

Using the Parallel PDF RIP

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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.

The following describes:

1. "Installing the PDF Parallel RIP Client".
Specific instructions for setting up a PDF Parallel RIP Client (**pdfprs**).
2. "Customizing the PDF Parallel Transform" on page 3
General information about the PDF transform files and how they can be used.
3. "Using the pdfprs Command to Submit Jobs" on page 7.
Specifies the description, syntax, and options available with the **pdfprs** command.
4. "Troubleshooting the Parallel PDF RIP Client" on page 16.
Guidelines to avoid performance problems when using a PDF Parallel RIP Client (**pdfprs**).

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 1.

Table 1. 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 3.

Table 1. Processors Required to Use the Parallel PDF RIP client (continued)

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 4.

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 2 on page 5 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 2 shows the default configuration files that Infoprint provides. You can either modify these files or create your own.

Table 2. 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 1 on page 4 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 1. 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 1 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 2 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/ps2afpic             # name of the PostScript interpreter program
ps_init_file = /usr/lpp/psf/bin/ps2afpec.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
ps_job_timeout = 9999 #                PostScript uses; the 'K' is ignored
                                                    #                maximum number of minutes
ps_server_timeout = 180 #                to process PostScript job
                                                    #                maximum number of minutes
ps_font_map_files = /usr/lpp/psf/ps/psfonts.map :\
                /var/psf/psfonts/user.map
ps_width = 8.5i     #                list of font mapping files
ps_length = 11i     #                width of generated image
ps_x_offset = 0i    #                length of generated image
ps_y_offset = 0i    #                left and right margins
ps_resolution = 600 #                top and bottom margins
ps_output_type = FS45 #                resolution of target printer
                                                    #                type of output to generate

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

Figure 2. 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 2. 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* 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
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 = I01_G4 #                type of output to generate
```

Figure 3. 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 3 on page 6 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 2 on page 3.
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.

Using the pdfprs Command to Submit Jobs

pdfprs Transform: Transform PDF to AFP

Syntax

```
pdfprs
  [-a OutputType] [-C ConfigurationFile]
  [-g PageRange] [-j nnnn] [-l nnnn.nnnu] [-o OutputFile]
  [-p PageRange] [-q] [-r nnn]
  [-w nnnn.nnnu]
  [-x nnnn.nnnu] [-y nnnn.nnnu]
  [InputFile ]
```

Description

The **pdfprs** command transforms a Portable Document Format (PDF) data stream file into an AFP data stream file.

Once you have installed the PDF Parallel RIP client, the PSF DSS runs the **pdfprs** command automatically whenever:

- Infoprint identifies the format of a document in a print job as PDF.
- You use the **pdpr** command to specify **document-format=pdf** with the **-x** flag or in an attributes file.
- You specify a data type of **-odatatype=pdf** with an AIX print command (**enq**, **lp**, or **qprt**) or with the **lprafp** command.

If you specify multiple values of the same flag, **pdfprs** uses the last value specified, with the exception of the **-g**, and **-p**, flags. Multiple values of the **-g** and **-p** flags are accumulated and the pages identified for printing are printed in normal numerical sequence, regardless of the order you specify.

When using the **pdfprs** command, you can specify an optional input file name. If you do not specify an input file name, **pdfprs** reads standard input. The output file name is also optional; if you do not specify one, the **pdfprs** command writes the results to standard output.

Note the following about the flags you can specify with the **pdfprs** command:

1. When you run **pdfprs** as a standalone transform, flags can appear anywhere on the command line with or without a blank in the flag and value pair.

When you specify **pdfprs** transform flags with the **other-transform-options** attribute, any string containing a blank must be surrounded by single quotes.

Do not use a blank between the flag and the value when you specify **pdfprs** transform flags with an AIX print command or with the **lprafp** command.
2. When you specify flags with the **pdfprs** command, the command echoes them back to your display along with the settings for the flags. To suppress the command echoing, enter the **-q** (quiet) flag along with the **pdfprs** command.
3. The position of PostScript or PDF data on the page depends on the interaction of the **-l** and **-w** flags, the **-x** and **-y** flags, and the form definition you use. In general, to position data on the page,
 - Use **-l** and **-w** to set the physical page dimensions.
 - Use a form definition that specifies zero vertical offset and zero horizontal offset (for example, **F100S**, **F100D**, or **F100T**) or specify X and Y offsets of 0 when you submit the print job.
 - Use **-x** and **-y** to avoid any areas that your printer cannot print.
4. You can specify the **pdfprs** flags and values with the **pdfprs** command, or with **enq -o**, **lp -o**, **qprt -o**, or **lprafp**. You can also specify equivalent attribute values with the **-x** flag or in an attributes file with the **pdpr** command.

Limitations

- Infoprint, including the **pdf2afp** transform, and the PDF Parallel RIP client (**pdfprs**) must be installed, and the RIP daemons (named *port_number.cfg*) must be running.
- Resolution conversion algorithms may yield degraded appearance when used to reduce the resolution of a datastream. For this reason, **pdfprs** may degrade the appearance of higher-resolution datastreams when used with 240-pel printers. You should verify that print fidelity is satisfactory.

Flags and Values

-a {IO1_G4 | IM1 | IO1 | IO1_MMR | PSEG_IO1_G4 | PSEG_IM1 | PSEG_IO1 | PSEG_IO1_MMR | OVLY_IO1_G4 | OVLY_IM1 | OVLY_IO1 | OVLY_IO1_MMR | FS45}

Determines the type of AFP data stream image to generate for each page in the PDF file.

Values are:

IO1_G4

Compressed Image Object Content Architecture (IOCA) image in Modified TSS (formerly CCITT) T.6 G4 Facsimile Coding Scheme (G4 MMR) format. This is the recommended output type because it takes up less space on the fixed disk, and it prints faster. It is the default specified in the **ps2afpd** daemon and **pdfprs** command configuration files.

Note: The IBM 3812 and 3816 printers do not support printing with an image type of **IO1_G4**. For these printers, specify an image type of **IO1_MMR** because it is the compressed image type supported by these printers. This will result in faster printing than uncompressed image types.

PPDS, PCL, and TCP/IP-attached IPDS printers can print IOCA images; however, only channel-attached printers that have the Advanced Function Image and Graphics (AFIG) feature installed can print IOCA images. Therefore, if you are printing images on channel-attached printers without the AFIG feature, select the **IM1** value.

IM1 IM1 image. This type of image is not compressed.

IO1 IOCA image. This type of image is not compressed.

IO1_MMR

Compressed IOCA image in Modified Modified Read (MMR) format.

PSEG_IO1_G4 | PSEG_IM1 | PSEG_IO1 | PSEG_IO1_MMR

Page segment of the specified image type.

Note: When generating page segments from multiple-page documents, you may want to use the **-p** flag to select which page is to be made into a page segment; otherwise, multiple page segments will be created, one for each page of PDF.

OVLY_IO1_G4 | OVLY_IM1 | OVLY_IO1 | OVLY_IO1_MMR

Overlay of the specified image type.

Note: When generating overlays from multiple-page documents, you may want to use the **-p** flag to select which page is to be made into an overlay; otherwise, multiple overlays will be created, one for each page of PDF.

FS45 IOCA color format.

Note: FS45 is supported on Infoprint Manager for AIX only after `install.color` has been activated.

FS45.ovly IOCA color format for overlays.

FS45.pseg IOCA color format for page segments.

This flag is similar to the **image-out-format** document attribute on the **pdpr** command.

-C *ConfigurationFile*

Specifies the path and file name of the customized configuration file Infoprint uses with the transform. If you specify the **-C** flag with an AIX print command (**enq**, **lp**, or **qprt**), or with the **lprafp** command, specify the fully qualified name of the file, including its path; for example:

With AIX **/usr/lpp/ps2afp/myfile.cfg**

-g *PageRange*

Specifies that the output should only contain selected pages. When you specify multiple **-g** flags, the **pdfprs** command transforms only the specified pages in the PDF input data stream, then prints the transformed pages in normal numerical order, regardless of the order you specify. Examples of values include:

-g even

Output even pages.

-g odd

Output odd pages.

-g 1-10

Output pages 1 through 10.

-g 10-

Output pages from page 10 until the end of the job.

-g 1 -g 3 -g 6

Output pages 1, 3, and 6, in that order.

-g1 -g6 -g3

Output pages 1, 3, and 6, in that order.

This flag is equivalent to the **page-select** document attribute on the **pdpr** command.

Note: For the **pdfprs** client, the **-g** flag is identical to the **-p** flag.

InputFile

Specifies one input file to be transformed.

If you do not specify an input file, **pdfprs** uses standard input. If the **pdfprs** command cannot read from standard input, **pdfprs** issues a message.

-j {20 | 1 to 9998 | 9999}

Specifies the maximum amount of time, in minutes, to spend processing the job.

Values are:

20 20 minutes, the default

1 to 9998

The timer ranges from 1 to 9998 minutes, in one-minute increments

9999 No time limit

-l *nnnn.nnnu*

Specifies the length of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **pdfprs** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

Note: If a text margin is already built into the file, try **-l11i** to set the length to 11 inches.

For 240-pel resolution printers, values are:

l1i 11 inches, the default

16 to 8160

The length can be from 16 pels to 8160 pels, 0.065i to 34i, or 1.641m to 863.628m. For example, the following are all valid:

```
-l 40m
-l 200.5m
-l 13i
-l 4000
```

For 300-pel resolution printers, values are:

l1i 11 inches, the default

16 to 10200

The length can be from 16 pels to 10200 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

```
-l 40m
-l 200.5m
-l 13i
-l 5000
```

For 600-pel resolution printers, values are:

l1i 11 inches, the default

16 to 20400

The length can be from 16 pels to 20400 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

```
-l 40m
-l 200.5m
-l 13i
-l 10000
```

This flag is equivalent to the **image-length** document attribute on the **pdpr** command.

-o *OutputFile*

Specifies the output path and file into which the transformed file is to be written. If more than one output file is specified, the last specified file name and path is the one used. If no output file is specified, the result is written to standard output.

You cannot use **-o** *OutputFile* on the command line with the **enq**, **lp**, **qprt**, or **lprafp** commands. You can only use **-o** *OutputFile* with the **pdfprs** command. You can also specify the **transform-output-file-name** document attribute on the **pdpr** command.

-p *PageRange*

Specifies that the output should only contain selected pages. When you specify multiple **-p** flags, the **pdfprs** command transforms all the pages in the input, then extracts the specified MO:DCA-P pages and prints them in normal numerical order, regardless of the order you specify.

Examples of values include:

-p even

Output even pages.

- p odd** Output odd pages.
- p 1-10** Output pages 1 through 10.
- p 10-** Output pages from page 10 until the end of the job.
- p 1 -p 3 -p 6** Output pages 1, 3, and 6, in that order.
- p1 -p6 -p3** Output pages 1, 3, and 6, in that order.

This flag is equivalent to the **page-select** document attribute on the **pdpr** command.

- q** Quiets (suppresses) the echoing of the **ps2afp** command to the display.
- r {240 | 300 | 600}** Specifies the resolution of the output image. Select the resolution based on the printer on which you will be printing the image.

Values are:

- 240** 240 pels-per-inch (for example, IBM 3812, 3825, 3827, 3835, and 3900 printers).
- 300** 300 pels-per-inch (for example, IBM 4019, 4028, 4029, and 4039 printers and Hewlett-Packard printers)
- 600** 600 pels-per-inch (for example, IBM 3900 printers), the default

This flag is equivalent to the **default-printer-resolution** document attribute on the **pdpr** command.

Note: If you specify a resolution that the printer does not support, Infoprint will print the image under most conditions, but with degraded results. Specify the correct resolution for the printer on which you will print the job.

- w *nnnn.nnnu*** Specifies the width of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **ps2afp** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

Note: If a text margin is already built into the file, try **-w8.5i** to set the width to 8.5 inches.

For 240-pel resolution printers, values are:

8.5i 8.5 inches, the default

16 to 8160

The width can be from 16 pels to 8160 pels, 0.065i to 34i, or 1.641m to 863.628m. For example, the following are all valid:

- w 40m
- w 200.5m
- w 13i
- w 3300

For 300-pel resolution printers, values are:

8.5i 8.5 inches, the default

16 to 10200

The width can be from 16 pels to 10200 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

```
-w 40m
-w 200.5m
-w 13i
-w 5000
```

For 600-pel resolution printers, values are:

8.5i 8.5 inches, the default

16 to 20400

The width can be from 16 pels to 20400 pels, 0.052i to 34i, or 1.313m to 863.628m. For example, the following are all valid:

```
-w 40m
-w 200.5m
-w 13i
-w 5000
```

This flag is equivalent to the **image-width** document attribute on the **pdpr** command.

-x *nnnn.nnnu*

Specifies an X offset (horizontal offset) of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **pdfprs** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

An offset value specifies a border or margin around the generated image to avoid the non-printable areas of some printers. An X-offset value specifies the left and right margins of the generated image.

Values are:

0 No border is specified. This is the default.

0 to 17i

The value specified here can be no greater than half of the value specified on the **-w** flag. For example, if you specified **-w=12i**, this value can be no greater than 6i.

This flag is equivalent to the **x-image-shift** document attribute on the **pdpr** command.

Notes:

1. The X offset specified with **-x** must be less than the width specified with **-w**. If the **-x** value is greater than or equal to the **-w** value, a blank page is printed.
2. The X-offset value specifies margins on both the left and right sides of the page. If you have a width of 8.5 inches and specify an X offset of 5 inches, a blank page will also result because the margins on the left and right sides of the paper exceed the width of the paper.
3. PDF processing is slower when you use the **-x** flag, because the **ps2afpd** daemon must stop and re-start the PostScript interpreters. You

may improve performance by changing the **ps_x_offset** value in the **ps2afpd** daemon configuration files rather than using **-x** on a regular basis.

-y *nnnn.nnnu*

Specifies a Y offset (vertical offset) of the generated image; *nnnn.nnn* is a number that can optionally contain a decimal point, and *u* is the units in inches (**i**) or millimeters (**m**). If you do not specify a unit (**i** or **m**), then **pdfprs** uses pels as the unit type. You cannot specify fractional values (that is, you cannot use a decimal point) for pels.

An offset value specifies a border or margin around the generated image to avoid the non-printable areas of some printers. A Y-offset value specifies the top and bottom margins of the generated image.

Values are:

0 No border is specified. This is the default.

0 to 17i

The value specified here can be no greater than half of the value specified on the **-l** flag. For example, if you specified **-l=16i**, this value can be no greater than **8i**.

This flag is equivalent to the **y-image-shift** document attribute on the **pdpr** command.

Notes:

1. The Y offset specified with **-y** must be less than the length specified with **-l**. If the **-y** value is greater than or equal to the **-l** value, a blank page is printed.
2. The Y offset value specifies margins on *both* the top and bottom edges of the page. If you have a length of 11 inches and specify an Y offset of 6 inches, a blank page will also result because the margins on the top and bottom of the paper exceed the length of the paper.
3. PDF processing is slower when you use the **-y** flag, because the **ps2afpd** daemon must stop and re-start the PostScript interpreters. You may improve performance by changing the **ps_y_offset** value in the **ps2afpd** daemon configuration files rather than using **-y** on a regular basis.

PDF Printing and Processing Options with the pdfprs Command

The following table provides a mapping of the options that are available among the **pdfprs** command, the **pdf2afp.cfg** configuration file that controls the PDF Parallel RIP client configuration, and the individual daemon RIP configuration files that are named for the port number to which they have been defined.

Table 3. PDF Printing and Processing Options

<i>pdfprs</i> Flag	Keyword in <i>pdf2afp</i> Configuration File	Keyword in daemon RIP Configuration Files
-a <i>OutputType</i>	output_type= <i>value</i>	ps_output_type= <i>value</i>
-C <i>ConfigurationFile</i>	None	None
-g <i>PageRange</i>	None	None
<i>InputFile</i>	None	None
-j <i>nnnn</i>	job_timeout= <i>nnnn</i>	ps_job_timeout= <i>nnnn</i>
-l <i>nnnn.nnnu</i>	length= <i>nnnn.nnnu</i>	ps_length= <i>nnnn.nnnu</i>

Table 3. PDF Printing and Processing Options (continued)

<i>pdfprs</i> Flag	Keyword in <i>pdf2afp</i> Configuration File	Keyword in daemon RIP Configuration Files
-o <i>OutputFile</i>	None	None
None	port=PortNumber	port=PortNumber
-p <i>PageRange</i>	None	None
-pragma	pragma=	pragma=
-q	None	None
-r <i>nnn</i>	resolution=nnn	ps_resolution=nnn
None	server=ServerName	None
None	None	ps_server_timeout=nnnn
-w <i>nnnn.nnnu</i>	width=nnnn.nnnu	ps_width=nnnn.nnnu
-x <i>nnnn.nnnu</i>	x_offset=nnnn.nnnu	ps_x_offset=nnnn.nnnu
-y <i>nnnn.nnnu</i>	y_offset=nnnn.nnnu	ps_y_offset=nnnn.nnnu
None	None	log_file=PathName
None	None	mail_command=PathName
None	None	notify=UserID
None	None	ps_init_file=PathName
None	None	ps_program=PathName

Examples

- To transform the PDF file `myfile1` into an AFP data stream, and then submit it to the Infoprint logical printer called `robin-lp`, enter:

or

```
pdpr -p robin-lp -x "default-printer-resolution=300" myfile1
```

or

```
pdfprs -r300 myfile1 | pdpr -p robin-lp
```

Note: You need to specify a resolution of 300 pels (`default-printer-resolution=300` or `-r300`) because `robin-lp` routes jobs to a 4019 printer device. The 4019 printer is a 300-pel resolution printer and the default resolution for the **pdfprs** command is 600 pels.

- To transform the PDF `myfile1` file into an AFP data stream in 300-pel resolution, as an IO1_MMR image, and send the result to the printer with the **pdpr** command, enter:

```
pdfprs -aIO1_MMR -r300 myfile1 | pdpr -X myafp.X
```

or

```
pdpr -X myps.X myfile1
```

where the attributes file named `myafp.X` contains the following settings:

```
document-format=modca-p
printer-name-requested=david-lp
```

and the attributes file named `myps.X` contains the following settings:

```
document-format=pdf
printer-name-requested=david-lp
image-out-format=io1_mmr
default-printer-resolution=300
```

Files

For AIX:

```
/usr/lpp/psf/bin/ps2afpd
  PostScript daemon
/usr/lpp/psf/bin/pdfprs
  parallel PDF transform client executable
/usr/lpp/psf/bin/pdf2afp
  PDF transform executable (linked to /usr/lpp/psf/bin/pdfprs)
/usr/lpp/psf/ps2afp/ps2afpd.cfg
  ps2afpd daemon configuration file
/usr/lpp/psf/ps2afp/pdf2afp.cfg
  pdf2afp command configuration file
/usr/lpp/psf/ps2afp/ps2afp.cfg
  ps2afp command configuration file
/usr/lpp/psf/bin/ps2afpic
  PostScript Level 3 interpreter program for FS45 (IOCA Color format)
/usr/lpp/psf/bin/ps2afpi
  PostScript Level 3 interpreter program
/usr/lpp/psf/bin/ps2afpi.vm
  PostScript interpreter program initial virtual memory
/usr/lpp/psf/ps2afp/ps2afp.ps
  PostScript initialization file
/usr/lpp/psf/ps2afp/ps2afpec.ps
  PostScript initialization file for extended error reporting for FS45 (IOCA
  Color format).
/usr/lpp/psf/ps2afp/ps2afpe.ps
  PostScript initialization file for extended error reporting.
```

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 1 on page 1. For more information about defining RIPs across AIX servers, see 5.

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.

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