

Infoprint Manager for AIX



Administrative procedures: Customizing for special jobs

Version 4 Release 1

Infoprint Manager for AIX



Administrative procedures: Customizing for special jobs

Version 4 Release 1

First Edition (May 2002)

This edition applies to Infoprint Manager for AIX, Version 4, Release 1, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. Be sure to use the correct edition for the level of the product.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

IBM Printing Systems welcomes your comments. For your convenience, a form for reader's comments is provided at the back of this publication. If the form has been removed, you may send your comments to the following address:

INFORMATION DEVELOPMENT
IBM PRINTING SYSTEMS
DEPARTMENT H7FE BUILDING 004M
PO BOX 1900
BOULDER CO 80301-9191

If you prefer to send comments electronically, use one of the following methods:

- Internet/Email: printpub@us.ibm.com
- Fax: 1-800-524-1519 (within U.S.) or 1-303-924-6873 (outside U.S.)

Internet

Visit our home page at <http://www.ibm.com/printers>.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 1998, 2002. All rights reserved.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Figures	vii
Tables	ix
<hr/>	
Part 1. Administrative procedures: Customizing for special jobs.	1
Chapter 1. Working with Infoprint transform programs.	3
Customizing the PCL, PostScript, and PDF transforms	3
Sample configuration file	4
Daemon configuration files	4
Hierarchy of transform options	5
Customizing the TIFF, JPEG, and GIF transforms	5
Sample configuration file	6
Transform environment variables	6
Hierarchy of transform options	6
Working with the transform for line data	7
About line data	7
Customizing the line data transform	10
Using the PDF Parallel RIP	11
Installing the PDF Parallel RIP client	11
Customizing the PDF Parallel transform.	13
Troubleshooting the parallel PDF RIP client.	17
Working with the Infoprint PPML transform program	18
Customizing the PPML transform	18
Chapter 2. Configuring data stream transform sequences.	21
Creating a transform object	21
Defining a transform sequence	23
Using the netware print program	26
Chapter 3. Understanding transforms and the configurable transform subsystem	27
Transforms	27
Transform sequences	27
Transform sequence example	28
Netware.exe	29
Chapter 4. Printing PCL or PostScript to PSF destinations: Specifying which paper bin to use	31
Determining bin mappings	31
PCL printing	31
PostScript printing	34
Editing configuration files	36
Creating a transform with bin mappings	37
Chapter 5. Submitting PSF printer input to a PCL or PPDS printer	39
Setting up PCL tray mappings	39
Chapter 6. Working with fonts.	43
Font substitution on the InfoColor 70.	43
Fonts for printing transformed PostScript and PDF data	43
Font-mapping files	43
Specifying font substitution through initialization files	44
Adding non-IBM fonts to AIX for a PostScript job	45

Transforming pfb fonts to pfa fonts for use with Adobe Acrobat Distiller	47
Fonts for printing ditroff data	48
AFP code pages for AFP fonts	48
AFP characters mapped to ditroff characters	48
Adding other troff fonts	56
ditroff font files	56
Fonts for printing DBCS ASCII and EUC data	56
Fonts required to print a double-byte transformed file	56
Installing DBCS fonts on AIX	57
Setting up font resources for DBCS ASCII and EUC printing	57
Fonts for printing line data	58
Installing the Japanese PostScript font feature	59
Obtaining the Japanese PostScript fonts on your Windows workstation	59

Chapter 7. Using global resource identifiers. 61

How can you use GRIDs?	61
What GRID files ship with Infoprint?.	61
Where does Infoprint search for GRID files?	63
Understanding the general syntax rules and allowable values for GRID files	63
Syntax rules applying to all types of GRID files	64
Allowable values for the charset.grd file	64
Allowable values for the codepage.grd file	64
Allowable values for the fgid.grd file	65
Allowable values for the cpgid.grd file	65
Modifying GRID files	65
Modifying the charset and codepage GRID files	65
Modifying the FGID and CPGID GRID files	67
Preventing Infoprint from using GRID files.	68

Chapter 8. Configuring and using cut-sheet emulation 69

Using cut sheet emulation	69
Using Infoprint Submit	69
Using the PSF physical printer properties notebook	69
Using the pdpr command	70
Defaults and limitations of cut sheet emulation support	70

Chapter 9. Generating and submitting color mapping table source and output files. . . 71

Parts of a color mapping table	71
Using source groups	71
Using target groups	72
Creating a color mapping table.	73
Submitting color mapping table source and output files with Infoprint Manager	76
Submitting jobs through the AIX command line	76

Chapter 10. Configuring for interoperability on an Infoprint AIX server 79

Setting up the Infoprint AIX server for interoperability	79
Starting NFS and connecting the AIX secondary server	79
Adding users to and modifying permissions for FST security groups	81
Setting up the idwinadmin id on an NT domain controller	82
Setting up the idwinadmin id on a Windows 2000 domain controller	82
Creating the 'ntuser' ID on the Infoprint AIX server	83
Ensuring correct AIX file permissions for interoperability	83
Configure Windows NT servers for interoperability	84
Setting up interoperating Windows NT servers	84
Installing MS Services for UNIX on the Infoprint Windows servers.	84
Setting up the common account for Infoprint Windows servers on an NT domain controller	84
Setting up the common account for Infoprint Windows servers on a 2000 domain controller	85
Grant appropriate user rights to the domain user on all Infoprint Manager Windows NT servers.	85
Grant appropriate user rights to the domain user on all Infoprint Manager Windows 2000 servers	86
Configuring the NFS client to access the namespace	88

Verifying access to the AIX namespace that allows interoperability on Windows NT	89
Verifying access to the AIX namespace that allows interoperability on Windows 2000.	89
Configuring the 'ntuser' ID for interoperability on the Infoprint Windows servers.	90
Verifying the authority of the ipwinadmin ID	91
Chapter 11. Setting up high speed printers for spacing	93
Enabling SNMP on an Infoprint 2000 for AFP printing	93
Enabling SNMP on an Infoprint 3000 or an Infoprint 4000 printer that uses the operator console	93
Enabling SNMP on a printer that uses the Enhanced Operator Console	94
Chapter 12. Using Infoprint Manager with the Infoprint Color 130 Plus	95
Infoprint Color 130 Plus	95
Setting up	95
Building a data stream	96
Identifying AFP resources	96
Creating an actual destination	97
Transforming color images	97
Using and changing color and resource attributes	98
Using color attributes	98
Using resource attributes	100
Using the Infoprint Manager Administration GUI to change color and resource attributes	101
Sending an AFP job to the printer using the AIX command line	105
Setting up assumptions	105
Using AIX commands	105
Submitting the job.	105
Sending an AFP job with color images to the printer using Infoprint Submit	106
Setting up assumptions	106
Submitting the job.	106
Sending a job to the printer using Infoprint Select	110
Setting up assumptions	110
Submitting the job.	111
Sending a job using Download for OS/390	112
Chapter 13. Infoprint Manager's impositioning solution	115
Prerequisites for the Infoprint impositioning solution	116
Infoprint flow for impositioning jobs	117
Infoprint impositioning terms	117
Impositioning job flow overview	118
Modifying both the content and the layout of impositioning jobs	122
Modifying the layout of impositioning jobs without changing content	125
Submitting impositioning jobs for printing later (prime-only jobs)	127
Configuring Infoprint Manager for impositioning	129
Creating the priming (print optimizer DSS) destinations and queue	129
Creating printing (PSF DSS) destinations to use the print optimizer	131
Connecting the printing logical destination to the logical destination created with the print optimizer.	132
Setting up hot folders to submit impositioning jobs.	134
Managing impositioning resources	137
Troubleshooting impositioning	138
Specific impositioning problems	139
Chapter 14. Using the LPD gateway with Infoprint Manager for AIX	141
Submitting print jobs through the LPD from an AIX system.	141
Submitting print jobs through the LPD from a non-AIX UNIX system	141
Submitting print jobs from a non-AIX UNIX system with the Infoprint (lprafp) LPR client	141
Submitting print jobs through the LPD from a Windows system	142
Install and configure lprafp for Windows from the Web	142
Chapter 15. Using the OPI server	143
Installing the OPI server on AIX	143
Configuring the OPI server.	144

Configuring OPI server from the Mac system.	144
Configuring OPI server from the Infoprint AIX server.	148
Submitting jobs to the OPI server.	149
Troubleshooting the OPI server	153
Chapter 16. Printing data sets from an MVS system through MVS Download	155
Preparing to work with MVS Download	155
Why use MVS Download?	155
What is the MVS Download daemon?	155
How do you make AFP resources available?	156
How are print options passed to Infoprint?	156
What does the mvsprpsm.sh shell script do?	156
What does the log file generated by the mvsprpsm.sh shell script contain?	156
Modifying the Infoprint mvsprpsm.sh shell script	157
Specifying AFP resource directories	157
Changing how the shell script generates the file name.	157
Using multiple printers with MVS Download	158
Specifying a default page definition	159
Passing the parameter list from the mvsprsd daemon to the shell script	159
Translating print options to Infoprint attributes and values	160
Using the mvsprsd command to start the daemon	161
Using MVS Download support for multi-data set jobs	162
Description of multi-data set support on both PSF/MVS and Infoprint Manager for AIX	163
Procedures for installing multi-data set support	163
Limitations of multi-data set support	164
Technical description of multi-data set support	164
Resubmitting or deleting MVS Download orphaned files	165
Resubmitting an orphaned file.	165
Chapter 17. Using AFP Upload	167
Creating an actual destination for AFP Upload and print	167
SNA-specific fields	168
TCP/IP specific fields	168
Transmitting AFP file attributes to MVS	170
Using specific Infoprint Manager attributes	170
Using the destination-pass-through attribute	171
Using Infoprint Manager commands with AFP Upload	172
When the connection to the MVS host fails	173
Chapter 18. Installing the Tivoli Plus Module	175
Notices	177
Trademarks	179
EuroReady	179
Index	181

Figures

1. Sample PostScript or PDF configuration file	4	21. Change Tuning dialog	105
2. Sample TIFF configuration file	6	22. Print tab	108
3. Sample PDF parallel transform (pdf2afp.cfg) configuration file.	14	23. Look tab	109
4. Sample PDF parallel transform (8264.cfg) configuration file for color	15	24. Advanced tab	110
5. Sample PDF parallel transform (8264.cfg) configuration file for black and white	16	25. Overview of the Infoprint job flow for impositioning jobs	118
6. Sample PPML configuration file.	19	26. Document Layout tab view	121
7. Create Transform dialog: Define a transform that copies an AFP file to a directory without printing	22	27. PSF DSS Actual Destination Properties notebook	122
8. Printer Properties notebook: Transforms to use	24	28. Job flow for modifying both content and layout	124
9. Create Transform dialog: Create a transform that converts PostScript data into AFP	24	29. Job flow for modifying job layout only	126
10. Create Transform dialog: Create a transform that removes the PostScript controls from a file	25	30. Job flow for prime only jobs	128
11. Sample file for a character set	62	31. First dialog of the Create Print Optimizer Wizard.	130
12. Sample file for a code page	62	32. Properties notebook for the Print Optimizer's logical destination	133
13. Sample file for a global identifier	62	33. Ether-Share-Admin icon	144
14. Sample file for a code page identifier	63	34. Four Infoprint file systems on a MAC system	145
15. Main SMIT Panel	80	35. Print Queue window	146
16. Link from Primary to Secondary Server Panel	81	36. OPI Server Settings window	147
17. Options menu	101	37. OPI/ICC Settings window	148
18. Printer menu.	102	38. Chooser selections	150
19. Change AFP Resources dialog	103	39. Sample connection dialog	151
20. Change AFP Color dialog	104	40. Sample shared directory and layout directory	152
		41. SMIT SNA Printer panel	168
		42. SMIT TCP/IP Printer panel	169

Tables

1.	Default PCL, Postscript, and PDF transform configuration files.	3
2.	Default TIFF, JPEG, and GIF transform configuration files.	5
3.	Processors required to use the Parallel PDF RIP client.	11
4.	Default parallel PDF transform configuration files	13
5.	Default PPML transform configuration file	18
6.	Transform substitution variables	22
7.	IBM PCL5e bin numbers	32
8.	Sample mapping table for an Infoprint 20	33
9.	Paper tray chart	34
10.	Default bin mappings	39
11.	Mapping for code pages T1001038, T1001108, and T1001109	49
12.	Special symbols added for code page T1001038	55
13.	Special symbols added for code page T1001108	55
14.	Special symbol added for code page T1001109	55
15.	Font mapping table for use with the chars keyword	58
16.	Recommended file sharing methods	134
17.	Print options passed to Infoprint MVS Download shell script.	160
18.	Specific Infoprint Manager attributes to pass values to an MVS host system	170
19.	Using the destination-pass-through attributes to pass values to an MVS host system	171

Part 1. Administrative procedures: Customizing for special jobs

Chapter 1. Working with Infoprint transform programs

Infoprint provides transform programs for the following data streams:

- Printer control language (PCL) data stream
- PostScript data stream
- Portable document format (PDF) data stream
- Tag image file form (TIFF) data stream
- Joint photographic experts group (JPEG) data stream
- Graphic interchange format (GIF) data stream
- ditroff data stream
- Double-byte ASCII and EUC data streams
- line-data data stream
- SAP data

The transforms convert the incoming data stream into the Advanced Function Presentation (AFP) format.

When a job in any of these formats is submitted to print on a PSF physical printer, Infoprint automatically invokes the appropriate transform. You can also run the transforms from the AIX command line without printing the generated output. You may find this useful if you intend to print the job later. Jobs print more quickly if they have already been transformed.

Most transforms have flags or option keywords that you can use to specify processing information. For a list of the flags or options and values for each transform, refer to *Infoprint Manager: Reference* or to the transforms' man pages. Configuration files, environment variables, and user-exit programs allow you to specify processing information for Infoprint to use when it invokes the transform automatically. You can also use configuration files and environment variables instead of typing flags on the command line whenever you run a transform.

Customizing the PCL, PostScript, and PDF transforms

You can customize the transforms for PCL, PostScript, and PDF data by specifying values in the transform configuration files. Table 1 shows the default configuration files that Infoprint provides. You can either modify these files or create your own.

Table 1. Default PCL, Postscript, and PDF transform configuration files

Data Stream	Transform	Configuration File	Daemon Configuration File
PCL	pcl2afp	/psf/pcl2afp/pcl2afp.cfg	/psf/pcl2afp/pcl2afpd.cfg
PostScript	ps2afp	/psf/ps2afp/ps2afp.cfg	/psf/ps2afp/ps2afpd.cfg
PDF	pdf2afp	/psf/ps2afp/ps2afp.cfg	/psf/ps2afp/ps2afpd.cfg

Notice that the PostScript and PDF transforms use the same default configuration files.

Sample configuration file

Figure 1 shows an example of a configuration file for the PostScript and PDF transforms. The configuration file for the PCL transform is similar.

```
# ps2afp configuration file

# KEYWORD          EQUIVALENT ps2afp FLAG          PURPOSE
#####

port = 8251         # -P          which TCP/IP port to use
server = 127.0.0.1  # -S          which server to connect with

ps_max_memory = 14000K # -M          maximum amount of memory that
#                  #          PostScript uses; the 'K' is ignored

ps_job_timeout = 20 # -j          maximum number of minutes
#                  #          to process PostScript job

ps_server_timeout = 20 # -s          maximum number of minutes
#                  #          server waits between jobs

ps_width = 8.5i     # -w          width of generated image
ps_length = 11i     # -l          length of generated image
ps_x_offset = 0i    # -x          left and right margins
ps_y_offset = 0i    # -y          top and bottom margins
ps_resolution = 600 # -r          resolution of printer
ps_output_type = I01_G4 # -a          type of AFP image to generate
```

Figure 1. Sample PostScript or PDF configuration file

The configuration file uses keyword equivalents of the transform flags. Refer to *Infoprint Manager: Reference* for the keywords and values that you can specify in the configuration file.

Daemon configuration files

The PCL, PostScript, and PDF transforms all require a daemon to be running before you can use them. The **pcl2afpd** daemon manages the PCL interpreter portion of the **pcl2afp** transform. The **ps2afpd** daemon manages the PostScript interpreter portion of the **ps2afp** and **pdf2afp** transforms. For more information about these daemons, refer to *Infoprint Manager: Reference*.

Each daemon, like the corresponding transform, uses a configuration file. The daemon configuration file can contain the same keywords as the transform configuration file, except **server**, plus some keywords that control the operation of the daemon. Refer to *Infoprint Manager: Reference* for the daemon keywords.

Hierarchy of transform options

Infoprint assigns a hierarchy to its use of flags and configuration-file information when it runs the PCL, PostScript, or PDF transform program. The following lists the order in which Infoprint uses flags and information specified in configuration files:

1. Any values you specify on the command line, including values in the configuration file you specify with the **-C** flag.

Infoprint commands process flags from left to right. If you enter the same flag more than once, Infoprint uses the last occurrence of the flag to determine the value to use. For example, if you specify the following command:

```
ps2afp -Cconfig.file -r240 -r300 myfile.ps
```

The **ps2afp** command transforms the file using 300-pel resolution. Infoprint ignores the resolution value specified in the configuration file `config.file` and the first **-r240** flag and value.

2. Values specified in the **thepcl2afp.cfg** or **orps2afp.cfg** configuration file in the current directory, if one exists and if you issue the transform command directly. Infoprint ignores values in the current directory if you invoke the transform command indirectly by submitting a job to print.
3. Values specified in the **thepcl2afp.cfg** or **ps2afp.cfg** configuration file in your home directory, if one exists.
4. Values specified in the default transform command configuration file named in Table 1 on page 3.
5. Values specified in a customized configuration file identified with the **-C** flag of the **thepcl2afpd** or **orps2afpd** command when the transform daemon started.
6. Values specified in the default transform daemon configuration file named in Table 1 on page 3.
7. Default values that are built into Infoprint. These are the same as the transform defaults except that the default PostScript or PDF output type is an IM1 uncompressed image.

Customizing the TIFF, JPEG, and GIF transforms

You can customize the transforms for TIFF, JPEG, and GIF data by:

- Specifying values in the transform configuration files
- Setting the transform environment variables

Table 2 shows the default configuration files that Infoprint provides. You can either modify these files or create your own.

Table 2. Default TIFF, JPEG, and GIF transform configuration files

<i>Data Stream</i>	<i>Transform</i>	<i>Configuration Files</i>
TIFF	tiff2afp	/usr/lpp/psf/tiff2afp/tiff2afp.cfg /usr/lpp/psf/tiff2afp/tiff2afp.3160cfg /usr/lpp/psf/tiff2afp/tiff2afp.3900cfg
JPEG	jpeg2afp	/usr/lpp/psf/jpeg2afp/jpeg2afp.cfg /usr/lpp/psf/jpeg2afp/jpeg2afp.3160cfg /usr/lpp/psf/jpeg2afp/jpeg2afp.3900cfg
GIF	gif2afp	/usr/lpp/psf/gif2afp/gif2afp.cfg /usr/lpp/psf/gif2afp/gif2afp.3160cfg /usr/lpp/psf/gif2afp/gif2afp.3900cfg

Infoprint uses the `.3160cfg` and `.3900cfg` configuration files to transform documents that have been submitted to print on an IBM Infoprint 60 printer or IBM Infoprint 4000 laser printer respectively.

Sample configuration file

Figure 2 shows an example of a configuration file for the TIFF transform. The configuration files for the JPEG and GIF transforms are similar.

```
a=iocal0
choice=full
cmp=g4
ms=5120
msf=0.01
nosniff=yes
noterm=yes
v=yes
pagetype=page
r=600
x=0
y=0
```

Figure 2. Sample TIFF configuration file

The configuration file uses options in the same format as the transform options that you specify on the command line, except that command line options begin with a dash (-). Refer to *Infoprint Manager: Reference* for the options and values that you can specify in the configuration file.

Transform environment variables

Many of the TIFF, JPEG, and GIF transform options have equivalent environment variables. Environment variables have the following format:

transform_option

where *transform* is the name of the transform command in upper case and *option* is the command line option without the initial dash (-). For example, the environment variable that corresponds to the `—scale` option of the `jpeg2afp` transform is `JPEG2AFP_scale`. Refer to *Infoprint Manager: Reference* for the options and values that you can specify as environment variables.

Hierarchy of transform options

Infoprint assigns a hierarchy to its use of options and configuration-file information when it runs the TIFF, JPEG, or GIF transform program. The following lists the order in which Infoprint uses command-line options and information specified in configuration files:

1. Any values you specify on the command line, including values in the configuration files you specify with the `-C` option.

Infoprint commands process options from left to right. If you enter the same option more than once, Infoprint uses the last occurrence of the flag to determine the value to use. For example, if you specify the following command:

```
tiff2afp -Cconfig.file -r240 -r300 myfile.tif
```

the **tiff2afp** command transforms the file using 300-pel resolution. Infoprint ignores the resolution value specified in the configuration file `config.file` and the first **-r240** flag and value.

2. Values specified in the default transform command configuration file named in Table 2 on page 5.
3. Transform environment variables that you set with the **export** command, if you issue the transform command directly. Infoprint ignores these environment variables if you invoke the transform command indirectly by submitting a job to print.
4. Transform environment variables in the **.profile** file in your home directory.
5. Transform environment variables in the **/etc/environment** file.
6. Default values that are built into Infoprint. These are the same as the transform defaults.

Working with the transform for line data

Infoprint Manager includes a line-data transform program that transforms line data into the Advanced Function Presentation (AFP) data stream. Converting the line data allows you to print it on high-speed AFP printer devices.

About line data

Read through the following topics to become familiar with line-data terms.

Note: The **line2afp** command and its keywords are a subset of the AFP Conversion and Indexing Facility (ACIF) **acif** command. Throughout this chapter references are made to ACIF because the **line2afp** command is linked to the **acif** command. When you use this transform and if errors occur, you may receive some error messages that make reference to ACIF.

What Is line data?

Line data is simply unformatted data — that is, data with few or no embedded control characters to create font changes, page breaks, and so on. The line data is typically created by an application program. For example, an application might produce a bank statement that has line data indicating an account's daily balance.

The Infoprint line-data transform lets you format the following kinds of data with a page definition and form definition for printing on Infoprint-managed printer devices:

- S/370 line-mode data. This type of line data was originally designed for a 1403 printer, is typically generated on a S/370 host processor, and is usually EBCDIC characters with embedded control characters (carriage control, table reference characters, and so on). This type of line data can have double-byte code points and Shift In/Shift Out controls.
- Mixed-mode data is S/370 line-mode data embedded with certain AFP structured fields (for example, Include Page Segment).
- Single-byte ASCII data with no embedded control characters except for newlines.
- Single-byte ASCII data that contains ANSI carriage-control characters, table-reference characters, or both.
- Single-byte ASCII data that contains carriage returns and form feed controls if you specify the **asciinp** or **asciinp** user-exit program.

When you transform the line-data job, you must specify a page definition and a form definition.

Notes:

1. You cannot use the line-data transform when printing files containing Proprinter ASCII.
2. When the **line2afp** command processes any unrecognized or unsupported keyword, **line2afp** issues a message, ignores the keyword, and continues processing any remaining keywords. The **line2afp** command then stops processing.
3. Infoprint also lets you transform and print DBCS ASCII data without a page definition. See *Infoprint Manager: Reference* or the **db2afp** man page.

ANSI and machine carriage controls

In many environments (including IBM mainframes and most minicomputers), printable data normally contains a carriage control character. The carriage control character acts as a vertical tab command to position the paper at the start of a new page, at a specified line on the page, or to control skipping to the next line. The characters can be one of two types: ANSI carriage control or machine carriage control.

ANSI carriage control characters: The most universal carriage control is ANSI, which consists of a single character that is a prefix for the print line. The standard ANSI characters are:

ANSI	Action
space	Single space the line and print
0	Double space the line and print
-	Triple space the line and print
+	Do not space the line and print
1	Skip to channel 1 (the top of the form, by convention)
2-9	Skip to a hardware-defined position on the page
A,B,C	Defined by a vertical tab record or forms control buffer (FCB)

Note that all ANSI control characters perform the required spacing before the line prints. Using **line2afp** command keywords and values, ANSI controls may be encoded in EBCDIC (**cctype=a**) or in ASCII (**cctype=z**).

Machine carriage control characters: Machine carriage controls were originally the actual hardware control commands for IBM printers and are often used on non-IBM systems. Machine controls are literal values, not symbols. They are not represented as characters in any encoding, and therefore, machine controls cannot be translated. Typical machine controls are:

Machine	Action
X'09'	Print the line and single space
X'11'	Print the line and double space
X'19'	Print the line and triple space
X'01'	Print the line (do not space)
X'0B'	Space one line immediately (do not print)
X'89'	Print the line, then skip to channel 1 (top of form, by convention)
X'8B'	Skip to channel 1 immediately (do not print)

Note that machine controls print before performing any required spacing. There are many more machine control commands than ANSI. Carriage controls may be present in a file or not, but every record in the file must contain a carriage control if the controls are to be used. If the file contains carriage controls, but the **line2afp**

command keyword and value **cc=no** is specified, the carriage controls are treated as printing characters. If no carriage controls are specified, the file prints as though it were single spaced.

Variable-length and fixed-length files

The line-data transform program needs to know two things about a file in order to transform it:

- The length of each print record
- The kind of carriage control used

Some files contain information in each record that describes the record length; these are called variable-length files. Other files require an external definition of length; these are called fixed-length files.

For variable- and fixed-length files using length prefixes, MO:DCA-P structured fields are treated as a special case. All such structured fields are self-identifying and contain their own length. They need not contain a length prefix to be correctly interpreted and are processed correctly if there is a length prefix.

Variable-length files: Variable-length files may use a length prefix, which means they contain a prefix that identifies the length of the record in the file. Each record contains a field that gives the length of the record. If the record contains a length, that length must be a prefix for each record and it must be a 16-bit binary number that includes the length of the 2-byte length prefix. Use the **fileformat=record** keyword and value to identify files with length prefixes.

Variable-length files may use a separator or delimiter to indicate the end of a record, instead of using a length prefix. All of the bytes up to, but not including, the delimiter are considered part of the record. For AIX, the delimiter is X'0A'. If the file uses EBCDIC encoding, the newline character is X'25'. Use the **fileformat=stream** keyword and value to designate files that use newlines to indicate record boundaries.

Infoprint reads the first six bytes and tests for all ASCII characters (code points from X'00' to X'7F') to determine if a file is encoded in ASCII or EBCDIC. If no non-ASCII characters are found, line-data transform program assumes the file uses the ASCII newline character, X'0A'. Otherwise, the transform assumes the file uses the EBCDIC newline character, X'25'. Because an input file can misguide the line-data transform, a set of rules has been established to determine how the transform processes the file. The following combinations are possible:

Data Type	Newline Character
All EBCDIC	EBCDIC X'25'
All EBCDIC	ASCII X'0A' (Note)
All ASCII	EBCDIC X'25' (Note)
All ASCII	ASCII X'0A'

Note: These combinations are possible only if a file contains a prefix with a string that indicates a different code set than actually exists.

- For EBCDIC data with ASCII newlines, use X'0320202020200A'.
- For ASCII data with EBCDIC newlines, use X'03404040404025'.

Fixed-length files: Fixed-length files contain records that are all the same length. No other separators, prefixes, or self-identifying information exists that indicates

the record length. You must know the record length and use the **fileformat=record,*nnn*** keyword and value, where *nnn* represents the length of each record.

How the **imageout** keyword affects processing

The line-data transform converts image formats (IM1) in the input file, in overlays, and in page segments to uncompressed IOCA format, if **line2afp imageout=ioca** keyword and value is specified (the default). An uncompressed IOCA image may use a significantly higher number of bytes than an IM1 image and may take more processing time to convert, especially for shaded or patterned areas. Although IOCA is the MO:DCA-P standard for image data, and some data stream receivers may require it, all products may not accept IOCA data. All software products from the IBM Printing Systems Company do, however, accept IOCA data as well as IM1 image data.

IBM recommends that you specify **imageout=asis**, unless you have a specific requirement for IOCA images.

Customizing the line data transform

Infoprint provides several sample programming exits to assist you in customizing the line-data transform. Use of the programming exits is optional. You specify the names of the exit programs with the **inpxit**, **outexit**, and **resexit** keywords. Each of these keywords is described in *Infoprint Manager: Reference* or the **line2afp** man page.

Infoprint provides the following sample exits:

/usr/lpp/psf/acif/apkinp.c

Input record exit

/usr/lpp/psf/acif/apkout.c

Output record exit

/usr/lpp/psf/acif/apkres.c

Resource exit

In addition, Infoprint provides the following user input record exits to translate line-data data streams:

/usr/lpp/psf/acif/apka2e.c

Converts the ASCII stream data into the EBCDIC stream data.

/usr/lpp/psf/acif/asciinp.c

Converts unformatted ASCII data that contains carriage returns and form feeds into a record format that contains ANSI carriage control characters. This exit encodes the ANSI carriage control character in byte 0 of every record.

/usr/lpp/psf/acif/asciinpe.c

Converts unformatted ASCII data into a record format as does **asciinp.c** and then converts the ASCII stream data into EBCDIC stream data.

The C language header file for all line-data transform exit programs is also provided:

/usr/lpp/psf/acif/apkexits.h

along with the build rules for the line-data transform user exits:

/usr/lpp/psf/acif/Makefile

Using the PDF Parallel RIP

With service release PTF U474310, Infoprint Manager for AIX Version 3 Release 2 provides the PDF Parallel RIP to improve the speed of PDF transforms for mostcolor jobs. It divides a PDF input file into separate pages and distributes these pages to several RIPs running in parallel. Then, it combines the resulting AFP data stream into a printable document. If you define two RIPs on the same Infoprint AIX server for a PDF input file with pages of a uniform complexity, the Parallel PDF RIP client can render this file into AFP in half the time of the standard PDF transform. While the greatest performance improvements occur for jobs printing on the Infoprint Color 130 Plus printer, you can use the Parallel PDF RIP client on any printers that produce AFP data.

Installing the PDF Parallel RIP client

The Parallel PDF RIP client (**pdfprs**) is installed with service release PTF U474310 and replaces the standard **pdf2afp** client on your system.

The **pdfprs** component consists of the following:

- the **pdfprs** executable in the **/usr/lpp/psf/bin** directory
- the **pdf2afp** configuration file in the **/usr/lpp/psf/ps2afp** directory.

The Parallel PDF RIP client is best used on an AIX server or servers, which may have from four to 16 processors. IBM recommends you set up a configuration to allow for system memory use like that displayed in Table 3.

Table 3. Processors required to use the Parallel PDF RIP client

Processors Allocated	Function Performed
1	network traffic, I/O processes, and general system overhead.
1	pdfprs client as defined in “Sample configuration file for the pdfprs client” on page 13.
1	This first RIP transforms PDF into PostScript data. Note that this must be a color RIP, even if you are using the client to transform black-and-white jobs on an Infoprint 4000 printer. Each RIP is likely to use an entire processor to RIP the PDF files.
1 to <i>n</i>	For each additional daemon RIP as defined in “RIP Daemon configuration files” on page 14.

Note that the most basic configuration (the **pdfprs** client and two additional RIPs) requires a minimum of four processors. Please ensure that your configuration can support this feature before installing it and submitting jobs through the Infoprint Manager **pdpr** print command.

You must create the first RIP to transform PDF input data to PostScript data, then use at least a two-RIP configuration on your Infoprint AIX server to transform the PDF into AFP data. To demonstrate how this support can be expanded by adding RIPs, this example creates a three-RIP configuration, with the first RIP transforming PDF input data into PostScript data. Note that these RIPs still use the PostScript daemon (**ps2afpd**), just like the standard PDF transform.

From an AIX window, complete the following procedure:

1. Create a directory for the PDF Parallel RIP client to distinguish it from the standard PDF data stream transform:

```
mkdir /var/psf/pdf2afp;chmod 777 /var/psf/pdf2afp
```

2. Create working directories for each of the new PDF RIPS:

```
mkdir /var/psf/pdf2afp/1;chmod 777 /var/psf/pdf2afp/1
```

```
mkdir /var/psf/pdf2afp/2;chmod 777 /var/psf/pdf2afp/2
```

```
mkdir /var/psf/pdf2afp/3;chmod 777 /var/psf/pdf2afp/3
```

```
mkdir /var/psf/pdf2afp/4;chmod 777 /var/psf/pdf2afp/4
```

3. Install new configuration files for each of these RIPS:

- **/var/psf/pdf2afp/8261.cfg**
- **/var/psf/pdf2afp/8262.cfg**
- **/var/psf/pdf2afp/8263.cfg**
- **/var/psf/pdf2afp/8264.cfg**

Note that for each new configuration file, you must change the **port**, **work_directory**, and **log_file** values. These three parameters are highlighted in Figure 4 on page 15 so you can see the directory structure recommended for this configuration.

4. From either the command line or the **ps2afpd.cfg** file, start daemons for each configuration file:

```
ps2afpd -C /var/psf/pdf2afp/8261.cfg
```

```
ps2afpd -C /var/psf/pdf2afp/8262.cfg
```

```
ps2afpd -C /var/psf/pdf2afp/8263.cfg
```

```
ps2afpd -C /var/psf/pdf2afp/8264.cfg
```

Note:

In the path where the working directories reside, you can create a **startcfg** script similar to the following to perform this task:

```
#!/bin/sh
cd /var/psf/ps2afp
if [ $# -gt 0 ]
then
for i in $*
do
/usr/lpp/psf/bin/ps2afpd -C 826$i.cfg
done
else
for i in 1 2 3 4
do
/usr/lpp/psf/bin/ps2afpd -C 826$i.cfg
done
fi
```

5. To ensure that the **pdfprs** command is linked to the **pdf2afp** command, you must enter the following commands:
 - a. Access the correct directory by specifying: `cd /usr/lpp/psf/bin`
 - b. Create the necessary logical link to submit jobs to the PDF parallel RIP by specifying: `ln -sf pdfprs pdf2afp`

Note: If you need to restore the old **pdf2afp** client, you can specify the following from an AIX command line: `ln -sf ps2afp pdf2afp`.

This configuration will automatically invoke four RIPS and generally run faster than the standard PDF transform.

Customizing the PDF Parallel transform

You can customize the transforms for PDF data by specifying values in the transform configuration files. Table 4 shows the default configuration files that Infoprint provides. You can either modify these files or create your own.

Table 4. Default parallel PDF transform configuration files

<i>Data Stream</i>	<i>Transform</i>	<i>Configuration File</i>	<i>Daemon Configuration Files</i>
PDF	pdf2afp	/usr/lpp/psf/ps2afp/pdf2afp.cfg The pdfprs configuration file.	/var/psf/pdf2afp/8261.cfg /var/psf/pdf2afp/8262.cfg /var/psf/pdf2afp/8263.cfg /var/psf/pdf2afp/8264.cfg Note: This represents the 3-RIP configuration of our example, with the first RIP serving as the PDF to PostScript RIP.

Sample configuration file for the pdfprs client

Figure 3 on page 14 shows an example of a configuration file for the PDF parallel transform client. Note the three parameters that have been highlighted to show values you want to specify exactly as shown to enhance the performance of the parallel PDF RIP.

```

# pdf2afp.cfg configuration file

# KEYWORD          EQUIVALENT ps2afp FLAG          PURPOSE
#####

width = 8.5i      # -w          width of generated image
length = 11i     # -l          length of generated image
x_offset = 0i    # -x          left and right margins
y_offset = 0i    # -y          top and bottom margins
resolution = 600 # -r          resolution of printer
output_type = FS45 #          type of AFP image to generate
job_timeout = 120 #          # maximum number of minutes to process a job

numInputBuffers=48 # set input buffers to improve performance
numOutputBuffers=66 # set output buffers to improve performance
pragma=outputThread=yes # specify for FS45 (color) RIP

number_of_rips = 3 #          number of rips to use for processing

[pdf]            #          location of PDF -> PS conversion rip
port = 8261
server = server1

[rip1]           #          location of this rip
port = 8262
server = server1

[rip2]           #          location of this rip
port = 8263
server = server1

[rip3]           #          location of this rip
port = 8264
server = server1

```

Figure 3. Sample PDF parallel transform (*pdf2afp.cfg*) configuration file

This sample configuration file uses keyword equivalents of the transform flags. Refer to *Infoprint Manager: Reference* for the keywords and values that you can specify in the configuration file.

Note: For this sample **pdf2afp.cfg** configuration to work correctly, you must have a configuration with a minimum of four processors dedicated to this task.

RIP Daemon configuration files

The PDF parallel transform requires that at least three daemons be running to manage the PostScript interpreter portion of the **pdf2afp** transform. To simplify your configuration, IBM recommends naming these daemons after the ports that they are running on. For this document, the configuration example begun in Figure 3 will use the names **8261.cfg**, **8262.cfg**, **8263.cfg**, and **8264.cfg**. For more information about this daemon, refer to *Infoprint Manager: Reference*.

The daemon, like the corresponding transform, uses configuration files. The daemon configuration files reside in the **/var/psf/** directory. It is recommended that you create a **/pdf2afp** subdirectory where all support related to the Parallel PDF RIP client (**pdfprs**) can reside.

Figure 4 shows an example of a configuration file for the PDF parallel transform client that RIPS a color (FS45) file.

```
# 8264.cfg configuration file

# KEYWORD          EQUIVALENT ps2afp FLAG          PURPOSE
#####

port = 8264          #          which TCP/IP port to use
work_directory = /var/psf/pdf2afp/4          directory to put work files in
log_files = /var/psf/pdf2afp/4/ps2afpd.log          where to write log messages
notify = root          #          notify if problems are encountered
mail_command = /usr/bin/mail          program used to send notifications
ps_program = /usr/lpp/psf/bin/ps2afpi          # name of the PostScript interpreter program
ps_init_file = /usr/lpp/psf/bin/ps2afpe.ps          # name of the PostScript interpreter
          #          initialization file
ps_files_path = /usr/lpp/psf/ps2afp :\
          /usr/lpp/psf/config :
          /usr/lpp/psf
ps_max_memory = 32000K          #          path to search for jobInit files
          #          maximum amount of memory that
          #          PostScript uses; the 'K' is ignored
ps_job_timeout = 9999          #          maximum number of minutes
          #          to process PostScript job
ps_server_timeout = 180          #          maximum number of minutes
          #          server waits between jobs
ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
          /var/psf/psfonts/user.map
          #          list of font mapping files
ps_width = 8.5i          #          width of generated image
ps_length = 11i          #          length of generated image
ps_x_offset = 0i          #          left and right margins
ps_y_offset = 0i          #          top and bottom margins
ps_resolution = 600          #          resolution of target printer
ps_output_type = FS45          #          type of output to generate

pragma = resources=none          ;\
          printerSpeed=130          ;\
          linkBandWidth=6000000          ;\
          resourceNameFilename=./.resNames;
```

Figure 4. Sample PDF parallel transform (8264.cfg) configuration file for color

If you are defining and configuring daemon RIPs across several AIX servers, you must define the resources in the daemon RIP configuration file as shown in the highlighted section of Figure 4. This step ensures that NFS can find all the resources and concatenate the result into a single file. You only need to specify the **resourceNameFilename=** value on the **pragma** parameter this way if you are using inline resources and the FS45 IOCA color format.

These daemon configuration files can contain many of the same keywords as the transform configuration file, except **server**, plus some keywords that control the operation of the daemon. Refer to *Infoprint Manager: Reference* or man pages for the daemon keywords.

```

# 8264.cfg configuration file

# KEYWORD          EQUIVALENT ps2afp FLAG          PURPOSE
#####

port = 8264          #          which TCP/IP port to use
work_directory = /var/psf/pdf2afp/4          directory to put work files in
log_files = /var/psf/pdf2afp/4/ps2afpd.log          where to write log messages
notify = root          #          notify if problems are encountered
mail_command = /usr/bin/mail          program used to send notifications
ps_program = /usr/lpp/psf/bin/ps2afpi          # name of the PostScript interpreter program
ps_init_file = /usr/lpp/psf/bin/ps2afpe.ps          # name of the PostScript interpreter
          #          initialization file
ps_files_path = /usr/lpp/psf/ps2afp :\
          /usr/lpp/psf/config :
          /usr/lpp/psf
          #          path to search for jobInit files
ps_max_memory = 32000K #          maximum amount of memory that
          #          PostScript uses; the 'K' is ignored
ps_job_timeout = 9999 #          maximum number of minutes
          #          to process PostScript job
ps_server_timeout = 180 #          maximum number of minutes
          #          server waits between jobs
ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
          /var/psf/psfonts/user.map
          #          list of font mapping files
ps_width = 8.5i          #          width of generated image
ps_length = 11i          #          length of generated image
ps_x_offset = 0i          #          left and right margins
ps_y_offset = 0i          #          top and bottom margins
ps_resolution = 600          #          resolution of target printer
ps_output_type = I01_G4 #          type of output to generate

```

Figure 5. Sample PDF parallel transform (8264.cfg) configuration file for black and white

Configuring for a dual engine halftone printer

If you have either an Infoprint 4000 Advanced Function Duplex Printing System – Models ID5/ID6 or an Infoprint 4000 High Resolution Duplex Printing System, you can use the **pdfprs** client to drive a dual-engine configuration with customized halftone support for each engine. Note that while the **pdfprs** client can RIP both the color and the black-and-white (monochrome) PDF files, these printers only print black-and-white output. In addition, these printers do not provide as extensive a performance benefit as that you will see when printing color PDF files. Note that if you do print color PDF files and then would want to switch to black-and-white PDF files, you must stop the RIPs and change the configuration files.

For this support, you must configure and start an even number of RIPs. The first RIP must be customized to use the first print engine's halftone configuration, and the second RIP must be customized to use the second print engine's halftone configuration. This pattern must be repeated for each RIP that is configured.

In addition, each RIP must be configured to use the desired halftone configuration at the daemon configuration level. For example, if you are using two Infoprint 4000 printers, all the even-numbered RIPs should match the halftone configuration specified on printer1, while all the odd-numbered pages should match the halftone configuration specified on printer2. Figure 5 on page 16 provides an example of a monochrome RIP daemon configuration file, with the variables changed from the Color daemon configuration file in **bold-face** type.

Hierarchy of transform options

Infoprint assigns a hierarchy to its use of flags and configuration-file information when it runs the PDF transform program. The following lists the order in which Infoprint uses flags and information specified in configuration files:

1. Any values you specify on the command line, including values in the configuration file you specify with the **-C** flag.

Infoprint commands process flags from left to right. If you enter the same flag more than once, Infoprint uses the last occurrence of the flag to determine the value to use. For example, if you specify the following command:

```
pdfprs -C8263.cfg -r240 -r300 myfile.ps
```

The **pdfprs** command transforms the file using 300-pel resolution. Infoprint ignores the resolution value specified in the configuration file `8263.cfg` and the first **-r240** flag and value.

2. Values specified in the default transform command configuration file named in Table 4 on page 13.
3. Values specified in a customized configuration file identified with the **-C** flag of the **ps2afpd** command when the transform daemon started.
4. Values specified in the default transform daemon configuration file named in the `/usr/lpp/psf/ps2afpd.cfg` file.
5. Default values that are built into Infoprint. These are the same as the transform defaults, except that the default PDF output type is an IM1 uncompressed image.

Troubleshooting the parallel PDF RIP client

There are certain factors that can enhance the performance of your **pdfprs** client. The following section provides some recommendations.

Defining RIPs on an Infoprint AIX server

The more RIPs you define, the greater the performance improvement. However, because a single RIP uses an entire CPU, you should never start more RIPs than your Infoprint Server can support. The **pdfprs** client generally uses one processor, so be sure that your configuration can support the number of RIPs that you define and start. For guidelines see Table 3 on page 11. For more information about defining RIPs across AIX servers, see 15.

Specifying an uneven number of RIPs

If you have PDF files that have simple text data on the front page and more complex image data on the back page consistently throughout the job, a two-RIP configuration will not result in enhanced performance. Since the second RIP always gets the more complex pages, the job will take the same time to RIP as if a single RIP were used, while the first RIP remains idle. Use an uneven number of RIPs to distribute the pages in the job more evenly.

Using **-p** or **-g** options from the command line

While you can specify a page subset for a particular job by using the **-p** or

the `-g` flags on the `pdfprs` command, IBM recommends that you avoid these flags. If Infoprint has to determine a subset of the pages in the job, it slows down processing and reduces the benefit of having parallel RIPs.

Working with the Infoprint PPML transform program

Infoprint Manager for AIX Version 4.1 provides a transform program to convert Personalized Print Markup Language (PPML) data streams into the Advanced Function Presentation (AFP) format that has been tailored for an IBM Infoprint Color 130 Plus printer. PPML is an emerging XML-based print data stream that is divided into subsets. Infoprint Manager for AIX supports the Graphic Arts Conformance Subset for processing objects within the data stream that can consist of PostScript, PDF, TIFF, and JPEG objects. Sample files that demonstrate the power of this transform are provided in the default directory of `/usr/lpp/psf/ppml2afp` with the names `samplePS.ppml`, `samplePDF.ppml`, `sampleJPEG.ppml`, and `sampleTIFF.ppml`.

Users can submit PPML jobs to Infoprint through the following methods:

- Hot folder interfaces from PC or Macintosh systems.
- Use of the `pdpr` command from the AIX command line.
- Use of the standard AIX print commands (`enq`, `lp`, `qprt`) from an AIX command line.
- Use of the `lprafp` command from other UNIX systems.

Note: Infoprint does not support the `-odatatype=ppml` option.

For more information about how to submit PPML jobs to Infoprint Manager, refer to *Infoprint Manager: Reference*.

When a PPML print job is submitted to print on a PSF physical printer, Infoprint automatically invokes the transform. You can also run the transforms from the AIX command line without printing the generated output. You may find this useful if you intend to print the job later. Jobs print more quickly if they have already been transformed.

The PPML transform has options that you can use to specify processing information. For a list of the options or options and values for each transform, refer to *Infoprint Manager: Reference*. Configuration files, environment variables, and user-exit programs allow you to specify processing information for Infoprint to use when it invokes the transform automatically. You can also use configuration files and environment variables instead of typing options on the command line whenever you run a transform.

Customizing the PPML transform

You can customize the transform for PPML data by specifying values in the transform configuration files. Table 1 on page 3 shows the default configuration files that Infoprint provides. You can either modify these files or create your own.

Table 5. Default PPML transform configuration file

<i>Data Stream</i>	<i>Transform</i>	<i>Configuration File</i>
PPML	<code>ppml2afp</code>	<code>/psf/ppml2afp/ppml2afp.cfg</code>

Sample PPML configuration file

Figure 6 shows an example of a configuration file for the PPML transform.

```
# ppm12afp configuration file

# KEYWORD          EQUIVALENT ppm12afp option          PURPOSE
#####

ppml_server_port = 8251                # -P  port number of the server
                                         #    running the PPML2AF transform

ppml_server_name = 127.0.0.1           # -S  which server to connect with

ppml_work_directory = /usr/lpp/psf/ppml2afp # -d  where PPML2AFP can store files

ppml_resolution = 600                  # -r  resolution of printer
```

Figure 6. Sample PPML configuration file

The configuration file uses keyword equivalents of the transform options. Refer to *Infoprint Manager: Reference* for the keywords and values that you can specify in the configuration file.

Hierarchy of PPML transform options

Infoprint assigns a hierarchy to its use of options and configuration-file information when it runs the PPML transform program. The following lists the order in which Infoprint uses options and information specified in configuration files:

1. Any values you specify on the command line, including values in the configuration file you specify with the **-C** option.

Infoprint commands process options from left to right. If you enter the same option more than once, Infoprint uses the last occurrence of the option to determine the value to use. For example, if you specify the following command:

```
ppml2afp -Cconfig.file -r240 -r300 myfile.ps
```

The **ppml2afp** command transforms the file using 300-pel resolution. Infoprint ignores the resolution value specified in the configuration file `config.file` and the first **-r240** option and value.

2. Values are specified in the default transform command configuration file, which is **/usr/lpp/psf/ppml2afp/ppml2afp.cfg**. Infoprint ignores values in the default transform command configuration file if you invoke the transform command indirectly by submitting a job to print.”
3. Default values that are built into Infoprint. These are the same as the transform defaults.

Chapter 2. Configuring data stream transform sequences

Infoprint Manager allows you to create a sequence for transforming print data before the system sends it to a printer. This provides users with a feature similar to the configurable transform sequences that you could create in PSF/2 using the XFMFLTR utility.

You can create a transform sequence through the **Infoprint Manager Administration GUI** (for more specific information refer to the online help topic in the Infoprint Administration GUI titled *Server and transform tasks*). The transform sequence can be used for any print data processing, such as storing and forwarding print data, removing PostScript controls from a print file before sending it to an actual destination for printing, or viewing a file prior to printing it.

Creating a transform object

To define a data stream transform object from the **Infoprint Manager Administration GUI** that takes an AFP input file and copies it to a file location on the hard drive without printing the output, use the following procedure:

1. Start the **Infoprint Manager Administration GUI**.
2. Click the **Server** menu, and select **Transform → Create**.
3. In the **Create Transform** dialog, fill in the fields as shown in Figure 7 on page 22. These values create a transform that copies AFP input data to an \afp folder on a specific drive.

Note: Command attributes are provided so you can see how this transform could be created from the command line.

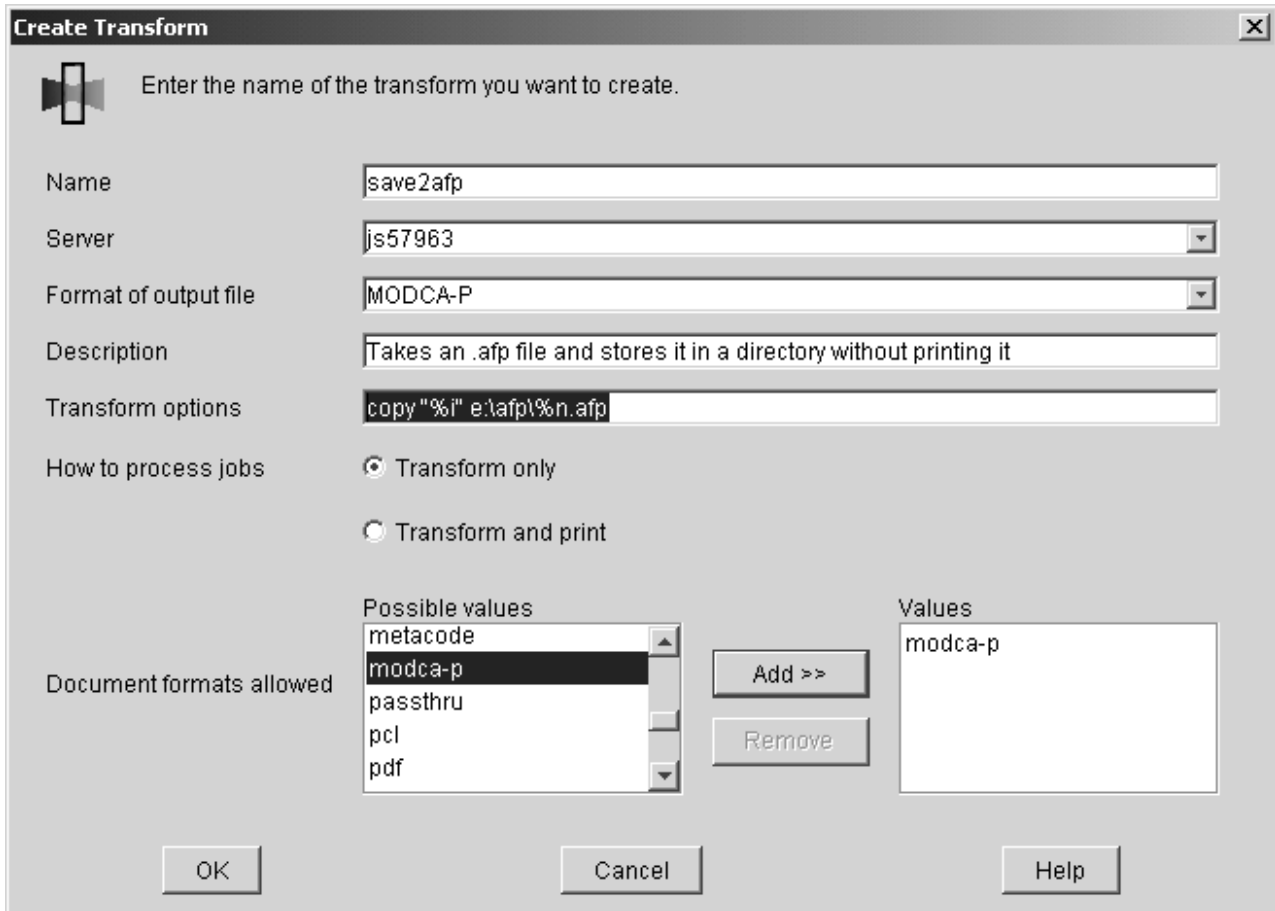


Figure 7. Create Transform dialog: Define a transform that copies an AFP file to a directory without printing

4. Click **OK**.

Infoprint Manager saves the transform under the name you provided in the **Name** field so that you can see its values by selecting **Transform** → **Properties** from the **Servers** menu.

In the **Transform options** field, you can use a series of substitution variables to provide special options for the transform sequences. Infoprint Manager substitutes various strings for these variables when it generates the actual command to execute. These substitution variables are described in Table 6.

Table 6. Transform substitution variables

Transform options Substitution Variables	Meaning
%i	The name of the input file to transform.
%o	The name of the file in which to store the output of the transform. Note: If this is a non-terminating transform, data must be stored in the file named by %o.
%e	The name of the file in which to store any transform information or error messages. If anything is written to this file, it is logged in the Infoprint Manager server log.

Table 6. Transform substitution variables (continued)

Transform options Substitution Variables	Meaning
%j	The name of the original print file, minus the path (from the document-file-name attribute). Note: This should only be used to construct another name, such as a temporary file.
%n	The name of the original print file, minus the path and minus the extension (from the document-file-name attribute). Note: This should only be used to construct another name, such as a temporary file
%d	A text string that represents the document format of the input file. This value may be: <ul style="list-style-type: none"> • ASCII for ASCII line data. • AFPDS for Advanced Function Presentation data • PCL for Printer Control Language data • PS for PostScript data
%p	The value of the destination-pass-through attribute.
%q	The actual destination (printer) that performs the transform.
%#	The job-identifier.

Defining a transform sequence

To associate a data stream transform sequence with an actual destination from the **Infoprint Manager Administration GUI**, use the following procedure:

1. Select the printer that you want to send the job to.
2. Click **Printer** → **Properties** to open the **Printer Properties** notebook for the selected printer.
3. In the **Printer Properties** notebook, click the **Configuration** tab.

The data stream transforms that this printer can use are listed in the **Transforms to use** field.

Note: If you can't see the **Transforms to use** field, click **Show more**.

4. Use the **Add** and **Remove** buttons to specify the transforms in the sequence that they should be run in the **Values** field.

For example, you might want to create a two-step transform sequence that first runs the **postscriptform** transform and then saves a copy of the generated AFP data in c:\afp *.afp. To accomplish this task, the **Values** field would contain the following:

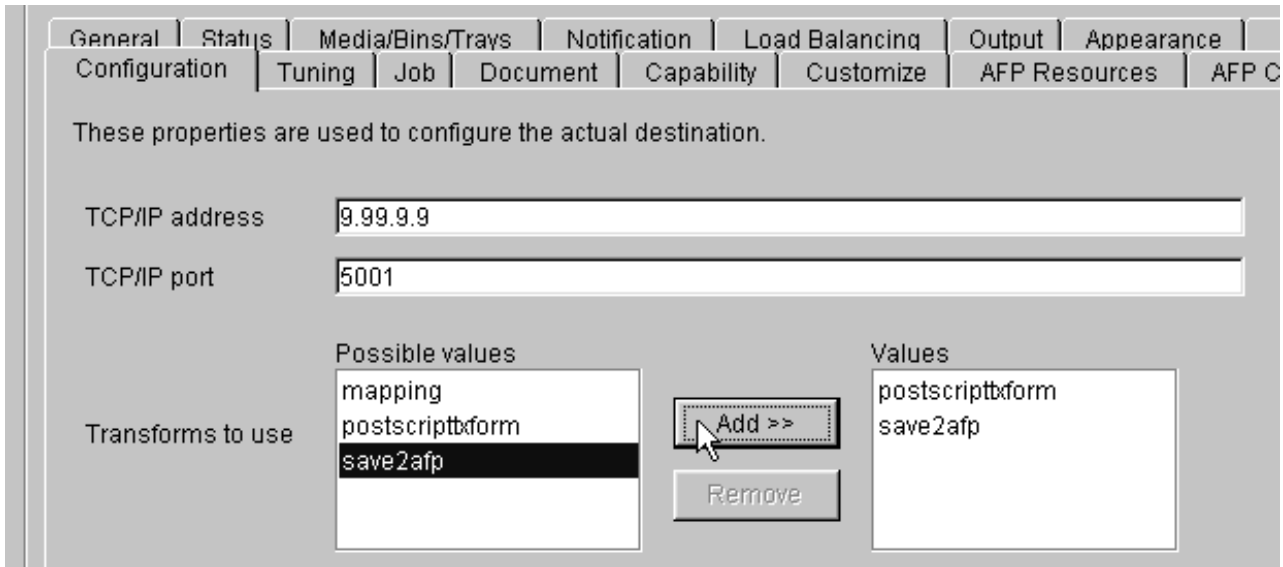


Figure 8. Printer Properties notebook: Transforms to use

where **postscriptxform** is a transform object with the following values:

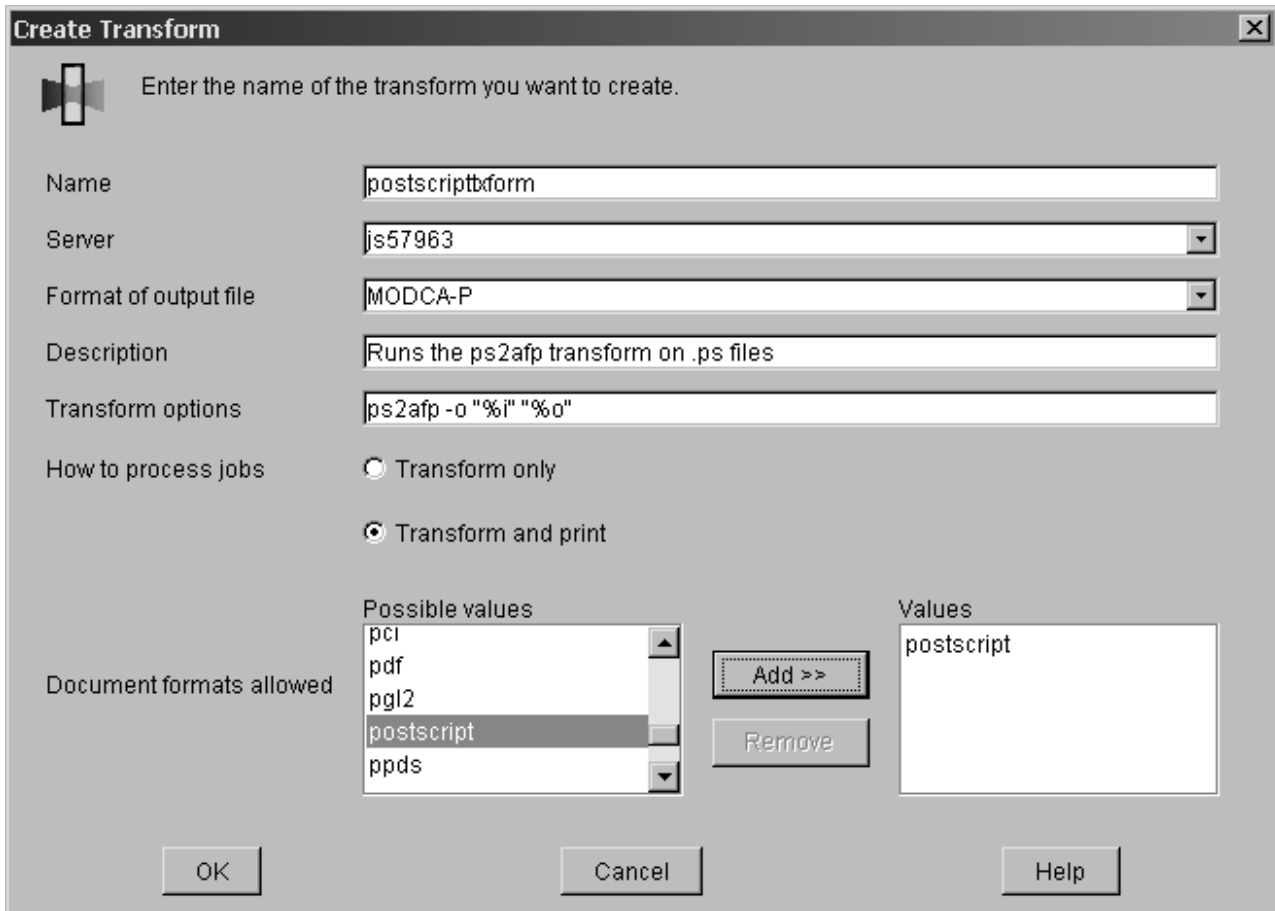


Figure 9. Create Transform dialog: Create a transform that converts PostScript data into AFP

5. You could also create a one-step transform sequence that sends output to a customized program (residing on the **D** drive in the `tools\my_ps_filer` folder)

that removes PostScript controls from a file to simplify printing at a particular destination. If this transform were named ps2remv, it might contain the following values:

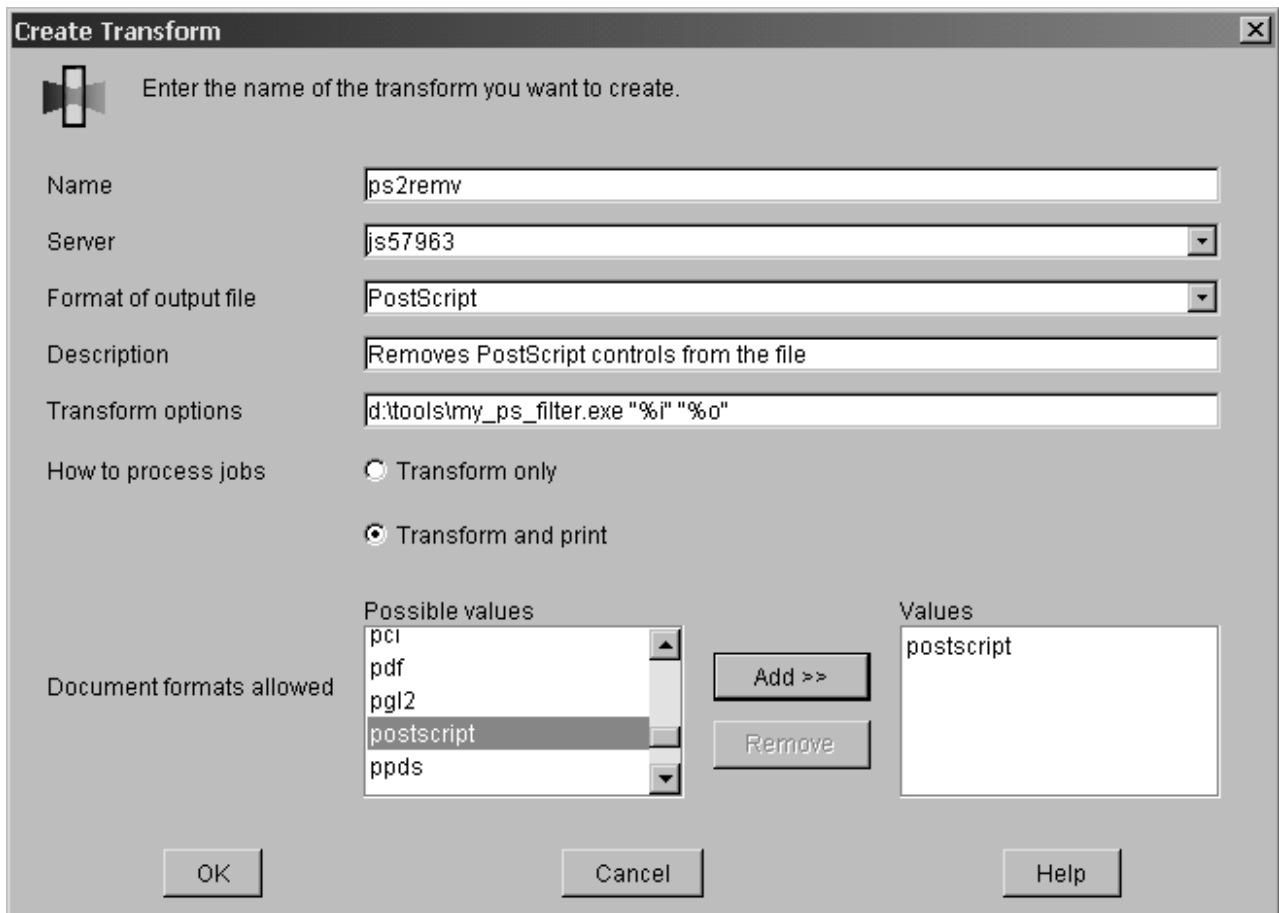


Figure 10. Create Transform dialog: Create a transform that removes the PostScript controls from a file

6. When you have entered the transforms in the correct sequence, click **Apply** to associate this transform sequence with the selected printer.

If you prefer to use the command line, you can use the following Infoprint commands from an MS/DOS window with **transform** objects:

- **pdcreate**
- **pddelete**
- **pdset**
- **pdls**

For more information about the attributes in creating transform sequences, refer to the **Attributes for Transforms** topic in **Chapter 7. Infoprint Object Attributes** of the *Infoprint Manager: Reference* or to the appropriate man pages.

Using the netware print program

From a **Command Prompt** window on an Infoprint Manager for Windows NT or Windows 2000 server, you can submit Netware Version 4 Release 1 jobs to an Infoprint Manager printer. The command removes the Netware-generated Postscript header and submits the job for printing by using the **JobName** and **JobOwner** parameter values from the original header.

To submit a Netware-generated job, type the following in a Command Prompt window, substituting the italicized terms with the appropriate values as described below.

netware *input_name* *output_file_name* *log_dest_name*

input_file

The fully-qualified name of the file from Netware 4.1 with a Postscript header.

output_file

The fully-qualified name of the file from Netware 4.1 without the Postscript header (after the transform has run).

log_dest_name

The name of the Infoprint Manager logical destination that the job is submitted to after the Postscript header has been removed.

The following example submits a PostScript file from Netware (%i) to be transformed into file without the PostScript header (%o), which is then submitted to a logical destination called **happyprinter1**.

```
netware %i %o happyprinter1
```

Chapter 3. Understanding transforms and the configurable transform subsystem

Transforms

Transforms are Infoprint objects (like queues and destinations) that you create and configure in Infoprint Manager. Transforms receive data in a particular format or formats, process the data in some way, and output the changed data. When you create a transform, you have complete control over what data format or formats it operates on and what type of processing it does. The processing that the transform performs can be anything from simply copying the data to a different place on disk, to filtering the data stream that the transform receives (for example, to remove a particular PostScript order), to transforming the data to a completely different format (for example, converting PCL to AFP).

When you create a transform, you specify several things, including:

- **Input data format**

The data stream that is sent to the transform. The input data format is what the transform uses to determine whether or not it has any work to do. If you send a PostScript job through a transform that has its input data stream set only to **PCL**, the job will bypass the transform without being changed at all. You can set the transform to accept multiple input data formats.

- **Transform options**

The program or command that actually does the work of the transform; what happens during the *processing* stage. The transform options can be system commands (such as **copy**), programs provided with Infoprint Manager (such as **ps2afp**), or your own custom transform programs (for example, **mypclfixup**).

When you create a transform, you specify the complete command line needed to invoke this program or command. Within this command line, you can also specify various *substitution variables*, place holders which Infoprint Manager replaces with a value when Infoprint Manager runs the transform. For example, if you include `%i` in the line, Infoprint Manager will replace it with the name of the file that the transform receives; if you include `%o`, it will be replaced with the name of the file that the transform puts the changed data into.

- **Output data format**

The data stream that results from the transform. You can only specify one output data format.

In addition, you can specify whether or not you want the file that the transform produces to be printed. If the transform doesn't submit the file to be printed (for example, if the transform completes its processing and saves the file to a different location), it is called a *terminating transform*.

Transform sequences

Transforms do not do anything by themselves. They remain inactive until you associate them with an actual destination as a transform sequence. A *transform sequence* is an attribute of an actual destination that contains an ordered list of transforms. Every job that is submitted to that actual destination is sent through that list of transforms in the order specified before it is printed.

Note: If you include a terminating transform in a transform sequence, it must be the last transform in the sequence.

Transform sequence example

You want to define an actual destination that will copy AFP versions of all print jobs sent to it into a directory on your Infoprint Manager server system. This directory is used as an archive of AFP versions of print jobs that may need to be viewed later.

To accomplish this, you use the Infoprint Manager Administration GUI to create these three transforms:

1. **tranps**

You set the input data format to PostScript, the Transform options to use ps2afp, and the output data format to MODCA-P (Mixed Object Document Content Architecture).

2. **transpcl**

You set the input data format to PCL, the Transform options to use pcl2afp, and the output data format to MODCA-P.

3. **saveafp**

You set the input data format to AFP, the Transform options to issue a **copy** command, and the output data format to MODCA-P. In addition, you make this a terminating transform by selecting **Transform only** in the **Create Transform** dialog.

Then, create an actual destination that you want to perform the transform sequence. When the Printer Creation wizard asks if you want to change the configuration for the printer, select yes, then click the **Configuration** tab to define the transform sequence as follows:

1. tranps
2. transpcl
3. saveafp

Note: If you already have the destination created, open the properties notebook for that actual destination and click the **Configuration** tab to define the transform sequence.

Now, when you send a job to this actual destination, the following sequence of actions occurs:

1. **tranps** checks to see if the incoming data is PostScript. If it is PostScript, **tranps** transforms the data into AFP using ps2afp. If it is not PostScript, **tranps** does nothing.
2. **transpcl** checks to see if the incoming data is PCL. If it is PCL, **transpcl** transforms it to AFP using pcl2afp. If it is not PCL, **transpcl** does nothing.
3. **saveafp** copies the AFP file produced by either of the above steps into a specific directory.
4. Since **saveafp** is a terminating transform, the job is not printed but is marked complete at this point.

Netware.exe

Netware.exe is one of the transform programs that is included with Infoprint Manager. This program extracts the user ID and job information from the header of PostScript print jobs that are submitted from a Netware server, then strips that header off the job and creates a new header that prints correctly from Infoprint Manager. Netware.exe is a terminating transform, but not because it stores its output in another file. It is a terminating transform because the last step of the program is to issue a **pdpr** command, which submits the job to a logical destination to be printed.

Note to PSF for OS/2 users: Netware.exe provides the same function that was available through `netware.cmd` in PSF for OS/2.

Chapter 4. Printing PCL or PostScript to PSF destinations: Specifying which paper bin to use

In general, when you submit a print job through a PCL or PostScript driver, you can use the printer options to specify which input paper bin you want the printer to use. For example, if you know that white 8.5 × 11 inch paper is always loaded in bin one and letterhead is always in bin two, you can select bin one when you want to print a draft and bin two when you're ready to print a real letter.

When you send PCL or PostScript print jobs to a PSF Destination in Infoprint Manager, the data stream is transformed into Advanced Function Presentation (AFP) before it is printed. By default, most PCL jobs that are transformed use paper bin one, regardless of the bin you specify. Transformed PostScript jobs default to letter-sized paper if no other options are specified, and look for a bin that contains that size paper; they either print on paper from the first bin that contains the right size or fail because they don't find the right paper.

If you want the transform program to check for your bin selection and include it in the AFP data that is sent to the printer, you must specify mappings between the PCL and PostScript bins and the AFP bins. The transform will use your mappings to convert the bin number it finds in the PCL or PostScript into an AFP bin number. You can configure Infoprint Manager so that you can specify up to 20 different input paper bins. For information about how to figure out which PCL and PostScript bins map to which AFP bins, refer to "Determining bin mappings".

To set up bin mapping, refer to "Editing configuration files" on page 36.

Determining bin mappings

PCL printing

When you submit a print job through a PCL print driver and select a paper bin to print from, the driver generates a bin number and puts it into the data stream. Unfortunately, different drivers generate different bin numbers for the same bin. For example, one driver might make "Tray 1" equal to bin 4 and "Auxiliary tray" equal to bin 2, while another driver makes "Tray 1" equal to bin 1 and "Auxiliary tray" equal to bin 8. To add more difficulty, the generated PCL bin numbers can range from 0 to 59. While most drivers use low numbers (0 through 10), keep in mind the other possibilities.

During the transformation from PCL to AFP, Infoprint Manager takes the bin number that the driver generated and compares it to the bin mappings you set. The pcl2afp transform inserts the AFP bin number that you assigned and sends the job to the destination you requested. The printer prints the job on paper from the bin you chose. As a result, it is essential that all of the users who submit jobs to a given Infoprint Manager printer use the same driver. If they don't, the mappings you set up will not work correctly for them.

The first challenge for you in setting up the mappings is determining what bin number the PCL driver places in the data stream. For various IBM printers, the drivers actually generate the same bin numbers. If you are using the PCL5e driver for an IBM Network Printer 12, Network Printer 17, Network Printer 24, Infoprint

20, Infoprint 21, Infoprint 32, or Infoprint 40, the numbers listed in Table 7 are placed in the data stream.

Table 7. IBM PCL5e bin numbers

Tray (what you select in Device Settings)	PCL bin number (what the driver puts in data stream)
Automatically Select	0
Tray 1	1
Manual feed paper	2
Manual feed envelope	3
Auxiliary tray	4
Tray 2	5
Envelope feeder or Envelope tray	6
Tray 3	7
Tray 4	8
Tray 5 or 2000 sheet input tray	9

If you are using a different driver, the documentation that came with your printer may provide these numbers ; look for a section on the PCL driver. Alternatively, if you are able to capture the PCL data that is sent to a specific bin in your printer, you can look for the bin number in the data stream. In some cases, however, it might be just as easy to use trial and error to determine the correct mappings. Again, keep in mind that PCL bin numbers can range from 0 to 59.

The second challenge is in determining the AFP bin numbers that correspond to your printer. AFP bin numbers range from 1 to 255, and are not standard from printer to printer. Some printers have hard-coded bin numbers: each bin on the printer actually has a number written on it. In other cases, the AFP bin numbers are more difficult to discover. In fact, the numbering scheme for some printers changes completely when you add one of the optional paper bins, and still other printers allow you to change the bin numbers yourself. As a result, it is difficult to predict exactly what the AFP bin numbers for your printers are. However, there are some guidelines that you can use.

- Most AFP paper bins use numbers 1 through 10, with 1 being the biggest, topmost, or bottommost bin.
- Envelope feeders/bins start at number 65 and can go up to 69.
- The manual feed tray is usually number 100.

If you are printing to IBM printers, the best place to find the default numbering schemes for each printer is the *IPDS and SCS Technical Reference* and the *IPDS Handbook for printers that use the AFCCU*, both of which are available from the IBM Printing Systems website at <http://www.ibm.com/printers>. (Select **Support** on the left-hand navigation bar, then look under **Online Service and Support**, find the **Manuals and Publications** link. The *IPDS and SCS Technical Reference* is located under **Distributed Printers- Network Printer Technical References**, and the *IPDS Handbook for printers that use the AFCCU* is under **Print on Demand and Production Printers- IPDS Technical References**.)

If you find the AFP bin numbers for your printer in this documentation, be aware that the number is written in hexadecimal notation. You must convert the number to decimal before you put it in the mapping file. In addition, the numbers that are

listed are the machine numbers, not the numbers the software requires. After you convert the number to decimal, add 1 to it to get the number that you should put in the mapping file.

Given this information, the best way to determine the correct AFP bin numbers is to start with these guidelines and use the trial and error method until you have the mappings set correctly.

For example, if you have a printer with three paper bins and a manual feed bin, you could do the following.

1. On your Infoprint Manager Windows client system, install the PCL driver that you plan to use.
2. Create a printer that uses the driver you just installed and has a PSF printer as its target destination.
3. From the Windows Client, click the **Start** button and select **Settings**—>**Printers** to open the **Printers** window.
4. Right-click the printer you just created and select **Properties** from the pop-up menu.
5. Click the **Device Settings** tab to show the printer options that are available for this driver. For example, some drivers show a list of "paper trays" and allow you to select a paper size for each one.
6. Make sure all of the paper trays you plan to use are activated and have the correct size paper selected.
7. Click **OK** to close the dialog and make the settings take effect.
8. Follow the appropriate procedure below: "Editing configuration files" on page 36.

When you have to enter PCL and AFP bin numbers, start with the guidelines above and create some logical mappings, such as the ones shown in table Table 8 for an Infoprint 20.

Table 8. Sample mapping table for an Infoprint 20

Tray selection	PCL bin number	AFP bin number
Tray 1	1	1
Tray 2	5	2
Tray 3	7	3
Manual feed tray	2	100
Envelope tray 1	6	60
Envelope tray 2	4	61

Complete the procedure.

9. Load each paper bin (including the manual feed bin) with a different kind, color, or specially marked paper.
10. Submit a test job to each bin and see which paper it is printed on. Keep track of your results and use them to change the mappings to meet your configuration.
11. Once you have the mappings worked out correctly, tell your operators the following information:
 - What options to set in the device settings.
 - What kind of paper is in each bin.
 - How to print to each bin.

PostScript printing

PostScript drivers use different methods to determine what paper bin to print a job on. Some drivers allow you to select which paper tray you want the paper to come from. When you submit a job, the driver sends a number to the printer to ask for the corresponding tray. Other drivers allow you to select different paper options (such as size, color, or weight). When you submit a print job, these options are sent with the print job and are used to determine which paper bin to use (paper size is the only option that you have to set for this function to work).

When you configure Infoprint Manager correctly, it will work with either type of driver. There are three steps involved in performing this configuration:

1. "Gathering paper tray information"
2. "Identifying paper trays to Infoprint Manager" on page 35
3. "Testing tray mappings" on page 36

Gathering paper tray information

The first step in configuring Infoprint Manager is to figure out :

- How many paper trays does your printer have?
- What is the AFP bin number for each tray?

Guidelines for figuring out the bin numbers are provided below.

- What kind of paper will you be loading into each tray?

At a minimum, you should know what size paper will go in each tray. If you need to, you can also specify a color or weight of the paper.

Use this chart to record your data.

Table 9. Paper tray chart

AFP bin number (in decimal notation)	Paper tray on printer	Paper loaded
100	Manual feed tray	

There is trial and error work involved in figuring out the correct bin numbers. AFP bin numbers range from 1 to 255, and are not standard from printer to printer. Some printers have hard-coded bin numbers; each bin on the printer actually has a number written on it. In other cases, the AFP bin numbers are more difficult to discover. In fact, the numbering scheme for some printers changes completely when you add one of the optional paper bins. Still other printers allow you to change the bin numbers yourself. As a result, it is nearly impossible to predict exactly what the AFP bin numbers for your printers are. However, there are some guidelines that you can use.

- Most AFP paper bins use numbers 1 through 10, with 1 being the biggest, topmost, or bottommost bin.

- Envelope feeders/bins start at number 65 and can go up to 69.
- The manual feed tray is usually number 100.

If you are printing to IBM printers, the best place to find the default numbering schemes for each printer is the *IPDS and SCS Technical Reference* and the *IPDS Handbook for printers that use the AFCCU*, both of which are available from the IBM Printing Systems website at <http://www.ibm.com/printers>. (Select **Support** on the left-hand navigation bar, then look under **Online Service and Support**, find the **Manuals and Publications** link. The *IPDS and SCS Technical Reference* is located under **Distributed Printers- Network Printer Technical References**, and the *IPDS Handbook for printers that use the AFCCU* is under **Print on Demand and Production Printers- IPDS Technical References**.

Important: If you find the AFP bin numbers for your printer in this documentation, be aware that the number is written in hexadecimal notation. You must convert the number to decimal before you put it in the mapping file. In addition, the numbers that are listed are the machine numbers, not the numbers the software requires (they're the *IPDS* bin numbers, not the *AFP* bin numbers). After you convert the number to decimal, add 1 to it to get the number that you should put in the mapping file.

Identifying paper trays to Infoprint Manager

Once you have the chart filled in with your first attempt at mappings, you can move to the second step: identifying all of the bins to Infoprint Manager.

By default, Infoprint Manager assumes that all PostScript printers have only one paper tray. When you identify the trays, you let Infoprint Manager know how many there really are. Then, when you submit a job, you can choose any one of them.

You identify the paper bins to Infoprint Manager either in the configuration file or in the transform you create. In this step, you will determine the syntax that you will be able to use in either place. The general syntax of the identification statement is:

```
inputX=(size,type=xxx,weight=xxx,color=xxx),inputX=(size,
type=xxx,weight=xxx,color=xxx)
```

Where the following conditions apply:

- Each **inputX** corresponds to a different paper tray. You should have as many **inputX** entries as you have paper trays. Separate them with commas, no spaces.
- The X in each **inputX** is replaced with the **AFP bin number** from Table 9 on page 34 for each tray.
- Size is the only required paper attribute. Replace the word *size* with the size of the paper that will be in the tray, such as **letter**, **legal**, **8.5x11i**, or **A4**.
- Other paper attributes can be specified or left out entirely.

All of the following are valid identification statements:

```
input1=(letter),input2=(legal),input100=(letter)
```

```
input1=(8.5x11i,color=blue),input2=(8.5x11i,color=yellow),
input3=(11x17i),input100=(8.5x11i)
```

```
input1=(A4,color=white),input2=(A4,color=blue),input3=(A4,color=yellow),
input65=(C5),input100=(A4,type=1letterhead)
```

Write out your identification statement before moving on to the next step.

Testing tray mappings

Once you have your identification statement created, you can test your mappings to make sure they are correct. The following procedure explains one way to verify the mappings.

1. On your Infoprint Manager Windows client system, install the PostScript driver that corresponds to your printer.
2. Create a printer that uses the driver you just installed and has a PSF printer as its target destination.
3. Click the Windows **Start** button and select **Settings**—>**Printers** to open the **Printers** window.
4. Right-click the printer you just created and select **Properties** from the pop-up menu.
5. Click the **Device Settings** tab to show the trays and options that are available.
6. If your driver lists the paper trays that are available, activate them and select paper sizes for each one. Set the options to match your identification statement.
7. Click **OK** to close the dialog and make the settings take effect.
8. Refer to “Editing configuration files” so you can use the same mappings for all of your printers.
9. Follow the appropriate procedure.
When you have to change the configuration file or enter the command that your transform will use, replace the **inputX=...** statement with your identification statement from “Identifying paper trays to Infoprint Manager” on page 35, and complete the procedure.
10. Load each paper bin (including the manual feed bin) with a different kind, color, or specially marked paper.
11. Test your settings by submitting print jobs to each bin of the Windows gateway printer and making sure that it prints on the correct paper. If a job does not print on the correct paper, adjust your AFP bin numbers and input numbers as necessary.
12. Once you have the mappings worked out correctly, tell your operators the following information:
 - What options to set in the device settings.
 - What kind of paper is in each bin.
 - How to print to each bin.

Editing configuration files

There are five configuration files that come with the Infoprint Manager PCL to AFP and PostScript to AFP transforms. For the PCL transform, they are: `pcl2afp.cfg` and `pcl2afpd.cfg`. For the PostScript transform they are: `ps2afp.cfg`, `ps2afpd.cfg` (used with Infoprint 3000 and Infoprint 4000 printers), and `3160d.cfg` (used with all other IPDS printers). You will only need to edit one of these files based on the data stream that your driver produces, the printer you send your jobs to, and on the following considerations.

- Edit `pcl2afpd.cfg`, `ps2afpd.cfg`, or `3160d.cfg` if you want everyone to use the same mappings. This method is recommended.

- Edit `pcl2afp.cfg` or `ps2afp.cfg` if different people have to use different mappings.

Follow these steps to edit the appropriate file.

1. On the system that your Infoprint Manager server is installed on, locate the file. It should be in the `/usr/lpp/psf/pcl2afp` or the `/usr/lpp/psf/ps2afp` directory.

2. Open the file in a text editor, such as `dtpad`, `vi`, or `pico`.

At the bottom of the file, you will see blocks of instructions and sample commands.

3. Modify the file according to the instructions in the file.

Choose one of the options and uncomment that line, then enter your mapping numbers. If you are using the `ps2afp` transform, replace the `inputX=...` portion of the `device_controls` line with your identification statement from “Identifying paper trays to Infoprint Manager” on page 35.

4. Save the file.

Note: It is recommended that you save a copy of your changes in a directory outside of the `/usr/lpp/psf` path so that you have a copy in case you ever have to re-install or apply service to Infoprint Manager.

5. Close the file.

6. Restart the configuration daemon (for example, for PCL, specify `ps2afpd -C /usr/lpp/psf/bin/ps2afpd` at the AIX command line) to have the new settings take effect.

7. Tell your users what kind of paper is in each bin and how to print to each of them.

Creating a transform with bin mappings

You can use the Infoprint Manager transforms to process print jobs with different options, including which paper bins to use. First, you create a transform using the Infoprint Manager Administration GUI, specifying an input data stream and an output datastream. Then, you associate it with one or more printers. When you send a print job to that printer, your transform checks to see if the file is the datastream that needs to be transformed. If it does, the transform converts the file as you specified; if it is not, the transform passes the file to the logical destination. As a result, if you don't want to use the same bin mappings for all of your printers, you can create several different transforms, all with different mappings. Then, associate each transform with whichever printer or printers you want.

Note: If you will be sending both PCL and PostScript jobs to the same printer, you can create two transform objects (one that accepts PCL and one that accepts PostScript) and associate them both with that printer.

Follow these steps to create a transform that maps PCL or PostScript bins to AFP bins.

1. In the Infoprint Manager Administration GUI, click the **Server** menu and select **Transform -> Create**.

2. In the **Create transform** dialog, fill in the fields:

- **Name:** Type a name for the transform.
- **Server:** Choose the correct Infoprint Manager server.
- **Format of output file:** Select **MODCA-P**.
- **Description:** Type a description that will help you remember which printer uses this transform.

- **Transform options:** The command line that will execute when the transform runs.

If this transform accepts PCL, type:

```
pcl2afp -o "%o" "%i" -device
'plex,inputX=(pcl_bin=Z),inputX=(pcl_bin=Z)'
```

Replace the Xs with the number of the AFP bin (on the printer) and Zs with the number of the PCL bin. You can specify up to 20 mappings.

If this transform accepts PostScript, type:

```
ps2afp -o "%o" "%i" -device
'plex,inputX=(size,type=xxx,color=xxx,weight=nnn),
inputX=(size,type=xxx,color=xxx,weight=nnn)'
```

Replace the **inputX=...** portion of the command with your identification statement from "Identifying paper trays to Infoprint Manager" on page 35. Replace *size* with a paper size such as letter, legal, A4, or the dimensions of the paper in inches (8.5x11i), millimeters (216m x 279m), or points (612px792p) and the Xs with the number of the AFP bin (on the printer). *Size* is the only required value; the others you can either fill in or delete.

- Select **Transform and print**.
 - **Document formats allowed:** The data stream that your transform accepts. Select **PCL** or **PostScript** and add it to the allowed values.
 - Click **OK**.
3. Select the printer that you want to associate this transform with and open its properties notebook.
 4. Click the **Configuration** tab.
 5. Find the **Transforms to use** field.
 6. Select the transform you just created in the **Possible values** box and add it to the **Values** box.
 7. Click **Apply**.
 8. Click the **Document** tab.
 9. Find the **Formats allowed** section and look in the **Values** box. Make sure that **modca-p** and either **pcl** or **PostScript** are listed.
 10. Click **OK**.
 11. Tell your users what kind of paper is in each bin and how to print to each of them.

Chapter 5. Submitting PSF printer input to a PCL or PPDS printer

In addition to AFP printing, Infoprint Manager allows you to submit PSF printer input data to PCL and PPDS printers as well.

When you use the Create Printer wizard in the Infoprint Manager Administration GUI to create a printer object that will send jobs to a PCL or PPDS printer, you must specify the path for the command in the **Printer command** field. For example, by default the `lpr` command is located at `/usr/bin/lpr`. Because Infoprint Manager does not search the **PATH** environment variable for the command, you must either add that directory to the **PATH** for that system or specify the entire path of the command, as in the following example:

```
/usr/bin/lpr -P printername -S servername
```

If you need to specify a file name in the command in a location other than at the end of the command, you must include the text-string **-IPMF-** in the command string. The temporary file name used to store either the PCL or PPDS data generated by Infoprint Manager is substituted into the command wherever the **-IPMF-** text-string is located.

Note: The dashes (-) on either side of the **-IPMF-** text-string are part of the syntax and cannot be omitted.

You can only specify one **-IPMF-** text-string in a print command, as in the example below:

```
/usr/bin/copyit -IPMF- -b /tmp
```

where `copyit` represents a user-written application for moving either the PCL or PPDS file that Infoprint Manager generated to the specified directory (in this case, `/tmp`), and giving it a unique name.

Setting up PCL tray mappings

Follow these steps to map the input trays requested in the AFP data stream to the input trays on your PCL printer:

1. Determine the AFP bin number and PCL bin number for each input tray.
Table 10 shows the default bin numbers associated with some standard names for input trays.

Table 10. Default bin mappings

Input tray name	AFP bin number	PCL bin number
alternate	3	5
bottom	2	4
envelope	65	6
manual	100	2
top	1	1

If these mappings are not appropriate for your printer, reverse the process described in “Determining bin mappings” on page 31. In this case, the AFP bin number is the bin number in the data stream and the PCL bin number is the bin number used by the printer.

2. Open the Infoprint Manager Administration GUI.
3. Click the printer that you want to set up trays on.
4. From the **Media/Bins/Trays** tab of the Actual Destination Properties notebook, in the **Media ready** table, select **Add** to define a new tray or **Modify** to change an existing one. You can define up to 15 trays.
5. Complete the following fields:

Input bin number

This field specifies the AFP bin number.

Media ready

This field shows the medium loaded in the input tray. The drop-down list allows you to select from all media supported by the printer.

Input tray name

This field shows the name associated with the input tray. Standard names for PCL input trays are:

alternate
envelope
lower
manual
upper

Formerly, these were the only names allowed. You can now use any name you like, subject to these restrictions:

- Manual trays must have the string **manual** somewhere in the name, in any combination of upper and lower case, for example, transparentMANUALa4. You can define multiple manual trays.
- Envelope trays must have the string **envelope** somewhere in the name, in any combination of upper and lower case, for example, Number10Envelope. You can define multiple envelope trays.

Tray number

This field specifies the PCL bin number.

Duplex

This field specifies whether two-sided printing is possible from this input tray.

6. Click **OK**.

To make your changes take effect, you must now stop and restart PSF, the printer, or both. Follow the steps corresponding to your job submission method.

- If you use PSF Direct to submit jobs:
 1. On your *host* system, stop PSF.
 2. Restart your host PSF. The changes you made are registered when the host PSF restarts.
- If you use DPF to submit jobs:
 1. On your *host* system, stop PSF.
 2. In the Infoprint Manager GUI, click the printer to select it, then choose **Printer → Stop**.

Note: If you don't see **Stop** on the Printer menu, use **Add/Remove Menu Items** to add it.

3. Open the Management Console and click the DPF Host Receivers item in the left pane.
4. Click the DPF Host Receiver that feeds this printer to select it.
5. Click **Actions** → **Obtain Printer Characteristics**.
6. Go back to the Infoprint Manager GUI and start the printer again.
7. Restart the host PSF.

|

- If you use any other method to submit jobs:
 1. In the Infoprint Manager GUI, click the printer to select it, then choose **Printer** → **Stop**.

Note: If you don't see **Stop** on the Printer menu, use **Add/Remove Menu Items** to add it.

2. In the **Stop command** dialog, select **Shut down** and click **OK**.
3. Select **Printer** → **Enable** to restart the printer.

Chapter 6. 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 and 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` or the `pdf2afp` command, you must do one of 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 :\n                    /var/psf/psfonts/user.map
```

to

```
#ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\n#                    /var/psf/psfonts/user.map\nps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\n                    /var/psf/psfonts/user.map :\n                    /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 47.

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 within 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 Infoprint Manager and 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
```

- 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 11. Mapping for code pages T1001038, T1001108, and T1001109

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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
GP020000	*P	capital Pi
GP610000	*q	psi
GP620000	*Q	capital Psi
GR010000	*r	rho

Table 11. Mapping for code pages T1001038, T1001108, and T1001109 (continued)

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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
LI010000	i	i
LI020000	I	I
LJ010000	j	j
LJ020000	J	J

Table 11. Mapping for code pages T1001038, T1001108, and T1001109 (continued)

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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
ND040000	4	four
ND050000	5	five
ND060000	6	six
ND070000	7	seven

Table 11. Mapping for code pages T1001038, T1001108, and T1001109 (continued)

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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
SA670000	mo	element of
SA700000	≈	approximately equal
SA800000	sr	square root
SA870000	es	empty set

Table 11. Mapping for code pages T1001038, T1001108, and T1001109 (continued)

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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
SM110000	{	left brace
SM130000	or	or bar
SM130000		or bar
SM140000	}	right brace

Table 11. Mapping for code pages T1001038, T1001108, and T1001109 (continued)

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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
SP190000	\'	open quote
SP200000	\'	close quote
SS000000	bs	smiley face
SS680000	-	dash, minus sign (en dash)

Table 11. Mapping for code pages T1001038, T1001108, and T1001109 (continued)

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
SS680000	en	dash, minus sign (en dash)

Special symbols added for code page T1001038

The following non-standard special symbols were added:

Table 12. Special symbols added for code page T1001038

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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 13. Special symbols added for code page T1001108

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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 14. Special symbol added for code page T1001109

<i>IBM Graphic Character Identifier</i>	<i>ditroff Name of Character</i>	<i>Character Description</i>
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 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.

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. 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 Manager Administration GUI Printer Properties notebook. In the AFP Resources tab, enter the directory path in the Location of fonts field. 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 15 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. Infoprint stores 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 15. Font mapping table for use with the **chars** keyword

<i>Type Family</i>	<i>Point Size</i>	<i>Coded Font Name</i>	<i>Linked Short Name (for chars keyword)</i>
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
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

Table 15. Font mapping table for use with the chars keyword (continued)

<i>Type Family</i>	<i>Point Size</i>	<i>Coded Font Name</i>	<i>Linked Short Name (for chars keyword)</i>
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

Installing the Japanese PostScript font feature

You can install Japanese PostScript fonts on your Infoprint Manager server to print documents requiring these specialized fonts.

To enable your Infoprint Manager server to support Japanese PostScript fonts, use the Infoprint installer located on the Infoprint Manager CD-ROM. You will be prompted to supply your customer ID as well as the access key located on the invoice that was shipped with your CD.

Obtaining the Japanese PostScript fonts on your Windows workstation

These instructions presume that you have already installed Infoprint Select on your Windows NT workstation. Use this procedure to obtain access to the Japanese PostScript fonts that reside on your Infoprint AIX server for printing from the Infoprint Select client on your Windows workstation.

1. From the IBM Printing Systems Japanese home page on the web (<http://www-6.ibm.com/jp/printer/>), select the Workgroup printer driver download page.
2. From the Workgroup printer driver download page, download the appropriate Japanese PostScript system driver.
Select the PostScript driver that corresponds to your Windows client system. For example, you should select the driver for either the Windows 98, Windows NT, or Windows 2000 system.
3. Once the file has been downloaded to your hard drive, open a DOS window and begin the install process.
4. During installation of the driver, select the Infoprint 70 PS option.
The current version of this driver supports the five Morisawa fonts from Infoprint AIX Japanese PostScript font feature.

Note: The Japanese Infoprint 70 PostScript driver is not owned by Infoprint Manager for AIX and may be modified in a manner that could alter or remove support for this capability.

Chapter 7. Using global resource identifiers

Infoprint can identify the fonts required for a job, access AFP font files that are installed on or NFS-mounted to the RS/6000, and download the appropriate fonts to an Infoprint-managed printer device. However, some Infoprint printers can use fonts that are resident in the printer, saving the time it takes to download these fonts. Because the font files on the RS/6000 do not share the same names as the printer-resident fonts, Infoprint uses global resource identifiers (GRIDs) to map the RS/6000-resident fonts to the printer-resident fonts. Use the information in this chapter to work with GRIDs.

How can you use GRIDs?

GRID files contain pre-assigned mappings that you can modify to map RS/6000-resident font file names to printer-resident font identifiers. These pre-assigned mappings include both single-byte character set (SBCS) and double-byte characters set (DBCS) outline fonts.

If you have a printer that supports outline fonts, you can use the GRID files to map raster character-set names to outline font global identifiers.

A third use of GRID files is to support Mixed Object Document Content Architecture for Presentation (MO:DCA-P) files that specify fonts using GRIDs rather than character-set names. You can customize the GRID files to define which fonts Infoprint uses when the data stream of the job specifies GRIDs.

Note: If a data stream specifies only GRID parts instead of specific names, then the **fgid.grd** table is used to find the name of the font to download or the outline font to activate. In this case, the data stream must specify a specific width value.

What GRID files ship with Infoprint?

Infoprint ships four GRID files that you can customize for use with the types of printer devices that you use and the types of jobs that you print. These files are **charset.grd.sample**, **codepage.grd.sample**, **cpgid.grd.sample**, and **fgid.grd.sample**, and they are installed in the **/usr/lpp/psf/grd** directory.

Note: You can either shut down and restart the Infoprint server (**pdserver** process) or shut down and restart all your printers to ensure that **.grid** file changes are applied.

The following describes each file:

charset.grd.sample

Specifies which printer-resident fonts are activated for the character-set names found within the data stream of the job.

This file maps the font character-set name to a:

- Font global identifier (**fgid**)
- Graphic character set global identifier (**gcsgid**)
- Font width
- Vertical size value
- Set of font attributes (bold, italic, and doublewide)

Figure 11 shows an example of the format of a line in the character set sample file.

```
# FCS name -> fgid gcsgid width vsize attr #
#-----#
C0L00GSC 398 - 96 120 - # GOTHIC CONDENSED 1
```

Figure 11. Sample file for a character set

codepage.grd.sample

Specifies which printer-resident fonts are activated for the code page names found within the data stream of the job.

This file maps a code page to the:

- Code page global identifier (**cpgid**)
- Graphic character set global identifier (**gcsgid**)

Figure 12 shows an example of the format of a line in the code page sample file.

```
# code page name -> cpgid gcsgid #
#-----#
T1000038 38 123 # US-ASCII Character Set 1
```

Figure 12. Sample file for a code page

fgid.grd.sample

Specifies which font character set Infoprint should download when substituting for a global resource identifier that it finds in the data stream of the job.

This file maps the following to a font character set (FCS) name:

- A font global identifier (**fgid**)
- A graphic character set global identifier (**gcsgid**)
- A font width
- A vertical size value

Figure 13 shows an example of the format of a line in the font global identifier sample file.

```
# fgid gcsgid width vsize -> FCS name #
#-----#
3 0 144 240 C0E0DE10 # DELEGATE 12 POINT 1
```

Figure 13. Sample file for a global identifier

cpgid.grd.sample

Specifies which code page Infoprint should download when substituting for a global resource identifier that it finds in the data stream of the job.

This file maps a code page global identifier and a graphic character set global identifier to a code page name. Figure 14 shows an example of the format of a line in the code page identifier sample file.

```
# cpgid gcsqid -> code page name #
#-----#
      29      0      T1V10871 # OLD ICELANDIC      1
```

Figure 14. Sample file for a code page identifier

For a detailed explanation of how the different types of identifiers combine to produce fonts, see *AFP Fonts: Font Summary*

If you have a job that specifies a font that is not resident on your printer, you can use the GRID files to map the missing font to one with the same point size that does reside on your printer. To understand what fonts your printer device has, consult both your printer documentation and *Advanced Function Presentation: Printer Information*.

Where does Infoprint search for GRID files?

Infoprint searches the following directories, in the order shown, for GRID files:

1. An internal list that matches the **charset.grd.sample** file.
2. **/usr/lpp/psf/grd**
3. **/var/psf/printername**, where *PrinterName* is the name of a valid Infoprint physical printer.

Note: When the same mapping is found in one of these files, Infoprint uses the last one (**/var/psf/PrinterName**).

When you install Infoprint, sample GRID files are installed in the **/usr/lpp/psf/grd** directory. You can maintain a central location for new or modified GRID files for specific printers by storing files in the **/var/psf/PrinterName** directory.

If you are mapping raster fonts to outline fonts, you can map multiple names to the same GRID part so that different sized fonts can apply to your print job.

Notes:

1. The new or modified GRID files you create have the same names as the sample files except that you delete **.sample** from each file name.
2. After creating or modifying GRID files, you must shut down and restart the Infoprint physical printer represented by *PrinterName* for the changes in the file to take effect.

Understanding the general syntax rules and allowable values for GRID files

To tailor the Infoprint-supplied GRID files for your own system needs, you need to understand the general syntax rules for the four GRID files and the allowable values for the fields within the files.

Syntax rules applying to all types of GRID files

The GRID files are simple ASCII text files that you can modify through any standard AIX text editor. The following rules apply to all of the GRID files:

- Each line in the file cannot contain more than 255 characters
- Separate fields within a line with one or more delimiters (spaces)
- A pound sign (#) indicates the start of comments, which causes Infoprint to ignore the remainder of that line
- A dash, – , indicates the absence of a particular value, for which Infoprint substitutes a zero (0)
- An asterisk, * , indicates that a wildcard value (any numeric decimal) is accepted.
- Infoprint ignores blank lines and extraneous fields

Allowable values for the charset.grd file

You can specify the following values for fields in the GRID file for a character set for a font:

fgid

Identifies the character set identifier for the font. Specify a numeric value from 1 to 65534 or enter a dash, – , if you want to disable the mapping of this character set to GRID values.

gcsgid

Identifies a global identifier for the font. Specify a numeric value from 0 to 65534 or enter a dash, – , to specify no **gcsgid**. If you specify an asterisk, Infoprint issues an error message.

width

Identifies the width specified in the character set. Specify a numeric value from 0 to 32767 or enter a dash, – , to specify no width. If you specify an asterisk, Infoprint issues an error message.

vertical_size

Identifies the vertical size specified in the character set. Specify a numeric value from 0 to 32767 or enter a dash, – , to specify no vertical size. If you specify an asterisk, Infoprint issues an error message.

attribute_field

Indicates the attributes of the character set. Specify a lowercase b (bold), i (italic), d (doublewide), or enter a dash, – , to specify no attribute.

Allowable values for the codepage.grd file

You can specify the following values for fields in the GRID file for a code page for a font:

cpgid

Identifies the code page identifier for the font. Specify a numeric value from 1 to 65534 or enter a dash, – , if you want to disable the mapping of this character set to GRID values.

gcsgid

Identifies a global identifier for the code page. Specify a numeric value from 0 to 65534 or enter a dash, – , to specify no **gcsgid**. If you specify an asterisk, Infoprint issues an error message.

Allowable values for the fgid.grd file

You can specify the following values for fields in the GRID file for a font global identifier:

fgid

Identifies the global identifier for the font. Specify a numeric value from 1 to 65534 or enter an asterisk, *, to indicate a wildcard value. If you specify a dash, Infoprint issues an error message.

gcsgid

Identifies the global identifier for the font. Specify a numeric value from 0 to 65534 or enter an asterisk, *, to indicate a wildcard value. If you specify a dash, Infoprint issues an error message.

width

Identifies the number of characters per horizontal inch. Specify a numeric value from 1 to 32767 or enter an asterisk, *, to indicate a wildcard value. If you specify a dash, Infoprint issues an error message.

vertical_size

Identifies the vertical size of the font. Specify a numeric value from 1 to 32767 or enter an asterisk, *, to indicate a wildcard value. If you specify a dash, Infoprint issues an error message.

Allowable values for the cpgid.grd file

You can specify the following values for fields in the GRID file for a code page global identifier:

cpgid

Identifies code page identifier for the font. Specify a numeric value from 1 to 65534.

gcsgid

Identifies the global identifier for the font. Specify a numeric value from 0 to 65534 or enter an asterisk, *, to indicate a wildcard value. If you specify a dash, Infoprint issues an error message.

Modifying GRID files

The following section describes the two ways you can modify GRID files to support the printer devices and types of jobs in your production printing environment.

Note: If you are using Infoprint to print from the IBM 6400 Line Matrix printer in either native or 4234 emulation mode, you must modify both the **charset.64xx.grd** and the **codepage.64xx.grd** files as described in “Modifying the charset and codepage GRID files” and “Modifying the FGID and CPGID GRID files” on page 67.

Modifying the charset and codepage GRID files

You can avoid having Infoprint download fonts by adding font entries that map the font character set or code page that is most referenced in jobs to a global identifier for a resident font.

For example, if many of your jobs specify the Prestige 10-point font, which is character set C0S0PR10, and that font is not resident on your IBM 3812 printer diskette, you can map the Prestige 10-point font to a similar font that does reside

on your IBM 3812 printer diskette. In the following procedure, you map the Gothic 10-point font, character set C0D0GT10, that is a printer-resident font to the Prestige 10-point font.

Perform the following steps:

1. From the AIX command line, change to the */var/psf/PrinterName* directory, where *PrinterName* is the name of the Infoprint physical printer representing the 3812 printer device.
2. Create the **charset.grd** file from the **charset.grd.sample** file. Enter the command:

```
cp /usr/lpp/psf/grd/charset.grd.sample charset.grd
```
3. Using an AIX editor, such as vi, edit the **charset.grd** file you just created and copy the following line for the Gothic 10-point printer-resident font:

```
C0D0GT10 40 - 144 240 # GOTHIC TEXT 10
```
4. Change the first entry in the copied line, in the **FCS name** column, to the character set identifier of the Prestige 10-point font that you want to map to the Gothic 10-point font. You can change the comment at the end of the copied line to identify the mapping change you are making.

```
C0S0PR10 40 - 144 240 # PRESTIGE 10 mapped to GOTHIC TEXT 10
```
5. Search the remainder of the **charset.grd** file to ensure that it contains no other C0S0PR10 entries. A later entry of the same character set would replace the entry you just made.
6. Save your changes and close the file.

If you print many jobs that specify the personal computer ASCII codepage for Iceland, T1000861, but that codepage is not resident on your printer diskette, you can map codepage T1000861 to a similar codepage that does reside on your printer diskette, the personal computer multilingual codepage for ASCII data, T1000850.

Perform the following steps:

1. From the AIX command line, change to the */var/psf/PrinterName* directory, where *PrinterName* is the name of the Infoprint physical printer representing the printer device.
2. Create the **codepage.grd** file from the **codepage.grd.sample** file. Enter the command:

```
cp /usr/lpp/psf/grd/codepage.grd.sample codepage.grd
```
3. Using an AIX editor, such as vi, edit the **codepage.grd** file you just created and copy the following line for the personal computer multilingual codepage for ASCII data:

```
T1000850 850 980 # PC MULTILINGUAL
```
4. Change the first entry in the copied line, in the **code page name** column, to the codepage identifier of the personal computer ASCII codepage for Iceland font that you want to map to the multilingual codepage. You can change the comment at the end of the copied line to identify the mapping change you are making.

```
T1000860 850 980 # ICELAND MAPPED TO MULTILINGUAL
```
5. Search the remainder of the **codepage.grd** file to ensure that it contains no other T1000860 entries. A later entry of the same character set would replace the entry you just made.
6. Save your changes and close the file.

Modifying the FGID and CPGID GRID files

You can add new entries to map your GRID data to the resident fonts in your printer by modifying either the **fgid.grd.sample** file or the **cpgid.grd.sample** file. If you have a printer that does not support the outline font technology (such as the IBM 3835 Advanced Function Printer), IBM recommends that you map all the *CZnnnn* entries to raster font character-set names. If you do not create this mapping, Infoprint issues an error message and does not print the job.

For example, if you wanted to map the Times New Roman Latin 1 character set to the raster version, you would perform the following:

1. From the AIX command line, change to the */var/psf/PrinterName* directory, where *PrinterName* is the name of the Infoprint physical printer representing the printer device.
2. Create the **fgid.grd** file from the **fgid.grd.sample** file. Enter the command:

```
cp /usr/lpp/psf/grd/fgid.grd.sample fgid.grd
```
3. Using an AIX editor, edit the file that you just created and copy the following line:

```
2308 2039 * * CZN200 # Times New Roman Latin1
```
4. Change the entry in the **FCS name** column to **CON20000**.

```
2308 2039 * * CON20000 # Raster version of TNR Latin 1
```
5. Save your changes and close the file.

After this substitution, Infoprint prints jobs that specify the font character-set name **CZN200** and that processed on the physical printer for which you made the change using the raster version of the font. The **CZN200** character set now maps to:

- An FGID of 2308
- A GCSGID of 2039
- A vertical size of 65535
- A width of 0

Note: For more information about the different values available for font character sets and code pages, see "IBM Font Interchange Information" in *IBM Data Stream and Object Architectures Mixed Object Document Content Architecture Reference*.

Because the IBM 3835 Advanced Function Printer does not support any resident outline fonts, the **fgid.grd.sample** file maps the **FGID** and the **GCSGID** back to the **CON20000** character set. Then, Infoprint searches the resource library search path to locate the **CON20000** character for downloading with the job.

To modify the **cpgid** file so that the personal computer ASCII codepage for Iceland maps to the multilingual codepage for ASCII data as described in "Modifying the charset and codepage GRID files" on page 65, perform the following steps:

1. From the AIX command line, change to the */var/psf/PrinterName* directory, where *PrinterName* is the name of the Infoprint physical printer representing the printer device.
2. Create the **cpgid.grd** file from the **cpgid.grd.sample** file. Enter the command:

```
cp /usr/lpp/psf/grd/cpgid.grd.sample cpgid.grd
```
3. Using an AIX editor, such as *vi*, edit the **cpgid.grd** file you just created and copy the following line for the personal computer multilingual codepage for ASCII data:

```
850 980 T1000850 # PC MULTILINGUAL
```

4. Change the first entry in the copied line, in the **cpgid** column, to the codepage identifier of the personal computer ASCII codepage for Iceland font that you want to map to the multilingual codepage. You can change the comment at the end of the copied line to identify the mapping change you are making.


```
861      980      T1000850 # ICELAND MAPPED TO MULTILINGUAL
```
5. Search the remainder of the **cpgid.grd** file to ensure that it contains no other 861 entries. A later entry of the same character set would replace the entry you just made.
6. Save your changes and close the file.

Verifying the GRID files

During physical printer initialization, Infoprint examines the contents of the GRID files. If Infoprint detects any syntax errors, it reports an error condition and fails to enable the physical printer. To correct these errors, you must edit the failing GRID files. For information on what files, lines, or fields are in error, you must access the **GRID error.log** file for the physical printer that is located in */var/psf/PrinterName*.

Preventing Infoprint from using GRID files

If you have obtained a 300-pel printer but print 240-pel jobs, the printer-resident fonts may have different line spacings and endings in the printed output. For some types of billing statements, these line endings are inappropriate. You can solve this problem by preventing Infoprint from using the GRID files. This prevents the use of the printer-resident fonts. Perform the following procedure:

1. Using the AIX **mv** command, rename your customized GRID files. For example, if you are in the */var/psf/PrinterName* directory and you want to rename the **charset.grd** to **charset.grd.bak**, enter:


```
mv charset.grd charset.grd.bak
```
2. Copy the */usr/lpp/psf/grd/charset.grd.sample* file to **charset.grd** in the */var/psf/PrinterName* directory.
3. Using an AIX editor, such as **vi**, edit the copied **charset.grd** file and place a dash (-) in the **fgid** column.
4. Copy the */usr/lpp/psf/grd/codepage.grd.sample* file to **codepage.grd** in the */var/psf/PrinterName* directory.
5. Edit the copied **codepage.grd** file and place a dash (-) in the **cpgid** column.

Chapter 8. Configuring and using cut-sheet emulation

To enable cut-sheet emulation, ensure that your printer has a microcode level of at least 9.216, then ensure that the appropriate personnel perform the following tasks at your installation on the systems specified:

1. At the Infoprint AIX server, the print administrator for your installation must disable the physical printer that you intend to run in cut sheet emulation mode.
2. At the printer console, an operator must set the printer to cut-sheet emulation mode.
3. The operator must then restart the printer.
4. At the Infoprint AIX server, the print administrator must create a logical printer for the physical printer.
5. The print administrator must ensure that both the logical and physical printer has been enabled.

To submit a job, see "Using Cut Sheet Emulation."

Using cut sheet emulation

Job submitters must specify a form definition that will print using cut sheet emulation through the following application programming interfaces:

- Using Infoprint Submit
- Using the PSF Physical Printer Properties notebook
- Using the pdpr command

Before using any of these interfaces, ensure that you are aware of this support's Defaults and limitations of cut sheet emulation support.

Using Infoprint Submit

From the **Layout** tab of the Infoprint Submit Job Ticket window, you can leave the **Use form definition** field blank to get the default form definition on the Infoprint AIX server, or specify a specific form definition.

By using the default form definition, cut sheet emulation will be invoked.

Note: Infoprint Submit is part of the Print-on-Demand feature that is a separately orderable feature.

Using the PSF physical printer properties notebook

1. From the Infoprint Administration *servername* window, use the middle mouse button to drag the printer notebook action icon onto the Actual Destination (printer) that you want to use for cut-sheet emulation.
2. From the View and Change PSF Physical Printer Properties window, select the **Customization** tab.
3. Specify the form definition of choice in the form definition field.
4. Click **OK** or **Apply** to ensure that this form definition is applied.

Using the pdpr command

The **form-definition** document, default document, or actual destination attributes on the **pdpr** command also change the form definition on a printer.

For specific examples of how to modify these values on the printer, refer to the *IBM Infoprint Manager: Reference*.

Defaults and limitations of cut sheet emulation support

When a form definition is explicitly named, any attribute found in both the form definition and either the Infoprint Manager graphical user interface or the **pdpr** command reverts to the value specified in the form definition.

Note that corresponding values specified on the **printer-pass-through** (or **destination-pass-through**) attribute override the values specified in either the **PSF Resource** tab of the PSF printer notebook or the **form-definition** document, default document, or actual destination attribute.

If you use a form definition that contains a medium map using **N_UP** commands, the printer will go out of cut sheet emulation mode while processing that **N_UP** command. If the **N_UP** processing ends, the printer will return to cut sheet emulation mode. This scenario can occur when printing a large image in the middle of a job.

Chapter 9. Generating and submitting color mapping table source and output files

A color mapping table is a printer resource object that defines a translation from certain MO:DCA structured fields to new color structured fields used by newer printers. Color mapping tables are used to provide highlight color attachments to black-and-white printers, such as using the IBM Infoprint 4005 attachment with the IBM Infoprint 4000 printer. You can also use a color mapping table to map highlight colors (such as blue) into richer colors (IBM blue) on a color printer like the IBM Infoprint Color 130 Plus printer. To apply color to black and white documents, you must use the following procedure to create Color Mapping Table Source (.src) and Output Files. Refer to "Chapter 4. Infoprint Administrative Utilities" in *Infoprint Manager: Reference* for information about the cmt Utility or to the appropriate man page.

You can define translations from non-color fields to color, old color fields to new color fields, and from new color fields to different new color fields. Therefore, you can use existing applications and documents with new color fields without having to change the documents or applications. Also, you can use various color mappings with a single document to print the document using color in different ways without changing the original document.

The **cmt.cfg** file should be available in the **usr/lpp/psf/config** directory and the **cmt** file should be available in the **/usr/lpp/psf/bin** directory on your Infoprint AIX server. Using the AFP architectural reference cited in the procedure below, you can apply color to existing black and white documents. Note that a sample color mapping table that uses the **cmt.cfg** file is provided in **/usr/lpp/psf/config/cmtsampl**.

The **cmt** utility allows you to create color mappings in a variety of different color modes that are defined through the **ColorSpace** parameter. For example, the **Highlight** value can be used when printing to an IBM Infoprint 4000 printer with an Infoprint Highlight Color Model HC2 Post-Processor (HCPP). For more information on the HCPP, see the IBM Infoprint Hi-Lite Color Printer: Library Catalog at the URL <http://www.printers.ibm.com/R5PSC.NSF/Web/hilitem>.

Parts of a color mapping table

A color mapping table consists of a base part, a set of source groups, and a set of target groups. The base part identifies the color mapping table with a type of either reset or normal.

The simplest possible color mapping table is a reset color mapping table, which tells the printer to do no transformations on the color information found in the document. A reset color mapping table has no source or target groups; all other color mapping tables have at least one source and one target group.

Using source groups

Each source group has an identification (ID) number, which is used to match the source group with a corresponding target group. You may have unique ID numbers; however, if you create the color mapping table without the **cmt** Utility

and want to map several source groups to a single target group, you can use the same ID number on multiple source groups. Valid ID values are 1–127.

Note: The **cmt** Utility generates pairs of sources and targets, then assigns increasing, sequential IDs to each pair. For more information about the **cmt** Utility, refer to "Chapter 4. Infoprint Administrative Utilities" in *Infoprint Manager: Reference*.

Each source group must be classified as one of the following color spaces:

Highlight color

Highlight color is used when your existing documents describe color in terms of the percent to be covered and the percent to be shaded for a color number. The colors are device dependent. For example, you may have a printer that allows the use of three colors for highlighting. You could specify percent coverage and percent shading for colors 1, 2, or 3. Your printer setup would determine the actual colors.

Standard Object Content Architecture (OCA)

Standard OCA uses defined combinations of red, green, and blue to create: blue, red, pink, magenta, green, turquoise/cyan, and yellow. Standard OCA also defines several defaults such as white on a black medium, black on a white medium, and the same color as the medium. The medium could be, for example, paper or a display.

GOCA pattern fill

GOCA pattern fill defines patterns for filling areas that you may want to map to colors with a color mapping table.

For detailed explanations about these color spaces, refer to *Mixed Object Document Content Architecture Reference*.

You can use a color mapping table to pick specific object types to map, such as:

- Object area
- IM image data
- PTOCA data
- Page presentation space
- GOCA data
- Overlay presentation space
- BCOCA data
- IOCA data (bi-level, FS10)
- All PTOCA, GOCA, BCOCA, IOCA, FS10, and IM object data
- All objects, object areas, and presentation spaces

After you pick the color spaces and object types you want to map, you can specify exact values for the fields you want to map.

Using target groups

If you create the color mapping table without the **cmt** Utility, you must specify a target group ID number to match the source groups for a target. Valid ID values are 1–127.

Note: The `cmt` Utility generates pairs of sources and targets, then assigns increasing, sequential IDs to each pair. For more information about the `cmt` Utility, refer to "Chapter 4. Infoprint Administrative Utilities" in *Infoprint Manager: Reference*.

Each target group must be classified as a color space, which is the kind of color you want as output. The color spaces defined in the matching source groups are transformed to this color space. The color mapping table allows RGB CMYK, highlight, and CIELAB, but your actual hardware determines your available choices. For example, if your printer supports only highlight color, then your target group must use highlight color.

You can specify exact values for output colors. For example, if your printer supports three highlight colors, you can specify colors 1, 3, or 3 with coverage and shading percentages that are supported by your printer.

Other publications that have helpful references regarding color devices include:

- *Infoprint 4005 Hi-Lite Color Application Design Reference*, available from your IBM marketing representative.
- *Infoprint Hi-Lite Color Introduction and Planning Guide for 4005*.

Creating a color mapping table

In the procedure described below, we create a color mapping table to print an Advanced Function Presentation (AFP) file that contains pie charts in the color green.

For our AFP files, this pie chart appears as a series of horizontal lines. By accessing the chapter on "Graphic primitives and attributes" in the *Graphics Objects Content Architecture for Advanced Function Presentation Reference* manual, we can see that these horizontal lines are created by a Pattern Output Primitive with a hexadecimal value of '0B'(11).

To turn these horizontal lines into a shade of green when using a **ColorSpace** source group of GOCA to map to a target group value of RGB, ensure that you specify a low value for red (12), a high value for green (252), and a value under 50 for blue (42) to provide a clear contrast.

You must perform the following tasks from the AIX command line:

1. From the `usr/lpp/psf/config` directory, specify:

```
cp cmt.cfg piel.cfg
```

This copies the Color Mapping Table configuration file into a file you can customize for your own purposes (in this case, `piel.cfg`)

2. Specify `vi piel.cfg`.

This allows you to edit the configuration file and insert the applicable values to create the appropriate color mapping (whether GOCA to RGB or OCA to CIELAB) table. See the sample `cmt.cfg` configuration file below:

```
# -----  
# Required, starts a Color Mapping Definition.  
# One definition for each Source to Target mapping.  
# -----  
  
# -----  
# BeginSourceDef:
```

```

# Required, starts the Source Parameters
# -----

BeginSourceDef:
# -----
# ColorSpace:
# Required, values= OCA | Highlight | GOCA
# -----
ColorSpace: GOCA

# -----
# ColorValue:
# Required, values depend on Color Space
# -----
ColorValue: 11

# -----
# ObjectType:
# Optional, values= ObjArea | ImageData | PTOCData |
# GOCADData | BCOCADData | A11OCA | Page | Overlay |
# ObjsAll
# default= ObjsAll
# -----
ObjectType: GOCADData

# -----
# PercentShading:
# Optional, only valid for SourceColorSpace: Highlight,
# values= 0 .. 100, 255 (all percentages),
# default= 100
# -----
# PercentShading:

# -----
# PercentCoverage:
# Optional, only valid for SourceColorSpace: Highlight,
# values= 0 .. 100, 255 (all percentages),
# default= 100
# -----
# PercentCoverage:

# -----
# EndSourceDef:
# Required, ends the Source Parameters
# -----
EndSourceDef:

# -----
# BeginTargetDef:
# Required, starts the Target Parameters
# -----
BeginTargetDef:

# -----
# ColorSpace:
# Required, values= RGB | CMYK | Highlight | CIELAB
# -----
ColorSpace: RGB

# -----
# ColorValue:
# Required, values depend on Color Space
# -----
ColorValue: 12 252 42

# -----
# PercentShading:

```

```

# Optional, only valid for TargetColorSpace: Highlight,
# values= 0 .. 100, default= 100
# -----
# PercentShading:

# -----
# PercentCoverage:
# Optional, only valid for TargetColorSpace: Highlight,
# values= 0 .. 100, default= 100
# -----
# PercentCoverage:

# -----
# EndTargetDef:
# Required, ends the Target Parameters
# -----
EndTargetDef:

# -----
# Required, ends a Color Mapping Definition.
# -----
# EndMappingDef:

```

3. Once you have finished editing the `pie1.cfg` file, save the file.
4. To generate the Color Mapping Table source (`.src`) file that will be used when you submit the job for printing, run the `cmt` Utility as the input file (`-i` flag):


```
cmt -i pie1.cfg -o pie1.out
```

 This command produces a `pie1.out` output file.
5. To verify your color mapping values, respecify the `cmt` Utility, using the newly created `pie1.out` as the input file and `pie1.src` as the output file:


```
cmt -i pie1.out -o pie1.src
```
6. Before you attempt to use this color mapping table to submit a job to Infoprint Manager, verify that the source file contains the intended values. In this case, the `pie1.src` file should resemble the following, where the source definition represents the input file (in this case AFP) that you are converting to the target definition (an RGB color value of green):

```

BeginMappingDef:
BeginSourceDef:
ColorSpace: GOCA
ColorValue: 11
ObjectType: GOCADATA
EndSourceDef:

BeginTargetDef:
ColorSpace: RGB
ColorValue: 12 252 42
EndTargetDef:
EndMappingDef:

```

7. Once you have verified the contents of the source file, see “Submitting color mapping table source and output files with Infoprint Manager” on page 76.

Submitting color mapping table source and output files with Infoprint Manager

To submit a job using the color mapping tables for spot color, you must ensure that you also specify a resource-context attribute so that the server knows the location of the color mapping table. Once you have configured a Color Mapping Table, you must have defined a logical destination (named prt1 for this example) to which you can send the job. You can submit jobs through either of the following methods.

Submitting jobs through the AIX command line

Once the logical destination has been defined, you can submit a job to an Infoprint Manager printer by specifying the following from the command line:

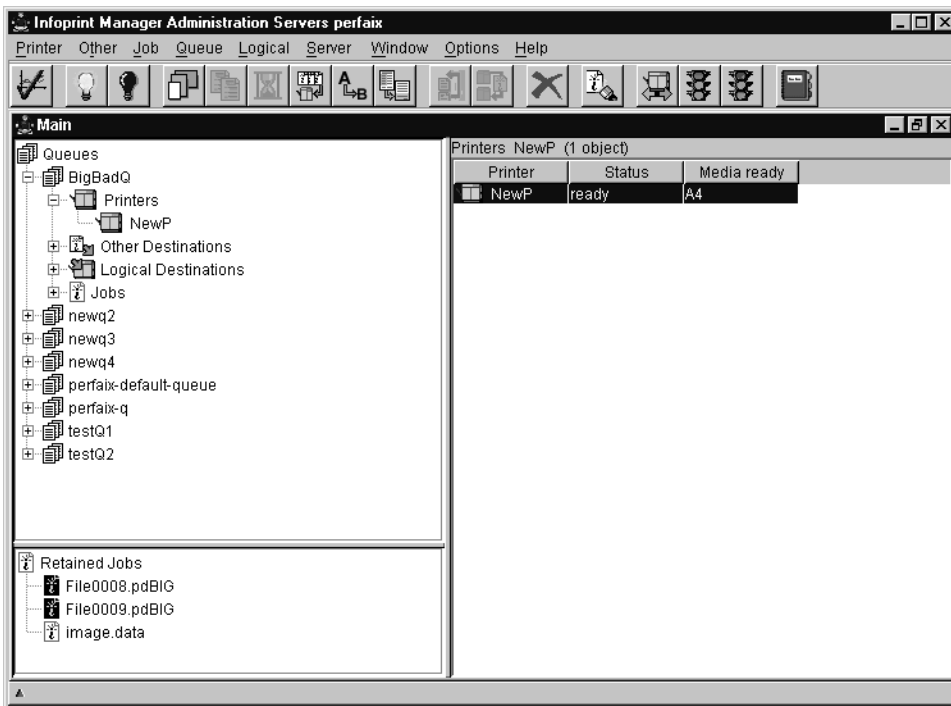
Command Values	Meaning
pdpr -d prt1	Print Command with logical destination name.
-x job-name=gocajob	Name of the AFP file you submit for printing.
-x resource-context=/usr/lpp/psf/cmt/	Explicit path name where the AFP file (in this case report1), resides on your Infoprint AIX server.
-x color-mapping-table=pie1.out	Color Mapping Table that you created in "Creating a color mapping table" on page 73 for printing this file.
/usr/lpp/psf/cmt/goca.afp	Explicit pathname where the input file resides.

Setting the Color Mapping Table with the Infoprint Manager Administration GUI

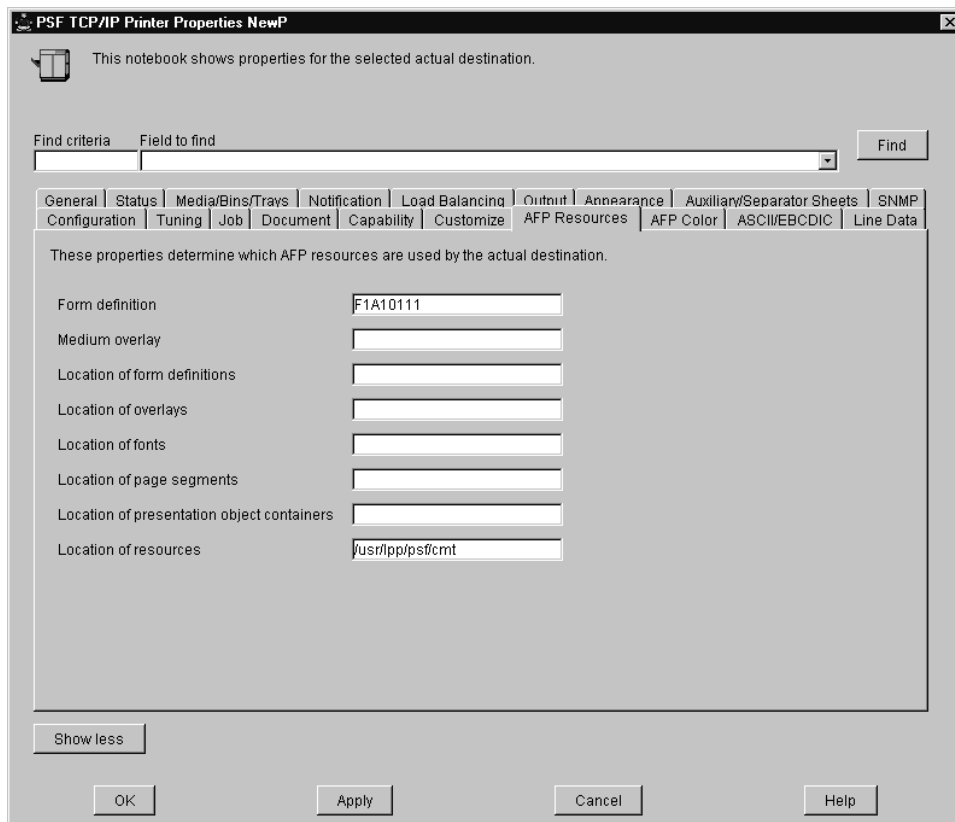
You can submit a job with a Color Mapping Table through the Infoprint Manager Administration GUI. This method is valuable if you are using the same color mapping table for a long run of print jobs. If you must switch between Color Mapping Tables, it might be easier to specify the mapping table from the command line (as shown above).

1. From the **Infoprint Administration Servers** main window, enable the appropriate actual destination (in this case, NewP, as shown below) by

right-clicking the actual destination and then selecting **Enable**.



2. Ensure that the **Color mapping table** (pie1.out) has been specified on the AFP Color tab of the Printer Properties notebook and that the **Location of resources** (/usr/lpp/psf/cmt/) has been specified on the AFP Resources tab, as shown below:



- |
- |
- 3. Submit your job to Infoprint Manager, using either the command line or the Infoprint Select client.

Chapter 10. Configuring for interoperability on an Infoprint AIX server

By performing the following set of procedures on both an Infoprint AIX server and an Infoprint Windows NT or Windows 2000 workstation, you can configure Infoprint Manager to support interoperability between Infoprint AIX servers and Infoprint Windows NT or Windows 2000 servers.

When configuring Infoprint Manager servers to support interoperability, ensure that the following two rules are followed:

1. Each Infoprint Manager server must be accessible by all other Infoprint Manager servers using the same IP address.

For example, if **Server1** is an Infoprint Manager AIX server with an IP address of 9.99.155.122, then all other Infoprint Manager servers (whether Windows NT, Windows 2000, or AIX servers) must use 9.99.155.122 to access **Server1**.

2. The IP address for each Infoprint Manager server must be the address that is identified for the first (or primary) network card that is defined to that server.
3. All printer objects (whether logical destination, actual destination, or queue) must have unique names if they are used by interoperating Infoprint servers.

If the printer objects do not possess unique names, you may have trouble viewing them through the **Infoprint Manager GUI** from a non-namespace server.

Please note that the Infoprint Manager LPD service for Windows NT and the multiserver setup cannot be run together, because the multiserver setup requires that Windows NT Services for UNIX be installed on your server. Windows NT Services for UNIX uses Microsoft Window's TCP/IP printing service, which is an LPD service. Because the Windows LPD and Infoprint LPD services both use the same port, only one LPD service can be run at a time. LPD service for AIX can still be used however, by submitting jobs with the **lpr** command to actual destinations on the AIX server. The **lpr** command can also still be used as before with Windows printer destinations (just not Infoprint Manager printers).

Setting up the Infoprint AIX server for interoperability

Perform the following procedures on your Infoprint AIX server to prepare for interoperability with an Infoprint Windows NT or Windows 2000 server. The following presumes that you have installed Infoprint Manager for AIX Version 4 Release 1 on your AIX server and have logged onto the server as **root**.

Starting NFS and connecting the AIX secondary server

1. Open a dtterm window and type: `/etc/rc.nfs` to either start the NFS daemon or ensure that it has been started.
2. Open a dtterm window, type `smit`. The following screen displays.

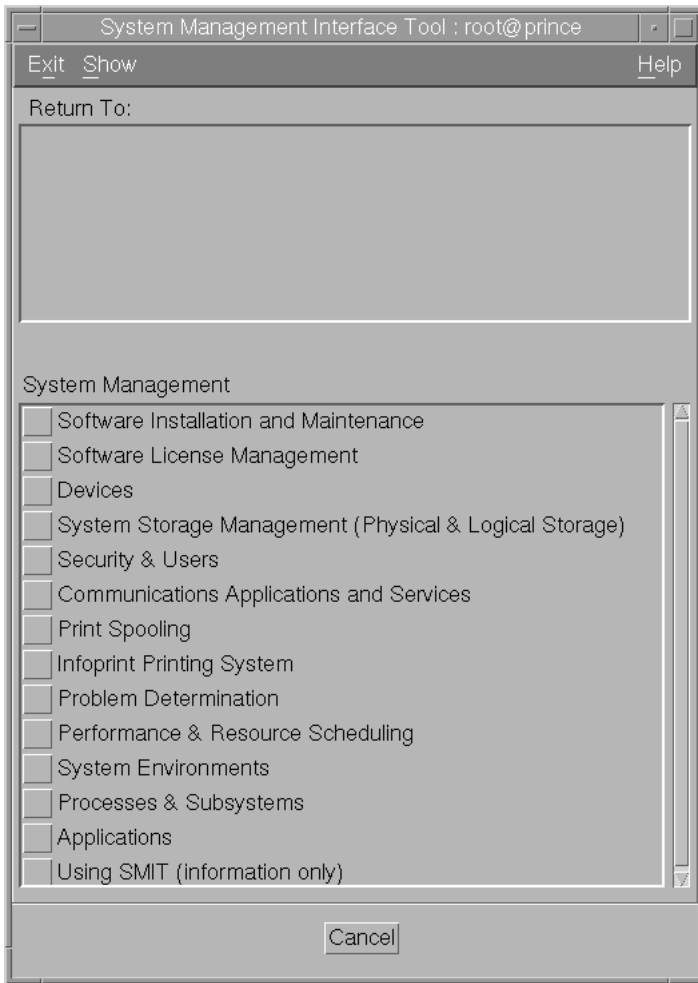


Figure 15. Main SMIT Panel

3. From this panel, specify the **Infoprint Printing System-->Infoprint Utilities-->Configure Secondary Servers (NFS)-->Link from Primary Server to Secondary Server** path.
4. Specify both the host name and the IP address of the Infoprint Windows server with which you intend to interoperate for the **Secondary Server Host Name** and the **Secondary Server IP Address** fields respectively. For example, wserv1 and 9.99.193.120 represent the Infoprint Windows server in the pop-up panel displayed below:

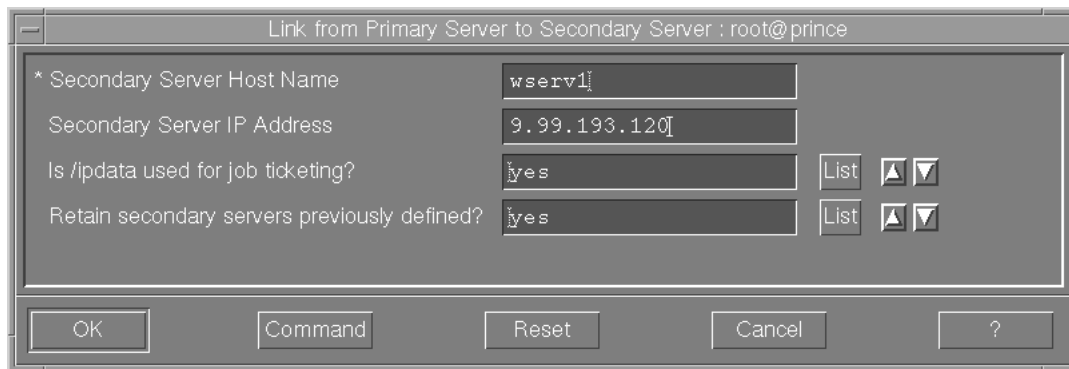


Figure 16. Link from Primary to Secondary Server Panel

You should specify no for the **Is /ipdata used for job ticketing?** field, unless you are using this AIX Infoprint Manager server with AIX Fast Connect to allow for file sharing with an Infoprint Submit Windows client for preflighting jobs and saving RIPed files.

You should also allow the **Retain secondary server previously defined?** field to default to yes if you have more than one Infoprint server functioning as a secondary server.

5. Once verified, click **OK**, and then click **Done**.
6. Return to the first SMIT panel displayed in step 2.

Adding users to and modifying permissions for FST security groups

1. Set up the FST Security groups on your AIX server by taking the **Infoprint Printing System-->Security-->Groups-->Show Group** path. From the **Single Select List** pop-up dialog, you should see the following three groups: **acl_admin**, **admin**, and **oper**.
2. Once you have verified the existence of these two groups, you should ensure that users in the **admin** group can issue all the Infoprint **pd*** commands. From SMIT, take the **Infoprint Printing System-->Security-->Access Control-->Access Control for Operations-->Show Access Control List** path.
3. From the **Single Select List** pop-up dialog, highlight each command and ensure that **GROUP:admin: r--** displays for each command.

If a particular **pd** command does not show **admin** group read authority, use the SMIT **Infoprint Printing System-->Security-->Access Control-->Access Control for Operations-->Change Access Control List** path to specify **GROUP:admin** in the **Users or Groups** field of the **Change Access Control List** panel for that **pd** command. Note that the **admin** group requires only read authority for each **pd** command.

Note that you may have to perform the preceding task only if migrating from an Infoprint Manager 3.1 system or earlier. If you have installed Infoprint Manager 3.2 on a "clean" machine, the **admin** group will have read authority for all **pd** commands by default.

4. Once complete, return to the first SMIT panel displayed in step 2.
5. Take the **Infoprint Printing System-->Security-->Groups-->Add Users to a Group** path. Then specify **acl_admin** for the **Group Name** field. Enter the name of the Windows administrative user you normally log in to the Infoprint Manager for Windows server machine as for the **User or Users to Add** field.

For the remainder of this procedure we will refer to this Windows administrative user as ipmwinadmin*. Note that ipmwinadmin must be followed by an asterisk (*) to account for the fully-qualified host name. (For example, ipmwinadmin@ipmwinservermachine.boulder.ibm.com.)

From the **Add Users to a Group** panel, specify admin for the **Group Name** field. Enter the name of the Windows administrative user you normally log in to the Infoprint Manager for Windows server machine as for the **User or Users to Add** field. Note that you do not have to perform this step for the oper group.

6. Once complete, click OK to ensure the changes take effect and return to the first SMIT panel displayed in step 2.

Now you can proceed to either "Setting up the idwinadmin id on an NT domain controller" or "Setting up the idwinadmin id on a Windows 2000 domain controller", depending upon the base operating system of your Windows server.

Setting up the idwinadmin id on an NT domain controller

On the Windows NT domain controller server for the domain where your servers reside, perform this task to ensure that the Infoprint Manager Windows servers can access the namespace.

1. Log on to the Primary Domain Controller for the domain that your Infoprint Manager servers operate in as a domain administrator.
2. From the **Start** menu, access the **Programs-->Administrative Tools-->User Manager for Domains** path.
3. From the **User Manager for Domains** window, access the **User** menu and choose **New User**.
4. In the **user name** field enter ipwinadmin and in the **password** field type a password value.
IBM recommends that you select **Password never expires** so you don't have to change the password and update all of your servers on a regular basis.
5. Click on the **Groups** button and make sure that ipwinadmin is a member of the Domain Admin group and that its primary group is set to Domain Admin.
6. Click **OK**.
7. Click **Add**.

Setting up the idwinadmin id on a Windows 2000 domain controller

On the Windows 2000 domain controller server for the domain where your servers reside, you must perform this task to ensure that the Infoprint Manager Windows servers can access the namespace.

1. Log on to the Primary Domain Controller for the domain that your Infoprint Manager servers operate in as a domain administrator.
2. From the **Start** menu, access the **Programs-->Administrative Tools-->Computer Management** path.
3. From the **Computer Management** window, click the plus (+) sign next to the **Local Users and Groups** list.
4. Click the **Users** folder and choose **New User** from the **Action** pull down menu at the top.
5. In the **User name** field type ipwinadmin. In the **Password** and **Confirm Password** fields type a password value.

IBM recommends that you select **Password never expires** so you don't have to change the password and update all of your servers on a regular basis.

6. Click the **Create** button and close the dialog (it will be prompting you to add another user's information).
7. From the **User** window, open the **ipwinadmin** that you just finished creating by double-clicking on the list item.
8. Click on the **Member Of** tab, click **Add**, then double-click **Administrators**.
9. Click **OK**.
10. Click **OK** a second time to finish.

Creating the 'ntuser' ID on the Infoprint AIX server

The following procedure creates the example **ntuser** ID that the Infoprint Windows NT or Windows 2000 server will use to share and manage namespace directories and files that reside on the Infoprint AIX server.

1. Specify SMIT and take the **Security & Users-->Users-->Add a User** path.
2. On the Add a User panel, specify **ntuser** as the **User NAME** field value, specify **printq** for the **Primary GROUP** field, **printq,system** as the **Group SET** field, and **/home/ntuser** for the **HOME directory** field.

Change the **File Creation UMASK** field value to **003**

Ensure the **Login AUTHENTICATING Grammar** field is either blank or specifies **compat** (if SMIT will not process the command without an entry in this field).

Ensure the **Password REGISTRY** field value specifies **files** and take the default for all other fields.

3. Click **OK** to save the changes and exit the SMIT interface.
4. Login to the server as **root** and set the initial password.
5. Login as **ntuser** with the initial password, then change the password to **ntuser**.

Ensuring correct AIX file permissions for interoperability

1. Log on to the server as **root**.
2. From a **dterm** window, type `cd /var/pddir/default_cell`.
3. Ensure that all the files residing in this directory have the correct permissions to be read by the Infoprint Windows server by typing `chmod -R 774 * .`
4. Ensure that all the files residing in this directory belong to the correct group by typing `chgrp -R printq * .`

If these last two steps have been performed correctly, entering an `ls -l` at the command line should display the following permissions and group values:

```
drwxrwxr--  3 root      printq      512      ....      acl
drwxrwxr--  3 root      printq      512      ....      printers
drwxrwxr--  2 root      printq      512      ....      queues
drwxrwxr--  2 root      printq      512      ....      servers
-rwxrwxr--  1 root      printq      4        ....      version
```

5. Complete your preparations on the Infoprint AIX server by logging in as **ntuser** and specifying a password of **ntuser**. Remember this password, as you will need it later in this procedure.

Once you have completed these steps, the Infoprint AIX server is ready for interoperability.

Configure Windows NT servers for interoperability

Some print environments require more than one Infoprint Manager server to handle their print management. If you are adding one or more Infoprint Manager for Windows NT and Windows 2000 servers to your print environment, this topic will tell you what you need to do to make those servers work with the Infoprint Manager AIX Version 3.2 server.

Notes:

1. In an interoperating environment that includes an AIX server and NT servers, the namespace will reside on the AIX server.
2. You can only install one Infoprint Manager server on a given Windows NT or Windows 2000 workstation or server.
3. If your users will be submitting jobs directly to actual destinations, the actual destination and the associated queue and logical destination must be on the same server.
4. Once you have your multi-server system running, if one of your NT servers shuts down or is restarted, that Infoprint Manager server will not restart automatically when the system restarts. You must open the Management Console for that server and start it manually.
5. The following instructions refer specifically to Windows NT systems.

Setting up interoperating Windows NT servers

The Windows administrator should use the following procedure on the Infoprint Windows NT or Windows 2000 server to configure for communication with the Infoprint AIX server. For a detailed description of the Windows NT Domain configuration process, refer to "Setting up a print environment with multiple Windows NT/2000 servers" on the web at

<ftp://ftp.software.ibm.com/printers/specs/multint.pdf>.

1. Install all of the Infoprint Manager for NT servers as described in *Getting Started*. When you are finished, your servers will all be operating independently.
2. On each system that an Infoprint Manager server runs on, open the Infoprint Manager Management Console and click **File --> Stop Server**.

Installing MS Services for UNIX on the Infoprint Windows servers

You must perform the following task on each Windows NT or Windows 2000 server:

1. Using the CD-ROM, install Microsoft Windows NT Services for UNIX from the "Add-on Pack for MicroSoft Windows NT Workstation and Server 4.0" at Version 1.0 or higher.
2. Reboot each Infoprint Windows NT or Windows 2000 server.

Setting up the common account for Infoprint Windows servers on an NT domain controller

On the Windows NT domain controller server for the domain where your servers reside, you must create the domain account that all the Infoprint Windows NT or Windows 2000 servers will run under. Perform this task to ensure that the Windows servers can access the namespace.

1. Log on to the Primary Domain Controller for the domain that your Infoprint Manager servers operate in as a domain administrator.
2. From the **Start** menu, access the **Programs-->Administrative Tools-->User Manager for Domains** path.
3. From the **User Manager for Domains** window, access the **User** menu and choose **New User**.
4. In the **user name** field enter **ntuser** and in the **password** field type the **ntuser** password from step 4 of the Ensuring Correct AIX File Permissions for Interoperability procedure.
IBM recommends that you select **Password never expires** so you don't have to change the password and update all of your servers on a regular basis.
5. Click on the **Groups** button and make sure that **ntuser** is a member of the **Domain Admin** group and that its primary group is set to **Domain Admin**.
6. Click **OK**.
7. Click **Add**.

Setting up the common account for Infoprint Windows servers on a 2000 domain controller

On the Windows 2000 domain controller server for the domain where your servers reside, you must create the domain account that all the Infoprint Windows NT or Windows 2000 servers will run under. Perform this task to ensure that the Infoprint Manager Windows servers can access the namespace.

1. Log on to the Primary Domain Controller for the domain that your Infoprint Manager servers operate in as a domain administrator.
2. From the **Start** menu, access the **Programs-->Administrative Tools-->Computer Management** path.
3. From the **Computer Management** window, click the plus (+) sign next to the **Local Users and Groups** list.
4. Click the **Users** folder and choose **New User** from the **Action** pull down menu at the top.
5. In the **User name** field type **ntuser**. In the **Password** and **Confirm Password** fields type the **ntuser** password from step 4 of the Ensuring Correct AIX File Permissions for Interoperability procedure.
IBM recommends that you select **Password never expires** so you don't have to change the password and update all of your servers on a regular basis.
6. Click the **Create** button and close the dialog (it will be prompting you to add another user's information).
7. From the **User** window, open the **ntuser** that you just finished creating by double-clicking on the list item.
8. Click on the **Member Of** tab, click **Add**, then double-click **Administrators**.
9. Click **OK**.
10. Click **OK** a second time to finish.

Grant appropriate user rights to the domain user on all Infoprint Manager Windows NT servers

To ensure that the Windows NT Infoprint Manager servers can run as a Windows service using the domain userid **ntuser**, you must ensure that this userid has the proper level of authority on each Windows NT Infoprint Manager server system.

1. Log on to the Infoprint Windows NT or Windows 2000 servers as **ipmwinadmin**

2. Use the local User Manager to give the domain user (ntuser) that you created in step 4 the following user rights on that system:
 - a. **Act as part of the operating system**
 - b. **Create permanent shared objects**
 - c. **Log on as a service**

Note:

Click the **Advanced User Rights** check box to see these rights.

- d. Repeat this process on all of the Infoprint Manager Windows NT or Windows 2000 servers.

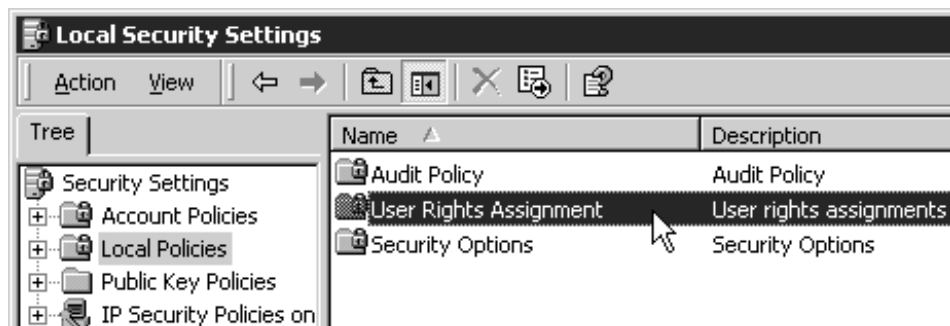
Grant appropriate user rights to the domain user on all Infoprint Manager Windows 2000 servers

To ensure that the Windows 2000 Infoprint Manager servers can run as a Windows service using the domain userid ntuser, you must ensure that this userid has the proper level of authority on each Windows 2000 Infoprint Manager server system.

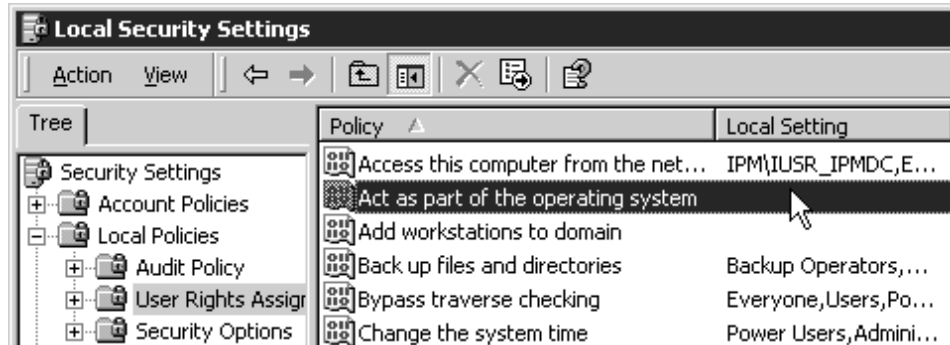
1. Log on to one of the systems as a user who is a member of the Domain Administrators group.
2. Click the Windows **Start** button and select **Settings --> Control Panel**.
3. In the **Control Panel** window, double-click the **Administrative Tools** icon.
4. In the **Administrative Tools** window, double-click the **Local Security Policy** icon.
5. In the right pane of the **Local Security Settings** Window, double-click **Local policies**.



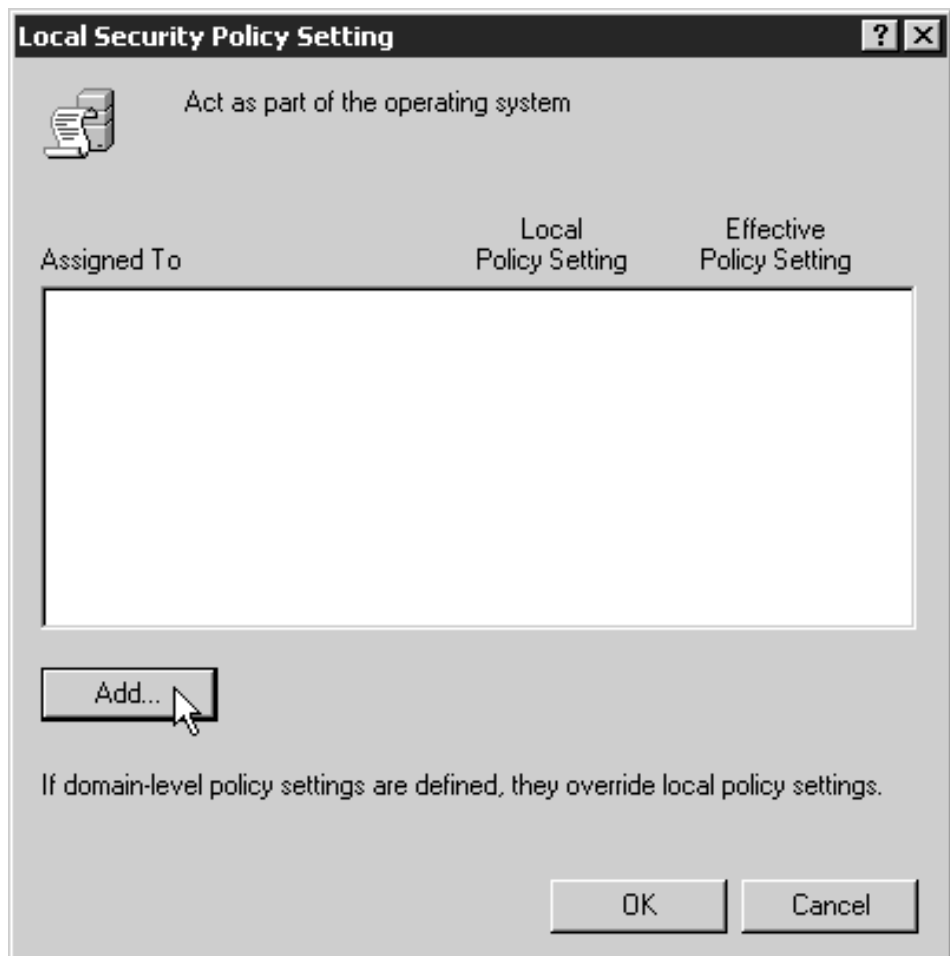
6. Double-click **User Rights Assignment** in the right pane.



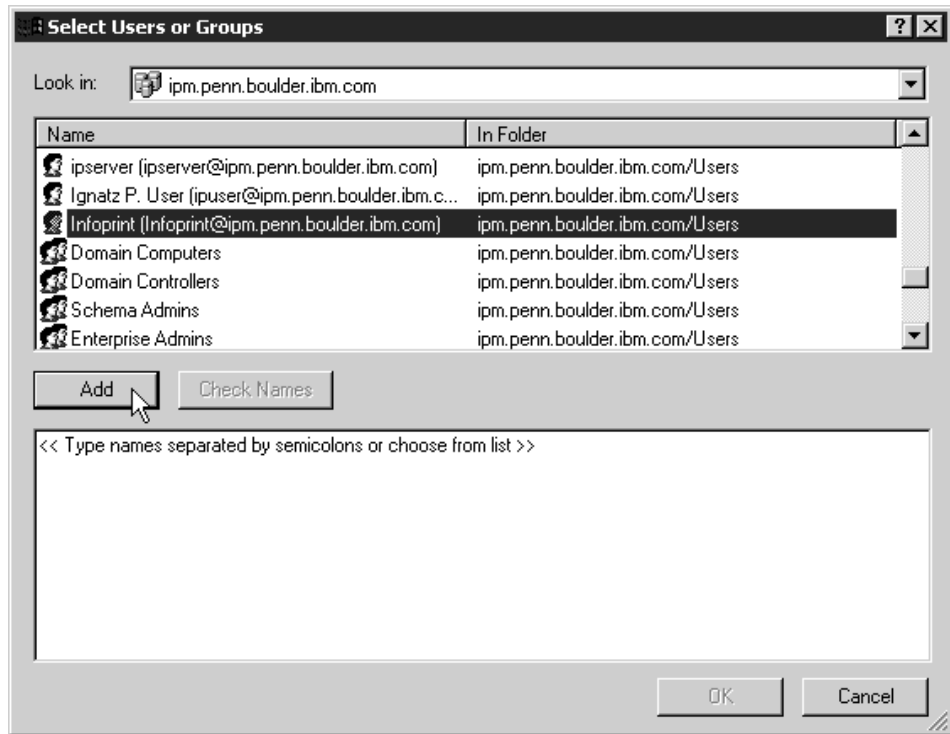
7. In the list of user rights, select **Act as part of the operating system** and double click it.



8. In the **Local Security Policy Setting** dialog, click **Add**.



9. In the **Select Users or Groups** dialog, click the arrow on the drop-down list box and select the domain that your Infoprint Manager servers exist in.



Find and select the domain user you created, and click **Add**.

10. OTF command in the **Select Users or Groups** dialog.
11. OTF command in the **Local Security Policy Setting** dialog.
12. Repeat from step 7 on page 87 for two other user rights: **Create permanent shared objects** and **Log on as a service**.

Configuring the NFS client to access the namespace

The following NFS client configuration will need to be performed on each Infoprint Manager for Windows NT or Windows 2000 server that will access the namespace on the AIX Infoprint Manager server machine.

1. Log on to the Windows Infoprint Manager server as the domain user `ntuser` who was created in the Setting Up the Common Account for Infoprint Windows Servers on the Domain Controller procedure above.
2. From the **Start** menu, access the **Settings**—>**Control Panel** path, and double-click **Client for NFS** to configure the NFS client to access the namespace.
3. Click the **Authentication** tab:
 - a. Enter `ntuser` in the **User Name** field.
 - b. Enter the Infoprint AIX password for `ntuser` (the one you set up in step 4 the Ensuring Correct AIX File Permissions for Interoperability procedure) in the **Password** field.
 - c. Click the **PCNFSD Server** radio button and type in the name of an Infoprint Manager AIX server.
4. Click the **Filenames** tab and set values as follows:

Preserve Case (no conversion)

check

Generate Unique Names for Existing Files with Mixed Case Filenames	unchecked
Match Filenames Exactly	checked
Match Filenames Ignoring Case	unchecked

- Click **OK**.
- When you receive the pop-up dialog box that says NFS Login Successful , click **YES**.
If you do not receive this message, go back to the **Authentication** tab and ensure that the ID and password match those set up in the final step of the Ensuring Correct AIX File Permissions for Interoperability procedure.
- Log off the Windows Infoprint Manger server as the domain user ntuser and log on to the Windows Infoprint Manger server as the ipmwinadmin user.
- Repeat steps 2 through 6 from above.

Verifying access to the AIX namespace that allows interoperability on Windows NT

From each Infoprint Windows NT, you must verify that you have access to the namespace on the Infoprint AIX server. You can do this by mapping a network drive (as ntuser with the ntuser password from step 4 of the Ensuring Correct AIX File Permissions for Interoperability procedure) from the Windows NT server to the shared namespace on the Infoprint AIX server.

- From the Map Network Drive window, use the **Path** field to specify:

```
\\aix_servername\var\pddir\default_cell
```

where *aix_servername* is the name of the Infoprint AIX server.

- Next, specify ntuser in the **Connect as** field. A dialog box will open asking for a password associated with ntuser. Specify the ntuser password from step 4 of the Ensuring Correct AIX File Permissions for Interoperability procedure in the **Password** field.
- Click **OK** and the **NFS Client** window opens.
- Click **OK** again. A small notification window should appear that says NFS Login Successful.
Since the NFS Client was set up in the section Configuring the NFS Client to Access the Namespace, click **OK**.
- Click **Yes** to accept the current login and **OK** to map the drive.
If the drive mapped correctly, a new window should open to the mapped drive's contents, and the **NFS client** and **Map Network Drive** windows should be gone.

Verifying access to the AIX namespace that allows interoperability on Windows 2000

From each Infoprint Windows 2000 server, you must verify that you have access to the namespace on the Infoprint AIX server. You can do this by mapping a network drive (as ntuser with the ntuser password from step 4 of the Ensuring Correct AIX File Permissions for Interoperability procedure) from the Windows 2000 server to the shared namespace on the Infoprint AIX server.

- From the main Windows view, right click the **My Network Places** icon, choose **Map Network Drive**. In the dialog, use the **Folder** field to specify:

```
\\aix_servername\var\pddir\default_cell
```

where *aix_servername* is the name of the Infoprint AIX server.

2. Check the **Reconnect at Login** check box.
3. Click on the **Connect Using Different User Name** link.
4. A dialog box will open asking for a username and password associated with *ntuser*. Specify the *ntuser* password from step 4 of the Ensuring Correct AIX File Permissions for Interoperability procedure in the **Password** field.
5. Click **OK** and the **NFS Client** window opens.
6. Click **OK** again. A small notification window should appear that says NFS Login Successful.

Since the NFS Client was set up in the section Configuring the NFS Client to Access the Namespace, click **OK**.

7. Click **Yes** to accept the current login and **Finish** to map the drive.

If the drive mapped correctly, a new window should open to the mapped drive's contents, and the **NFS Client** and **Map Network Drive** windows should be gone.

Configuring the 'ntuser' ID for interoperability on the Infoprint Windows servers

Ensure that you complete the following procedure on all Infoprint NT servers.

Note: Once this procedure is completed, ensure that you perform all namespace administration from the Management Console on the Infoprint Windows server, not the Infoprint AIX server.

On all Windows NT or Windows 2000 servers, do the following:

1. Log on as user *ipmwinadmin*.
2. From the **Start** menu, click on the **Programs—>Infoprint Manager—>Management Console** path.
3. Stop the server by either clicking the **Stop** toolbar button or clicking **File—>Stop Server**.
4. Access the **Edit—>Service Account/Domain** path.
5. Specify the NT domain name in the **Domain** field, the account you created during step 4 of Setting up Interoperating Windows NT servers in the **User account** field, and the password in the **Password** field.
6. Click **OK**.

Note: A notification server was installed with each of your Infoprint Manager servers. However, now that the namespace is shared, you only need to run one of them. The notification server must be run on the namespace server. Disable all but one of the Infoprint Manager Notification servers.
7. Click on the **Edit—>Service Configuration** path.
8. In the **Settings** group box, clear both the **Run notification server on this system** and **Run Infoprint Manager LPD service** check boxes.
9. Clear the **Base namespace path** field and type the drive letter that you want to use to link to the namespace followed by a colon (for example, type *x:*). Use the same drive letter that you used when mapping the network drive in step 4 of the Setting up Interoperating Windows NT servers procedure.
10. In the **Remote namespace folder** field, enter the Universal Naming Convention (UNC) name of the shared directory on the namespace server in

this format: `\\namespacesever\sharename`. The sharename of the namespace on an AIX server is `default_cell`. For this example, `\\prince\var\pddir\default_cell`.

11. Click **OK**.
12. Restart all of the Infoprint Manager NT servers by selecting **File** → **Start Server** on each Management Console.
13. Verify that all of the servers are now sharing the namespace.
 - Log on to any one of the machines that holds an Infoprint Manager server, open a command prompt.
 - Start the Infoprint Manager Administration GUI.
 - Click on **Server**→**Show All Servers**.

You should see a list of all of the servers that are using the namespace. If any of them do not appear, stop the servers and check the settings that you changed in step 7 for that server.

Verifying the authority of the ipwinadmin ID

Use the following procedure to verify that the ipwinadmin id has permission to both modify security groups and issue all the Infoprint **pd*** commands.

1. Verify that the Infoprint servers are interoperating by performing step 13 of Configuring the 'ntuser' ID for Interoperability on the Infoprint Windows Servers.
2. Ensure that you created a user named ipwinadmin in the domain in either the "Setting up the idwinadmin id on an NT domain controller" on page 82 or the "Setting up the idwinadmin id on a Windows 2000 domain controller" on page 82 procedure.
3. Log on to the Infoprint Windows server as user ipwinadmin.
4. From the **Start** menu, click on the **Programs**→**Infoprint Manager**→**Management Console** path.
5. From the left pane, click on the **Security** item.
6. Double-click on **Groups** item.
7. From the Groups view in the right pane, highlight the **acl_admin** item and choose **open** from the drop-down menu.
8. Click on the **Add...** button.
9. In the **Add Member to Group** dialog, type ipwinadmin* in the field provided. In the **Groups** view, you should be able to see ipwinadmin listed in the **Members** column for the **admin** group.
10. From the Groups view in the right pane, highlight the **admin** item and choose **open** from the drop-down menu.
11. Click on the **Add...** button.
12. In the **Add Member to Group** dialog, type ipwinadmin* in the field provided. In the **Groups** view, you should be able to see ipwinadmin listed in the **Members** column for the **admin** group.
13. Log on to the Infoprint Windows server as ipwinadmin.
You should be able to create and modify security groups and issue all the Infoprint **pd*** commands.

Chapter 11. Setting up high speed printers for spacing

In Infoprint Manager, moving from page to page in a job is called *spacing*:

- *Forward spacing* is moving to a point later in the job (such as skipping from page 10 to page 15).
- *Backspacing* is moving to a point earlier in the job (such as backing up from page 40 to page 20).

For spacing to work effectively on the Infoprint 2000 for AFP printing, Infoprint 3000, Infoprint 4000, and Infoprint 4100, you must first enable the printer to work with the Simple Network Management Protocol (SNMP) and allow SNMP to configure the printer. These settings allow you to use the Infoprint Manager GUI to stop a printer very quickly (in ten seconds or less) when you need to, instead of having to wait for all of the pages of a job that have been buffered to print.

Enabling SNMP on an Infoprint 2000 for AFP printing

1. On the display/touch screen on the touch screen/printer console, open the **Printer definition** pull-down menu.
2. Select **Remote Access**.
3. On the **SNMP** tab:
 - Select the **Enable SNMP Agent** and **Allow SNMP to configure the printer** check boxes.
 - In the **Communities** list, touch the name of the community you will be using to access the printer and verify the settings. Make sure that the community has **Write** access to the printer.
4. Touch **OK** to close the window.
5. On the main screen of the console, make sure that the attachment type you will be using is enabled.
6. If you changed the **Enable SNMP Agent** or the **Allow SNMP to configure the printer** setting, shutdown and restart the printer to make the changes take effect.
7. Disable the Infoprint Manager printer and enable it again to refresh the printer configuration information in the server.
 - a. Start the Infoprint Manager Administration GUI.
 - b. In the GUI, find the Infoprint Manager printer (actual destination) that corresponds to this printer and select it.
 - c. Use the GUI to disable the printer.
 - d. Use the GUI to enable the printer again.

Enabling SNMP on an Infoprint 3000 or an Infoprint 4000 printer that uses the operator console

The Operator console is the standard console for the Infoprint 3000 and the Infoprint 4000.

1. On the display/touch screen on the Operator console, open the **Configure** pull-down menu.
2. Select **Remote Access**.
3. Under **Select a Remote Access**, select **SNMP**.

4. Under **Enabled**, select **Yes**.
5. Under **Allow to Configure**, select **Yes**.
6. Touch **OK** to close the window.
7. You will be prompted to restart the printer so that these settings can take effect. Restart the printer, and wait for it to power back up before you continue.
8. Disable the Infoprint Manager printer and enable it again to refresh the printer configuration information in the server.
 - a. Start the Infoprint Manager Administration GUI.
 - b. In the GUI, find the Infoprint Manager printer (actual destination) that corresponds to this printer and select it.
 - c. Use the GUI to disable the printer.
 - d. Use the GUI to enable the printer again.

Enabling SNMP on a printer that uses the Enhanced Operator Console

The Enhanced Operator Console is the standard console for the Infoprint 4100 and is available as an upgrade for the Infoprint 4000.

1. On the Enhanced Operator Console, touch **Printer definition** at the top of the screen.
2. On the left side of the screen, touch **Remote Access**.
3. In the **Communities** list, select the name of the community you will be using to access the printer and verify the settings. Make sure that the community has **Write** access to the printer.
4. Select the **SNMP Agent Enabled** and **Allow SNMP to Configure Printer** checkboxes, so they both say **Yes**.
5. Touch **OK** to save the settings.
6. You may be prompted to restart the printer so that these settings can take effect. Restart the printer, and wait for it to power back up before you continue.
7. Disable the Infoprint Manager printer and enable it again to refresh the printer configuration information in the server.
 - a. Start the Infoprint Manager Administration GUI.
 - b. In the GUI, find the Infoprint Manager printer (actual destination) that corresponds to this printer and select it.
 - c. Use the GUI to disable the printer.
 - d. Use the GUI to enable the printer again.

Chapter 12. Using Infoprint Manager with the Infoprint Color 130 Plus

The IBM Infoprint Color 130 Plus is a high-speed, high quality, full-color digital printer that you can submit jobs to through Infoprint Manager. This procedure provides you with some sample scenarios of how to use the Infoprint Color 130 Plus with Infoprint Manager and with the prerequisite steps necessary for these scenarios.

This procedure takes you through steps to submit different kinds of jobs to the Infoprint Color 130 Plus using different methods. The following list describes these scenarios:

- An Advanced Function Presentation™ (AFP) document created in a page layout application is submitted through Infoprint Manager for printing to the Infoprint Color 130 Plus using the command line. Color images are transformed offline using the AIX command line.
- A PostScript document is submitted for printing to the Infoprint Color 130 Plus using Infoprint Submit.
- A document created in a Windows application is submitted through Infoprint Select for printing to the Infoprint Color 130 Plus.
- A document is submitted for printing to the Infoprint Color 130 Plus using MVS Download.

Infoprint Color 130 Plus

The Infoprint Color 130 Plus system processes and prints high quality color AFP™ output at high speeds. It also processes and prints PDF or PostScript documents that include high resolution color images.

The Infoprint Color 130 Plus with Infoprint Manager for AIX combines job management and page-level error recovery capabilities with the ability to print full-color applications and documents. The Infoprint Color 130 Plus can support applications that use data formats, such as Encapsulated PostScript (EPS), Portable document format (PDF), Tag image file format (TIFF), Graphic interchange format (GIF), and Joint photographic experts group (JPEG), as resources for variable data AFP documents. The AFP architecture allows you to use the Rasterized Image Processor (RIP) to process these resources in the Advanced Function Common Control Unit™ (AFCCU) and save them in the printer. This capability improves performance by eliminating the need to re-RIP these resources. It is not necessary to convert single page PDF, EPS, TIFF, GIF, or JPEG objects to color images prior to sending them to the printer. These objects can be RIPped directly in the AFCCU™, increasing performance.

Setting up

The scenarios in this procedure assume that you have completed the following tasks prior to submitting the job to the printer, if they are applicable.

- Built a data stream
- Identified the location of your AFP resources
- Created an Infoprint Manager actual destination

- Transformed color images

Building a data stream

Build your AFP data stream by using any AFP statement generator or application. Refer to "Understanding Form Definitions and Page Definitions" in *Print Services Facility for OS/390: User's Guide* for more information about AFP architecture.

Build your PostScript data stream with any application that generates PostScript, such as Microsoft Word with a PostScript driver. Infoprint Manager sends PostScript data streams to be transformed and RIPped at the server.

Identifying AFP resources

There are various kinds of AFP resources, such as form definitions, page definitions, overlays, and fonts. The newest kind of resource is the *data object*. Like other resources, data object resources are files that you can include in AFP documents. Data object resources can be EPS, PDF, and IOCA files as well as TIF, GIF, and JPEG images via the transforms that come with Infoprint Manager. (TIF, GIF, and JPEG images must be transformed into AFP using the appropriate transforms before they can be considered data object resources. See "Transforming color images" on page 97.

In Infoprint Manager, data object resources are grouped with BCOCA and GOCA objects, and all of those types of files are called *presentation object containers*. As with other kinds of AFP resources, you must tell Infoprint Manager where your presentation object containers are located.

You can define where your image resources are stored either from the AIX command line using the **pdset** command with the **resource-context-presentation-object-container** attribute or using the Infoprint Manager Administration GUI.

Follow this procedure to set the attributes using the GUI.

1. Start the Infoprint Manager Administration GUI.
2. Select **Options** → **Customize**.
3. In the **Customize** dialog, click the **Printer** tab.
4. In the **Action** column, find **Change Tuning**, **Change AFP Resources**, and **Change AFP Color**, and select the check boxes in the **Menu** column next to them.

This step adds these tasks to the **Printer** menu. If you want to add other tasks to the Printer menu or to any other menu, you can do it now or you can wait until later.

5. Click **OK** to apply the settings and close the dialog.
6. Select your Infoprint Color 130 printer that you create in "Creating an actual destination" on page 97.
7. Select **Printer** → **Change AFP Resources** to open the **Change AFP Resources** dialog.
8. In the **Change AFP Resources** dialog, find the **Location of presentation object containers** field and type the path where your presentation object containers are stored. If they are stored in more than one location, list all of the paths separated with colons (:), for example:

```
/resources/containers:/dept123/priv-pres-obj- containers:/dept123/
public-pres-obj-containers
```

9. Fill in any other fields that are appropriate. For example, if you use form definitions, fill in the **Location of form definitions** field.
10. Click **OK** to apply the settings and close the dialog.

Creating an actual destination

The actual destination represents the physical output device. The Infoprint Color 130 Plus must be a PSF TCP/IP printer. Use the **Create Printer Wizard** in the Infoprint Manager Administration GUI to create an actual destination.

Note: Because you are dedicating an Infoprint server to your Infoprint Color 130 Plus, this procedure assumes that you have either just installed Infoprint Manager on this system or that you have created a new server on this machine. In either case, your Infoprint server would not contain any objects (logical destinations, queues, or actual destinations) yet. If you are planning to use an existing Infoprint server to send jobs to your Infoprint Color 130 Plus, you should delete all of the objects that currently exist in it before you start this procedure.

1. Start the Infoprint Manager Administration GUI.
2. Select **Printer → Create → PSF → TCP/IP**.
3. In the first panel of the Create Printer Wizard, do the following.
 - a. Type a name for the printer in the **Name** field.
 - b. Verify that the server is correct in the **Server** field.
 - c. Select **InfoprintColor130Plus** from the Model drop-down list.

Note: If that model is not shown, you must update Infoprint Manager to the current service level.

- d. Type the TCP/IP address and port number for the printer in the correct fields.
 - e. Click **Next**.
4. In the second panel, type or select a name for the logical destination that will send jobs to this printer and click **Next**.
 5. In the third panel, type or select a name for the queue that will submit jobs to the this destination and click **Next**.
 6. On the rest of the panels, accept the default values that Infoprint Manager sets for AFP color printing by clicking **Next** and finally **Finish**.

Note: Refer to the worksheets found in "Creating and managing actual destinations" in *Infoprint Manager for AIX: Getting Started* when providing the information as prompted by the wizard.

Creating and configuring a logical destination

You create and configure the logical destination when you create the actual destination with the Create Printer wizard.

Transforming color images

Color images are transformed automatically at the server when you submit the job to the printer. However, you can transform your images separately by running transforms from the AIX command line without printing the generated output prior to submitting the job. Jobs run more quickly if the images have already been transformed.

Infoprint Manager provides transform programs for most data streams, such as GIF, PS, and PDF. The transforms convert the incoming data stream into the AFP format. For example, to transform the file `mypicture` to AFP using the `gif2afp` transform, enter the following command:

```
gif2afp mypicture
```

For a list of the flags or options and values for each transform, refer to "Infoprint Object Attributes" in the *Infoprint Manager: Reference*.

Note: It is especially recommended that you transform TIFF, JPEG, and GIF images from the AIX command line.

Using and changing color and resource attributes

You need to decide which color and resource attributes you use or need to change when you submit your job. The color and resource attribute-value pairs that are specific to the Infoprint Color 130 Plus include the following:

- **color-profile**
- **color-profiles-supported**
- **color-bits-per-plane**
- **color-bits-per-plane-supported**
- **color-rendering-intent**
- **color-toner-saver**
- **color-toner-saver-supported**
- **resource-context-presentation-object-container**
- **presentation-object-container-extraction-mode**

Refer to "Infoprint Object Attributes" in the *Infoprint Manager: Reference* for more information on these attributes.

Using color attributes

The color attributes can be modified from the command line using the `pdset` command or in the Infoprint Manager Administration GUI. Refer to "Infoprint Object Attributes" in the *Infoprint Manager: Reference* for the correct command syntax when using the command line.

color-profile

Use this attribute to specify the color profile, if any, to be used by PostScript jobs. This attribute can be equal to:

- **SWOP**
- **Euroscale**
- **none**

The default value is **none**, which means that the color rendition will be dependent on the output device.

The title of this attribute in the Infoprint Manager Administration GUI is **Color profile**.

color-profiles-supported

Use this attribute to identify which color profiles can be used by the actual destination when printing a document. This attribute can be equal to one or more of the following:

- **SWOP**
- **Euroscale**
- **none**

The default values for the Infoprint Color 130 Plus are **SWOP**, **Euroscale**, and **none**. For all other actual destinations the default is equal to **none**.

The title of this attribute in the Infoprint Manager Administration GUI is **Color profiles allowed**.

color-bits-per-plane

This attribute specifies whether the transform is to produce monochrome (FS10) or color images (FS42 or FS45). You can set this attribute equal to:

- **0-bits** (monochrome FS10)
- **1-bit** (color FS42)
- **8-bits** (color FS45)

The default for Infoprint Color 130 Plus is **8-bits**. For all other actual destinations, the default is **0-bits**.

Note: If the attribute is set to **1-bit** for a PostScript data stream it will fail.

The title of this attribute in the Infoprint Manager Administration GUI is **Color bits per plane**.

color-bits-per-plane-supported

This attribute specifies the types of images supported on the actual destination when printing a document. This attribute can be equal to one or more of the following:

- **0-bits** (monochrome FS10)
- **1-bit** (color FS42)
- **8-bits** (color FS45)

The default values for Infoprint Color 130 Plus are:

- **0-bits** (monochrome FS10)
- **1-bit** (color FS42)
- **8-bits** (color FS45)

The title of this attribute in the Infoprint Manager Administration GUI is **Color bits per plane allowed**.

color-rendering-intent

While the Infoprint Color 130 Plus produces vibrant full-color images, including images that contain gradients and shading, it is not able to reproduce every shade of every color. The **color-rendering-intent** attribute determines what Infoprint Manager does when it encounters a shade in a PostScript image that the Infoprint Color 130 Plus cannot reproduce exactly.

There are two possible values for **color-rendering-intent**:

Relative

When Infoprint Manager encounters a color that Infoprint Color 130 Plus cannot reproduce, it substitutes the closest color value that it *can* reproduce.

Perceptual

When Infoprint Manager encounters a color that Infoprint Color 130 Plus cannot reproduce, it adjusts all of the colors in the image so that they maintain their color relationships to each other. The result is an image that is pleasing to the eye, but that may not look exactly like the original image.

The default value is **Relative**.

You can set the *color rendering intent* value on a print job, a default document, or on an actual destination using either the command line or the Infoprint Manager Administration GUI. The title of this attribute in the Infoprint Manager Administration GUI is **Color rendering intent**.

color-toner-saver

When cyan, magenta, and yellow are combined in a certain proportion, the result approximates black. When the color-toner-saver attribute is set to **yes**, the proportion of cyan, magenta, and yellow are reduced and substituted with black toner, which reduces the amount of color toner used. You can enter the values:

- **true** or **yes**
- **false** or **no**

The default value is **false**, meaning that you do not want to use this attribute.

The title of this attribute in the Infoprint Manager Administration GUI is **Color toner saver**.

color-toner-saver-supported

This attribute identifies the values that can be specified for color-toner-saver.

The title of this attribute in the Infoprint Manager Administration GUI is **Color toner saver allowed**.

Using resource attributes

The resource attributes can be modified from the command line using the **pdset** command or in the Infoprint Manager Administration GUI. Refer to "Infoprint Object Attributes" in the *Infoprint Manager: Reference* for the correct command syntax when using the command line.

resource-context-presentation-object-container

This attribute adds paths to the directory that Infoprint searches for presentation object containers (also called data object resources), such as EPS or PDF pages, for the actual destination.

The title of this attribute in the Infoprint Manager Administration GUI is **Location of presentation object containers**.

presentation-object-container-extraction-mode

This attribute specifies the degree of optimization attempted by color transforms. The possible values are:

- **ignore** (generates the document without resources by ignoring presentation object containers)
- **inline** (identifies and extracts the resources within a document for use)

The default value is **ignore**.

Note: Inline transforms always use an extraction mode of **ignore**.

The title of this attribute in the Infoprint Manager Administration GUI is **Presentation object container extraction mode**.

Using the Infoprint Manager Administration GUI to change color and resource attributes

The Infoprint Manager Administration GUI is an interface for managing Infoprint Manager jobs, queues, logical destinations, and actual destinations, such as printers. It runs on multiple platforms, so you can use it either from a Windows workstation, an AIX workstation, or directly on the AIX Infoprint Manager server console.

From the server or from remote work stations, operators can use this interface to monitor all jobs and printers in the system and to route jobs appropriately to increase enterprise-wide printing productivity. With the Infoprint Manager Administration GUI, you can change the color and resource attributes.

Starting the Infoprint Manager Administration GUI

To open the Infoprint Manager Administration GUI from the Windows desktop, double-click any of the **Infoprint Administration** icons.

You can start the Infoprint Manager Administration GUI from an aixterm window. For example, to open an advanced view, type `ipguiadvadm` at the AIX command line. You can also use the basic (`ipguibasicadm`) view.

Changing the attributes

Now that you have opened one of the views of the Administration Infoprint GUI, you can change the attributes in the actual destination. Follow this procedure to set the attributes using the GUI.

1. Click your Infoprint Color 130 Plus actual destination.
2. Select **Options** → **Customize**.

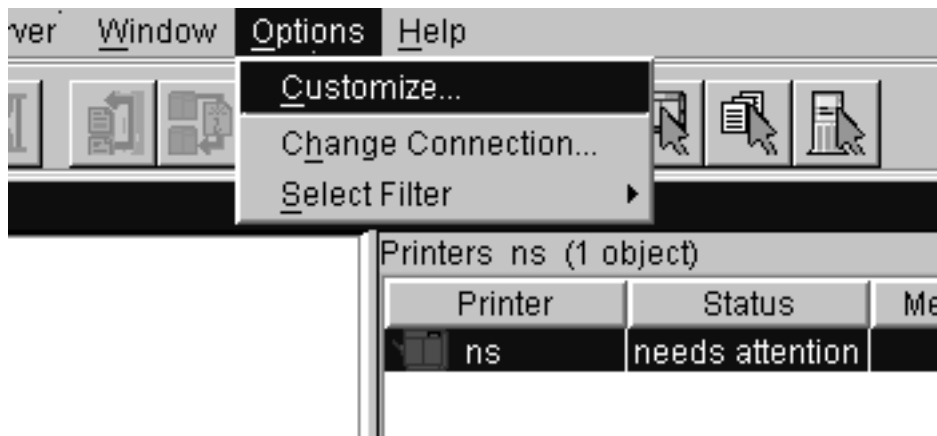


Figure 17. Options menu

3. In the **Customize** dialog, click the **Printer** tab.
4. In the **Action** column, find **Change Tuning**, **Change AFP Resources**, and **Change AFP Color**, and select the check boxes in the **Menu** column next to them.

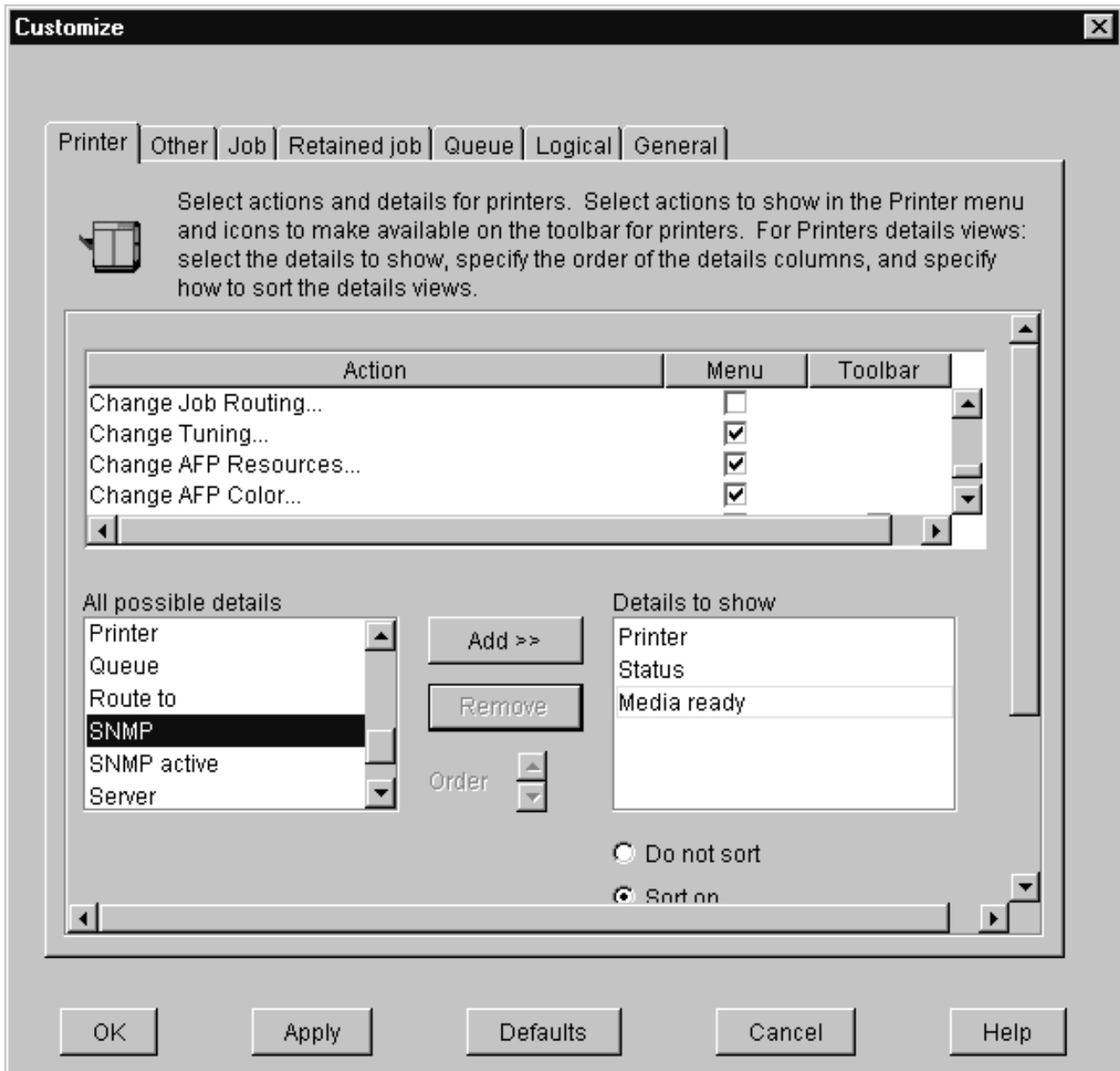


Figure 18. Printer menu

This step adds these tasks to the **Printer** menu. If you want to add other tasks to the **Printer** menu or to any other menu, you can do it now or you can wait until later.

5. Click **OK** to apply the settings and close the dialog.
6. Select **Printer** → **Change AFP Resources** to open the **Change AFP Resources** dialog. These fields allow you to specify where resources, such as fonts and presentation object containers, are located. Refer to “Identifying AFP resources” on page 96.
7. In the **Change AFP Resources** dialog, find the **Location of presentation object containers** field and type the path where your presentation object containers are stored. If they are stored in more than one location, list all of the paths separated with colons (:), for example:

```
/resources/containers:/dept123/priv-pres-obj- containers:/dept123/
public-pres-obj-containers
```

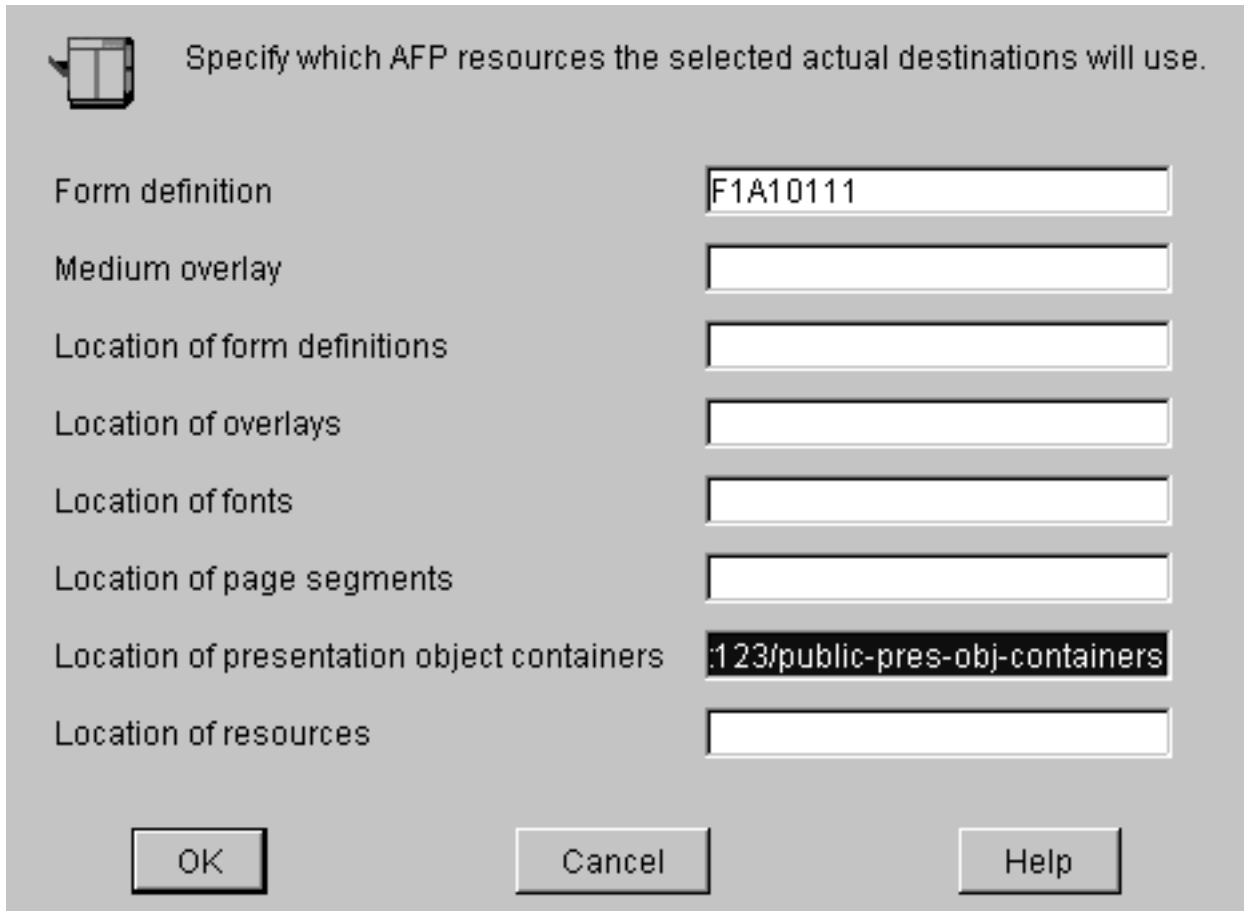


Figure 19. Change AFP Resources dialog

8. Fill in any other fields that are appropriate. For example, if you use form definitions, fill in the **Location of form definitions** field.
9. Click **OK** to apply the settings and close the dialog.
10. Select **Printer → Change AFP Color** to open the **Change AFP Color** dialog. These fields allow you to modify the color attributes in your job. Refer to “Using color attributes” on page 98 for more information.

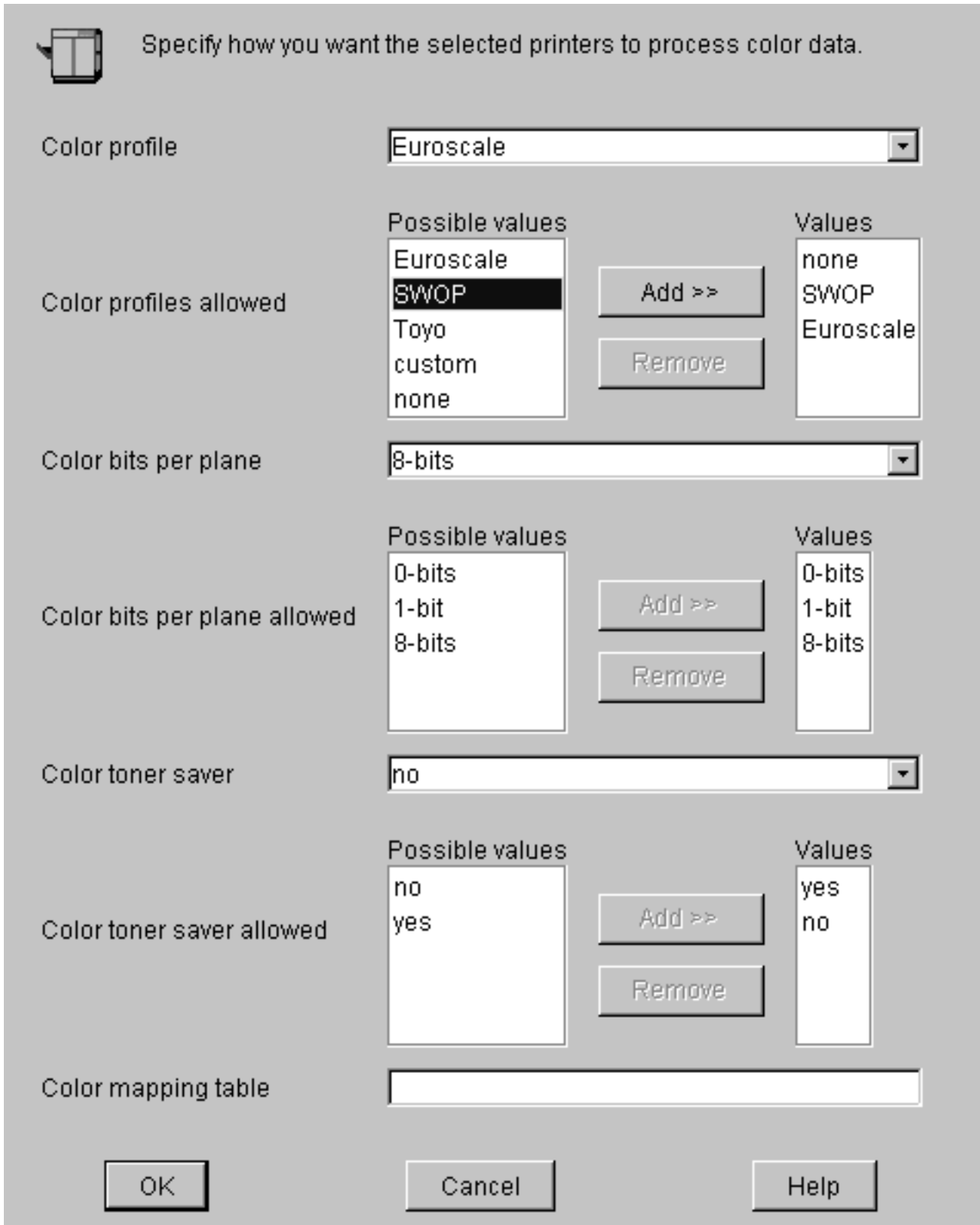
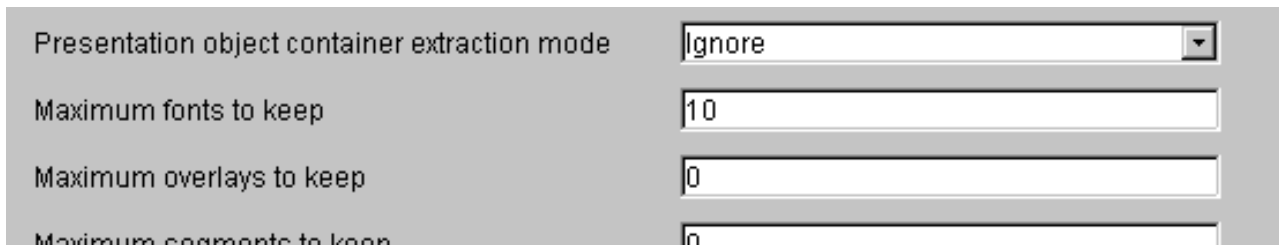


Figure 20. Change AFP Color dialog

11. Click **OK** to apply the settings and close the dialog.

12. Select **Printer → Change Tuning** to open the **Change Tuning** dialog. These fields allow you to modify resource attributes in your job. Refer to “Using resource attributes” on page 100 for more information.



Presentation object container extraction mode	Ignore
Maximum fonts to keep	10
Maximum overlays to keep	0
Maximum segments to keep	0

Figure 21. Change Tuning dialog

13. Click **OK** to apply the settings and close the dialog.

Sending an AFP job to the printer using the AIX command line

In this example, you have created a document using an AFP statement generator. This job contains color images that you decide to transform offline. You now want to submit that document through Infoprint Manager to the Infoprint Color 130 Plus using the command line.

Setting up assumptions

This scenario assumes that you have completed the following tasks:

- Built an AFP data stream
- Identified location of AFP resources
- Created an actual destination for the printer
- Transformed color images

See “Setting up” on page 95 for more information.

Using AIX commands

On any AIX system, the Infoprint AIX client allows authorized users to use the following Infoprint commands:

- **pdls**
Lists selected attribute values for a job, destination, or other Infoprint object.
- **pdpr**
Submits a job to a logical destination.
- **pdq**
Queries the status of selected jobs, of all jobs submitted to a logical destination, or of all jobs assigned to an actual destination.

Refer to *Infoprint Manager: Reference* or the associated man pages for a complete list of flags and attributes to use with these commands.

Submitting the job

Complete the following steps to submit the job.

1. To determine whether the logical destination IC130P-1d is ready to receive jobs, type:

```
pdls -c destination -r "enabled" IC130P-1d
```

You will see the following message if the logical destination is enabled:
enabled=true

2. To submit the file MyJob to the logical destination IC130P-1d and request two-sided printing and the **color-toner-saver** attribute, type:

```
pdpr -d IC130-1d -x "sides=2 color-toner-saver=true" MyJob
```

Note: The page size and orientation that is specified in the job and in Infoprint Manager must match that specified at the AFCCU. Otherwise, the job will print on the page size and with the orientation specified at the AFCCU.

3. To query all the jobs that you submitted to logical destination IC130P-1d, type:
pdq -d IC130P-1d

In the previous examples *-d* refers to the logical destination and *-x* refers to the attribute string that contains the attribute-value pairs you want to include.

You can use the following attributes from the AIX command line or you can change them in the Infoprint Manager Administration GUI:

- **color-bits-per-plane**
- **color-bits-per-plane-supported**
- **color-rendering-intent**
- **color-toner-saver**
- **color-toner-saver-supported**
- **resource-context-presentation-object-container**

Refer to “Using and changing color and resource attributes” on page 98 for details on when and how to use these attributes.

Sending an AFP job with color images to the printer using Infoprint Submit

You have created an AFP document using a page layout application and are using Infoprint Submit to send it to the Infoprint Color 130 Plus.

Setting up assumptions

This scenario assumes that you have completed the following tasks:

- Built a data stream
- Created an actual destination
- Installed Infoprint Submit

See “Setting up” on page 95 for more information.

Submitting the job

When using Infoprint Submit to create the job ticket, you must consider a number of things to prepare a job for printing. Primarily, however, during this phase of the process, you will identify and organize the printable files and other resources that make up the job. As you complete the job ticket, Infoprint Submit provides a format in which you can specify the details necessary to process a job effectively. You generate the printable files that you submit to Infoprint Manager file by file from the application that you use for authoring.

Note: Use the **Help** menu from the Job Ticket window or the **Help** button on the dialogs to guide you.

Creating a new job ticket

In this example, you will create a new job ticket named MyJob. You adjust color attributes and then submit the job.

Note: When you use Infoprint Submit to send a job to the printer, you do not need to have previously created a form definition. If you have a form definition it overrides the attributes you specify in Infoprint Submit.

1. Start Infoprint Submit. The **Job Ticket** window displays.
2. Fill in all the fields with appropriate information.
3. Insert the files into your job ticket that you want to include in the job. Click **Help → Help Topics...** if you have questions.
 - To insert new files into the document, click **Item → Insert File** on the menu bar. The Select files dialog box displays. Select the files you want to add to the document from the Select files dialog box and click **Select**.
4. Specify the layout you want in the **Layout** tab.
5. Select Infoprint Color 130 Plus from the **Printer type** drop-down list on the **Print** tab.

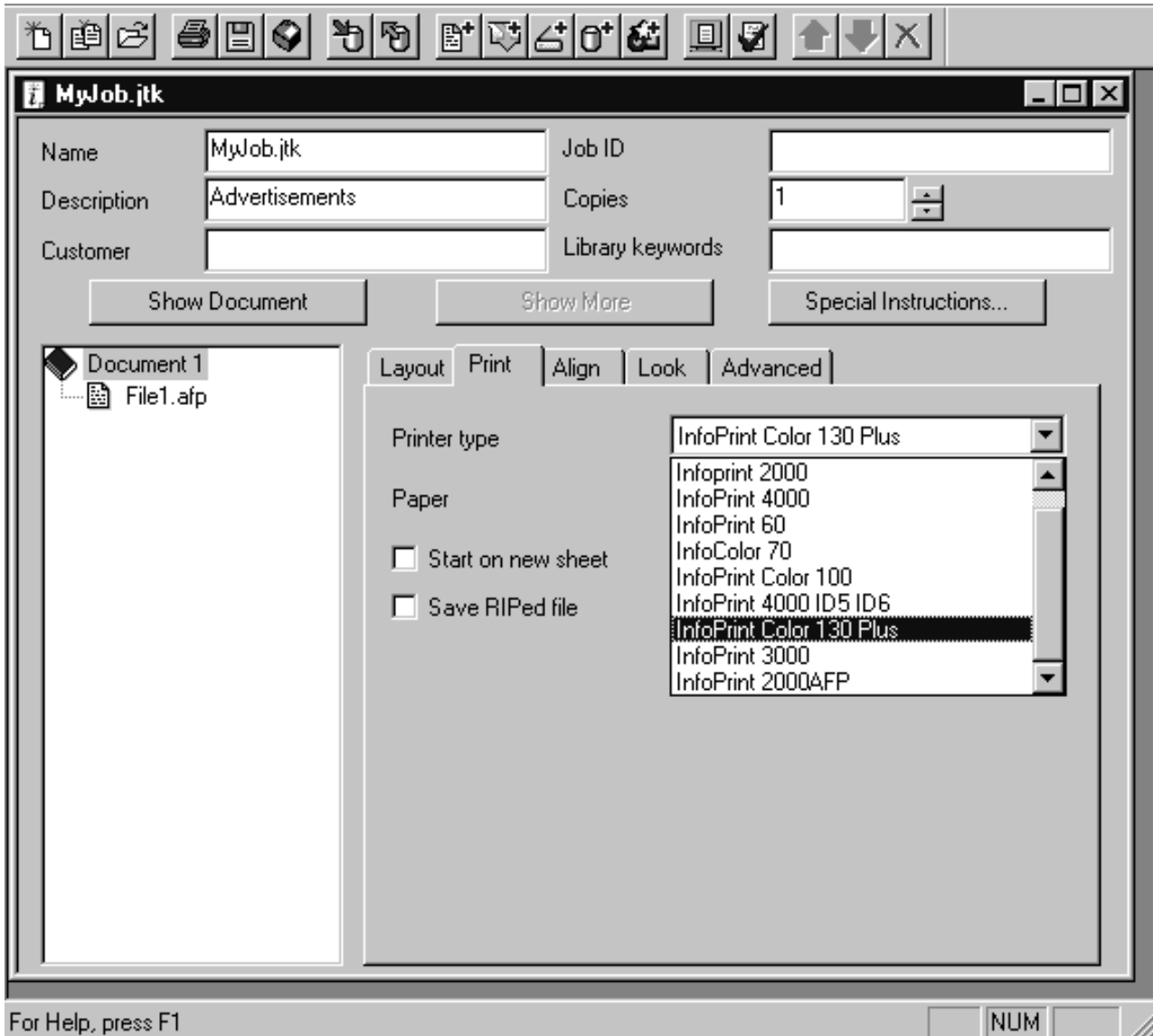


Figure 22. Print tab

6. Specify page alignment on the **Align** tab.

Note: You must specify the same page size and orientation at the AFCCU as you do in the job, otherwise the page size and orientation specified in the AFCCU will override that specified in the job.

7. Choose the values for the color attributes on the **Look** tab. You can use the following attributes in Infoprint Submit:
 - **Color Profile**
 - **Color Bits Per Plane**
 - **Color Toner Saver**

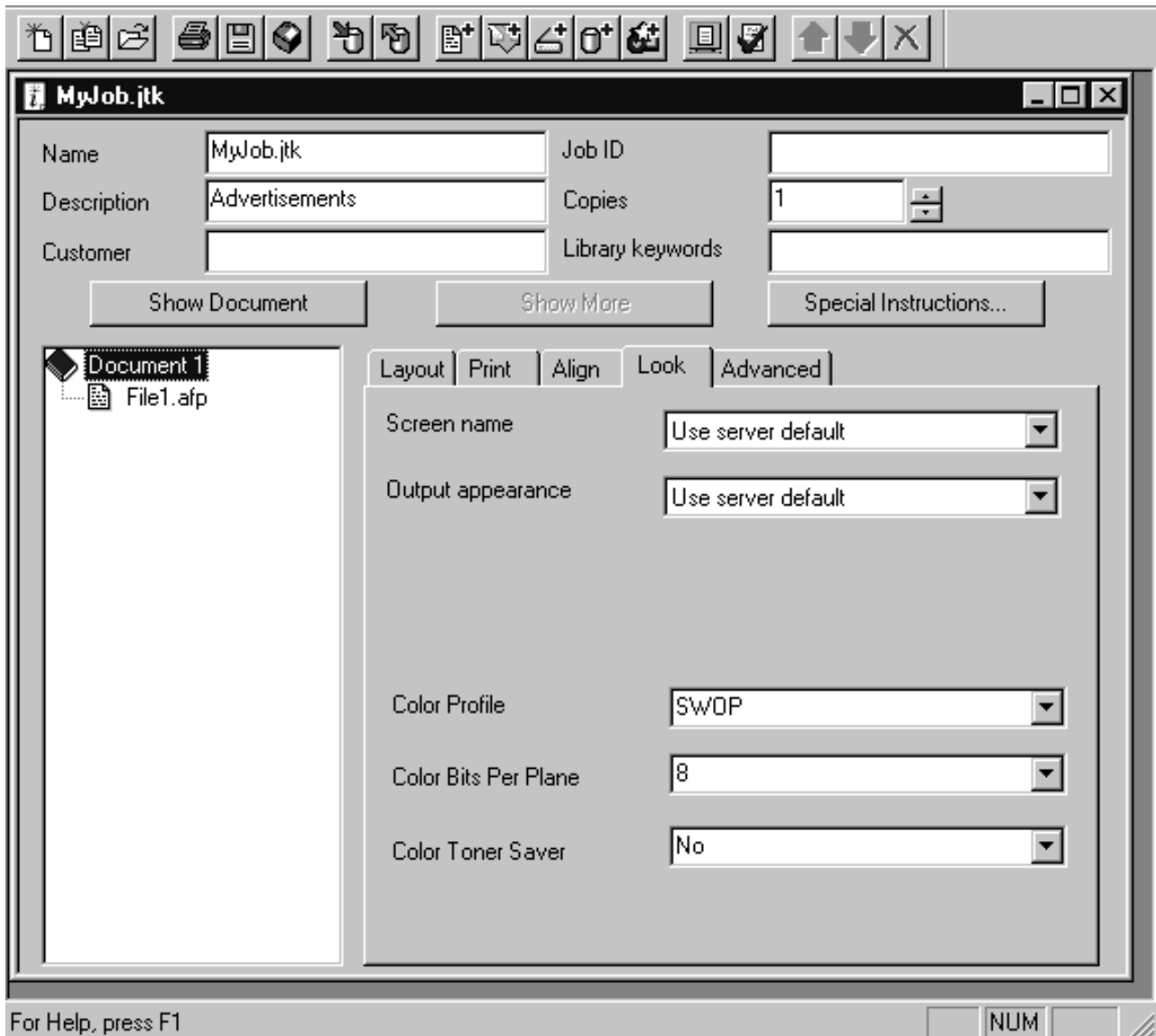


Figure 23. Look tab

Refer to “Using and changing color and resource attributes” on page 98 for details on when and how to use these attributes.

8. Click the **Advanced** tab, find **RIP for**, and select **Infoprint Color 130 Plus** from the drop-down list.

Note: If **Infoprint Color 130 Plus** does not appear in the drop-down list upgrade to the most recent service level.

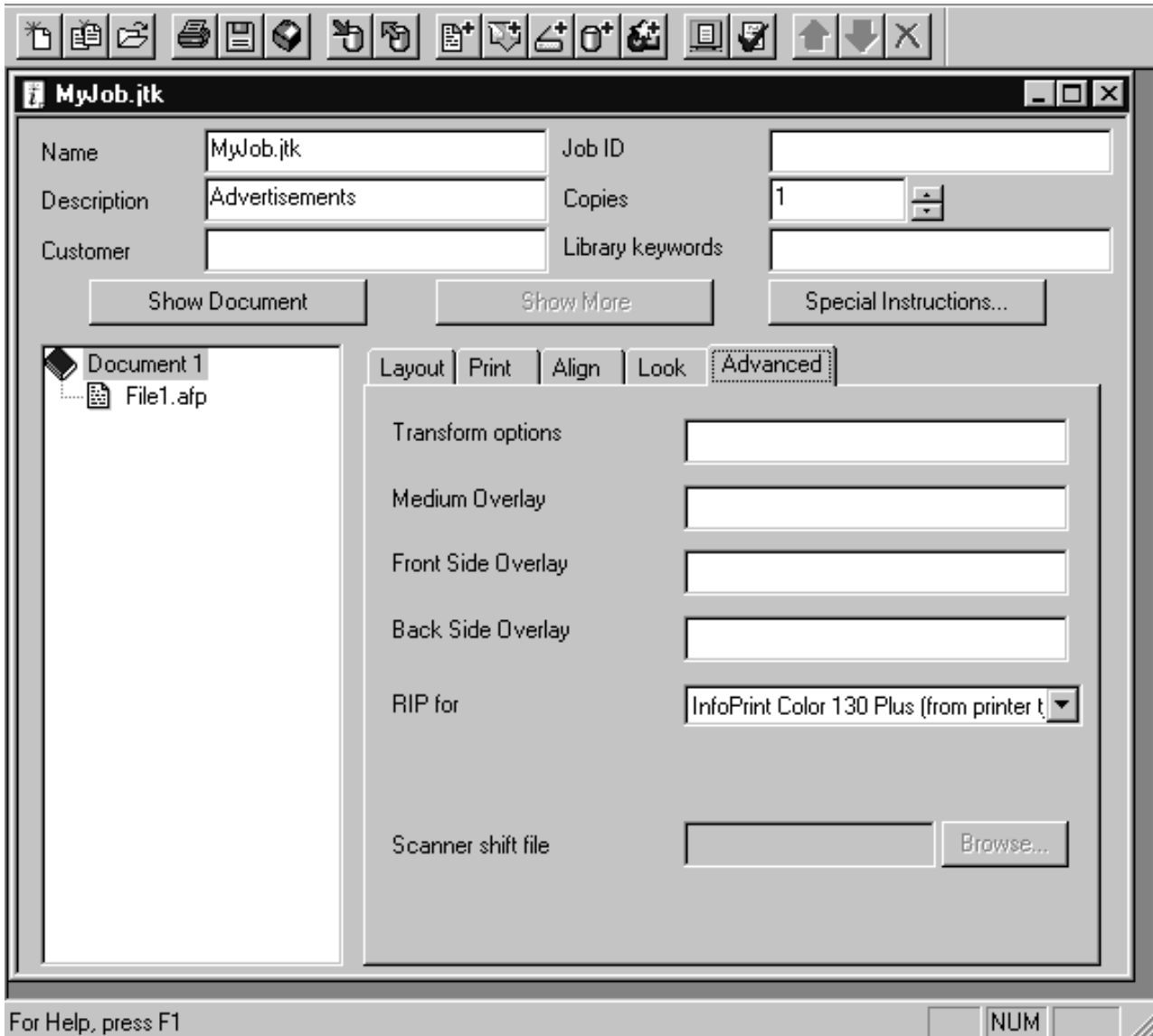


Figure 24. Advanced tab

9. Save the job ticket by clicking **Ticket** → **Save As...**
10. Submit the job by clicking **Ticket** → **Submit Job**.

Refer to *Using Infoprint Submit* that is shipped with the separately orderable feature.

Sending a job to the printer using Infoprint Select

A document created in a Windows application, such as PageMaker or QuarkXPress, is submitted through Infoprint Select for printing to the Infoprint Color 130 Plus.

Setting up assumptions

This scenario assumes that you have completed the following tasks:

- Created an actual destination for the printer
- Installed Infoprint Select

- Configured the server to use Infoprint Select

See "Setting up" on page 95 for more information.

Submitting the job

Infoprint Select allows you to submit jobs from an IBM Operating System/2 (OS/2) or Windows workstation to a printer that is managed by Infoprint. You can print from applications or from the MS-DOS command line. In this example you are using a Windows application, such as PageMaker or QuarkXPress, on Windows NT to create a document and send it to Infoprint Color 130 Plus through Infoprint Select.

Adding a Select printer to your workstation

Before you can use Infoprint Select to submit a job to a printer, you must define the printer on your workstation.

The instructions to define a printer on the Windows NT workstation follow. Refer to "Using Infoprint Select to Submit a Job" in the *IBM Infoprint Manager for AIX: User's and Operator's Guide* for information on defining printers on other platforms.

Windows NT: To define a new printer to Windows NT, follow these steps:

1. From the **Start** menu, select **Settings**, then **Printers**.
2. Double-click the **Add Printer** icon to start the **Add Printer** wizard.
3. In the first pane of the wizard, select **My Computer** and click **Next**.
4. In the list of available ports, select **Infoprint** and click **Configure Port**.
5. Fill in the **Host Name** and **Host Port** fields.
6. In the **Print Server** field, select **Infoprint Manager**; then click **Refresh Printer List**.

Note: Windows NT saves your entries in the **Host Name**, **Host Port**, and **Print Server** fields for future printer definitions.

7. Select your Infoprint Color 130 Plus printer from the list and click **OK**.
8. Click **Next**.
9. Click **Have Disk**.
10. Select the directory where Infoprint Select is installed and click **OK**.
11. Select the Infoprint Color 130 Plus from the printer model list and click **Next**.
12. Either accept the default name for the printer or enter a name of your choice. This name will appear under the printer icon.
13. If you want applications to use this printer as the default printer, select **Yes**. Otherwise, select **No**.
14. Refer to the Microsoft documentation to help you select the **Share** or **Not Share** option.
15. When you are prompted to print a test page, select **No**.
16. Click **Finish**. The printer definition is complete.

Printing from Applications

Infoprint Select allows you to print to the Infoprint Color 130 Plus just as you would to any other Windows printer. Click **File** → **Print**. Infoprint Select works with the print facility of each application, so printing from each program gets a little different from here on out. A typical application may allow you to specify a printer other than the default, the number of copies, or a range of pages.

Note: The page size and orientation that is specified in the job and in Infoprint Manager must match that specified at the AFCCU. Otherwise, the job will print on the page size and with the orientation specified at the AFCCU.

Printing from the Command Line

Infoprint Select allows you to enter the following Infoprint commands on the DOS command line:

- **pdls**
Lists selected attribute values for a job, destination, or other Infoprint object.
- **pdpr**
Submits a job to a logical destination.
- **pdq**
Queries the status of selected jobs, of all jobs submitted to a logical destination, or of all jobs assigned to an actual destination.

The *Infoprint Manager: Reference* and associated man pages provide information about Infoprint commands and attributes and show several examples of each command that you can issue from Infoprint Select. This section contains examples using the commands to perform some common tasks.

Querying Destination Attributes: To determine whether the logical destination IC130P-1d is ready to receive jobs, type:

```
pdls -c destination -r "enabled" IC130P-1d
```

You will see the following message if the logical destination is enabled:

```
enabled=true
```

Submitting a Job: To submit the file MyJob to IC130P-1d and request two-sided printing and the **color-toner-saver** attribute, type:

```
pdpr -d IC130P-1d -x "sides=2 color-toner-saver=true" MyJob
```

Querying Jobs: To query all the jobs that you submitted to logical destination IC130P-1d, enter:

```
pdq -d IC130P-1d
```

Changing color and resource attributes

Refer to "Using and changing color and resource attributes" on page 98 for information on changing attribute values.

Sending a job using Download for OS/390

You have created an AFP document using a page layout application and are using Download for OS/390 to send it to the Infoprint Color 130 Plus.

Download for OS/390 automatically transmits data from the job entry subsystem (JES) spool to remote systems using TCP/IP. This eliminates the need for manual print file transfer using File Transfer Protocol. A cooperating print server running on a remote system receives the data sets for printing with Infoprint Manager for AIX. For most jobs, you can use the same job control language (JCL) that you would use for non-AFP printers, changing only the MVS routing information to direct your job to the Infoprint Color 130 Plus.

Note: You can use IBM's Page Printer Formatting Aid (PPFA) to create form definitions and page definitions when creating the data stream. Refer to <http://www.ibm.com/printers/R5PSC.NSF/Web/ppfa> for information on how to use PPFA.

If you are using Download for OS/390 to submit jobs to the printer, refer to "Using JCL for Advanced Function Presentation" and "Printing Tasks and Examples" in the *Print Services Facility for OS/390: User's Guide* for specific printing tasks and examples. You can also refer to *Print Services Facility for OS/390: Download for OS/390* for more information.

Chapter 13. Infoprint Manager's impositioning solution

In the printing world, impositioning consists of the arrangement of pages so they will appear in proper sequence after press sheets are folded and bound. Commercial printers who create signature-based documents with frequent layout changes, while the content remains relatively static, will find value in Infoprint Manager for AIX's impositioning solution.

Users can take advantage of the wide-carriage web of the IBM 4100 Advanced Function Printing System to print up to 19.5 inches across for the creation of signature-based documents. Most importantly, this solution allows for frequent minor adjustments to existing signature document layouts, without reRIPping the entire job at the Infoprint AIX server. See "Prerequisites for the Infoprint impositioning solution" on page 116 for a list of the prerequisites necessary to implement this impositioning solution.

For example, if a publishing house decides to use a heavier bond of paper that results in significant page creep, or if pages need to be rotated differently because a different sequence of folds is required for an available postprocessor, Infoprint Manager's impositioning solution allows them to make changes to the layout without having to submit and reRIP the job content. This flexibility is the result of Infoprint Manager for AIX's Print Optimizer.

The Infoprint Manager for AIX Print Optimizer works in the background to maintain a database of RIPped page images. These RIPped page images contain only the information about a page's content and have no information about page layout. If only the layout is modified and the page content remains unchanged, these images do not change. The print jobs consist of signatures (a sheet with many pages and optional marks for later folding and trimming), which will be folded and stitch-bound into books. Print jobs can also contain content. When you re-print a job changing only its layout, the page images stored at the printer are used, resulting in significant network traffic reduction. If the printer has been shut down before the job is re-printed, these RIPped page images are obtained from the Infoprint AIX server and do not have to be reRIPped.

The Print Optimizer:

1. Uniquely identifies each page in a PostScript or PDF source file.
2. Converts the PostScript or PDF page into an Advanced Function Presentation (AFP) resource.
3. Stores the RIPped pages as resources that are accessible by Infoprint Manager.

| This topic describes how you can install and configure impositioning support in
| order to submit Adobe Portable Job Ticket (*.pjtf) files to the Infoprint Manager
| server so you can better manage and track print jobs containing signatures that
| will be folded and stitch-bound into books. Once Infoprint Manager is configured
| to support impositioning, you can create *.pjtf files using the third party ScenicSoft
| Preps 4.0 impositioning product, submit those jobs using an Infoprint Manager hot
| folder or other Infoprint Submission method, and use the Infoprint 4100 Advanced
| Function Printing System to print out the results. Additionally, by sending only the
| *.pjtf files (see "Infoprint impositioning terms" on page 117) to the server when
| changes only affect the layout or page order, you should experience significant
| performance benefits.

Note: While other software impositioning products can output *.pjtf files, the Infoprint impositioning solution has only been tested using ScenicSoft Preps 4.0. When using Preps, ensure that the finished page size is the same page size as the **content file** (see “Infoprint impositioning terms” on page 117) page size. For example, if your **content file** is an Adobe Acrobat file (PDF format) containing pages 6 inches by 9 inches in size, then you should set your finished page size in Preps to 6 inches by 9 inches. Infoprint impositioning does not support scaling and page cropping can result in unsatisfactory print output.

Prerequisites for the Infoprint impositioning solution

To use the Infoprint Manager Impositioning solution described in this document, you must install the following components.

Note: If you are running DCE for Infoprint Manager on your Infoprint Manager for AIX server, you cannot use this Impositioning solution.

- IBM Infoprint 4100 Advanced Function Printing System

Ensure that this printer contains the Version 11.2.42 or higher release of the Advanced Function Common Control Unit (AFCCU) microcode for High End Continuous Forms Printers. This microcode level is the first to incorporate the new IPDS pre-RIP (**RPO**) command that reduces overhead before printing the first page of a job that has been printed previously. This command is essential for the impositioning solution because it prevents the printer from clutching (waiting on data to finish processing in the middle a job printing) on Impositioning jobs.

On the printer, ensure that you install and enable the Request for Price Quotation (RPQ) 8B4053 for supporting the 54 inch paper required for this solution. While installing this RPQ, note that it checks the memory available on the printer and requires additional memory if the minimum amount required for the RPQ is not available. In addition, you can order a hardware buffer unit to reside on the floor in the paper path following engine #1 to accommodate the larger paper size. For more information, access the “Signature Page” option from chapter 1 of the *Infoprint 4000 and Infoprint 4100 Models with Enhanced Operator Console: Planning and Configuration Guide*, G544-5798-01, or consult your Printing Systems sales representative.

Note: To use the Impositioning solution, you must ensure that Print On Demand (POD) mode is turned off at the IBM Infoprint 4100 Advanced Function Printing System’s controller console.

- Infoprint Manager Version 4 Release 1 with the Print-On-Demand feature
For more information about applying service, see *Infoprint Manager for AIX: Getting Started*.

- A third-party impositioning product, such as ScenicSoft Preps, to produce the Portable Adobe Job Ticket files

When using Adobe Portable Job Ticket Format (PJTF) job tickets, the recommended impositioning software is ScenicSoft Preps Pro (R) Version 4.0. When using PJTF job tickets, configure Preps Pro 4.0 to place printer marks in the job ticket rather than in a separate file. Please note that PJTF files from Preps Pro 4.1 are not supported by Infoprint and cannot be used for this solution. You can obtain more information about this product from the ScenicSoft web site at <http://www.scenicsoft.com/products/Preps/index.html>.

Infoprint flow for impositioning jobs

This section presumes that you have already:

1. Created the appropriate PDF and PostScript documents through a software package like QuarkXPress.
2. Run these files through an impositioning program like ScenicSoft's Preps to create the Adobe Portable Job Ticket (*.pjtf) files.

Infoprint impositioning terms

Before describing the job flow and eventual output, the following impositioning terms must be defined:

content files

One or more PDF (*.pdf) or PostScript (*.ps) files that contain the print data from a commercial software program (such as QuarkXPress or Adobe Photoshop) that has been submitted to the ScenicSoft Preps impositioning software in order to create the **layout files**.

layout file

The Adobe Portable Job Ticket files (*.pjtf) that are the output of the SoftScenic Preps impositioning software. These files contain the layout specifications in a signature format derived from the specific **content files**.

original job

One or more files submitted to Infoprint Manager for impositioning, usually through a hot folder.

The **original job** is either:

- split into a **printing job** and a **priming job**
- or
- turned into just a **priming job** (if **prime-only=true**).

priming actual destination

Indicates the print optimizer actual destination.

priming job

A job sent to the priming logical destination and subsequently processed by the **priming actual destination**.

priming logical destination

Indicates the Infoprint logical destination that feeds jobs to the Print Optimizer actual destination. This object is created by the Print Optimizer creation wizard with the naming convention *adname-ld* where *adname* represents the name you choose in "Creating the priming (print optimizer DSS) destinations and queue" on page 129.

printing actual destination

Indicates the PSF DSS actual destination that prints the job.

printing job

A job sent to the printing actual destination and subsequently processed by the PSF DSS.

printing logical destination(s)

Indicates the logical destination or destinations that send **priming jobs** to the **priming logical destination** and send **printing jobs** to the **printing actual destination**.

Impositioning job flow overview

Now, you are ready to print both the **content files** (*.ps and *.pdf) with the layout specification files (*.pjtf) to an Infoprint 4100 Advanced Function Printing System. Throughout this chapter, the term **original job** implies both the source PostScript or PDF files and the Adobe Portable Job Ticket file (*.pjtf) in the same job, unless otherwise stated.

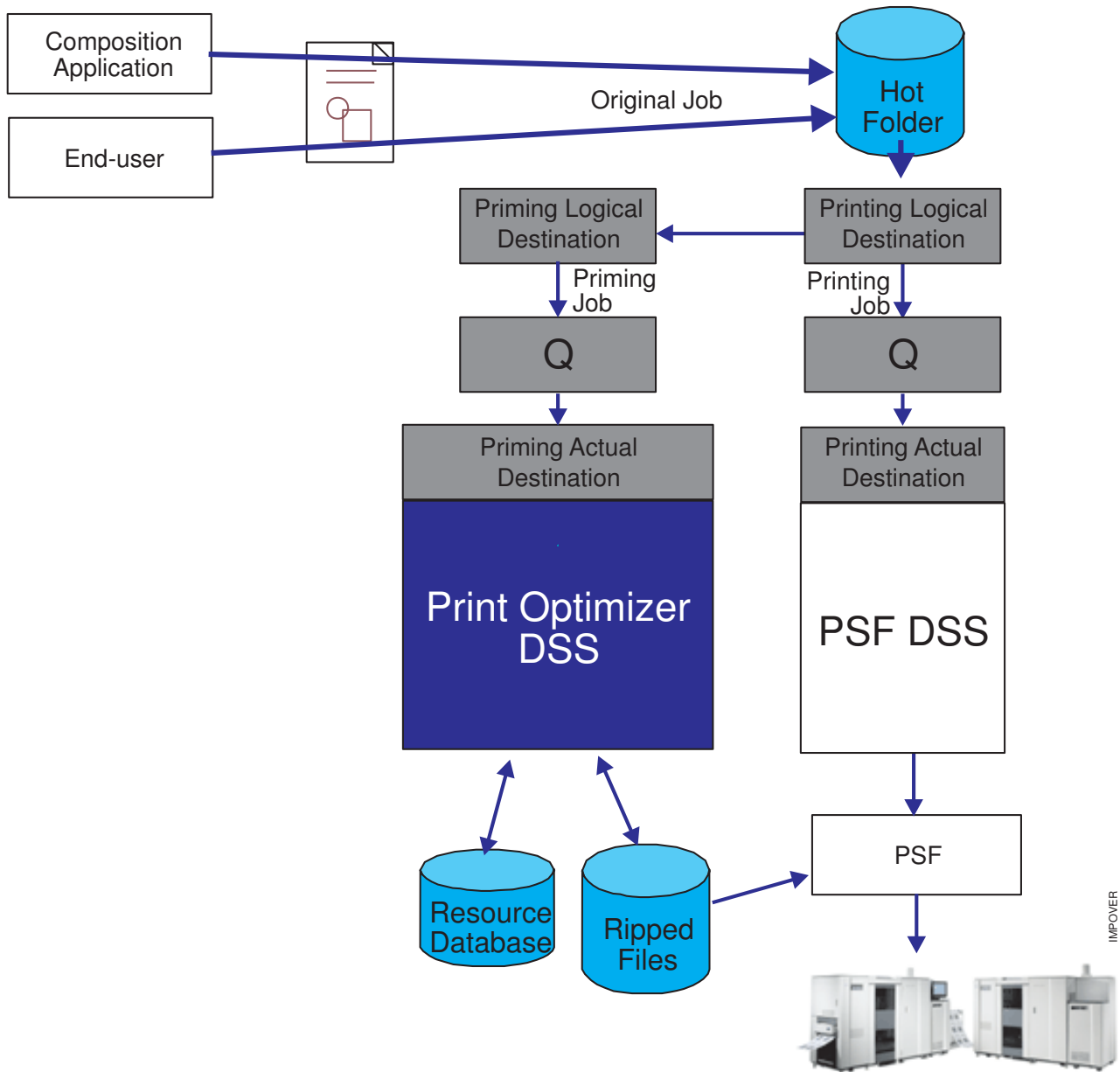


Figure 25. Overview of the Infoprint job flow for impositioning jobs

Figure 25 provides a high-level view of the processing flow of impositioning jobs in an Infoprint system. Note that the **original job** coming from either the end user or the composition application (such as QuarkXPress) travels through the Software impositioning program (the unlabeled page, representing a *.pjtf file or files that has been processed by an impositioning software program, such as Preps) before it is placed in the hot folder on the Infoprint AIX server. Then, the printing logical

destination picks up the **original job** from the hot folder. At this time, Infoprint Manager assigns a job ID to the **printing job** for tracking purposes.

The **printing logical destination** then sends the **priming job** to the **priming logical destination**. At this time, Infoprint Manager assigns a job ID to this **priming job** (still both the PostScript or PDF source files and the Portable Adobe Job Ticket File) for tracking purposes. This explains why there are two Infoprint Manager job IDs that you can track, using the tools described in “Troubleshooting impositioning” on page 138.

The **priming logical destination** feeds the Print Optimizer queue, which funnels jobs to the **priming actual destination**. Once the **priming actual destination** starts processing the **priming job**, the **printing logical destination** starts processing the **printing job**. As it needs AFP pages to print, the **printing logical destination** queries the **priming actual destination**. If these pages have not finished processing at the Print Optimizer, the **printing logical destination** waits for them to finish processing.

Guidelines for submitting impositioning jobs to Infoprint Manager

The following guidelines should be followed when creating and submitting Impositioning jobs to Infoprint Manager.

1. If a prime-only job was used, the corresponding impositioning jobs should be submitted through the same logical destination where the prime-only job was submitted.
2. If you use the same actual destination for both general printing and impositioning, use two separate logical destinations to feed it jobs.
3. If you are compelled to shut down the **printing actual destination** while an impositioning job is processing, the job will not print and you will need to place the **original job** in the hot folder again.
4. Specify high values for both the **Release time (sec)** and the **Maximum presentation object containers to keep** fields as shown in Figure 27 on page 122.

Setting the **Maximum presentation object containers to keep** field (or the **maximum-presentation-object-containers-to-keep** attribute on the command line) to a high value ensures that data stays at the printer for a longer period, reducing network traffic when reprinting jobs. Please note that the size of this attribute depends upon the size of the largest PostScript or PDF source file that you are processing. This attribute should be set by taking the largest possible value (32511) and subtracting it from your largest PDF or PostScript source file. For example, if your largest PDF or PostScript source file is 500 pages when printed, you should set the **Maximum presentation object containers to keep** field to 31511 (32511 — (500 x 2)).

5. Ensure that **Optimize for copies** is set to no, as shown in Figure 27 on page 122.
6. Impositioning jobs must be no larger than 19.5 X 53 inches for each sheet.
7. Do not submit multiple Adobe Portable Job Tickets within the same job.
8. Because plex values (whether the job is to be printed simplex, duplex, or tumble) are ignored within the Adobe Portable Job Tickets, you must use the following Infoprint Manager attributes to specify these settings:
 - **plex**
 - **plex-supported**
 - **sides**
 - **sides-supported**

The **plex-supported** actual destination attribute can be modified when you define the printing actual destination in step 5 of “Creating printing (PSF DSS) destinations to use the print optimizer” on page 131.

You can specify the **sides** document attribute in the initial value document (**ivj**) of the printing logical destination through the following procedure:

- a. From the main view of the **Infoprint Manager Administration GUI**, click on the **Logical Destinations** icon.
- b. From the **Logical Destinations** view that appears in the right pane, right-click on the printing logical destination that you defined in “Creating printing (PSF DSS) destinations to use the print optimizer” on page 131 and select **Job and Document Defaults** → **Modify...**
- c. From the **Job and Document Defaults** view, select the **Document Layout** tab.
- d. From the **Document Layout** tab view, you can specify duplex jobs by defining the Sides to print field (the **Sides** attribute) as 2 and allowing all other attributes to take the default, as shown in Figure 26 on page 121.

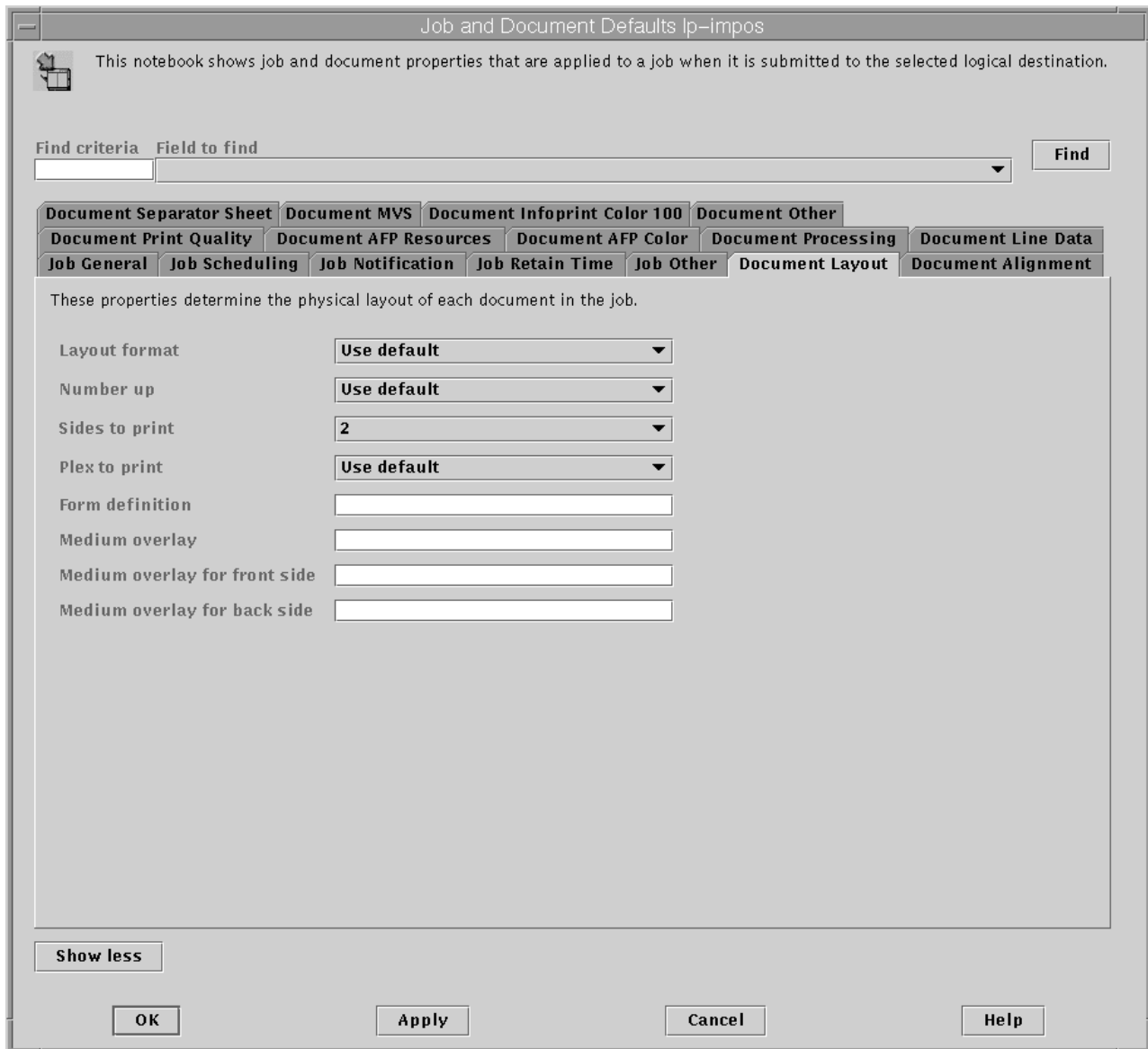


Figure 26. Document Layout tab view

9. Because positioning of the job on the page should be left to the Adobe Portable Job Ticket, ensure that the following attributes are set to 0 in an Impositioning job:
 - **x-image-shift (Move image right (inches or (mm) field)**
 - **x-image-shift-back (Move image right (inches or (mm) field)**
 - **y-image-shift (Move image down (inches or (mm) field)**
 - **y-image-shift-back (Move image down (inches or (mm) field)**

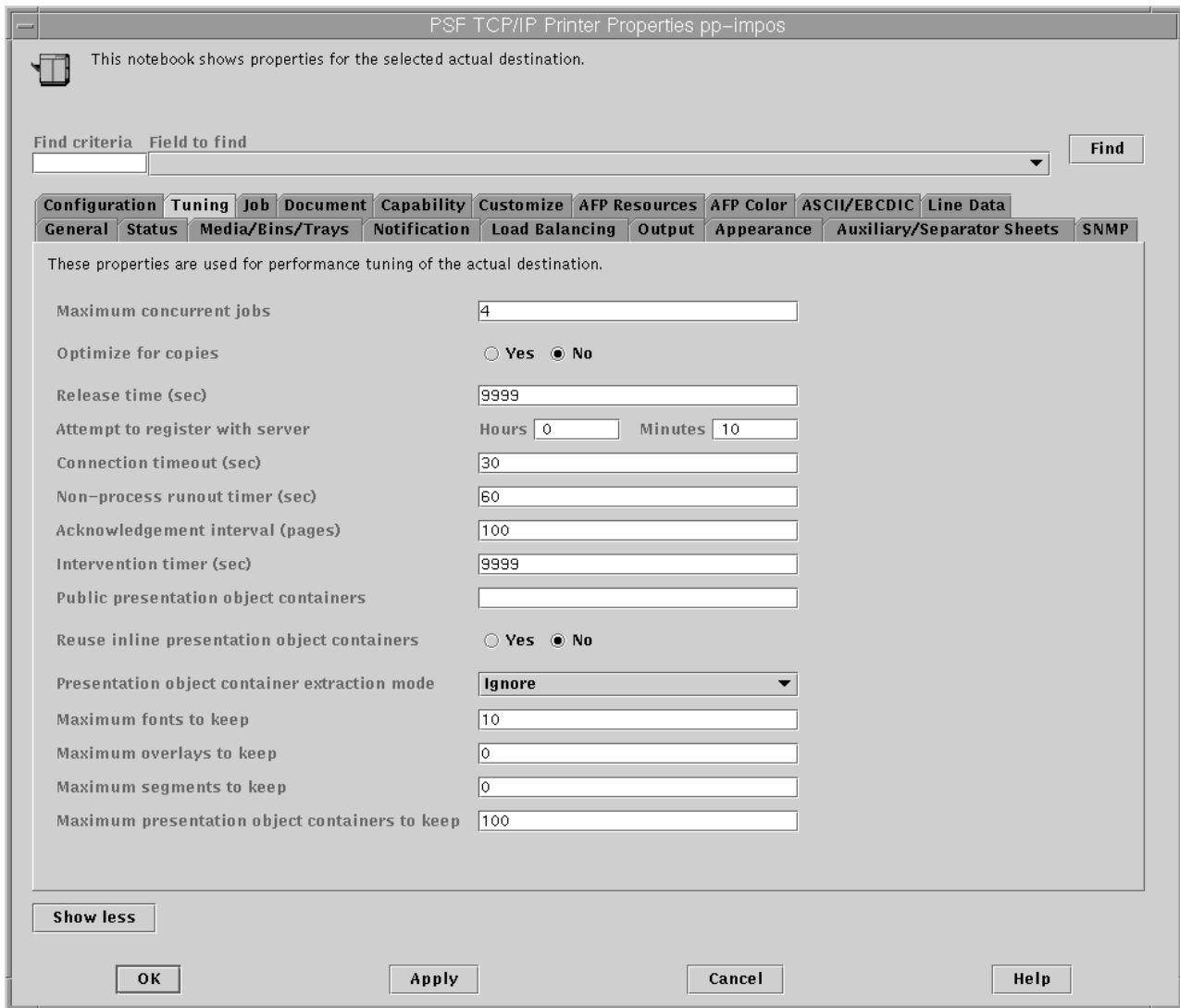


Figure 27. PSF DSS Actual Destination Properties notebook

Modifying both the content and the layout of impositioning jobs

This job flow describes what happens when both the impositioning job's contents and layout specifications must be processed through Infoprint Manager. You will use this scenario the first time a print installation submits an impositioning job to Infoprint Manager. Please note that the first time you submit any job to the Print Optimizer through the hot folder, you must include all the print files (either *.ps or *.pdf files) and the **pjtf** file required with the job.

Once it has been optimized, you need only specify the Adobe Portable Job Ticket file (*.pjtf): the print files will be run without your having to specify them again.

Note that Figure 28 on page 124 displays the job flow described in the following, step-by-step sequence.

1. The **original job** (consisting of the *.pjtf file and the all print file(s)) is submitted through the hot folder.

2. The **printing logical destination** picks up the **original job** from the hot folder.
3. The **printing logical destination** sends the **priming job** to the Print Optimizer through the **priming logical destination**.
4. The **printing logical destination** sends the **printing job** to the printing actual destination that is associated with it.
5. Both jobs process in parallel in the **priming actual destination** (Print Optimizer) and the printing actual destination .
6. As content pages get processed to print, the printing actual destination queries the Print Optimizer and waits for the pages, if necessary.

Use the **print-optimizer-synchronization-time-out** actual destination attribute to control the time limit allowed. In the Infoprint Manager Administration GUI, this attribute is located on the **Configuration** tab of the **Properties** window for the **printing actual destination**.

7. The Print Optimizer completes processing the **priming job** and saves all changes in the Resources (defaults to `/var/pd/servername/resources/`) data base.
8. The printing actual destination finishes the **printing job** from the **.pjtf** file.

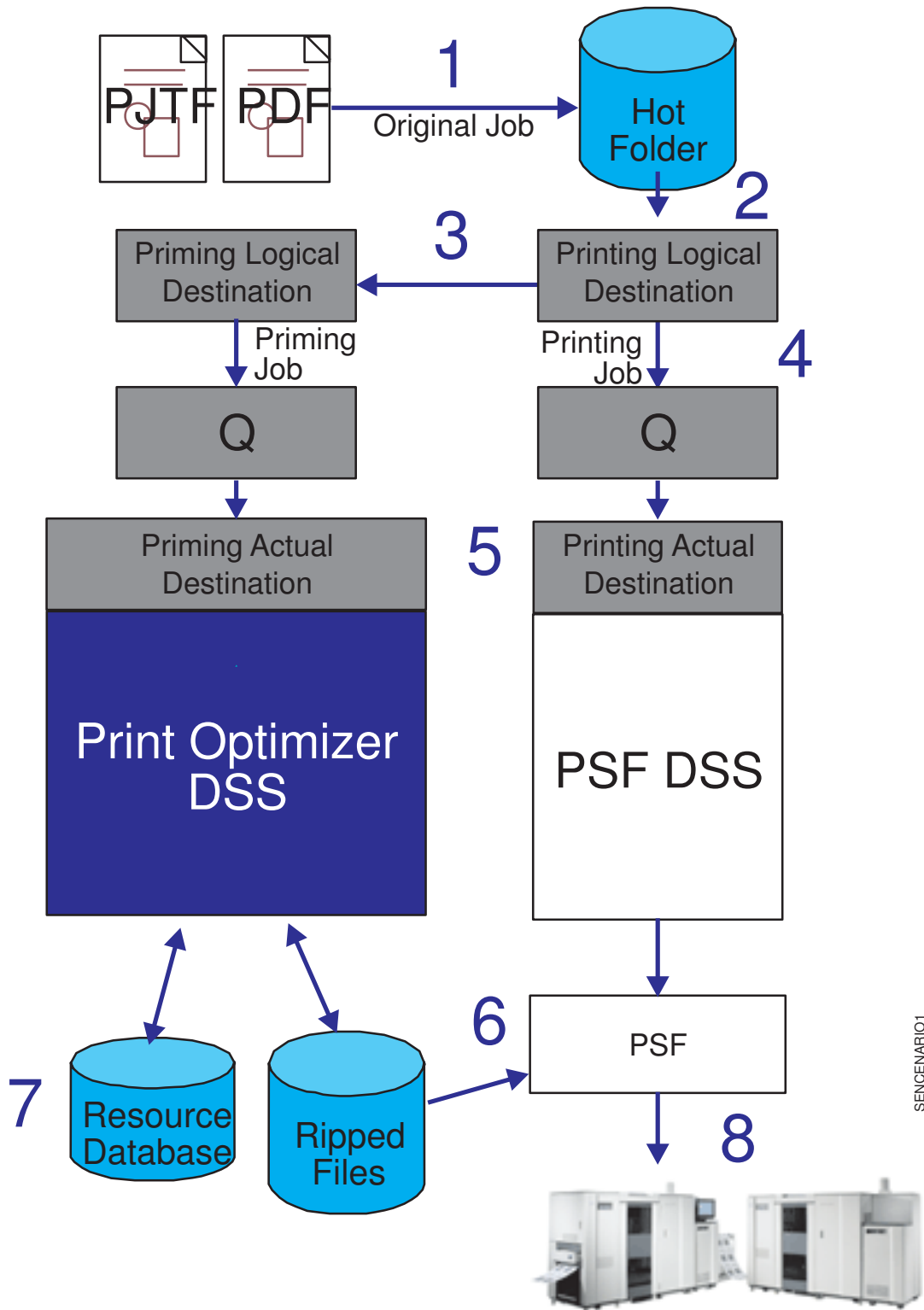


Figure 28. Job flow for modifying both content and layout

Modifying the layout of impositioning jobs without changing content

A user may need to make layout changes to an impositioning job without altering the job content created with the **original job**. To accomplish this task, they use the following scenario.

Note that Figure 29 on page 126 displays the job flow described in the following, step-by-step sequence.

1. The **original job** (consisting of the changed *.pjtf file only) is placed in the hot folder.
2. The **printing logical destination** picks up the **original job** from the hot folder.
3. The **printing logical destination** sends the **priming job** to the Print Optimizer through the **priming logical destination**.
4. The **printing logical destination** sends the **printing job** to the **printing actual destination** that is associated with it.
5. Both jobs process in parallel in the Print Optimizer and the **printing actual destination**.
6. The Print Optimizer completes processing, with no changes occurring in the Resources (defaults to `/var/pd/servername/resources/`) data base because no **content files** were submitted with the job.
7. The **printing actual destination** gets the AFP pages from the Print Optimizer resource data base.
8. The printing actual destination finishes the **printing job** from the .pjtf file, with no changes to content, and no waiting for Print Optimizer resources.

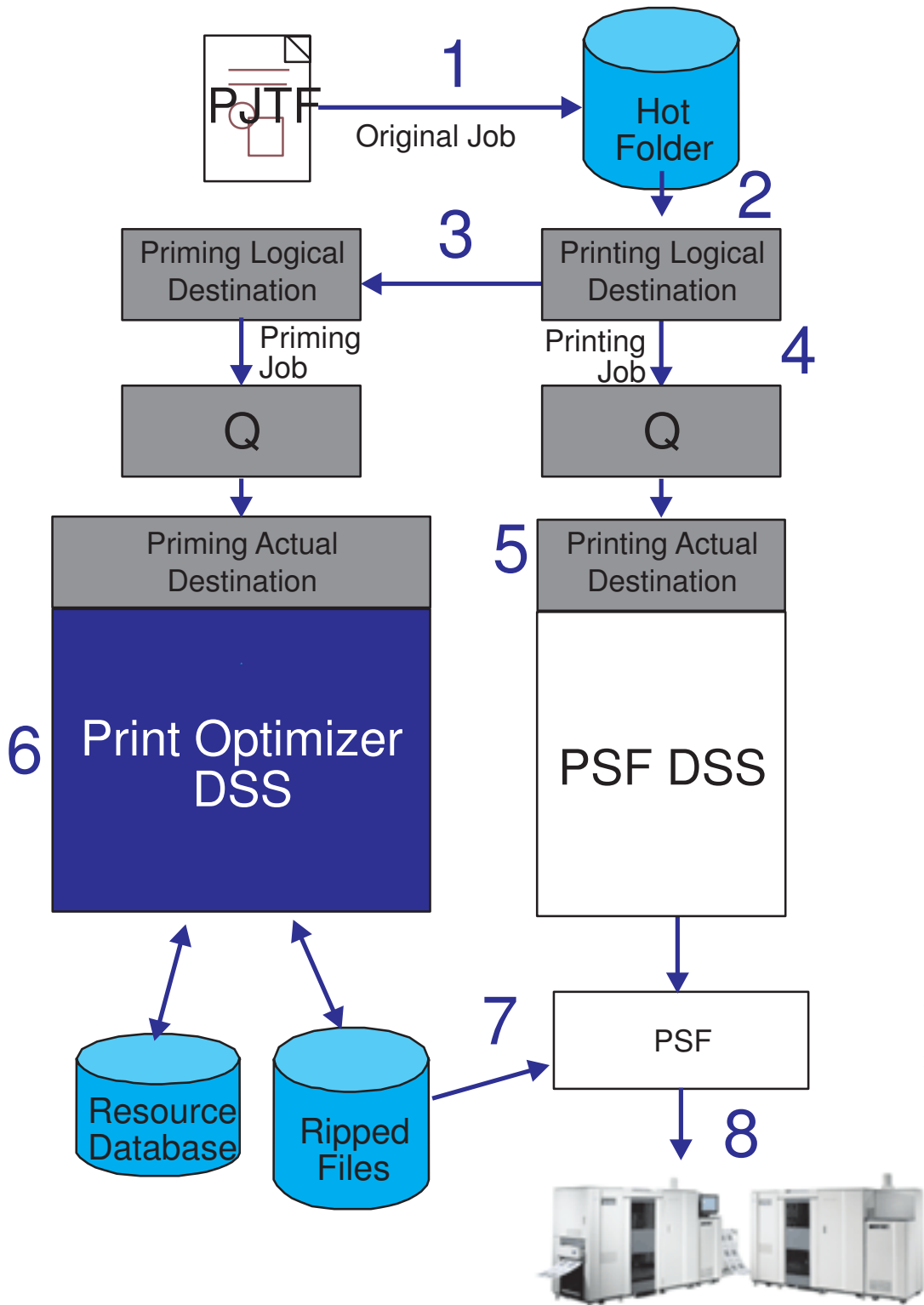


Figure 29. Job flow for modifying job layout only

Submitting impositioning jobs for printing later (prime-only jobs)

A user may need to RIP an impositioning job first (for example, during the first shift), but for performance reasons hold the job and print it later (for example, during third shift). Infoprint Manager provides a performance benefit by reducing the time it takes the first page to print. For example, a user can submit the **content files** in multiple batches at various times. Each batch of **content files** requires a **pjtf** file that specifies the size of the pages being submitted to the Infoprint AIX server; however, the **pjtf** file does not have to specify every AFP page that will be used in the job when Infoprint Manager merges all the batches.

To submit prime-only jobs, they will use this scenario. All RIPped data is stored on the Infoprint AIX server, but nothing is printed until later.

The following represents the job flow for a prime only job. :

1. The **original job** (consisting of a ***.pjtf** file, the **content files**, and a ***.att** file) is placed in the hot folder.
The ***.att** file contains the single line `prime-only=true`. For more information about using ***.att** files, see “Specifying attributes for impositioning jobs” on page 136.
2. The **printing logical destination** picks up the **original job** from the hot folder.
3. The **printing logical destination** sends the **priming job** to the Print Optimizer through the **priming logical destination**, but sends nothing to the **printing actual destination** because of the setting of the **prime-only** attribute.
4. The Print Optimizer processes the priming job.
5. Once the priming job has finished processing in the Print Optimizer, Infoprint saves the RIPped content in the Resources (`/var/pd/servername/resources/`) data base.

Later, just the **pjtf** file can be submitted to actually print the job without reprocessing it in the Print Optimizer.

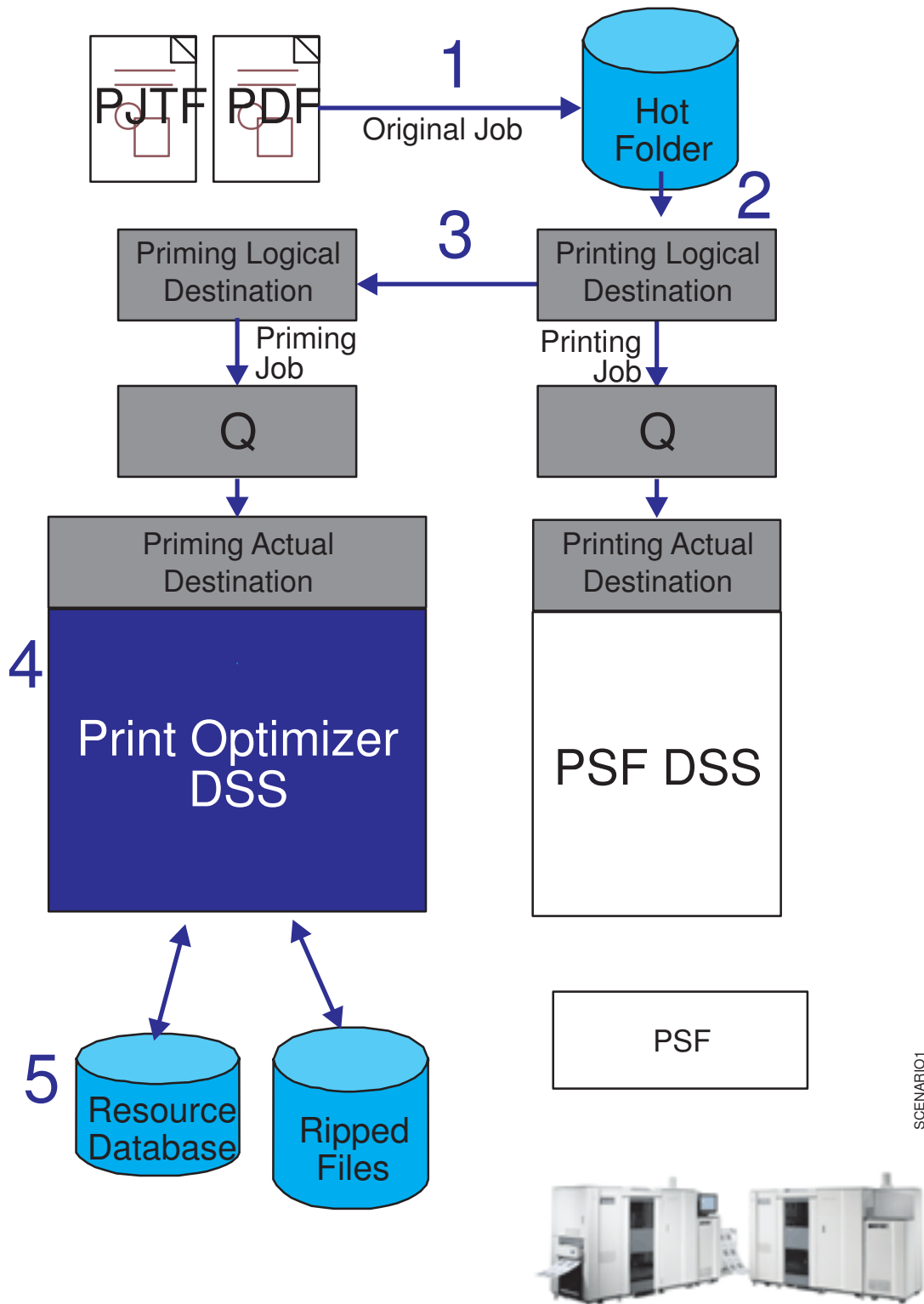


Figure 30. Job flow for prime only jobs

Configuring Infoprint Manager for impositioning

Before you can use impositioning function in Infoprint Manager, you must complete the following configuration tasks on your Infoprint AIX server.

- “Creating the priming (print optimizer DSS) destinations and queue”.
- “Creating printing (PSF DSS) destinations to use the print optimizer” on page 131.
- “Connecting the printing logical destination to the logical destination created with the print optimizer” on page 132.
- “Setting up hot folders to submit impositioning jobs” on page 134.

Creating the priming (print optimizer DSS) destinations and queue

The **priming (Print Optimizer DSS) actual destination** processes the job layout specifications for impositioning jobs, before a printing actual destination (PSF DSS) sends the printing job to the Infoprint 4100 Advanced Function Printing System. The Print Optimizer primes the server with **content pages** that are necessary before a job can be processed by the **printing actual destination** (the PSF DSS actual destination that prints the job).

The **priming logical destination** feeds jobs to the **priming (Print Optimizer DSS) actual destination**. Once the **priming actual destination** begins processing a job, the PSF actual destination can begin processing the job. The data is formatted into one-page AFP resources, and the output data stored in the database and resources directory.

This following procedure creates a **priming actual destination**, a **priming logical destination**, and a queue. If you are using the **Basic Infoprint Administration GUI**, the queue is not visible. Use the **Create Other Destination Wizard** in the basic view of the **Infoprint Manager Administration GUI** to create an actual destination.

Note: You can only create a single Print Optimizer actual destination on an Infoprint AIX server.

1. Start the **Infoprint Manager Administration GUI**.
 - From the AIX desktop in a basic environment, you can select the arrow over the *Infoprint* icon to display the IBM **Infoprint** pop-up, and then select the **Basic Administration GUI** view.
 - From the command line, enter `ipguibasicadm`.
2. Select **Other** → **Create** → **Print Optimizer**.

Note: If you do not have this option, select **Options** → **Customize**. In the **Customize** dialog, click the **Other** tab. In the **Action** column, find **Create Print Optimizer** and select the check box in the **Menu** column next to it. This step adds this task to the **Other** menu. Click **OK** to apply the settings and close the dialog.

3. In the first panel of the Create Other Destination Wizard (displayed below), do the following:

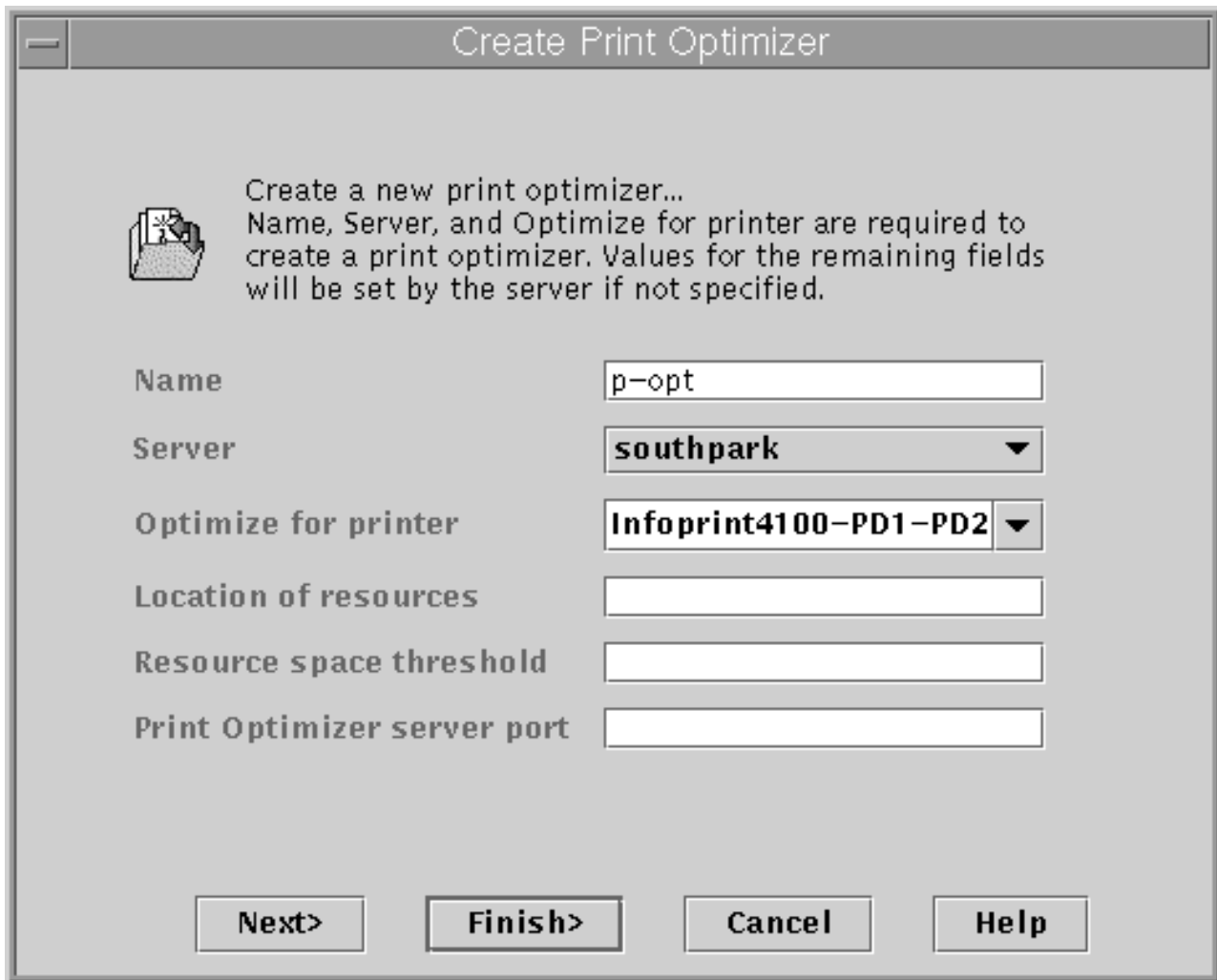


Figure 31. First dialog of the Create Print Optimizer Wizard.

- a. Type a name for the printer in the **Name** field (for this example, p-opt).
- b. Verify that the server is correct in the **Server** field.
- c. Select **Infoprint4100-PD1-PD2** from the **Optimize for printer** drop-down list.

Note: If that model is not shown, you must update Infoprint Manager to the current service level as described in “Prerequisites for the Infoprint impositioning solution” on page 116.

- d. Specify a full directory path for the **Location of Resources** field if you want a location other than the default (*/var/pd/servername/resources/*).
- e. Click either **Next** or **Finish**.

If you click **Finish**, Infoprint Manager creates a Print Optimizer actual destination, logical destination, and queue, taking all the system defaults and enabling these Infoprint objects. If you click **Next**, you continue onto the next step.

Note: Infoprint Manager creates a logical destination (in the form *adname-ld*, where *adname* is the name you provided for the print optimizer) and queue (in the form *server_name-print-optimizer-q*) for

you. Remember the logical destination name because you will need it when configuring the logical destination in the next section.

4. In the second panel, you can customize job and document defaults, and change the default hot folder location, or select **Next**.
5. In the third panel, you can choose to change the actual destination configuration or click **Next**.
6. On the final panel click **Finish**.

Now you have a Print Optimizer actual destination, a logical destination, and queue which will feed jobs to it. In the next procedure, you will configure a PSF DSS actual destination that will handle the content of the impositioning job.

Creating printing (PSF DSS) destinations to use the print optimizer

This step is necessary to create a PSF DSS actual destination that will use the configuration created in “Creating the priming (print optimizer DSS) destinations and queue” on page 129. The **printing actual destination** represents the physical output device, the Infoprint 4100 Advanced Function Printing System. The **printing logical destination** that sends priming jobs to the priming logical destination before sending printing jobs to the printing actual destination, is created as a result of the procedure in the next section: “Connecting the printing logical destination to the logical destination created with the print optimizer” on page 132.

The Infoprint 4100 must be a PSF DSS printer, so use the **Create Other Destination Wizard** in the **Infoprint Manager Administration GUI** to create an actual destination.

1. Start the **Infoprint Manager Administration GUI**.
 - From the AIX desktop in a basic environment, you can select the arrow over the *Infoprint* icon to display the IBM **Infoprint** pop-up, and then select the **Basic Administration GUI** view.
 - From the command line, enter `ipguibasicadm`.
2. Select **Printer** → **Create** → **PSF** → **TCP/IP**.
3. In the first panel of the Create Printer Wizard, do the following:
 - a. Type a name for the printer in the **Name** field.
 - b. Verify that the server is correct in the **Server** field.
 - c. Select **Infoprint4100-PD1-PD2** from the **Model** drop-down list.

Note: If that model is not shown, you must update Infoprint Manager to the current service level as described in “Prerequisites for the Infoprint impositioning solution” on page 116.

- d. Type the TCP/IP address and port number for the printer in the correct fields.
- e. Click either **Next** or **Finish**.

If you click **Finish**, Infoprint Manager creates a PSF TCP/IP actual destination, logical destination, and queue, taking all the system defaults and enabling these Infoprint objects. If you click **Next**, you continue onto the next step.

Note: Infoprint Manager creates a logical destination for you, in the form *adname-ld*).

4. In the second panel, you can customize job and document defaults, and change the default hot folder location, or select **Next**.
5. In the third panel, you can choose to change the actual destination configuration or click **Next**.
The **Plexes-supported** actual destination attribute correctly defaults to tumble, but can also be set to simplex.
6. On the final panel click **Finish**.

Now you have a PSF TCP/IP actual destination that you can use to print the job output from your impositioning jobs.

Connecting the printing logical destination to the logical destination created with the print optimizer

Now you must link your **printing logical destination** to the **priming logical destination** created in “Creating the priming (print optimizer DSS) destinations and queue” on page 129.

Note: Ensure that you repeat this procedure for every logical destination which will be used to feed impositioning jobs to the **printing actual destination**.

1. From the **Main** window of the **Infoprint Manager Administration Servers** basic view, highlight the **Logical Destinations** icon from the Destinations pane so that all the logical destinations display in the main pane.
2. From the **printing logical destination** (a logical destination feeding the PSF DSS actual destination), right-click and select the **Properties** option from the drop-down menu.

Note: If the **Properties** option does not display, click on the **Add/Remove Menu Items** option and check both the Menu and the Toolbar boxes from the **Customize** dialog to add the **Properties** option.

3. From the **Properties** notebook for the logical destination, specify the name of the logical destination that you created in “Creating the priming (print optimizer DSS) destinations and queue” on page 129 in the **Priming Destination** field.

Note: From the **Properties** Notebook window, you may need to click on the **Show more** button in the lower left corner to see the **Priming destination** field as displayed below:

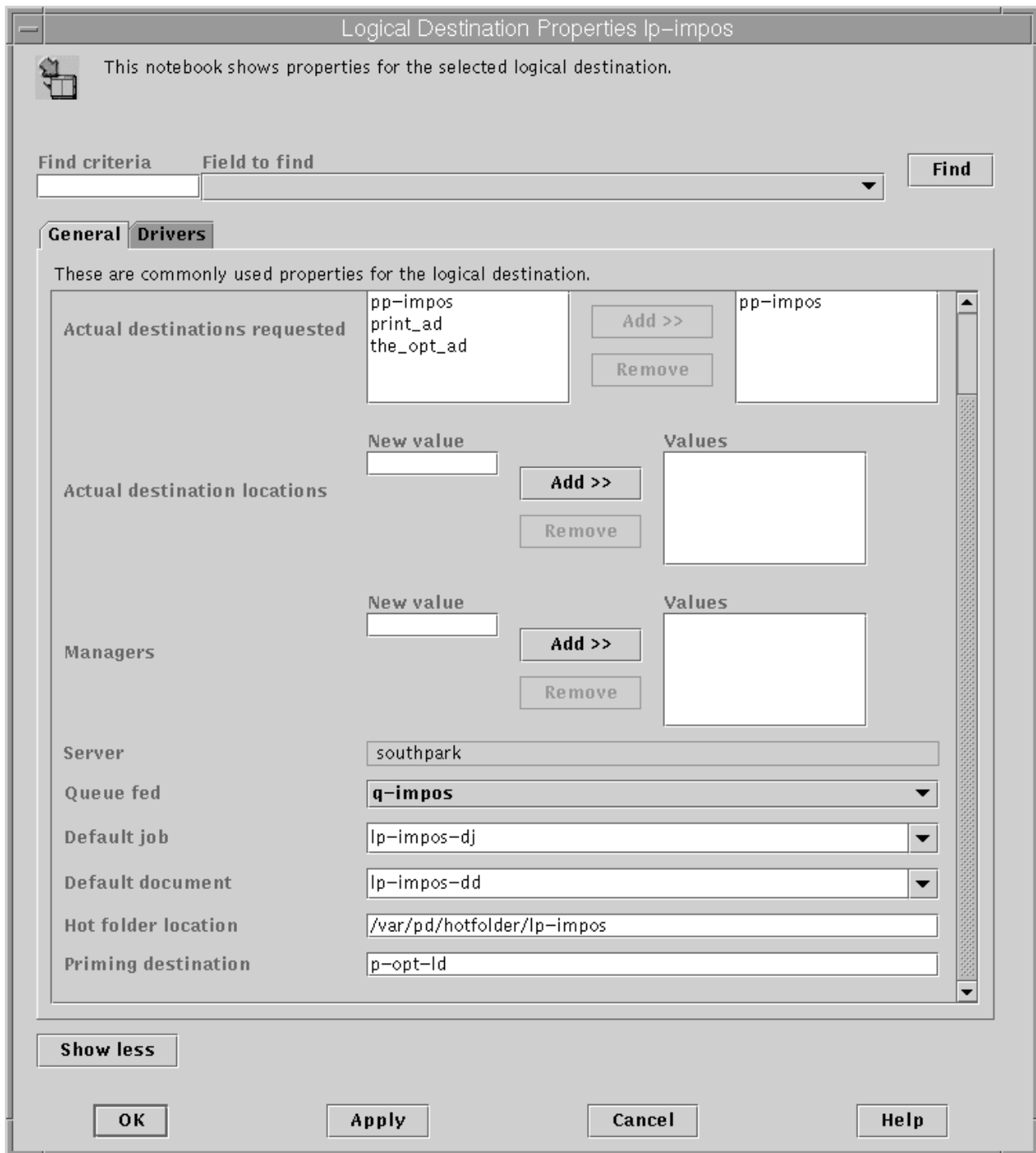


Figure 32. Properties notebook for the Print Optimizer's logical destination

IBM recommends that you set the **Hot folder location** field to something similar to `/var/pd/hotfolder/ld_name` to clearly associate the hot folder directory with the logical destination that feeds impositioning jobs into the system. For more information about setting up a hot folder and using it to submit jobs, see "Setting up hot folders to submit impositioning jobs" on page 134.

Setting up hot folders to submit impositioning jobs

The simplest way to submit jobs to Infoprint is to use a *hot folder*. A hot folder is a directory that is associated with a logical destination. When you copy or move a file to the hot folder, Infoprint automatically submits that file as a job to that logical destination.

If you do not explicitly specify a hot folder directory, then a logical destination will not have a hot folder (there is no default hot folder). If you explicitly specify a hot folder directory, the server will create it for you; however, the path up through and including the parent directory of the hot folder directory must already exist on your Infoprint AIX server. For example, if you specify `/var/pd/hotfolders/lp-impos/` as your hot folder, you must have previously created the directory `/hotfolders` and its subdirectory `/lp-impos`.

Note: You should make a copy of any jobs that you will be placing in a hot folder. After you have put them in the folder, files are submitted and then deleted.

Creating a hot folder

To create a hot folder:

1. Make sure that file sharing is available on the Infoprint server system. Many file sharing methods are available, but IBM recommends the methods shown in Table 16.

Table 16. Recommended file sharing methods

Server	Client	Method	Refer to
AIX	AIX	Network File Sharing (NFS)	<i>System Management Guide: Communications and Networks</i>
AIX	Windows	AIX FastConnect for Windows	<i>System Management Guide: Communications and Networks</i>
Windows	Windows	Server Message Block (SMB) (standard Windows folder sharing)	Windows help

2. Select a location on the Infoprint server system for the hot folder. If all hot folders are subdirectories of the same directory, users can access them all with a single connection (through a **mount** command or some form of file sharing) to the parent directory.
3. If the hot folder does not exist, you may optionally create it. Be sure to give it the appropriate universal or group write permission.
 - If the hot folder already exists, or if you create it now, it will remain after you delete the associated logical destination.
 - If it does not exist and you do not create it now, it will be created automatically in the next step and will be deleted when you delete the associated logical destination.
4. Set the **hot-folder-directory** attribute for the logical destination to the full path name of the hot folder as it is known on the server system.

You can do this either when you create a logical destination or afterwards. Refer to “Connecting the printing logical destination to the logical destination created with the print optimizer” on page 132 or the Infoprint Manager Administration GUI online help for instructions. Note that a hot folder can be associated with only one logical destination; and a logical destination can be associated with only one hot folder.

You can do this either when you create a logical destination or afterwards. Refer to the Infoprint Manager Administration GUI online help for instructions. Note that a hot folder can be associated with only one logical destination; and a logical destination can be associated with only one hot folder.

Note: Just like any other Infoprint job submission method, attribute values specified in a default document and in default job attributes for the logical destination are used for all jobs submitted through the hot folder, unless the job submitter overrides them.

Accessing a hot folder

From a client system, you can access the hot folder in the same way as any shared directory. You do not have to install any Infoprint client software. For more information, see the references in Table 16 on page 134.

Note: If multiple hot folders are subdirectories of the same directory, Windows users can map a single drive to the parent directory rather than mapping a drive for each hot folder.

Submitting impositioning jobs through a hot folder

To submit a file through a hot folder, simply copy or move it to the hot folder.

Attention: If you want to save the file, copy it. Files are deleted from the hot folder after submission.

Staging impositioning jobs: Because it takes time to copy or move files, Infoprint may try to submit a large job before it is completely in the hot folder. You can prevent the submission of partial jobs by *staging* large jobs.

To stage a job the first time you submit it (you submit the source PDF or PS file and a PJTF file):

1. Create a subdirectory that ends with the extension `.stg` and place it in your hot folder. Infoprint ignores files and folders with this extension.
2. Copy your source PDF or PS file or files and PJTF file to the newly created subdirectory.
3. When the copy is complete, rename the subdirectory by removing the `.stg` extension.
4. Infoprint will now process the impositioning job.

To stage subsequent submissions that take advantage of stored resources (you submit a PJTF file only):

1. Copy the PJTF file to the subdirectory within the hot folder with extension `.stg`. Infoprint ignores files with this extension.
2. When the copy is complete and you are ready to submit the job, rename the subdirectory by removing the `.stg` extension.

Submitting multiple-document impositioning jobs: To print multiple documents in a single job:

1. Create a subdirectory in the hot folder called `jobname.stg`, where `jobname` is any name you choose. The `.stg` extension prevents Infoprint from processing the directory.
2. Copy the documents you want to print into the subdirectory in the same order that you want to print them.

Note: If you copy multiple files in a single operation, they may not be copied in the same order that you selected them. If the print order matters, copy the files one at a time.

When using multiple documents in an impositioning print job, your chances of a transform timeout are reduced if the documents are in the approximate order they are used in the job ticket. For example, ensure that a cover is placed before the contents of a job to avoid the cover being used on the first sheet so the transform does not have to wait for the print optimizer to RIP through the entire book content.

Specifying attributes for impositioning jobs: By default, jobs submitted through a hot folder use the attribute values in the default document and default job associated with the logical destination.

To override these values the first time you submit an impositioning job (you submit a source PDF or PS file and a PJTF file), complete the following steps:

1. Create an attributes file called *jobname.att*, where *jobname* is the same as the subdirectory name you created with the *.stg* extension, and copy it into the subdirectory.
2. Rename the subdirectory from *jobname.stg* to *jobname*. Infoprint then submits all the files in the subdirectory as a single job.

For example, if you have specified */var/pd/hotfolders/lp-impos/* as your hot folder, create a subdirectory named *impos_job.stg*. Then create an attributes file named *impos_job.att*. Copy *impos_job.att* into the *impos_job.stg* subdirectory, along with the source PDF or PS file and the PJTF file. Then rename *impos_job.stg* to *impos_job*. The job is submitted to the Print Optimizer.

For subsequent submissions of impositioning jobs (you submit a PJTF file), complete the following steps to override these values:

1. Create an attributes file named *filename.att*, where *filename* is the same as the file name of the print file.

For example, if the print file is *report.pjtf*, the attributes file is *report.pjtf.att*. In this file, specify the attributes and values that you want. For example, if you want to print three single-sided copies of *report.pjtf*, *report.pjtf.att* looks like this:

```
copy-count = 3
sides = 1
```

Note that this file is the same format as an attribute file specified with the *-X* flag on a **pdpr** print command. For information about job and document attributes, refer to *Infoprint Manager: Reference*.

2. Copy or move the attributes file to the hot folder. The *.att* file extension tells Infoprint not to print the attributes file. You must ensure that the attributes file is either copied or moved to the hot folder before you copy or move the print file to the hot folder.

Note that this step is optional because you can create the attributes file within the Hot Folder directory.

3. Copy or move the print file to the hot folder. Infoprint looks for an attributes file with the same file name and submits the two files together.

By default hot folder jobs are submitted with job notifications turned off. If you want to get notifications on hot folder jobs, you must specify a **notification-profile** with an explicit **delivery-address** in the **.att** file.

Managing impositioning resources

Infoprint Manager command processing for managing impositioning resources is similar to the standard command processing, with a few exceptions. The following topic highlights those exceptions. For a complete list of the relevant Infoprint Manager commands and how they can be used, see *Infoprint Manager: Reference*.

You can use both the **polist** and the **podelete** commands to help you manage your impositioning environment. You can use the **polist** command to list either documents or resources in the Print Optimizer. For example, if you wanted to list all the documents in the data base by size, you could specify `polist -s s` and receive a display similar to the following:

DOCUMENT NAME	PAGES	SIZE	TRANSFORMED
PS A4.ps	12	16.6 KB	11/07/01 17:03:39
BackCover.pdf	1	153.2 KB	11/14/01 11:30:31
BackCover.sep	1	159.1 KB	11/15/01 13:01:56
BackCover_A4.pdf	1	159.6 KB	11/15/01 11:58:48
Cover.pdf	1	225.3 KB	11/14/01 11:30:54
Cover_A4.pdf	1	237.3 KB	11/15/01 11:59:19
Cover.sep	1	238.9 KB	11/15/01 13:02:23
frontmatter.pdf	7	316.5 KB	11/14/01 11:30:56
frontmatter.sep	7	380.7 KB	11/15/01 13:02:25
frontmatter_A4.pdf	7	388.6 KB	11/15/01 11:59:22
Appendix.pdf	3	388.7 KB	11/14/01 11:30:29
Appendix_A4.pdf	3	468.1 KB	11/15/01 11:58:45
Appendix.sep	3	482.3 KB	11/15/01 13:01:54
Card x 60.pdf	60	676.4 KB	11/15/01 13:00:42
Chapter1_11pg.pdf	11	1269.8 KB	11/14/01 11:30:35
Chapter2_12pg.pdf	12	1393.5 KB	11/14/01 11:30:40
Chapter1_11pg.sep	11	1743.3 KB	11/15/01 13:02:01
Chapter3_15pg.pdf	15	1766.8 KB	11/14/01 11:30:45
Chapter1_11pg_A4.pdf	11	1770.0 KB	11/15/01 11:58:54
Chapter2_12pg.sep	12	1875.4 KB	11/15/01 13:02:06

Use the **podelete** command to delete documents from the Print Optimizer.

Note: You can use the global character, an asterisk, *****, to simplify this command. For example, `podelete stu*` deletes all files whose names begin with the letters STU.

Depending on the shell you are using, you may need to enter control characters to keep the shell from interpreting the asterisk, *****, before Infoprint has a chance to operate on it. For example if you type `podelete *` while in a directory containing files `a`, `b`, and `c`, it is equivalent to typing `podelete a b c`. However, if the current directory is empty, the shell passes the ***** to the command being run. To keep the shell from expanding the command, type `podelete *`.

The Print Optimizer DSS does not support the following commands:

- **pdpause** of either the priming actual destination or the priming job.
- **pdresume** of either the priming actual destination or the priming job.
- **pdshutdown** of the priming actual destination.
- **pdspace**

Troubleshooting impositioning

If errors should occur when you are using the Infoprint Impositioning solution, there are standard diagnostic techniques when resolving any Infoprint printing problems, and specific guidelines that are unique to impositioning jobs. When looking in the different error and message logs, remember to track both the Print Optimizer job and the printing job:

- Infoprint server error logs:

Each Infoprint server (or **pdserver** process) stores an **error.log** file in the **/var/pd/server_name** directory. In addition to logging errors, this log maintains a history of requests made to this server by Infoprint users, other servers, or through the **Infoprint Manager Administration GUI**.

Note: Print Optimizer transform errors are logged in the server error log.

Each entry is composed of the following seven fields:

Message Severity

Specifies whether a message is of an Error (E), Warning (W), Audit (A), Debug (D), or Informational (I) severity level.

Date Specifies the date in language-specific format; for example: (11/08/01).

Time Specifies the time in language-specific format; for example: (15:43:09).

Thread ID

Specifies the thread ID of the thread issuing the message.

This value can be useful when debugging a problem; you can search on the unique thread ID of an operation and see all the messages that it issued.

Target of request

Specifies the target, and sometimes the requestor, of a particular action.

Message number

Specifies the number of the Infoprint Manager message (5010-373). You can use the **pdmsg** command to obtain the help-text of any message by specifying the message number.

For example, if you specify **pdmsg 5010-373**, Infoprint responds with the following display:

```
5010-373 The server _____ received a _____ signal request
from the destination _____:_____.
```

```
5010-373
```

```
EXPLANATION: The server is processing the request.
```

```
This message goes to the error log only.
```

```
SYSTEM ACTION: The request is processing.
```

```
RESPONSE: No response is required to this informational message.
```

Message text

Specifies the text of a particular message (The server mishka completed processing a ready for job signal request from the destination mishka:opt-ph.)

The following provides a sample error message from the server error log file.

Please note that this message has been formatted for purposes of displaying the contents. The actual message is on one line in the **error.log** file:

```
D 11/08/01 15:43:09 [2539 mishka,opt-ph] 5010-373 The server mishka
completed processing a ready for job signal request
from the destination mishka:opt-ph.
```

- Examine the job messages
These low-level errors (such as data stream errors) are detected by the device support system (DSS). These messages go to the message log (see the `/var/psf/actual_destination_name/jobmessage.log` file). By default these messages are printed at the end of the job (`dss-job-message-disposition=print` is specified on your printing actual destinations), so you can examine them there.
- Examine the actual destination error logs
These logs display printer errors, and other non-job errors. You can consult the `error.log` file for the actual destinations, which resides in the `/var/psf/actual_destination_name` directory.

Note: If the Print Optimizer cannot be started and therefore the `podelete` command cannot be run, you must delete all the files in the Print Optimizer resource directory and then restart it.

Specific impositioning problems

The following provides some Impositioning problems that can occur, with potential solutions:

- “Job stays in hot folder and never appears in Infoprint server”.
- “Job hangs in printing actual destination and eventually times out”.
- “Job prints as unexpected, cropped size” on page 140.

Job stays in hot folder and never appears in Infoprint server

Has the Logical Destination’s hot-folder-directory been set correctly?

Ensure that you have specified the correct name for the hot folder in the **Hot folder location** field of the printing logical destination’s **Properties** notebook (see Figure 32 on page 133).

Has the Logical Destination been enabled?

Ensure that the logical destinations you defined in “Creating the priming (print optimizer DSS) destinations and queue” on page 129 and “Creating printing (PSF DSS) destinations to use the print optimizer” on page 131 have been enabled. If not (a black logical destination printer icon displayed from the **Main** window of the **Infoprint Manager Administration GUI**), enable the logical destination through the **Infoprint Manager Administration GUI**.

Has .stg file or directory been renamed?

If you are using a staging file or directory to stage large or multi-document jobs to the hot folder (for more information, see “Staging impositioning jobs” on page 135), ensure you have renamed either the file’s or the directory’s extension to something other than `.stg` so that the hot folder will submit it to the logical destination.

Job hangs in printing actual destination and eventually times out

Is the logical destination’s priming-destination set correctly?

Ensure that you have specified the correct priming destination in the **Priming destination** field of the printing logical destination’s **Properties** notebook (see Figure 32 on page 133).

Has the Print Optimizer job failed?

Check the server error log cited in “Troubleshooting impositioning” on page 138, then take the appropriate recommended actions.

Is the Print Optimizer actual destination enabled?

Ensure that the actual destination you defined in “Creating the priming (print optimizer DSS) destinations and queue” on page 129 has been enabled. If not (a black actual destination printer icon displayed from the **Main** window of the **Infoprint Manager Administration GUI**), enable the logical destination through the **Infoprint Manager Administration GUI**.

Job prints as unexpected, cropped size**Are the same original jobs being used with new job tickets?**

If you use an **original job** that has previously been optimized with a different job ticket file, the size specified the first time the data was processed by the Print Optimizer is the size used until those documents are deleted from the Print Optimizer resource directory.

The Print Optimizer ignores documents it has already processed: the fact that the job ticket has changed does not cause Infoprint to reRIP the data.

Chapter 14. Using the LPD gateway with Infoprint Manager for AIX

You can use the AIX line printer daemon (LPD) to submit jobs through the LPD Gateway to an Infoprint AIX server. LPD is a subsystem that allows you to submit print jobs from other operating systems using a Line Printer (LPR) client. The AIX LPD submits the files it receives directly to an Infoprint destination and supports the **-o** options that are available with the AIX LPR clients. (**-o** options allow you to specify advanced Infoprint print options, such as form definitions and page definitions. For more information about using **-o** options with AIX print commands, see *Infoprint Manager: Reference*.)

Submitting print jobs through the LPD from an AIX system

To submit jobs from the LPD on an AIX system, you can use the AIX **lpr** command, which accepts the **-o** options.

When you submit print jobs using the LPR client, you need to set up a remote queue on the local system. To accomplish this task, consult your AIX system documentation. Once you have defined a remote queue, it identifies the Infoprint Manager remote server and the name of the Infoprint destination (either logical or actual) on that Infoprint Manager remote server. The LPD submits the job to the Infoprint print spool. IBM recommends that you specify the LPD subsystem in the **/etc/inittab** file to ensure that it starts on a system reboot and is always available.

When you issue the **lpr** command, you must specify the option that designates *binary* or *already-formatted* data. For example, on AIX you must use the **-l** (lower case L) option on the **lpr**.

If you are printing from an Infoprint Manager AIX server or an AIX server that has installed the Infoprint Manager client, you should use the Infoprint **pdpr** command to submit jobs directly to the Infoprint print spool.

Submitting print jobs through the LPD from a non-AIX UNIX system

You can use any LPR client, but if you want to be able to specify advanced Infoprint options on the **-o** flag, you must make sure that your LPR client supports **-o** options. Sample code for an Infoprint LPR client called **lprafp** is provided with Infoprint Manager for AIX and is available from the **/usr/lpp/psf/utils/lpr** directory. This directory contains sample code of the **lprafp** client for UNIX platforms. This code must be compiled as described in the **README** file.

Regardless of what LPD subsystem you decide to use, IBM recommends that you specify it in the **/etc/inittab** file to ensure that the client starts on a system reboot and is always available.

Submitting print jobs from a non-AIX UNIX system with the Infoprint (lprafp) LPR client

When you submit print jobs from the Infoprint LPR client on a non-AIX UNIX system, all you need to specify is the Infoprint Manager server and the name of an Infoprint destination (either logical or actual). The LPD submits the job to the

Infoprint print spool. If you enter the **LPR** shell script with the **-A** flag, it invokes the **lprafp** command program (**lprafp.c**), which is documented in the *Infoprint Manager: Reference* (S544-5475). If you enter the **LPR** shell script without the **-A** flag, it invokes the AIX system's **LP** command, which does not support the Infoprint **-o** options.

Submitting print jobs through the LPD from a Windows system

You can use any **LPR** client, but if you want to be able to specify advanced Infoprint options on the **-o** flag, you must make sure that your **LPR** client supports **-o** options. Sample code for an **LPR** client called **lprafp** is provided for download on the Printing Systems web site. To obtain and install this **LPR** client, see "Install and configure **lprafp** for Windows from the Web".

Note: If you use another **LPR** client, ensure that you specify the flag for specifying binary data. For example, on the Microsoft TCP/IP Printing **LPD** (the default **LPR** on Windows operating systems), this flag is the **-01** or the **-o 1** (lower case **L**) option, depending upon your Windows operating system.

Install and configure **lprafp** for Windows from the Web

For Windows operating system clients, the **lprafp** sample code package is available for free download from the IBM Printing Systems website at <http://www.ibm.com/printers>. Use this procedure to locate and install the package.

1. Navigate to <http://www.ibm.com/printers> in your web browser.
2. Under **Resources for**, click **Infoprint Manager**.
3. On the Infoprint Manager Family Home Page, click **Infoprint Manager for Windows NT and Windows 2000**.
4. On the Infoprint Manager for Windows NT and Windows 2000 Home Page, select **Downloads** from the list under **Product Resources**.
5. On the Downloads page, find **lprafp** and click to download.
6. Use a zip utility to unzip the package.
7. Open the **readme.txt** file and follow the instructions for installing the package on a Windows system.

Chapter 15. Using the OPI server

The Infoprint Open Prepress Interface (OPI) server allows Infoprint users working on the Mac operating system to generate low-resolution images (from EPS, TIFF, or JPEG source files) for use in any preprocessing activities outside of Infoprint Manager. By using this support in an Infoprint environment, users can:

- Improve performance on print jobs that contain huge image data
- Save space on their personal computers by submitting the low-resolution images to Infoprint Manager, which contacts the OPI server at RIP time to print the high-resolution images.

While configuration of the OPI server must be performed on a Mac personal computer, you can use the HELIOS PCShare software product to submit OPI server jobs from Windows personal computers.

Note:

The OPI server can be used with the Print Optimizer support from Infoprint Manager as part of the Impositioning solution, but the OPI server is not an essential piece of that solution. For more information about that solution, refer to Chapter 13, "Infoprint Manager's impositioning solution" on page 115.

Installing the OPI server on AIX

In order to take advantage of the Open Prepress Interface (OPI) server, you must install both EtherShare and EtherShare OPI on your Infoprint Manager AIX server. You can obtain these products from the Helios CD016 CD-ROM (see the **Helios Software_Currently shipping versions** web page at <http://www.helios.de/products/current.phtml>).

Once you have obtained the latest Helios CD-ROM, as well as both the *EtherShare Version 2.6 User manual* and the *EtherShare OPI Version 2.1 User manual*, you can prepare to install these software products on your Infoprint AIX server. Both manuals are available in the **/manuals** directory of your Helios CD-ROM. Ensure that you carefully read and review the installation chapters of both manuals before you attempt to install either product.

The following provides a series of guidelines you should follow while performing the installation of both products:

Notes:

1. Ensure that you install Ethershare prior to installing EtherShare OPI.
2. For most fields, you should take the default settings.
3. All Helios software requires a HELIOS Activation Key or password in order to function.

Refer to both the *EtherShare Version 2.6 User manual* and the *EtherShare OPI Version 2.1 User manual* for information about where you can obtain this material. Once you have purchased a Helios Activation Key, you can download software updates from their web site (<http://www.helios.de/download/>).

4. When you upgrade to new releases of Helios products, keep in mind that you must obtain a new Activation key.
5. If you do not change the default, AFP is the password that Helios sets on your AIX server.
6. When installing the Helios product, ensure that you have adequate space in the directories (**/usr/local/** by default) where the high-resolution images will be stored on your Infoprint AIX server.

Note: Ensure that you do not specify the **/var/psf/segments** directory to contain these images when prompted for a directory to share.

Configuring the OPI server

Once you have installed the OPI server on your Infoprint AIX server, you must perform configuration tasks in two locations:

1. “Configuring OPI server from the Mac system”.
2. “Configuring OPI server from the Infoprint AIX server” on page 148.

The following sections describe how to perform these tasks

Configuring OPI server from the Mac system

Before you can submit jobs to take advantage of the OPI server, you must create a print queue and define layout settings on your Mac personal computer.

1. From the desktop, highlight the **Ether-Share-Admin** icon (see below) and select **File->Login** from the menu bar.

Note: If the **Ether-Share-Admin** icon is not available on your desktop, select the **Ether-Share Applications** icon (which has been mounted through AppleTalk from your AIX server as shown in “Submitting jobs to the OPI server” on page 149) and open the **Admin** icon.



Figure 33. Ether-Share-Admin icon

2. To connect to the OPI server, you must do the following:
 - a. From the **Select an EtherShare host** dialog, select the relevant AppleTalk zone on your Mac system, highlight it, and specify the host to which you are connecting (in this case, the Infoprint AIX server where the OPI server has been installed), and press **Ok**.
 - b. From the **Connect to EtherShare server ...** dialog, type your Infoprint AIX password and press **Ok**.

Once you have successfully logged in, the **Users**, **Volumes**, **Groups**, and **Printers** file systems will appear cascading on your system. Figure 34 on page 145 separates them into distinct emulations for clarity:

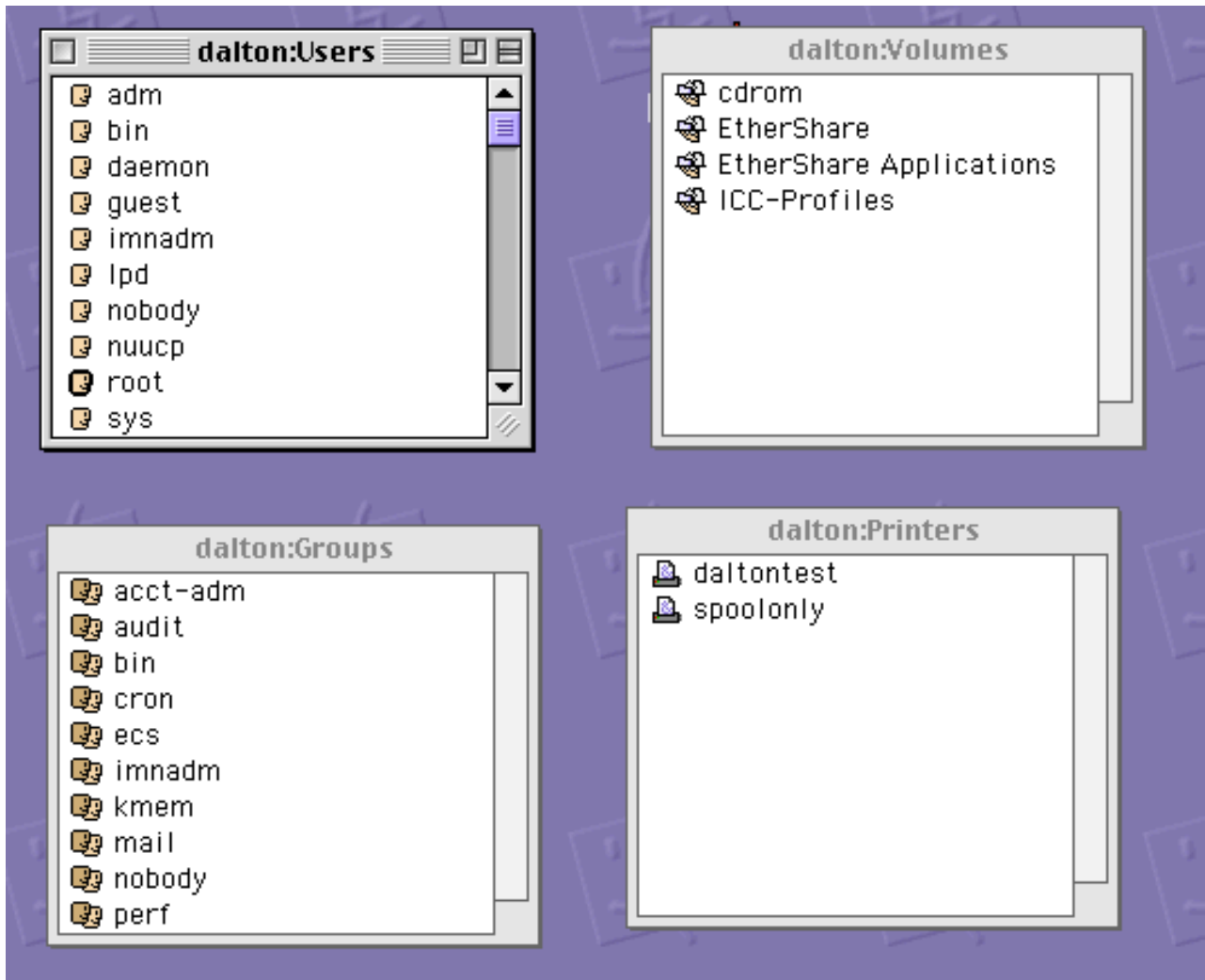


Figure 34. Four Infoprint file systems on a MAC system

3. To create a print queue on your Mac system that resides on the Infoprint AIX server, click on the **Printer** window to highlight it, and then take the **File->New** path on the main menu.
4. From the window (displayed in Figure 35 on page 146, select a name for the printer and save the results.

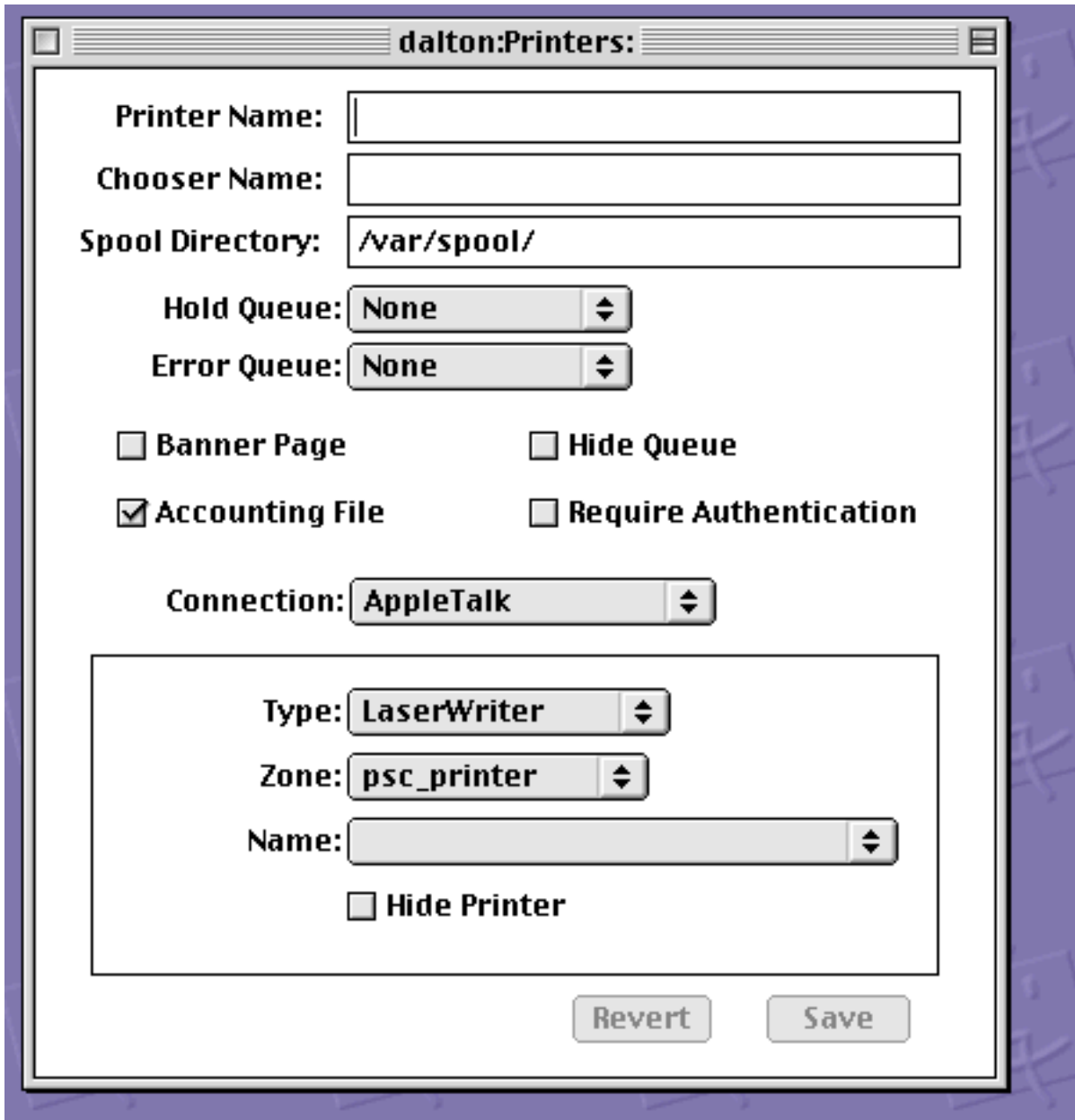


Figure 35. Print Queue window

5. Once you have created the print queue, use the **Lists->OPI/Server Settings** path on the main menu to display the layout and color settings. Usually the default values are sufficient. From the window displayed in Figure 36 on page 147 below, select a name for your print queue and take the defaults before pressing the **Save** button.

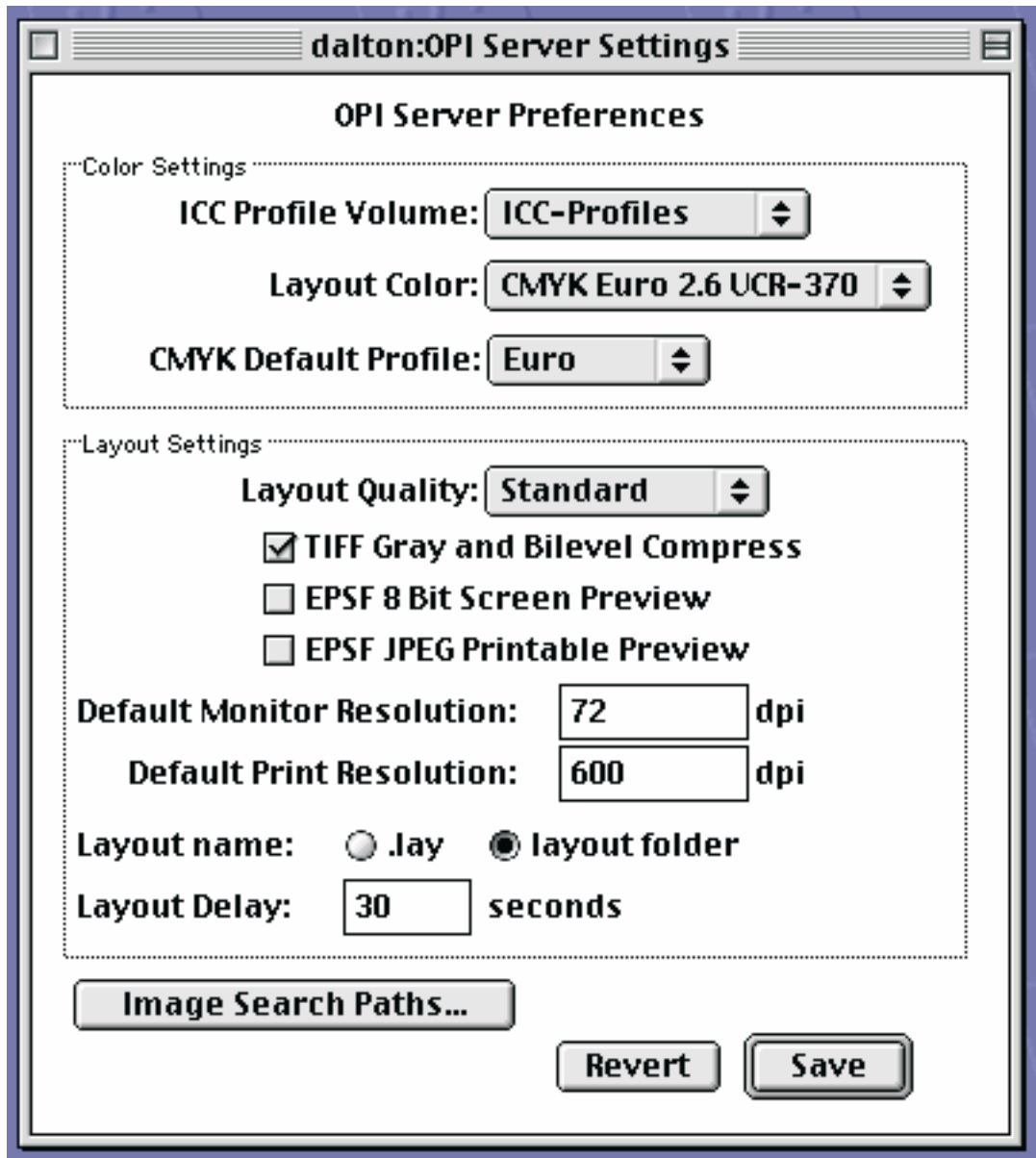


Figure 36. OPI Server Settings window

6. Once you have defined the print queue, highlight it (in this case, daltonest) within the **Printer** window and then take the **Printer->OPI/ICC Settings** path on the main menu.

The International Color Consortium (ICC) format is a cross-platform specification which allows third party vendors – including Adobe Systems Inc., and Agfa-Gevaert – to develop profile tools and applications to support this standard.

7. From the dialog (displayed in Figure 37 on page 148), ensure that the **OPI Active** checkbox is checked.

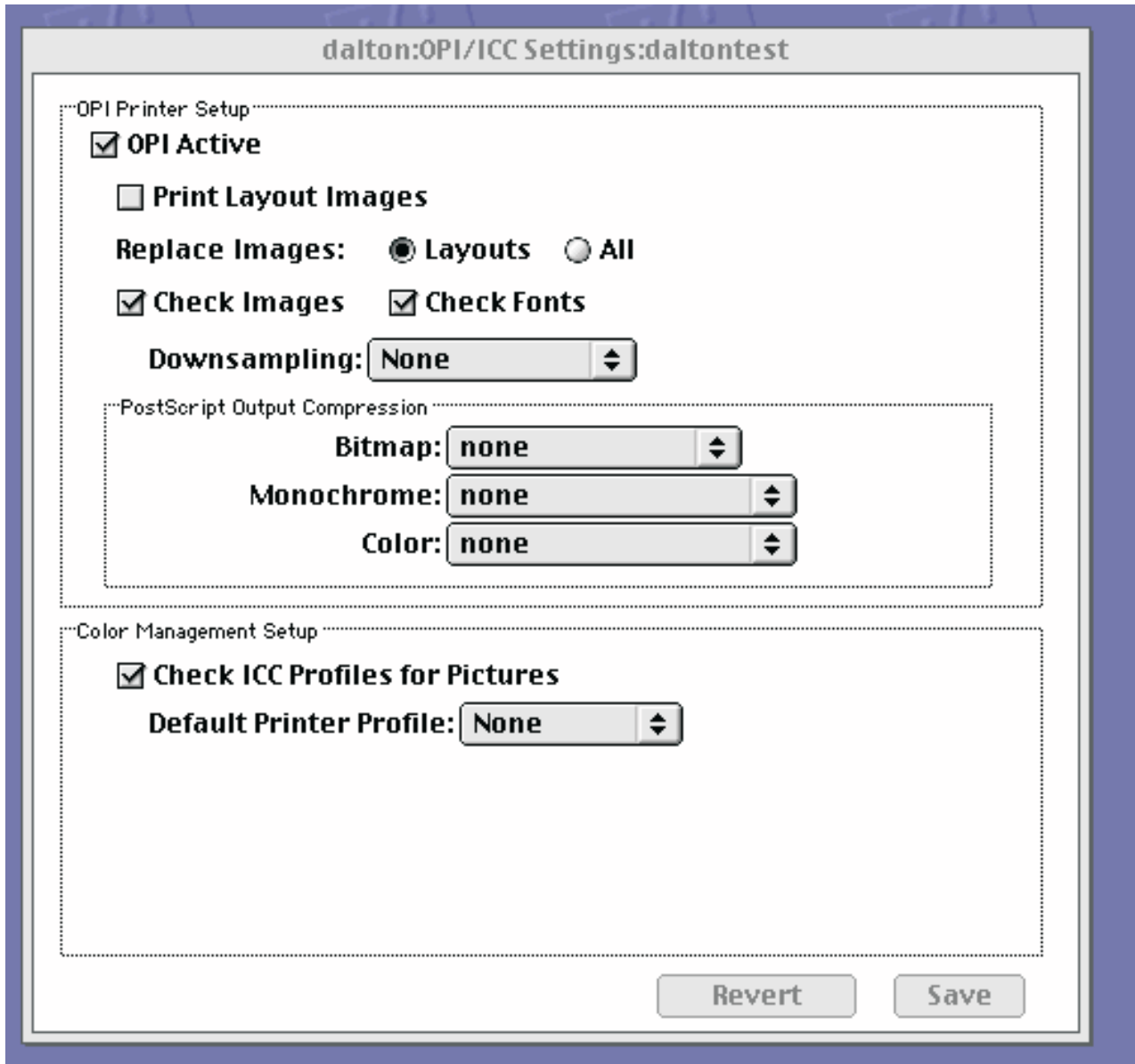


Figure 37. OPI/ICC Settings window

8. Save this setting and exit the dialog by pressing the **Save** button.

Configuring OPI server from the Infoprint AIX server

Before you can begin to submit jobs to the OPI server on your MAC system, you must configure the PostScript transform to support the OPI server. Use the following procedure.

Note: If your installation uses either an Infoprint 60 printer, a Network printer, an Infoprint 2000 printer, or a Lexmark printer, follow these directions substituting **3160d.cfg** for **ps2afpd.cfg**. The **ps2afpd.cfg** file runs the PostScript RIP for the larger printers, including IBM Infoprint 3000, IBM Infoprint 4000 (all models), and the IBM Infoprint 4100.

1. From an AIX command line, access both the **ps2afpd.cfg** and the **3160d.cfg** files that reside in the **/usr/lpp/psf/ps2afp** directory by default.

- Using your AIX editor of choice, edit the files and remove the comment marks (#) to the left of the `opi_server_resolution_program` near the bottom of both files. When you are finished, the bottom of both files should resemble the following example, where **daltontest** is the Helios print queue name. This sample has been modified so that the final line prints correctly. In the actual file, the last two lines of the file appear as a single line.

```
#####  
# Enabling OPI Server support:  
# uncomment the line below, and modify the queue name as appropriate  
# use the name of the Helios queue that has the associated color profile  
# to use in place of  
#<heliosprintqueue> opi_server_resolution_program = /usr/local/es  
/psresolve \-onoincludeheliosdicts daltontest
```

Note: If you did not install the Helios EtherShare program in the default directory, you must ensure that the path is listed correctly for this line in both files.

- To run the OPI server, you must either stop and restart the PostScript (**ps2afpd**) daemon or shutdown and reboot the Infoprint AIX server.

If you choose to stop and restart the PostScript daemon,

- From an AIX command line, specify `ps -ef | grep ps2afpd` to find the process number of the PostScript daemon running on your server.
- Specify `kill pnumber`, where *pnumber* represents the process number of the PostScript daemon process.
- Restart the PostScript daemon by specifying the following command:
`/usr/lpp/psf/bin/ps2afpd -C /usr/lpp/psf/ps2afp/ps2afpd.cfg`

Submitting jobs to the OPI server

In order to submit jobs to the OPI server, using the following procedure is recommended.

- On your MAC system, create the high resolution images that you will be incorporating in print jobs.

These high resolution images can come from a scanner, digital camera, or any other source from which you obtain images.

- To connect to the shared directory folder on the Infoprint AIX server, use Chooser (see Figure 38 on page 150).

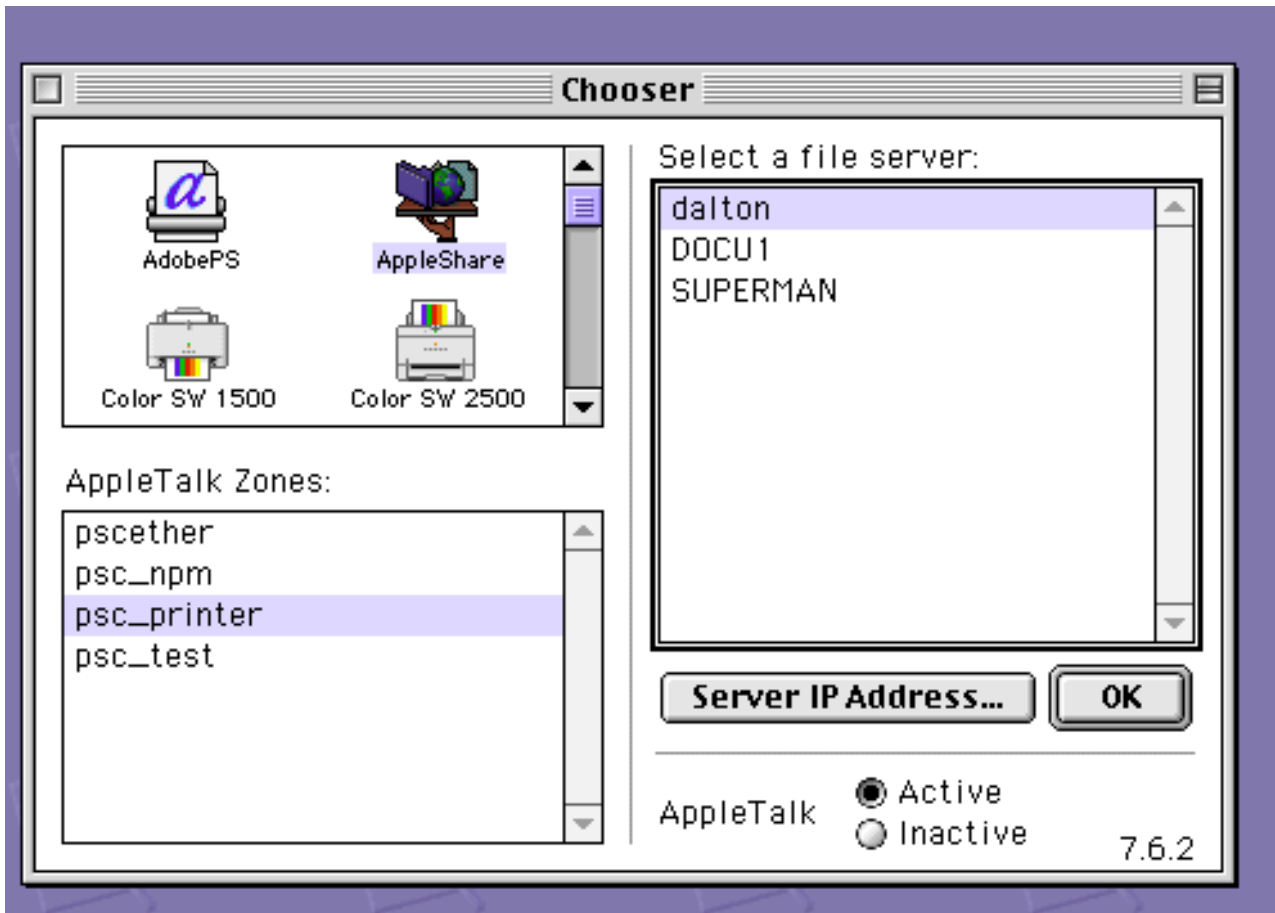


Figure 38. Chooser selections

- a. Highlight the values **AppleShare** (for the communication protocol between Mac and AIX), **psc_printer** (for the relevant AppleTalk zone), and **dalton** (for the name of the Infoprint AIX server).
- b. Press **OK**, and then from the next pop-up, press **Connect**.
- c. From the **Dalton** dialogue (displayed in Figure 39 on page 151) – where **Dalton** is the name of the Infoprint AIX server – press **OK**.

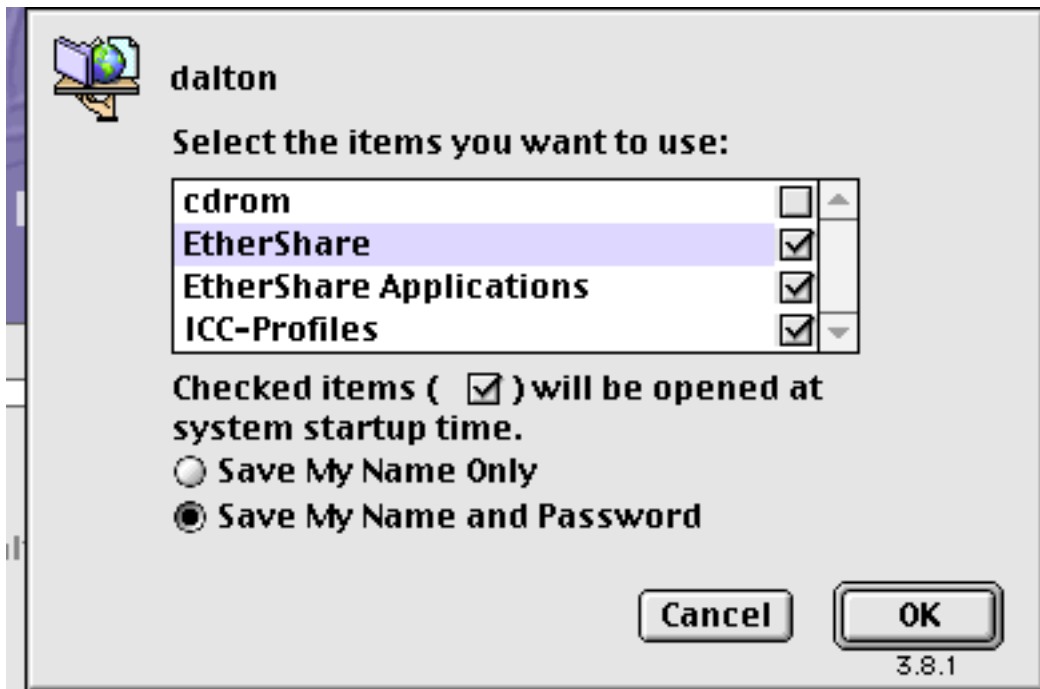


Figure 39. Sample connection dialog

- d. The final dialog will provide a message similar to the following:
- ```
dalton in psc_printer via AppleTalk
```

where `dalton` is the name of the Infoprint AIX server and `psc_printer` is the zone in which that queue is defined.

Select **OK**.

3. From your desktop, click on the **EtherShare** icon to access the shared folder directory.
4. Figure 40 on page 152 shows both the shared directory and the associated layout directory, where the OPI server will put a low resolution image for each image you place in the main shared folder.

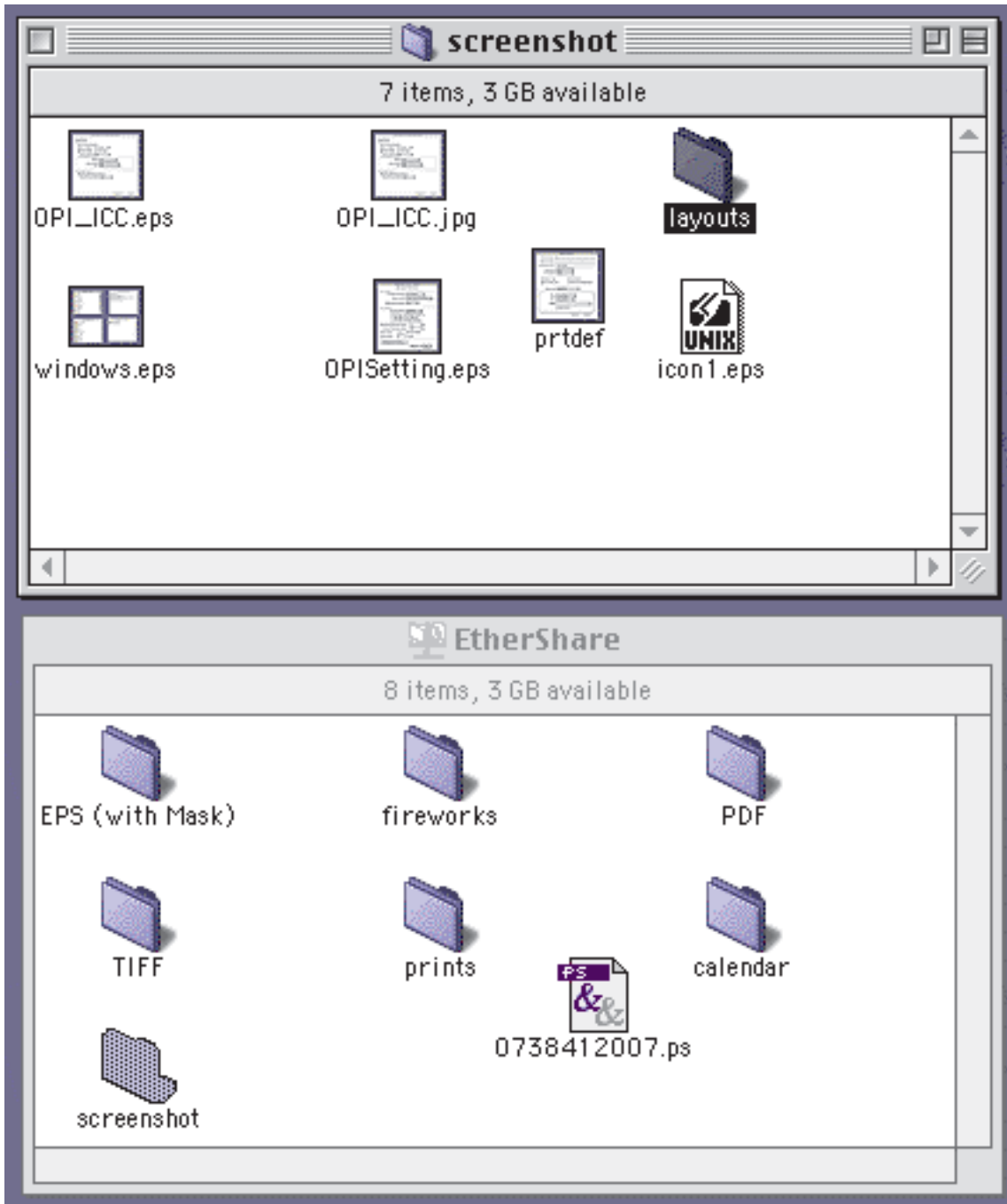


Figure 40. Sample shared directory and layout directory

5. Place the images that you created in step 1 in a directory under the shared folder from Ethershare, creating whatever directory structure you want to organize the files.  
The OPI server automatically creates a layout subdirectory that will contain low resolution images of each high resolution image you put in the main directory.
6. From the desktop, double-click on the **Tagger** icon, then complete the following procedure to tag high resolution images with **ICC** profiles necessary for the scanner that was used to create the images:
  - a. From the main menu, select **File->New**.

- b. From the RGB Profile dialog, specify other.
  - c. Select the correct **ICC** profile for your high resolution images.  
To determine the correct **ICC** profiles required by your particular images, consult the online Helios documentation and help systems.
  - d. Within the Tagger program, select your images, specify **high-res** image, and select **Open**.
  - e. Tag each image by selecting the **Tag image...** button and the **Open** button in sequence.  
Repeat this step for each image that you plan to use.
7. From your layout application (for example, Quark, Adobe Pagemaker, etc.), create a document and place the low resolution image from the layout folder in the document.
  8. From your layout application, select the print option and select the **OPI setting** so that you can include images in the document.  
Change these settings if you want low resolution images included in the PostScript output file. Because only the high-resolution images are printed, these changes will not affect output. Instead, these changes only affect pre-RIP processing, such as the use of a PostScript file in Preps software if the OPI server is used as part of the Infoprint impositioning solution.
  9. Select the **print to file** option because it generates a PostScript file as output.
  10. Using your method of choice (for example, the EtherShare folder you installed on your MAC system, Infoprint Submit, or some form of file transfer protocol), transfer the PostScript file generated in the previous step to your Infoprint AIX server.
  11. On the Infoprint AIX server, you can either print this PostScript file using a **pdpr** command, or use the PostScript file as input to the Preps software for the first step in the Infoprint Impositioning Solution.  
For more information, refer to Chapter 13, "Infoprint Manager's impositioning solution" on page 115.

---

## Troubleshooting the OPI server

The following describes some common errors that you might experience when using the OPI server, with possible recommendations for how to resolve the problems.

### A low-resolution image or no image prints

Attempt to resolve this problem by:

- Checking the OPI/ICC Settings on the Helios print queue (see Figure 37 on page 148). Ensure that the check boxes for **OPI Active**, **Check Images**, **Check Fonts**, and **Check ICC Profile for Pictures** have all been checked. If any are unchecked, check those check boxes, save the settings, and try running the jobs again.
- Check to ensure that the PostScript transform is using the correct configuration file (either **ps2afpd.cfg** or **3160d.cfg**), depending upon the type of printer you are using. Also, check this file to ensure that the OPI server has been enabled (for specific instructions, see "Configuring OPI server from the Infoprint AIX server" on page 148), and that the OPI server resolution program has specified the correct path (by default, this path is **/usr/local/es/psresolve**, as displayed in 149).

### PostScript RIP fails with an OPI error

Attempt to resolve this problem by:

|

- Ensuring that you have downloaded and specified the necessary Helios updates from the Helios site at <http://www.helios.de/download>.
- Test the Helios resolution program on an OPI file.

Do this task by specifying the following from an AIX command line:

```
/usr/local/es/psresolve queuename <file.ps > fileout.ps
```

where *queuename* represents the printer queue you created in Figure 35 on page 146 and *file.ps* is the name of the PostScript output file that resulted when you specified Print to File from your layout application.

By examining the results of the **fileout.ps** file, error codes, and error messages, you can gather valuable diagnostic information that can be used to resolve the problem.

- Ensure that you have properly tagged the high resolution image as described in “Submitting jobs to the OPI server” on page 149.

---

## Chapter 16. Printing data sets from an MVS system through MVS Download

This section contains information on setting up and using the MVS Download daemon supplied with IBM Infoprint Control (Infoprint) to print MVS jobs on Infoprint-managed printers. The MVS jobs must come from an MVS system that has the MVS Download feature of IBM Print Services Facility/Multiple Virtual Storage (PSF/MVS) program product installed.

The Infoprint MVS Download daemon allows MVS users to print data sets from the MVS JES spool on Infoprint-managed printer devices. The MVS data sets may contain S/370 line data, MO:DCA data, or S/370 mixed-mode data. You can also print MVS data sets containing PostScript data or data in any of the other formats supported by Infoprint.

The PSF/MVS MVS Download feature uses a routing-control data set residing on the MVS system to map any combination of the **CLASS**, **FORMS**, and **DEST** JCL parameters to a specific Infoprint server.

See the *PSF/MVS MVS Download Guide*, for information about the MVS Download feature and tasks performed on the MVS system.

---

### Preparing to work with MVS Download

Read through the following to become familiar with MVS Download terms and components.

#### Why use MVS Download?

When you have data on an MVS system that you want to print on an Infoprint-managed printer device, you can use the MVS Download feature of PSF/MVS and the Infoprint MVS Download daemon. The PSF/MVS feature and the Infoprint daemon:

- Provide a high-speed data transfer utility for high-volume jobs.
- Restart from a checkpoint if something interrupts the data transmission.
- Do not require separate spool management and queueing on MVS because of seamless integration with System Display and Search Facility (SDSF).

#### What is the MVS Download daemon?

Infoprint provides a daemon, **mvsprsd**, which receives data sets from one or more MVS systems. If you expect a high volume of data, you can configure several **mvsprsd** daemons to receive the data sets from MVS.

To configure an **mvsprsd** daemon, you must perform these tasks:

1. Make the Advanced Function Presentation (AFP) resources on the MVS system available to Infoprint if they are not already available.
2. Use the default version or a customized version of the shell script **mvsprpsm.sh** supplied with Infoprint. See “Modifying the Infoprint mvsprpsm.sh shell script” on page 157 for more information.
3. Assign a port number to the Infoprint daemon and start the daemon using the **mvsprsd** command.

See “Using the `mvsprsd` command to start the daemon” on page 161.

## How do you make AFP resources available?

Some jobs may require AFP resources located on the MVS system. You can use the Network File System (NFS) `mount` command to make MVS file systems containing resources accessible to the AIX system on which Infoprint is running. Or you may have the resources located on the AIX system. You use the shell script `mvsprsd.sh`, supplied with Infoprint in the `/usr/lpp/pd/bin` directory, to specify the location of the resources.

## How are print options passed to Infoprint?

MVS users submitting MVS data sets for printing on Infoprint-managed printer devices can pass a number of options that further define the requirements of their jobs. The Infoprint daemon receives the options with the data set and passes the options to the shell script.

See “Passing the parameter list from the `mvsprsd` daemon to the shell script” on page 159 for information on the options.

## What does the `mvsprpsm.sh` shell script do?

The Infoprint MVS Download shell script translates the print options specified with a downloaded MVS file into Infoprint attributes and values. The shell script then builds an Infoprint `pdpr` command using the `-x` flag to submit the attributes and values; it builds the name of the file to print from information received from the MVS system and the date and time the MVS file was received. The shell script then creates a log file and submits the `pdpr` command. A check is made to determine if Infoprint accepts the command. If Infoprint accepts the command, the Infoprint MVS Download shell script deletes the log file and the data set received from the MVS system. Otherwise, the log and file remain in the defined file system.

## What does the log file generated by the `mvsprpsm.sh` shell script contain?

The filename of the log file has the following format:

```
jobname.dataset_name.forms_name.yyddd.log
```

The log file generated by the Infoprint MVS Download shell script contains the following information:

- The date Infoprint received the MVS data set and print options
- The print options sent to the shell script by the `mvsprsd` daemon
- A copy of the `pdpr` command issued by the shell script to print the file
- Any error messages issued in response to the `pdpr` command
- The return code from the `pdpr` command

**Note:** If Infoprint accepts the command, the Infoprint MVS Download shell script deletes the log file and the data set received from the MVS system. If you are having problems, you may want to comment out this behavior while debugging.

If the `pdpr` command fails, you can use the log file located in the file system you defined with the `-d` flag of the `mvsprsd` utility.

- Ensure the shell script received the correct parameters



- Perform Infoprint troubleshooting procedures, such as using the **pdmsg** command to determine the cause of the problem with the **pdpr** command.

---

## Modifying the Infoprint **mvsprpsm.sh** shell script

You can use the default version of the **mvsprpsm.sh** shell script, located in the **/usr/lpp/pd/bin** directory, or modify the shell script to meet the needs of your production printing environment. For example, you might include the path to AFP resources on the AIX system or change how the shell script generates the file name for the data set received from the MVS system. Or you might want to specify a default page definition.

When modifying the **mvsprpsm.sh** script, note that parameters you comment out do not get dropped but get sent passthrough to the actual destination. For example, if you comment out the value for copies defined in the script:

```
cop) outputstr="$outputstr results-profile::~${optparm#}" ;;
```

the script passes the original JCL copy-count value to the printer. Instead of commenting out the line in the shell script, change the name of the parameter to something that will be read as a value, but not passed onto the Infoprint printer, such as **junk**:

```
cop) junk="$outputstr results-profile::~${optparm#}" ;;
```

### Recommendation

Copy the shell script to another directory such as **/var/pd** and modify the copy. This eliminates the possibility of service overwriting your modifications.

## Specifying AFP resource directories

The **mvsprpsm.sh** shell script contains the following lines, which are commented out by default:

```
NOTE: Add resource-context-xxx search paths to the pdpr options
if necessary. For example:
#outputstr="$outputstr resource-context-font=/font/reslib"
#outputstr="$outputstr resource-conect-page-def=/dept123/pagedef:/acme/pagedef"
```

Use the format shown in the third and fourth lines to specify the paths to the directories containing AFP resources. Do not include the pound sign, **#**, when specifying the directories. You can specify multiple directories by separating them with colons. You can also specify MVS file systems accessed through the NFS **mount** command.

## Changing how the shell script generates the file name

The **mvsprpsm.sh** shell script contains the following lines, which cause the Infoprint MVS Download shell script to include the MVS job identifier in the name of the file generated by the shell script:

```
Rename the downloaded file to include the MVS job id (comment out
if this behavior is not desired)
if ["$paopt" != "" ; then
 JID=${paopt##*jobid=}
 if ["$JID" != "$paopt"] ; then
 JID=${JID%*, *}
 if [$sdq.$JID != "" &rbrk, ; then
 mv $filename $JID.$filename
```

```

 filename=$JID.$filename
 mv $logfile $JID.$logfile
 logfile=$JID.$logfile
 fi
fi
fi

```

If you do not want the MVS job identifier included, comment out the lines.

## Using multiple printers with MVS Download

By default, an MVS Download process submits all jobs to the same logical printer. A parameter that specifies this logical printer starts the **mvsprsd** daemon. This printer is fixed for the duration of the process. If you want to send MVS Download jobs to multiple Infoprint Manager printers, then multiple daemons must be started for each printer.

If you want a single **mvsprsd** daemon process to route MVS Download jobs to different printers, you can uncomment the following lines from the **mvsprpsm.sh** shell script:

```

#####
The following code-segment should be uncommented if dynamic printer
assignment is desired. Uncomment lines that are singly (#) commented.
Lines with double comment (##) should remain commented.
##
The MVS parameter DEST=xxxx is used to assign the logical printer
(thereby making the MVS Download daemon's startup queue irrelevant).
##
The assumption below is that the DEST passed is the actual name
of an IPM logical destination. Note that both JES2 and JES3 will
pass the DEST in the NJE header in UPPER CASE but the code below
will convert it to lower-case.
#####

#####
Begin dynamic printer assignment from DEST
#####

MVSdest=${paopt##*destination=}
if ["$MVSdest" != "$paopt"] ; then
MVSdest=${MVSdest%*,*}
MVSdest=${MVSdest% }
if ["$MVSdest" != ""] ; then
outputstr="$outputstr mvs-destination=$MVSdest"
paopt=${paopt##*destination=$MVSdest}

#####
The following typeset converts to lower-case (-l flag)
#####

typeset -l lpname=$MVSdest
fi
fi

#####
End dynamic printer assignment from DEST
#####

```

Once this code has been uncommented, the MVS operators merely need to specify the target Infoprint Manager logical destination through the **DEST=** parameter on each job that is submitted through MVS Download.

If you will be sending jobs that do not specify a value for the **DEST=** parameter in the JCL, the MVS configuration substitutes a default value, which is typically LOCAL. If your Infoprint configuration does not have a destination with the same name, those jobs fail and Infoprint issues the following message:

```
5010-056 Cannot find object 'local' rc=1
```

To ensure that these jobs do not fail, define either an Infoprint Manager logical destination or an actual destination named **local** (or whatever serves as a lower-case equivalent for the default value on your MVS configuration) that addresses the appropriate printer.

## Specifying a default page definition

All line-data jobs downloaded from MVS systems require a page definition before you can print them using Infoprint. If no page definition is specified, an error occurs. By default, the shell script contains the following line:

```
pagedef) outputstr="$outputstr page-definition$optparm" ;;
```

This causes the shell script to set the value for the **page-definition** attribute based on a value passed to the shell script by the **mvsprsd** daemon. The value passed by the daemon depends on options downloaded from MVS with the data set. You can add conditional processing to the shell script to specify a page definition if no page definition specification is downloaded with the file.

---

## Passing the parameter list from the mvsprsd daemon to the shell script

The Infoprint **mvsprsd** daemon passes a parameter list for each data set it receives to the Infoprint MVS Download shell script. The parameter list contains the following information:

1. The name of the downloaded data set in the format:

```
MVS_system_name.job_name.dataset_name.forms_name.yyddd.hhmmsstABCD.PRD
```

where:

*MVS\_system\_name*

Specifies the name of the MVS system that downloaded the data set.

*job\_name*

Specifies the name of the job containing the data set.

*dataset\_name*

Specifies the name of the data set.

*forms\_name*

Specifies the name of the form identified with the MVS **FORMS** parameter.

*yyddd* Specifies the year followed by the number of the day of the year.

*hhmmsstABCD*

Specifies the time the data set was received in hours, minutes, seconds, tenths of a second, hundreds of a second, thousands of a second, and hundred thousands of a second.

**PRD** Specifies the type of file that contains print data. PRD is the suffix used by PSF for AIX, Infoprint Manager for AIX, or Infoprint Manager for Windows NT and Windows 2000 servers to identify the data file received and other information needed to create the final print job.

- The print-options string, which is a series of options and values. See Table 17 for the list of options. When you specify the **-k** flag with the **mvsprsd** command, Infoprint also stores the options in a file whose name is in the following format:

MVS\_system\_name.job\_name.dataset\_name.forms\_name.yyddd.hhmssstABCD.JCL

where all the qualifiers in the name are the same as those for the name of the data set, with the exception of **JCL**. The **-k** flag specifies that the file contains print options.

- The logical printer name, which was specified with the **-q** flag of the Infoprint **mvsprsd** command when the daemon was started.

## Translating print options to Infoprint attributes and values

Table 17 shows the print options and values passed to the shell script in the print-options string, the corresponding Infoprint attribute, and the attribute value used for the **pdpr** command for that job.

- MVS sends print option values in either uppercase or lowercase characters. MVS sends all print option values shown in italics in Table 17, such as *pagedef*, *formdef*, and *font1*, in upper case. It sends other values as shown in the table.
- Infoprint sets most attribute values to exactly the same values received from the print-option values; Table 17 lists these values in italics within the **Infoprint Attribute and Value** column.

Table 17. Print options passed to Infoprint MVS Download shell script

| Print Option Passed to Shell Script                                                               | Infoprint Attribute and Value                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>-oac=account</i>                                                                               | "account-text=account"                                                                                                                                                                                                                                                                         |
| <i>-oaddress1=address1</i>                                                                        | "address1-text=address1"                                                                                                                                                                                                                                                                       |
| <i>-oaddress2=address2</i>                                                                        | "address2-text=address2"                                                                                                                                                                                                                                                                       |
| <i>-oaddress3=address3</i>                                                                        | "address3-text=address3"                                                                                                                                                                                                                                                                       |
| <i>-oaddress4=address4</i>                                                                        | "address4-text=address4"                                                                                                                                                                                                                                                                       |
| <i>-obu=building</i>                                                                              | "building-text=building"                                                                                                                                                                                                                                                                       |
| <i>-occtype=a</i><br><i>-occtype=m</i><br><i>-occtype=z</i>                                       | "carriage-control-type=ansi-ebcdic"<br>"carriage-control-type=machine"<br>"carriage-control-type=ansi-ascii"<br><b>Note:</b> The shell script checks if the job uses carriage control characters. If they are used, then Infoprint sets this attribute and value based on the input parameter. |
| <i>-ochars=font1,font2,font3,font4</i>                                                            | "chars=font1,font2,font3,font4"                                                                                                                                                                                                                                                                |
| <i>-ocop=nnn</i>                                                                                  | "copy-count=nnn"                                                                                                                                                                                                                                                                               |
| <i>-odata=line</i>                                                                                | "document-format=line-data"<br><b>Note:</b> If the input value is not <i>line</i> , this value is not set and Infoprint attempts to identify the correct format. If Infoprint cannot identify the format, Infoprint uses a format of <i>ascii</i> .                                            |
| <i>-odatac=blkchar</i><br><i>-odatac=blkpos</i><br><i>-odatac=block</i><br><i>-odatac=unblock</i> | "data-fidelity-problem-reported=position"<br>"data-fidelity-problem-reported=character"<br>"data-fidelity-problem-reported=none"<br>"data-fidelity-problem-reported=all"                                                                                                                       |
| <i>-ode=department</i>                                                                            | "department-text=department"                                                                                                                                                                                                                                                                   |

Table 17. Print options passed to Infoprint MVS Download shell script (continued)

| Print Option Passed to Shell Script                                                        | Infoprint Attribute and Value                                                                                                |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| -odu=no<br>-odu=normal<br>-odu=tumble                                                      | "sides=1 plex=simplex"<br>"sides=2 plex=simplex"<br>"sides=2 plex=tumble"                                                    |
| -of=F1formdef                                                                              | "form-definition=F1formdef"                                                                                                  |
| -ofileformat=record<br>-ofileformat=stream                                                 | "new-line-option=counted-4-octet-aligned"<br>"new-line-option=lf"                                                            |
| -oin=nnn                                                                                   | "printer-pass-through='-obinnnn'"                                                                                            |
| -ojobn=job_name                                                                            | "job-name=job_name"                                                                                                          |
| -ona=name                                                                                  | "name-text=name"                                                                                                             |
| -ono=nodeid                                                                                | "node-id-text=nodeid"                                                                                                        |
| -ooffxb=nnn^.nnn                                                                           | "x-image-shift-back=nnn^.nnn  "                                                                                              |
| -ooffxf=nnn^.nnn                                                                           | "x-image-shift=nnn^.nnn  "                                                                                                   |
| -ooffyb=nnn^.nnn                                                                           | "y-image-shift-back=nnn^.nnn  "                                                                                              |
| -ooffyf=nnn^.nnn                                                                           | "y-image-shift=nnn^.nnn  "                                                                                                   |
| -opa=<br>class=output_class<br>destination=destination<br>forms=form_name<br>segmentid=nnn | "printer-pass-through=<br>'-oclass=output_class'<br>'-odestination=destination'<br>'-oforms=form_name'<br>'-osegmentid=nnn'" |
| -opagedef=P1pagedef                                                                        | "page-definition=P1pagedef"                                                                                                  |
| -opr=programmer_name                                                                       | "programmer-text=programmer_name"                                                                                            |
| -oprmode=SOSI1<br>-oprmode=SOSI2                                                           | "shift-out-shift-in=one"<br>"shift-out-shift-in=two"                                                                         |
| -ore=P240<br>-ore=P300                                                                     | "font-resolution=240"<br>"font-resolution=300"                                                                               |
| -oro=room                                                                                  | "room-text=room"                                                                                                             |
| -oti=title                                                                                 | "title-text=title"                                                                                                           |
| -otrc=no<br>-otrc=yes                                                                      | "table-reference-characters=false"<br>"table-reference-characters=true"                                                      |
| -ous=userid                                                                                | "user-id-text=userid"                                                                                                        |

## Using the mvsprsd command to start the daemon

To start the **mvsprsd** daemon whenever the Infoprint system starts, you can include the **mvsprsd** command in either the **/etc/rc** or the **/etc/inittab** file. Both files execute when the AIX operating system is initialized. The **/etc/inittab** file has an entry for another file called **/etc/rc**. This shell script (**/etc/rc**) performs normal startup initialization for the system; its contents are installation-specific. Because this file is not usually replaced when a new release of the operating system is installed (unlike **/etc/inittab**), you can use it to start the **mvsprsd** daemon. One can edit the **/etc/rc** to call and execute another shell script called **/etc/rc.local** if it exists.

Use the following procedure to start the **mvsprsd** daemon through the **/etc/rc** and the **/etc/rc.local** files:

1. Using your AIX editor of choice, edit the **/etc/rc** file and find the following lines:

```

Manufacturing post install process
This must be at the end of this file, /etc/rc.
if [-x /etc/mfg/rc.preload]
then
/etc/mfg/rc.preload
fi

```

2. Insert the following lines just prior to the code example provided in the preceding step:

```

[-s /etc/rc.local]
then
sh /etc/rc.local
fi

```

3. Save and close the `/etc/rc` file.
4. Using your AIX editor of choice, edit the `/etc/rc.local` file. If this file does not exist on your AIX system, you must create it as `root`.
5. Add lines similar to the following to this file:

```

This is a comment to document that the following command
starts the mvsprsd daemon automatically at system startup
/usr/lpp/psf/bin/mvsprsd -p 5400 -d /files1 -d /files2 \
-x /usr/lpp/pd/bin/mvsprpsm.sh -q serv2-lp

```

Note that this example uses the default shell script (`mvsprpsm.sh`) and specifies the `serv2-lp` Infoprint AIX server.

6. Save and close the `/etc/rc.local` file.

If the daemon stops for some reason or you want to restart it using different start-up options, you can use the Infoprint `mvsprsd` command to start the Infoprint `mvsprsd` daemon. With the command, you specify an AIX file system in which to store downloaded data sets, a shell script name, a logical printer name, and whether print-option information is stored in a file. You start the daemon on the AIX processor that has Infoprint installed. Once the `mvsprsd` daemon is operational, you can use MVS Download to submit a job to Infoprint where the Infoprint MVS Download shell script translates the JCL keywords and values to Infoprint attributes and values and issues a `pdpr` command.

For the syntax and flags of the `mvsprsd` command, and for examples of its use, refer to *Infoprint Manager: Reference* or the `mvsprsd` man page.

---

## Using MVS Download support for multi-data set jobs

MVS Download sends each JES SYSOUT data set separately to the `mvsprsd` daemon on AIX. By default, the `mvsprsd` daemon spools each data set as a separate file. On MVS, a job can contain multiple data sets. By using the following procedure to customize your installation for MVS Download multi—data set job support, you may be able to cause the data sets in a job sent to Infoprint Manager through MVS Download to print in sequence, with no intervening files, no NPRO processing between files, and only one header and trailer page for the set.

Infoprint Manager now enables multiple data sets to be received, individually transformed by ACIF into MO:DCA-P, and then combined into a single file and spooled. Infoprint Manager uses the medium maps (copy groups) from the form definition that is associated with each data set to build a comprehensive inline form definition that it inserts at the beginning of the combined file.

The following describes what you must do to install and configure the MVS Download support for printing multi-data set jobs received from PSF/MVS on Infoprint Manager for AIX.

## Description of multi-data set support on both PSF/MVS and Infoprint Manager for AIX

To support the printing of multiple data sets in a job as a single unit, you must:

- Install a special MVS Download user exit 15 program (**apsux15m**) on MVS
- Start the **mvsprsd** daemon with the *-n 1* option on AIX

The sample user exit 15 program (**apsux15m**) provided with PSF/MVS, adds a parameter that identifies data sets that belong to multi-data set jobs and indicates whether the data set is first, next, or last in a job. To use that sample user exit with PSF/MVS 2.20, you must install APAR OW41905. To use it with PSF 3.1.0 for OS/390, you must install APAR OW42117. For higher levels of PSF/MVS, you do not need to install any maintenance; the sample exit is part of the base product.

The *-n 1* option ensures that the **mvsprsd** daemon receives the data sets in the correct sequence by creating no more than one child process. If more than one child process were created, MVS Download might concurrently send more than one data set from a multi-data set job. If the second data set was shorter than the first, it might be received before the first, causing it to print out of sequence or causing the first data set to be left unprinted.

## Procedures for installing multi-data set support

Use the following procedure to install the MVS Download multi-data set support:

1. Install the MVS Download user exit 15 program, **apsux15m**, on MVS. The program must be assembled and linked into a data set referenced in the **STEPLIB** of your MVS Download startup **PROC**.
2. Run MVS Download on MVS using **SEND\_REC\_LENGTH=YES** either by specifying it explicitly in the MVS Download Routing Control data set on MVS or by allowing it to default. If you specify **SEND\_REC\_LENGTH=NO**, ACIF may be unable to process some variable length line mode data. In these cases ACIF issues a message that it cannot read the input file with a return code of 310.
3. Because the **mvsprpsm.sh** sample shell script has been updated, you must update any customized versions of this shell script. Specify the name of the shell script using the *"-x"* option when you start the **mvsprsd** daemon:

```
mvsprsd -n 1 -q1p -p6250 -d/mvsd1 -x/mvsd1/mvsprpsm.sh
```

4. Ensure that the **PATH** environment variable when the **mvsprsd** daemon is started includes the **/usr/lpp/psf/bin** directory. You can set default values for environment variables like **PATH** using the **/etc/environment** file:

```
PATH=/usr/bin:/etc:/usr/sbin:/usr/lpp/pd/bin:/usr/lpp/psf/bin:.
```

You must delimit each directory using a colon (:), not a semi-colon (;). Do not include spaces in the assignment. A period designates the current directory.

5. Ensure that ACIF can locate your resources. It looks in both the **/usr/lpp/psf/reslib** directory and the directories specified by the **PSFPATH** environment variable. If you specify resource directories using the following attributes, you must specify those same directories in the **PSFPATH** environment variable:

- **resource-context**
- **resource-context-font**

- **resource-context-overlay**
- **resource-context-page-segment**
- **resource-context-page-definition**
- **resource-context-form-definition**

You can set default values for environment variables like **PSFPATH** using the **/etc/environment** file:

```
PSFPATH=/usr/xyz_corp/reslib:/usr/xyz_corp/fontlib
```

You must delimit each directory using a colon (:), not a semi-colon (;). Do not include spaces in the assignment.

6. Do not specify the following attributes either directly or in Initial Value Job or Initial Value Document objects:

- **transform-message-file-name**
- **resource-context-page-definition**

You may use the **resource-context** attribute instead of the **resource-context-page-definition** attribute.

7. Specify the **-n 1** option when you start the **mvsprsd** daemon:

```
mvsprsd -n 1 -q1p -p6250 -d/mvsd1 -x/mvsd1/mvsprpsm.sh
```

This option directs the daemon to create exactly one child process to receive data sets from MVS. Most customers use a shell script to run the **mvsprsd** daemon and specify its arguments. Using a shell script ensures that the daemon is always started correctly, with the same arguments. You should add the **-n 1** option to the shell script.

## Limitations of multi-data set support

This support has the following four limitations:

1. This solution applies only to line mode, mixed mode, or MO:DCA-P data sets that do not have inline resources.
2. You must specify the **-n 1** option when you start the **mvsprsd** daemon on AIX. This support restricts the **mvsprsd** daemon to receiving one data set at a time. If you did not previously specify the **-n 1** argument and received multiple files concurrently, you may wish to start more than one instance of the **mvsprsd** daemon (using different port numbers) and configure new MVS Download printers on MVS to communicate with them.
3. You must have enough disk space on the AIX system to receive and transform all of the data sets in a multi-data set job. If you do not use this solution, data sets may be received and transformed individually, so less space may be required.
4. This solution does not create three types of form definition (**FORMDEF**) statements in the generation of a comprehensive inline form definition:
  - MSU (Map Suppression)
  - PFC (Presentation Fidelity Control)
  - MFC (Medium Finishing Control)

## Technical description of multi-data set support

The following describes the sequence of the multi-data set support:

1. The **mvsprsd** daemon receives each data set into a file, then invokes a shell script (specified using the **-x** option when the **mvsprsd** daemon is started) to spool the file.



2. The sample **mvsprsm.sh** shell script does not immediately spool a file which was identified by the user exit 15 program on MVS as being part of a multi-data set job. Instead, the **mvsprsm.sh** shell script invokes a second shell script, **mvsprsmd.sh**, which invokes ACIF to transform the file into MO:DCA-P.
3. After the last file in a multi-data set job is transformed into MO:DCA-P, the **mvsprsmd.sh** shell script invokes the **afpconcat** program to create one file with a comprehensive inline form definition and all the MO:DCA-P documents concatenated afterward. The comprehensive inline form definition contains medium maps (copy groups) from all of the form definitions associated with the individual data sets.
4. If medium map names collide, the **afpconcat** program assigns unique names and updates references in the MO:DCA-P documents.
5. The **mvsprsmd.sh** shell script then invokes the **mvsprsm.sh** shell script to spool the combined MO:DCA-P file.

---

## Resubmitting or deleting MVS Download orphaned files

Orphaned files are old files left in the AIX file system because errors prevented Infoprint from processing them; their file names follow the MVS Download file name format, such as:

```
MVS_system_name.job_name.dataset_name.forms_name.yyddd.hhmmssABC.D.PRD.
```

You should either correct the problem that prevented the job from processing and then resubmit the job or delete the files.

### Resubmitting an orphaned file

If you started the **mvsprsd** daemon with the **-k** flag, Infoprint saves print options downloaded with MVS data sets. By default, Infoprint also stores the downloaded data set. Infoprint saves both the data set and the print-options file in the directory you specify with the **-d** flag when you start the daemon. See “Passing the parameter list from the **mvsprsd** daemon to the shell script” on page 159 for the format of the file names for the data set and print-options file. If errors occur that prevent Infoprint from processing the job, you can correct the errors and then resubmit the job.

For example, to resubmit the file

```
bldmvs1.records.records.form1.9701.1147351234.PRD
```

using the print-options file `bldmvs1.records.records.form1.9701.1147351234.JCL` and requesting logical printer `srv1-lp`, enter the command:

```
/usr/lpp/pd/bin/mvsprsm.sh bldmvs1.records.recorda.form1.9701.1147351234.PRD
"$(bldmvs1.records.recorda.form1.9701.1147351234.JCL) srv1-lp
```

**Note:** This example shows the command spanning across lines for readability. When actually entering the command, allow it to wrap on the AIX command line.



---

## Chapter 17. Using AFP Upload

AFP Upload consists of an AIX client program (as part of Infoprint Manager) and an MVS or host server program (available as a priced feature of PSF/MVS). The AIX client program accepts AFP files (or files it can convert to AFP) and sends them to the MVS server, which places them on the JES spool. The host server program ensures that the attributes passed by the AIX client (such as class, destination, and forms) are also communicated to the MVS system and recorded with the data sets on the JES spool. For more information on how to pass these values to an MVS system, see “Transmitting AFP file attributes to MVS” on page 170.

To communicate between the MVS system and the AIX system, AFP Upload uses either TCP/IP or SNA LU 6.2 protocols. Depending upon the protocol used at your site, you should use one of the following publications to customize and use the AFP Upload feature of Infoprint Manager:

- *AFP Upload Configuration Guide Using TCP/IP*
- *AFP Upload Configuration Guide Using SNA*

Both manuals are available from the Infoprint Manager for AIX Version 4.1 Publications CD-ROM and the web site at **Infoprint Manager for AIX Product Library page** (<http://www.ibm.com/printers/R5PSC.NSF/Web/ipmrefinfo41>).

In addition to the network configuration tasks described in these publications, you need to perform the following procedure before you can upload files to an MVS server from Infoprint Manager.

---

### Creating an actual destination for AFP Upload and print

To create an AFP Upload actual destination on your Infoprint AIX server for using the AFP Upload feature, you must invoke the System Management Interface Tool (SMIT) as **root** user. Note that when you create an actual destination, the logical destination that will drive the printer is both created (if it does not already exist) and enabled automatically as *servername-lp*, where *servername* is the symbolic name of your Infoprint AIX server. A queue name – *servername-q* is also created if it does not already exist.

If you create more than one actual destination, Infoprint Manager will use the same default logical destination to drive both actual destinations. If both actual destinations are enabled and available for a job, the first one created handles the job.

To create an actual destination for the AFP Upload feature, use the following procedure:

1. From an AIX window on your Infoprint AIX server, type either `smit` or `smitty` and take the following path:  
**Infoprint Printing System—>Miscellaneous—>Add a Printer**
2. From the **Add a Printer** panel, select either **Upload-SNA** or **Upload-TCP/IP**, depending upon the communication protocol in use at your installation.

- From the **Add an Upload-*protocol* Printer** panel, where *protocol* is either TCP/IP or SNA, specify the required fields as you would when creating any actual destination object.

## SNA-specific fields

For an SNA AFP Upload printer (SMIT fastpath of `psfup_add_prt_uploadSNA`), they should be similar to the following values.

Figure 41. SMIT SNA Printer panel

### Printer NAME (Path)

Specify a printer name from 1-to-8 characters in length. This field must match the **Current profile name** field on the LU 6.2 Side Information Profile. For more information on the LU 6.2 Side Information and other related profiles, see *AFP Upload Configuration Guide Using SNA*.

### ASCII code set

Defines the code set used on the AIX system.

### EBCDIC code set

Defines the code set used on the MVS system.

### Maximum concurrent jobs (Num.)

Specifies an upper limit for the number of jobs that this actual destination can process at a time.

## TCP/IP specific fields

For a TCP/IP AFP Upload printer (SMIT fastpath of `psfup_add_prt_uploadTCP`), they should be similar to the following values.

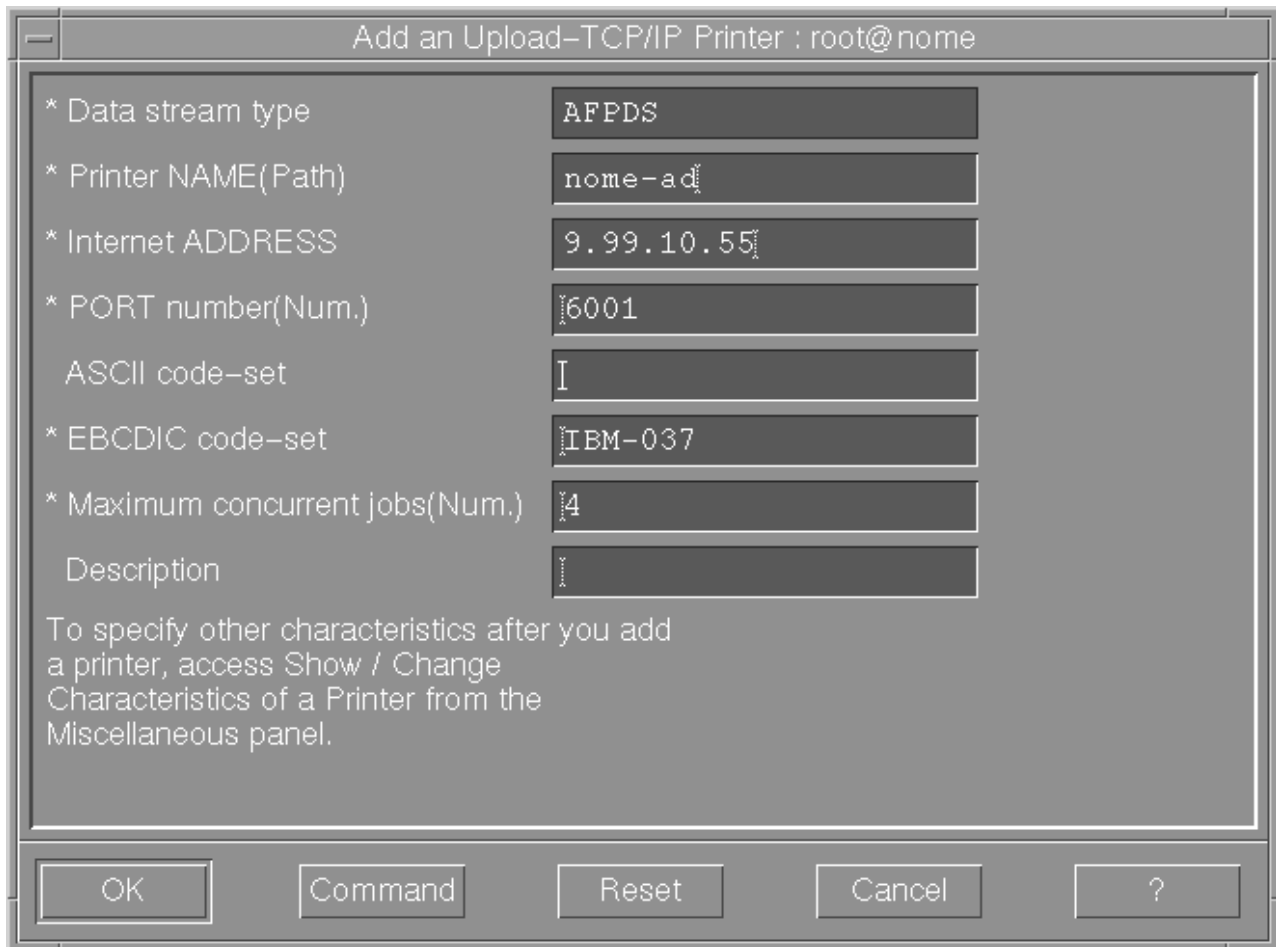


Figure 42. SMIT TCP/IP Printer panel

**Printer NAME (Path)**

Specify a printer name from 1-to-8 characters in length.

**Internet Address**

Specify as either dotted decimal notation or hostname.

**PORT number**

Specifies the location where the MVS server program on the target system receives access requests. Specify a number from 1-to-65535. **6001** is the default. IBM recommends you specify a number larger than 5000.

**ASCII code set**

Defines the code set used on the AIX system.

**EBCDIC code set**

Defines the code set used on the MVS system.

**Maximum concurrent jobs (Num.)**

Specifies an upper limit for the number of jobs that this actual destination can process at a time.

To find more information about AFP Upload printers, see “Using Infoprint Manager commands with AFP Upload” on page 172.

---

## Transmitting AFP file attributes to MVS

Infoprint Manager allows you to specify values to MVS through two methods:

1. "Using specific Infoprint Manager attributes"
2. "Using the destination-pass-through attribute" on page 171

Note that the CLASS, FORMS, and DESTINATION values allow you to specify values through either method. If you want to send these three values through AFP Upload and Print, as well as the BURST value, you must use the **destination-pass-through** attribute. If you specify the CLASS, FORMS, and DESTINATION attributes as specific attributes (**mvs-class**, **mvs-destination**, or **mvs-forms**) and then specify a BURST value on the same command or actual destination, Infoprint Manager ignores the specific document attributes and only passes the BURST value onto the MVS host program. To pass BURST with the other three values, you must use the method described in "Using the destination-pass-through attribute" on page 171.

**Note:** To pass the BURST value, you must ensure that you have the correct level of support on both your Infoprint AIX server and your MVS host system. On AIX, the BURST enhancement is available on Infoprint Manager Version 4 Release 1. On MVS, this support is available in PTF UW70082, APAR OW44510.

## Using specific Infoprint Manager attributes

You can specify a series of document attributes that map to MVS values by associating them with a job, specifying them on a **pdpr** print command, or setting them on an actual destination.

Table 18 provides specific attributes that can be used to pass values to an MVS host system through AFP Upload and Print.

*Table 18. Specific Infoprint Manager attributes to pass values to an MVS host system*

| MVS Values  | Infoprint Manager Attribute(s)                                                                                                              |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| ADDRESS     | <ul style="list-style-type: none"><li>• address1-text=</li><li>• address2-text=</li><li>• address3-text=</li><li>• address4-text=</li></ul> |
| BUILDING    | building-text=                                                                                                                              |
| CLASS       | <ul style="list-style-type: none"><li>• mvs-class=</li><li>• (destination-pass-through=)</li></ul>                                          |
| COPIES      | copy-count=                                                                                                                                 |
| DATAACK     | data-fidelity-problem-report=                                                                                                               |
| DESTINATION | <ul style="list-style-type: none"><li>• mvs-destination=</li><li>• (destination-pass-through=)</li></ul>                                    |
| DEPARTMENT  | department-text=                                                                                                                            |
| FORMDEF     | form-definition=                                                                                                                            |
| FORMS       | <ul style="list-style-type: none"><li>• mvs-forms=</li><li>• (destination-pass-through=)</li></ul>                                          |
| NAME        | name-text=                                                                                                                                  |

Table 18. Specific Infoprint Manager attributes to pass values to an MVS host system (continued)

|       |             |
|-------|-------------|
| ROOM  | room-text=  |
| TITLE | title-text= |

For example, to pass a BUILDING value of 004 and a ROOM value of A5, you could use the **pdpr** print command to pass attributes for a single job with a **test1.tif** file:

```
pdpr -p nome-lp -x"building-text=004 room-text=A5" test1.tif
```

For specific syntax rules, refer to the latest draft of the *IBM Infoprint Manager Reference*, which is available on the **Infoprint Manager for AIX Product Library page** (<http://www.ibm.com/printers/R5PSC.NSF/Web/ipmrefinfo41>).

## Using the destination-pass-through attribute

For a subset of MVS values that do not match specific Infoprint Manager attributes, Infoprint Manager allows you to specify values to MVS as **destination-pass-through** (also called **printer-pass-through**) attribute values. These values can be associated with a job, specified on a **pdpr** print command, or set on an actual destination. The MVS host server program associates attributes passed by the AIX client with the SYSOUT data set. These attributes are similar to JCL OUTPUT statement parameters.

They include

- BURST
- CLASS
- DESTINATION
- FORMS

The following procedures describe how you can pass these values to an MVS host server program using AFP Upload and Print, using the following syntax:

```
-x "destination-pass-through='PASSTHRU=MVS_PARM=value'"
```

where *MVS\_PARM* can be BURST, CLASS, DESTINATION, and FORMS, either individually or in any combination. When more than one attribute is being passed, each value must be separated by a comma, as shown in the examples below.

The MVS value WRITER must be specified through the **destination-pass-through** attribute, but it does not conflict with specifying either **mvs-class**, **mvs-destination**, or **mvs-forms**. As you can see in the table below and the examples that follow, the syntax for passing the MVS WRITER value differs from that used for the other options.

The following table shows how you can use the **destination-pass-through** attribute to pass values to an MVS host system through AFP Upload and Print.

Table 19. Using the destination-pass-through attributes to pass values to an MVS host system

| MVS Values | Infoprint Manager Pass Through Syntax         |
|------------|-----------------------------------------------|
| BURST      | destination-pass-through='PASSTHRU=BURST=xxx' |
| CLASS      | destination-pass-through='PASSTHRU=CLASS=xxx' |

Table 19. Using the destination-pass-through attributes to pass values to an MVS host system (continued)

|             |                                                     |
|-------------|-----------------------------------------------------|
| DESTINATION | destination-pass-through='PASSTHRU=DESTINATION=xxx' |
| FORMS       | destination-pass-through='PASSTHRU=FORMS=xxx'       |
| WRITER      | destination-pass-through='WRITER=xxx'               |

### Examples: Using the destination-pass-through attribute

The first two-step example creates an initial value document and associates it with the default logical destination so that all jobs sent to this destination will pass the specified attributes.

1. Using the destination objects created in the example for “Creating an actual destination for AFP Upload and print” on page 167, specify the following **pdcreate** command to create an initial value document named **upload1-dd** on the Infoprint AIX server **nome**:

```
pdcreate -c initial-value-document \
-x"destination-pass-through='WRITER=WTR1 PASSTHRU=BURST=YES,CLASS=A'" \
nome:upload1-dd
```

2. Specify the following **pdset** command to associate the initial value document named **upload1-dd** with the **nome-lp** logical destination:

```
pdset -c destination\
-x"destination-initial-value-document=upload1-dd" \
nome:nome-lp
```

The second example uses the **pdpr** command to pass attributes for a class of A, a form of B, a job destination of B205, and a BURST value of YES on a single job with a **test2.tif** input file:

```
pdpr -p nome-lp\
-x"destination-pass-through='PASSTHRU=CLASS=A,FORMS=B,DESTINATION=B205,BURST=YES'" \
test2.tif
```

The third example uses the **pdset** command to specify a class of A, a form of B, a BURST value of YES, and a WRITER value of WTR1 on all jobs sent to the actual destination **nome-ad**.

```
pdset \
-x"destination-pass-through='WRITER=WTR1 PASSTHRU=CLASS=A,FORMS=B,BURST=YES'" \
nome:nome-ad
```

---

## Using Infoprint Manager commands with AFP Upload

Because the AIX client program for AFP Upload operates as an Infoprint Manager actual destination, you can control and monitor it through the commands used with other Infoprint actual destinations:

- To shut down an AFP Upload actual destination, use the **pdshutdown** command that is documented in *Infoprint Manager: Reference*.
- To find status about AFP Upload actual destinations, use the **psfstat** command.

Note that there are limitations to the tasks that you can perform with an AFP actual destination. You can neither forward space, back space, nor pause a job to an AFP Upload actual destination.



---

## When the connection to the MVS host fails

If you experience connection problems with the MVS host after having submitted a job through AFP Upload and Print, how to ensure that the job prints depends upon whether or not Infoprint Manager detected the loss of connectivity.

If Infoprint Manager detected the lost connection, the AFP Upload logical destination becomes red and the job goes into the PENDING state. Once you have re-established connectivity to the MVS host program, re-enable the AFP Upload destination. Then Infoprint Manager will restart the job and continue printing.

If Infoprint Manager does not detect the lost connection, the job remains in the PENDING state, while the printer goes into a needs-key-operator state. To resolve this condition and print your job, you must regain connectivity to the MVS host program, cancel the job in the PENDING state, and then resubmit the job to the AFP Upload actual destination.



---

## Chapter 18. Installing the Tivoli Plus Module

You can enhance your job management support by adding Infoprint Manager support to your Tivoli desktop with no additional configuration. You install it like any other Tivoli Plus Module and it places an icon on the Tivoli Desktop.

The initial software requirement for a Tivoli system on AIX:

|                  |                                          |
|------------------|------------------------------------------|
| TME 10 Framework | Version 3.2 (also tested on Version 3.6) |
|------------------|------------------------------------------|

These applications must be installed and configured before their corresponding Tivoli Plus feature is operational:

|                               |                                            |
|-------------------------------|--------------------------------------------|
| TME 10 Software Distribution  | Version 3.1.1 (also tested on Version 3.6) |
| TME 10 Distributed Monitoring | Version 3.5 (also tested on Version 3.6)   |
| TME 10 Enterprise Console     | Version 2.6                                |

Once you install the Tivoli Plus Module, all the features described in the Infoprint Manager Plus for Tivoli fact sheet are available, and can be enhanced or expanded as needed. For example, you can add more support to our Tivoli Plus Module by suing the Tivoli Framework to monitor more conditions at the Infoprint Manager AIX server. The basic Tivoli feature provides the following

- A program group (accessible from the Tivoli Desktop) to perform remote Infoprint Manager commands, including the ability to pause, resume, hold, and cancel jobs, or show queue status.
- Monitors for checking Infoprint Manager's used disk space and showing the Infoprint Manager processes that are running.
- Notification of certain Infoprint Manager events and errors, including when a server has been manually shut down and restarted, or when a printer need attention.

For information about installing and configuring Tivoli Plus Module support, contact IBM technical experts by calling 1-800-237-5511 in the U.S. and 1-800-426-7378 in Canada. Outside the U.S. and Canada, contact your local IBM Printing Systems Representative. Ask your Printing Systems representative about requesting Professional Services from Printing Systems in Boulder.

**Note:** Remember to save your customer ID and the access key in a safe place. If you reinstall Infoprint Manager, you will need both your customer ID and the access key number again.



---

## Notices

This information was developed for products and services offered in the U.S.A.

IBM® may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property rights may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785 U.S.A.

**The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:**

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation  
Licensing  
2-31 Roppongi 3-chome, Minato-ku  
Tokyo 106, Japan

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Printing Systems Division  
Department H7FE Building 003G  
Information Development  
PO Box 1900  
Boulder CO 80301-9191 USA

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee. The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

For online versions of this book, we authorize you to:

- Copy, modify, and print the documentation contained on the media, for use within your enterprise, provided you reproduce the copyright notice, all warning statements, and other required statements on each copy or partial copy.
- Transfer the original unaltered copy of the documentation when you transfer the related IBM product (which may be either machines you own, or programs, if the program's license terms permit a transfer). You must, at the same time, destroy all other copies of the documentation.

You are responsible for payment of any taxes, including personal property taxes, resulting from this authorization.

Your failure to comply with the terms above terminates this authorization. Upon termination, you must destroy your machine readable documentation.

---

## Trademarks

The following are trademarks or registered trademarks of International Business Machines Corporation:

Advanced Function Printing  
AFP  
AIX  
AS/400  
IBM  
IBM Cross Platform Technologies for Windows  
Infoprint  
Intelligent Printer Data Stream  
IPDS  
Micro Channel  
MVS  
OS/2  
OS/390  
OS/400  
Print Services Facility  
S/390  
System/370

The following are trademarks of other companies:

- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.
- Microsoft, MS-DOS, Windows, Windows NT, Windows 2000, Windows ME, Microsoft Visual Basic, Microsoft Visual C++, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
- Pentium is a registered trademark of Intel Corporation in the United States, other countries, or both.
- UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product, and service names may be trademarks or service marks of others.

---

## EuroReady

Infoprint Manager is capable of processing data containing the euro sign. Font character sets and code pages that contain and map the euro sign consistently with the application must be present either in a host library or in the printer. AFP fonts that support the euro sign are included in the AFP Font Collection (Program Number 5648-B33).





---

# Index

## Special characters

- /manuals directory
  - PDF source of HELIOS manuals 143
- /usr/lib/font/devafp/devafp.fontmap file 48
- /usr/lib/font/devhplj directory 48
- /usr/local/es/psresolve 153
- /usr/lpp/psf/config directory 73
- /usr/lpp/psf/fontlib directory 48
- /usr/lpp/psf/gif2afp/gif2afp.3160cfg file 5
- /usr/lpp/psf/gif2afp/gif2afp.cfg file 5
- /usr/lpp/psf/gif2afp/gif2afp3900.cfg file 5
- /usr/lpp/psf/grd directory 61
- /usr/lpp/psf/jpeg2afp/jpeg2afp.3160cfg file 5
- /usr/lpp/psf/jpeg2afp/jpeg2afp.cfg file 5
- /usr/lpp/psf/jpeg2afp/jpeg2afp3900.cfg file 5
- /usr/lpp/psf/pcl2afp/pcl2afp.cfg file 3
- /usr/lpp/psf/pcl2afp/pcl2afpd.cfg file 3
- /usr/lpp/psf/ppml2afp/ppml2afp.cfg file 18
- /usr/lpp/psf/ppml2afp/ppml2afp.cfg
  - transform command configuration file, default 19
- /usr/lpp/psf/ps2afp/826\*.cfg file 13
- /usr/lpp/psf/ps2afp/ps2afp.cfg file 3
- /usr/lpp/psf/ps2afp/ps2afpd.cfg file 3
- /usr/lpp/psf/tiff2afp/tiff2afp.3160cfg file 5
- /usr/lpp/psf/tiff2afp/tiff2afp.cfg file 5
- /usr/lpp/psf/tiff2afp/tiff2afp3900.cfg file 5
- /usr./lpp/psf/ps2afp directory 148
- /var/pd/servername/resources directory 127
- /var/psf/actual\_dest\_name/error.log 139
- /var/psf/actual\_dest\_name/jobmessage.log 138, 139
- /var/psf/segments directory 144
- .att files to specify impositioning job attributes 136

## Numerics

- 3160.cfg file 148
- 3160d.cfg file 45

## A

- accessing a hot folder 135
- actual destination 27
  - create 97
- adding a new printer 111
- Adobe Acrobat Distiller 47
- Adobe Portable Job Ticket
  - specify only one per job 119
- Advanced Function Common Control Unit
  - Version 11.2 for the Infoprint 4100 116
- AFCCU (see Advanced Function Common Control Unit) 116
- AFP data stream, build 96
- AFP resources, identify 96
- AIX
  - adding non-IBM fonts 45
  - AIX command values 76
  - AIX commands
    - using 105
  - apsux15m user exit program 163
  - ASCII, transforming files 7

- assumptions
  - command line 105
  - Infoprint Select 110
  - Infoprint Submit 106
- attributes
  - destination-release-timer 119
  - maximum-presentation-object-containers-to-keep 119

## B

- backspacing 93

## C

- changing attributes 101
  - GUI 101
  - Infoprint Submit 108
- changing color and resource attributes 98
- changing layout example 115
- Chooser selections display 149
- cmt.cfg file 71
- cmt.cfg file, sample 73
- cmtsampl file 71
- color attributes 98
  - color-bits-per-plane 99
  - color-bits-per-plane-supported 99
  - color-profile 98
  - color-profiles-supported 98
  - color-toner-saver 100
  - color-toner-saver-supported 100
  - using 98
- color images, transform 97
- color mapping table
  - parts of 71
  - specific object types to map 72
- color mapping table,
  - submitting source and output files for printing 76
- color mapping table, creating 73
- color space value
  - GOCA pattern fill 72
  - Highlight color 72
  - Standard Object Content Architecture (OCA) 72
- color-bits-per-plane 99
- color-bits-per-plane-supported 99
- color-profile 98
- color-profiles-supported 98
- color-toner-saver 100
- color-toner-saver-supported 100
- commands
  - pdcreate 25
  - pddelete 25
  - pdls 25
  - pdmsg 138
  - pdset 25
- Configurable Transform Subsystem 27
- configuration file
  - PPML transform 18
- configuration files
  - /usr/lpp/psf/gif2afp/gif2afp.3160cfg 5
  - /usr/lpp/psf/gif2afp/gif2afp.cfg 5

- configuration files (*continued*)
  - /usr/lpp/psf/gif2afp/gif2afp3900.cfg 5
  - /usr/lpp/psf/jpeg2afp/jpeg2afp.3160cfg 5
  - /usr/lpp/psf/jpeg2afp/jpeg2afp.cfg 5
  - /usr/lpp/psf/jpeg2afp/jpeg2afp3900.cfg 5
  - /usr/lpp/psf/pcl2afp/pcl2afp.cfg 3
  - /usr/lpp/psf/pcl2afp/pcl2afpd.cfg 3
  - /usr/lpp/psf/ppml2afp/ppml2afp.cfg 18
  - /usr/lpp/psf/ps2afp/826\*.cfg 13
  - /usr/lpp/psf/ps2afp/ps2afp.cfg 3
  - /usr/lpp/psf/ps2afp/ps2afpd.cfg 3
  - /usr/lpp/psf/tiff2afp/tiff2afp.3160cfg 5
  - /usr/lpp/psf/tiff2afp/tiff2afp.cfg 5
  - /usr/lpp/psf/tiff2afp/tiff2afp3900.cfg 5
  - GIF transform 5
  - JPEG transform 5
  - Parallel PDF transform client 13
  - PCL transform 3
  - PDF transform 3
  - PostScript transform 3
  - TIFF transform 5
- configuring
  - data stream transform sequences 21
  - Infoprint Manager 129
- configuring for cut sheet emulation 69
- configuring the OPI server 144
  - from the AIX system 148
  - from the MAC system 144
- configuring the OPI Server
  - modifying the PostScript daemon configuration file 148
- connecting the PSF DSS destination to the print optimizer
  - logical destination 132
- content files
  - definition 117
- Courier 43
- creating
  - transform object 21
- creating a color mapping table 73
- creating a hot folder 134
- creating job ticket 107
- creating printing destinations to use the print optimizer 131
- creating the priming destinations and queue 129
- customizing
  - GIF transform 5
  - JPEG transform 5
  - PCL transform 3
  - PDF parallel transform 13
  - PDF transform 3
  - PostScript transform 3
  - PPML transform 18
  - TIFF transform 5
- cut sheet emulation
  - configuring for 69
  - using 69
- cut sheet emulation support, defaults and limitations 70

## D

- daemon
  - configuration files 14
- daemons
  - 826\*.cfg 14
  - pcl2afpd 4
  - ps2afpd 4
- data sets, printing through MVS Download 155
- data stream
  - AFP 96

- data stream (*continued*)
  - PostScript 96
  - transforms 27
- data stream transform sequences
  - configuring 21
- date
  - server error log field 138
- defining
  - transform sequence 23
- defining RIPs 17
- definitions
  - content files 117
  - layout 117
  - original job 117
  - priming actual destination 117
  - priming job 117
  - priming logical destination 117
  - printing actual destination 117
  - printing job 117
  - printing logical destination(s) 117
  - signature 115
- directories
  - /manuals 143
  - /usr/lib/font/devhplj 48
  - /usr/lpp/psf/bin 71
  - /usr/lpp/psf/cmt/ 77
  - /usr/lpp/psf/config 71, 73
  - /usr/lpp/psf/fontlib 48
  - /usr/lpp/psf/grd 61
  - /usr/lpp/psf/ps2afp 148
  - /var/pd/servername/resources 127
  - /var/psf/PrinterName 63
  - /var/psf/segments 144
  - global resource identifiers (GRIDS) 63
- ditroff transform
  - ditroff characters mapped to IBM font characters 48
  - files, Infoprint supplied 56
  - fonts, adding 56
  - fonts, required for 48
- ditroff, character mapping tables 49
- double-byte character set ASCII and EUC transform
  - font resources, setting up 57
  - fonts, required 56
- downloading Helios product updates
  - <http://www.helios.ed/download> 143, 154

## E

- EtherShare-Admin icon display 144
- EtherShare OPI Version 2.1 User manual
  - installing on AIX server 143
  - located on Helios CD-ROM 143
- EtherShare Version 2.6 User manual
  - installing on AIX server 143
  - located on Helios CD-ROM 143
- example
  - printing actual destination 131
  - printing logical destination 131

## F

- file system
  - /usr/lib/font/devafp/devafp.fontmap 48
  - charset.grd.sample 61
  - codepage.grd.sample 62
  - cpgid.grd.file 63

- file system (*continued*)
  - fgid.grd.sample 62
  - fixed-length, line-data 9
  - variable-length, line-data 9
- files
  - /usr/local/es/psresolve 153
  - /usr/lpp/psf/gif2afp/gif2afp.3160cfg 5
  - /usr/lpp/psf/gif2afp/gif2afp.cfg 5
  - /usr/lpp/psf/gif2afp/gif2afp3900.cfg 5
  - /usr/lpp/psf/jpeg2afp/jpeg2afp.3160cfg 5
  - /usr/lpp/psf/jpeg2afp/jpeg2afp.cfg 5
  - /usr/lpp/psf/jpeg2afp/jpeg2afp3900.cfg 5
  - /usr/lpp/psf/pcl2afp/pcl2afp.cfg 3
  - /usr/lpp/psf/pcl2afp/pcl2afpd.cfg 3
  - /usr/lpp/psf/ppml22afp/ppml2afp.cfg 18
  - /usr/lpp/psf/ppml2afp/ppml2afp.cfg 19
  - /usr/lpp/psf/ps2afp/826\*.cfg 13
  - /usr/lpp/psf/ps2afp/ps2afp.cfg 3
  - /usr/lpp/psf/ps2afp/ps2afpd.cfg 3
  - /usr/lpp/psf/tiff2afp/tiff2afp.3160cfg 5
  - /usr/lpp/psf/tiff2afp/tiff2afp.cfg 5
  - /usr/lpp/psf/tiff2afp/tiff2afp3900.cfg 5
  - /var/psf/actual\_dest\_name/error.log 139
  - /var/psf/actual\_dest\_name/jobmessage.log 138, 139
  - .att files to specify impositioningjob attributes 136
  - .att for layout without printing 127
  - .stg files for staging large jobs 135
  - 3160.cfg 148
  - cmt.cfg 71
  - cmt.cfg sample 73
  - cmtsampl 71
  - pie1.cfg 75
  - pie1.out 75, 77
  - pie1.src 75
  - ps2afpd.cfg 148
  - sample file for RGB mapping 75
  - sampleJPEG.ppml 18
  - samplePDF.ppml 18
  - samplePS.ppml 18
  - sampleTIFF.ppml 18
  - UserInit 44
- files, diagnostic
  - /var/psf/actual\_dest\_name/error.log 139
  - /var/psf/actual\_dest\_name/jobmessage.log 138, 139
- First Dialog of the Create Print Optimizer Wizard
  - screen capture 129
- fixed-length files 9
- fonts
  - adding non-IBM fonts to AIX 45
  - Courier 43
  - global resource identifiers (GRIDS) 61
  - Helvetica 43
  - IBM mapped to ditroff characters 48
  - printer-resident 61
  - required for double-byte transform 56
  - required for PostScript transform 43
  - substitution
    - on InfoColor 70 43
    - through initialization files 44
    - UserInit file 44
  - transforming to .pfa files 47
- FontSave utility
  - activating 45
  - deactivating 47
  - description 45
- forward spacing 93
- four Infoprint file systems on a MAC System display 144

## G

- generating color mapping table source and output files 71
- global resource identifiers
  - description 61
  - global id example 67
  - location 63
  - modifying 65
  - resident font id example 65
  - specifying 68
  - specifying fonts 61
- global resource identifiers (GRIDS) 61
- GOCA pattern fill color space 72
- graphic interchange format transform
  - configuration files 5
  - customizing 5
- guidelines for submitting impositioning jobs 119

## H

- HELIOS Activation Key 143
- Helios Products page
  - <http://www.helios.de/products/current.phtml> 143
- Helvetica 43
- hierarchy of PPML transform options 19
- Highlight color color space 72
- hot folder
  - accessing 135
  - creating 134
  - creating the parent directory 134
  - definition 134
  - specifying impositioning job attributes 136
  - staging jobs 135
  - submitting impositioning jobs 135
  - submitting multiple-document jobs 135
- <http://www.helios.de/products/current.phtml>
  - Helios Products page 143
- <http://www.helios.ed/download> 143, 154

## I

- impositioning
  - examples of changing layout 115
  - prerequisites 116
  - troubleshooting 138
- impositioning job flow, overview 118
- impositioning jobs
  - one Adobe Portable Job Ticket per job 119
  - plex settings 119
  - size limit 119
  - x-image-shift setting 121
  - x-image-shift-back 121
  - x-image-shift-range-supported 121
  - y-image-shift setting 121
  - y-image-shift-back 121
  - y-image-shift-range-supported 121
- impositioning problems 139
- impositioning resources, managing 137
- impositioning software
  - ScenicSoft Preps 4.0 116
- impositioning terms, for Infoprint 117
- InfoColor 70
  - font substitution 43
- Infoprint 2000 93
- Infoprint 3000 93
- Infoprint 4000 93
  - ps2afpd.cfg file 45

- Infoprint 4100 93
- Infoprint 4100 Advanced Function Printing System
  - creating printing destinations 131
- Infoprint 60
  - 3160d.cfg file 45
- Infoprint attributes
  - destination-release-timer 119
  - maximum-presentation-object-containers-to-keep 119
  - print-optimizer-synchronization-time-out 123
- Infoprint Color 130 Plus 18
- Infoprint commands
  - Infoprint commands
    - mkfntmap 43
    - mvsprsd 161
  - mkfntmap 43
  - mvsprsd 161
  - pdmsg 138
- Infoprint commands, unsupported
  - pdpause 138
  - pdresume 138
  - pdshutdown 138
  - pdspace 138
- Infoprint impositioning terms 117
- Infoprint Manager Administration GUI
  - starting from command line 101
  - starting from Windows desktop 101
- Infoprint Manager Administration GUI, changing
  - attributes 101
- Infoprint Manager for AIX Version 4 Release 1 116
- Infoprint Manager, configuring 129
- Infoprint Manager's impositioning solution 115
- Infoprint Submit 69
- input data format
  - PCL 27
  - PostScript 27
- installing
  - PDF parallel transform 11
- installing the OPI server on AIX 143
  - need for HELIOS Activation Key 143

## J

- job flow
  - modifying content and layout of impositioning jobs 122
  - modifying layout of impositioning jobs 125
  - submitting impositioning jobs for printing later 127
- job hangs in printing actual destination and eventually times out
  - logical destination's priming-destination set correctly? 139
  - Print Optimizer actual destination enabled? 139
  - Print Optimizer job failed? 139
  - Print Optimizer job waiting for resources? 139
- job prints as unexpected, cropped size
  - reuse of original job in new job ticket 140
- Job stays in hot folder and never appears in Infoprint Server
  - .stg file or directory renamed? 139
  - Logical Destination enabled? 139
  - Logical Destination's hot-folder-directory set correctly? 139
- jobs
  - required for troff transform 48
- joint photographic experts group transform
  - configuration files 5
  - customizing 5

## L

- layout
  - definition 117
- line printer (LPR) gateway 141
- line-data transform
  - carriage controls 8
  - files, variable-length and fixed-length 9
  - fonts, specifying 58
  - imageout keyword, affecting processing 10
  - introduction 7
  - restrictions 7
  - user-exit programs 10
- logical destination, create and configure 97
- low-resolution image or no image prints 153

## M

- makepfa utility
  - for .pfa files 47
- managing
  - impositioning resources 137
- manuals
  - Graphics Objects Content Architecture for Advanced Function Presentation Reference* 73
  - Infoprint 400 HC Introduction and Planning Guide* 73
  - Infoprint Hi-Lite Color Application Design Reference* 73
- Maximum presentation object containers to keep
  - attribute 119
- message number
  - server error log field 138
- message severity
  - server error log field 138
- Mixed Object Document Content Architecture 28
- mkfntmap command 43
- modifying content and layout of impositioning jobs
  - job flow 122
- modifying layout of impositioning jobs
  - job flow 125
- multiple printers
  - with MVS Download 158
- MVS Download
  - daemon 155
  - deleting orphaned files 165
  - description 155
  - print options translation table 160
  - resubmitting orphaned files 165
  - shell script 156
  - with multiple printers 158
- MVS Download support
  - apsux15m user exit 163
- mvsprpsm.sh shell script 156
- mvsprsd command 161
- mvsprsd daemon 155

## N

- netware 29
  - using 26
- non-IBM fonts, adding to AIX 45
- notices 177

## O

- object types to map 72
- OPI server resolution program default path 153

- OPI Server Settings window display 146
- OPI server, configuring 144
- OPI server, installing on AIX 143
- OPI server, submitting jobs to 149
- OPI server, troubleshooting 153
- OPI/ICC Settings window display 147
- original job
  - definition 117
- original job in new job ticket
  - job prints as unexpected, cropped size 140
- output data format 27
- overview 115
  - guidelines for submitting impositioning jobs 119
  - impositioning job flow 118
  - priming actual destination 129
  - priming logical destination 129
  - printing actual destination 129

## P

- Page Printer Formatting Aid (PPFA) 96
- parts of a color mapping table
  - source groups 71
  - target groups 71
- PCL printer
  - submitting PSF printer input 39
- pcl2afpd daemon
  - configuration file 4
- pdcreate 25
- pddelete 25
- PDF parallel RIP transform
  - customizing 13
  - installing 11
- pdfprs client
  - customizing 13
  - installing 11
  - troubleshooting 17
- pdl 25
- pdmsg command
  - sample message display 138
- pdpr command, using 70
- pdset 25
- Personalized Print Markup Language (PPML) 18
- plex attributes
  - for impositioning jobs 119
- plex—supported attribute
  - for impositioning jobs 119
- podelete command 137
  - use 137
- polist command 137
  - example 137
- portable document format transform
  - configuration files 3
  - customizing 3
  - fonts required 43
- PostScript 21, 26, 28, 29
- postscript ascii files
  - creating from binary files 47
- PostScript daemon
  - restarting 149
  - starting 149
  - stopping 149
- PostScript data stream, build 96
- PostScript RIP fails with an OPI error 153
- PostScript transform
  - configuration files 3
  - customizing 3
- PostScript transform (*continued*)
  - fonts required 43
- PPDS printer
  - submitting PSF printer input 39
- PPML 18
- PPML transform
  - configuration files 18
  - customizing 18
  - hierarchy of options 19
  - overview 18
  - sample configuration file 19
- ppml2afp configuration file, sample 19
- prerequisites
  - AFCCU Version 11.2 116
  - IBM Infoprint 4100 Advanced Function Printing System 116
  - Infoprint Manager for AIX service update level 116
  - RPQ 8B4053 116
  - third-party impositioning software 116
- presentation object containers 96
- presentation-object-container-extraction-mode 100
- prime-only jobs 127
  - using same logical destination 119
- priming actual destination
  - definition 117
  - overview 129
- priming destinations, creating 129
- priming job
  - definition 117
- priming logical destination
  - definition 117
  - overview 129
- print optimizer DSS 129
- print optimizer queue, creating 129
- print optimizer tasks 115
- Print Queue window display 145
- Print Services Facility for OS/2 (PSF/2)
  - netware 29
- print-optimizer-synchronization-time-out attributes 123
- printer control language transform
  - configuration files 3
  - customizing 3
- printing actual destination
  - definition 117
  - example 131
  - overview 129
- printing destinations to use the print optimizer, creating 131
- printing from applications 111
- printing from the command line 112
- printing job
  - definition 117
- printing logical destination
  - example 131
- printing logical destination(s)
  - definition 117
- Properties Notebook for the Print Optimizer's logical destination.
  - screen capture 132
- ps2afpd daemon
  - configuration file 4
- ps2afpd.cfg file 45
- ps2afpd.cfg file, modifying 148
- PSF DSS
  - printing destinations 131
- PSF DSS Actual Destination Properties notebook
  - screen capture 121

- PSF DSS destination, connecting to the print optimizer logical destination 132
- PSF for OS/2 29
- PSF Physical Printer Properties Notebook, using 69
- PSF printer input 39

## Q

- querying destination attributes 112
- querying jobs 112

## R

- references
  - EtherShare OPI Version 2.1 User manual 143
  - EtherShare Version 2.6 User manual 143
  - Using Infoprint Manager Impositioning with the Infoprint 4100 Advanced Function Printing System 143, 153
- Release time (sec) field 119
- resident fonts 61
- resource attributes 100
  - presentation-object-container-extraction-mode 100
  - resource-context-presentation-object-container 100
- resource attributes, using 98
- resource-context objects
  - for MVS Download 156
- resource-context-presentation-object-container 100
- restarting the PostScript daemon 149
- restrictions
  - line-data transform 7
- reuse of original job in new job ticket
  - job prints unexpected size 140
- RPQ 8B4053 for 54 inch paper 116

## S

- sample cmt.cfg file 73
- sample connection dialog display 150
- sample message display
  - pdmsg output 138
  - server error log output 138
- sample shared directory and layout directory display 151
- ScenicSoft Preps 4.0
  - third-party impositioning software 116
- screen captures
  - First Dialog of the Create Print Optimizer Wizard 129
  - Properties Notebook for the Print Optimizer's Logical Destination. 132
  - PSF DSS Actual Destination Properties notebook 121
- screen shots
  - Chooser selections 149
  - Ether-Share-Admin icon 144
  - four Infoprint file systems on a MAC System 144
  - OPI Server Settings window 146
  - OPI/ICC Settings window 147
  - Print Queue window 145
  - sample connection dialog 150
  - sample shared directory and layout directory 151
- send job
  - command line 105
  - Download for OS/390 112
  - Infoprint Select 110
  - Infoprint Submit 106
- sequence
  - transform 27

- server error log
  - sample message display 138
- server error log fields
  - date 138
  - message number 138
  - message severity 138
  - target of request 138
  - thread ID 138
  - time 138
- setting Color Mapping Table with Infoprint Manager Administration GUI 76
- setting up 95
  - build data stream 96
  - create actual destination 97
  - creating and configuring a logical destination 97
  - identify AFP resources 96
  - transform color images 97
- sides attribute
  - for impositioning jobs 119
- sides—supported attribute
  - for impositioning jobs 119
- signature
  - defined 115
- Simple Network Management Protocol (SNMP) MIB 93
- size limit, impositioning jobs 119
- source groups, using 71
- spacing
  - forward spacing 93
- specific impositioning problems 139
- specifying impositioning job attributes 136
- staging jobs using a hot folder 135
- staging large jobs 135
- Standard Object Content Architecture (OCA) color space 72
- starting the PostScript daemon 149
- stopping the PostScript daemon 149
- submit impositioning jobs
  - using hot folders 134
- submitting color mapping table source and output files 76
- submitting impositioning jobs
  - for printing later 127
- submitting impositioning jobs through a hot folder 135
- submitting impositioning jobs, guidelines 119
- submitting job, command line 105
- submitting job, Infoprint Select 111
- submitting job, Infoprint Select and pdpr 112
- submitting job, Infoprint Submit 106
- submitting jobs through the AIX command line 76
- submitting jobs to the OPI server 149
- submitting multiple-document jobs 135

## T

- tag image file format transform
  - configuration files 5
  - customizing 5
- target groups, using 72
- target of request
  - server error log field 138
- terminating
  - transform 27
- thread ID
  - server error log field 138
- time
  - server error log field 138
- transform
  - Configurable Transform Subsystem 27
  - input data format 27

- transform (*continued*)
  - options 27
  - output data format 27
  - sequences 27
  - terminating 27
- transform command configuration file, default
  - /usr/lpp/psf/ppml2afp/ppml2afp.cfg 19
- transform object
  - creating 21
- transform sequence
  - defining 23
- transforms
  - GIF 5
  - JPEG 5
  - line data 7
  - PCL 3
  - PDF 3
  - PostScript 3
  - TIFF 5
- troubleshooting
  - defining RIPs 17
  - job hangs in printing actual destination and eventually times out 139
  - job prints as unexpected, cropped size 140
  - Job stays in hot folder and never appears in Infoprint Server 139
  - low-resolution image or no image prints 153
  - PostScript RIP fails with an OPI error 153
  - specifying an uneven number of RIPs 17
  - using the `-p` and `-g` flags 17
- troubleshooting impositioning 138
- troubleshooting the OPI server 153
- tuning the printing actual destination
  - Maximum presentation object containers to keep to a high value field 119
  - print-optimizer-synchronization-time-out 123
  - Release time (sec) field 119

## U

- user-exit programs
  - line-data transform 10
- UserInit file 44
- using
  - cut sheet emulation 69
  - Infoprint Submit 69
  - netware 26
  - pdpr command 70
  - Physical Printer Properties Notebook 69
- using AIX commands 105
- using color and resource attributes 98
- using source groups 71
- using target groups 72

## V

- variable-length files 9

## W

- web addresses
  - <http://www.helios.de/products/current.phtml> 143
  - <http://www.helios.ed/download> 143, 154

## X

- x-image-shift attribute
  - set for impositioning jobs 121

## Y

- y-image-shift attribute
  - set for impositioning jobs 121





---

# Readers' Comments — We'd Like to Hear from You

Infoprint Manager for AIX  
Administrative procedures: Customizing for special jobs  
Version 4 Release 1

Overall, how satisfied are you with the information in this book?

|                      | Very Satisfied           | Satisfied                | Neutral                  | Dissatisfied             | Very Dissatisfied        |
|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Overall satisfaction | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

How satisfied are you that the information in this book is:

|                          | Very Satisfied           | Satisfied                | Neutral                  | Dissatisfied             | Very Dissatisfied        |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Accurate                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Complete                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Easy to find             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Easy to understand       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Well organized           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Applicable to your tasks | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please tell us how we can improve this book:

Thank you for your responses. May we contact you?  Yes  No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

---

Name

---

Address

---

Company or Organization

---

Phone No.



Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE  
NECESSARY  
IF MAILED IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

IBM Corporation  
Information Development  
IBM Printing Systems  
Department H7FE Building 004M  
Boulder, CO 80301-9817



Fold and Tape

Please do not staple

Fold and Tape





Program Number: 5765-F68

Printed in U.S.A.