Chapter 25. Working with Fonts

This chapter describes the fonts required for printing different data formats. It also describes what you must do so that Infoprint can use them.

Font Substitution on the InfoColor 70

If any fonts are missing from a PostScript job submitted to the InfoColor 70, the printer automatically substitutes Helvetica.

Fonts for Printing Transformed PostScript and PDF Data

The Infoprint PostScript transform program uses Type 1 outline fonts when transforming PostScript qand PDF files. Infoprint includes the IBM Type 1 outline fonts and these fonts are installed in subdirectories of the **/usr/lpp/psf/ps/fonts** directory during installation. If you have other Type 1 outline fonts, you can also use them with the transform program.

Note: When Infoprint runs the PostScript transform program during job submission, it can search other directories for fonts.

Font-Mapping Files

A font-mapping file identifies the file names of the Type 1 outline fonts on the AIX system. The Infoprint PostScript transform program requires at least one font-mapping file. Infoprint installs the default font-mapping file, **psfonts.map** in the **/usr/lpp/psf/ps** directory during installation. If you have other Type 1 outline fonts installed on your system, you can create additional font-mapping files to define their names.

PostScript Font-Mapping File Considerations

When you create your own font-mapping files, consider that:

- You can create more than one font-mapping file.
- At least one font-mapping file must contain the Courier font. The PostScript transform program substitutes Courier for any missing fonts.

Creating a PostScript Font-Mapping File

Use the Infoprint **mkfntmap** command to create a font-mapping file for use with the Infoprint PostScript transform program. You specify one or more input files containing Type 1 outline fonts and a name for the font-mapping file.

For example, to use the input file `FontFile` and create a font-mapping file named `font.map`, enter:

```
mkfntmap FontFile > font.map
```

Using Font-Mapping Files with the ps2afp or the pdf2afp Command

By default, Infoprint uses the **psfonts.map** font-mapping file when you issue the **ps2afp** or the **pdf2afp** command; you do not have to specify the name of the default font-mapping file with the command.

To use font-mapping files that you have created when you issue the **ps2afp** command, you must do the following:

- Enter the path and name of the font-mapping file as the value of the **ps_font_map_files** keyword in the transform daemon configuration file. For performance reasons, this is the recommended method. You can specify more than one font-mapping file, if necessary. Separate the font-mapping files with colons.

  For example, to specify the font-mapping files `font1.map` and `font2.map`, enter the following:

  ```
  ps_font_map_files=/path/font1.map:/path/font2.map
  ```

- Enter the path and name of the font-mapping file as the value of the **ps_font_map_files** transform command configuration file. Use the same syntax as described for entering the value in the transform daemon configuration file. Using this method can result in significant performance degradation.
- Specify the font-mapping file, including its path name, from the command line using the **-F** flag of the **ps2afp** or the **pdf2afp** command. You can specify multiple files using multiple **-F** flags; Infoprint concatenates them from left-to-right (first entered to last entered) in that order.

  For example:

  ```
  ps2afp -F/path/font.map
  ```

  This method can also result in degraded performance.

Note: If you use the **ps2afp -F** or the **pdf2afp -F** command flag or the **ps_font_map_files** keyword in the transform command configuration file to specify a font-mapping file, and the value is different than that specified in the transform daemon configuration file, the transform daemon restarts the PostScript interpreter so that the new value for the font-mapping file takes effect. However, restarting the PostScript interpreter decreases performance.

Specifying Font Substitution through Initialization Files

You can issue specific PostScript commands to specify whether printers substitute fonts for those defined in job tickets that are neither inline with the job nor resident on the printer. To perform this task, modify the **UserInit** file that is located in the **/var/psf/ps2afp**

To ensure that fonts not inline with the job or resident on your printer substitute Courier fonts to allow the job to print, specify the following in the **UserInit** file:

```
%!
turnFontSubstitutionOn
```

To ensure that fonts not inline with the job or resident on your printer do not print, specify the following in the **UserInit** file:

```
%!
turnFontSubstitutionOff
```

Note: For your convenience, IBM has provided a sample **UserInit** file in the **/var/psf/ps2afp** directory (used by the IBM InfoPrint 4000 PostScript transform) and in the **/var/psf/ps2afp2** directory (used by the IBM InfoPrint 60 PostScript transform): **UserInit.turnFontSubstitutionOn.sample**.

You can use the desktop **Text Editor** to rename and use this **UserInit** file at your installation.

Adding Non-IBM Fonts to AIX for a PostScript Job

If your Infoprint system receives a PostScript job from a personal computer system, the fonts required for that job might not reside on the AIX system. An Infoprint Submit operator might find that either:

- Fonts are not available on AIX
- Fonts are not in the **.pfa** or **.pfb** format required for PostScript fonts

If either of these conditions occur, the AIX administrator must make these fonts available before printing the PostScript job.

To simplify the process of moving fonts from a personal computer system to AIX, fonts can be sent inline in a PostScript job and captured on AIX by using the FontSave utility.

Note: Before activating the FontSave utility, ensure that you have the correct licensing to add inline fonts from customer jobs onto the MPC. IBM provides this utility, but is not responsible for verifying that you are authorized to use the fonts a customer may provide inline through a print job.

Activating the FontSave Utility

You can perform this task by using the following procedure. These directions presume that you have not modified the default file names used by the PostScript transform. If your AIX system controls both the IBM InfoPrint 4000 and the IBM InfoPrint 60, two separate PostScript transforms are controlled by two separate configuration files: **ps2afpd.cfg** for the InfoPrint 4000 and **3160d.cfg** for the InfoPrint 60.

If you have already edited either of these configuration files, these commands might differ. If your installation contains both transforms, ensure that you make the changes for both configuration files.

1. Ensure that the PostScript transform daemons are running prior to starting the Infoprint software.

   If these daemons are not running, open an AIX window and enter:

   ```
   ps2afpd -C /usr/lpp/psf/ps2afp/daemon
   ```

   where *daemon* refers to either the **ps2afpd.cfg** or the **3160d.cfg** file.
2. Edit the **/usr/lpp/psf/ps2afp/***daemon* configuration file by adding the following line at the end of the file:

   ```
   input_exit = /usr/lpp/psf/bin/fontsave
   ```
3. Change the line that describes where the font maps reside from

   ```
   ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
                       /var/psf/psfonts/user.map
   ```

   to

```
#ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
#                     /var/psf/psfonts/user.map
ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
                    /var/psf/psfonts/user.map :\
                    /var/psf/workd/FontSave.map
```

where *workd* represents the PostScript transform's work directory. If you are printing to an InfoPrint 4000, the directory defaults to **ps2afp**, and if you are printing to an InfoPrint 60, the directory defaults to **ps2afp2**.

Note: By commenting out the original lines (#), you retain the ability to turn off the FontSave utility as described in "Deactivating the FontSave Utility" on page 271.

4. From the AIX-command line, verify these changes by using the **cd** command to access the changed files and using the **view** command to verify the changes.

   The PostScript transform program detects these changes automatically after they have been saved.

5. Access the working directory that the PostScript transform uses by entering:

   ```
   cd /var/psf/workd
   ```

   From the AIX command line, create the initial font save font mapping file by entering the following commands in sequence:

   ```
   touch FontSave.map
   chown daemon.printq FontSave.map
   ```

6. Test this function by preflighting a PostScript job from the Infoprint Submit Advanced options window using the command:

   ```
   -a NONE
   ```

7. Access the work directory for the PostScript transform, where the saved fonts should exist:

   ```
   cd /var/psf/workd
   ```

8. Enter an **ls** command to ensure that the FontSave directory and the following files exist:
   - **FontSave.wrk**
   - **FontSave.map**
   - **FontSave.bak**

   Note that the **FontSave.bak** might not be present if only one PostScript job has been preflighted through the transform when you view this display.

9. If this directory and these files are present, view the **FontSave.map** file, which displays the fonts that have been saved as Adobe Type I fonts that can be used by the PostScript transform.

   For example, to map the Macintosh font Garamond-Light, the **FontSave.map** file would display the following line:

   ```
   font Garamond-Light /var/psf/workd/FontSave/Garamond-Light
   ```

   where Garamond-Light is the Type I font saved by the FontSave utility that will be used whenever the PostScript job calls for the Garamond-Light font.

   If this directory and these files are not present, ensure that you have made the changes to both the **ps2afpd.cfg** or the **3160d.cfg** files. Also, check the PostScript job that you submitted from Infoprint Submit to ensure that it contained inline fonts.

10. To verify that the PostScript fonts now reside on your AIX system, preflight another PostScript job from Infoprint Submit that references the fonts that had

been inline. If the PostScript interpreter can find and load these fonts successfully (without font substitution messages displaying on the Infoprint Submit shared ticket directory or in the **ps2afpd.log** file), the process works correctly.

Note: You should never modify either the **FontSave.wrk** or the **FontSave.bak** files because it can affect the path to the Adobe Type I fonts that now reside on AIX.

Deactivating the FontSave Utility

Because the FontSave utility can degrade performance when running large PostScript jobs, you might want to deactivate it after saving the most commonly used inline fonts.

To deactivate the FontSave utility so that new inline fonts are not saved, but the fonts you have already saved as Adobe Type I are still used, do the following:

1. From the desktop **Text Editor**, search the **/usr/lpp/psf/***workd* directory for the *daemon* file, where *daemon* refers to either the **ps2afpd.cfg** file or the **3160d.cfg** file.
2. From with the *daemon* file, disable the input exit by placing a **#** in front of the following line:

   ```
   input_exit = /usr/lpp/psf/bin/fontsave
   ```

   The PostScript transform automatically detects these changes after they have been saved to the file.

To deactivate the FontSave utility so that inline fonts are not saved and previously saved inline fonts are no longer used, remove the input exit and change the following lines in both the **ps2afpd.cfg** file and the **3160d.cfg** file:

```
ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
                    /var/psf/psfonts/user.map
#                   /var/psf/ps2afp/FontSave.map
```

You can always reactivate the FontSave utility by changing these files back.

Note: Always verify your changes by preflighting a PostScript job from the Infoprint Submit system (use the -a NONE option when printing). If the job runs with the fonts expected, you know that the changes were saved successfully.

Transforming pfb Fonts to pfa Fonts for Use with Adobe Acrobat Distiller

The following procedure allows you to transform a binary PostScript font (one with a **.pfb** final qualifier) into an ASCII PostScript font (one with a **.pfa** final qualifier) for use with the Adobe Acrobat Distiller. While the Adobe PostScript RIP (**ps2afp**) can run with both binary and ASCII fonts, the Adobe Acrobat Distiller requires ASCII fonts. You can perform this task from IBM Infoprint Controland transform any valid Type 1 PostScript font file.

1. Move to the directory where the **.pfb** font resides by specifying:

   ```
   cd /usr/lpp/psf/fonts/apl
   ```

   where */usr/lpp/psf/fonts/apl* represents the directory where your fonts are stored.

2. Use the **makepfa** utility to transform a binary font (such as APLB.PFB) into an ASCII font (such as CourierAPL2-Bold) by specifying:

   ```
   makepfa /usr/lpp/psf/ps/fonts/apl/APLB.PFB
   ```

3. When you receive an AIX command-line prompt, view the directory contents to see the file that you just created by specifying:

   ```
   ls -al
   ```

   The system should return a display similar to the following:

   ```
   ⋮

   -r--r--r--   1 root     printq     50318 Jul 29 20:13 APL.PFB
   ⋮

   -rw-r--r--   1 root     system     95602 Jul 31 13:45 CourierAPL2-Bold
   ⋮
   ```

Note: If you attempt to transform a font file that is not Type 1 PostScript format, you will receive the following message:

```
0423-026 mkfntmap: The file /t is not a valid Type 1 PostScript
font file and has been ignored.
```

Fonts for Printing ditroff Data

This section describes the files that Infoprint provides for printing **ditroff** files on AFP printer devices and the directories in which they reside.

AFP Code Pages for AFP Fonts

Infoprint supplies the following three code pages for use with the AFP fonts for **ditroff**. These code pages map the existing characters in **troff** files to their corresponding AFP characters in the AFP character sets.

T1001038
: Adobe Symbols (ASCII)

T1001108
: **ditroff** Base Compatibility

T1001109
: **ditroff** Specials Compatibility

When you install Infoprint, both the 240-pel and 300-pel code page files are automatically installed in the **/usr/lpp/psf/fontlib** directory.

Note: If you transform a file for printing that requires fonts on a font cartridge and the printer device does not have the font cartridge installed that supports the fonts specified in the **/usr/lib/font/devhplj** directory, your file may not print correctly. Refer to your printer documentation to install bit-mapped fonts into the **/usr/lib/font/devhplj** directory.

AFP Characters Mapped to ditroff Characters

Infoprint supplies AFP character sets in raster format. The character sets, which map to corresponding **ditroff** fonts, are listed in the **devafp.fontmap** file located in the **/usr/lib/font/devafp** directory. The character sets themselves are installed in the **/usr/lpp/psf/fontlib** directory.

Infoprint supplies AFP character sets for the following **troff** type families: B, BI, C, CB, CI, CBI, H, HB, HI, HBI, I, R, SG, and SS.

The following character list provides a mapping from the **ditroff** names of characters to the IBM graphics character identifier. The "IBM Graphic Character Identifier" column can be used to view the printed character as printed in a code page table. The "**ditroff** Name of Character" column can be used to print any of these characters by typing it into a text file as a special character that is processed by **troff**.

Mapping for Code Pages T1001038, T1001108, and T1001109

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109

IBM Graphic Character Identifier	**ditroff** ***Name of Character***	***Character Description***
GA010000	***a**	alpha
GA020000	***A**	capital Alpha
GB010000	***b**	beta
GB020000	***B**	capital Beta
GD010000	***d**	delta
GD020000	***D**	capital Delta
GE010000	***e**	epsilon
GE020000	***E**	capital Epsilon
GE310000	***y**	eta
GE320000	***Y**	capital Eta
GF010000	***f**	phi
GF020000	***F**	capital Phi
GG010000	***g**	gamma
GG020000	***G**	capital Gamma
GH010000	***x**	chi
GH020000	***X**	capital Chi
GI010000	***i**	iota
GI020000	***I**	capital Iota
GK010000	***k**	kappa
GK020000	***K**	capital Kappa
GL010000	***l**	lambda
GL020000	***L**	capital Lambda
GM010000	***m**	mu
GM020000	***M**	capital Mu
GN010000	***n**	nu
GN020000	***N**	capital Nu
GO010000	***o**	omicron
GO020000	***O**	capital Omicron
GO310000	***w**	omega
GO320000	***W**	capital Omega
GP010000	***p**	pi

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109 (continued)

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
GP020000	***P**	capital Pi
GP610000	***q**	psi
GP620000	***Q**	capital Psi
GR010000	***r**	rho
GR020000	***R**	capital Rho
GS010000	***s**	sigma
GS020000	***S**	capital Sigma
GS610000	**ts**	terminal sigma
GT010000	***t**	tau
GT020000	***T**	capital Tau
GT610002	***h**	theta
GT620000	***H**	capital Theta
GU010000	***u**	upsilon
GU020000	***U**	capital Upsilon
GX010000	***c**	xi
GX020000	***C**	capital Xi
GZ010000	***z**	zeta
GZ020000	***Z**	capital Zeta
LA010000	**a**	a
LA020000	**A**	A
LB010000	**b**	b
LB020000	**B**	B
LC010000	**c**	c
LC020000	**C**	C
LD010000	**d**	d
LD020000	**D**	D
LE010000	**e**	e
LE020000	**E**	E
LF010000	**f**	f
LF020000	**F**	F
LF510000	**ff**	ff ligature
LF530000	**fi**	fi ligature
LF550000	**fl**	fl ligature
LF570000	**Fi**	ffi ligature
LF590000	**Fl**	ffl ligature
LG010000	**g**	g
LG020000	**G**	G
LH010000	**h**	h
LH020000	**H**	H

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109 (continued)

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
LI010000	**i**	i
LI020000	**I**	I
LJ010000	**j**	j
LJ020000	**J**	J
LK010000	**k**	k
LK020000	**K**	K
LL010000	**l**	l
LL020000	**L**	L
LM010000	**m**	m
LM020000	**M**	M
LN010000	**n**	n
LN020000	**N**	N
LO010000	**o**	o
LO020000	**O**	O
LP010000	**p**	p
LP020000	**P**	P
LQ010000	**q**	q
LQ020000	**Q**	Q
LR010000	**r**	r
LR020000	**R**	R
LS010000	**s**	s
LS020000	**S**	S
LT010000	**t**	t
LT020000	**T**	T
LU010000	**u**	u
LU020000	**U**	U
LV010000	**v**	v
LV020000	**V**	V
LW010000	**w**	w
LW020000	**W**	W
LX010000	**x**	x
LX020000	**X**	X
LY010000	**y**	y
LY020000	**Y**	Y
LZ010000	**z**	z
LZ020000	**Z**	Z
ND010000	**1**	one
ND020000	**2**	two
ND030000	**3**	three

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109 (continued)

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
ND040000	**4**	four
ND050000	**5**	five
ND060000	**6**	six
ND070000	**7**	seven
ND080000	**8**	eight
ND090000	**9**	nine
ND100000	**0**	zero
NF010000	**12**	1/2
NF040000	**14**	1/4
NF050000	**34**	3/4
NF180000	**18**	1/8
NF190000	**38**	3/8
NF200000	**58**	5/8
SA000000	**\-**	minus
SA000000	**mi**	minus
SA010000	**+**	plus sign
SA010000	**pl**	math plus
SA020000	**+−**	plus or minus
SA030000	**<**	less than sign
SA040000	**=**	equal sign
SA040000	**eq**	equal sign
SA050000	**>**	greater than sign
SA060000	**di**	divide sign
SA070000	**mu**	multiplication sign
SA160000	**ap**	approximates
SA240000	**ib**	improper subset
SA270000	**ip**	improper superset
SA380000	**ca**	intersection
SA390000	**cu**	union
SA400000	**sb**	subset
SA410000	**sp**	superset
SA450000	**if**	infinity
SA470000	**pt**	proportional to symbol
SA480000	**==**	identity
SA490000	**pd**	partial differential symbol
SA510000	**is**	integral symbol
SA520000	**<=**	less than or equal
SA530000	**>=**	greater than or equal
SA540000	**!=**	not equal

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109 (continued)

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
SA670000	**mo**	element of
SA700000	**~=**	approximately equal
SA800000	**sr**	square root
SA870000	**es**	empty set
SC030000	**$**	dollar sign
SC040000	**ct**	cent sign
SD110000	**'**	acute accent
SD110000	**aa**	acute accent
SD130000	**`**	grave accent
SD130000	**ga**	grave accent
SD150000	**^**	circumflex accent
SD190000	**~**	tilde accent
SD410000	**cd**	cedilla accent
SF640000	**br**	box rule
SA860000	**rn**	root extender
SV300600	**ul**	underrule
SV300200	**ru**	rule
SG050000	**lc**	left ceiling
SG060000	**lf**	left floor
SG070000	**rc**	right ceiling
SG080000	**rf**	right floor
SG090000	**lt**	upper left curly bracket
SG100000	**lk**	left middle curly bracket
SG110000	**lb**	lower left curly bracket
SG120000	**rt**	upper right curly bracket
SG130000	**rk**	right middle curly bracket
SG140000	**rb**	lower right curly bracket
SG170000	**bv**	vertical bold
SL030000	**gr**	gradient
SM010000	**#**	number sign
SM020000	**%**	percent sign
SM030000	**&**	ampersand
SM040000	*****	asterisk
SM040002	******	math star
SM050000	**@**	at
SM060000	**[**	left bracket
SM070000	****	backslash
SM070000	**\e**	backslash
SM080000	**]**	right bracket

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109 (continued)

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
SM110000	**{**	left brace
SM130000	**or**	or bar
SM130000	**|**	or bar
SM140000	**}**	right brace
SM190000	**de**	degree
SM240000	**sc**	section
SM300000	**<–**	left arrow
SM310000	**–>**	right arrow
SM320000	**ua**	up arrow
SM330000	**da**	down arrow
SM340000	**dg**	dagger
SM350000	**dd**	double dagger
SM450000	**sq**	open square
SM470000	**bx**	solid square, histogram, square bullet, filled box
SM520000	**co**	copyright
SM530000	**rg**	registered
SM540000	**tm**	trade mark
SM570000	**bu**	bullet
SM590000	**rh**	right hand
SM630000	**lh**	left hand
SM660000	**no**	logical not
SM750000	**ci**	circle
SM900000	**em**	em dash
SP020000	**!**	exclamation point
SP040000	**"**	double quote
SP050000	**fm**	foot mark (minutes symbol)
SP060000	**(**	left paren
SP070000	**)**	right paren
SP080000	**,**	comma
SP090000	**_**	underscore
SP090000	**_**	underscore
SP100000	**hy**	hyphen
SP110000	**.**	period
SP120000	**/**	slash
SP120001	**sl**	fraction
SP130000	**:**	colon
SP140000	**;**	semicolon
SP150000	**?**	question mark

Table 9. Mapping for Code Pages T1001038, T1001108, and T1001109 (continued)

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
SP190000	**\‘**	open quote
SP200000	**\’**	close quote
SS000000	**bs**	smiley face
SS680000	**–**	dash, minus sign (en dash)
SS680000	**en**	dash, minus sign (en dash)

Special Symbols Added for Code Page T1001038

The following non-standard special symbols were added:

Table 10. Special Symbols Added for Code Page T1001038

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
SA370000	**tf**	therefore, math and proof symbols
SS020000	**ht**	heart
SS030000	**dm**	diamond
SS040000	**cl**	club
SS050000	**sd**	spade

Special Symbols Added for Code Page T1001108

The following non-standard special symbols were added:

Table 11. Special Symbols Added for Code Page T1001108

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
SM790000	**hs**	house character
ND011000	**s1**	One superscript
ND021000	**s2**	Two superscript
ND031000	**s3**	Three superscript
ND041000	**s4**	Four superscript
ND051000	**s5**	Five superscript
ND061000	**s6**	Six superscript
ND071000	**s7**	Seven superscript
ND081000	**s8**	Eight superscript
ND091000	**s9**	Nine superscript
ND101000	**s0**	Zero superscript

Special Symbol Added for Code Page T1001109

The following non-standard special symbol was added:

Table 12. Special Symbol Added for Code Page T1001109

IBM Graphic Character Identifier	**ditroff *Name of Character***	***Character Description***
SV300400	**ol**	overrule

Adding Other troff Fonts

Infoprint provides AFP fonts that map to existing **troff** fonts in the Courier, Helvetica, and Times type families and AFP fonts for special characters. The font-mapping table contained in the **devafp.fontmap** file maps the AFP fonts to the corresponding **troff** fonts.

If you want to add **troff** fonts or special characters, contact your IBM Printing Systems Company representative.

ditroff Font Files

Infoprint installs other files for **ditroff** in the **/usr/lib/font/devafp** directory, including the following:

devafp.fontmap
: File that maps **ditroff** fonts to AFP fonts.

***.d2afp**
: Special versions of the **ditroff** font descriptions. The **d2afp** command uses these files.

DESC (no extension)
: **troff** device description, ASCII version.

DESC.out
: **troff** device description, binary version.

***.out** **troff** font descriptions, binary version.

Fonts for Printing DBCS ASCII and EUC Data

In ideographic languages, like Japanese, Chinese, and Korean, there are thousands of characters. A single byte of information cannot represent all of these characters because a single byte only accommodates 256 characters. Therefore, at least one more byte of information is required.

For DBCS ASCII files, each ideographic character is exactly two bytes. For Extended UNIX Code (EUC) files, each ideographic character may be two, three, or four bytes, depending on the EUC implementation and language. Single-byte ASCII characters may be mixed in with DBCS ASCII and EUC characters.

Infoprint supports printing DBCS ASCII and EUC files in the following formats:

- DBCS ASCII files in the Japanese and Traditional Chinese languages, which can contain formatting controls for the IBM 5577 or 5587 printers.
- EUC files in the Japanese, Traditional Chinese, and Korean languages. EUC files cannot contain any formatting control characters.

Fonts Required to Print a Double-Byte Transformed File

You can use the **db2afp** transform command to transform input files that use the following code pages:

- Japanese PC (code page IBM-932)
- Japanese EUC (code page IBM-eucJP)
- Traditional Chinese PC (code page IBM-938)
- Traditional Chinese EUC (code page IBM-eucTW)
- Korean EUC (code page IBM-ecuKR)

The transformed files contain font references to the double-byte character set. You set the character set, code page, you want by setting the **PSFDBLANG** environment variable; see "Chapter 20. Setting Infoprint and AIX Environment Variables" on page 219.

After you have used the **db2afp** command to transform DBCS ASCII and EUC files into AFP data stream files, you must have access to DBCS fonts when you print the transformed files. The DBCS fonts for Japanese, Traditional Chinese, and Korean are not part of Infoprint but are available for the MVS, VM, and AIX operating systems as separately orderable licensed programs.

Installing DBCS Fonts on AIX

To make the fonts available on your system and to Infoprint, once you have the licensed programs, you must do one of the following:

- Use the AIX licensed programs to install the fonts onto your AIX system.
- Use the AIX licensed programs to install the fonts onto a AIX system other than yours and use the Network File System (NFS) **mount** command to mount the AIX file system onto your AIX system.
- Use the NFS **mount** command to mount the MVS or VM minidisk to your AIX system.

Setting Up Font Resources for DBCS ASCII and EUC Printing

To print the transformed files that contain font references to the double-byte character set, you must make the double-byte fonts known to Infoprint through one of the following methods:

- Create a resource-context object that identifies the location of the double-byte fonts and associate the resource-context object with a default-document object and an Infoprint logical printer; see "Chapter 14. Creating and Managing Resource-Context Objects (PSF, Fax, and Email DSS Only)" on page 159 for these procedures. Using this method makes the fonts known to Infoprint for any job submitted to the logical printer associated with the default-document object.
- Add the directories to the search path for physical printers using the Infoprint administrator's GUIphysical printer notebook `Resource context for fonts` field; see "Setting the Actual Destination Attributes for Resource Search Paths" on page 109 for the procedure. Using this method makes the fonts known to Infoprint for any job processed by those physical printers.
- Set and export the **PSFPATH** environment variable to your environment by entering the following command:

  ```
  export PSFPATH=$PSFPATH:path1:path2:pathN
  ```

Using this method makes the fonts known to Infoprint for all print jobs submitted from the AIXwindows or High Function Terminal session in which the **PSFPATH** environment variable was set.

- Set and export the **PSFPATH** environment variable in your **.profile** file (Korn and Bourne shells) or **.cshrc** file (C shells) by adding the following line to the file:

  ```
  export PSFPATH=$PSFPATH:path1:path2:pathN
  ```

  Using this method makes the fonts known to Infoprint for any job you submit.
- Set the **PSFPATH** environment variable in the **/etc/environment.** file by adding the following line to the file:

  ```
  PSFPATH=path1:path2:pathN
  ```

  Using this method makes the fonts known to Infoprint for all users on the system.

Fonts for Printing Line Data

When you specify a coded font name with the **chars** keyword of the **line2afp** command or with the **chars** document attribute, the font name is limited to four characters, excluding the two-character prefix.

Table 13 provides a list of the IBM Expanded Core Fonts for use with unformatted ASCII input data. Because these fonts have eight-character names, the table also provides a list of six-character short names. Infoprintstores these coded fonts in the **/usr/lpp/psf/reslib** directory. There are symbolic links of the eight-character names that correspond to the six-character names. You may use these short names, *without* the `X0` prefix, to satisfy the four-character limitation for specifying font names with the **chars** keyword of the **line2afp** command.

For the names of other coded fonts, refer to *IBM AFP Fonts: Font Summary*.

Table 13. Font Mapping Table for Use with the chars keyword

Type Family	***Point Size***	***Coded Font Name***	***Linked Short Name (for* chars *keyword)***
Courier	7	**X0423072**	**X04272**
Courier	8	**X0423082**	**X04282**
Courier	10	**X0423002**	**X04202**
Courier	12	**X04230B2**	**X042B2**
Courier	14	**X04230D2**	**X042D2**
Courier	20	**X04230J2**	**X042J2**
Helvetica	6	**X0H23062**	**X0H262**
Helvetica	7	**X0H23072**	**X0H272**
Helvetica	8	**X0H23082**	**X0H282**
Helvetica	9	**X0H23092**	**X0H292**
Helvetica	10	**X0H23002**	**X0H202**
Helvetica	11	**X0H230A2**	**X0H2A2**
Helvetica	12	**X0H230B2**	**X0H2B2**
Helvetica	14	**X0H230D2**	**X0H2D2**

Table 13. Font Mapping Table for Use with the chars keyword (continued)

Type Family	***Point Size***	***Coded Font Name***	***Linked Short Name (for* chars *keyword)***
Helvetica	16	**X0H230F2**	**X0H2F2**
Helvetica	18	**X0H230H2**	**X0H2H2**
Helvetica	20	**X0H230J2**	**X0H2J2**
Helvetica	24	**X0H230N2**	**X0H2N2**
Helvetica	30	**X0H230T2**	**X0H2T2**
Helvetica	36	**X0H230Z2**	**X0H2Z2**
Times New Roman	6	**X0N23062**	**X0N262**
Times New Roman	7	**X0N23072**	**X0N272**
Times New Roman	8	**X0N23082**	**X0N282**
Times New Roman	9	**X0N23092**	**X0N292**
Times New Roman	10	**X0N23002**	**X0N202**
Times New Roman	11	**X0N230A2**	**X0N2A2**
Times New Roman	12	**X0N230B2**	**X0N2B2**
Times New Roman	14	**X0N230D2**	**X0N2D2**
Times New Roman	16	**X0N230F2**	**X0N2F2**
Times New Roman	18	**X0N230H2**	**X0N2H2**
Times New Roman	20	**X0N230J2**	**X0N2J2**
Times New Roman	24	**X0N230N2**	**X0N2N2**
Times New Roman	30	**X0N230T2**	**X0N2T2**
Times New Roman	36	**X0N230Z2**	**X0N2Z2**