notes:**

1. Have your printer serial number ready. If you are asked for a printer type, specify one of the following:
  - 4312 for IBM Network Printer 12
  - 4317 for IBM Network Printer 17
  - 4324 for IBM Network Printer 24
  - 4320 for IBM InfoPrint 20
  - IBM InfoPrint 32
2. If possible, have a copy of the the configuration page for your printer (see “Printing the Printer Configuration Page” on page 88, and the configuration page for your twinax card or coax card. To print a configuration page for your twinax card or coax card, press the TEST button on the faceplate of the card.
3. If you need IBM operating system support (for example, AIX, OS/2, OS/400, and MVS), contact IBM software support (1-800-237-5511 in the U.S.A., 1-800-465-2222 in Canada).

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# Part 1. Twinax Attachments

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## Chapter 1. Twinax Installation and Configuration Checklist

- \_\_\_ 1. Make sure your printer is unpacked and all other options are installed. If not, see the setup instructions included with your printer. If you are unfamiliar with using your printer, see “Part 3. Using Your Printer” on page 85.
  - \_\_\_ 2. Install the optional IPDS SIMM if you intend to use IPDS. For instructions, see the instructions that ship with the IPDS SIMM.
  - \_\_\_ 3. Review “Chapter 2. Twinax Planning Information” on page 5 for general information about twinax attachments and AS/400.
  - \_\_\_ 4. Ensure that you have the correct host cable. See “Chapter 3. Choosing Twinaxial Cable” on page 15.
  - \_\_\_ 5. Install the twinax card if it is not already installed. See “Chapter 4. Installing the Twinax Card” on page 17.
  - \_\_\_ 6. Configure the printer using the printer configuration menus. See “Chapter 5. Configuring Printer Menus for Twinax Attachments” on page 19 .
  - \_\_\_ 7. Make sure the printer is unplugged, then attach the twinax cable. See “Chapter 6. Attaching the Twinax Cable” on page 35.
  - \_\_\_ 8. Print the printer configuration page. See “Printing the Printer Configuration Page” on page 88. Check any menu settings you changed. Also check the Installed Options section to make sure the twinax card has been successfully installed.
  - \_\_\_ 9. Configure your host system with the help of your host system administrator. See “Chapter 7. Configuring the AS/400” on page 37.
  - \_\_\_ 10. If the printer menu settings do not produce the desired results with your application, change the settings as appropriate. If problems persist, see the “Troubleshooting” section of your printer’s *User’s Guide*.
- For information about IBM technical support, see “Technical Support” on page x.

## **4** Twinax/Coax Configuration Guide

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## Chapter 2. Twinax Planning Information

This section provides general planning information for AS/400 attachments, including:

- “Systems Supported”
- “Functional Overview” on page 6
- “AS/400 Print Functions for the Network Printer” on page 7
- “OS/400 Duplex Summary” on page 12

**Note:** Install the latest AS/400 cum PTF tape and print-related PTFs. Please read the cover letters for print-related PTFs for more specific information.

Up-to-date PTF information can be accessed at the AS/400 service web site:

1. Access the website at: <http://as400service.ibm.com>
2. Go to **AS400 Support Line Knowledge Base**
3. Select **PRINT**

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### Systems Supported

You can use the following system attachments:

- IBM AS/400 Twinaxial Workstation Controller
- IBM 5394 Remote Control Unit attached to the AS/400
- IBM 5494 Remote Control Unit attached to the AS/400
- Also see “Attaching to an AS/400 Advanced 36” on page 41.

Programming Support is provided for the printer by the IBM AS/400 Operating System/400 (OS/400) Release 2.1 or higher. Note that Releases 2.2 and 2.3 are no longer supported.

For information on physical planning (including detailed cabling and switch setting) and for information on system limitations, see:

- *IBM 5250 Information Display System Planning and Site Preparation Guide*, GA21-9337
- *Attaching Work Station and Communication Cables to the AS/400*, SA21-9957
- *IBM AS/400 Physical Planning Guide*, GA41-9571

- *AS/400 Device Configuration Guide, SC21-8106*
- *AS/400 Device Configuration Guide Version 2.3.0, SC41-8106*
- *Changing Your System Configuration, SC21-9052*

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## Functional Overview

### Dual Printer Addresses

When the optional IPDS SIMM is installed with the twinax card, each network printer can act as two separate printers on the same twinax port. One “printer” prints SCS data to one address, and the other prints IPDS to another address.

To set these addresses, change the SCS ADDR and IPDS ADDR values on the Twinax Setup Menu. See “Twinax Setup Menu” on page 21 for information on setting the SCS ADDR and IPDS ADDR.

#### Notes:

1. The printer cannot be attached to two different twinax systems using the same twinax card.
2. SCS ADDR and IPDS ADDR cannot be set to the same value.
3. If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect.

### Printing Border

The normal print border is described in “Chapter 17. Unprintable Area Information” on page 91. Various techniques exist to compensate for this border, including:

- Resetting the IPDS Menu items X-OFFSET, Y-OFFSET, and PAGE. See “IPDS Menu” on page 24.
- Resetting the orientation for each tray listed on the Twinax SCS Menu. See “Twinax SCS Menu” on page 30.
- Setting EDGE-EDGE to ON on the IPDS Menu and the Twinax Setup Menu. Note, however, that setting EDGE-EDGE on is recommended only when necessary because of possible printer toner contamination.

### Envelope Size Specification

See the *User’s Guide* for your printer for detailed information about allowable envelope sizes and weights.



## Error Recovery

For SCS (3812), network printers manage the recovery of print data after intervention-required errors, such as paper jams and end of forms. (This requires JAMRECOVERY in the Configuration Menu set to ON.) They also provide early print complete indications to the host to improve print performance. These factors render host error recovery options other than Ignore (I) both unnecessary and potentially misleading when using SCS or when using IPDS with early print complete on. For this reason, if you use SCS or you use IPDS with early print complete set to on (EARLY COMPL = ON on the IPDS Menu), IBM recommends that the “Printer Error Messages” (PRTERMSG) parameter of the device description be set to \*INFO (instead of the \*INQ value that is set in auto configuration).

## Font Cards

You cannot use fonts on font cards, cartridges, optional flash SIMMs, or the hard drive for IPDS from the twinaxial interface. The network printers do not support font cards or cartridges.

## Bar Code Sizes

Identical bar code commands sent to different IPDS printers may exhibit slight variations in the size of the bar code produced.

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## AS/400 Print Functions for the Network Printer

Table 1. AS/400 Print Functions for Network Printer

Function	IPDS		Non-IPDS	
	AFP	IPDS	SCS	HPT
<b>OV/400 Print Functions</b>				
Bold	Yes	Yes	Yes	Yes
Change font (type style)	Yes	Yes	Yes	Yes
Color	No	No	No	No
Double-byte character set (DBCS) data	No	No	No	No
Double-sided printing	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>
Double-sided tumble printing	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>
Graphics	Yes	Yes	No	No
Image	Yes	Yes	No	Yes <sup>15</sup>
Justification - Half (50%)	Yes	Yes	Yes	Yes

Table 1. AS/400 Print Functions for Network Printer (continued)

Function	IPDS		Non-IPDS	
	AFP	IPDS	SCS	HPT
Justification - Right (100%)	Yes	Yes	Yes	Yes
Overstrike	Yes	Yes	Yes	Yes
Lines per inch (any value from 1.00-1440.00)	Yes	Yes	No	No
Lines per inch (2.54)	Yes	Yes	No	No
Lines per inch (4.0)	Yes	Yes	Yes	Yes
Lines per inch (5.33)	Yes	Yes	No	No
Lines per inch (6.0)	Yes	Yes	Yes	Yes
Lines per inch (8.0)	Yes	Yes	Yes	Yes
Lines per inch (9.0)	Yes	Yes	Yes	No
Lines per inch (9.6)	Yes	Yes	Yes	Yes
Lines per inch (12.0)	Yes	Yes	Yes	Yes
Lines per inch (24.0)	Yes	Yes	Yes	Yes
Lines per inch (48.0)	Yes	Yes	Yes	Yes
Line spacing (0.5)	Yes	Yes	Yes	Yes
Line spacing (1.0)	Yes	Yes	Yes	Yes
Line spacing (1.5)	Yes	Yes	Yes	Yes
Line spacing (2.0)	Yes	Yes	Yes	Yes
Line spacing (2.5)	Yes	Yes	Yes	Yes
Line spacing (3.0)	Yes	Yes	Yes	Yes
Labels - Continuous Form	No	No	No	No
Labels - Sheet Feed	Yes	Yes	Yes	Yes
Paper Length in Inches (Max for letter) <sup>2, 3</sup>	10.685	10.685	10.685	10.685
Print Line in Inches (max) <sup>2, 3</sup>	8.185	8.185	8.0	8.0
Paper source - continuous feed	No	No	No	No
Paper source - envelope feed <sup>5, 6</sup>	Yes	Yes	Yes	Yes
Paper source - manual sheet/envelope feed	Yes <sup>17</sup>	Yes <sup>17</sup>	Yes	Yes

Table 1. AS/400 Print Functions for Network Printer (continued)

Function	IPDS		Non-IPDS	
	AFP	IPDS	SCS	HPT
Paper source - paper drawer (maximum not including envelope feeder)	4 (4320) 4 (4324) 4 (4317) 3 (4312) 6 (4332)	4 (4320) 4 (4324) 4 (4317) 3 (4312) 6 (4332)	4 (4320) 4 (4324) 4 (4317) 3 (4312) 6 (4332)	4 (4320) 3 (4324) 3 (4317) 3 (4312) 6 (4332)
Print quality - Draft	No	No	No	No
Print quality - Letter	Yes	Yes	Yes	Yes
Print quality - Text	No	No	No	No
Required Backspace	Yes	Yes	Yes	Yes
Rotation - automatic	Yes	Yes	Yes	Yes
Rotation - 90 degrees	Yes	Yes	Yes	Yes
Rotation - 180 degrees	Yes	Yes	Yes	Yes
Rotation - 270 degrees	Yes	Yes	Yes	Yes
Special characters (such as: cent, one half, and section symbol)	Yes <sup>7</sup>	Yes <sup>7</sup>	Yes <sup>7</sup>	Yes <sup>7</sup>
Subscript/superscript	Yes	Yes	Yes	Yes
Symbols (code page 259)	Yes	Yes	Yes <sup>8</sup>	Yes <sup>8</sup>
Tabs	Yes	Yes	Yes	Yes
Underline	Yes	Yes	Yes <sup>10</sup>	Yes
Zero index carrier return (ZICR)	Yes	Yes	Yes	Yes
<b>System Print (Printer File) Functions</b>				
Double-sided printing	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>
Double-sided tumble printing	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>
Font (*CPI) CPI (5.0)	No	No	Yes	Yes
Font (*CPI) CPI (10.0)	Yes	Yes	Yes	Yes
Font (*CPI) CPI (12.0)	Yes	Yes	Yes	Yes
Font (*CPI) CPI (15.0)	Yes	Yes	Yes	Yes
FORMFEED(*CONT)	No	No	No	No
FORMFEED(*CUT) <sup>5</sup>	Yes	Yes	No	Yes

Table 1. AS/400 Print Functions for Network Printer (continued)

Function	IPDS		Non-IPDS	
	AFP	IPDS	SCS	HPT
FORMFEED(AUTOCUT) DRAWER(*n)	3 (4320) 3 (4324) <sup>19</sup> 3 (4317) <sup>19</sup> 2 (4312) 5 (4332)	3 (4320) 3 (4324) <sup>19</sup> 3 (4317) <sup>19</sup> 2 (4312) 5 (4332)	3 (4320) 4 (4324) <sup>18</sup> 4 (4317) <sup>18</sup> 3 (4312) 5 (4332)	3 (4320) 3 (4324) 3 (4317) 3 (4312) 5 (4332)
FORMFEED(AUTOCUT) DRAWER(*E1) <sup>5</sup>	Yes	Yes	Yes	Yes
Hardware Justification 50	No	No	Yes	Yes
Hardware Justification 100	No	No	Yes	Yes
DBCS/IGC data	No	No	No	No
LPP (11 in. at 6 LPI)	64  66 w/ EDGE-EDGE = ON	64  66 w/ EDGE-EDGE = ON	64  66 w/ EDGE-EDGE = ON	64
LPP (11 in. at 8 LPI)	85  88 w/ EDGE-EDGE = ON	85  88 w/ EDGE-EDGE = ON	85  88 w/ EDGE-EDGE = ON	85
LPI (4)	Yes	Yes	Yes	Yes
LPI (6)	Yes	Yes	Yes	Yes
LPI (8)	Yes	Yes	Yes	Yes
LPI (9)	Yes	Yes	Yes	No
PAGRTT(*AUTO)	Yes	Yes	Yes	Yes
PAGRTT(*COR)	Yes	Yes	Yes	20 cpi
PAGRTT(0)	Yes	Yes	Yes	Yes
PAGRTT(90)	Yes	Yes	Yes	Yes
PAGRTT(180)	Yes	Yes	Yes	Yes
PAGRTT(270)	Yes	Yes	Yes	Yes
PRTQLTY(*NLQ)	Yes	Yes	Yes	Yes
PRTQLTY(*STD)	No	No	No	No
PRTQLTY(*DRAFT)	No	No	No	No
RPLUNPRT	Yes	Yes	Yes	Yes

Table 1. AS/400 Print Functions for Network Printer (continued)

Function	IPDS		Non-IPDS	
	AFP	IPDS	SCS	HPT
<b>Other DDS Functions</b>				
Bar code	Yes	Yes	No	Yes <sup>15</sup>
Chrid	Yes	Yes	No	No
Chrsiz	Yes	Yes	No	No <sup>16</sup>
Highlight	Yes <sup>13</sup>	Yes <sup>13</sup>	Yes	Yes
Skipa/skipb	Yes	Yes	Yes	Yes
Spacea/Spaceb	Yes	Yes	Yes	Yes
Underline	Yes	Yes	Yes	Yes
<b>Other Advanced Print Functions</b>				
Color	No	No	No	No
Overlays/Page Segs	Yes	No	No	Yes <sup>15</sup>
Font Download	Yes	No	No	No <sup>16</sup>
Graphics	Yes	Yes	No	No
Multi-up (0 Rot)	Yes <sup>14</sup>	Yes <sup>14</sup>	No	No <sup>16</sup>
Multi-up (90 Rot)	Yes <sup>14</sup>	Yes <sup>14</sup>	No	No <sup>16</sup>

Table 1. AS/400 Print Functions for Network Printer (continued)

Function	IPDS		Non-IPDS	
	AFP	IPDS	SCS	HPT
1	Duplex support requires the correct level of OS/400 software. See "OS/400 Duplex Summary".			
2	The paper size dimensions are the actual printable area dimensions, with EDGE-EDGE = OFF.			
3	Results are based on letter-size paper.			
5	The envelope or paper size must be set within the Paper Menu.			
6	On the IBM Network Printer 12, the optional envelope tray can replace the optional 500-sheet tray. On the IBM InfoPrint 20, the optional envelope tray can replace the optional 500-sheet tray.			
7	The following special characters differ in SCS mode: code point B4--function symbol versus copyright symbol; code point BF--double underscore versus multiply symbol; code point DA--one(1) on baseline versus superscript one(1); code point E1--space versus division symbol.			
8	Only box-draw characters are supported.			
10	Underscore will remain subscripted after subscripting ended when using word underscore.			
13	The device type (DEVTYPE) parameter of the printer file must be set to *IPDS or *AFPDS.			
14	Multi-up function will reduce using the 27-pitch font, but the AS/400 requires a PTF (SF16523 for V2R2, SF17070 for V2R3, SF17073 and SF17075 for V3R0.5).			
15	Supported with AFP to PCL conversion by HPT.			
16	Function or result not tested.			
17	OS/400 requests for manual paper will feed paper and envelopes from the auxiliary tray, but will not generate a manual feed message on the operator panel.			
18	Drawer 4 accesses the auxiliary tray.			
19	Drawer 4 does not access the auxiliary tray.			

### OS/400 Duplex Summary

DEVTYPE (CRTDEVPRT)	AFP (CRTDEVPRT)	Capability	OS/400 Version.Release
3812 (or 5219)	N/A	Simplex	V2.2 and later
3812 (or 5219)	N/A	Simplex/duplex	V2.3 and later
*IPDS	*No	Simplex	V2.1 and later

DEVTYPE (CRTDEVPRT)	AFP (CRTDEVPRT)	Capability	OS/400 Version.Release
*IPDS	*No	Simplex/duplex	V2R3 - for duplex you need PTF SF15122 (or PTF SF15163 with PC Support/400) and its prerequisite and corequisite PTFs.  V3R0.5 - for duplex you need PTF SF16902 (or PTF SF16805 with PC Support/400) and its prerequisite and corequisite PTFs.  V3R1 and later
*IPDS	*Yes	Simplex/duplex	V2.2 and later

**Note:** The duplex unit must be installed on the printer to enable duplex printing. See the *User's Guide* for your printer for more information on allowable paper sizes and weights.





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## Chapter 3. Choosing Twinaxial Cable

The twinaxial cable has male connectors on both ends. You can order this cable preassembled in any length up to 1525 meters (5000 feet). Specify the length when you order the cable.

The following table lists the twinaxial cables and accessories available from IBM.

IBM Part Number	Description
7362211 <sup>1</sup>	Bulk cable (vinyl — for indoor/outdoor use). Specify the length when you order.
7362061 <sup>2</sup>	Bulk cable (Teflon covered). Specify the length when you order.
7362267 <sup>1</sup>	Preassembled cable (vinyl — for indoor/outdoor use) with connectors. Specify the length when you order.
7362062 <sup>2</sup>	Preassembled cable (Teflon covered) with connectors. Specify the length when you order.
7362268	Connector kit for vinyl-covered cables. This includes two connectors.
7362063	Connector kit for Teflon-covered cables. This includes two connectors.
7362229	Cable connector for individual cable ends.
7362230	Cable-to-cable adapter for connecting two cables together.
7361807	Station protector kit for outdoor cable installation. This includes two station protectors.
7362426	Replacement station protector element.
483619	Shrink tubing (for covering cable-to-cable adapter).
94X3677	Protective sleeve (to cover metallic connectors).
<sup>1</sup> Type CL2 cable for general use.	
<sup>2</sup> Type CL2P cable for use in ducts and plenums.	

**Notes:**

1. All system cables must be rated as fire resistant or be in a conduit per National Electric Code, Article 725. Consult local building codes for the requirements in your locality.

2. It is your responsibility to obtain, install, and maintain the system cable and to ensure that the cabling meets the applicable local, state, and federal building codes. The cables are available in bulk sizes or in precut lengths. You can purchase components or preassembled cables from IBM. Use the information in this chapter to order the correct cable.

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## Choosing the IBM Cabling System

Consider using the IBM Cabling System for the AS/400 Controller attachment. This cabling system allows the connection of virtually any compatible system. Refer to *IBM Cabling System—Planning and Installation Guide*, GA27-3361, and *Using the IBM Cabling System with Communication Products*, GA27-3620, for more information about the IBM Cabling System.

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## Choosing Telephone Twisted-Pair Cabling and a 5299

Type 3 telephone twisted-pair cabling for the AS/400 controller attachment is another option for customers in the U.S.A. and Canada. The 5299 Model 3 Terminal Multiconnector with twinaxial-to-twisted-pair adapters allows the attachment to be made over the same telephone wiring cable that typically is already installed for the voice (telephone) network. For more information, refer to *IBM 5299 Terminal Multiconnector Model 3 Planning, Installation, and Problem Analysis Guide*, GA27-3749.

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## Chapter 4. Installing the Twinax Card



**DANGER**

<1-13> Do not connect or disconnect a communication port, a teleport, or any other connector during an electrical storm.

hcsf0113



**DANGER**

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

hcsf0114

Use the following procedure to install the twinax card in your printer:

1. Power off the printer.
2. Remove the power cord and any cables attached to the printer.
3. On the back of the printer are one or two slots for interface cards. (The IBM Network Printer 12 has one slot; all others have two.) Remove the cover on a slot on the rear of the printer. If two slots are available, IBM recommends using the top slot first. (On the IBM InfoPrint 32 the slots are horizontal rather than vertical; IBM recommends using the left slot first.)
4. Insert the card into the slot, aligning it with the two guides at the top and bottom of the slot (left and right on the IBM InfoPrint 32). Slide the card into these guides, pushing slowly and firmly until you can feel the card seat into the socket.
5. On the back of the printer are one or two slots for interface cards. (The IBM Network Printer 12 has one slot; all others have two.) Remove the cover on a slot on the rear of the printer. If two slots are available, IBM recommends using the top slot first.
6. Insert the card into the slot, aligning it with the two guides at the top and bottom of the slot. Slide the card vertically into these guides, pushing slowly and firmly until you can feel the card seat into the socket.

7. Tighten the thumbscrews to secure the card.
8. Reattach the power cord and power on the printer.
9. Print a printer configuration page to verify that you see "TWINAX" under the Installed Options section of the page (see "Printing the Printer Configuration Page" on page 88).

For a detailed description of this procedure, refer to the printer's *User's Guide*.

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## Chapter 5. Configuring Printer Menus for Twinax Attachments

Factory defaults are selected to match the 4028 whenever possible. In general, these settings will be appropriate for most of your printing. This chapter provides information you can use to configure your printer for a twinax attachment. It includes the following sections:

- “Menu Notes”
- “Twinax Setup Menu” on page 21
- “Custom Forms Menu” on page 23
- “IPDS Menu” on page 24
- “Twinax SCS Menu” on page 30

If you are unfamiliar with printer menus, see “Working with Menus” on page 87 .

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### Menu Notes

- **Dual Printer Addresses**

When the optional IPDS SIMM is installed with the twinax card, each network printer can act as two separate printers on the same twinax port. One “printer” prints SCS data to one address, and the other prints IPDS to another address.

To set these addresses, change the SCS ADDR and IPDS ADDR values on the Twinax Setup Menu.

**Notes:**

1. The printer cannot be attached to two different twinax systems using the same twinax card.
2. SCS ADDR and IPDS ADDR cannot be set to the same value.
3. If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect.

- **SCS Print Orientation**

SCS print orientation is determined as follows:

- Orientation controls specified in the data stream override values set at the operator panel.

- If no orientation controls are specified in the data stream, the APO item on the Twinax SCS Menu enables or disables automatic print orientation. If automatic print orientation is enabled (the default), and the requested dimensions of the job fit on the paper, the page is printed either in portrait or landscape, whichever better fits the dimensions. If the requested dimensions do not fit on the paper, the default orientation for the tray (COR, PORT, LAND, or C-PORT) determines how the sheet is printed.
- If no orientation controls are specified in the data stream, and automatic print orientation is disabled (APO=DISABLE on the Twinax SCS Menu), the page prints using the default orientation for the tray (COR, PORT, LAND, or C-PORT).

**Notes:**

1. The factory defaults (orientation set to COR and APO=ENABLE) give you the most flexibility.
2. The requested dimensions are determined by the values of CPI, LPI, MPP, and MPL for the job. These values can be set in the data stream. CPI and LPI can be set on the Twinax SCS menu. The twinax default values for MPP and MPL cannot be set from a menu; they are 132 for MPP and 62 for MPL.
3. See “Twinax SCS Menu” on page 30 for more information on how the default tray settings work.

- **Font Substitution**

On the IPDS Menu, set the FONT SUB item to ON. This allows network printers to substitute a font when an IPDS print job requests a font that is not resident on the printer.

- **Error Recovery**

For SCS (3812), network printers manage the recovery of print data after intervention-required errors, such as paper jams and end of forms. (This requires JAMRECOVERY in the Configuration Menu set to ON.) They also provide early print complete indications to the host to improve print performance. These factors render host error recovery options other than Ignore (I) both unnecessary and potentially misleading when using SCS or when using IPDS with early print complete on. For this reason, if you use SCS or you use IPDS with early print complete set to on (EARLY COMPL = ON on the IPDS Menu), IBM recommends that the “Printer Error Messages” (PRTERMSG) parameter of the device description be set to \*INFO (instead of the \*INQ value that is set in auto configuration).

- **Printing Border**

The normal print border is described in “Chapter 17. Unprintable Area Information” on page 91. Various techniques exist to compensate for this border, including:

- Resetting the IPDS Menu items X-OFFSET, Y-OFFSET, and PAGE. See “IPDS Menu” on page 24.
- Resetting the orientation for each tray listed on the Twinax SCS Menu. See “Twinax SCS Menu” on page 30.
- Setting EDGE-EDGE to ON on the IPDS Menu and the Twinax Setup Menu. Note, however, that setting EDGE-EDGE on is recommended only when necessary because of possible printer toner contamination.
- **Twinax Buffer Size**  
Set the twinax buffer size using the BUFFERSIZE item on the Twinax Setup Menu. The default buffer size is 1024 bytes. IBM recommends that you keep it at 1024 unless you use a 5394 or 5494 for a remote attachment for AS/400, in which case you should set the buffer to 256.
- **Tray switching**  
On the Paper Menu, set the TRAY SWITCH item to OFF.

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## Twinax Setup Menu

Use the Twinax Setup Menu to configure the twinax attachment. An asterisk (\*) next to a value in the table indicates the factory default.

**Notes:**

1. **Important!** If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.

Twinax Setup Menu Item	Value	Description
SCS ADDR	OFF* n	<p>The twinax hardware address of the SCS port. n can be from 0 to 6.</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. SCS ADDR and IPDS ADDR cannot be set to the same value.</li> <li>2. If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect.</li> <li>3. When the IPDS SIMM is installed, the network printer can act as two separate printers on the same twinax port. (The printer cannot be attached to two different twinax systems using the same twinax card.) One “printer” prints SCS data to one address (SCS ADDR), and the other prints IPDS to another address (IPDS ADDR).</li> </ol>
IPDS ADDR	OFF* n	<p>The twinax hardware address of the IPDS port. n can be from 0 to 6.</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. SCS ADDR and IPDS ADDR cannot be set to the same value.</li> <li>2. If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect.</li> <li>3. When the IPDS SIMM is installed, the network printer can act as two separate printers on the same twinax port. (The printer cannot be attached to two different twinax systems using the same twinax card.) One “printer” prints SCS data to one address (SCS ADDR), and the other prints IPDS to another address (IPDS ADDR).</li> </ol>



<b>Twinax Setup Menu Item</b>	<b>Value</b>	<b>Description</b>
EDGE-EDGE	OFF* ON	Turns edge-to-edge printing on or off. <ul style="list-style-type: none"> <li>• OFF—the printer maintains a no-print border of 4 mm on all four paper sides.</li> <li>• ON—The printer allows printing up to the physical page size.</li> </ul> <b>Notes:</b> <ol style="list-style-type: none"> <li>1. To avoid toner contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF; use ON only when necessary.</li> <li>2. The Twinax Setup Menu item EDGE-EDGE applies to SCS data only. To specify edge-to-edge printing for IPDS data, use the EDGE-EDGE item on the IPDS Menu.</li> </ol>
BUFFERSIZE	1024* 256	Specifies the IPDS buffer size in bytes. The SCS buffer size is always 256.
PORT TMEOUT	nnn	Specifies the number of seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other installed attachments, and will switch to attachments with jobs waiting. Valid values are 0 to 255. The default is 90 seconds. <b>Note:</b> To help avoid port conflicts, do not set PORT TMEOUT to a value less than 15.

---

## Custom Forms Menu

Use the Custom Forms Menu to define custom paper sizes for IPDS jobs. The following table describes the settings you can change from the Custom Forms Menu. An asterisk (\*) next to a value in the table indicates the factory default.

**Notes:**

1. This menu appears only when you have the IPDS option installed.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.
3. See “Chapter 18. Defining Custom Form Sizes for IPDS” on page 95 for an example of defining custom forms.

<b>Custom Forms Menu Item</b>	<b>Value</b>	<b>Description</b>
FORM1UNITS	MM* IN	Specifies the unit of measurement for the custom form.

Custom Forms Menu Item	Value	Description
FORM1 LEN	nnn nn.n	Specifies the width of the custom form. If FORMUNITS is set to millimeters, acceptable values are 148 to 508 millimeters. If FORMUNITS is set to inches, acceptable values are 5.9 to 20.0 inches.
FORM1 WIDTH	nnn nn.n	Specifies the width of the custom form. If FORMUNITS is set to millimeters, acceptable values are 88 to 330 millimeters. If FORMUNITS is set to inches, acceptable values are 3.5 to 13.0 inches.
FORM2UNITS FORM2 WIDTH FORM2 LEN FORM3UNITS FORM3 WIDTH FORM3 LEN FORM4UNITS FORM4 WIDTH FORM4 LEN FORM5UNITS FORM5 WIDTH FORM5 LEN		Specifies up to four more custom forms. See FORM1UNITS, FORM1 LEN, and FORM1 WIDTH for a description of each field.

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## IPDS Menu

The following table describes the settings you can change from the IPDS Menu. An asterisk (\*) next to a value in the table indicates the factory default. The IPDS Menu appears only if you have the IPDS SIMM installed.

**Notes:**

1. Values specified in IPDS print jobs override IPDS Menu values set at the printer.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.

IPDS Menu Item	Value	Description
PAGEPROT	AUTO* ON	Sets page protection: <ul style="list-style-type: none"> <li>• AUTO—the printer uses the minimum amount of memory necessary to print a page.</li> <li>• ON—the printer reserves enough memory to process an entire page without compression before it prints the page. This can help in the rare case where the printer compression scheme causes a loss of quality in complex graphics. This setting is available only when the printer has enough memory. See the User's Guide for your printer for information about memory requirements.</li> </ul>
DEF CD PAG	nnnn	Specifies the default code page. The default value is code page 037. 037 US, Canada, Netherlands, Portugal 038 US English ASCII 260 Canadian French 273 Austrian/German 274 Belgium 276 Canadian French 277 Danish/Norwegian 278 Finnish/Swedish 280 Italian 281 Japanese 284 Spanish 285 UK English 286 Austrian/German (alternate) 287 Danish/Norwegian (alternate) 288 Finnish/Swedish (alternate) 290 Japanese/Katakana 297 French 420 Arabic 423 Greek 424 Hebrew 500 Belgium, Switzerland / International 870 Latin 2 Multilingual 871 Icelandic 875 Greek 880 Cyrillic 892 OCR - A 893 OCR - B 905 Turkish 1025 Cyrillic 1026 Turkish
EMULATION	4028* 43nn	Specifies the printer to emulate. Select 43nn (4312, 4317, 4320, 4324, 4332) only if you have the appropriate level of PSF software installed. (Consult your system administrator.)

IPDS Menu Item	Value	Description
DEF FGID	nnnnn	<p>Specifies the default FGID (Font Typeface Global Identifier), which identifies the default resident font the printer uses. The default FGID is 416, which specifies Courier 10 point as the default resident font.</p> <p>To display the list of fonts and FGIDs the printer supports, print out a list of IPDS resident fonts.</p>
CPI	nn.n	<p>Selects characters-per-inch (pitch) for the default font. Valid values are 5.0 to 30.0 in tenths of an inch. The default value is 10.</p>
VPA CHK	ON* OFF	<p>Turns valid printable area checking on or off.</p> <ul style="list-style-type: none"> <li>• ON—the printer checks for pels that fall outside the intersection of the logical and physical pages. If pels fall outside the area, the printer reports an error to the host if the IPDS Exception Handling Control command setting requires error reporting.</li> <li>• OFF—The printer does not report pels outside the valid printable area.</li> </ul>
X-OFFSET	nnn	<p>Sets the print offset in the X (horizontal) direction. nnn can be from -999 to 999. The default setting is 0 pels. Positive values move the starting point for printing to the right of the physical point of origin. Negative values move the starting point for printing to the left. The physical point of origin is towards the top left corner of a portrait page. If you rotate the page, the physical point of origin rotates as well.</p> <p><b>Note:</b> The X-OFFSET and Y-OFFSET options are intended to allow line printer print jobs to fit on a page where edge-to-edge printing is not possible. Using X-OFFSET and Y-OFFSET is NOT recommended when generating new applications, especially duplex applications.</p>

IPDS Menu Item	Value	Description
Y-OFFSET	nnn	<p>Sets the print offset in the Y (vertical) direction. nnn can be from -999 to 999. The default setting is 0 pels. Positive values move the starting point for printing down from the physical point of origin. Negative values move the starting point for printing up. The physical point of origin is towards the top left corner of a portrait page. If you rotate the page, the physical point of origin rotates as well.</p> <p><b>Note:</b> The X-OFFSET and Y-OFFSET options are intended to allow line printer print jobs to fit on a page where edge-to-edge printing is not possible. Using X-OFFSET and Y-OFFSET is NOT recommended when generating new applications, especially duplex applications.</p>

IPDS Menu Item	Value	Description
PAGE	WHOLE* COMP1 COMP2 PRINT	<p>Determines how data is positioned on the page.</p> <ul style="list-style-type: none"> <li>• <b>WHOLE</b>—IPDS whole page (default). The printer does not move or compress the page. This is the preferred method; all page positioning and formatting is done at the application level on the host. The PRINT, COMP1, and COMP2 options may alter the appearance of the page, or may not be compatible with predecessor products (for example, 3116, 3916), especially when combined with duplex and other IPDS MENU page format adjustments such as X-OFFSET and Y-OFFSET. PRINT, COMP1, and COMP2 are included to allow line printer jobs to fit on a page where edge-to-edge printing was not possible; they are not recommended for use in generating new applications.</li> <li>• <b>PRINT</b>—IPDS print page. If the page origin falls within the unprintable area, the origin of the page is moved to the inside edge of the nearest unprintable area border. If the origin violates the unprintable area on two edges, it is moved to the nearest inside corner of the unprintable area. If the origin violates only one edge of the unprintable area, then the origin is adjusted to avoid only that area.</li> </ul> <p>If a location adjustment is made, the printed page shifts in the direction of the adjustment. There is no compression, so the opposite-edge data may be pushed off the page.</p> <p><b>Note:</b> PRINT requires EDGE-EDGE set OFF to work. Any data placed in this unprintable area is lost. Also, PRINT will not work on envelopes or media overlays (overlays that are part of the base page, not the overlays included in the variable print data).</p> <ul style="list-style-type: none"> <li>• <b>COMP1</b>—COMP1 format uses PRINT page as a base, and then compresses the spacing between text lines generated by the IPDS Begin Line command. Its primary purpose is to compress Begin Line text data into a page with unprintable borders.</li> </ul> <p>continued on next page...</p>

IPDS Menu Item	Value	Description
PAGE	PRINT WHOLE* COMP1 COMP2	<p>(continued from previous page...)</p> <ul style="list-style-type: none"> <li>• COMP2—COMP2 format uses PRINT page as a base, and then adds compression IPDS Begin Line command (see COMP1) and of the following vertical text positioning commands: Absolute Move Baseline, Relative Move Baseline, Draw B Axis Rule, Draw I Axis Rule.</li> </ul> <p><b>Note:</b> Alignment problems can occur if you select COMP1 or COMP2 and you print jobs that mix text with images, graphics, or bar codes. Problems arise when text positioning commands are used to move across text or into non-text (image, graphic, or bar-code) areas. Both COMP1 and COMP2 reduce the line spacing of text only and have no effect on non-text data. To minimize this problem, select COMP1, because Begin Line commands are not normally used to move across or into non-text areas. If, however, the application you want to compress does not use Begin Line commands, you should select COMP2.</p>
EDGE-EDGE	OFF* ON	<p>Turns edge-to-edge printing on or off.</p> <ul style="list-style-type: none"> <li>• OFF—the printer maintains a no-print border of 4 mm on all four paper sides.</li> <li>• ON—The printer allows printing up to the physical page size.</li> </ul> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. To avoid toner contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF; use ON only when necessary.</li> <li>2. The IPDS Menu item EDGE-EDGE applies to IPDS data only. To specify edge-to-edge printing for non-IPDS data sent over the coax attachment, use the EDGE-EDGE item on the Coax Setup Menu. To specify edge-to-edge printing for non-IPDS data sent over the twinax attachment, use the EDGE-EDGE item on the Twinax Setup Menu.</li> </ol>
FONT SUB	OFF* ON	<p>Turns font substitution on or off.</p> <ul style="list-style-type: none"> <li>• OFF—if a job requests a font that is not loaded on the printer, the printer generates an IPDS NACK message and the host holds the job.</li> <li>• ON—if a job requests a font that is not loaded on the printer, the printer attempts to substitute another font.</li> </ul>

IPDS Menu Item	Value	Description
PRINT MODE (IBM InfoPrint 32 only)	ENH* STD	<ul style="list-style-type: none"> <li>• ENH (ENHANCED)—the printer prints at 600 DPI which produces optimal print quality and slower printer performance.</li> <li>• STD (STANDARD)—the printer prints at 300 DPI which produces good print quality and optimal printer performance.</li> </ul>
CACHING (IBM InfoPrint 32 only)	ON* OFF	<p>Specifies whether or not to use caching for repeated overlays.</p> <ul style="list-style-type: none"> <li>• ON—the printer uses caching, which provides better performance for jobs with repeated overlays, but uses more memory.</li> <li>• OFF—the printer does not use caching, which requires less memory but provides less performance for jobs with repeated overlays.</li> </ul>
EARLY COMPL	OFF* ON	<p>Turns early print completion on or off for IPDS jobs.</p> <ul style="list-style-type: none"> <li>• OFF—the printer waits until the job is physically complete to signal the host that the job is complete.</li> <li>• ON—the printer signals the host that the job is complete as soon as the IPDS data is formatted.</li> </ul> <p>Setting EARLY COMPL=ON may improve print performance, but may also degrade recovery and cause lost data from some printing problems, such as jams.</p>
IPDS PORT	COAX TX ETHER TRING	<p>Specifies the attachment you use for IPDS jobs.</p> <p><b>Note:</b> You can print IPDS from more than one port; setting this item, therefore, does not restrict you from printing from multiple ports.</p>
OUTPUT (IBM InfoPrint 32 only)	bin	<p>Selects the default output bin to use for IPDS jobs. Only installed trays appear in the list. For details, see the User's Guide for your printer.</p>
CUSTOM FORM	1* 2 3 4 5	<p>Specifies the custom form to use. The Custom Forms Menu lets you specify up to five custom forms. See "Chapter 18. Defining Custom Form Sizes for IPDS" on page 95 for information on defining custom forms.</p>

---

## Twinax SCS Menu

Use the Twinax SCS Menu to define how the printer handles SCS data over the twinax attachment. An asterisk (\*) next to a value in the table indicates the factory default.



**Notes:**

1. Values set in print jobs (either by the print application or the printer driver) override Twinax SCS Menu values set at the printer.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.

<b>Twinax SCS Menu Item</b>	<b>Value</b>	<b>Description</b>
tray	COR* PORT LAND C-PORT	Specifies the default orientation for jobs printed from each tray listed on the menu. (The actual trays you see depend on the printer and optional trays you use.) Each input can be assigned one of the following default orientations: <ul style="list-style-type: none"><li>• COR—computer output reduction: Printing in landscape with the logical page reduced to fit more data on the physical page. The printer reduces vertical spacing and uses a smaller font with less space between letters.</li><li>• PORT—portrait: the page has normal, upright business letter orientation.</li><li>• LAND—landscape: the page is wider than long.</li><li>• C-PORT—compressed portrait: printing in portrait, but with compression. Horizontal compression is supported with 10 cpi only. The compression factor is fixed; it makes it possible to print 80 characters per line on A4 paper and 85 characters per line on Letter paper.</li></ul>
LPI	6* 8 0 3 4	Specifies a default lines per inch value. 0 specifies either the value specified in the job, or the PCL default value for the printer.
CPI	nn.n	Specifies the default characters per inch, or pitch. nn can be 0, 5, 10, 12, 15, 17.1, 20, or 27. The default is 10.

Twinax SCS Menu Item	Value	Description
CODE PAGE	nnn	<p>Specifies the default code page to use. The default value is code page 037.</p> <p>037 U.S.A. and Canada  273 Austrian/German  274 Belgium  275 Brazil  277 Danish/Norwegian  278 Finnish/Swedish  280 Italy  281 Japanese (Latin)  282 Portugal  284 Spanish (Latin America)  285 United Kingdom  297 France  420 Arabic<sup>1</sup>  424 Hebrew<sup>2</sup>  500 Belgium, Switzerland / International  871 Icelandic  875 Greek<sup>3</sup>  000 download the code page from the 3174 control unit</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Available only if the Arabic Language Font SIMM (part number 63H3588) is installed.</li> <li>2. Available only if the Hebrew Language Font SIMM (part number 63H3587) is installed.</li> <li>3. Available only if the Greek Language Font SIMM (part number 90H0574) is installed.</li> </ol>

Twinax SCS Menu Item	Value	Description
APO	ENABLE* DISABLE	<p>Enables or disables automatic print orientation.</p> <ul style="list-style-type: none"> <li>• ENABLE—if the requested dimensions of the job fit on the paper, the page is printed either in portrait or landscape, whichever better fits the dimensions. If the requested dimensions do not fit on the paper, the default orientation for the tray (COR, PORT, LAND, or C-PORT) determines how the sheet is printed.</li> <li>• DISABLE—the page prints using the default orientation for the tray (COR, PORT, LAND, or C-PORT).</li> </ul> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Values specified in the data stream override values set at the printer.</li> <li>2. The factory defaults (orientation set to COR and APO=ENABLE) give you the most flexibility.</li> <li>3. The requested dimensions are determined by the values of CPI, LPI, MPP, and MPL for the job. These values can be set in the data stream. CPI and LPI can be set on the Twinax SCS menu. The twinax default values for MPP and MPL cannot be set from a menu; they are 132 for MPP and 62 for MPL.</li> </ol>



---

## Chapter 6. Attaching the Twinax Cable



**DANGER**

<1-13> Do not connect or disconnect a communication port, a teleport, or any other connector during an electrical storm.

hcsf0113



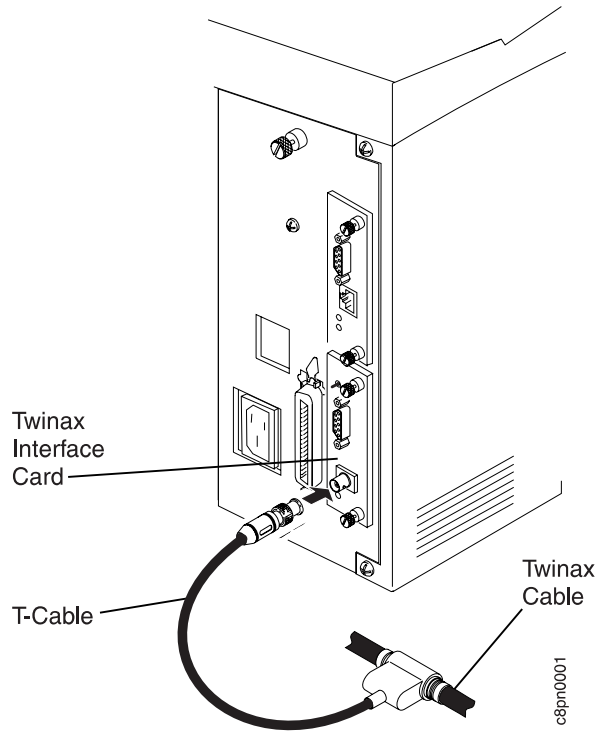
**DANGER**

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

hcsf0114

1. Power off the printer.
2. Unplug the power cord from the wall outlet and from the back of the printer.
3. Attach the provided T-cable to the system twinax cable. Then attach the other end of the T-cable to the connector on the interface card.

**Attention:** After you have installed and configured the twinax card, do not disconnect the T-cable from the twinax cable. This can disable other devices on the line.



4. Plug the power cord back in.
5. Power on the printer.

---

## Chapter 7. Configuring the AS/400

This section provides examples for creating AS/400 Printer Device descriptions for network printers. It includes the following sections:

- “Configuring AS/400 for IPDS”
- “Configuring Network Printers for SCS” on page 40
- “Attaching with AS/400 Host Print Transform (OS/400 V2R3 or Later)” on page 41
- “Attaching to an AS/400 Advanced 36” on page 41

For locally-attached printers you can use auto-configuration; otherwise, use the CRTDEVPRT command to create a printer description or the CHGDEVPRT command to update an existing description. For detailed information, refer to *AS/400 Device Configuration Guide*, SC21-8106.

---

### Configuring AS/400 for IPDS

To use auto configuration in IPDS mode, first make sure that:

- The IPDS SIMM is installed in the network printer
- IPDS ADDR in the Twinax Setup Menu is set to an address (not OFF)

If the emulation mode is 4028 (EMULATION=4028 on the IPDS Menu), the printer autoconfigures as:

```
DEVTYPE *IPDS
MODEL 0
AFP *NO
PRTERMSG *INQ
```

If the emulation mode is 4312, 4317, 4320, 4324, or 4332, the printer autoconfigures as:

```
DEVTYPE *IPDS
MODEL 0
AFP *YES
PRTERMSG *INQ
```

Enter the WRKDEVD \*PRT command to verify the configuration (to change entries you must first vary the printer offline).

**Notes:**

1. If you set SCS ADDR=OFF in the Twinax Setup Menu, the printer autoconfigures as IPDS-only.
2. If you set early print completion on (EARLY COMPL=ON in the IPDS Menu), you should change PRTERMSG to \*INFO in the printer device configuration.

**3. AFP=YES (AFP Mode):**

Setting AFP to YES allows you to use all the AS/400 AFP capabilities, including electronic forms (overlays), downloaded fonts, bar codes, graphics, and images. (For OS/400 releases prior to V3R1, AFP capability is standard. For V3R1 and later, it is optional and called PSF/400.)

If you set AFP to YES, you should also set AFPATTACH to \*WSC.

When AFP=YES, 4028 is the recommended setting for EMULATION on the IPDS Menu. For OS/400 V3R2 or V3R7 and later, you may set EMULATION in the IPDS Menu to either 4028 or 4312, 4317, 4320, 4324, or 4332 (depending on your printer model). To set emulation to something other than 4028, you may need to apply a PTF. Contact your IBM representative for more information.

---

## Attaching the Printer as a Local IPDS Printer

If you plan to use the printer as a local printer (in other words, attached to the AS/400 twinaxial workstation controller), enter the CRTDEVPRT command with at least the following parameters:

```
DEVD      Workstation-printer-name
DEVCLS    *LCL
DEVTYPE   *IPDS
MODEL     0
AFP       *YES or *NO
PORT      x (twinax port)
SWTSET    y (printer address)
CTL       controller name
FONT      zzz (default font identifier; IBM recommends 11 (Courier 10))
FORMFEED  *AUTOCUT
PRTERMSG  *INQ
```

**Notes:**

1. If you set early print completion on (EARLY COMPL=ON in the IPDS Menu), you should change PRTERMSG to \*INFO.
2. AFP - Yes or No?
  - **AFP=YES (AFP Mode):**

Setting AFP to YES allows you to use all the AS/400 AFP capabilities, including electronic forms (overlays), downloaded fonts, bar codes,



graphics, and images. (For OS/400 releases prior to V3R1, AFP capability is standard. For V3R1 and later, it is optional and called PSF/400.)

If you set AFP to YES, you should also set AFPATTACH to \*WSC.

When AFP=YES, 4028 is the recommended setting for EMULATION on the IPDS Menu. For OS/400 V3R2 or V3R7 and later, you may set EMULATION in the IPDS Menu to either 4028 or 4312, 4317, 4320, 4324, or 4332 (depending on your printer model). To set emulation to something other than 4028, you may need to apply a PTF. Contact your IBM representative for more information.

- **AFP=NO (IPDS Mode):**

Setting AFP to \*NO limits your IPDS functionality; AFP \*NO supports bar codes, graphics, and images; but electronic forms (overlays) and downloaded fonts are not supported.

When AFP=NO, EMULATION on the IPDS Menu must be 4028 (the default value.)

---

## Attaching the Printer as a Remote IPDS Printer

If you plan to use the printer as a remote printer (in other words, attached to an IBM 5394 or 5494 Workstation Controller), enter the CRTDEVPRM command with at least the following parameters:

```
DEVD      Workstation-printer-name
DEVCLS    *RMT
DEVTYPE   *IPDS
MODEL     0
AFP       *YES or *NO
LOCADR    xx (printer local address; see the Remote Control Unit
           documentation)
CTL       remote workstation controller name
FONT      yyy (default font identifier; IBM recommends 11 (Courier 10))
FORMFEED  *AUTOCUT
PRTERMSG  *INQ (use *INFO when EARLY COMPL = ON on the IPDS Menu)
```

### Notes:

1. If you set early print completion on (EARLY COMPL=ON in the IPDS Menu), you should change PRTERMSG to \*INFO.
2. AFP - Yes or No?

- **AFP=YES (AFP Mode):**

Setting AFP to YES allows you to use all the AS/400 AFP capabilities, including electronic forms (overlays), downloaded fonts, bar codes, graphics, and images. (For OS/400 releases prior to V3R1, AFP capability is standard. For V3R1 and later, it is optional and called PSF/400.)

If you set AFP to YES, you should also set AFPATTACH to \*WSC.

When AFP=YES, 4028 is the recommended setting for EMULATION on the IPDS Menu. For OS/400 V3R2 or V3R7 and later, you may set EMULATION in the IPDS Menu to either 4028 or 4312, 4317, 4320, 4324, or 4332 (depending on your printer model). To set emulation to something other than 4028, you may need to apply a PTF. Contact your IBM representative for more information.

- **AFP=NO (IPDS Mode):**

Setting AFP to \*NO limits your IPDS functionality; AFP \*NO supports bar codes, graphics, and images; but electronic forms (overlays) and downloaded fonts are not supported.

When AFP=NO, EMULATION on the IPDS Menu must be 4028 (the default value.)

---

## Configuring Network Printers for SCS

If the Twinax Setup Menu item SCS ADDR is **not** set to OFF, the printer will autoconfigure as:

```
DEVTYPE    5219
MODEL      D1
```

**Notes:**

1. The first time the printer is used after auto configuration, the AS/400 sends some commands to the printer that allow the system to distinguish between a 5219 Printer and an network printer. So the first print job will not process non-5219 functions, such as page rotation.
2. When DEVTYPE is 5219, OS/400 operator panel messages are very general. For more detailed messages, you should manually configure the printer and set DEVTYPE to 3812 and MODEL to 1.

---

## Attaching the Printer as an SCS Printer (OS/400 V2R1 or Later)

In SCS mode, network printers support font selection, line spacing, duplex selection (V2R3 and later), and drawer selection but do not support graphics, image, bar code, electronic forms, or downloaded fonts. Enter the CRTDEVPRT command with at least the following parameters:

```
DEVTYPE    3812 or 5219
MODEL      1 for 3812 or D1 for 5219
PRTERMSG   *INFO
```

**Note:** If the optional IPDS SIMM is installed, but you want to use the twinax attachment for SCS mode only, set IPDS ADDR=OFF in the Twinax Setup Menu. See "Twinax Setup Menu" on page 21.

---

## Attaching with AS/400 Host Print Transform (OS/400 V2R3 or Later)

The AS/400 Host Print Transform function provides a 3812 SCS level of support to ASCII printers. With Host Print Transform enabled, the AS/400 generates an ASCII data stream that is passed transparently through to the ASCII printer. Refer to the *AS/400 Guide to Programming for Printing*, SC41-8194, for more information.

To use the Host Print Transform, enter the CRTDEVPRT command with at least the following parameters:

```
DEVTYPE  3812
MODEL    1
HPT      *YES
MFRTYPMDL *43xx or *HP4
```

If you have AS/400 V3R2 or V3R7 and above, specify \*4312 for the Network Printer 12, \*4317 for the Network Printer 17, \*4320 for the InfoPrint 20, \*4324 for the Network Printer 24, or \*4332 for the InfoPrint 32. If you have any other AS/400 system, you may specify \*HP4 or you can also use a Workstation Customization Object. The Workstation Customization Object is available on the IBM Printing Systems Company Home Page at <http://www.printers.ibm.com>

**Note:** To print envelopes on network printers correctly, you must define Manufacturing Type and Model as \*4312, \*4317, or \*4324, \*4320, or \*4332.

---

## Attaching to an AS/400 Advanced 36

The easiest way to configure your network printer with the AS/400 Advanced 36 is to use auto configuration. Refer to *Performing Your First Configuration* (SC21-8298) and *Changing your System Configuration* (SC21-8295).

The network printer with IPDS behave like a 4028 when attached to an AS/400 Advanced 36. On the IPDS Menu the EMULATION Menu Item **must** be set to 4028 (the default value).

**Notes:**

1. There is no font card support.
2. Not all releases provide duplex support. (Duplex support requires SSP 7.5.)
3. If continuous forms are requested, the network printer will feed from the primary drawer (cut sheet).
4. Be aware of the unprintable area on the network printer with IPDS. See "IPDS Menu" on page 24 for a description of the menu item EDGE-EDGE.

5. There is no support via OCL, SSP or IPDS PRPQ for the envelope feeder and manual feed. Both of these can be accessed from DW/36.
6. IBM highly recommends that you test IPDS on the network printer with your S/36 applications. The S/36 should treat the network printer as a 4028, but please be aware that not all functions have been fully tested.

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Step 1 - VTAM Definition . . . . .	76		
Step 2 - JES2 Definition (SYS1.PARMLIB) . . . . .	76		



---

## Chapter 8. Coax Installation and Configuration Checklist

- \_\_\_ 1. Make sure your printer is unpacked and all other options are installed. If not, see the setup instructions included with your printer. If you are unfamiliar with using your printer, see “Part 3. Using Your Printer” on page 85.
- \_\_\_ 2. Install the optional IPDS SIMM if you intend to use IPDS. For instructions, see the instructions that ship with the IPDS SIMM.
- \_\_\_ 3. Review “Chapter 9. Coax Planning Notes” on page 47 for general information about coax attachments.
- \_\_\_ 4. Ensure that you have the correct host cable. See “Chapter 10. Choosing Coaxial Cable” on page 49.
- \_\_\_ 5. Install the coax card if it is not already installed. See “Chapter 11. Installing the Coax Card” on page 51.
- \_\_\_ 6. Configure the printer using the printer configuration menus. See “Chapter 12. Configuring Printer Menus for Coax Attachments” on page 53 .
- \_\_\_ 7. Make sure the printer is unplugged, then attach the coax cable. See “Chapter 13. Attaching the Coax Cable” on page 71.
- \_\_\_ 8. Print the printer configuration page. See “Printing the Printer Configuration Page” on page 88. Check any menu settings you changed. Also check the Installed Options section to make sure the coax card has been successfully installed.
- \_\_\_ 9. Configure your host system with the help of your host system administrator. See “Chapter 14. S/370-S/390 Configuration Examples” on page 73.
- \_\_\_ 10. If the printer menu settings do not produce the desired results with your application, change the settings as appropriate. If problems persist, see the “Troubleshooting” section of your printer’s *User’s Guide*.  
For information about IBM technical support, see “Technical Support” on page x.





---

## Chapter 9. Coax Planning Notes

This section provides general planning information for coax attachments.

---

### Configuration Hints

- Define network printers to Print Service Facility (PSF) the same as 3112, 3116, or 4028 printers. Use the LOGMODE table. In your PSF startup procedures, be sure to point to the 300-pel font libraries.
- For information about sharing printers, see “Chapter 16. Printer Sharing” on page 89 .
- For detailed configuration information, see “Chapter 14. S/370-S/390 Configuration Examples” on page 73.

---

### Communication Methods

The 3270 family controllers/adapters communicate with the printer in one of the following communication modes:

- SNA controllers communicate with the printer in LU-1 mode (using the SCS or IPDS data streams).
- SNA controllers communicate with the printer in LU-3 (DSE) mode (using the 3270 data stream).
- Non-SNA controllers communicate with the printer in LU-0 (DSC) mode (using the 3270 or IPDS data streams).

---

### Hardware Attachments

The network printer with coax features can be attached to the following:

- 3174 Subsystem Control Unit
- 9221 ES/9000 Processor Workstation Subsystem Controller
- 9370 Information System, Workstation Subsystem Controller
- 9371 (Micro Channel 370) using 3270 Adapter, 9371 Feature #6120
- PS/2 with Micro Channel PSA Card (RPQ# S02137)

## VTAM Definition Types

Coax-attached network printers have either SCS only or SCS and IPDS capability.

Table 2. VTAM Definition Types

VTAM Definition Type Required					
Support Desired	DSC LU0 NON-SNA 3174	DSE LU3	LU1 SCS	LU1 IPDS	LU1 IPDS PSF
NON-SNA Communication Link (VTAM Controlled)	X				
NO HOST COMMAND OVERRIDES (Use Printer Settings)	X	X			
SCS COMMANDS			X	X	X <sup>1</sup>
IPDS COMMANDS				X	X <sup>1</sup>
ADVANCED FUNCTION PRINTING					X
<b>Note:</b>  <sup>1</sup> To send an SCS or native IPDS print job to the printer on an IPDS-defined connection, the printer must be taken out of PSF control. This may be accomplished via console command or by setting the PSF timeout value to have PSF release the printer from its control after a period of printer inactivity.					

---

## Chapter 10. Choosing Coaxial Cable

To attach to a 3270 Family Controller/Adapter, you need a coaxial cable. You can order this cable preassembled in any length. Specify the length when you order the cable.

The following table lists the coaxial cables and accessories available from IBM.

IBM Part Number	Description
323921 <sup>1</sup>	Bulk cable (for indoor use). Specify the length when you order.
5252750 <sup>1</sup>	Bulk cable (for outdoor use). Specify the length when you order.
4885584 <sup>2</sup>	Bulk cable (Teflon covered). Specify the length when you order.
2577672 <sup>1</sup>	Preassembled cable (for indoor use). Specify the length when you order.
1833108 <sup>1</sup>	Preassembled cable (for outdoor use). Specify the length when you order.
4154741 <sup>2</sup>	Preassembled cable (Teflon covered). Specify the length when you order.
1836418	Connector kit (indoor). This includes two cable connectors.
1836419	Connector kit (outdoor). This includes two cable connectors.
1743508	Connector kit (Teflon). This includes two cable connectors.
1836444	Cable connector (indoor). For individual cable ends.
1836447	Cable connector (outdoor). For individual cable ends.
4449035	Cable connector (Teflon). For individual cable ends.
5252643	Cable-to-cable adapter for connecting two cables.
1830818	Station protector kit for outdoor cable installation. This includes two station protectors.
1833106	Station protector attachment kit.
5252899	Replacement station protector element.
<sup>1</sup> Type CL2 cable for general use.	
<sup>2</sup> Type CL2P cable for use in ducts and plenums.	

**Note:** All signal cables must be rated as fire resistant or be in a conduit per National Electric Code, Article 725. Consult local building codes for the requirements in your locality.

---

## Choosing the IBM Cabling System

You also may wish to use the IBM Cabling System for 3270 Family Controller/Adapter attachments. Read the *IBM Cabling System — Planning and Installation Guide* GA27-3361, and *Using the IBM Cabling System with Communications Products* GA27-3620, for more information about the IBM Cabling System.

**Note:** The coax connector is an IBM dual purpose connector.

---

## Chapter 11. Installing the Coax Card



**DANGER**

<1-13> Do not connect or disconnect a communication port, a teleport, or any other connector during an electrical storm.

hcsf0113



**DANGER**

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

hcsf0114

Use the following procedure to install the coax card in your printer:

1. Power off the printer.
2. Remove the power cord and any cables attached to the printer.
3. On the back of the printer are one or two slots for interface cards. (The IBM Network Printer 12 has one slot; all others have two.) Remove the cover on a slot on the rear of the printer. If two slots are available, IBM recommends using the top slot first. (On the IBM InfoPrint 32 the slots are horizontal rather than vertical; IBM recommends using the left slot first.)
4. Insert the card into the slot, aligning it with the two guides at the top and bottom of the slot (left and right on the IBM InfoPrint 32). Slide the card into these guides, pushing slowly and firmly until you can feel the card seat into the socket.
5. Tighten the thumbscrews to secure the card.
6. Reattach the power cord and power on the printer.
7. Print a printer configuration page to verify that you see "COAX" under the Installed Options section of the page (see "Printing the Printer Configuration Page" on page 88).

For a detailed description of this procedure, refer to the printer's *User's Guide*.



---

## Chapter 12. Configuring Printer Menus for Coax Attachments

Factory defaults are selected to match the 4028 whenever possible. In general, these settings will be appropriate for most of your printing. This chapter provides information you can use to configure your printer for a coax attachment. It includes the following sections:

- “Menu Notes”
- “Coax Setup Menu” on page 54
- “Custom Forms Menu” on page 56
- “IPDS Menu” on page 57
- “Coax SCS Menu” on page 63
- “Coax DSC/DSE Menu” on page 67

If you are unfamiliar with printer menus, see “Working with Menus” on page 87 .

---

### Menu Notes

- **Font Substitution**

On the IPDS Menu, set the FONT SUB item to ON. This allows network printers to substitute a font when an IPDS print job requests a font that is not resident on the printer.

- **SCS Print Orientation**

SCS print orientation is determined as follows:

- Orientation controls specified in the data stream override values set at the operator panel.
- If no orientation controls are specified in the data stream, the APO item on the Coax SCS Menu enables or disables automatic print orientation. If automatic print orientation is enabled (the default), and the requested dimensions of the job fit on the paper, the page is printed either in portrait or landscape, whichever better fits the dimensions. If the requested dimensions do not fit on the paper, the default orientation for the tray (COR, PORT, LAND, or C-PORT) determines how the sheet is printed.

- If no orientation controls are specified in the data stream, and automatic print orientation is disabled (APO=DISABLE on the Coax SCS Menu), the page prints using the default orientation for the tray (COR, PORT, LAND, or C-PORT).

**Notes:**

1. The factory defaults (orientation set to COR and APO=ENABLE) give you the most flexibility.
2. The requested dimensions are determined by the values of CPI, LINE SPACING, MPP, and MPL for the job. These values can be set in the data stream or on the Coax SCS Menu.
3. See “Coax SCS Menu” on page 63 for more information on how the default tray settings work.

- **Printing Border**

The normal print border is described in “Chapter 17. Unprintable Area Information” on page 91. Various techniques exist to compensate for this border, including:

- Resetting the IPDS Menu items X-OFFSET, Y-OFFSET, and PAGE. See “IPDS Menu” on page 57.
- Resetting the orientation for each tray listed on the Coax SCS Menu. See “Coax SCS Menu” on page 63.
- Setting EDGE-EDGE to ON on the IPDS Menu and the Coax Setup Menu. Note, however, that setting EDGE-EDGE on is recommended only when necessary because of possible printer toner contamination.

---

## Coax Setup Menu

Use the Coax Setup Menu to configure the coax attachment. An asterisk (\*) next to a value in the table indicates the factory default. The Coax Setup Menu appears only if the coax card is installed.

If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.



Coax Setup Menu Item	Value	Description
PORT TMEOUT	nnn	Specifies the number of seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other installed attachments, and will switch to attachments with jobs waiting. nnn can be from 0 to 255. The default is 90 seconds. 0 dedicates the printer to the coax attachment (the printer will not accept data from other attachments).
IRQ TMEOUT	nn	Specifies when an IRQ (intervention required) timeout is sent. This tells the printer how long to wait for an intervention required condition to be corrected before notifying the host of the error. nn can be from 0 to 20 minutes. The default is 1 minute. 0 specifies to never send an IRQ timeout.
HLD TMEOUT	nn	Specifies the hold timeout value. This value tells the printer how long to wait if the printer is offline for an intervention required condition to be corrected. After this time elapses, the host is notified of the error. nn can be from 0 to 20 minutes. The default is 1 minute. 0 specifies to never send a hold time out.
BUSY TMEOUT	nnn	Specifies the busy timeout value. This specifies the amount of time to wait (when the printer is connected to multiple ports) for control to be returned to the coax attachment, before notifying the host. nnn can be from 0 to 999 minutes. The default is 20 minutes. 0 specifies to never send a busy timeout.
EDGE-EDGE	OFF* ON	Turns edge-to-edge printing on or off. <ul style="list-style-type: none"> <li>• OFF—the printer maintains a border of 4 mm on all four paper sides.</li> <li>• ON—The printer allows printing up to the physical page size.</li> </ul> <b>Notes:</b> <ol style="list-style-type: none"> <li>1. To prevent toner from contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF for coax printing; use ON only when necessary.</li> <li>2. The Coax Setup Menu item EDGE-EDGE applies to SCS data only. To specify edge-to-edge printing for IPDS data, use the EDGE-EDGE item on the IPDS Menu.</li> </ol>
EAB	ENABLE* DISABLE	Enables or disables the extended attribute buffer.

Coax Setup Menu Item	Value	Description
BUFFERSIZE	960 1920* 2560 3440 3564	Specifies the buffer size in bytes.
EARLY COMPL	ON* OFF	Turns early print completion on or off for non-IPDS data sent over the coax attachment. To turn early print completion on or off for IPDS data, use the EARLY COMPL item on the IPDS Menu. <ul style="list-style-type: none"> <li>• ON—sends an “order complete” as soon as data is received.</li> <li>• OFF—waits until the print job is physically complete to send “order complete.”</li> </ul>
PA1	none	Selecting this value and pressing the <b>Enter</b> key sends a PA1 signal to the host. <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. This applies to SCS only; not DSC/DSE or IPDS.</li> <li>2. For IBM InfoPrint 20 and IBM InfoPrint 32, PA1 is on the Coax SCS Menu.</li> </ol>
PA2	none	Selecting this value and pressing the <b>Enter</b> key sends a PA2 signal to the host. <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. This applies to SCS only; not DSC/DSE or IPDS.</li> <li>2. For IBM InfoPrint 20 and IBM InfoPrint 32, PA2 is on the Coax SCS Menu.</li> </ol>

## Custom Forms Menu

Use the Custom Forms Menu to define custom paper sizes for IPDS jobs. The following table describes the settings you can change from the Custom Forms Menu. An asterisk (\*) next to a value in the table indicates the factory default.

**Notes:**

1. This menu appears only when you have the IPDS option installed.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.
3. See “Chapter 18. Defining Custom Form Sizes for IPDS” on page 95 for an example of defining custom forms.

Custom Forms Menu Item	Value	Description
FORM1UNITS	MM* IN	Specifies the unit of measurement for the custom form.
FORM1 LEN	nnn nn.n	Specifies the width of the custom form. If FORMUNITS is set to millimeters, acceptable values are 148 to 508 millimeters. If FORMUNITS is set to inches, acceptable values are 5.9 to 20.0 inches.
FORM1 WIDTH	nnn nn.n	Specifies the width of the custom form. If FORMUNITS is set to millimeters, acceptable values are 88 to 330 millimeters. If FORMUNITS is set to inches, acceptable values are 3.5 to 13.0 inches.
FORM2UNITS FORM2 WIDTH FORM2 LEN FORM3UNITS FORM3 WIDTH FORM3 LEN FORM4UNITS FORM4 WIDTH FORM4 LEN FORM5UNITS FORM5 WIDTH FORM5 LEN		Specifies up to four more custom forms. See FORM1UNITS, FORM1 LEN, and FORM1 WIDTH for a description of each field.

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## IPDS Menu

The following table describes the settings you can change from the IPDS Menu. An asterisk (\*) next to a value in the table indicates the factory default. The IPDS Menu appears only if you have the IPDS SIMM installed.

**Notes:**

1. Values specified in IPDS print jobs override IPDS Menu values set at the printer.
2. If you are unfamiliar with using the operator panel to work with menus, please read "Working with Menus" on page 87 before continuing.

IPDS Menu Item	Value	Description
PAGEPROT	AUTO* ON	<p>Sets page protection:</p> <ul style="list-style-type: none"> <li>• AUTO—the printer uses the minimum amount of memory necessary to print a page.</li> <li>• ON—the printer reserves enough memory to process an entire page without compression before it prints the page. This can help in the rare case where the printer compression scheme causes a loss of quality in complex graphics. This setting is available only when the printer has enough memory. See the User's Guide for your printer for information about memory requirements.</li> </ul>
DEF CD PAG	nnnn	<p>Specifies the default code page. The default value is code page 037.</p> <p>037 US, Canada, Netherlands, Portugal  038 US English ASCII  260 Canadian French  273 Austrian/German  274 Belgium  276 Canadian French  277 Danish/Norwegian  278 Finnish/Swedish  280 Italian  281 Japanese  284 Spanish  285 UK English  286 Austrian/German (alternate)  287 Danish/Norwegian (alternate)  288 Finnish/Swedish (alternate)  290 Japanese/Katakana  297 French  420 Arabic  423 Greek  424 Hebrew  500 Belgium, Switzerland / International  870 Latin 2 Multilingual  871 Icelandic  875 Greek  880 Cyrillic  892 OCR - A  893 OCR - B  905 Turkish  1025 Cyrillic  1026 Turkish</p>
EMULATION	4028* 43nn	<p>Specifies the printer to emulate. Select 43nn (4312, 4317, 4320, 4324, or 4332) only if you have the appropriate level of PSF software installed. (Consult your system administrator.)</p>

IPDS Menu Item	Value	Description
DEF FGID	nnnnn	<p>Specifies the default FGID (Font Typeface Global Identifier), which identifies the default resident font the printer uses. The default FGID is 416, which specifies Courier 10 point as the default resident font.</p> <p>To display the list of fonts and FGIDs the printer supports, print out a list of IPDS resident fonts.</p>
CPI	nn.n	<p>Selects characters-per-inch (pitch) for the default font. Valid values are 5.0 to 30.0 in tenths of an inch. The default value is 10.</p>
VPA CHK	ON* OFF	<p>Turns valid printable area checking on or off.</p> <ul style="list-style-type: none"> <li>• ON—the printer checks for pels that fall outside the intersection of the logical and physical pages. If pels fall outside the area, the printer reports an error to the host if the IPDS Exception Handling Control command setting requires error reporting.</li> <li>• OFF—The printer does not report pels outside the valid printable area.</li> </ul>
X-OFFSET	nnn	<p>Sets the print offset in the X (horizontal) direction. nnn can be from -999 to 999. The default setting is 0 pels. Positive values move the starting point for printing to the right of the physical point of origin. Negative values move the starting point for printing to the left. The physical point of origin is towards the top left corner of a portrait page. If you rotate the page, the physical point of origin rotates as well.</p> <p><b>Note:</b> The X-OFFSET and Y-OFFSET options are intended to allow line printer print jobs to fit on a page where edge-to-edge printing is not possible. Using X-OFFSET and Y-OFFSET is NOT recommended when generating new applications, especially duplex applications.</p>

IPDS Menu Item	Value	Description
Y-OFFSET	nnn	<p>Sets the print offset in the Y (vertical) direction. nnn can be from -999 to 999. The default setting is 0 pels. Positive values move the starting point for printing down from the physical point of origin. Negative values move the starting point for printing up. The physical point of origin is towards the top left corner of a portrait page. If you rotate the page, the physical point of origin rotates as well.</p> <p><b>Note:</b> The X-OFFSET and Y-OFFSET options are intended to allow line printer print jobs to fit on a page where edge-to-edge printing is not possible. Using X-OFFSET and Y-OFFSET is NOT recommended when generating new applications, especially duplex applications.</p>

IPDS Menu Item	Value	Description
PAGE	WHOLE* COMP1 COMP2 PRINT	<p>Determines how data is positioned on the page.</p> <ul style="list-style-type: none"> <li>• <b>WHOLE</b>—IPDS whole page (default). The printer does not move or compress the page. This is the preferred method; all page positioning and formatting is done at the application level on the host. The PRINT, COMP1, and COMP2 options may alter the appearance of the page, or may not be compatible with predecessor products (for example, 3116, 3916), especially when combined with duplex and other IPDS MENU page format adjustments such as X-OFFSET and Y-OFFSET. PRINT, COMP1, and COMP2 are included to allow line printer jobs to fit on a page where edge-to-edge printing was not possible; they are not recommended for use in generating new applications.</li> <li>• <b>PRINT</b>—IPDS print page. If the page origin falls within the unprintable area, the origin of the page is moved to the inside edge of the nearest unprintable area border. If the origin violates the unprintable area on two edges, it is moved to the nearest inside corner of the unprintable area. If the origin violates only one edge of the unprintable area, then the origin is adjusted to avoid only that area.</li> </ul> <p>If a location adjustment is made, the printed page shifts in the direction of the adjustment. There is no compression, so the opposite-edge data may be pushed off the page.</p> <p><b>Note:</b> PRINT requires EDGE-EDGE set OFF to work. Any data placed in this unprintable area is lost. Also, PRINT will not work on envelopes or media overlays (overlays that are part of the base page, not the overlays included in the variable print data).</p> <ul style="list-style-type: none"> <li>• <b>COMP1</b>—COMP1 format uses PRINT page as a base, and then compresses the spacing between text lines generated by the IPDS Begin Line command. Its primary purpose is to compress Begin Line text data into a page with unprintable borders.</li> </ul> <p>continued on next page...</p>

IPDS Menu Item	Value	Description
PAGE	PRINT WHOLE* COMP1 COMP2	<p>(continued from previous page...)</p> <ul style="list-style-type: none"> <li>COMP2—COMP2 format uses PRINT page as a base, and then adds compression IPDS Begin Line command (see COMP1) and of the following vertical text positioning commands: Absolute Move Baseline, Relative Move Baseline, Draw B Axis Rule, Draw I Axis Rule.</li> </ul> <p><b>Note:</b> Alignment problems can occur if you select COMP1 or COMP2 and you print jobs that mix text with images, graphics, or bar codes. Problems arise when text positioning commands are used to move across text or into non-text (image, graphic, or bar-code) areas. Both COMP1 and COMP2 reduce the line spacing of text only and have no effect on non-text data. To minimize this problem, select COMP1, because Begin Line commands are not normally used to move across or into non-text areas. If, however, the application you want to compress does not use Begin Line commands, you should select COMP2.</p>
EDGE-EDGE	OFF* ON	<p>Turns edge-to-edge printing on or off.</p> <ul style="list-style-type: none"> <li>OFF—the printer maintains a no-print border of 4 mm on all four paper sides.</li> <li>ON—The printer allows printing up to the physical page size.</li> </ul> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>To avoid toner contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF for IPDS; use ON only when necessary.</li> <li>The IPDS Menu item EDGE-EDGE applies to IPDS data only. To specify edge-to-edge printing for non-IPDS data sent over the coax attachment, use the EDGE-EDGE item on the Coax Setup Menu.</li> </ol>
FONT SUB	OFF* ON	<p>Turns font substitution on or off.</p> <ul style="list-style-type: none"> <li>OFF—if a job requests a font that is not loaded on the printer, the printer generates an IPDS NACK message and the host holds the job.</li> <li>ON—if a job requests a font that is not loaded on the printer, the printer attempts to substitute another font.</li> </ul>
PRINT MODE (IBM InfoPrint 32 only)	ENH* STD	<ul style="list-style-type: none"> <li>ENH (ENHANCED)—the printer prints at 600 DPI which produces optimal print quality and slower printer performance.</li> <li>STD (STANDARD)—the printer prints at 300 DPI which produces good print quality and optimal printer performance.</li> </ul>



IPDS Menu Item	Value	Description
CACHING (IBM InfoPrint 32 only)	ON* OFF	Specifies whether or not to use caching for repeated overlays. <ul style="list-style-type: none"> <li>• ON—the printer uses caching, which provides better performance for jobs with repeated overlays, but uses more memory.</li> <li>• OFF—the printer does not use caching, which requires less memory but provides less performance for jobs with repeated overlays.</li> </ul>
EARLY COMPL	OFF* ON	Turns early print completion on or off for IPDS jobs. <ul style="list-style-type: none"> <li>• OFF—the printer waits until the job is physically complete to signal the host that the job is complete.</li> <li>• ON—the printer signals the host that the job is complete as soon as the IPDS data is formatted.</li> </ul> <p>Setting EARLY COMPL=ON may improve print performance, but may also degrade recovery and cause lost data from some printing problems, such as jams.</p>
IPDS PORT	COAX* TX ETHER TRING	Specifies the attachment you use for IPDS jobs. <b>Note:</b> You can print IPDS from more than one port; setting this item, therefore, does not restrict you from printing from multiple ports.
OUTPUT (IBM InfoPrint 32 only)	bin	Selects the default output bin to use for IPDS jobs. Only installed trays appear in the list. For details, see the User's Guide for your printer.
CUSTOM FORM	1* 2 3 4 5	Specifies the custom form to use. The Custom Forms Menu lets you specify up to five custom forms. See "Chapter 18. Defining Custom Form Sizes for IPDS" on page 95 for information on defining custom forms.

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## Coax SCS Menu

Use the Coax SCS Menu to define how the printer handles SCS data over the coax attachment. An asterisk (\*) next to a value in the table indicates the factory default. The Coax SCS Menu appears only if you have the coax network interface card installed.

### Notes:

1. Values set in print jobs override Coax SCS Menu values set at the printer.
2. If you are unfamiliar with using the operator panel to work with menus, please read "Working with Menus" on page 87 before continuing.

Coax SCS Menu Item	Value	Description
tray	COR* C-PORT PORT LAND	<p>Specifies the default orientation for jobs printed from each tray. (The actual trays you see depend on the printer Each input can be assigned one of the following default orientations:</p> <ul style="list-style-type: none"> <li>• COR—computer output reduction: Printing in landscape with the logical page reduced to fit more data on the physical page. The printer reduces vertical spacing and uses a smaller font with less space between letters.</li> <li>• C-PORT—compressed portrait: printing in portrait, but with horizontal and vertical compression. Horizontal compression makes it possible to print 80 characters per line in portrait when 10 cpi is used and 133 characters per line when 16.7 cpi is used. The horizontal compression factor differs depending on paper size used. Because of this, no horizontal compression can be seen when Letter paper is used because Letter paper in portrait already allows 80 characters in 10 cpi. Vertical compression makes it possible to print 66 lines per page in 6 LPI or 88 lines per page in 8 LPI. The vertical compression factor also varies depending on the paper size used.</li> <li>• PORT—portrait: the page has normal, upright business letter orientation. For envelopes from the auxiliary tray, PORT specifies normal envelope orientation.</li> <li>• LAND—landscape: the page is wider than long.</li> </ul>

Coax SCS Menu Item	Value	Description
APO	ENABLE* DISABLE	<p>Enables or disables automatic print orientation.</p> <ul style="list-style-type: none"> <li>• ENABLE—if the requested dimensions of the job fit on the paper, the page is printed either in portrait or landscape, whichever better fits the dimensions. If the requested dimensions do not fit on the paper, the default orientation for the tray (COR, PORT, LAND, or C-PORT) determines how the sheet is printed.</li> <li>• DISABLE—the page prints using the default orientation for the tray (COR, PORT, LAND, or C-PORT).</li> </ul> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Values specified in the data stream override values set at the printer.</li> <li>2. The factory defaults (orientation set to COR and APO=ENABLE) give you the most flexibility.</li> <li>3. The requested dimensions are determined by the values of CPI, LINE SPACING, MPP, and MPL for the job. These values can be set in the data stream or on the Coax SCS Menu.</li> </ol>
LPI	6* 8 0	Specifies a default lines per inch value for jobs received over the coax attachment. Valid values are 0, 6, and 8. The default is 6 lines per inch. 0 specifies either the value specified in the job, or the PCL default value for the printer.
LINE SPACING	1* 2	<p>Specifies single or double spacing:</p> <ul style="list-style-type: none"> <li>• 1—single spacing</li> <li>• 2—double spacing</li> </ul>
CPI	nn.n	Specifies the default characters per inch, or pitch. nn can be 0, 10, 12, 15, 16.7, 20, or 27. The default is 10 characters per inch. 0 specifies a proportional font (FGID 1452). Note that proportional fonts use proportional spacing, which may cause unexpected results (for example, tabular data may appear misaligned).
CASE	DUAL* MONO	<p>Specifies the case of the printed text:</p> <ul style="list-style-type: none"> <li>• DUAL—characters print in the case received</li> <li>• MONO—all characters print in uppercase</li> </ul>
MPL	nnn	Specifies the maximum page length (MPL) in lines per page. Valid values are 0 to 255. 66 is the default.
MPP	nnn	Specifies the maximum print position (MPP). Valid values are 0 to 255.

Coax SCS Menu Item	Value	Description
CODE PAGE	nnn	<p>Specifies the code page to use. Code page 037 is the default.</p> <p>037 US, Canada, Netherlands, Portugal  260 Canadian/French  273 Austrian/German  275 Brazil  277 Danish/Norwegian  278 Finnish/Swedish  280 Italian  281 Japanese  284 Spanish  285 UK English  286 Austrian/German (alternate)  287 Danish/Norwegian (alternate)  288 Finnish/Swedish (alternate)  289 Spanish  297 French  420 Arabic<sup>1</sup>  424 Hebrew<sup>2</sup>  500 Belgium, Switzerland / International  871 Icelandic  875 Greek<sup>3</sup>  000 download the code page from the 3174 control unit</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Available only if the Arabic Language Font SIMM (part number 63H3588) is installed.</li> <li>2. Available only if the Hebrew Language Font SIMM (part number 63H3587) is installed.</li> <li>3. Available only if the Greek Language Font SIMM (part number 90H0574) is installed.</li> </ol>
TBM	nn.n	<p>The top binding margin (TBM) determines the position of line 1 relative to the top edge of the printable area when printing in portrait or landscape orientation. TBM is measured in tenths of an inch, with a default of 0. It applies to all paper sources.</p>
LBM	nn.n	<p>The left binding margin (LBM) determines the position of column 1 relative to the left edge of the printable area when printing in portrait or landscape orientation. LBM is measured in tenths of an inch, with a default of 0. It applies to all paper sources.</p>

Coax SCS Menu Item	Value	Description
PA1	none	Selecting this value and pressing the <b>Enter</b> key sends a PA1 signal to the host. <b>Notes:</b> 1. This applies to SCS only; not DSC/DSE or IPDS. 2. For Network Printer 12, Network Printer 17, and Network Printer 24, PA1 is on the Coax Setup Menu.
PA2	none	Selecting this value and pressing the <b>Enter</b> key sends a PA2 signal to the host. <b>Notes:</b> 1. This applies to SCS only; not DSC/DSE or IPDS. 2. For Network Printer 12, Network Printer 17, and Network Printer 24, PA2 is on the Coax Setup Menu.

---

## Coax DSC/DSE Menu

Use the Coax DSC/DSE Menu to define how the printer handles DSC/DSE data over the coax attachment. An asterisk (\*) next to a value in the table indicates the factory default. The Coax DSC/DSE Menu appears only if you have the coax network interface card installed.

**Notes:**

1. If you are unfamiliar with using the operator panel to work with menus, please read “Working with Menus” on page 87 before continuing.

Coax DSC/DSE Menu Item	Value	Description
PRINT IMAGE	ON* OFF	<p>Selects printing options in non-SCS mode.</p> <ul style="list-style-type: none"> <li>• ON <ul style="list-style-type: none"> <li>- True Screen image in Local Copy</li> <li>- True Screen image in Non-SCS print</li> <li>- Unformatted print in Local Copy</li> <li>- Unformatted print in Non-SCS print</li> </ul> </li> <li>• OFF <ul style="list-style-type: none"> <li>- Null line suppression in Local Copy</li> <li>- Null line suppression in Non-SCS print</li> <li>- Formatted print in Local Copy</li> <li>- Formatted print in Non-SCS print</li> </ul> </li> </ul>
CR AT MPP+1	ON* OFF	<p>Sets a carriage return relative to the maximum print position (MPP).</p> <ul style="list-style-type: none"> <li>• ON—a new line occurs when the carriage return occurs at MPP+1. The next print position will be at the first print position of the new line (current line + 1, column 1).</li> <li>• OFF—no new line occurs when the carriage return occurs at MPP+1. The next print position will be at the first print position of the current line (current line, column 1).</li> </ul>
NL AT MPP+1	ON* OFF	<p>Forces a new line at MPP+1.</p> <ul style="list-style-type: none"> <li>• ON—an additional new line occurs at MPP+1, followed by the carriage return. The next print position will be at the first print position of the new line (current line + 2, column 1).</li> <li>• OFF—no additional new line when the new line occurs at MPP+1. The next print position will be at the first print position of the next line (current line + 1, column 1).</li> </ul>
FF DATA	ON* OFF	<p>Forces the printer to eject the current page.</p> <ul style="list-style-type: none"> <li>• ON—when a Form Feed command is encountered, the current page is ejected and the form is indexed to the first line of the next page. The next print position will be at the first print position of the first line of the next page (next form, line 1, column 1).</li> <li>• OFF—when a Form Feed command is encountered, the current page is ejected and the form is indexed to the first line of the next page and spaced one position. The next print position will be at the first print position plus 1 of the first line of the next page (next form, line 1, column 2).</li> </ul>

Coax DSC/DSE Menu Item	Value	Description
FF LAST	ON* OFF	<p>Determines where to position the next character when the Form Feed command occurs at the end of the print buffer.</p> <ul style="list-style-type: none"> <li>• ON—an automatic new line occurs after the print order is completed (next form, line 2, column 1).</li> <li>• OFF—suppress automatic new line after the print order is completed (next form, line 1, column 1).</li> </ul>
FF VALID	OFF* ON	<p>Determines when a form feed command is valid.</p> <ul style="list-style-type: none"> <li>• ON—a Form Feed command occurs whenever it is encountered.</li> <li>• OFF—a Form Feed command occurs only if it appears at the first print position in a line, or at MPP+1. Treats a form feed at other locations as blanks.</li> </ul>
AUTO FUNCT	OFF* ON	<p>Selects whether the next print position will be on a new line or a new page.</p> <ul style="list-style-type: none"> <li>• ON—a form feed will be executed automatically at the end of the print order (when printing of a buffer is completed) unless a form feed (FF) is the last character in the print order.</li> <li>• OFF—a new line will be executed automatically at the end the print order (when printing of a buffer is completed) unless a form feed (FF), new line (NL), or carriage return (CR) was the last character in the print order.</li> </ul>





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## Chapter 13. Attaching the Coax Cable



**DANGER**

<1-13> Do not connect or disconnect a communication port, a teleport, or any other connector during an electrical storm.

hcsf0113



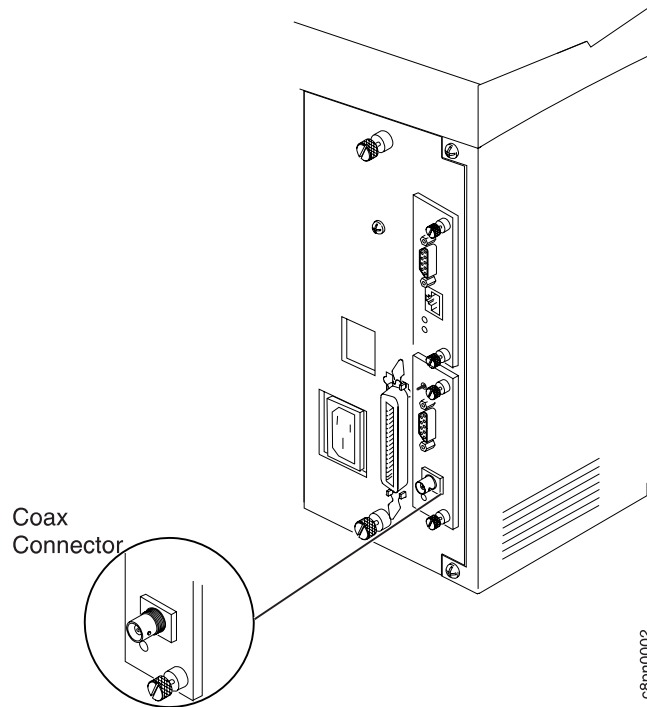
**DANGER**

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

hcsf0114

1. Power off the printer.
2. Unplug the power cord from the wall outlet and from the back of the printer.

3. Connect your system cable to the connector on the interface card.



c8prt0002

4. Plug the power cord back in.
5. Power on the printer.

---

## Chapter 14. S/370-S/390 Configuration Examples

It is necessary to define a printer in the S/370-S/390 environment to VTAM, JES2, POWER, PSF, VPS, JES328X Print Facility, NCP, VM, VSE, MVS, and possibly other software depending upon your operating environment and printing requirements. This section starts with the basics and increases in complexity as required.

**Note:** Define network printers to Print Service Facility (PSF) the same as 3112, 3116, or 4028 printers. Use the LOGMODE table. In your PSF startup procedures, be sure to point to the 300-pel font libraries.

- “Example 1: 4317-LU1-IPDS-PSF/MVS-Local SNA 3174 Control Unit”
- “Example 2: 4317-LU1-IPDS-PSF/MVS-Remote SNA 3174 Control Unit” on page 75
- “Example 3: 4317-LU1-IPDS-Local SNA 3174 Control Unit” on page 76
- “Example 4: 4317-LU1-IPDS-Remote SNA 3174 Control Unit” on page 77
- “Example 5: 4317-LU1-SCS-Local SNA 3174 Control Unit” on page 78
- “Example 6: 4317-LU1-SCS-Remote SNA 3174 Control Unit” on page 79
- “Example 7: 4317-LU3-DSE-Local SNA 3174 Control Unit” on page 80
- “Example 8: 4317-LU3-DSE-Remote SNA 3174 Control Unit” on page 81
- “Example 9: 4317-LU0-DSC-Local Non-SNA 3174 Control Unit” on page 82

**Note:** The included examples are for the IBM Network Printer 17 (4317) in an MVS environment. However, the VTAM definitions for other network printers will be generally the same in MVS, VSE, or VM.

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### Example 1: 4317-LU1-IPDS-PSF/MVS-Local SNA 3174 Control Unit

Use LU1-IPDS mode with FM Header support when you require PSF support to accomplish the desired print function. An existing local 3174 SNA-connected control unit is assumed.

1. Define the printer to VTAM and add to or select from a logmode entry in the VTAM Logmode Table.
2. Define the printer to JES2.
3. Define the printer to PSF/MVS.

## Step 1 - VTAM Definition

The following should be added to the Local Major Node VTAM definition.  
The printer will be attached as an LU1-IPDS capable printer.

```
LOC3174 VBUILD TYPE=LOCAL
LOCPU74 PU      CUADDR=nnn,MAXBFRTU=2
LOC4317 LU      LOCADDR=8,MODETAB=MYMODETB,DLOGMODE=PSFL4317,ISTATUS=ACTIVE
```

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice. Alternatively, you may use the IBM-provided entry for IBM3812.

```
PSFL4317 MODEENT LOGMODE=PSFL4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'B0',COMPROT=X'7080',RUSIZES=X'85C7'
          PSERVIC=X'014000010000000001000000'
          PSNDPAC=X'02',SRCVPAC=X'02',SSNDPAC=X'00'
```

## Step 2 - JES2 Definition (SYS1.PARMLIB)

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

## Step 3 - PSF/MVS Definition

Add the following definition to the PSF STARTUP PROC:

```
//PRT2  CNTL
//PRT2  PRINTDEV FONTDD=*,FONT01, /*FONT    LIBRARY DD          */
//      OVLYDD=*,OLAY01,          /*OVERLAY LIBRARY DD      */
//      PSEGDD=*,PSEG02,          /*SEGMENT LIBRARY DD      */
//      PDEFDD=*,PDEF01,          /*PAGEDEF  LIBRARY DD      */
//      FDEFDD=*,FDEF01,          /*FORMDEF  LIBRARY DD      */
//      JOBHDR=*,JOBHDR,          /*JOB HEADER SEPARATOR OUTPUT */
//      JOBTRLR=*,JOBTLR,         /*JOB TRAILER SEPARATOR OUTPUT */
//      DSHDR=*,DSHDR,           /*DATA SET HEADER SEPARATOR  */
//      MESSAGE=*,MSGDS,         /*MESSAGE DATA SET OUTPUT   */
//      FORMDEF=A10110,          /*DEVICE FORMDEF DEFAULT     */
//      PIMSG=(YES,16),          /*ACCUMULATE DATA SET MESSAGES */
//      DATAK=BLOCK,           /*BLOCK DATA CHECKS         */
//      TRACE=NO,                /*BUILD INTERNAL TRACE       */
//      FAILURE=WCONNECT,        /*VTAM: ATTEMPT RECONNECT    */
//      DISCINT=0,               /*VTAM: NO TIMEOUT          */
//      MGMTMODE=IMMED,          /*VTAM: MAINTAIN SESSION     */
//      APPLID=PSFAPP1,          /*VTAM: APPLID OF PSF       */
//      LUNAME=LOC4317,          /*VTAM: PRINTER LOGICAL UNIT NAME */
//PRT2  ENDCNTL
```

Refer to the *PSF/MVS System Programming Guide* S544-3672, for further details.

## Example 2: 4317-LU1-IPDS-PSF/MVS-Remote SNA 3174 Control Unit

Use LU1-IPDS mode with FM Header support when you require PSF support to accomplish the desired print function. An existing remote 3174 SNA-connected control unit is assumed.

1. Create an NCP definition for the printer that points to the LU1 default logmode entry defined below.
2. Define the printer to VTAM by adding a logmode entry to VTAM Logmode Table.
3. Define the printer to JES2.
4. Define the printer to PSF/MVS.

### Step 1 - NCP Definition

```
XYZ      GROUP  TYPE=NCP,...
          LINK  ADDRESS=(032),...
REMPU74  PU     ADDR=C1,...
REM4317  LU     LOCADDR=#,      (Where # relates to 3174 port number)
          DLOGMOD=PSFR4317,(Default LOGMODE ENTRY NAME)
          MODETAB=MYTABLE (Table name containing MODEENT)
```

\*

### Step 2 - VTAM Definition

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice. Alternately, you may use the IBM IBM-provided entry IBM3812C.

```
PSFR4317  MODEENT LOGMODE=PSFR4317,
          FMPROF=X'03', TSPROF=X'03', PRIPROT=X'B1',
          SECPROT=X'B0', COMPROT=X'7080', RUSIZES=X'8585,
          PSERVIC=X'014000010000000001000000'
          PSNDPAC=X'03', SRCVPAC=X'03', SSNDPAC=X'00'
```

### Step 3 - JES2 Definition (SYS1.PARMLIB)

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

### Step 4 - PSF/MVS Definition

Add the following definition to the PSF STARTUP PROC:

```
//PRT2  CNTL
//PRT2  PRINTDEV FONTDD=*,FONT01, /*FONT      LIBRARY DD          */
//      OVLYDD=*,OLAY01,          /*OVERLAY LIBRARY DD          */
//      PSEGDD=*,PSEG02,          /*SEGMENT LIBRARY DD          */
//      PDEFDD=*,PDEF01,          /*PAGEDEF LIBRARY DD          */
//      FDEFDD=*,FDEF01,          /*FORMDEF LIBRARY DD          */
//      JOBHDR=*,JOBHDR,          /*JOB HEADER SEPARATOR OUTPUT */
//      JOBTRLR=*,JOBTLR,         /*JOB TRAILER SEPARATOR OUTPUT */
//      DSHDR=*,DSHDR,           /*DATA SET HEADER SEPARATOR   */
```

```

//      MESSAGE=*,MSGDS,          /*MESSAGE DATA SET OUTPUT      */
//      FORMDEF=A10110,          /*DEVICE FORMDEF DEFAULT       */
//      PIMSG=(YES,16),          /*ACCUMULATE DATA SET MESSAGES */
//      DATAK=BLOCK,           /*BLOCK DATA CHECKS           */
//      TRACE=NO,                /*BUILD INTERNAL TRACE         */
//      FAILURE=WCONNECT,        /*VTAM: ATTEMPT RECONNECT      */
//      DISCINT=0,               /*VTAM: NO TIMEOUT            */
//      MGMTMODE=IMMED,          /*VTAM: MAINTAIN SESSION       */
//      APPLID=PSFAPP1,          /*VTAM: APPLID OF PSF         */
//      LUNAME=LOC4317,          /*VTAM: PRINTER LOGICAL UNIT NAME */
//PRT2      ENDCNTL

```

Refer to the *PSF/MVS System Programming Guide S544-3672*.

---

### Example 3: 4317-LU1-IPDS-Local SNA 3174 Control Unit

Use LU1-IPDS mode with FM Header support when you require IPDS commands (but not PSF support) to accomplish the desired print function. An existing local 3174 SNA-connected control unit is assumed.

1. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
2. Define the printer to JES2. (Not required but recommended. See details below.)
3. Define the printer to CICS or another application program such as VPS or JES328X products.

#### Step 1 - VTAM Definition

The following should be added to the Local Major Node VTAM definition. The printer will be attached as an LU1-IPDS capable printer.

```

LOC3174 VBUILD TYPE=LOCAL
LOCPU74 PU      CUADDR=nnn,MAXBFRU=2
LOC4317 LU      LOCADDR=n,MODETAB=MYMODETB,DLOGMODE=IPDL4317,ISTATUS=ACTIVE

```

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice.

```

IPDL4317 MODEENT LOGMODE=IPDL4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'90',COMPROT=X'7080',RUSIZES=X'87C6',
          PSERVIC=X'01000001E100000000000000',
          PSNDPAC=X'01',SRCVPAC=X'01',SSNDPAC=X'00'

```

#### Step 2 - JES2 Definition (SYS1.PARMLIB)

```

RMT1  LUTYPE1,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,
      SETUPHDR,CONSOLE
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),
      CKTPAGE=30
DESTID NAME=LOC4317,DEST=R1

```

### Step 3 - Define to CICS or another application program

An application program must provide the IPDS data stream to control the printer. GDDM, VPS, and other applications support IPDS, as well as numerous application programs, both customer-written and vendor-supplied. Refer to the vendor documentation for defining an IPDS printer to the program. If specific reference is not made to one of the network printer, you may use an IBM 3916 or 4028 definition.

---

#### Example 4: 4317-LU1-IPDS-Remote SNA 3174 Control Unit

Use LU1-IPDS mode with FM Header support when you require IPDS commands (but not PSF support) to accomplish the desired print function. An existing remote 3174 SNA-connected control unit is assumed. The steps required to install an LU1-IPDS printer for host definitions are as follows:

1. Create an NCP definition for the printer that points to the LU1 default logmode entry defined below.
2. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
3. Define the printer to JES2. (May not be required if VPS. See details below.)
4. Define the printer to JES328X Print Facility, VPS, or equivalent.

#### Step 1 - NCP Definition

```
MYPRINT Group ...
        Line ...
        Service ...
REMPU74 PU ...
REM4317 LU LOCADDR=#, (# replaced by port on control unit)
          DLOGMOD=IPDR4317, (Default LOGMODE ENTRY NAME)
          MODETAB=MYTABLE (Table name containing MODEENT)
```

#### Step 2 - VTAM Definition

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice.

```
IPDR4317 MODEENT LOGMODE=IPDR4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'90',COMPROT=X'7080',RUSIZES=X'87C6',
          PSERVIC=X'01000000E100000000000000',
          PSNDPAC=X'01',SRCVPAC=X'01'
```

#### Step 3 - JES2 Definition

This definition is not required if you are using VPS and using U1 - U9999 as the printer ID.

```

RMT1  LUTYPE1,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,
      SETUPHDR,CONSOLE (SETUPHDR=PDIR JES2 V3)
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),
      CKPTPAGE=30
DESTID NAME=P4317,DEST=R1

```

#### Step 4 - JES328X Print Facility or VPS Definition

An application program must provide the IPDS data stream to control the printer. GDDM, VPS, and other applications support IPDS, as well as numerous application programs, both customer-written and vendor-supplied. Refer to the vendor documentation for defining an IPDS printer to that program. If specific reference is not made to one of the network printer, you may use an IBM 3916 or 4028 definition.

---

#### Example 5: 4317-LU1-SCS-Local SNA 3174 Control Unit

Use LU1-SCS mode when neither IPDS nor PSF is required to accomplish the desired print function. An existing local 3174 SNA-connected control unit is assumed.

1. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
2. Define the printer to JES2. (Not required but recommended. See details below.)
3. Define the printer to an application program such as CICS, VPS, or JES328X products.

#### Step 1 - VTAM Definition

The following should be added to the Local Major Node VTAM definition. The printer will be attached as an LU1-SCS capable printer.

```

LOC3174 VBUILD TYPE=LOCAL
LOCPU74 PU      CUADDR=nnn...
LOC4317 LU      LOCADDR=n,MODETAB=MYMODETB,DLOGMODE=SCSL4317,ISTATUS=ACTIVE

```

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice.

```

SCSL4317 MODEENT LOGMODE=SCSL4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'8787',
          PSERVIC=X'01000000E100000000000000',
          PSNDPAC=X'02',SRCVPAC=X'02',SSNDPAC=X'00'

```



## Step 2 - JES2 Definition (SYS1.PARMLIB)

```
RMT1  LUTYPE1,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,
      SETUPHDR,CONSOLE
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),
      CKTPAGE=30
DESTID NAME=LOC4317,DEST=R1
```

## Step 3 - Define to CICS or another application program

An application program must provide the SCS commands to control the printer. CICS, VPS, and other applications support SCS, as well as numerous application programs, both customer-written and vendor-supplied. Refer to the vendor documentation for defining an IPDS printer to the program for its use. If specific reference is not made to one of the network printer, you may use an IBM 3116, 3916 or 4028 definition.

---

### Example 6: 4317-LU1-SCS-Remote SNA 3174 Control Unit

Use LU1-SCS mode when neither IPDS nor PSF is required to accomplish the desired print function. An existing remote 3174 SNA-connected control unit is assumed.

1. Create an NCP definition for the printer that points to the LU1 default logmode entry defined below.
2. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
3. Define the printer to JES2. (May not be required if VPS. See details below.)
4. Define the printer to JES328X Print Facility, VPS, or equivalent product.

## Step 1 - NCP Definition

```
XYZ      GROUP  TYPE=NCP,...
          LINK  ADDRESS=(032),...
REMPU74  PU     ADDR=C1,...
REM4317  LU     LOCADDR=#,      (# replaced by port on control unit)
          DLOGMOD=SCSR4317,(Default LOGMODE ENTRY NAME)
          MODETAB=MYTABLE (Table name containing MODEENT)
```

\*

## Step 2 - VTAM Definition

```
SCSR4317 MODEENT LOGMODE=SCSR4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'87C6',
          PSERVIC=X'01000000E100000000000000',
          PSNDPAC=X'01',SRCVPAC=X'01'
```

## Step 3 - JES2 Definition

This definition is not required if you are using VPS and using U1 - U9999 as the printer ID.

```

RMT1  LUTYPE1,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,
      SETUPHDR,CONSOLE (SETUPHDR=PDIR JES2 V3)
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),
      CKPTPAGE=30
DESTID NAME=P4317,DEST=R1

```

#### Step 4 - JES328X Print Facility or VPS Definition

An application program must provide the SCS data stream to control the printer. VPS and other applications support SCS, as well as numerous application programs, both customer-written and vendor-supplied. Refer to the vendor documentation for defining an SCS printer to that program. If specific reference is not made to one of the network printer, you may use an IBM 3116, 3916 or 4028 definition.

---

#### Example 7: 4317-LU3-DSE-Local SNA 3174 Control Unit

Use LU3-DSE mode when no host printing controls are required to accomplish the desired print function. The printer settings will be used and cannot be overridden by the host system. An existing local 3174 SNA-connected control unit is assumed.

1. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
2. Define the printer to JES2. (Not required but recommended. See details below.)
3. Define the printer to CICS or another application program such as VPS or JES328X products.

#### Step 1 - VTAM Definition

The following should be added to the Local Major Node VTAM definition.

```

LOC3174 VBUILD TYPE=LOCAL
LOCPU74 PU      CUADDR=nnn...
LOC4317 LU      LOCADDR=n,MODETAB=MYMODETB,DLOGMODE=DSEL4317,ISTATUS=ACTIVE

```

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice.

```

DSEL4317 MODEENT LOGMODE=DSEL4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'20',COMPROT=X'3080',RUSIZES=X'C7C7',
          PSERVIC=X'038000000000185018507F00'
          PSNDPAC=X'00',SRCVPAC=X'00',SSNDPAC=X'00'

```

## Step 2 - JES2 Definition (SYS1.PARMLIB)

```
RMT1  LUTYPE3,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,
      SETUPHDR,CONSOLE
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),
      CKTPAGE=30
DESTID NAME=LOC4317,DEST=R1
```

## Step 3 - Define to CICS or another application program

Host system commands to change the printer settings are not supported in DCS mode. Refer to the vendor documentation for defining a DCS printer to the program for its use.

---

### Example 8: 4317-LU3-DSE-Remote SNA 3174 Control Unit

Use LU3-DSE mode when host printing controls are not needed to accomplish the desired print function. An existing remote 3174 SNA-connected control unit is assumed.

1. Create an NCP definition for the printer that points to the LU1 default logmode entry defined below.
2. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
3. Define the printer to JES2. (May not be required if VPS. See details below.)
4. Define the printer to CICS, JES328X Print Facility, VPS, or equivalent product.

## Step 1 - NCP Definition

```
XYZ      GROUP  TYPE=NCP,...
          LINK   ADDRESS=(032),...
REMPU74  PU     ADDR=C1,...
REM4317  LU     LOCADDR=#,      (# replaced by port on control unit)
          DLOGMOD=DSER4317,(Default LOGMODE ENTRY NAME)
          MODETAB=MYTABLE (Table name containing MODEENT)
```

## Step 2 - VTAM Definition

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice.

```
DSER4317  MODEENT LOGMODE=DSER4317,
          FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
          SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'87C6',
          PSERVIC=X'038000000000185018507F00'
          PSNDPAC=X'01',SRCVPAC=X'01'
```

### Step 3 - JES2 Definition

This definition is not required if you are using VPS and using U1 - U9999 as the printer ID.

```
RMT1  LUTYPE3,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,
      SETUPHDR,CONSOLE (SETUPHDR=PDIR JES2 V3)
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),
      CKPTPAGE=30
DESTID NAME=P4317,DEST=R1
```

### Step 4 - Define to CICS or another application program

Refer to the vendor documentation for defining a DSE printer to program for its use.

---

### Example 9: 4317-LU0-DSC-Local Non-SNA 3174 Control Unit

LU0-DSC mode is utilized when no host printing controls are required to accomplish the print function desired. The control unit is attached by a VTAM-controlled non-SNA control unit. An existing local 3174 NON-SNA-connected control unit is assumed.

1. Define the printer to the VTAM by adding a logmode entry to VTAM Logmode Table.
2. Define the printer to JES2. (Not required but recommended. See details below.)
3. Define the printer to CICS or another application program such as VPS or JES328X products.

### Step 1 - VTAM Definition

The following should be added to the Local Major Node VTAM definition.

```
LOC3174 VBUILD TYPE=LOCAL
LOCPU74 PU      CUADDR=nnn...
LOC4317 LU      LOCADDR=n,MODETAB=MYMODETB,DLOGMODE=DSCL4317,ISTATUS=ACTIVE
```

The following entry should be placed in the VTAM MODE TABLE specified above, or another of your choice.

```
DSCL4317 MODEENT LOGMODE=DSCL4317,
          FMPROF=X'02',TSPROF=X'02',PRIPROT=X'60',
          SECPROT=X'40',COMPROT=X'0000',RUSIZES=X'C7C7',
          PSERVIC=X'000000000000185018507F00'
          PSNDPAC=X'80',SRCVPAC=X'00',SSNDPAC=X'00'
```

## Step 2 - JES2 Definition (SYS1.PARMLIB)

```
RMT1  LUTYPE0,BUFSIZE=3840,LINE=1,NUMRD=0,NUMPR=1,NOCOMP,NOCMPCT,  
      SETUPHDR,CONSOLE  
R1.PR1 CLASS=A,NOSEP,PRWIDTH=132,NOFCBLOD,WS=(W,R,Q,PMD,LIM,F,T/C,P),  
      CKTPAGE=30  
DESTID NAME=LOC4317,DEST=R1
```

## Step 3 - Define to CICS or another application program

Host commands for changing the printer settings are not supported in this mode. Refer to the vendor documentation for defining a DSC printer to the program for its use.



---

## Part 3. Using Your Printer

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---

## Chapter 15. Using the Printer Operator Panel

This chapter describes how to use the printer operator panel. It includes the following sections:

- “Working with Menus”
- “Printing the Printer Configuration Page” on page 88

---

### Working with Menus

Configuration menus contain lists of items that define current settings for the printer, such as default fonts, default input trays and output bins, and attachment configuration settings. This book focuses on menu items that affect the twinax card and coax card, as well as the menu items that affect the various data streams that these cards support.

To work with configuration menus:

1. Make sure the printer is offline. If the printer is online, press the **Online** key to toggle it offline.

**Note:** Wait until the printer is in Ready status and no jobs are printing before you take the printer offline to change menu values.

2. Press the **Menu** key to scroll down the list of available menus. Press the **Shift** and **Menu** keys to scroll up the list.
3. Press the **Item** key to scroll down the list of available items on a menu. Press the **Shift** and **Item** keys to scroll up the list.
4. Press the **Value** key to scroll down the list of available values for a particular menu item. Press the **Shift** and **Value** keys to scroll up the list.

**Note:** To scroll up or down by tens rather than ones, continue to hold down the **Value** key.

5. Press the **Enter** or **Continue/Enter** key to change the setting to the value currently displayed in the message display area. An asterisk (\*) appears next to the value after it is selected.

**Note:** Once you select a new value, it stays selected until you change it or you reset the printer defaults. Menu settings are saved when you power off the printer. If you need to restore factory default values, do one of the following:

- For A4 paper defaults: power the printer off and then power the printer on while simultaneously pressing the **Cancel Print** key.

- For Letter paper defaults: power the printer off and then power the printer on while simultaneously pressing the **Online** key.

### Example -- Setting IPDS Address

To set the IPDS address to **1** on a twinax configuration, do the following:

1. Make sure the printer is offline.
2. Press the **Menu** key until you see TWINAX SETUP MENU.
3. Press the **Item** key until you see IPDS ADDR.
4. Press the **Value** key until you see 1.
5. Press the **Enter** or **Continue/Enter** key to change the setting of the value to 1. An asterisk (\*) appears next to the 1.

---

### Printing the Printer Configuration Page

The Printer Configuration Page lists:

- **Menus**—All of the menu settings currently active for your printer. Note that the list of menus you see is determined by the options you have installed; for example, you see the Coax Setup Menu only when you have a coax card installed.
- **Installed Options**—The options and memory you have installed.

**Important:** IBM recommends printing the Printer Configuration Page whenever you install a new option. Then look under Installed Options to make sure the printer recognizes the option and the installation was successful.

To print the Printer Configuration Page, do the following:

1. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.

**Note:** Wait until the printer is in Ready status and no jobs are printing before you take the printer offline to print a configuration page.

2. Press the **Menu** key once. TEST MENU appears in the message display area.
3. Press the **Item** key once. CONFIG PAGE appears in the message display area.
4. Press the **Enter** or **Continue/Enter** key to print the Configuration Page. (It takes a moment or two.)
5. To restore the printer to READY status, press the **Online** key.

---

## Chapter 16. Printer Sharing

Network printers provide sharing of the printer through port switching. Port switching is done on the printer with no involvement from the host PSF program.

Network printers switch automatically among three ports: the parallel port, the host (twinax or coax) port, and the LAN network port. The printer prints jobs for a port until no new jobs appear for the timeout value set for the port; the printer then switches to the next port and does the same thing.

To change the port timeout value for the twinax card or coax card, set the PORT TIMEOUT value on the Twinax Setup Menu or the Coax Setup Menu.



---

## Chapter 17. Unprintable Area Information

In normal print mode, the printer does not print to the edge of the paper. The normal print margins are shown below.

For all printers except IBM Network Printer 24, you can override the normal print margins by setting the menu item EDGE-EDGE to ON. This allows printing to the very edge of the paper. However, IBM recommends leaving EDGE-EDGE set to OFF to avoid toner contamination of the printer; use ON only when necessary. EDGE-EDGE is available from several printer menus, including "Coax Setup Menu" on page 54, "Twinax Setup Menu" on page 21, and "IPDS Menu" on page 24. The EDGE-EDGE item is not available on the Network Printer 24.

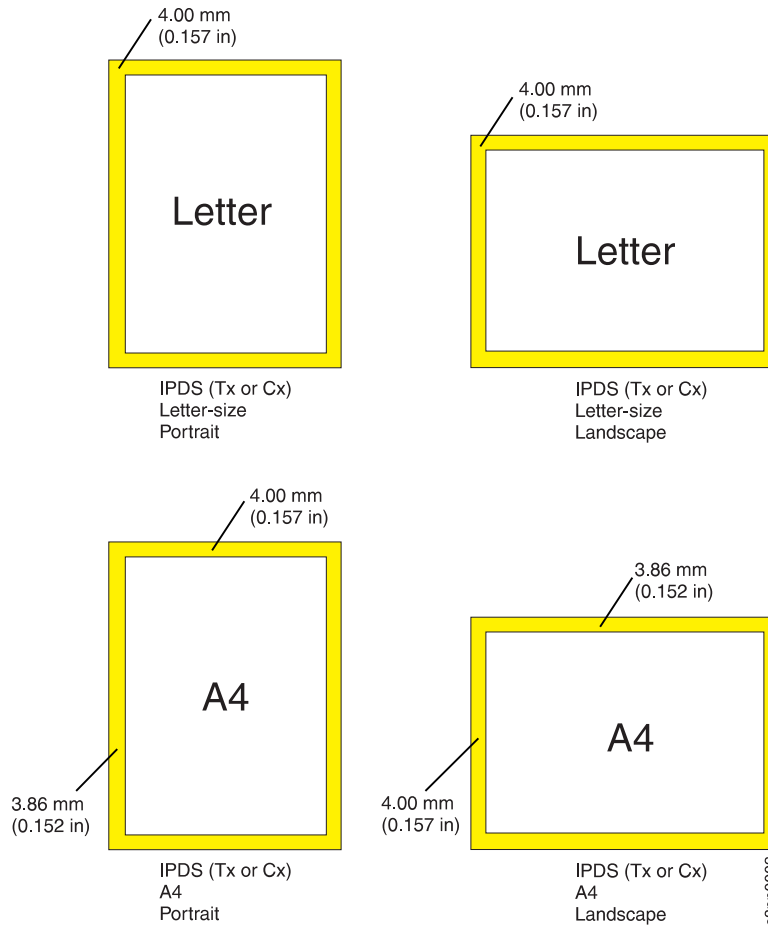
## Unprintable Area: IPDS Data Streams

### Data stream

### Unprintable Area

**IPDS (Twinax or Coax)**

The dimensions shown are valid for all paper types, including A4.



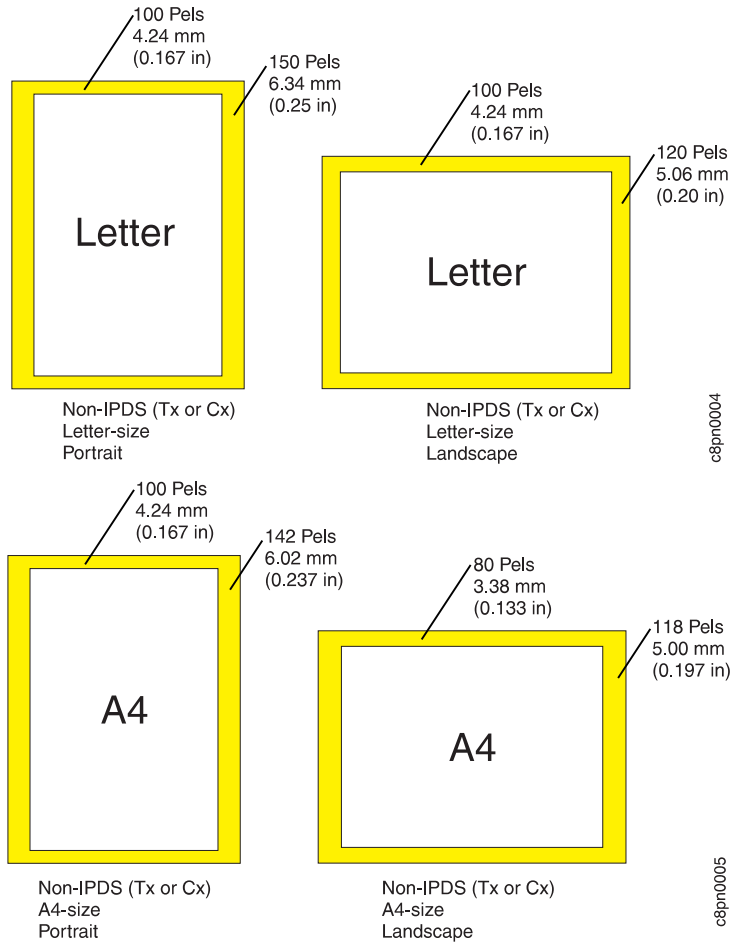
# Unprintable Area: Non-IPDS

Data stream

Unprintable Area

**Non-IPDS** (Twinax or Coax)

The dimensions shown are valid for SCS, DSC/DSE, and PCL5e.







---

## Chapter 18. Defining Custom Form Sizes for IPDS

The following example shows how to define a custom form size for IPDS jobs.

**Notes:**

1. You can define up to five custom forms. The following procedure shows how to define the first one (FORM1).
2. This function is available only on the IBM InfoPrint 20 and IBM InfoPrint 32.
3. IBM InfoPrint 32 supports caching, which can improve performance for jobs with repeated overlays. See the description of the CACHING item on the IPDS Menu ("IPDS Menu" on page 24 for twinax or "IPDS Menu" on page 57 for coax).

**Action:**

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see CUSTOM FORMS MENU in the display.
3. Select the unit of measure.
  - a. Press the **Item** key until you see FORM1UNITS=MM\* or FORM1UNITS=INCHES\* in the display.
  - b. Press the **Value** key until you see the new value you want (MM or INCHES).
  - c. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
4. Define the form length.
  - a. Press the **Item** key until you see FORM1 LEN= nn\* in the display.
  - b. Press the **Value** key until you see the new value you want.
  - c. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
5. Define the form width.
  - a. Press the **Item** key until you see FORM1 WIDTH=nn\* in the display.
  - b. Press the **Value** key until you see the new value you want.
  - c. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
6. Specify the form on the IPDS Menu.
  - a. Press the **Menu** key until you see IPDS MENU in the display.
  - b. Press the **Item** key until you see CUSTOM FORM=n\* in the display.
  - c. Press the **Value** key until you see CUSTOM FORM=1\* in the display.

- d. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
7. To restore the printer to READY status, press the **Online** key.

**Note:** On the IBM InfoPrint 20 custom forms wider than 297 mm (11.69 in) cannot be offset using the duplex unit.

---

## Chapter 19. Understanding Printer Performance

IBM network printers operate at their rated speed only under certain conditions. If you experience performance that is less than expected, you may want to try to determine why the printer is working slowly and try to resolve the problem before determining that the printer is too slow for your uses.

The following sections describe some of the conditions that may cause performance degradation and how to resolve them.

---

### Network Throughput

To print as quickly as possible, printers have to receive the data in a timely and well-packaged manner. If you are sending data over a WAN with one or more routers or sending the data over telephone lines for great distances, the printer may not be able to work at rated performance.

---

### Printer Memory

Make sure your printer has enough memory. Check the memory requirements in the User's Guide for your printer. You can improve performance by increasing the amount of memory on your printer. If there is insufficient memory, your data may not process as fast as expected or may not process at all.

---

### Image Performance

If you find that a document with images seems to slow the printer down, you may want to go to the application that created the image and determine how the source image was created.

If your source image was created in landscape and you are trying to print it in portrait orientation or vice versa, the printer will slow down.

To speed things up, you could try rotating the source image 90 degrees (from landscape to portrait, for example).

---

## Overlays

Since the network printers do not cache rasterized versions of overlay resources, these printers will slow down if more than one overlay is used more than just occasionally.

---

## Setting Buffer Size on Twinax and Coax for IPDS

Both Twinax and Coax network interface cards have buffer sizes that can be set for IPDS. Set the Twinax buffer size in the TWINAX SETUP menu; set the same for Coax in the COAX SETUP menu.

- For a twinax card, the default buffer size is 1024 bytes. IBM recommends that you keep it at 1024, unless you use a 5394 or 5494 for a remote attachment, in which case you should set the buffer size to 256.
- For a coax card, performance is improved when the buffer size on the printer matches the RU sizes for LU-1 used by VTAM. Your best approach is to determine the VTAM RU size used on LU-1 and then set the buffer size on the printer to the value closest to the RU size.

---

## Chapter 20. PSF Input Trays and Output Bins

This section describes how PSF determines the identity of input trays and output bins for network printers.

---

### Input Trays

PSF tray requests map to printer input trays as follows:

Requested Tray	Paper Pulled From
1 (x'00')	Tray 1
2 (x'01')	Tray 2
3 (x'02')	Tray 3
4 (x'03')	Tray 4
5 (x'04')	Tray 5
100 (x'40')	*Auxiliary paper tray (AUXTRAY)
65	Envelope Feeder

**Notes:**

1. If PSF does not request a tray, the printer uses the default tray specified using the SOURCE item in the Paper Menu.
2. The actual number of available trays depends on the printer you use and the options you have installed.

---

### Output Bins

PSF output bin requests map to printer output bins as follows:

PSF Output Bin	Printer Output Bin
<b>IBM Network Printer 12</b>	
1	Main output bin
2	Face-up output bin
<b>IBM Network Printer 17</b>	
1	Main output bin
2	Offset stacker, invalid bin if mailbox installed

<b>PSF Output Bin</b>	<b>Printer Output Bin</b>
3	Mailbox bin 1
4	Mailbox bin 2
5	Mailbox bin 3
6	Mailbox bin 4
7	Mailbox bin 5
8	Mailbox bin 6
9	Mailbox bin 7
10	Mailbox bin 8
11	Mailbox bin 9
12	Mailbox bin 10
<b>IBM InfoPrint 20</b>	
1	Main output bin
<b>IBM Network Printer 24</b>	
1	Main output bin
2	Offset stacker, invalid bin if stacker installed
3	Top output bin (face down; can staple)
4	Middle output bin (face down; can staple)
5	Bottom output bin (face down; can staple)
6	Top output bin (face up)
7	Middle output bin (face up)
8	Bottom output bin (face up)
9	Continuous output (face down)
<b>IBM InfoPrint 32</b>	
1	Face-down output bin
2	Face-up output bin
3	Top finisher bin
4	Middle finisher bin
5	Bottom finisher bin
6	Continuous output

**Notes:**

1. If PSF does not request a bin, the printer uses the default bin specified using the OUTPUT item in the Paper Menu.
2. The actual number of available bins depends on the printer you use and the options you have installed.





---

## Chapter 21. Fonts

This appendix provides an overview of network printer font support. It includes the following sections:

- “Fonts for Non-IPDS Printing”
- “Font Substitution for Non-IPDS” on page 104
- “IBM Core Interchange Resident Scalable Font Set (IPDS-Only)” on page 108
  
- “IBM Core Interchange Resident Code Page Set” on page 111
- “4028 Compatibility Resident Font Set (IPDS)” on page 114
- “4028 Compatibility Resident Code Page Set” on page 116
- “IBM Coordinated Font Set (IPDS)” on page 117
- “IPDS Default Font” on page 118
- “IPDS Bar Code Printing” on page 119
- “IPDS Font Bolding” on page 119

You can use the following actions on the Test Menu to print a list of fonts installed on your printer:

- PRINT PS FONTS
- PRINT PCL FONTS
- PRINT IPDS FONTS

---

### Fonts for Non-IPDS Printing

When printing coax or twinax non-IPDS jobs, the printer uses some of the PCL fonts available for parallel/serial printing.

- Coax (Non-IPDS) uses the resident PCL 5 scalable Courier font to provide the required pitch.
- Twinax (Non-IPDS)
  - For fonts requested via CPI values, uses the resident PCL 5 scalable Courier font to provide the required pitch.
  - For non-typographic font requests, uses the resident PCL 5 scalable Courier and Letter Gothic fonts.
  - For typographical font requests, uses the Times New Roman, CG Times, and Univers resident scalable PCL 5 fonts.

---

## Font Substitution for Non-IPDS

The printer uses its PCL fonts when operating with a non-IPDS host data stream. The IPDS fonts resident in the printer are not available with non-IPDS data streams. The printer selects and uses these PCL fonts differently depending upon whether the attachment is coax or twinax.

- **Coaxial** selects fonts only by specifying characters-per-inch (CPI) as described in “Non-IPDS Fonts Specified by CPI (Coax and Twinax)”.
- **Twinax** selects fonts in one of two ways:
  - By specifying characters-per-inch (CPI) as described in “Non-IPDS Fonts Specified by CPI (Coax and Twinax)” (same as coaxial).
  - By specifying an FGID (Font Global Identifier).

### Non-IPDS Fonts Specified by CPI (Coax and Twinax)

You can specify non-IPDS fonts by CPI, as described in this section, for both coax- and twinax-attached printers. Fonts are selected by specifying characters per inch (CPI) in either of the following ways:

- From the printer’s operator panel (see “Coax SCS Menu” on page 63 or “Twinax SCS Menu” on page 30).
- From the SCS data stream commands:
  - Set Print Density
  - Set Character Distance

Only non-typographic (fixed-pitch) PCL fonts are available for font substitution that is driven by CPI.

Requested CPI	Network Printer Result
5	Courier 5
10	Courier 10
12	Prestige 12
15	Courier 15
16	Courier 16
20	Courier 20
27	Courier 27
PSM <b>Note:</b> Not available from the operator panel; must use SCS command.	Uses Courier 12 with proportional spaced machine (PSM) font

## Non-IPDS Fonts Specified by FGID (Twinax Only)

You can specify non-IPDS fonts by FGID, as described in this section, for the twinax-attached printers. (This means when printing SCS data and the printer is configured as a 3812 Model 1 or a 5219 D1.)

In addition to selecting fonts by specifying CPI, AS/400 programs can use FGIDs to specify the desired font. In this case, the printer uses various font characteristics to select substitute fonts.

The mapping from the requested IBM FGID to the available PCL fonts is a font substitution. It does not always provide the exact font specified by FGID. The mapping from FGID characteristics to PCL fonts can only be as accurate as the available PCL fonts allow.

The following tables illustrate the substitutions:

- Table 3 shows Nontypographic (fixed pitch) substitution
- Table 4 on page 108 shows Typographic substitution

### Nontypographic FGID

Table 3 lists the fonts used as replacements when non-IPDS *nontypographic* fonts (fixed pitch fonts) are requested for twinax printing. The FGIDs shown are for fonts resident in some other IBM printers but not resident in network printers.

Table 3. Nontypographic Typefaces Substitution - Twinax only

Typeface	IBM FGID	Substituted typeface
OCR B 10	03	Courier 10
Orator 10	05	Courier 10 (PN 1255824)
Courier 10	11	Courier 10
Prestige Pica 10	12	Courier 10
Courier 10 Italic	18	Courier 10 Italic
OCR A 10	19	Courier 10
Kateb 10	33	Courier 10
Letter Gothic 10	36	Letter Gothic 10
Gothic Text 10 Bold	39	Letter Gothic 10 Bold
Letter Gothic 10	40	Letter Gothic 10
Roman Text 10	41	Courier 10
Serif Text 10	42	Courier 10

Table 3. Nontypographic Typefaces Substitution - Twinax only (continued)

Typeface	IBM FGID	Substituted typeface
Serif Text Italic 10	43	Courier 10 Italic
Katakana Gothic 10	44	Courier 10
APL 10	45	Courier 10
Courier 10 Bold	46	Courier 10 Bold
Shalom 10	49	Courier 10
Gothic Text 12	66	Letter Gothic 12
Gothic Text Italic 12	68	Letter Gothic 12 Italic
Gothic Text 12 Bold	69	Letter Gothic 12 Bold
Serif Text 12	70	Courier 12
Serif Text Italic 12	71	Courier 12 Italic
APL 12	76	Courier 12
Script 12	84	Courier 12
Courier 12	85	Courier 12
Prestige Elite 12	86	Courier 12
Letter Gothic 12	87	Letter Gothic 12
Courier 12 Italic	91	Courier 12 Italic
Courier 12 Italic	92	Courier 12 Italic
Shalom 12	98	Courier 12
Letter Gothic 12 Italic	109	Letter Gothic 12 Italic
Letter Gothic 12 Bold	110	Letter Gothic 12 Bold
Prestige Elite Bold 12	111	Courier 12 Bold
Prestige Elite Italic 12	112	Courier 12 Italic
Boldface Italic (PSM)	155	Courier 10 spaced as PSM
Boldface (PSM)	159	Courier 10 spaced as PSM
Essay (PSM)	160	Courier 10 spaced as PSM
Essay Italic (PSM)	162	Courier 10 spaced as PSM
Prestige (PSM)	164	Courier 10 spaced as PSM
Yasmin (PSM)	166	Courier 10 spaced as PSM
Barak (PSM)	167	Courier 10 spaced as PSM
Yasmin Exp (PSM)	169	Courier 10 spaced as PSM

Table 3. Nontypographic Typefaces Substitution - Twinax only (continued)

Typeface	IBM FGID	Substituted typeface
Essay Light (PSM)	173	Courier 10 spaced as PSM
Document (PSM)	175	Courier 10 spaced as PSM
Shalom 15	211	Courier 15
Shalom Bold 15	212	Courier 15 Bold
Prestige 15	221	Courier 15
Gothic Text 15	222	Letter Gothic 15
Courier 15	223	Courier 15
Shalom Condensed 15	226	Courier 15
Serif Text 15	229	Courier 15
Courier 5	244	Courier 5
Courier 5 Bold	245	Courier 5 Bold
Courier 17	252	Courier 17
Courier 17.1	254	Courier 17.1
Letter Gothic 17.1	255	Letter Gothic 17.1
Prestige 17.1	256	Courier 17.1
Kateb 8	265	Courier 8.55
APL 20	280	Courier 20
Letter Gothic 20	281	Letter Gothic 20
Aviv 20	282	Courier 20

### Typographic FGID

Table 4 on page 108 lists the fonts used as replacements when *typographic* fonts are requested for twinax printing. The FGIDs shown are for fonts resident in some other IBM printers but not resident in the network printers. Also included are some typographic fonts from 4028 font cards.

The point size is not shown, but it will be as specified to the printer in the Set FID Through GFID (SFG) control command (unless using Alternate FGIDs, which define typeface and point size).

Table 4. Typographic Typefaces Substitution

Typeface	IBM FGID	Substituted typeface
Sonoran Serif	4407	CG Times Alternate FGIDs (1051, 1351) also supported as CG Times.
Sonoran Serif Bold	4427	CG Times Bold Alternate FGIDs (1053, 1653, 1803, 2103) also supported as CG Times Bold.
Sonoran Serif Italic	4535	CG Times Italic Alternate FGID (1056) also supported as CG Times Italic.
Times Roman	5687	Times New Roman Alternate FGIDs (760, 751) also supported as Times New Roman.
Times Roman Bold	5707	Times New Roman Bold Alternate FGIDs (761, 762) also supported as Times New Roman Bold.
Times Roman Italic	5815	Times New Roman Italic Alternate FGID (763) also supported as Times New Roman Italic.
Times Roman Bold Italic	5835	Times New Roman Bold Italic Alternate FGIDs (764, 765) also supported as Times New Roman Bold Italic.
Narkis	12855	Times New Roman
Narkis Bold	12875	Times New Roman Bold
Helvetica	34103	Univers
Helvetica Bold	34123	Univers Bold
Helvetica Italic	34231	Univers Italic

---

### IBM Core Interchange Resident Scalable Font Set (IPDS-Only)

Table 5 on page 109 lists the type faces in the IBM Core Interchange Resident Scalable Font Set. It also lists the resident typefaces, as well as the valid Font Global ID (FGID) and Graphic Character Set Global ID (GCSGID) for each typeface. Table 6 lists the valid GCSGID subsets for each GCSGID listed in Table 5 on page 109. Table 7 lists the Code Pages that correspond to each

typeface.

Table 5. IBM Core Interchange Resident Scalable Font Set

<b>TYPEFACE</b>	<b>FGID</b>	<b>GCSGID</b>
<b>LATIN 1/2/3/4/5</b>		
Times New Roman Medium	2308	1269
Times New Roman Bold	2309	1269
Times New Roman Italic Medium	2310	1269
Times New Roman Italic Bold	2311	1269
Helvetica Roman Medium	2304	1269
Helvetica Roman Bold	2305	1269
Helvetica Italic Medium	2306	1269
Helvetica Italic Bold	2307	1269
Courier Roman Medium	416	1269
Courier Roman Bold	420	1269
Courier Italic Medium	424	1269
Courier Italic Bold	428	1269
<b>SYMBOLS</b>		
Times New Roman Medium	2308	1275
Times New Roman Bold	2309	1275
Helvetica Roman Medium	2304	1275
Helvetica Roman Bold	2305	1275
Courier Roman Medium	416	1275
Courier Roman Bold	420	1275
<b>CYRILLIC GREEK</b>		
Times New Roman Medium	2308	1300
Times New Roman Bold	2309	1300
Times New Roman Italic Medium	2310	1300
Times New Roman Italic Bold	2311	1300
Helvetica Roman Medium	2304	1300
Helvetica Roman Bold	2305	1300
Helvetica Italic Medium	2306	1300
Helvetica Italic Bold	2307	1300

Table 5. IBM Core Interchange Resident Scalable Font Set (continued)

<b>TYPEFACE</b>	<b>FGID</b>	<b>GCSGID</b>
Courier Roman Medium	416	1300
Courier Roman Bold	420	1300
Courier Italic Medium	424	1300
Courier Italic Bold	428	1300
<b>ARABIC</b>		
ITC Boutros Setting Medium	2308	1264
ITC Boutros Setting Bold	2309	1264
ITC Boutros Setting Italic Medium	2310	1264
ITC Boutros Setting Italic Bold	2311	1264
ITC Boutros Modern Roka Medium	2304	1264
ITC Boutros Modern Roka Bold	2305	1264
ITC Boutros Modern Roka Italic Medium	2306	1264
ITC Boutros Modern Roka Italic Bold	2307	1264
Boutros Typing Medium	416	1264
Boutros Typing Bold	420	1264
Boutros Typing Italic Medium	424	1264
Boutros Typing Italic Bold	428	1264
<b>HEBREW</b>		
Narkissim Medium	2308	1265
Narkissim Bold	2309	1265
Narkissim Italic Medium	2310	1265
Narkissim Italic Bold	2311	1265
Narkiss Tam Medium	2304	1265
Narkiss Tam Bold	2305	1265
Narkiss Tam Italic Medium	2306	1265
Narkiss Tam Italic Bold	2307	1265
Shalom Medium	416	1265
Shalom Bold	420	1265
Shalom Italic Medium	424	1265
Shalom Italic Bold	428	1265



## GCSGID Subsets for IBM Core Interchange Fonts

Table 6 lists the valid GCSGID subsets for each GCSGID listed in Table 5.

Table 6. GCSGID Subsets for IBM Core Interchange Fonts

<b>GCSGID</b>	<b>VALID GCSGID SUBSETS</b>
1269	0101, 0103, 0119, 0251, 0265, 0269, 0273, 0277, 0281, 0285, 0288, 0289, 0293, 0297, 0301, 0305, 0309, 0313, 0317, 0321, 0325, 0329, 0337, 0341, 0611, 0697, 0919, 0959, 0965, 0980, 0982, 0983, 0987, 0990, 0991, 0993, 0995, 1111, 1132, 1133, 1145, 1146, 1149, 1152, 1166, 1167, 1174, 1188, 1189, 1198, 1220, 1232, 1233, 1237, 1256, 1258, 1259, 1260, 1261, 1268, 1286, 1301, 1302, 2039
1275	0340, 0630, 0909, 1191, 1257
1264	0235, 0994, 1154, 1162, 1177, 1244
1265	0941, 0687, 0986, 0992, 1147, 1199, 1217, 1218
1300	0218, 0925, 0960, 0981, 0985, 0996, 0998, 1150, 1190, 1231, 1235, 1249, 1251, 1276, 1401

## IBM Core Interchange Resident Code Page Set

Table 7 lists the code pages used with the IBM Core Interchange Resident Fonts.

Table 7. IBM Core Interchange Resident Code Page Set

<b>CPGID</b>	<b>GCSGID</b>	<b>LANGUAGE SUPPORTED</b>
<b>LATIN 1 COUNTRY EXTENDED CODE PAGES</b>		
037	697	US English, Canadian English, Canadian French, Dutch, Brazilian Portuguese, Portuguese
273	697	German
274	697	Belgian
275	697	Brazilian
277	697	Danish, Norwegian
278	697	Finnish, Swedish
280	697	Italian
281	697	Japanese
282	697	Portuguese

Table 7. IBM Core Interchange Resident Code Page Set (continued)

<b>CPGID</b>	<b>GCSGID</b>	<b>LANGUAGE SUPPORTED</b>
284	697	Castillian Spanish, Latin American Spanish
285	697	UK English
297	697	French, Catalan
500	697	Multinational, Belgian French, Belgian Dutch, Swiss French, Swiss German, Swiss Italian
871	697	Icelandic
<b>LATIN 1 EBCDIC PUBLISHING CODE PAGES</b>		
361	1145	Multinational, Belgian French, Belgian Dutch, Swiss French, Swiss German, Swiss Italian
382	1145	German
383	1145	Belgian
384	1145	Brazilian Portuguese
385	1145	Canadian French
386	1145	Danish, Norwegian
387	1145	Finnish, Swedish
388	1145	French, Catalan
389	1145	Italian
390	1145	Japanese
391	1145	Portuguese
392	1145	Castillian Spanish
393	1145	Latin American Spanish
394	1145	UK English
395	1145	US English, Canadian English
<b>LATIN 1 ASCII CODE PAGES</b>		
437	919	Multinational, US English, UK English, Dutch, German, Finnish, French, Italian, Spanish, Swedish
850	980	Multinational PC
860	990	Portuguese (Primary = 850)
861	991	Icelandic (Primary = 850)
863	993	Canadian French (Primary = 850)
865	995	Nordic (Primary = 850)

Table 7. IBM Core Interchange Resident Code Page Set (continued)

<b>CPGID</b>	<b>GCSGID</b>	<b>LANGUAGE SUPPORTED</b>
1004	1146	IBM PC Desktop Publishing
819	697	ISO Latin 1
<b>LATIN 2/3/4/5 EBCDIC AND ASCII CODE PAGES</b>		
852	982	Croatian, Czech, East German, Hungarian, Polish, Romanian, Slovak, Slovenian
870	959	Latin 2 Multilingual
912	959	Latin 2 ISO/ANSI 8 Bit
853	983	Latin 3 Multilingual PC
905	1286	Latin 3 Multilingual
1069	1256	Latin 4 EBCDIC
914	1256	Latin 4 ISO/ASCII
857	987	Latin 5 PC
920	1152	Latin 5 ISO/ANSI 8 Bit
1026	1152	Latin 5
<b>LATIN EBCDIC DCF CODE PAGES</b>		
1002	1132	DCF Release 2 Compatibility
1003	1133	US Text Subset
1068	1259	Text with Numeric Spacing
1039	1258	GML List Symbols
<b>CYRILLIC AND GREEK EBCDIC AND ASCII CODE PAGES</b>		
880	960	Cyrillic Multilingual (Primary = 1025)
915	1150	Cyrillic ISO/ASCII 8 Bit
855	985	Cyrillic PC
866	996	Cyrillic #2 PC
1025	1150	Cyrillic Multilingual
423	218	Greek 183 (Primary = 875)
813	925	Greek ISO/ASCII 8 Bit
851	981	Greek PC (Primary = 869)
869	998	Greek PC
875	925	Greek
1039	1258	GML List Symbols

Table 7. IBM Core Interchange Resident Code Page Set (continued)

CPGID	GCSGID	LANGUAGE SUPPORTED
<b>ARABIC EBCDIC AND ASCII CODE PAGES</b>		
420	235	Arabic Bilingual
864	994	Arabic PC
1008	1162	Arabic ISO/ASCII 8 Bit
1029	1154	Arabic Extended ISO/ASCII 8 Bit
1046	1177	Arabic Extended ISO/ASCII 8 Bit
1039	1258	GML List Symbols
<b>HEBREW EBCDIC AND ASCII CODE PAGES</b>		
916	941	Hebrew ISO/ASCII 8 Bit
1028	1199	Hebrew Publishing
424	941	Hebrew
803	1147	Hebrew Character Set A (Primary = 424)
856	986	Hebrew PC (Primary = 862)
862	992	Hebrew PC
1039	1258	GML List Symbols
<b>SYMBOLS</b>		
259	340	Symbols, Set 7
899	340	Symbols, Set 7 ASCII
1087	1257	Symbols, Adobe
1038	1257	Symbols, Adobe ASCII
1091	1191	Symbols, Modified Set 7
1092	1191	Symbols, Modified Set 7 ASCII
363	630	Symbols, Set 8
829	909	Math Symbols

## 4028 Compatibility Resident Font Set (IPDS)

Table 8 on page 115 describes the 4028 Compatibility Resident Font Set.

**Notes:**

1. Network printers substitute Times New Roman (from the IBM Core Interchange Set) for the Times Roman fonts listed in Table 8 on page 115.

The Courier fonts will also come from the IBM Core Interchange Set. All the remaining listed fonts will be from the IBM Coordinated Font Set.

2. Table 9 describes the code pages that correspond to the Code Pages column in Table 8.
3. Fonts with a Code Page ID (CPGID) of 259 are mapped to the Courier Roman Medium Symbols font.
4. The Prestige 10 and 12 pt fonts (FGIDs 86 and 12) support Symbol Set 7 (Code Page 259) for resident activation.

Table 8. 4028 Compatibility Resident Font Set

TYPEFACE	FGID	ALT FGID	PITCH	POINT SIZE	FONT WIDTH	CODE PAGES
APL	76		12	10	120	310
Boldface	159	20224	Proportional	12	120	A, B
Courier	11		10	12	144	259, A, B
Courier	85		12	10	120	259, A, B
Courier	223		15	9	96	A, B
Courier Ultra Expanded	244		5	12	288	A, B
Courier	254		17.1	8.5	84	A, B
Courier Bold	46		10	12	144	A, B
Courier Italic	18		10	12	144	A, B
Courier Italic	92		12	10	120	A, B
Letter Gothic	281		20	7.5	72	A, B
OCR A	19		10	12	144	892
OCR B	03		10	12	144	893
Prestige	164		Proportional	12	120	A, B
Prestige Elite	86		12	10	120	259, A, B
Prestige	221		15	9	96	A, B
Prestige	256		17.1	8.5	84	A, B
Prestige Pica	12		10	12	144	259, A, B
Prestige Elite Bold	111		12	10	120	A, B

Table 8. 4028 Compatibility Resident Font Set (continued)

TYPEFACE	FGID	ALT FGID	PITCH	POINT SIZE	FONT WIDTH	CODE PAGES
Prestige Elite Italic	112		12	10	120	A, B
Times Roman	5687	760	Typo	6	40	A
Times Roman	5687	751	Typo	8	53	A
Times Roman	5687	1051	Typo	10	67	A
Times Roman	5687	1351	Typo	12	80	A
Times Roman Bold	5707	1053	Typo	10	67	A
Times Roman Bold	5707	761	Typo	12	80	A
Times Roman Bold	5707	762	Typo	14	93	A
Times Roman Bold	5707	1803	Typo	18	120	A
Times Roman Bold	5707	2103	Typo	24	160	A
Times Roman Italic	5815	1056	Typo	10	67	A
Times Roman Italic	5815	763	Typo	12	80	A
Times Roman Bold Italic	5835	764	Typo	10	67	A
Times Roman Bold Italic	5835	765	Typo	12	80	A
Gothic Text (311x)	203		13.3	9	108	A, B
Gothic Text (311x)	283		20	6	72	A, B
Gothic Text (311x)	290		26.7	5	54	A, B

## 4028 Compatibility Resident Code Page Set

Table 9 provides an explanation of the groups as used in the Code Pages column of Table 8.

**Note:** While some of the 4028 Compatibility Code Pages are not listed with the Core/Coordinated Font Set Code Pages, they will work with the Core/Coordinated fonts as defined in the GCSGID subset tables (Table 6 on page 111 and Table 11 on page 118). Also, note that in all cases where code pages 256 or 289 are requested, code page 500 is substituted.

Table 9. 4028 Compatibility Resident Code Page Set

CPGID	GCSGID
GROUP A	

Table 9. 4028 Compatibility Resident Code Page Set (continued)

CPGID	GCSGID
037, 273, 274, 277, 278, 280, 281, 284, 285, 297, 500, 871	697
038, 367	103
260	341
276	277
286	317
287	321
288	325
1002	1132
1003 (network printer addition to 4028 font support. Not supported by 4028.)	1133
<b>GROUP B</b>	
256 (Replaced by 500)	337
289 (Replaced by 500, but missing obsolete "Peseta" character)	329
<b>MISCELLANEOUS</b>	
310	963
259	340
892	968
893	969

## IBM Coordinated Font Set (IPDS)

Table 10 lists the IBM Coordinated font set typefaces resident in network printers. All of the listed fonts are scalable.

Where the IBM Core Interchange code pages are referenced in Table 5, only the Latin 1 Country Extended, Latin 1 EBCDIC Publishing, Latin 1 ASCII and Latin EBCDIC DCF code pages are supported.

Table 10. IBM Coordinated Font Set

TYPEFACE	FGID	GCSGID	CODE PAGES
APL	307	1304	293, 310, 910
APL Bold	322	1304	293, 310, 910
Boldface	20224	2039	See Table 5

Table 10. IBM Coordinated Font Set (continued)

TYPEFACE	FGID	GCSGID	CODE PAGES
Gothic Text	304	2039	See Table 5
Letter Gothic	400	2039	See Table 5
Letter Gothic Bold	404	2039	See Table 5
OCR A	305	968	876, 892
OCR B	306	969	877, 893
Prestige	432	2039	See Table 5
Prestige Bold	318	2039	See Table 5
Prestige Italic	319	2039	See Table 5
Katakana Gothic	304	1306	290, 897, 1027, 1041

## GCSGID Subsets

Table 11 maps the valid subsets of the GCSGIDs listed for the Strategic Font Set 2.

Table 11. GCSGID Subsets

GCSGID	VALID GCSGID SUBSETS
1304	0380, 0963, 1113
2039	0101, 0103, 0119, 0251, 0265, 0269, 0273, 0277, 0281, 0285, 0288, 0289, 0293, 0297, 0301, 0305, 0309, 0313, 0317, 0321, 0325, 0329, 0337, 0341, 0611, 0697, 0919, 0980, 0990, 0991, 0993, 0995, 1132, 1133, 1145, 1146, 1149, 1198, 1220, 1258, 1259, 1260
1306	0332, 1164, 1172, 1187

## IPDS Default Font

The factory setting for the default font is FGID 416: Courier Roman Medium 10 pitch (12 point) using code page 037, version 1. To change the default, update any of the following items on the IPDS Menu: DEF CD PAG (default code page), DEFAULT FGID, or DEF CPI. See “IPDS Menu” on page 24.



---

## IPDS Bar Code Printing

To support the BCOCA tower for printing of bar codes, the OCR-A and OCR-B fonts and their corresponding code pages (892 and 893) must be resident in the printer. These are supported as shown in Table 8 on page 115.

Code page 1303 is also resident to be used for printing code 128 bar codes.

---

## IPDS Font Bolding

Network printers accept the IPDS Load Font Equivalence command and support the bold and double strike bits for both resident Type 1 and loaded raster fonts. No other bits within the LFE flags byte are supported.

The bold/doublestrike attributes are handled the same way within the printer. The function is provided by printing a text block multiple times, each time shifted an appropriate amount. Since the attributes are tied to the font LID and not the font resource, the font resource is not affected.

**Note:** The shifting done for bolding the print may affect metrics (line-endings). For IPDS font bolding, IBM recommends selecting a bold-style font with the application so that the host can correctly calculate line endings with the bold font.



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## Appendix B. Bibliography

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### AS/400

- *AS/400 Local Device Configuration Guide*, SC41-3121

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### MVS

- *PSF/MVS Systems Programming Guide*
- *MVS/ESA Migration Planning: Dynamic I/O Configuration*
- *MVS/ESA Hardware Configuration: Using the Dialog*

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### System/36

- *Changing your System Configuration*, SC21-8291-01.

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### VM

- *VM/ESA Migration Planning: Dynamic I/O Configuration*
- *VM/ESA Hardware Configuration: Using the Dialog*

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### VSE

- *PSF/VSE Application Programming Guide*, S544-3666
- *PSF/VSE Program Directory*, G544-3805
- *PSF/VSE System Programming Guide*, S544-3665

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### Printer Specific Publications

- *IBM Network Printer 12: User's Guide*, S544-5370
- *IBM Network Printer 17: User's Guide*, S544-5343
- *IBM InfoPrint 20: User's Guide*, S544-5516
- *IBM Network Printer 24: User's Guide*, S544-5378
- *IBM InfoPrint 32: User's Guide*, S544-5484

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### General Publications

- *Advanced Function Presentation: Printer Summary*, G544-3135-10
- *Advanced Function Presentation: Printer Information*, G544-3290
- *IBM Cabling System—Planning and Installation Guide*, GA27-3361

- *IBM 5299 Terminal Multiconductor Model 3 Planning, Installation, and Problem Analysis Guide*, GA27-3749
- *IBM Network Printers: IPDS and SCS Technical Reference*, S544-5312
- *IBM Network Printers: PCL5e and PostScript Level 2 Technical Reference*, S544-5344
- *Input/Output Configuration Program (IOCP) User's Guide*, GC38-0097, GC38-0401, GC38-0097 (depending on OS)
- *JES/328X Print Facility: Program Description and Operations Manual*, SB11-8776.
- *NCP SSP Generation and Loading Guide*, SC31-6221
- *Sending ASCII Data and PCL Commands to IBM Network Printers over Coax and Twinax*
- *Using the IBM Cabling System with Communications Products*, GA27-3620



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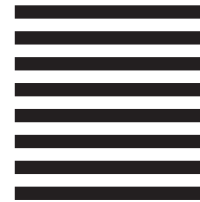
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