3-Heights®
PDF Printer Shell

Version 6.27.6

pdftools

Contents

1 Introduction

1.1 Description

The 3-Heights® PDF Printer Shell is an efficient and practical solution for automated (background) printing of PDF documents on all Windows printers including PostScript and PCL, and on virtual printers. A variety of options are available for printer control.

The tool is characterized first and foremost by its high level of performance and is extremely adaptable to specific requirements. It also supports PDF/A conformance printing.
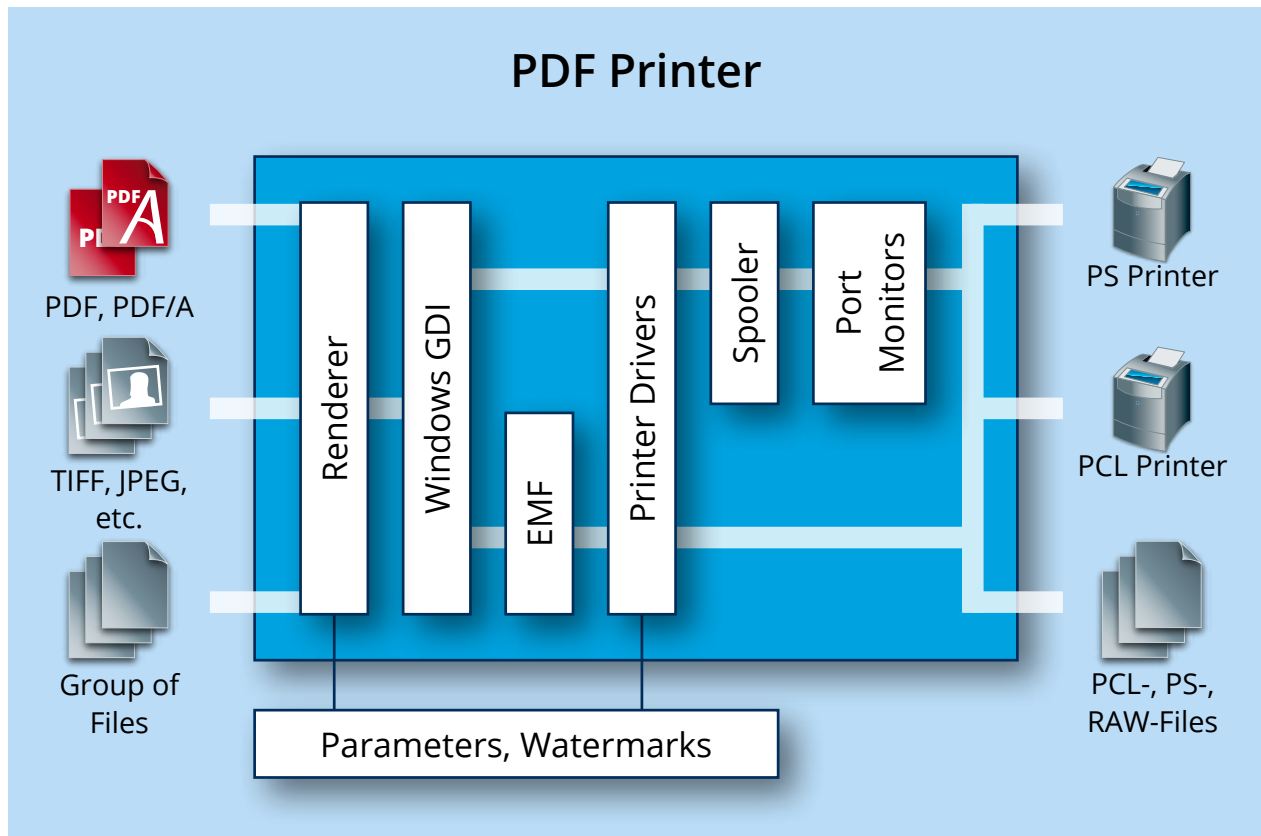
1.2 Functions

The 3-Heights® PDF Printer Shell translates PDF, PDF/A, TIFF, and JPEG into printer driver language such as PostScript or PCL. Documents are either printed on a physical printer (local, remote, or via Internet) or issued as a file. The tool offers a variety of printer control options such as paper tray, paper format, duplex printing, stapling, merging multiple pages to form a single print job, and applying watermarks in the form of text and images. It is also possible to query the properties of the target printer (print margins, resolution, etc.) and to optimize printing accordingly. In addition to all current printer models, the tool supports older printers via emulation. The printer supports Citrix virtual printer drivers.

1.2.1 Features

- Print on paper or virtual printers and divert printing to a file
- Perform local / remote printing

- Select paper format
- Select paper tray
- Select print quality
- Define page sequence
- Select printer-specific properties
- Control color management
- Supports HTTP, HTTPS, and FTP data streams
- Print raster images (TIFF, JPEG, PNG, etc.)
- Group documents in one print job
- Integrate watermarks (text, image)
- List printers per host and printer properties (supported paper formats, trays, etc.)
- Perform duplex printing
- Select orientation
- Print multiple copies
- Determine positioning (centering, scaling, realigning)
- Print encrypted documents

1.2.2 Formats

Input formats:

- PDF 1.x (PDF 1.0, …, PDF 1.7)
- PDF 2.0
- PDF/A-1, PDF/A-2, PDF/A-3
- BMP
- GIF
- JBIG2
- JPEG
- JPEG2000, JPEG-LS
- PBM
- PNG
- TIFF

Output formats:

- Print spool formats such as PostScript, PCL 5, PCL 6, AFP

1.2.3 Conformance

Standards:

- ISO 32000-1 (PDF 1.7)
- ISO 32000-2 (PDF 2.0)
- ISO 19005-1 (PDF/A-1)
- ISO 19005-2 (PDF/A-2)
- ISO 19005-3 (PDF/A-3)
- TIFF V6

1.3 Operating systems

The 3-Heights® PDF Printer Shell is available for the following operating systems:

- Windows Client 7+ | x86 and x64

- Windows Server 2008, 2008 R2, 2012, 2012 R2, 2016, 2019, 2022 | x86 and x64

'+' indicates the minimum supported version.

2 Installation and deployment

2.1 Windows

The 3-Heights® PDF Printer Shell comes as a ZIP archive or as an MSI installer.

To install the software, proceed as follows:

1. You need administrator rights to install this software.
2. Log in to your download account at `https://www.pdf-tools.com`. Select the product "PDF Printer Shell". If you have no active downloads available or cannot log in, please contact `pdfsales@pdf-tools.com` for assistance.
   You can find different versions of the product available. Download the version that is selected by default. You can select a different version.
   There is an MSI (`*.msi`) package and a ZIP (`*.zip`) archive available. The MSI (Microsoft Installer) package provides an installation routine that installs and uninstalls the product for you. The ZIP archive allows you to select and install everything manually.
   There is a 32 and a 64-bit version of the product available. While the 32-bit version runs on both 32 and 64-bit platforms, the 64-bit version runs on 64-bit platforms only. The MSI installs the 64-bit version, whereas the ZIP archive contains both the 32-bit and the 64-bit version of the product. Therefore, on 32-bit systems, the ZIP archive must be used.
   It is strongly recommended that you use the 64-bit version on a 64-bit platform to avoid problems associated with the thunking process that translates between the 32-bit application and the 64-bit printer drivers.
3. If you select an MSI package, start it and follow the steps in the installation routine.
4. If you are using the ZIP archive, uU nzip the archive to a local folder, e.g. `C:\Program Files\PDF Tools AG\`.
   This creates the following subdirectories:

Subdirectory	Description
bin	Runtime executable binaries
doc	Documentation

5. (Optional) To easily use the 3-Heights® PDF Printer Shell from a shell, the directory needs to be included in the "Path" environment variable.
6. (Optional) Register your license key using the [License management](#).
7. Ensure the system environment variable TMP exists and points to an existing directory. This directory is required to temporarily install fonts that are embedded in PDF documents.
   Control Panel → System → Advanced → Environment Variables
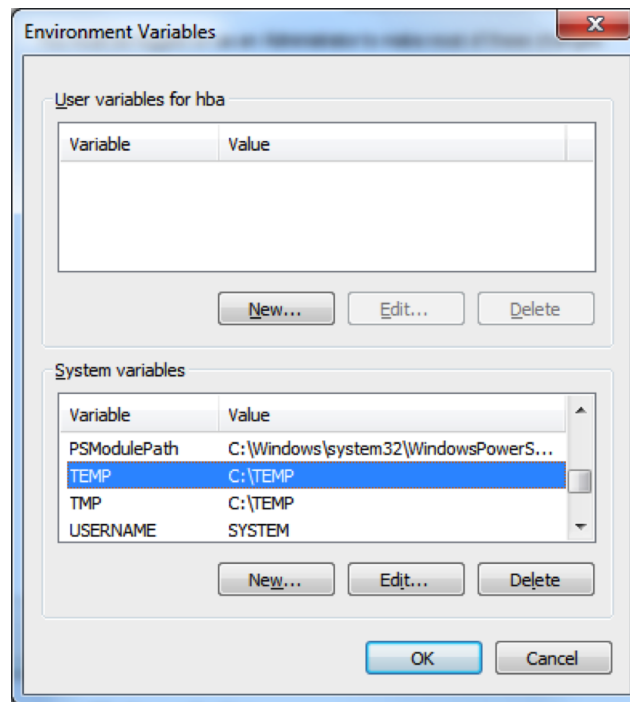
8. Ensure the cache directory exists as described in Special directories.
9. Make sure your platform meets the requirements regarding color spaces and fonts described in Color profiles and Fonts, respectively.

2.1.1 How to set the environment variable "Path"

To set the environment variable "Path" in Windows, go to Start → Control Panel (classic view) → System → Advanced → Environment Variables.

Select "Path" and "Edit", then add the directory where `pdprint.exe` is located to the "Path" variable. If the environment variable "Path" does not exist, create it.
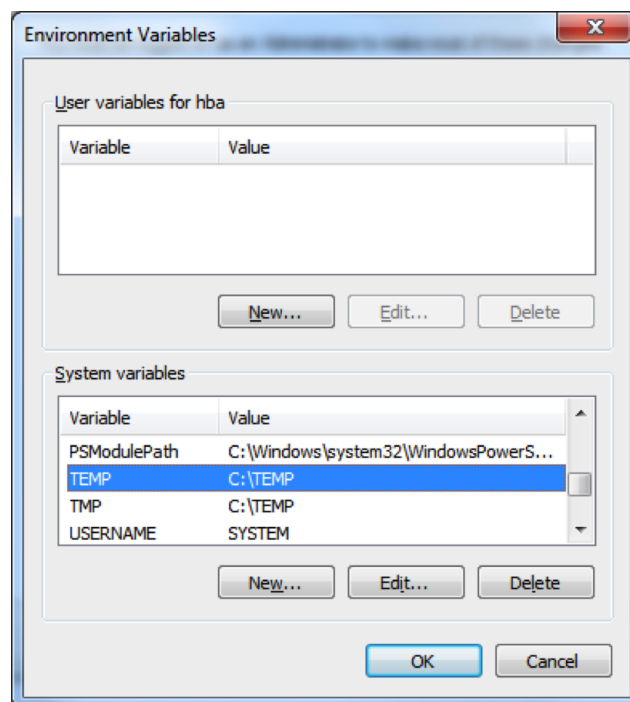
2.2 Note about the evaluation license

With the evaluation license, the 3-Heights® PDF Printer Shell automatically adds a watermark to the print-out.

2.3 Uninstall

If you have used the MSI for the installation, go to Start → 3-Heights® PDF Printer Shell… → Uninstall …

If you have used the ZIP file for the installation, undo all the steps done during installation.

2.4 Special directories

2.4.1 Directory for temporary files

This directory for temporary files is used for data specific to one instance of a program. The data is not shared between different invocations and is deleted after termination of the program.

The directory is determined as follows. The product checks for the existence of environment variables in the following order and uses the first path found:

Windows

1. The path specified by the %TMP% environment variable
2. The path specified by the %TEMP% environment variable
3. The path specified by the %USERPROFILE% environment variable
4. The Windows directory

2.4.2 Cache directory

The cache directory is used for data that is persistent and shared between different invocations of a program. The actual caches are created in subdirectories. The content of this directory can safely be deleted to clean all caches.

This directory should be writable by the application; otherwise, caches cannot be created or updated and performance degrades significantly.

Windows

- If the user has a profile:
  `%LOCAL_APPDATA%\PDF Tools AG\Caches`
- If the user has no profile:
  `<TempDirectory>\PDF Tools AG\Caches`

where `<TempDirectory>` refers to the Directory for temporary files.

2.4.3 Font directories

The location of the font directories depends on the operating system. Font directories are traversed recursively in the order as specified below.

If two fonts with the same name are found, the latter one takes precedence, i.e. user fonts always take precedence over system fonts.

Windows

1. `%SystemRoot%\Fonts`
2. User fonts listed in the registry key `\HKEY_CURRENT_USER\Software\Microsoft\Windows NT\CurrentVersion\Fonts`. This includes user specific fonts from `C:\Users\<user>\AppData\Local\Microsoft\Windows\Fonts` and app specific fonts from `C:\Program Files\WindowsApps`
3. `Fonts` directory, which must be a direct subdirectory of where `pdprint.exe` resides.

3 License management

The 3-Heights® PDF Printer Shell requires a valid license in order to run correctly. If no license key is set or the license is not valid, then the executable will fail and the return code is set to 10.

More information about license management is available in the [license key technote](#).

4 User guide

Open a shell and type `pdprint`. This gives you a list of all available options.

4.1 Basics

The simplest command is `pdprint` followed by the PDF file that you want to print.

Example: Print the file `input.pdf` to the default Windows printer

```
pdprint input.pdf
```

To get a list of all available local printers use the switch `-l`.

Example: List all local printers.

```
pdprint -l
1: "HP LaserJet 4050 Series PS"
2: "HP LaserJet 4050 Series PCL"
3: "Canon LBP3200"
4: "3-Heights(TM) TIFF Producer"
5: "3-Heights(TM) PDF Producer"
```

To print to a specified local printer, just use the switch `-p` followed by the name of the printer and the PDF file:

```
pdprint -p "HP LaserJet 4050 Series PS" input.pdf
```

Remember to use quotation marks (**"**) whenever a string, such as a file name or printer name, contains blanks.

4.2 Fit the page on the paper

The `-f` switch scales the pages in the PDF document to fit the paper dimensions. If the pages in the PDF document and the selected paper size have the same dimensions, this switch has no impact.

Example: To print a PDF document that has pages of size Letter 8.5 x 11 inch on an A4 paper, or the other way around, the `-f` switch fits perfectly.

```
pdprint -f input.pdf
```

When printing a PDF document that has pages of size A4 on an 8.5 x 14 inch paper, the printed document fits the width of the paper, but not the length. Otherwise, it would be stretched.

4.3 Print on both sides

There are three standard duplex modes in Windows. These standard modes work for virtually ever printer and it is suggested to use them. These modes are listed below:

1 Simplex

2 Vertical duplex

3 Horizontal duplex

Example: Print vertical duplex

```
pdprint -d 2 input.pdf
```

If the duplex modes do not work as desired, see Duplex mode is not listed or does not work.

4.4 Printer-specific features

The 3-Heights® PDF Printer Shell covers the basic settings for printers, such as set paper size, set duplex mode, center page, etc. Many printers have specific features that are only applicable in the specific printer's preferences. Such specific features include output tray selection, stapling, and print multiple pages on one paper.

A user can apply settings in the printer's preferences and save these settings into a device mode file. The device mode file can then be used as new default settings when printing.

With the -ds and -dl switches, it is possible to save and load device modes.

A device mode file is binary and must not be edited. It can only be used for the same printer driver that was used to create the file.

Example: Open the printer properties, apply settings, press OK to save the device mode to a file (in this case, it is called `HP4050PS.dev`).

```
pdprint -p "HP LaserJet 4050 Series PS" -ds HP4050PS.dev
```

Example: Load the saved device mode and print

```
pdprint -p "HP LaserJet 4050 Series PS" -dl HP4050PS.dev input.pdf
```

4.5 Color profiles

A PDF document may contain graphical objects using various different color spaces and the printout of 3-Heights® PDF Printer Shell may yet use another color space. Therefore often colors have to be converted between different color spaces.

For calibrated color spaces (such color spaces with an associated ICC color profile), the color conversion is well defined. For the conversion of uncalibrated device color spaces (DeviceGray, DeviceRGB, DeviceCMYK), however, the 3-Heights® PDF Printer Shell requires apropriate color profiles. Therefore, it is important that the profiles are available and that they describe the colors of the device your input documents are intended for.

> **Note:** When setting an alternative color management system such as Neuge-bauer, no color profiles are required.

If no color profiles are available, default profiles for both RGB and CMYK are generated on the fly by the 3-Heights®
PDF Printer Shell.

4.5.1 Default color profiles

If no particular color profiles are set, default profiles are used. For device RGB colors, a color profile named `"sRGB
Color Space Profile.icm"` and for device CMYK, a profile named `"USWebCoatedSWOP.icc"` are searched
for in the following directories:

Windows

1. `%SystemRoot%\System32\spool\drivers\color`
2. directory `Icc`, which must be a direct subdirectory of where the `pdprint.exe` resides.

4.5.2 Get other color profiles

Most systems have pre-installed color profiles available. For example, on Windows at `%SystemRoot%\sys-
tem32\spool\drivers\color\`. Color profiles can also be downloaded from the links provided in the directory
`bin\Icc\` or from the following websites:

- https://www.pdf-tools.com/public/downloads/resources/colorprofiles.zip
- https://www.color.org/srgbprofiles.html

4.6 Fonts

PDF documents may contain both embedded and non-embedded fonts. When printing non-embedded fonts, the
best result can be achieved, if the font is available on the system. Therefore, it is important to make sure the Font
directories contain all fonts required.

For more information on how to deal with font issues, please refer to Font and text issues.

Note that on Windows, when a font is installed, it is by default installed only for a particular user. It is important to
either install fonts for all users, or make sure the 3-Heights® PDF Printer Shell is run under that user and the user
profile is loaded.

4.6.1 Font cache

A cache of all fonts in all Font directories is created. If fonts are added or removed from the font directories, the
cache is updated automatically.

In order to achieve optimal performance, make sure that the cache directory is writable for the 3-Heights® PDF
Printer Shell. Otherwise, the font cache cannot be updated and the font directories have to be scanned on each
program startup.

The font cache is created in the subdirectory `<CacheDirectory>/Installed Fonts` of the Cache directory.

4.6.2 Font configuration file fonts.ini

The font configuration file is optional. It can be used to control the mapping of fonts used in the PDF to fonts pre-
installed on the system.

The file `fonts.ini` must reside at the following location :

Windows:　In a directory named `Fonts`, which must be a direct subdirectory of where `pdprint.exe` resides.

It consists of two sections: [fonts] and [replace]. Both sections are used to map fonts in the PDF to fonts in the installed font collection on the operating system. This comes into play when the font in the PDF document does not have an embedded font program, or the embedded font is not usable.

The mapping only works if the font types of the specified fonts are matching; for example, if the font in the PDF is a symbolic font, such as "Symbol" or "ZapfDingbats", the mapped font must be symbolic too.

The section [fonts] is only considered if the font-matcher does not find an appropriate font among the existing installed fonts. It is suggested to only use this section.

The section [replace] is stronger and applied before the font-matcher. This means a font will be replaced as defined, even if the correctly installed font is available on the system.

Syntax: The syntax of the mapping file is as follows

```
[fonts]
PDF_font_1=installed_font_1{,font_style}
PDF_font_2=installed_font_2{,font_style}
[replace]
PDF_font_n=installed_font_n{,font_style}
```

PDF_font_*   is the name of the font in the PDF.

This name can be found in one of the following ways:

- Use any tool that can list fonts. Such as 3-Heights® PDF Extract or 3-Heights® PDF Optimizer. Ignore possible prefixes of font subsets. A subset prefix consists of 6 characters followed by the plus sign. For example "KHFOKE+MonotypeCorsiva", in this case only use "MonotypeCorsiva" as font name in the mapping file.
- Open the document with Adobe Acrobat, use the "MarkUp Text Tool", mark the text of which you would like to know the font name, right-click it, select "Properties…"

installed_font_*   is the font family name of the installed font.

To retrieve this name, find the font in the Windows' font directory and open it by double-clicking. The first line in the property window displays the font family name (this may vary depending on the operating system). The font family name does not include font styles; so an example of a font family name is "Arial", but not "Arial Italic".

font_style   is an optional style that is added coma-separated after the font family name.

The style is always one word. Examples of font styles are "Italic", "Bold", "BoldItalic". Omit the font style, if it is "Regular" or "Normal".

Remove blanks from all font names, i.e. in both the PDF_font_* and the installed_font_*.

Example:

```
[fonts]
Ryumin-Light=MSMincho
GothicBBB-Medium=MSGothic
[replace]
ArialIta=Arial,BoldItalic
```

4.7 Printing workflow

4.7.1 Local

Below is a simplified flow chart of the 3-Heights® PDF Printer Shell workflow when printing locally (the printer is directly connected to workstation without printer server).
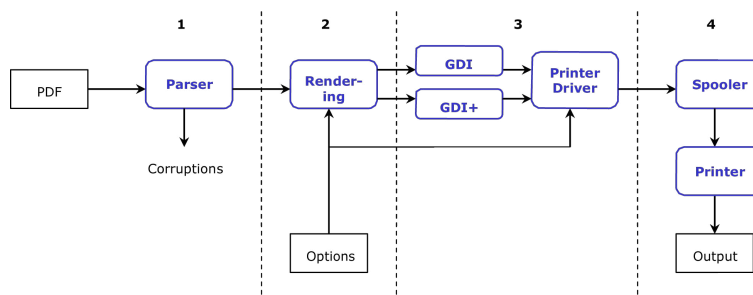
Parsing the input PDF document

A PDF document is passed to the 3-Heights® PDF Printer Shell. If the document exhibits minor corruptions, then these are fixed in this step. If there are major corruptions, then the file is rejected.

Rendering the pages

The PDF Printer Shell uses its own rendering engine. It runs independently from any third-party software. All version of PDF are supported. There are a few rare features of PDF that are not implemented at this time.

Create the spool file using GDI or GDI+ and the printer driver

The PDF Printer Shell has two rendering modes:

Fast rendering mode, which uses GDI (default)

Accurate rendering mode, which uses GDI+

Fast mode is optimized for creating small spool files. It supports direct PostScript data injection and an optimization for PCL creation.

Accurate mode applies image filters and is optimized for viewing on the monitor. It usually creates much larger spool files when used in combination with a printer due to its high resolution.

Spooler and printer device

Steps 1, 2, and 3 are under control of the 3-Heights® PDF Printer Shell or any other application that creates print jobs. Step 4 is performed by the spooler and the printer device.

If a print job is marked successful, it doesn't mean "The document could be printed", but rather "The print job is created, and is queued for printing by a printer device".

4.7.2 Network environment

When printing over a network, the flow chart slightly changes:
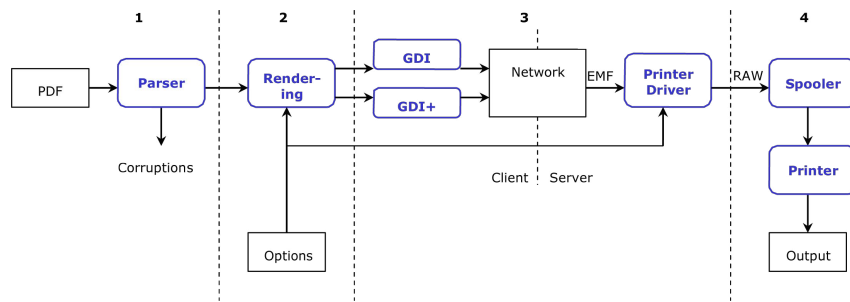
The printing application in step 2 always requires a printer driver.

A printer driver can be installed locally or remotely. If a printer driver is on a remote system, it is copied to the local system and temporarily installed for step 2.

5 Interface reference

5.1 General settings

5.1.1 `-lk` Set license key

Set license key	`-lk ‹key›`

Pass a license key to the application at runtime, instead of using one that is installed on the system.

```
pdprint -lk X-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ...
```

This is required in an OEM scenario only.

5.2 Listing options

These options provide a list of printers and their capabilities. The values obtained through these options can be used as parameters for the corresponding printer options.

5.2.1 `-h` Help, list samples

Help, list samples	`-h`

This switch lists a set of samples that illustrate how to use the 3-Heights® PDF Printer Shell.

Example: List help.

```
pdprint -h
Examples:
pdprint -l          list local printers.
pdprint -l \\HOST   list printers on server \\HOST.
pdprint -p "HP LaserJet 4050 Series PCL" file.pdf
                    print a file on a local printer.
pdprint -p "\\HOST\HP LaserJet 4050 Series PCL" file.pdf
                    print a file on a remote printer.
pdprint -lb -p "HP LaserJet 4050 Series PCL"
                    list the bins of a specific printer
```

5.2.2 `-l` List available printers

List available printers	`-l ‹host›`

Use this switch without an additional parameter to get a list of all available local printers.

Parameter:

‹host›   Optional parameter to specify the host of the printers to list

Example: List all local printers

```
pdprint -l
1: "HP LaserJet 4050 Series PS"
2: "HP LaserJet 4050 Series PCL"
3: "3-Heights(TM) TIFF Producer"
4: "3-Heights(TM) PDF Producer"
```

To get a list of all available printers on a remote host, use the `-l` switch, followed by the name of the host.

Example: List all printers on a remote host

```
pdprint -l \\PrinterHost
1: "\\PrinterHost\MINOLTA-QMS magicolor 2350"
2: "\\PrinterHost\HP LaserJet 4050 Series PCL"
```

5.2.3 `-lb` List bins for a specific printer

List bins for a specific printer   `-lb`

This switch lists all available input bins that are installed on a specific printer. Output bins cannot be listed. Use a device mode file to select output bins.

The name of the printer must be known. If no printer is specified, the input bins of the Windows default printer are listed.

Example: List paper bins of the Windows default printer. The returned list contains all available bins with the corresponding number

```
pdprint -lb
 15 Form Source
262 Automatic Selection
261 Automatic Selection
260 Tray 1
259 Tray 2
258 Tray 3
257 Tray 4
  5 Envelope
```

To list the bins on another printer, specify the printer using the -p switch.

```
pdprint -lb -p "MINOLTA-QMS magicolor 2350"
```

5.2.4 `-ld` List duplex modes

List duplex modes   `-ld`

Generally, it is suggested to not use any duplex modes other than the three Windows default duplex modes 1, 2, and 3.

Duplex modes can be listed using the `-ld` switch. On some printers, the duplex unit must be installed and enabled or it will not be listed.

Example: The following command returns a list of the available duplex modes of the Windows default printer:

```
pdprint -ld
```

The list could look like this:

```
5310: Custom duplex mode
```

5.2.5 `-lm` List media types

List media types   `-lm`

List all media types supported by a printer.

Example: List media types of a specific printer.

```
pdprint -lm -p "HP LaserJet 4050 Series PS"
```

The list could look like this:

```
  1 Plain paper
266 Thin paper
265 Thick paper
264 Thicker paper
263 Bond paper
262 Envelopes
```

5.2.6 `-ls` List paper size for a specific printer

List paper size for a specific printer   `-ls`

This switch lists all available paper sizes that are supported by a specific printer. The printer's name must be known. If no printer is specified, the available paper sizes of the Windows default printer are listed.

```
pdprint -ls
    1 Letter 8 1/2 x 11 in
    5 Legal 8 1/2 x 14 in
    7 Executive 7 1/4 x 10 1/2 in
    9 A4 210 x 297 mm
   11 A5 148 x 210 mm
   13 B5 (JIS) 182 x 257 mm
  127 Custom paper
  128 Custom paper
32767 Custom paper
```

To list the available paper sizes for a specific printer, use the -p switch to select a printer.

Example: List paper sizes for a specific printer.

```
pdprint -ls -p "HP LaserJet 4050 Series PS"
```

5.3 Printer options

5.3.1 -b Select the bin

Select the bin -b ‹bin›

To select an input bin, use the -b switch, followed by the corresponding number. The default bin numbers are listed in the Appendix. If the -b option is not used, then the printer preferences determine the used bin. The -lb option lists custom bins. However, these custom numbers may be different for different printer drivers for the same printer. This means the number of the bin may not correspond to the physical bin number of the printer.

> **Note:** It is suggested to use the default bins. Use the custom bins only if the defaults do not work.

For printing on any printer other than the Windows default printer, the printer name must also be specified.

Some printers or printer drivers ignore the -b option. In such cases, it is often possible to choose the bin based on the media type with -mt.

Example: Select paper bin 1 for a given printer. Available paper bins with the corresponding number are listed when using the -lb switch

```
pdprint -b 1 -p "MINOLTA-QMS magicolor 2350" input.pdf
```

Example: Set different bins for different files within a single print job

The -b switch can be specified for each file individually when using a control file and the -g switch.

Assume you have a control text file `control.txt` with the following content:

```
file1.pdf -b 15
file2.pdf -b 17
```

Then the following command applies different paper bins for the two documents (paper bin 15 for `file1.pdf` and paper bin 17 for `file2.pdf`):

```
pdprint -g -i control.txt
```

5.3.2 `-band` Using banding for bitmaps

Using banding for bitmaps `-band ‹n›`

The 3-Heights® PDF Printer Shell by default uses banding for images with a size larger than 1024 KB. This ensures that the image processing in the printer device does not run out of memory. If the printer still runs out of memory, the maximum size of the bitmaps can be decreased.

Example: Set the banding size to 8 KB

```
pdprint -band 8 -p "My Good Old Printer 1988" input.pdf
```

5.3.3 `-c` Number of copies

Number of copies `-c ‹copies›`

To print more than one copy of a document, use the `-c` switch, followed by the number of copies you want to print. By default, the number of copies is set to 1.

Example: Print three copies of the same document

```
pdprint -c 3 input.pdf
```

See also `-cl` ("collate mode") and `-cm` ("copy mode") options.

5.3.4 `-cl` Collate mode

Collate mode `-cl ‹collate›`

This switch sets the collate mode. By default, the collate mode is inherited from the printer preferences. It only has an impact if two or more copies of the document are printed using the copy switch (`-c`). There are two collate modes:

`-cl 0` Repeat Page Mode (Default): (1,1,…,2,2,…,3,3,…)

In this mode, every page is repeated as many times as copies are selected, then the next page, etc. The print is "sorted" by page.

-cl 1   Repeat Document Mode: (1,2,3,…,1,2,3…)

In this mode, all pages of the first copy are printed, then all pages of the second copy, etc. The print is "sorted" by document.

Example: Print two copies of the same document. All pages of the first copy are printed, then all pages of the second copy are printed.

```
pdprint -cl 1 -c 2 input.pdf
```

5.3.5 `-cm` Copy mode

Copy mode   `-cm ‹mode›`

Enable (`-cm 1`) or disable (`-cm 0`) copy mode (disabled by default). This only has an impact if two or more copies of the document are printed using the copy switch (`-c`). There are two copy modes:

-cm 0   Disable copy mode:

The 3-Heights® PDF Printer Shell delegates the handling of multiple copies to the printer driver. Every page is only printed once by the 3-Heights® PDF Printer Shell. As a result, the size of the spool file remains the small even if the number of copies is increased. Disabling the copy mode requires that the printer driver can handle printing multiple copies.

-cm 1   Enable copy mode:

The 3-Heights® PDF Printer Shell prints every page of every copy of the document. This mode works for all printer drivers. For multiple copies of a document, the spool file becomes larger.

5.3.6 `-d` Duplex mode

Duplex mode   `-d ‹duplex›`

The printer must have the duplex mode installed and enabled to use it. With the `-d` switch, the duplex mode can be specified. Otherwise, the default is inherited from the printer preferences. You should use the default duplex modes 1, 2 or 3:

Value	Description
1 (default)	Simplex
2	Vertical duplex
3	Horizontal duplex
Any other value	Custom mode

Example: Enable vertical duplex

```
pdprint -d 2 input.pdf
```

5.3.7 `-dl` Load device settings

> **Load device settings** `-dl ‹file›`

This switch loads printing preferences from a device mode file, which was previously created and saved using the `-ds` switch. This can be used to either set non-standard printing preferences, which cannot be set otherwise, or to set standard printing preferences that are ignored by a printer driver (see Printer settings or device mode ignored).

Other options set for the same folder override the setting in the device mode file. For example, if a device mode file that deactivates duplex is loaded, but at the same time the `-d` option activates duplex, the `-d` option has priority.

Example: Use a device mode file

1. First a new device mode file has to be saved. The following command displays the printing preferences dialog of the printer and saves the device mode to the file `mysetting.dev`.

```
pdprint -p "HP LaserJet 4050 Series PCL" -ds mysetting.dev
```

2. The saved printing preferences can then be used for printing:

```
pdprint -p "HP LaserJet 4050 Series PCL" -dl mysetting.dev input.pdf
```

5.3.8 `-ds` Save device settings to a file

> **Save device settings to a file** `-ds ‹file›`

This switch opens the printing preferences of a printer and saves the applied settings to a device mode file (provided the user pressed "OK", and not "Cancel"). The printing preferences saved in the device mode can be used for printing with the `-dl` option. The saved device mode only works for the same printer and driver that was used to create it.

Example: Edit and save a device mode file for the Windows default printer

```
pdprint -ds mysetting.dev
```

The printer (if not the default printer) must be specified before this option, using the `-p` command.

Example: Edit and save a device mode file for a specific printer

```
pdprint -p "HP LaserJet 4050 Series PCL" -ds mysetting.dev
```

Example: Update and save a device mode file from an existing file `mysetting.dev` for a specific printer

```
pdprint -p "HP LaserJet 4050 Series PCL" -dl mysetting.dev -ds mysetting.dev
```

> **Note:** The saved device mode is a binary file and should not be edited with a text editor. Therefore, it should not be saved with the extension `.txt`.

5.3.9 `-dt` Set datatype for spool files

| Set datatype for spool files | `-dt` |

This option lets you set a preference for the datatype that is used for spool files. The default value is `raw`

Value	Description
`raw`	Use the raw format for the respective printer (e.g. PCL, PS)
`emf`	Generate a EMF file that is optimized for network environments
`null`	Delegate the decision to the printer driver

RAW is with respect to the printer language. If RAW is used for a PCL printer, a PCL file is generated; if RAW is used for a PS printer, a PS file is generated. The physical printer device always needs a RAW file.

This option creates an EMF file, which is useful in a network environment. Instead of locally creating a (large) RAW file and sending it over the network, the file is sent as EMF and converted to a RAW file by the printer driver at the remote location.

There are known issues with some printer drivers when explicitly setting the data type. For these drivers, use the `null` value.

5.3.10 `-jw` Wait until the job is completed

| Wait until the job is completed | `-jw` |

The option instructs the tool to wait until the spooler reports that the job is done. This ensures that temporarily installed fonts are not removed until the print job has been completed. This switch is recommended in conjunction with virtual printer drivers or when printing to a network printer (especially to Windows 2012 print servers).

If the input file contains embedded fonts, their use is not disabled. Printing is done locally, and then the wait function is enabled by default. The option enables the wait function unconditionally.

5.3.11 `-load` Preload library

| Preload library | `-load ‹library›` |

If a printer driver calls a system library for each page several times during the print process, it has a significant effect on the print processing time. With the `-load` switch, this library can be preloaded on demand to optimize the runtime. Please note this behavior is caused only by some printer drivers. Well-designed printer drivers do not require this option.

You can determine the system DLLs that are loaded several times by the printer driver by running the print command within a current version of the Microsoft tool "Dependency Walker".

To use the Microsoft Dependency Walker for this purpose:

- Open the Microsoft Dependency Walker (e.g. Version 4.1.3790)
- Menu "File", then "Open", then select `pdprint.exe`
- Menu "Profile", then "Start Profiling"
  Set the printing parameters in the field "Program Arguments".

In the field "Starting directory" the installation directory of the 3-Heights® PDF Printer Shell has to be inserted.
Check "Hook the process to gather more detailed dependency information."
Check "Log LoadLibrary function calls."
Uncheck all others.
Press the "OK" button.
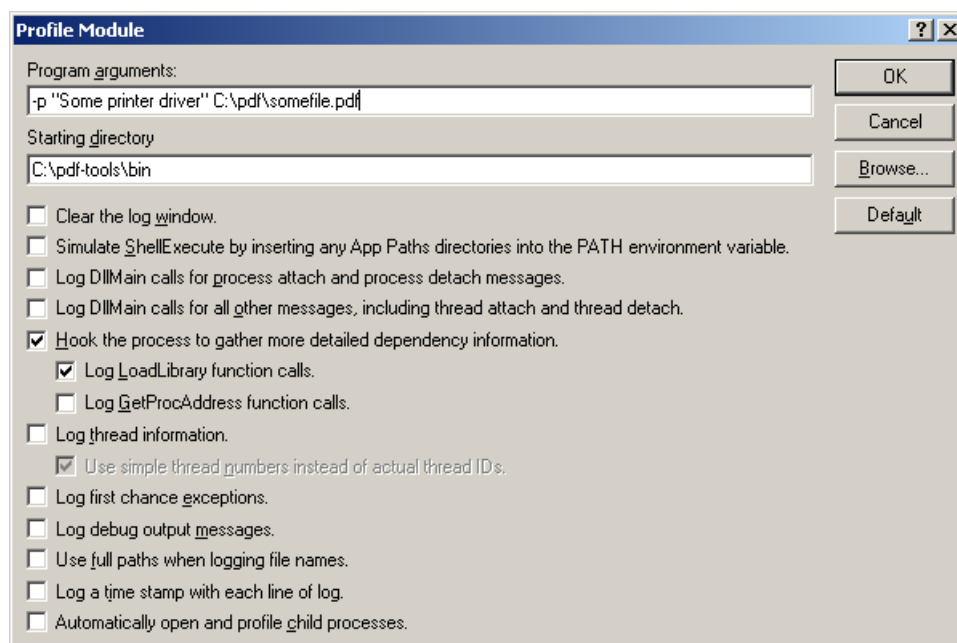
- Search the log for DLLs which are loaded multiple times.

5.3.12 `-mt` Select the media type

Select the media type   `-mt ‹type›`

To select a media type, use the `-mt` switch followed by the corresponding number. The `-lm` option lists all media types supported by a particular printer.

5.3.13 `-o` Paper orientation

Paper orientation   `-o ‹orientation›`

This option sets the paper orientation. The default value is `-1`. The allowed values are:

Value	Description
-2	Automatic mode. The page is placed to best fit the paper
-1	Printer default. The value set in the printer properties is applied
1	Portrait

2	Landscape

Example: Force the orientation of all pages to portrait

```
pdprint -o 1 portrait.pdf
```

5.3.14 `-p` Select a printer

Select a printer	`-p ‹printer›`

When not specified otherwise, the Windows default printer is used to print the PDF documents. To select a printer, you need to identify its exact name. The name can be determined using the `-l` switch.

> **Note:** The printer driver must not display a pop-up message box.

Example: Print to a local printer

```
pdprint -p "HP LaserJet 4050 Series PS" input.pdf
```

Example: Print to a remote printer

```
pdprint -p "\\PrinterHost\MINOLTA-QMS magicolor 2350" input.pdf
```

5.3.15 `-pri` Set print job priority

Set print job priority	`-pri ‹priority›`

This switch lets you adjust the priority of the print job. The parameter passed as argument to the switch must be a value from 1 (lowest) to 99 (highest). The default is inherited from the printer preferences, which is normally set to 1.

Example: Grant the print job priority 2

```
pdprint -pri 2 input.pdf
```

The exact behavior of jobs with different priorities depends on the settings in the printer properties tab "Advanced".

- Radio button "Spool print documents so program finishes printing faster":
  This must be checked (circled in red in the screenshot). Otherwise, i.e. if printing directly to the printer, the priority has no impact.
- Radio button "Start printing after last page is spooled":
  This means that from all jobs that are completely spooled, the job with the highest priority is printed next.
- Radio button "Start printing immediately":

This means that from all jobs that have at least one page spooled, the job with the highest priority is printed next.
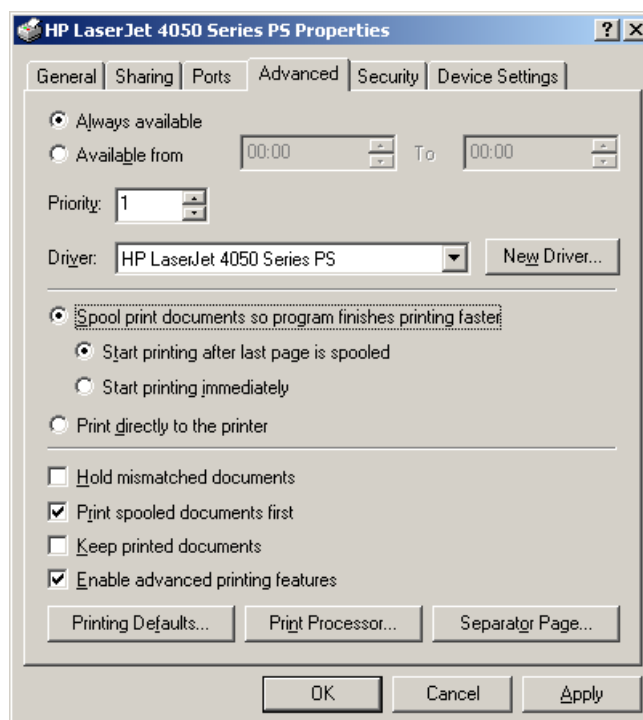
5.3.16 -s Select paper size

Select paper size   -s ‹paper size›

To select a paper size, the name of the printer and the number that represents the paper size must be known. To define the name of the printer, use the -p switch. To determine the number representing a paper size, use the -ls switch (see also Paper sizes). If no printer is specified, the Windows default printer is selected.

Example: To select the paper size, use the -s option, followed by the paper size number.

```
pdprint -s 9 -p "HP LaserJet 4050 Series PS" input.pdf
```

When no paper size or -s -1 is specified, the default paper size of the printer is selected.

When the paper size -s -2 is specified, the 3-Heights® PDF Printer Shell calculates the paper sizes of the pages. It transmits the paper size to the printer, which then selects the paper from the appropriate bin automatically. When setting -s -2, the -b switch is ignored. Use the -sl option to limit the allowed set of paper sizes used.

Example: Use the automatic paper size selection

```
pdprint -s -2 -p "HP LaserJet 4050 Series PS" input.pdf
```

5.3.17 -sl Set the list of approved paper sizes

Set the list of approved paper sizes   -sl ‹list›

Set the list of paper sizes used for automatic selection of paper sizes (e.g. when option `-s` -2 is used).

The value is a comma-separated list of paper numbers. Valid paper number values are those listed at the beginning of the strings returned by `-ls` (see also Paper sizes).

Example: Set the approved paper sizes to A3, A4, and A5

```
-s -2 -sl "8, 9, 11"
```

5.3.18 `-sm` Largest available paper size

Largest available paper size   `-sm ‹paper size›`

Set the maximum paper size that is supported by the automatic paper size feature (`-o` -2). Any paper size that exceeds the paper width or height is excluded. The paper sizes are represented by an inter value as returned by the `-ls` option; see also Paper sizes.

Example:

If `‹paper size›` is set to 66 (A2), then larger paper sizes such as A1 are ignored by the automatic paper selection.

5.3.19 `-st` Check status

Check status   `-st`

Check the printer status before printing. If the printer is in a state that prevents printing, a message describing the error is printed to standard output and the PDF Printer Shell exitst with return code 5.

5.3.20 `-sxy` Scale the page by a factor

Scale the page by a factor   `-sxy ‹scale›`

After the page has been scaled to fit the paper size, an additional scaling can be specified using this option. The scale factor is given in percent. A number less than 100 percent shrinks the page. A number greater than 100 percent expands the page. This switch can optionally be combined with the `-f` switch.

Example: Reduce the page size to 90%

```
pdprint -s 9 -f -sxy 90 -p "HP LaserJet 4050 Series PS" input.pdf
```

5.4 Rendering options

5.4.1 `-cms` Set the color management engine

Set the color management engine   `-cms ‹engine›`

The transformation of colors from one color space to another is performed using a color management engine. Supported engines are:

none The algorithms specified in the PDF reference are used. This results in the maximum possible contrast.

neugebauer The Neugebauer algorithm efficiently converts CMYK to RGB. It does not need any color profiles. The results look similar to conversion using color profiles.

lcms (default): Use ICC color profiles. Default profiles are used for all unmanaged device color spaces as described in Color profiles.

‹FileName› When providing a file name, a configurable version of the Neugebauer algorithm is applied. The coefficients can be defined in the text file. The default Neugebauer coefficients are listed below (Red, Green, Blue; Color):

```
1.000000, 1.000000, 1.000000; White
0.000000, 0.682353, 0.937255; C
0.925490, 0.000000, 0.549020; M
1.000000, 0.949020, 0.000000; Y
0.137255, 0.121569, 0.125490; K
0.180392, 0.188235, 0.572549; CM
0.000000, 0.650980, 0.313725; CY
0.000000, 0.054902, 0.137255; CK
0.929412, 0.109804, 0.141176; MY
0.137255, 0.000000, 0.000000; MK
0.105882, 0.098039, 0.000000; YK
0.211765, 0.211765, 0.223529; CMY
0.000000, 0.000000, 0.003922; CMK
0.000000, 0.070588, 0.000000; CYK
0.133333, 0.000000, 0.000000; MYK
0.000000, 0.000000, 0.000000; CMYK
```

The Neugebauer algorithm mixes the colors based on the amount of color and the corresponding weighted coefficient. Altering the values for a pure color specifically changes the result for this pure color.

The color transition remains smooth.

Example: The following command selects the Neugebauer color management engine

```
pdprint -cms neugebauer input.pdf
```

5.4.2 -cn Center page

Center page -cn

Center the page horizontally and vertically. Without this option, the page is placed in the upper left corner of the paper.

5.4.3 -co Color mode

Color mode -co ‹color›

Set the color mode. The supported values are monochrome (1) and color (2). By default, the color mode is set according to the printing preferences.

Example: Print color.

```
pdprint -co 2 input.pdf
```

5.4.4 `-dmax` Maximum DPI

Maximum DPI   `-dmax ‹dpi›`

Set the maximum DPI that is used for prerendered content sent to the printer. If not set, then the DPI configured in the printer driver is used.

The maximum DPI is only applied if either option <u>-ob</u> is used or if a page contains enough transparent content that the PDF Printer Shell decides to prerender the entire page. In all other cases, the device resolution proposed by the printer driver is used.

5.4.5 `-f` Scale page to fit page size

Scale page to fit page size   `-f`

Scale pages of the PDF to fit the paper size. The page is resized so that both page-width and page-height fit on the printable part of the paper supported by the printer. The scaling is always proportional, which means the ratio width to height remains unchanged.

If this option is not set, the size of the page remains unchanged. If part of the content is outside the printable area (i.e. close to the border of the page), it is not printed.

To print Letter 8.5 x 11 inch on an A4 paper or the other way around, the `-f` option fits perfectly. When used to print an A4 PDF on a 8.5 x 14 inch paper, the printed document will fit the width, but not the length, since otherwise it would be stretched.

5.4.6 `-j` Use JPEG compression

Use JPEG compression   `-j`

If the printer supports JPEG compression, this switch can be used to send the images inside a PDF with JPEG compression, thus allowing for a smaller spool file and faster printing. It also means that images lose some information (which normally is not visible though). If the printer does not support JPEG compression, `pdprint` recognizes this and the option is ignored.

5.4.7 `-lf` Set line width multiplication factor

Set line width multiplication factor   `-lf ‹factor›`

In cases where lines are printed with an undesired width (e.g. too thin), the `-lf` switch can be applied to scale them.

This feature only affects lines. It has no influence when lines are drawn in any another way as by using the PDF operators m and l (move to, line to). It does not affect text unless text is drawn with lines instead of using a font.

5.4.8 -lw Set minimum line width

Set minimum line width   -lw ‹width›

In cases where lines are printed too thin, a minimum line width in PDF points can be defined. Any line is then printed with at least the defined minimum line width. As a result, thin and very thin lines can no longer be distinguished. To scale all lines with a certain factor, use the -lf switch instead.

Example: Set minimum line width to 1 point.

```
pdprint -lw 1 input.pdf
```

This feature only affects lines. It has no influence when lines are drawn in any another way as by using the PDF operators m and l (move to, line to). It does not affect text unless text is drawn with lines instead of using a font.

5.4.9 -m Rendering mode

Rendering mode   -m ‹mode›

There are two rendering modes: 0 (default) is fast mode, and 1 is accurate mode.

Fast mode is recommended for printing to any physical printer device such as a laser printer, or an ink jet printer. It uses the Windows GDI for rendering. This mode is generally faster and creates smaller spool files than the accurate mode.

Accurate mode is intended for virtual printers such as a TIFF printer. It uses the Windows GDI+ for rendering. This mode allows for image filtering, sub-pixel rendering, and anti-aliasing. It should not be applied for physical devices, such as a laser printer, due to the fact that those devices do not support the above features. Using the accurate mode creates generally larger spool files than the fast mode.

Example: Enable the accurate mode when using a TIFF printer

```
pdprint -m 1 input.pdf
```

> **Tip:**   The rendering mode is not to be mixed up with the printing quality -q. Fast mode is optimized for printing to physical devices and creating a high quality spool file with a small file size.

5.4.10 -o1 Convert to Type1

Convert to Type1   -o1

Convert embedded fonts to Type1 fonts (PostScript fonts).

5.4.11 `-o9` Force Windows 9x compatibility

Force Windows 9x compatibility   `-o9`

Enforce the use of Windows 9x compatible printer driver interface commands. This can help with compatibility issues with older printer drivers. This option may result in slightly larger spool files. It is safe to be used as a permanent setting.

5.4.12 `-oa` Print form fields (Annotations) only

Print form fields (Annotations) only   `-oa`

With this switch, only form fields and annotations are printed without the underlying page content.

5.4.13 `-oaa` Automatically switch to accurate mode if necessary

Automatically switch to accurate mode if necessary   `-oaa`

Detect content that cannot be rendered using fast rendering mode (GDI, see `-m`) and switch to accurate (GDI+) automatically, e.g. to render transparent tiling patterns.

5.4.14 `-ob` Apply pre-rendering

Apply pre-rendering   `-ob`

This option pre-renders the page and sends bitmaps to the printer device. This switch can be used as a workaround when a printer device fails to render the content correctly. If fonts are not converted correctly, the `-ot` and `-o1` switches should preferably be used, since they provide a better result and smaller spool file.

5.4.15 `-oc` Disable black point compensation

Disable black point compensation   `-oc`

Disable the black point compensation (BPC) feature when converting colors e.g. from CMYK to RGB.

5.4.16 `-od` Disable back buffer

Disable back buffer   `-od`

The 3-Heights® PDF Printer Shell uses a back buffer to simulate a series of types of transparencies. This back buffer requires a lot of resources. Disabling the back buffer using the `-od` switch can improve the printing speed.

5.4.17 `-oe` Do not use embedded fonts

Do not use embedded fonts   `-oe`

With this switch, all embedded fonts are ignored. Fonts from the operating system fonts-folder `%System-root%\fonts`, which is usually `C:\Windows\fonts`, are used as replacement fonts.

5.4.18 `-ofp` Use pre-installed fonts

Use pre-installed fonts   `-ofp`

When using this switch embedded fonts are replaced by fonts installed in the operating system. Only non-symbolic fonts that have an equal name are replaced. The default behavior is that all embedded fonts are used.

5.4.19 `-oi` Always use fast mode for images

Always use fast mode for images   `-oi`

Use fast mode rendering for images, even in accurate mode. Using the accurate rendering mode (`-m` 1) in combination with `-oi` prints all non-image content in accurate mode and all images in fast mode. If in fast mode (`-m` 0), then the switch provides a workaround for legacy printer drivers that cannot process banded images.

5.4.20 `-oj` Disable image filtering

Disable image filtering   `-oj`

If images need to be downsampled, rotated, or skewed to match the device resolution, then the transformation is accomplished using a filter by default. This option disables filtering in these situations.

5.4.21 `-on` Disable form fields and annotations

Disable form fields and annotations   `-on`

Do not print form fields and annotations.

5.4.22 `-oo` Convert fonts to outlines

Convert fonts to outlines   `-oo`

Convert fonts to outlines before rendering. This means the spool file does not contain fonts anymore, but graphic paths instead. This option can resolve font-related issues that can be caused by inappropriate device fonts or the use of EMF.

5.4.23 `-op` Disable patterns

Disable patterns   `-op`

This option disables patterns. This is an option for very specific documents and in general, should not be used.

5.4.24 `-ops` Disable direct PostScript injection

Disable direct PostScript injection `-ops`

This is option disables direct PostScript injection. Instead, all PostScript code is generated by the printer driver. This can help with compatibility issues with older printer drivers.

5.4.25 `-ops2` Use PostScript language level 2

Use PostScript language level 2 `-ops2`

Use PostScript language level 2 for printers that do not provide information on their supported language level. Without this option, language level 3 is used.

5.4.26 `-os` Convert strokes to filled paths

Convert strokes to filled paths `-os`

Convert strokes to filled paths. This is an option for very specific documents and in general, should not be used.

5.4.27 `-ot` Convert to TrueType

Convert to TrueType `-ot`

Convert embedded fonts to TrueType fonts. This option is recommended for PCL printers. It is not recommended for PostScript printers.

5.4.28 `-ot0` Convert embedded Type1 / OpenType

Convert embedded Type1 / OpenType `-ot0`

Inhibit the conversion of embedded Type1 fonts to TrueType fonts. This is mainly used for diagnostic purposes.

5.4.29 `-ou` Use Unicodes instead of glyph IDs

Use Unicodes instead of glyph IDs `-ou`

Enforce the use of Unicodes instead of glyph IDs for embedded fonts. This is to create spool files with text that is optimized for post-processing.

5.4.30 `-pg` Page range

Page range `-pg ‹first› ‹last›`

This switch lets you select a specific print range in the document. Use negative numbers to adress pages from the end of the document instead of the beginning. i.e. The value -1 represents the last page and -2 the second to last page.

Example: Print pages 2 through 5

```
pdprint -pg 2 5 input.pdf
```

Example: Print from 10th to last page

```
pdprint -pg 10 -1 input.pdf
```

5.4.31 -q Set the quality

Set the quality -q ‹quality›

Set the quality of the print. The supported values correspond to the Windows values and are:

Value	Description
1 (default)	Printer default. The value set in the printer properties is applied
-1	Draft
-2	Low quality
-3	Medium quality
-4	High quality

Example: Set the quality to high

```
pdprint -q -4 input.pdf
```

5.4.32 -r Set the rotation

[Deprecated] Set the rotation -r

Deprecated. Pages are sent using the viewer rotation by default.

With this option, the pages are printed in the same orientation as when viewed. Without this option, the pages are sent to the printer with their original rotation.

5.4.33 -ra Additional page rotation

Additional page rotation -ra ‹angle›

Set the page's clockwise rotation that is added after the page has been rotated according to the -rm. The ‹angle› is in degrees and must be a multiple of 90.

5.4.34 -rm Rotate pages to a specific orientation

Rotate pages to a specific orientation   -rm ‹mode›

With this switch, the page rotation can be set to "Portrait" or "Landscape". In contrast to the -o switch, the page is rotated before being sent to the printer, whereas the -o switch specifies the orientation of the physical paper.

Supported ‹mode›s are p for portrait, and l for landscape.

Example: Rotate all pages to portrait.

```
pdprint -rm p input.pdf
```

5.4.35 -tt TrueType font handling

TrueType font handling   -tt ‹opt›
Default: 2

Configure whether the printer driver loads pre-installed fonts when printing PDF files that use TrueType fonts. The allowed values are:

Value	Description
1	Print bitmaps. The glyphs of the text are rendered as bitmaps. This option is useful for reducing the spool file size if the PDF document uses a lot of different fonts and has few pages.
2	Download soft fonts. Fonts are copied from the font directory of the operating system to the printer. If the PDF document uses a lot of different fonts, a large amount of disk space, printer memory, and a long download time for loading the font to the printer is required. This option is useful if the PDF document has much text but uses only a few fonts.
3	Use device fonts. The built-in fonts of the printer are used for the rendering process. A significant reduction of the spool file can be achieved with this option.

Example: Use device fonts

```
pdprint -tt 3 input.pdf
```

5.4.36 -wh Set page width and height

Set page width and height	`-wh ‹width› ‹height›`

This option asks the printer driver to select a paper size that is at least as large as the defined dimensions and limit its printable area. If no paper size is available, this option limits the printable area of the currently set default paper size.

Example: If setting `‹width› ‹height›` to 400 400 and the printer offers the paper sizes A4, A3, A2, and A1 available, it should select the paper size A2 (420 by 594 millimeters) and only a 400 by 400 millimeters section is printable. However, sometimes printers do not select the correct paper size, and instead just keep the currently set default paper size.

```
pdprint -wh 400 400 input.pdf
```

5.4.37 -xy Set the page offset

Set the page offset	`-xy ‹x› ‹y›`

Specify a page offset in the horizontal and vertical axis. The units are 1/100 millimeters.

Example: Move the content 2 mm to the left and 1 mm up

```
pdprint -xy 200 100 input.pdf
```

5.5 File options

5.5.1 Positional arguments

In general, all options specified on the command line apply to all documents printed.

To specify options that apply to a single input file only, the file and its options can be grouped in a single argument. Optionally, the file name can be escaped using double quotes.

Example: Print the first pages of `input1.pdf` and `input2.pdf`.

Without the use of positional arguments, the `-pg 1 1` option applies to both input files.

```
pdprint -p "HP LaserJet 4050 Series PS" -pg 1 1 input1.pdf input2.pdf
```

Example: Print the first page of `input1.pdf` and the last page of `input2.pdf`

```
pdprint -p "HP LaserJet 4050 Series PS" ^
   "input1.pdf -pg 1 1" ^
   "input2.pdf -pg -1 -1"
```

Example: Use double quotes around the filename to specify file names that contain spaces

```
pdprint -p "HP LaserJet 4050 Series PS" ^
  """first file.pdf"" -pg 1 1" ^
  """C:\path\to\second file.pdf"" -pg -1 -1"
```

5.5.2 -err Specify standard error file

Specify standard error file   -err ‹file name›

Specify the standard error file name. This has the same effect as piping to standard error (stderr) using the pipe command 2>.

5.5.3 -file Print to a file

Print to a file   -file ‹file name›

To print to a file, any printer driver can be selected and the file name can be specified with the -file option.

Example: Print the output to the file PostScript c:\temp\output.ps using the PostScript printer HP LaserJet 4050 Series PS

```
pdprint -file c:\temp\output.ps -p "HP LaserJet 4050 Series PS" input.pdf
```

> **Note:** This switch cannot be combined with the -g switch. If you do this, it creates an invalid output and pauses the printer.

5.5.4 -g Group documents in linked print jobs

Group documents in linked print jobs   -g

Link a series of print jobs into a chain of print jobs. The difference between sending individual print jobs and linked print jobs is that linked print jobs are printed consecutively, i.e. in a given order and uninterrupted by other print jobs.

This method can only be used if:

1. Printing to a spooler, i.e. in the "Advanced Options" of the printer, the "Spool print documents" option must be set.
2. The -file switch must not be used. If it is required, use -cj instead of -g.
3. The user that prints must have permission to administer print jobs.
4. The printer must not be a shared printer.

Example: Link the twp print jobs of intput1.pdf and input2.pdf

```
pdprint -g input1.pdf input2.pdf
```

Example: Use paper from different input bins for different sheets of the same print job

Some printer or printer drivers do not support changing certain properties within a print job. In such cases, creating a chain of linked print jobs is a good solution.

The following command prints pages 1 and 2 on paper from bin 1 and the others from bin 2 using Positional arguments.

```
pdprint -g "input.pdf -pg 1 2 -b 1" "input.pdf -pg 3 -1 -b 2"
```

5.5.5 `-cj` Bundle documents in a single print job

Bundle documents in a single print job   `-cj`

Print multiple documents in a single print job.

Example: Use duplex printing to print two pages from different documents on each side of the same sheet of paper

A new print job is always printed on a new sheet of paper. So if `frontpage.pdf` should be on one and `backpage.pdf` should be on the other side of the same sheet of paper, the two documents have to be bundled in a single print job.

```
pdprint -cj -d 2 frontpage.pdf backpage.pdf
```

5.5.6 `-i` Read input file names from a text file

Read input file names from a text file   `-i ‹file›`

Instead of providing a list of input files on the command line, a text document holding a list of files can be provided after the parameter `-i`. Each line in the text document must hold a single file name. Optionally, each file name can be followed by file specific options (Positional arguments).

This option is often combined with `-g` or `-cj`.

Example: Example: Assume the text file `filelist.txt` holds the following entries:

```
document1.pdf
"sub directory\document2.pdf" -pg 1 2
document3.pdf -pg 3 3 -b 1
```

The following command bundles the three files. The verbose mode (`-v`) lists the file currently being printed.

```
pdprint -v -g -p "HP LaserJet 4050 PS" -i filelist.txt
Printer "HP LaserJet 4050 PS" opened.
Printing file document1.pdf.
..
Printing file document2.pdf.
....
Printing file document3.pdf.
```

5.5.7 `-pw` Read an encrypted PDF file

> **Read an encrypted PDF file**   `-pw ‹password›`

A PDF document that has a user password (the password to open the document) can only be printed when either the user or the owner password is provided. The password can be provided using the option `-pw` followed by the password.

Example: The input PDF document is encrypted with a user password. Either the user or the owner password of the input PDF is "mypassword". The command to process such an encrypted file is:

```
pdprint -pw mypassword input.pdf output.pdf
```

When a PDF is encrypted with a user password and the password is not provided or is incorrect, the 3-Heights® PDF Printer Shell cannot read and process the file. Instead it generates the following error message:

```
Password wasn't correct.
```

5.5.8 `-out` Specify standard output file

> **Specify standard output file**   `-out ‹file name›`

Specify the standard error file name. This has the same effect as piping stdout using the pipe command 1>.

5.5.9 `-n` Set the name of the print job

> **Set the name of the print job**   `-n ‹name›`

By default, the name of the spool file is generated based on the document that is being printed. Use the `-n` switch to name the print job.

Example: Set the name of the print job to "my print job"

```
pdprint -n "my print job" input.pdf
```

5.5.10 `-rl` Reporting level

> **Reporting level**   `-rl ‹n›`

The reporting level describes the type of error messages to be written to standard error (stderr). For example, this option can be used to display the replacement fonts selected for non-embedded fonts. The available values are:

0 (default)	Do not report	—
1	Report errors	File cannot be opened, PDF is corrupted, etc.
2	Report errors, warnings	Non-embedded font is replaced
3	Report errors, warnings, information	Page number is set

Example: The following command reports all errors and warnings.

```
pdprint -rl 2 input.pdf
```

Example: The following command writes all error messages to the log file `error.log`.

```
pdprint -rl 2 input.pdf 2> error.log
```

5.5.11 `-v` Verbose mode

Verbose mode `-v`

This option turns on the verbose mode.

The verbose mode gives information about the printing status. The message displayed is similar to the one shown below. For every page printed, a "`.`" is printed:

Example: Enable the verbose mode.

```
pdprint -v input.pdf
Printing file input.pdf.
...
```

5.6 Watermark options

The 3-Heights® PDF Printer Shell has the option to place a watermark on the pages. The watermark is printed as a vector graphic and therefore is not editable if the output is sent to a file. Only one watermark text can be printed and it is the same for all pages. To print different watermark text, the print job needs to be divided into jobs with different logos. The watermark is added on top of the page content.

The watermark content (text or image) must always be specified last, i.e. after all the settings for position, color, size, etc. are made.

Example: Correct sequence: Set font to bold (`-wb`) and set position (`-wo`) to 50 points from left and 500 points from the top, then write text.

```
pdprint -wb 1 -wo 50 500 -wt "Bold" input.pdf
```

Example: Incorrect sequence: The settings for bold (`-wb`) and position (`-wo`) have no impact.

```
pdprint -wt "Bold" -wb 1 -wo 50 500 input.pdf
```

5.6.1 `-omr` OMR marker string

OMR marker string	`-omr ‹marker›`

The string specifies OMR markers which are printed on each succeeding page until the marker is changed or deleted. The syntax of for the ‹marker› is as follows: Example: `"0, 20, 10, 4, 15, 0, 01110011"`

Value	Description
0	Horizontal position of the first marker
20	Vertical position of the first marker
10	Horizontal extension of the marker
4	Vertical extension of the marker
0	Markers are drawn from either top of page to bottom (1) or from bottom to top (0)
01110011	Array of Boolean numbers indicating whether the marker is present or not

5.6.2 `-wa` Set text alignment

Set text alignment	`-wa ‹n›`

Align text left or right of the given position. Use the parameter 1 to align text right, 0 to align text left.

5.6.3 `-wb` Set bold style

Set bold style	`-wb ‹n›`

Write watermark in bold text. Use the parameter 1 to turn bold on, 0 to turn bold off.

Example: Enable bold, set position to 50/500, and write the watermark text "Bold". Then disable bold, set position to 50/550, and write "Not Bold"

```
pdprint -wb 1 -wo 50 500 -wt "Bold" -wb 0 -wo 50 550 -wt "Not Bold" input.pdf
```

5.6.4 `-wc` Set the color of the watermark

Set the color of the watermark	`-wc ‹r› ‹g› ‹b›`

Set the color of the watermark in the RGB color space. The `-wc` switch takes three parameters, one for each color: red, green, blue. The values range from 0 to 255. Here are some sample colors:

	Red = 255,0,0
	Cyan = 0,255,255
	Black = 0,0,0
	Green = 0,255,0
	Magenta = 255,0,255
	White = 255,255,255
	Gray = 128,128,128
	Blue = 0,0,255
	Yellow = 255,255,0

Example: Set the watermark text to red, set the position to 50/50, and write the watermark text "Red Text"

```
pdprint -wc 255 0 0 -wo 50 50 -wt "Red Text" input.pdf
```

5.6.5 `-wf` Set the font and font size

Set the font and font size	`-wf ‹font› ‹size›`

Set the font and its size. The default font is Helvetica, the default size is 10. Font size is measured in points. Font size 10 is the same font size that is used in this document.

Example: Use the font "Times" with a size of 242 points to write the watermark text "Text" at position 50/500.

```
pdprint -wf Times 242 -wo 50 500 -wt Text input.pdf
```

5.6.6 `-wg` Set watermark layer

Set watermark layer	`-wg ‹n›`

Set watermark into foreground or background layer. Use the parameter 1 to move to background, 0 to move to foreground.

5.6.7 `-wi` Set italic style

Set italic style	`-wi ‹n›`

Write watermark in italic text. Use the argument `1` to turn italic on, `0` to turn italic off.

Example: Enable italic, set the position to 50/500, and write the watermark text "Italic". Then disable italic, set the position to 50/550, and write the text "Not Italic"

```
pdprint -wi 1 -wo 50 500 -wt "Italic" -wi 0 -wo 50 550 -wt "Not Italic"
input.pdf
```

5.6.8 `-wo` Set the position of the watermark

Set the position of the watermark	`-wo ‹x› ‹y›`

Set the position of the watermark text or image. The default for `‹x› ‹y›` is `0 0`. As a consequence, this option must always be set or the watermark is not displayed in the visible area.

Example: Set the watermark position 100 points from the left border and 200 points from the top (an A4 page is 595x842 points).

```
pdprint -wo 100 200 -wt mywatermark input.pdf
```

There is always a clipping border of about 14 points, which clips text that is too close to the border.

The `-wo` option has to be specified before the `-wt` option, which sets the actual watermark text.

5.6.9 `-wp` Add an image

Add an image	`-wp ‹file name›`

Place an image or PDF as watermark. The position specified with the switch `-wo` corresponds to the lower left corner of the image. The path to the file is specified as parameter of the `-wp` switch.

Example: Place the image at position 100/100.

```
pdprint -wo 100 100 -wp c:\image\mypicture.gif input.pdf
```

5.6.10 `-wr` Set the rotation angle

Set the rotation angle	`-wr ‹angle›`

Use the `-wr` switch to rotate the watermark counter-clockwise. The center of the rotation is at the position set by the `-wo` switch. The units of the rotation parameters are degrees.

Example: Place the image at position 100/100 and rotate it by 55 degrees clockwise.

```
pdprint -wo 100 100 -wr -55 -wp c:\image\mypicture.gif input.pdf
```

5.6.11 -ws Write outlines

Write outlines   -ws ‹n›

Write text as outlines, i.e. stroke the text instead of filling it. For ‹n›, use 1 to turn outlines on and 0 to turn outlines off.

Example: Write an outlined text with a large font size

```
pdprint -wf Times 242 -ws 1 -wo 50 500 -wt Text input.pdf
```

5.6.12 -wt Set the text of the watermark

Set the text of the watermark   -wt ‹text›

Write a line of text. If the text contains blanks, the whole text must be in quotation marks.

Example: Write a watermark text

```
pdprint -wt "This is my watermark" input.pdf
```

The line above does not print the text in the visual range because the position, which is required, is missing. See also -wo switch.

The watermark text can contain placeholders, which can be used to insert document specific text. The following placeholders are supported:

Value	Description
%t	Document title
%a	Document author
%k	Document keywords
%s	Document subject
%ns	File name without path and extension
%js	Short job list name (the .txt file) without path and extension
%jl	Long job list name without path

Value	Description
%ds	Short date
%dl	Long date
%dt	Time

Value	Description
%pi	Current page
%pn	Total amount of pages in the document

Watermark placeholders: Time and date

Watermark placeholders: Document attributes

Watermark placeholders: Page numbering

Example: Add the document's title, author, and date to the watermark text

```
pdprint -wt "watermark for the document %t written by %a, printed on %ds."
myfile.pdf
```

Example: Add the page numbers as watermark text

```
pdprint -wt "page %pi of %pn" input.pdf
```

5.6.13 `-wz` Set the scale factor

Set the scale factor `-wz ‹scale›`	
Default:	**1**

Use the `-wz` option to scale the watermark by a specific factor. The center of the scaling operation is the position set by the option `-wo`.

Example: Place the image at position 100/100 and rotate it by a factor of 1.2.

```
pdprint -wo 100 100 -wz 1.2 -wp c:\image\mypicture.gif input.pdf
```

5.6.14 `-wd` Clear watermark

Clear watermark   `-wd`

Use the `-wd` option to clear previously defined watermarks. This is option is typically used as a Positional arguments.

Example: Print first file with watermark text and second without

```
pdprint -wo 100 100 -wt "watermark text" input1.pdf "input2.pdf -wd"
```

5.7 Internet printing

Printing via HTTP instead of the NetBIOS protocol requires the following three steps:

- Retrieve the name of the shared printer on the server.
- Provide the network location of the printer to the client.
- Select the URL as printer name.

5.7.1 Retrieve the printer name

On the server where the printer is shared, open an Internet Explorer window and type `http://localhost/printers`. Instead of `localhost`, you also write the actual name of the server. This also works on the client if it is authorized to access the server.
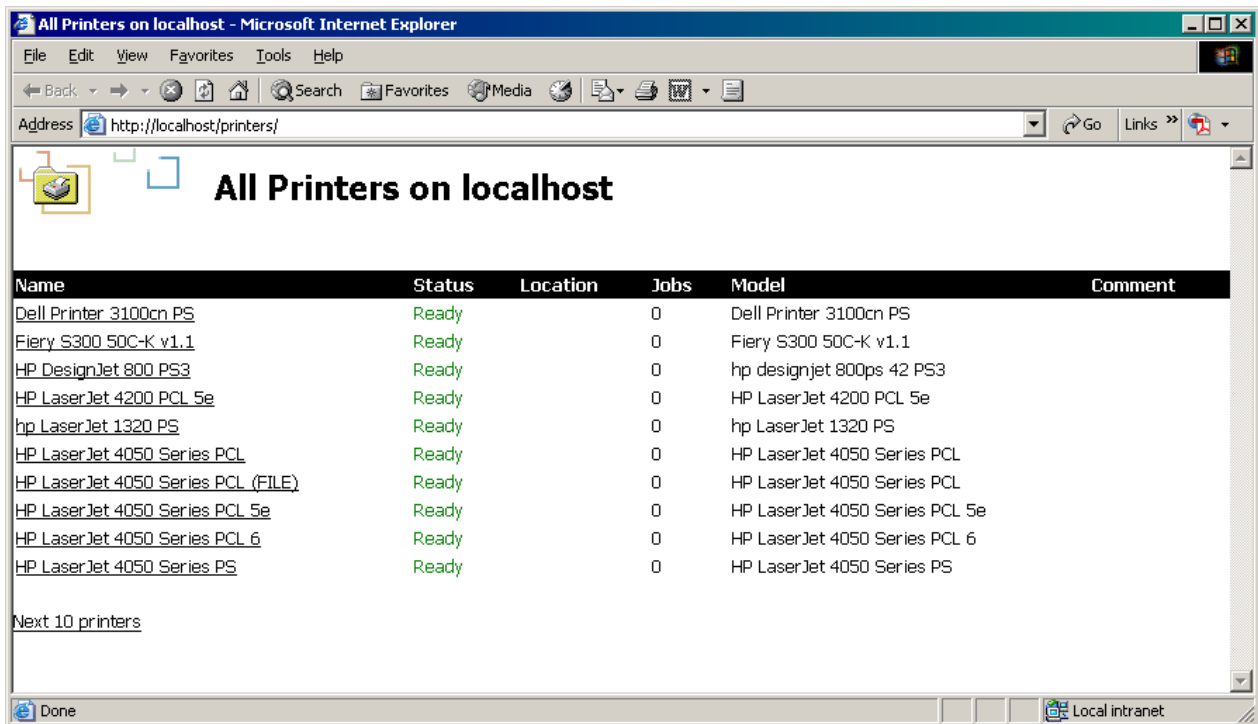
This lists the available printers. Click on the one to which you want to print via HTTP.

Then click "Properties" on the left hand side. You should see the properties, including the network name of the printer.
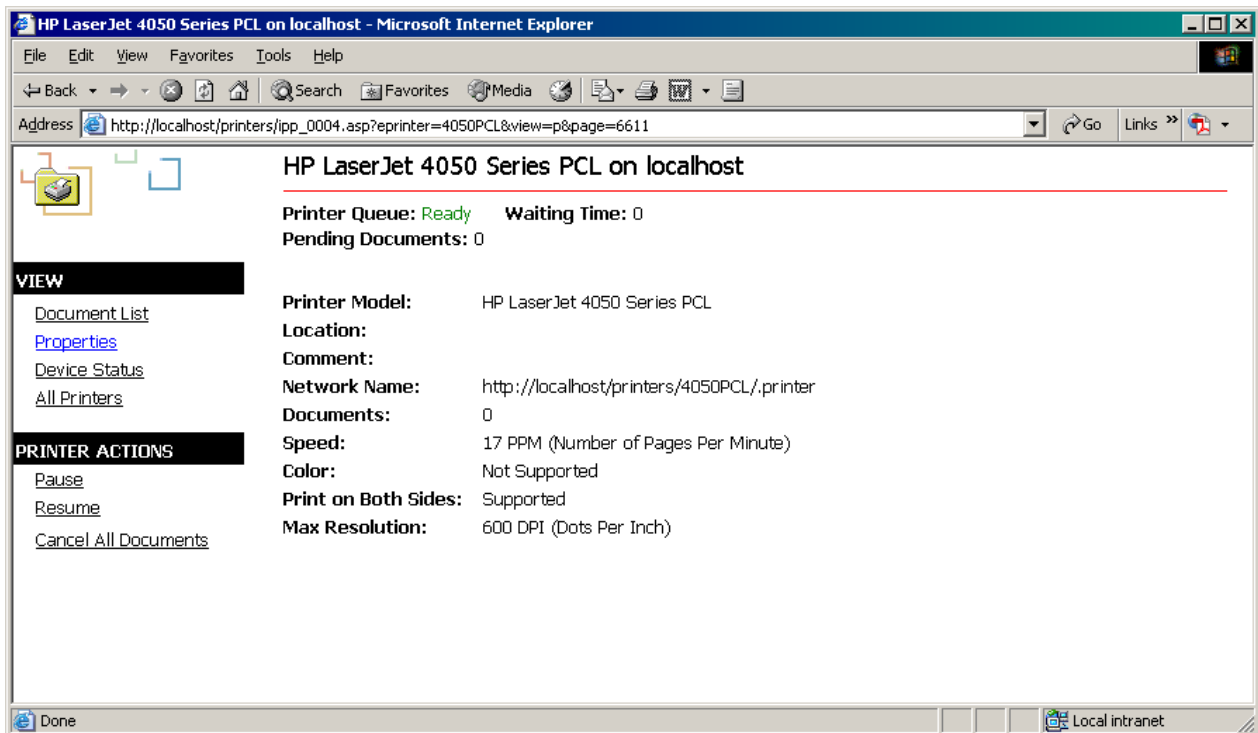
The URL then can be something like this: `http://localhost/printers/4050PCL/.printer`. `localhost` needs now to be replaced with the real name of the server, so the name could be: `http://printer-server01/printers/4050PCL/.printer`.

5.7.2 Set up the client

Start the "Add Printer" wizard on the client system. Select "Network Printer", and then "Connect to a printer on the Internet or on your intranet". As a URL, provide the "Network name" retrieved previously.
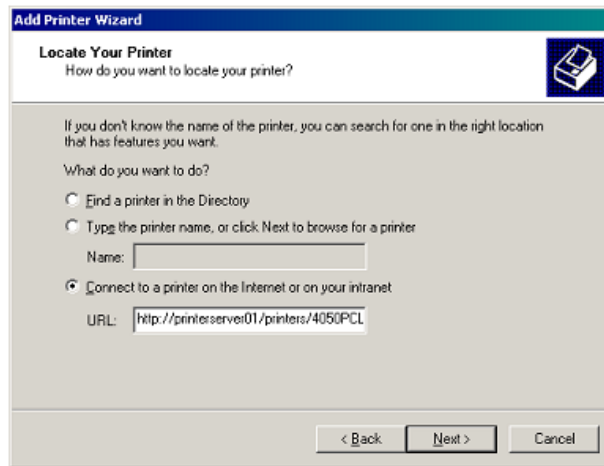
This step is required and ensures the client system can communicate with the printer on the server. It does not install a printer driver.

5.7.3 Connect to a printer via HTTP

When a printer is installed as described previously, it can be accessed via HTTP instead of NetBIOS. The corresponding command on the client looks like this:

```
pdprint  -p "\\http://printerserver01\HP LaserJet 4050 Series PCL" input.pdf
```

(Note the two backslashes before the http.)

Keep in mind that using a printer via an Internet connection as described above may be unstable.

6 Return codes and error messages

6.1 Return codes

All return codes other than 0 indicate an error in the processing.

Return codes

Value	Description
0	Success.
1	Couldn't open input file.
2	Couldn't open printer. In a network environment, it is advised to retry the operation (see Printing in a network environment).
3	Error with given options, e.g. too many parameters.
4	PDF input file is encrypted and password is missing or incorrect.
5	Extraction error either due to corrupt input PDF or failure when storing an extracted file.
10	License error, e.g. invalid license key.

Use -v in order to get a more detailed error message.

6.2 Messages

The following error messages indicate an error in the processing:

- Couldn't open file list from {LIST_FILENAME}.
- Couldn't open device settings file {DEVICESETTING_FILENAME}.
- Couldn't set device mode prior to editing.
- Couldn't open printer {PRINTERDRIVER_NAME}.
- Couldn't open device settings file {DEVICESETTING_FILENAME}.
- Too many parameters.
- Password wasn't correct.
- Couldn't open PDF file {PDF_FILENAME}
- Printer {PRINTERDRIVER_NAME} status is {STATUS_MESSAGE}

The following message appears in the verbose mode:

- Printing file {PDF_FILENAME}.

Corrupted files can throw various messages. Error messages are only thrown if the file cannot be printed correctly. Here are two example messages:

- 0x8041010B - E - The "xref" keyword was not found or the xref table is mal-formed.
- 0x80410301 - E - The object number is missing.

7 Troubleshooting

7.1 General

7.1.1 Blank output

If you are printing a very complex document or a document with very large embedded raster images, it may help to reduce the resolution of the printer (in the printer's properties), e.g. from 1200 to 600 DPI.

7.1.2 Duplex mode is not listed or does not work

If the duplex mode is not listed, check if the printer has an option that needs to be installed to allow duplex printing (see screenshot).
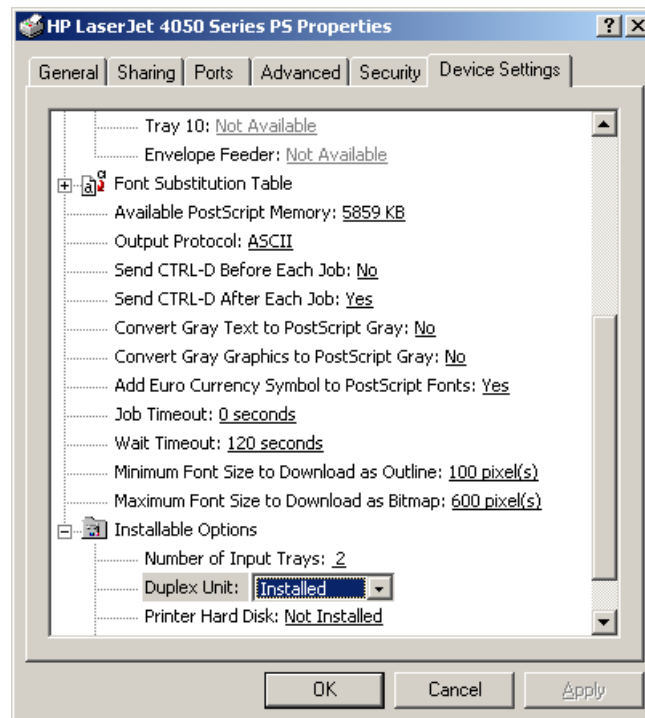
Go to "Start" →"Settings" →"Printer" → right-click your printer →"Properties" →"Device Properties". Look for options like "Installable Options" →"Duplex Unit".

If you can print duplex using other Windows applications, try using the value 2 or 3 as parameter.

Example:

```
-d 2
```

Alternatively to the -d switch, the duplex mode can be defined in the printer's properties. See -ds and -dl switches for device modes options.

7.1.3 Page does not fit the paper

Setting the `-f` option scales the page to fit the paper size. This property should be set when the dimensions of the PDF and the dimension of the paper size are different.

Optionally, combine it with the `-cn` switch to center the page on the paper.

7.1.4 Orientation

Every page in a PDF document can have a separate rotation value. For example, a page that visually appears as a landscape can actually be a 90° rotated portrait. When sending such a page to the printer, it is treated according to the `-rm` option, which is by default set to rotate according to the pdf embedded rotate attribute and thus is sent the way it is viewed — as landscape.

Then the next option comes into play: `-o`. While `-rm` was for the page, `-o` is for the paper. The default of this switch is `-1`, which means the printer defaults are used. `-2` means the automatic mode is used. This sets the orientation so that the page best fits the paper. The values `1` and `2` force the orientation to portrait and landscape.

Example: If you would like a page that appears as landscape to be printed as landscape (and filling the paper), use the following settings:

```
pdprint -f -o -2 input.pdf
```

Example: If you would like a landscape to be printed as portrait, and only fill half of the paper, use a setting like this:

```
pdprint -o 1 -f input.pdf
```

7.1.5 Printer settings or device mode ignored

Some printer drivers ignore some properties set at the 3-Heights® PDF Printer Shell. They usually respect the settings made in the printing properties dialog only. Since printing properties set in the dialog are stored in the device mode, the best way to cope with such printer drivers is to create and use a device mode (see `-ds` and `-dl`).

Furthermore, certain settings applied to the device mode behave differently on local and network printers. It does not matter whether using device mode functions of the 3-Heights® PDF Printer Shell, or adjusting the defaults in the printer itself.

A very basic setting in the device mode, such as "print as landscape", should always work, whereas a more complex setting such as "print multiple pages on 1 paper" may fail on a local printer, but work on a network printer. This is due to the nature of how the printing system works on Windows. A detailed explanation is not provided here, but a workaround to this type of issue is normally using the EMF mode (as a side-effect, this simulates a network environment even for local printers).

7.1.6 Printer ignores device mode configuration

If the datatype is set to either RAW or EMF, some printer drivers may completely ignore any configuration that was performed using the device mode structure(see `-ds` and `-dl`).

To avoid this, delegate the decision on the datatype to use to the printer driver using the `-dt` option.

7.1.7 Black is not printed completely black

Sometimes black color is not printed completely black. This is due to color transformations between different color spaces.

Black point compensation allows for higher contrast of the black color. It is applied automatically if no color profile is specified (i.e. no color profiles are available in the subdirectory `Icc` or an appropriate color profile is not found on the system). In this situation, the conversion is done algorithmically using Neugebauer and black point compensation.

7.2 Print quality

7.2.1 Content is not printed as desired

Content such as text, vector graphics, image or combinations may not printed as desired, i.e. they are printed differently compared to other printing applications. Such a behavior may have various reasons:

- The document is corrupted, i.e. does not comply with the PDF specification and the 3-Heights® PDF Printer Shell does not support/detect/recover it, whereas another application may do so.
- The document contains features that are not supported by the 3-Heights® PDF Printer Shell.
- The document contains features that result in a spool file that is not supported by the physical printer (e.g. color, transparency, nested operations, too large spool file)

The 3-Heights® PDF Printer Shell provides a series of options to help you to identify the cause of the undesired behavior and how to work around it. You should test the following options in isolation and in the given order.

Option	Description	Possible side effects
-ops	Disable direct PostScript injection. Only relevant for PS printers	Slightly larger spool files
-o9	Enable compatibility mode	Slightly larger spool files
-m 1	Use accurate rendering mode	This rendering mode may result in noticeable differences in speed and spool file size. Generally, the spool file size increases.
-ob	Pre-render pages, send one bitmap per page to the printer	Slower processing speed, noticeably larger spool files

For incorrect text rendering, see also the corresponding switches in Font and text issues.

7.3 Spool file size

If the size of spool files should be reduced, the following points can be considered:

- Rendering mode
- Printer driver

- Network environment, RAW/EMF mode
- Resolution

7.3.1 Rendering mode

The 3-Heights® PDF Printer Shell supports two rendering modes: Fast (default) and Accurate. The Fast mode uses the GDI, whereas the Accurate mode uses the GDI+. In the Accurate mode, there are several filters available. These filters are intended for low resolution devices such as a monitor or a raster image. On a 600 DPI resolution printer, anti-aliasing has almost no visual impact. In fact, most printers do not even support anti-aliasing. Therefore it is generally suggested to use the Fast mode. However, there are certain documents that print quite differently using GDI or GDI+ for other reasons.

7.3.2 Printer driver

Most printer devices understand more than one printer language. For example, most HP printers support different types of PCL (Printer Command Language) such as PCL 5, PCL 5e or PCL 6, and in addition, PostScript. There are also printer devices that only support one printer language. It is usually best (and also suggested by printer manufacturers) to use the printer driver that works best. If PostScript yields large spool files or has rendering issues, try a PCL printer driver or vice versa.

The smallest spool sizes can be achieved by using either PostScript or PCL 6. This is heavily dependent on the PDF input file.

7.3.3 PostScript injection

The reason why different applications can create spool files of very different sizes of the same PDF document is the way the spool file is created.

PostScript is generated using the `PScript5.dll`. There are different plugins, which are printer driver-dependent. These plugins are `.psd` file. For example, this can be something like `hp4050.psd`.

A part of the created spool file uses Document Structuring Conventions (DSC) language. These commands are printer driver-dependent and may look like this:

```
%%Title: input.pdf
%%Creator: PScript5.dll Version 5.2.2
%%CreationDate: 5/23/2005 11:40:2
%%For: pre
%%BoundingBox: (atend)
%%DocumentNeededResources: (atend)
%%DocumentSuppliedResources: (atend)
%%DocumentData: Clean7Bit
%%TargetDevice: (HP LaserJet 4050 Series) (2014.108) 1
%%LanguageLevel: 2
%%EndComments
```

The DSC is used to define the page settings and all printer driver-dependent properties.

In between the DCS comments, there are the actual PostScript commands (all the parts that do not start with %%), which provide all the information about the content of the page.

An application that is printing a spool file can first ask the GDI whether the type is PostScript. If the GDI says yes, then there is a "pass through mode", which can be used to provide the PostScript commands directly and let the

printer driver only take care of the DSC. This called direct PostScript injection. Some printer drivers do not support this. In such cases, it should be turned off.

7.3.4 Resolution

Most printers support different resolutions, such as 300 DPI, 600 DPI, 1200 DPI, etc. Depending on the printer language and the document, the resolution influences the spool size. For printer devices that require raster graphics to be provided uncompressed and at device resolution, the size of an image at 1200 DPI is 16 times the size as at 300 DPI.

The -q option can be used to set the printing resolution.

The option -dmax allows to limit the resolution of pre-rendered images.

7.4 Printing in a network environment

It is preferable to not send large spool files over the network. To handle this, there are two similar approaches.

- Print the PDF at its destination: Usually a PDF is much smaller than a spool file. Therefore, it makes sense to not print the PDF first and send a large spool file over the network, but instead send the PDF over the network and print it at its destination.
- Use EMF mode instead of RAW: By using the EMF (Windows Embedded Metafile) mode, the document is sent as EMF over the network and spooled at its destination. This has the advantage of sending much less data over the network because the RAW spool file (e.g. PCL or PS) is created locally. The downside is possible issues with printer driver at the remote site.

Use network shared printers with caution: Using shared printer resources in the Windows operating system always involves that printer drivers are transferred from the printer server to the client computer. The shared printer resource should be mapped as a user with administrator rights to prevent from a failure of the printing application to open the printer connection.

Check permissions: The user of a printing application must at least have the "print" permission to use the referred printer object.

Use the -jw option to prevent issues printing embedded fonts. This feature ensures that temporarily installed fonts are not removed until the print job has been completed.

Retry calls: Calls to the Windows operating system may fail while printing to a remote printer, even in a reliable network. An application program may want to repeat the printing process if the printer cannot be opened (i.e. on return code 2).

7.5 Font and text issues

1. For issues with text using non-embedded fonts:
    1. Ensure the required fonts are available on the system (see Fonts).
    2. See Handle non-embedded fonts.
2. For issues with text using embedded fonts:
    1. Ensure embedded fonts are used (i.e. -oe is not set).
    2. Ensure the two system environment variables, TEMP and TMP, exist and point to an existing directory. Not setting the environment variables often results in errors for service applications that run under a user that has no temporary directory and thus cannot install fonts. See also Installation and deployment.
    3. If you are using a local printer, ensure EMF is not used (-dt not set).
    4. If you are using a remote printer, see Printing in a network environment.
    5. See Handle embedded fonts.

3. If you are using an older printer driver, try `-o9` or install a newer printer driver.
4. Try a different type of printer driver, e.g. PCL 6 instead of PS or vice versa.

7.5.1 Handle non-embedded fonts

Font replacement strategy

This section describes how the rendering engine handles fonts. It is rather technical and it is not required to be understood to use the software.

The following steps are performed sequentially when searching for a font. If a font is found, the search is stopped; otherwise, the next step is performed.

1. If the font is not embedded or `-ofp` is set:
   a. If the font name appears in the `[replace]` section in the configuration file `fonts.ini`, the name is replaced and looked up in the installed font collection.
   b. If it is a standard font[1] it is replaced by the equivalent TrueType font name and it is looked up in the installed font collection.
   c. If the font name appears in the `[fonts]` section in the configuration file `fonts.ini`, the name is replaced and looked up in the installed font collection.
   d. If the font has "Italic" or "Bold" in its name, the font without these styles is looked up in the installed font collection.
2. If a font name is looked up in the installed font collection, then the name comparison is performed as follows:
   a. PostScript name.
   b. TrueType name without blanks (a missing style is interpreted as "Regular" or "Normal").
   c. TrueType name without modifications.
3. If the font is embedded, it is converted to a Windows-compatible font and temporarily installed. If `-oe` is used, then the glyphs of the fonts are converted to either bitmaps or outlines[2]. If `-oo` is used, then the glyphs are converted to outlines only.
4. If the font is not embedded and the Unicode code points are available, then the nearest font from the installed font collection is tailored to the metrics of the font.

7.5.2 Handle embedded fonts

The following list provides possible work-arounds if text is printed incorrectly. Options should be tried in ascending order.

1. Using the option `-oe` inhibits all embedded fonts from being used in the spool file and the printer hardware. Instead, the glyphs are converted to either bitmaps or outlines. Using the option `-oo` at the same time the conversion is restricted to outlines.
2. Using the option `-ofp` inhibits embedded fonts which have the same name as the corresponding installed font from being used. This option can also be used to reduce the number of fonts in a spool file if the printer hardware memory capacity is limited.
3. Pre-render the page in a bitmap and send the pre-rendered image to the printer (`-ob`). This results in large spool files.

---

[1] e.g. Times-Roman, Helvetica, Courier
[2] The outline of a glyph is a vector graphic without any reference to the original font program.

7.6 Unsupported PDF features

The 3-Heights® Rendering Engine supports transparency functions such as a number of blend modes and isolated and non-isolated transparency groups, but not transparency in general.

Filling geometric figures with tiling and shading patterns may fail in some cases.

8 Version history

8.1 Changes in versions 6.19–6.27

- **Update** license agreement to version 2.9

8.2 Changes in versions 6.13–6.18

No functional changes.

8.3 Changes in versions 6.1–6.12

- **Improved** search algorithm for installed fonts: User fonts under Windows are now also taken into account.

8.4 Changes in version 5

- **New** additional supported operating system: Windows Server 2019.
- **Changed** behavior when reading a TIFF. The value `Relative` from tag `ResolutionUnit` is now interpreted as `Inch`.
- **Changed** return code to 2 if there is an error linking a grouped print job (option `-g`).

8.5 Changes in version 4.12

- **Improved** the performance when printing image masks in accurate mode.
- **Improved** reading and recovery of corrupt TIFF images.
- **New** HTTP proxy setting in the GUI license manager.

8.6 Changes in version 4.11

- **New** support for reading PDF 2.0 documents.
- **New** option `-dmax`: Set the maximum DPI that is used for images sent to the printer. Useful for printers with low memory capacity.
- **New** option `-st`: Query the current printer status before printing

8.7 Changes in version 4.10

- **Improved** robustness against corrupt input PDF documents.
- **Improved** annotation appearance generation for polyline, squiggly, and stamp annotations.
- **Removed** the font `ZapfDingbats.ttf` from the product kit as it is not required anymore.
- **Deprecated** option `-e`: To set the datatype to EMF use `-dt emf`.
- **New** option `-dt`: Set DataType of spool file to EMF, raw or delegate the decision to the printer driver.

8.8 Changes in version 4.9

- **Improved** support for and robustness against corrupt input PDF documents.
- **Improved** repair of embedded font programs that are corrupt.
- **New** support for OpenType font collections in installed font collection.
- **Improved** metadata generation for standard PDF properties.
- **Changed** option `-ob`: New Rendering Engine 2.0 is used.
- **New** option `-st`: Check printer status before printing.
- **Changed** option `-pg`: Negative Integers can be used to address pages from the back of the document. I.e. page -2 is the second to last page.
- **Deprecated** option `-e`: Datatype can now be set using option `-dt`.
- **New** option `-dt`: Option to set datatype to RAW, EMF or inherit default from driver.

8.9 Changes in version 4.8

- **Improved** creation of annotation appearances to use less memory and processing time.
- **Added** repair functionality for TrueType font programs whose glyphs are not ordered correctly.
- **New** option `-ra` to rotate pages.
- **New** option `-wg` to move watermark to background layer.
- **New** option `-wa` to change text alignment of watermark.

9 Licensing, copyright, and contact

Pdftools (PDF Tools AG) is a world leader in PDF software, delivering reliable PDF products to international customers in all market segments.

Pdftools provides server-based software products designed specifically for developers, integrators, consultants, customizing specialists, and IT departments. Thousands of companies worldwide use our products directly and hundreds of thousands of users benefit from the technology indirectly via a global network of OEM partners. The tools can be easily embedded into application programs and are available for a multitude of operating system platforms.

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A Default values

A.1 Duplex modes

1	Simplex
2	Vertical duplex
3	Horizontal duplex

A.2 Paper bins

1	Upper
2	Lower
3	Middle
4	Manual
5	Envelope
6	Envelope Manual
7	Auto
8	Tractor
9	Small FMT
10	Large FMT
11	Large capacity
12	undef.
13	undef.
14	Cassette
15	From Source

A.3 Paper sizes

1	Letter 8 1/2 x 11 in
2	Letter Small 8 1/2 x 11 in
3	Tabloid 11 x 17 in
4	Ledger 17 x 11 in
5	Legal 8 1/2 x 14 in
6	Statement 5 1/2 x 8 1/2 in
7	Executive 7 1/4 x 10 1/2 in
8	A3 297 x 420 mm
9	A3 297 x 420 mm
10	A4 Small 210 x 297 mm
11	A5 148 x 210 mm
12	B4 (JIS) 250 x 354
13	B5(JIS)182x257mm
14	Folio 8 1/2 x 13 in
15	Quarto 215 x 275 mm
16	10x14 in
17	11x17 in
18	Note 8 1/2 x 11 in
19	Envelope # 9 3 7/8 x 8 7/8
20	Envelope # 10 4 1/8 x 9 1/2
21	Envelope # 11 4 1/2 x 10 3/8
22	Envelope # 12 4 \276 x 11
23	Envelope # 14 5 x 11 1/2
24	C size sheet
25	D size sheet
26	E size sheet
27	Envelope DL 110 x 220mm

28	Envelope C5 162 x 229 mm
29	Envelope C3 324 x 458 mm
30	Envelope C4 229 x 324 mm
31	Envelope C6 114 x 162 mm
32	Envelope C65 114 x 229 mm
33	Envelope B4 250 x 353 mm
34	Envelope B5 176 x 250 mm
35	Envelope B6 176 x 125 mm
36	Envelope 110 x 230 mm
37	Envelope Monarch 3.875 x 7.5 in
38	63/4Envelope35/8x61/2in
39	USStdFanfold147/8x11in
40	German Std Fanfold 8 1/2 x 12 in
41	German Legal Fanfold 8 1/2 x 13 in
42	B4 (ISO) 250 x 353 mm
43	Japanese Postcard 100 x 148 mm
44	9 x 11 in
45	10 x 11 in
46	15 x 11 in
47	Envelope Invite 220 x 220 mm
48	RESERVED—DO NOT USE
49	RESERVED—DO NOT USE
50	Letter Extra 9 \275 x 12 in
51	Legal Extra 9 \275 x 15 in
52	Tabloid Extra 11.69 x 18 in
53	A4 Extra 9.27 x 12.69 in
54	Letter Transverse 8 \275 x 11

55	A4 Transverse 210 x 297 mm
56	Letter Extra Transverse 9\275
57	SuperA/SuperA/A4 227 x 356
58	SuperB/SuperB/A3 305 x 487
59	Letter Plus 8.5 x 12.69 in
60	A4 Plus 210 x 330 mm
61	A5 Transverse 148 x 210 mm
62	B5 (JIS) Transverse 182 x 257 mm
63	A3 Extra 322 x 445 mm
64	A5 Extra 174 x 235 mm
65	B5 (ISO) Extra 201 x 276 mm
66	A2 420 x 594 mm
67	A3 Transverse 297 x 420 mm
68	A3 Extra Transverse 322 x 445 mm
69	Japanese Double Postcard 200 x 148 mm
70	A6 105 x 148 mm
71	Japanese Envelope Kaku # 2
72	Japanese Envelope Kaku # 3
73	Japanese Envelope Chou # 3
74	Japanese Envelope Chou # 4
75	Letter Rotated 11 x 8 1/2 in
76	A3 Rotated 420 x 297 mm
77	A4 Rotated 297 x 210 mm
78	A5 Rotated 210 x 148 mm
79	B4 (JIS) Rotated 364 x 257 mm
80	B5 (JIS) Rotated 257 x 182 mm
81	Japanese Postcard Rotated 148 x 100 mm

82	Double Japanese Postcard Rotated 148 x 200 mm
83	A6 Rotated 148 x 105 mm
84	Japanese Envelope Kaku # 2 Rotated
85	Japanese Envelope Kaku # 3 Rotated
86	Japanese Envelope Chou # 3 Rotated
87	Japanese Envelope Chou # 4 Rotated 88B6(JIS)128x182mm
89	B6 (JIS) Rotated 182 x 128 mm
90	12x11in
91	Japanese Envelope You # 4
92	Japanese Envelope You # 4 Rotated
93	PRC 16K 146 x 215 mm
94	PRC 32K 97 x 151 mm
95	PRC 32K(Big) 97 x 151 mm
96	PRC Envelope # 1 102 x 165 mm
97	PRC Envelope # 2 102 x 176 mm
98	PRC Envelope # 3 125 x 176 mm
99	PRC Envelope # 4 110 x 208 mm
100	PRC Envelope # 5 110 x 220 mm
101	PRC Envelope # 6 120 x 230 mm
102	PRC Envelope # 7 160 x 230 mm
103	PRC Envelope # 8 120 x 309 mm
104	PRC Envelope # 9 229 x 324 mm
105	PRC Envelope # 10 324 x 458 mm
106	PRC 16K Rotated
107	PRC 32K Rotated
108	PRC 32K(Big) Rotated
109	PRC Envelope # 1 Rotated 165 x 102 mm

110	PRC Envelope # 2 Rotated 176 x 102 mm
111	PRC Envelope # 3 Rotated 176 x 125 mm
112	PRC Envelope # 4 Rotated 208 x 110 mm
113	PRC Envelope # 5 Rotated 220 x 110 mm
114	PRC Envelope # 6 Rotated 230 x 120 mm
115	PRC Envelope # 7 Rotated 230 x 160 mm
116	PRC Envelope # 8 Rotated 309 x 120 mm
117	PRC Envelope # 9 Rotated 324 x 229 mm
118	PRC Envelope # 10 Rotated 458 x 324 mm