

User Manual



# 3-Heights® PDF Printer Service

**Version 6.27.10**



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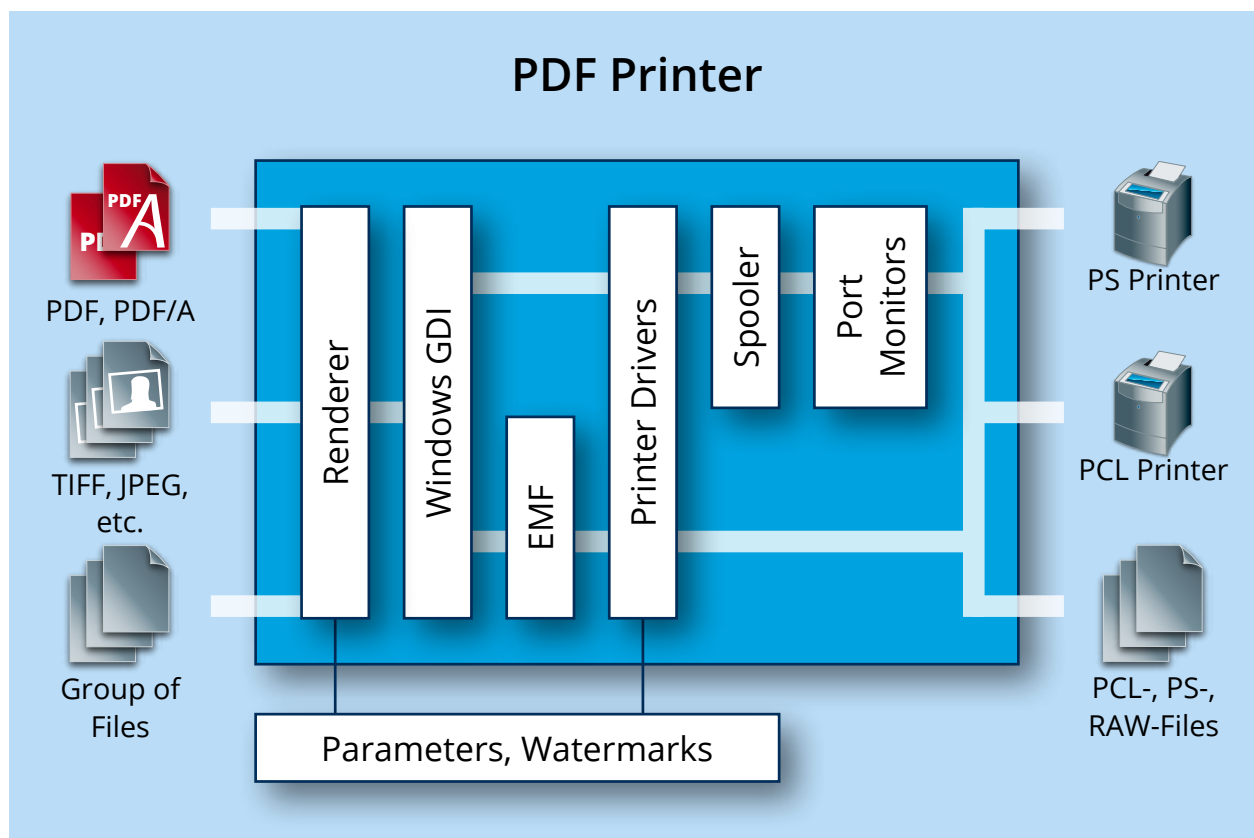
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# 1 Introduction

## 1.1 Description

The 3-Heights® PDF Printer Service 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 Service 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 Service 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

### 2.1 Overview

The PDF Printer Service is configured by the file `PdfPrintSvr.ini`, which needs to be located in the same directory as the executable `PdfPrintSvr.exe`. Before starting the service, the configuration file needs to be adjusted. The procedure to perform this step is described in [PdfPrintSvr.ini configuration file](#).

Once configured, the service can be created, started, paused, continued, stopped, and deleted via the command line. To use the create and delete functions, administrator permissions are required. To start and stop the service, operator permissions are required.

When the service is running, it processes PDF documents that are copied or moved into watched folders.

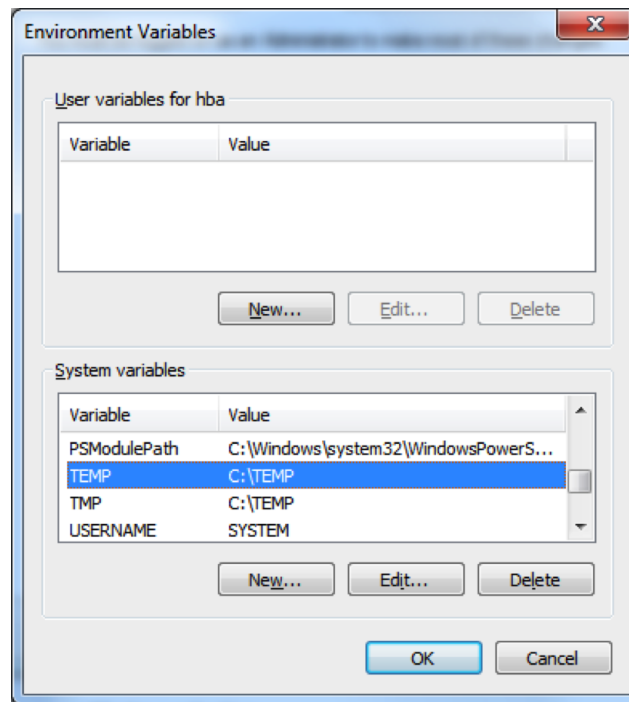
They are then renamed and moved to the folder Jobs. The renaming gives the PDF a 16 character long timestamp to create unique job tickets. This ensures there are no conflicts with documents that have the same name.

### 2.2 Windows

The 3-Heights® PDF Printer Service comes 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 Service". If you have no active downloads available or cannot log in, please contact [pdfsales@pdf-tools.com](mailto: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.  
The product comes as an MSI (Microsoft Installer) package that provides an installation routine for installing and uninstalling the 3-Heights® PDF Printer Service.  
The package installs the 64-bit version, which runs on 64-bit platforms only.
3. Start the MSI package and follow the steps in the installation routine.
4. 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



5. Ensure the cache directory exists as described in [Special directories](#).
6. Make sure your platform meets the requirements regarding color spaces and fonts described in [Color profiles](#) and [Fonts](#), respectively.

## 2.3 Uninstall

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

## 2.4 Note about the evaluation license

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

## 2.5 Special directories

### 2.5.1 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

## 2.5.2 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](#).

## 2.5.3 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 PdfPrintSvr.exe resides.

## 3 License management

The 3-Heights® PDF Printer Service requires a valid license in order to run correctly. If no license key is set or the license is not valid, then an error message is printed to the service log.

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

## 4 Configuration

To configure the 3-Heights® PDF Printer Service, there are several steps. The main step is to edit the configuration file. However, you may need to adjust settings on the operating system level.

- Edit the configuration file `PdfPrintSvr.ini`. This file must reside in the same directory as the executable `PdfPrintSvr.exe`. Any changes applied to the configuration file take impact after the service is re-started. To configure this file, see [PdfPrintSvr.ini configuration file](#).
- Like any Windows service, the 3-Heights® PDF Printer Service runs under a defined user. The default user is the user "LocalSystem". Any resources such as printers or directories must be accessible by the user under which the service is running. When using local watched folders that print to local printers, the user "LocalSystem" should be sufficient. However, when using resources on remote hosts such as a print server, the service should be running under a different dedicated user account, which has access permissions to those resources. To change the user under which the service runs, see [Managing the service](#).
- You must define the Windows temporary directories for the user under which the service runs. Otherwise, it is not able to extract embedded fonts from PDF documents and temporarily install them. For the user under which the service runs, you must set two system environment variables `TEMP` and `TMP` and point them to an existing directory in which the user has read and write access permission rights.
- Dependencies from other services: for the 3-Heights® PDF Printer Service to work properly, the spooler service must also be running. If the file paths are configured using UNC paths, the service providing such access must be running as well. Therefore, service dependencies must be configured for the 3-Heights® PDF Printer Service to ensure proper function particularly during system startup. The MSI package provided for installation configures dependencies for "Spooler" and "LanmanServer".  
If you choose to install the service using the `-c` option, no dependencies are configured. You can change service dependencies any time using the standard service control tool "sc.exe".

Once configured, the service can be created, started, paused, continued, stopped, and deleted via the command line. To use the create and delete functions, administrator permissions are required. To start and stop the service, operator permissions are required.

## 5 Getting started

### 5.1 Configuration

Before starting the PDF Printer Service for the first time, the file `PdfPrintSvr.ini` needs to be modified. Editing this file while the PDF Printer Service is running has no impact. The service first needs to be stopped and restarted after the modification. When opening this file with a text editor, it looks like this:

```
[PdfPrintSvr]
AutoDelete=True
Threads=1
Thread1=-p "HP LaserJet 4050 Series PS" -w C:\PdfPrintSvr\HPLJ -pg 1 1
```

The meaning of these keys and values in this example is as follows:

**AutoDelete=True** This option automatically deletes a PDF file after it is processed successfully. When set to **False**, the processed file is copied to the sub directory `Succeeded`. Documents that fail to print, are never deleted.

**Threads=** The given value stands for the total number of concurrent threads. Each thread can have its own assigned settings. One thread corresponds to one watched folder.

**Threads1=** Sets the options such as name of watched folder and settings etc. for thread 1.

**-p "HP LaserJet 4050 Series PS"** Sets thread 1 to use the printer with this specific name.

**-w C:\PdfPrintSvr\HPLJ** Creates a watched folder with the given name for this thread. The path must be an absolute path. Network mapped drive letters or relative paths or driver letters mapped via the `subst` command are not recognized, because the service process per default runs under the "LocalSystem" account. (The user can be changed as described in [Managing the service](#).)

**-pg 1 1** Sets the page range to page 1 to 1.

This means that any PDF document that is moved or copied to the folder `C:\PdfPrintSvr\HPLJ` is processed by the service and printed using the printer "HP LaserJet 4050 Series PS". Only the first page is printed.

**Note:** Any string, such as a file name, that contains spaces must be enclosed in quotation marks. For example, if the watched folder contains spaces in its path, the entire path needs to be quoted: **-w "C:\A path\with spaces"**.

#### 5.1.1 Retrieve information about available options and settings

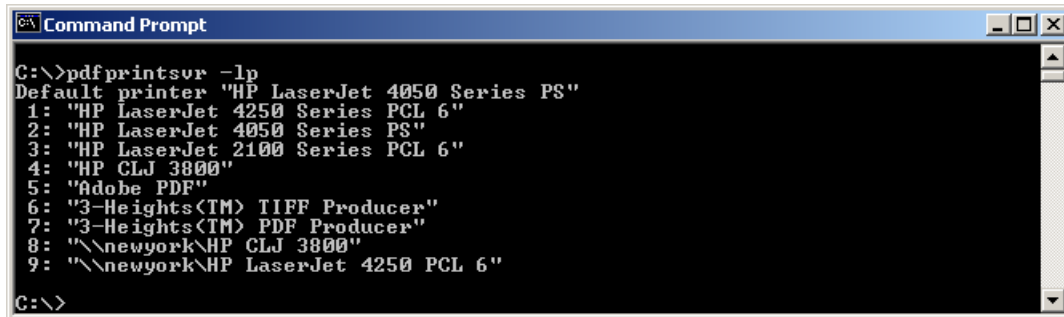
A quick overview of all configuration options and service control commands that the 3-Heights® PDF Printer Service supports can be output in the form of a usage message in the command line.

To display this information, open a Windows command line (`cmd.exe`) and then type:

```
PdfPrintSvr
```

(See also [Service control commands](#))

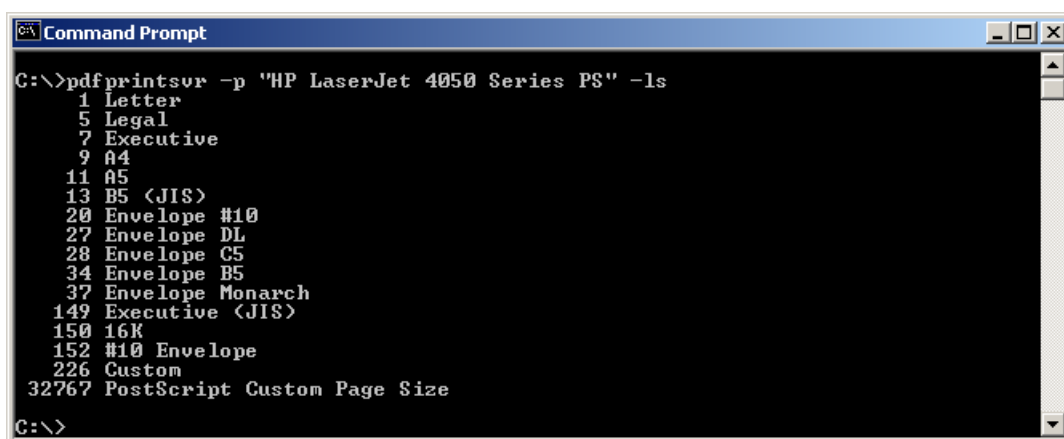
Use the option [-l](#) to get a list of all available printers:



```
C:\>pdfprintsvr -lp
Default printer "HP LaserJet 4050 Series PS"
1: "HP LaserJet 4250 Series PCL 6"
2: "HP LaserJet 4050 Series PS"
3: "HP LaserJet 2100 Series PCL 6"
4: "HP CLJ 3800"
5: "Adobe PDF"
6: "3-Heights(TM) TIFF Producer"
7: "3-Heights(TM) PDF Producer"
8: "\\newyork\HP CLJ 3800"
9: "\\newyork\HP LaserJet 4250 PCL 6"
C:\>
```

The printer names listed with this option can be used in the configuration file PdfPrintSvr.ini.

To list the printer device capabilities of a printer, use the option [-p](#) followed by the printer name (in quotes if there are blanks), and then one of the options to list the bins ([-lb](#)), paper size ([-ls](#)), or duplex mode ([-ld](#)).



```
C:\>pdfprintsvr -p "HP LaserJet 4050 Series PS" -ls
1 Letter
5 Legal
7 Executive
9 A4
11 A5
13 B5 (JIS)
20 Envelope #10
27 Envelope DL
28 Envelope C5
34 Envelope B5
37 Envelope Monarch
149 Executive (JIS)
150 16K
152 #10 Envelope
226 Custom
32767 PostScript Custom Page Size
C:\>
```

A short overview of all the options that can be configured in the PdfPrintSvr.ini is displayed when typing the following in a Windows command line:

```
PdfPrintSvr -i
```

(See also [Listing options](#), [Printer options](#), [Rendering options](#), [File options](#), and [Watermark options](#))

## 5.1.2 Configuration sample

The following configuration file sets up three watched folders (= three threads). Thread 1 and 2 are both for the same printer, but with a different setting, thread 3 is for a different printer.

```
[PdfPrintSvr]
AutoDelete=True
Threads=3
Thread1=-p "HP LaserJet 4050 Series PS" -w E:\HP4050
Thread2=-p "HP LaserJet 4050 Series PS" -w E:\HP4050Duplex -d 2
Thread3=-p "MINOLTA-QMS magicolor 2350" -w E:\Minolta
```

**Important:** Do not use printers that have pop-up message boxes, such as the Adobe PDF printer driver or printing to a file. This locks the service and it needs to be deleted [-d](#) and recreated [-c](#).

## 5.2 Managing the service

Once the configuration is done, the service can be started and controlled by executing PdfPrintSvr.exe on the command line. The path can be omitted if the PdfPrintSvr.exe is included in the %PATH% environment variable.

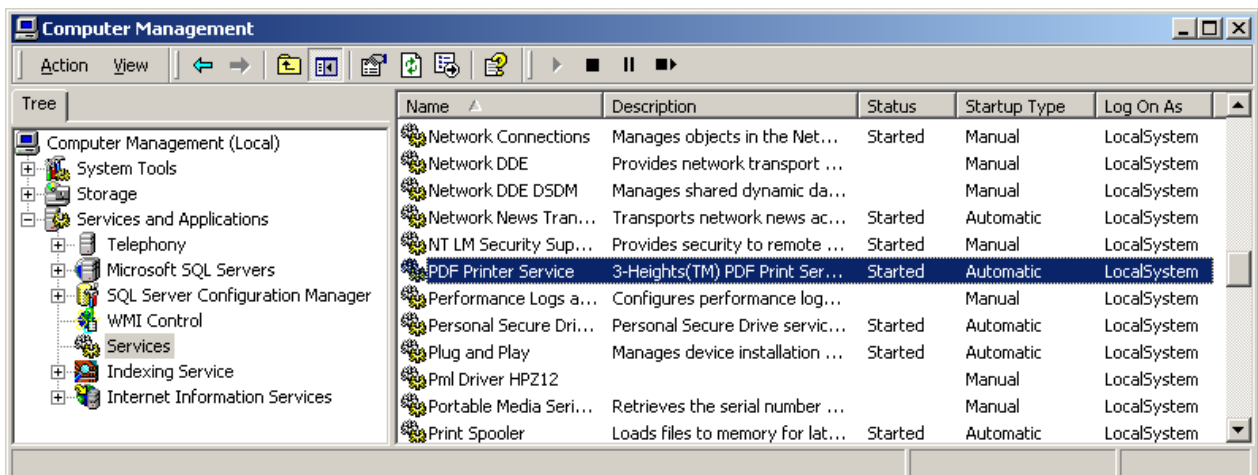
**Note:** It is essential that the executable PdfPrintSvr.exe and the configuration file PdfPrintSvr.ini be on a non-mapped drive.

**Note:** To create or delete the service, administrator permissions are required.

1. To create the service, use the [-c](#) option.

```
PdfPrintSvr -c
```

After executing this command, the service is created. It is now visible in the “Computer Management” window under “Services”. To open the “Computer Management” window, go to Start → Control Panel → Administrative Tools → Computer Management or simply right-click the icon “My Computer” on the desktop and select “manage”. If the services is created correctly, it appears as “3-Heights® PDF Printer Service” as shown in the image below.





2. By default, the 3-Heights® PDF Printer Service runs in the “Local-System” account. After the service has been created, the user can be changed.

This is required in a situation where a network share is used as a watched folder and the process needs to run under a user with the appropriate access permission rights, since the account “LocalSystem” does not have any permissions on remote systems. To change the user, right-click the service in the Services window and select “Properties”. Then change the user in the tab “Log On”.

3. Once created, the service can be started with the option [-s](#).

```
PdfPrintSvr -s
```

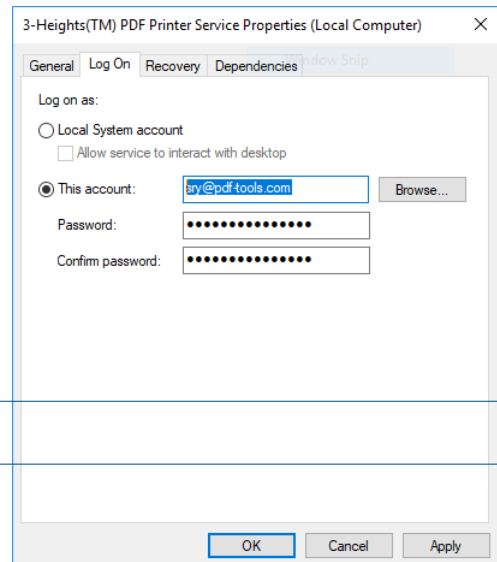
4. Now the 3-Heights® PDF Printer Service is up and running, and files can be moved, copied or drag-and-dropped into the watched folder.
5. To stop the service, use the option [-t](#).

```
PdfPrintSvr -t
```

To restart, use [-s](#) again.

6. To delete the service, use the option [-d](#).

```
PdfPrintSvr -d
```

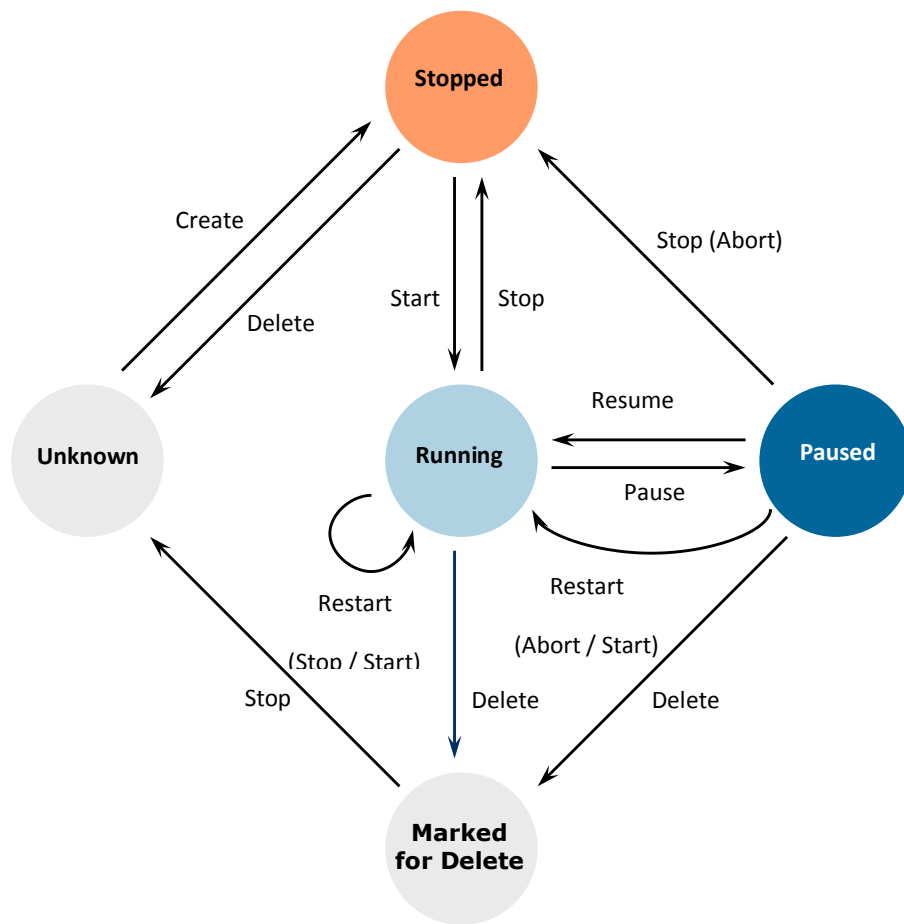


## 5.2.1 Service state diagram

The 3-Heights® PDF Printer Service behaves as described in the state diagram below.

If “Stop” is called when the service is in the “Paused” state, the current job is aborted. This means the current page is finished processing, then the job is terminated.

If “Stop” is called when the service is the “Running” state, the current job (all pages) is finished. Then the service is stopped.



## 5.3 Using the service

Once the service is created and started, the watched folders configured in `PdfPrintSvr.ini` are created automatically. In each watched folder, the following subfolders are created:

- Jobs
- InProgress
- Succeeded
- Failed
- Logs

When a file is moved, copied, or drag-and-dropped into the configured watched folder, the service performs these tasks:

1. Each file is moved to the `Jobs` subfolder. While moving, the file is renamed by adding a 16 character long job-number prefix. This ensures a well-defined processing order and unique file names.
2. A worker-thread takes the file from the `Jobs` folder and moves it to `InProgress`. The file is then processed.
3. Depending on the outcome of the processing, the following is done:

### The file was processed successfully

- The input file is moved to the `Succeeded` folder or it is deleted, depending on whether `AutoDelete` is set to `true` or `false` in the configuration file `PdfPrintSvr.ini`.

### The file was not processed successfully

- The input file is moved to the `Failed` folder or it is deleted, depending on whether `AutoDeleteALL` is set to `true` or `false` in the configuration file `PdfPrintSvr.ini`.

4. In any case, an entry in the log file of this thread is created.

## 5.4 Log files

There are two types of log files.

**The log file per thread** Each thread (watched folder) has a log file. The log file resides in the same directory as the `PdfPrintSvr.exe` executable and the `PdfPrintSvr.ini` configuration file. It is named `PdfPrintSvr-log- $\langle n \rangle$ .txt`, where the number of the log file  $\langle n \rangle$  is increased whenever the service is re-started. The log file is locked by the service as long as the service is running.

- The log file contains general messages (including a timestamp that is not shown here) such as:

```
- [1] Worker thread for directory C:\PdfPrintSvr\Folder started.
```

- Error messages such as:

```
* Error 0 while opening file C:\PdfPrintSvr\Folder\InProgress\Job-...
```

## 6 User guide

### 6.1 Printing single PDF files

When the service is running, it monitors watched folders. When a PDF document is placed into a watched folder, the PDF Printer Service performs these steps:

1. Takes the file, gives it a unique file name by adding a job number prefix, and moves it to the subfolder `Jobs`.
2. When a job is printed successfully, the PDF file is moved to the folder `Succeeded` or deleted, depending settings.
3. When a job fails to print, e.g. when the file is not a valid PDF document, the file is copied to the folder `Failed` or deleted depending on settings.

The subfolders are created automatically and used by the 3-Heights® PDF Printer Service. The subfolders are hidden and should not be modified. No files should be copied into any of them directly.

### 6.2 Printing a list of PDF files

Alternatively, a list of PDF files can be merged into one print job. This is done by copying a control text file (with the file extension `.txt`) into a watched folder. This text file contains a list of PDF files. For example:

Entries in File: <code>printjob1.txt</code>	Explanation
<code>C:\documents\file1.pdf</code>	First document
<code>C:\documents\file2.pdf</code>	Second document

This prints the two referenced files and moves them to the `Succeeded` or `Failed` folder, according to the `AutoDelete` property. The original file(s) are not moved or deleted.

The use of such a list is particularly useful to maintain a predefined order of printing, since all files are merged into a single print job.

The account under which the 3-Heights® PDF Printer Service is running needs to have access to the files listed in the text file. Therefore, you should avoid mapped folders.

Individual optional parameters can be defined within the control file on the line prior to the file name. Example:

Entries in control file	Explanation
<code>-pg 1 1</code>	Setting of the first document
<code>C:\documents\file1.pdf</code>	First document
<code>-pg 2 3</code>	Setting of the second document
<code>C:\documents\file2.pdf</code>	Second document

The following switches are not supported in the control file: `-w`, `-p`.

The following switches are only valid when set before the first input file: `-c`, `-cl`, `-cm`, `-dl`, `-dt`, `-file`, `-load`, `-pri`.

### 6.3 Using multiple watched folders

Let's take the configuration file from [Configuration sample](#).

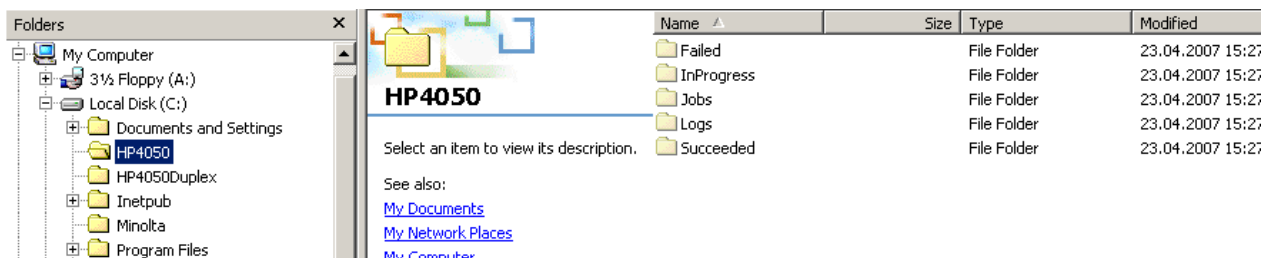
```
[PdfPrintSvr]
PollingInterval=5000
```

```

AutoDelete=True
Threads=3
Thread1=-p "HP LaserJet 4050 Series PS" -w C:\HP4050
Thread2=-p "HP LaserJet 4050 Series PS" -w C:\HP4050Duplex -d 2
Thread3=-p "MINOLTA-QMS magicolor 2350" -w C:\Minolta

```

- This file creates three watched folders: C:\HP4050, C:\HP4050Duplex and C:\Minolta, as shown in the image below:



- Each of these folders has five subfolders: Failed, InProgress, Jobs, Logs, and Succeeded.
- The polling interval is 5000ms (default is 1000ms). This means about every five seconds it is checked if a file has been dropped into any of the watched folders.
- A user can now copy files into any of the directories C:\HP4050, C:\HP4050Duplex or C:\Minolta. (for example, via Terminal Server Session).
- The 3-Heights® PDF Printer Service takes the file and processes it with the appropriate options. If the user places a PDF file into the directory C:\HP4050Duplex, it is moved to C:\HP4050Duplex\Jobs, renamed by adding a 16 character timestamp prefix, and then printed to the printer "HP LaserJet 4050 Series PS" with duplex mode. Finally, it is then deleted.
- The PDF files for each watched folder are printed with a first-in, first-out priority order. However, threads do not have a priority order (which is intended for a multi-threaded environment).

## 6.4 Using watched folders with subdirectories

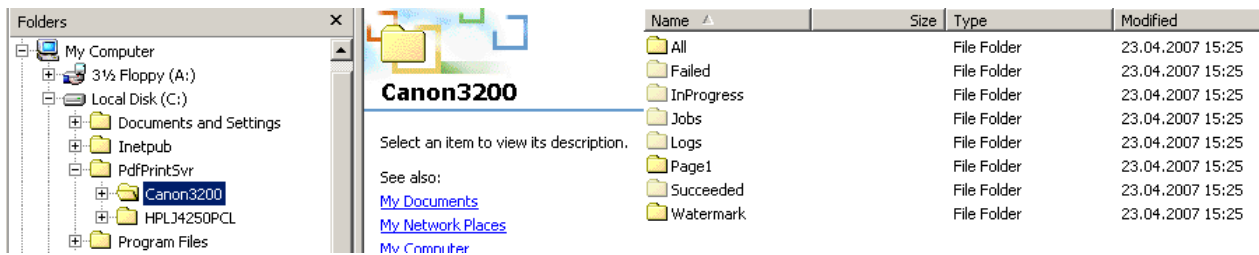
Here is an example of a configuration file that starts two threads: one with two subfolders, the other with three subfolders. In total, there are seven watched directories:

```

[PdfPrintSvr]
AutoDelete=False
Threads=2
Thread1=-p "HP 4250 PCL" -w C:\PdfPrintSvr\HPLJ4250 -f
Folders1=2
Folder1.1=-p "HP 4250 PCL" -w C:\PdfPrintSvr\HPLJ4250\Page1 -pg 1 1
Folder1.2=-p "HP 4250 PCL" -w C:\PdfPrintSvr\HPLJ4250\All
Thread2=-p "Canon LBP3200" -w C:\PdfPrintSvr\Canon3200
Folders2=3
Folder2.1=-p "Canon LBP3200"-w C:\PdfPrintSvr\Canon3200\Page1 -pg 1 1
Folder2.2=-p "Canon LBP3200"-w C:\PdfPrintSvr\Canon3200\All
Folder2.3=-p "Canon LBP3200"-w C:\PdfPrintSvr\Canon3200\Watermark -wo 90 90
-wt "12"

```

After the service is started, the following file structure is created:



## 6.5 Color profiles

A PDF document may contain graphical objects using various different color spaces and the printout of 3-Heights® PDF Printer Service 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 Service requires appropriate 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 Neugebauer, 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 Service.

### 6.5.1 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 PdfPrintSvr.exe resides.

### 6.5.2 Get other color profiles

Most systems have pre-installed color profiles available. For example, on Windows at %SystemRoot%\system32\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>

## 6.6 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 Service is run under that user and the user profile is loaded.

## 6.6.1 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 Service. 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](#).

## 6.6.2 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 `PdfPrintSvr.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\_\***.

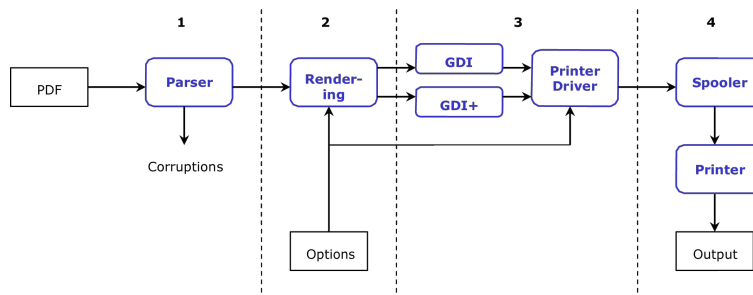
#### Example:

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

## 6.7 Printing workflow

### 6.7.1 Local

Below is a simplified flow chart of the 3-Heights® PDF Printer Service 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 Service. 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 Service 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 Service 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.

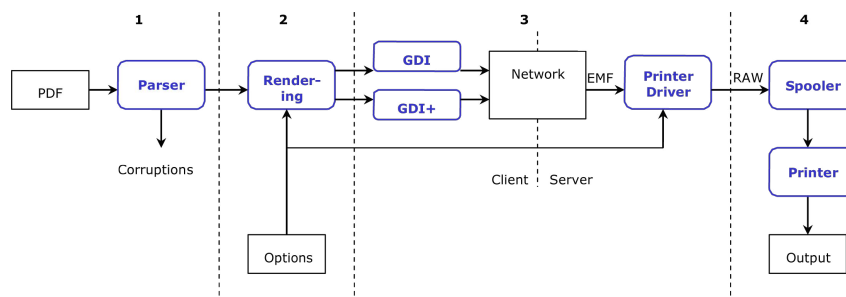
## Spooler and printer device

Steps 1, 2, and 3 are under control of the 3-Heights® PDF Printer Service 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".

### 6.7.2 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.

# 7 Interface reference

## 7.1 Service control commands

These options are used to control the service. The create and delete functions require administrator rights. The start and stop functions require operator rights.

### 7.1.1 -a Pause service

**Pause service** -a

This option pauses the service.

```
PdfPrintSvr -a
```

### 7.1.2 -c Create service

**Create service** -c

The 3-Heights® PDF Printer Service is created using the -c option.

```
PdfPrintSvr -c
```

**Important:** It is essential that PdfPrintSvr.exe is on a non-mapped drive.

### 7.1.3 -d Delete service

**Delete service** -d

The 3-Heights® PDF Printer Service can be deleted with the -d option. It is best used after the service has already been stopped.

```
PdfPrintSvr -d
```

### 7.1.4 -i List the usage

**List the usage** -i

The -i option lists the current version and date of the service along with all available settings.

```
PdfPrintSvr -i
```

### 7.1.5 -o Continue service

**Continue service** -o

This option resumes the service.

```
PdfPrintSvr -o
```

### 7.1.6 -q Query current status of service

**Query current status of service** -q

This option returns the current status of the service.

```
PdfPrintSvr -q
The service starts automatically during system startup.
The service is stopped.
[PdfPrintSvr] QueryService: The operation completed successfully.
```

### 7.1.7 -s Start service

**Start service** -s

Once created, the 3-Heights® PDF Printer Service can be started with the -s option.

```
PdfPrintSvr -s
```

### 7.1.8 -t Stop service

**Stop service** -t

To stop the service, use the -t option.

```
PdfPrintSvr -t
```

If “stop” is called while the service is “running”, the current job (all pages) will be finished, after that the service is stopped.

If the service was “paused” before calling “stop”, the current page will be finished processing. After that page, the job is aborted.

### 7.1.9 -x Run as executable

**Run as executable** -x

With this option, the PDF Printer Service runs as an executable instead of as a Windows Service. It provides the same functionality as long as the executable is "running".

```
PdfPrintSvr -x
```

## 7.2 Configuration options

### 7.2.1 PdfPrintSvr.ini configuration file

The PdfPrintSvr.ini configuration file defines the setting for the watched folders. It is read on starting the service.

[PdfPrintSvr]	Required	
AutoDelete=...	Optional	true or false
AutoDeleteAll=...	Optional	true or false
LogPath=...	Optional	Either a path like C:\mypath\log or the keyword EventLog
PollingInterval=...	Optional	Value in milliseconds, default 1000
JobPrefix=...	Optional	true or false
LogLevel=...	Optional	0 or 1
Threads=n	Required	The number of threads
Thread1=-w ...	Required	Options for the first thread
Thread2=-w ...		Options for the second thread
Folders1=m	Optional	
Folder1.1=-p ...	Optional	
Folder1.2=-p ...	Optional	
Folder1.m=...		There must be exactly as many folders (Folder1.*) as defined in Folders1=m.
Threadn=...		There must be exactly as many threads as defined in Threads=n.

Example:

```
[PdfPrintSvr]
AutoDelete=true
JobPrefix=false
Threads=2
Thread1=-p "HP LaserJet 4050 Series PS" -w C:\PdfPrintSvr\4050PS
```

```
Thread2=-p "HP LaserJet 4050 Series PS" -w C:\PdfPrintSvr\4050PS_WM  
-wo 100 100 -wt "TEST TEST TEST TEST" -f
```

For a sample with folders, see [Create watched subfolders](#).

## Autodelete of successfully printed files

When a print job succeeded, the PDF document will be moved from the `Jobs` folder to the `Succeeded` folder. To automatically delete the successfully printed files, the value `AutoDelete` can be set to `true` on the `PdfPrintSvr.ini` file. When set to `false`, the files remain in the folder `Succeeded`. Documents which fail to print are not deleted.

```
[PdfPrintSvr]  
AutoDelete=true
```

To delete failed documents as well, use the following setting:

```
[PdfPrintSvr]  
AutoDeleteAll=true
```

## Job number prefix

Every time a document is copied from the watched folder to the `Jobs` subfolder, it is renamed by adding a 21 character prefix containing a timestamp of the form `Job-<8 digits>-<8 digits>_`. For example

`Job-01C61DD4-E72E1BCE_`

**Note:** When `JobPrefix=false` then the incoming documents must have unique file names.

The job number prefix ensures that several documents with the same name can correctly be processed. Adding the prefix can be prevented with the following line in the configuration file:

```
[PdfPrintSvr]  
JobPrefix=false
```

Not adding a prefix makes sense if printing to a virtual printer and the job name is directly converted to the file name. Keep in mind though that if two files with the same name are printed, the latter overwrites the former.

## Logpath

Log messages created by the service are by default written to the `log` subdirectory. To alter the directory, add a line similar as shown below to the configuration file:

```
[PdfPrintSvr]  
LogPath=C:\path\log
```

Messages created by the service can be added to the system's application event log instead of written to a log file. This is achieved by adding the following line to the configuration file:

```
[PdfPrintSvr]
```

```
LogPath=EventLog
```

The system's application log event then logs messages similar as shown below:

- CreateService: The operation completed successfully.
- StartService: The operation completed successfully.

**Note:** The messages are only fully accessible while the service is created.

Otherwise, a message as shown below is displayed:

- The description for Event ID (1) in Source (PdfPrintSvr) cannot be found. The local computer may not have the necessary registry information or message DLL files to display messages from a remote computer. The following information is part of the event: DeleteService: The operation completed successfully.

## Polling interval

The polling interval defines the time in milliseconds that the polling thread pauses between two polls. The time passing until the same watched folder is polled again (maximum pick-up time) is: The value of `PollingInterval` plus the actual time it takes to poll all watched folders. The higher the polling interval, the lower the network traffic, and the longer it takes until documents are picked up.

Suggested values for the polling intervals are 1000 to 10000 milliseconds.

```
[PdfPrintSvr]  
PollingInterval=5000
```

## 7.2.2 -p Select a printer

**Select a printer** -p

When the printer is not specified, 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 switch `-l` switch.

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

**Example:** Print to a local printer

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

**Example:** Print to a remote printer

```
-p "\\PrinterHost\MINOLTA-QMS magicolor 2350"
```

There are two types of remote printers:

1. The printer is connected to a remote host (or is a network printer and its own host), and the printer driver is installed or shared on the local machine. These are the remote printers that are listed by the `-lb \\host` option.

2. The printer and the printer driver are on a remote host. These are the remote printers, which are not listed by the `-lb \\host` option.

By default, the 3-Heights® PDF Printer Service is running under the LocalSystem account. The LocalSystem has permission rights to print to local and shared remote printer drivers (1), but not to remote printer drivers (2).

To print to remote printer drivers, the account under which the service is running needs to be changed to an account that has the appropriate permission rights on the remote systems. This can be done in the Services Window by right clicking the 3-Heights® PDF Printer Service and choosing properties and then selecting the user in the “Log On” menu.

For printing via HTTP, see [Internet printing](#).

### 7.2.3 -w Set the watched folder

#### Set the watched folder `-w`

Use the `-w` option to define the path of the watched folder. This path should not contain mapped drives, since other users (such as LocalSystem) do not recognize them. This parameter must always be the first parameter of a thread.

```
-w C:\output\watchedfolder
```

**Note:** The service supports path lengths including file name of up to 258 characters. This includes the 21 characters of the job ticket. If a file name exceeds this value, its file name is truncated at the end of the file name and before the file extension. Therefore, watched folder names should be kept reasonably short.

### 7.2.4 -wfi Ignore files with certain extensions

#### Ignore files with certain extensions `-wfi <exts>`

By default, the service tries to process all files dropped into the drop-in folder, regardless of the extension. With this option, files with certain file extensions can be ignored.

**Example:** Ignore temporary files.

```
-wfi .temp.tmp
```

### 7.2.5 -wfs Process only files with certain extensions

#### Process only files with certain extensions `-wfs <exts>`

By default, the service tries to process all files dropped into the drop directory, regardless of the extension. With this option, the processing can be restricted to a set of known file extensions.

**Example:** Restrict the processing to PDF and FDF files.

```
-wfs *.pdf.fdf
```

## 7.2.6 -wd Set the drop in folder

**Set the drop in folder** -wd

By default, the drop in folder is equal to the folder defined as watched folder using the **-w** option. If the input files should be taken from a different folder, this can be configured using **-wd**. All folders created by service, including the output folder, are at the directory defined by **-w**.

The drop directory can be at any existing (network-) location. It is required that:

- The directory exists (it is not automatically created, unlike the root directory).
- The user under which the service runs has access permissions to this directory.

```
-wd C:\SomePath\DropIn
```

## 7.2.7 Create watched subfolders

The 3-Heights® PDF Printer Service supports watched subfolders. A watched (root-) folder represents a thread. All subfolders belong to the same thread. This saves memory and creates a more compact directory structure.

The root folder and all its subfolders can have individual settings. Any output (**Log**, **Succeeded** or **Failed**) are shared in the root folder.

If a thread is to watch subdirectories, the number of subdirectories is defined in the configuration file using a statement:

```
Folders<thread number>=<number of sub folders>
```

The individual subfolders are defined using a statement:

```
Folder<thread number>.<sub folder number>=<equal statement as for root folder>
```

The subfolders do not inherit any settings from the root folder. Therefore, the printer driver name must be provided in the subfolders. See also [Using watched folders with subdirectories](#).

```
[PdfPrintSvr]
AutoDelete=False
Threads=1
Thread1=-p "printer driver name" -w C:\Root
Folders1=2
Folder1.1=-p "printer driver name" -w C:\Root\FitPage -f
Folder1.2=-p "printer driver name" -w C:\Root\PrintPage1 -pg 1 1
```

## 7.2.8 Delayed file delete

Documents that are processed and moved into the folders **Succeeded** or **Failed** can be deleted with a delay. The delay is defined with the statements **KeepTimeForSucceeded** and **KeepTimeForFailed** in the configuration file. The units are hours. It is required to set **AutoDelete** to **false**.



**Example:** The following configuration deletes the successfully spooled files after 1 day and the failed documents after 2 days.

```
[PdfPrintSvr]
AutoDelete=False
KeepTimeForSucceeded=24
KeepTimeForFailed=48
```

The times are absolute, which means that restarting the service has no influence on the time of deletion (except that the files are not deleted while the service is shut down).

## 7.2.9 Configure log file

The log file, which is kept in the directory where the executable resides, by default logs documents that cannot be processed successfully. To log successfully printed documents also, adjust the setting for `LogLevel=<n>`. (0: All messages, 1: Error messages only.)

```
[PdfPrintSvr]
LogLevel=0
```

## 7.3 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 in the configuration file.

### 7.3.1 -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

```
PdfPrintSvr -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

```
PdfPrintSvr -p "HP LaserJet 4050 Series PCL" -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`.

## 7.3.2 -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

```
PdfPrintSvr -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

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

## 7.3.3 -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

```
PdfPrintSvr -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.

**Example:** List paper bins on a specific printer

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

## 7.3.4 -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:

```
PdfPrintSvr -ld
```

The list could look like this:

```
5310: Custom duplex mode
```

## 7.3.5 -lm List media types

**List media types** -lm

List all media types supported by a printer.

**Example:** List media types of a specific printer.

```
PdfPrintSvr -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
```

## 7.3.6 -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.

**Example:** List all paper sizes for the Windows default printer.

```
PdfPrintSvr -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.

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

## 7.4 Printer options

All configuration options are set in the configuration file `PdfPrintSvr.ini`. Some of the parameters need to be retrieved first using the listing options (see previous chapter).

If an option is set multiple times, the last instance set is valid.

### 7.4.1 -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

```
-b 1 -p "MINOLTA-QMS magicolor 2350"
```

## 7.4.2 -band Using banding for bitmaps

**Using banding for bitmaps** `-band <n>`

The 3-Heights® PDF Printer Service 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

```
-band 8 -p "My Good Old Printer 1988"
```

## 7.4.3 -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

```
-c 3
```

See also [-cl](#) ("collate mode") and [-cm](#) ("copy mode") options.

## 7.4.4 -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.

```
-cl 1 -c 2
```

7.4.5 -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 Service delegates the handling of multiple copies to the printer driver. Every page is only printed once by the 3-Heights® PDF Printer Service. 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 Service 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.

7.4.6 -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

-d 2

If the default modes do not work, then try a custom duplex mode. The list of all custom duplex modes can be received using the command

-p "-- your printer here --" -ld

7.4.7 -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 on the same command line 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`.

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

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

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

## 7.4.8 -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.

## 7.4.9 -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.

## 7.4.10 -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 PdfPrintSvr.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 Service 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.
- Print a file.
- Search the log for DLLs which are loaded multiple times.

## 7.4.11 -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.

## 7.4.12 -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

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

### 7.4.13 -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.

**Example:** Print to a local printer

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

**Example:** Print to a remote printer

```
-p "\\PrinterHost\MINOLTA-QMS magicolor 2350"
```

There are two types of remote printers:

1. The printer is connected to a remote host (or is a network printer and its own host), and the printer driver is installed or shared on the local machine. These are the remote printers that are listed by the [-lb \\host](#) option.
2. The printer and the printer driver are on a remote host. These are the remote printers, which are not listed by the [-lb \\host](#) option.

By default, the 3-Heights® PDF Printer Service is running under the LocalSystem account. The LocalSystem has permission rights to print to local and shared remote printer drivers (1), but not to remote printer drivers (2).

To print to remote printer drivers, the account under which the service is running needs to be changed to an account that has the appropriate permission rights on the remote systems. This can be done in the Services Window by right clicking the 3-Heights® PDF Printer Service and choosing properties, and then selecting the user in the "Log On" menu.

For printing via HTTP, see [Internet printing](#).

### 7.4.14 -pri Set print job priority

**Set print job priority** -pri <priority>

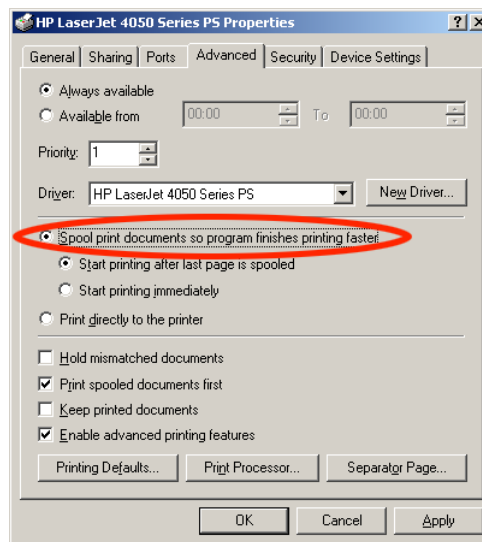
This switch lets you adjust the priority of the print job. The parameter passed as argument to the switch must be a value from 1 (lowest) to 99 (highest). The default is inherited from the printer preferences, which is normally set to 1.

**Example:** Grant the print job priority 2

```
-pri 2
```

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.



## 7.4.15 -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.

```
-s 9 -p "HP LaserJet 4050 Series PS"
```

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 Service 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

```
-s -2 -p "HP LaserJet 4050 Series PS"
```

## 7.4.16 -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"
```

## 7.4.17 -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.

## 7.4.18 -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 Service exits with return code 5.

## 7.4.19 -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%

```
-s 9 -f -sxy 90 -p "HP LaserJet 4050 Series PS"
```

## 7.4.20 -z Wait for print job completion to check final status

**Wait for print job completion to check final status** -z

Wait until spooler reports that the job has been completed. This allows the 3-Heights® PDF Printer Service to get the final status of the print job.

## 7.5 Rendering options

### 7.5.1 -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.

**1cms** (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

```
-cms neugebauer
```

## 7.5.2 -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.

## 7.5.3 -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.

```
-co 2
```

## 7.5.4 -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.

## 7.5.5 -f2 Insert filler page

**Insert filler page** -f2

This switch instructs the printer to conditionally insert a filler page before the next document is printed to start the next document on an even page number.

There is an equivalent option **-f4** available. This option inserts filler pages, so the next document starts on page number that is a multiple of four. This can be used when printing two pages on one paper.

## 7.5.6 -file Print to a file

**Print to a file** -file <file name>

A print job can be printed to a file in two different ways.

The **-file <file name>** option can be applied in the PdfPrintSvr.ini configuration file to print a file instead of the sending the print job to a physical printer. This option overrules the port configured in the printer driver. (All print jobs go to the same file name and therefore, overwrite each other.)

The port of the printer driver points to an absolute file name. (Setting the port to FILE causes a pop-up dialog asking for the file destination. This pop-up message is not visible as the service is usually running on a different machine and/or under a different user such as LocalSystem.)

## 7.5.7 -fo Enable options by file name convention

**Enable options by file name convention** -fo

If this switch is set for a watched folder, the service parses the file name for options. This means options such as **-f** or **-pg 1 1** can be contained in the file name directly, rather than in the configuration for a watched folder. Spaces are replaced by the underscore character. Options set by file name convention are combined with other options. The precedence from lowest to highest is: watched folder options, job control file options, file name convention options.

The following switches are not supported by the file name convention: **-w**, **-p**, **-dl**, **-file**, **-load**.

**Example:** Have a look at the configuration file below: Thread 1 prints only the first page (**-pg 1 1**) and scales the page to fit the paper (**-f**). Thread 2 prints all pages and scales the pages to fit the paper. Additionally, it parses the file names for additional options (**-fo**).

```
[PdfPrintSvr]
AutoDelete=True
Threads=2
Thread1=-p "HP LaserJet 4050 PS" -w C:\HP4050 -pg 1 1 -f
Thread2=-p "HP LaserJet 4050 PS" -w C:\HP4050-FileNameConvention -f -fo
```

If **-pg\_2\_2\_file1.pdf** is the file name of a PDF document with two pages and it is dropped into the watched folder **e:\HP4050**, it is scaled when printing and only page 1 is printed. If the same file is dropped into the second watched folder, the file name convention **-pg 2 2** takes precedence over the watched folder options and only page 2 is printed, fit page to paper size is applied.

## 7.5.8 -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, PdfPrintSvr recognizes this and the option is ignored.

## 7.5.9 -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

```
-m 1
```

**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.

## 7.5.10 -o1 Convert to Type1

**Convert to Type1** -o1

Convert embedded fonts to Type1 fonts (PostScript fonts).

## 7.5.11 -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.

## 7.5.12 -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.

### 7.5.13 -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.

### 7.5.14 -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 [-oi](#) switches should preferably be used, since they provide a better result and smaller spool file.

### 7.5.15 -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.

### 7.5.16 -od Disable back buffer

**Disable back buffer** -od

The 3-Heights® PDF Printer Service 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.

### 7.5.17 -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.

### 7.5.18 -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.

### 7.5.19 -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.

### 7.5.20 `-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.

### 7.5.21 `-on` Disable form fields and annotations

**Disable form fields and annotations** `-on`

Do not print form fields and annotations.

### 7.5.22 `-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.

### 7.5.23 `-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.

### 7.5.24 `-ops` Disable direct PostScript injection

**Disable direct PostScript injection** `-ops`

This 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.

### 7.5.25 `-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.

## 7.5.26 -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.

## 7.5.27 -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.

## 7.5.28 -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.

## 7.5.29 -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.

## 7.5.30 -pg Page range

**Page range** -pg <first> <last>

This switch lets you select a specific print range in the document. Use negative numbers to address 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

-pg 2 5

**Example:** Print from 10<sup>th</sup> to last page

-pg 10 -1

7.5.31 -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

-q -4

7.5.32 -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.

7.5.33 -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.

7.5.34 -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.

```
-rm p
```

## 7.5.35 -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

```
-tt 3
```

## 7.5.36 -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.

```
-wh 400 400
```

## 7.5.37 -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

```
-xy 200 100
```

## 7.6 File options

### 7.6.1 Positional arguments

In general, all options specified in the configuration file apply to all documents printed.

To specify options that apply only to a limited page range, the file and its options can be grouped in a single argument. For option arguments that are usually in quotes, double quotes must be used.

**Example:** Print all pages duplex

Without the use of positional arguments, the `-d 2` option applies to all pages.

```
Thread1=-p "HP LaserJet 4050 Series PS" -w C:\\PdfPrintSvr -d 2 -pg 1 -1
```

**Example:** Print the first page simplex and all others vertical duplex

```
Thread1=-p "HP LaserJet 4050 Series PS" -w C:\\PdfPrintSvr ^  
"-pg 1 1 -d 1" ^  
"-pg 2 -1 -d 2"
```

**Example:** Print a watermark on the first page but not on all other pages

As the watermark text "This text has spaces" contains spaces, it must be surrounded by double quotes. The watermark text must be cleared manually for the second page range by setting the `-wd` option.

```
Thread1=-p "HP LaserJet 4050 Series PS" -w C:\\PdfPrintSvr ^  
"-pg 1 1 -wo 200 200 -wt ""This text has spaces"" " " ^  
"-pg 2 -1 -wd"
```

**Important:** Options that are set for a page range are also set for all following page ranges, if not explicitly overwritten by new options. This is why you need to delete watermarks for following pages in the last watermark example.

## 7.6.2 -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:

```
-pw mypassword
```

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

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

## 7.7 Watermark options

The 3-Heights® PDF Printer Service 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.

```
-wb 1 -wo 50 500 -wt "Bold"
```

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

```
-wt "Bold" -wb 1 -wo 50 500
```

### 7.7.1 -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

## 7.7.2 -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.

## 7.7.3 -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"






```
-wb 1 -wo 50 500 -wt "Bold" -wb 0 -wo 50 550 -wt "Not Bold"
```

## 7.7.4 -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"

```
-wc 255 0 0 -wo 50 50 -wt "Red Text"
```

## 7.7.5 -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.

```
-wf Times 242 -wo 50 500 -wt Text
```

## 7.7.6 -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.

## 7.7.7 -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"

```
-wi 1 -wo 50 500 -wt "Italic" -wi 0 -wo 50 550 -wt "Not Italic"
```



## 7.7.8 -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).

```
-wo 100 200 -wt mywatermark
```

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.

## 7.7.9 -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.

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

## 7.7.10 -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.

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

## 7.7.11 -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

```
-wf Times 242 -ws 1 -wo 50 500 -wt Text
```

## 7.7.12 -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

```
-wt "This is my watermark"
```

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
%ds	Short date
%d1	Long date
%dt	Time

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
%j1	Long job list name without path

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

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

**Example:** Add the page numbers as watermark text

```
-wt "page %pi of %pn"
```

### 7.7.13 -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.

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

### 7.7.14 -wd Clear watermark

**Clear watermark** -wd

Use the -wd option to clear previously defined watermarks. This option is typically used as a [Positional arguments](#).

**Example:** Print first file with watermark text and second without

```
Thread1=-p "HP LaserJet 4050 Series PS" "-pg 1 1 ^"  
-wo 200 200 -wt ""This text has spaces"" " "-pg 2 -1 -wd"
```

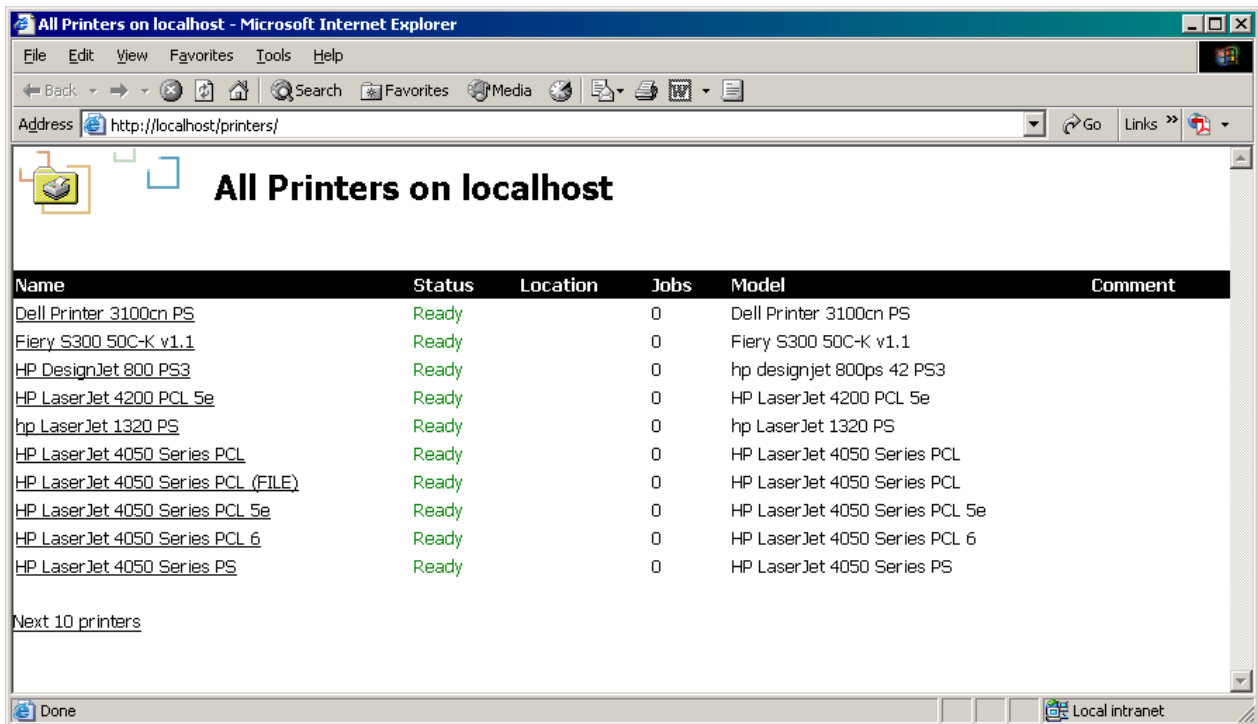
## 7.8 Internet printing

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.

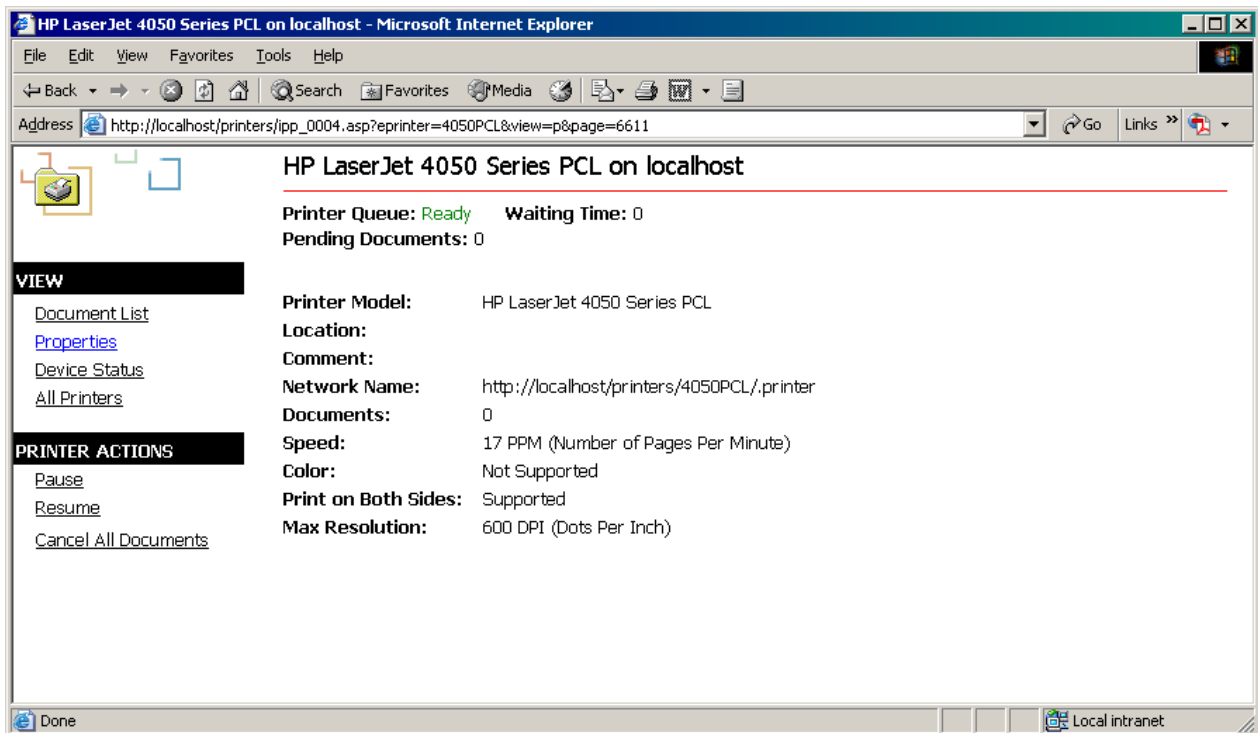
### 7.8.1 Retrieve the printer name

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.

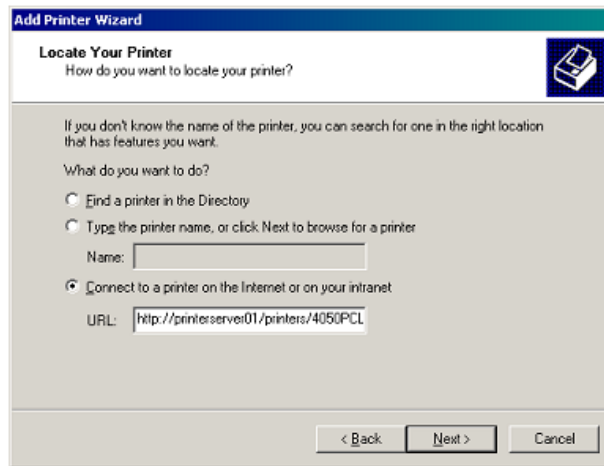
Then click "Properties" on the left hand side. You should see the properties, including the network name of the printer.



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`.

## 7.8.2 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.

## 7.8.3 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:

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

(Note the two backslashes before the http.)

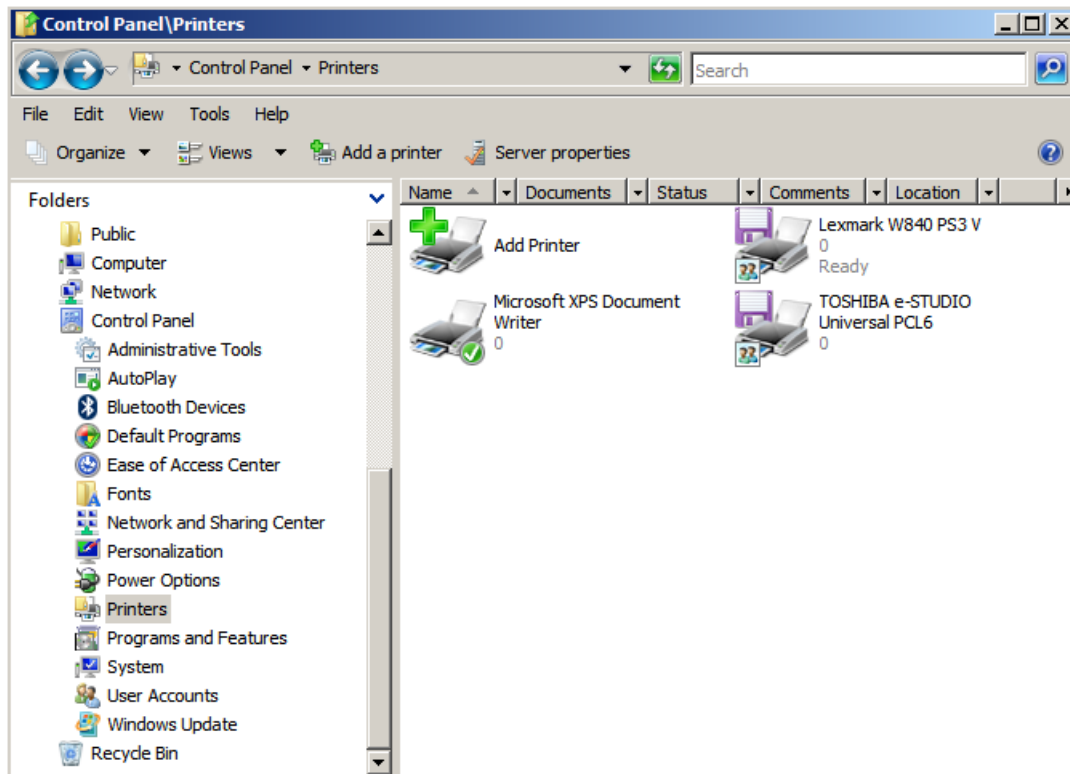
Keep in mind that using a printer via an Internet connection as described above may be unstable.

# 8 Troubleshooting

## 8.1 General

### 8.1.1 Printer is not listed

Verify the printer is installed correctly and the user under which the 3-Heights® PDF Printer Service is running has access to it. Go to “Control Panel” → “Printers” to see what printers are installed. When using a local printer, it must be listed in this window to be used.

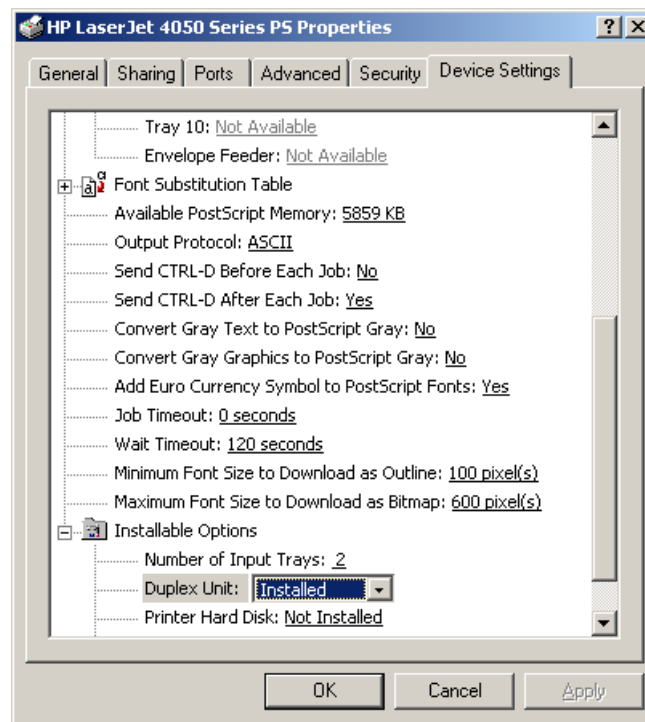


### 8.1.2 Blank output

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.

### 8.1.3 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.

### 8.1.4 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.

### 8.1.5 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:

```
-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:

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

### 8.1.6 Printer settings or device mode ignored

Some printer drivers ignore some properties set at the 3-Heights® PDF Printer Service. 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 Service, 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).

### 8.1.7 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.

### 8.1.8 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.

## 8.2 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

### 8.2.1 Rendering mode

The 3-Heights® PDF Printer Service 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.

### 8.2.2 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.

### 8.2.3 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.

## 8.2.4 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.

## 8.3 Cannot access resource

The 3-Heights® PDF Printer Service runs by default under the LocalSystem user. This user does not have access to any remote resources, such as printers on a remote host or if a watched folder is on a shared folder. In a network environment, it is best to run the service under a dedicated domain user that has the required permissions on remote resources.

A typical error message if a remote printer cannot be accessed is `<time> * Error <error_number> while opening printer \\<server_name>\<printer_name>`.

In the service log, the error message looks like this:

```
2007-03-01 12:10:07.590 * Error 5 while opening printer \\Server01\HP
LaserJet 4050 Series PS.
```

See [Managing the service](#), which describes how to set the service user.

A similar behavior can occur if a (local or remote) resource is on a mapped drive, which is not known to the user of the service. E.g. if the `subst` command is used to map a directory to drive `Z:`, the drive `Z:` may be unknown to other users.

## 8.4 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.

## 8.5 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](#).
  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.

### 8.5.1 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<sup>1</sup> 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<sup>2</sup>. 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.

<sup>1</sup> e.g. Times-Roman, Helvetica, Courier

<sup>2</sup> The outline of a glyph is a vector graphic without any reference to the original font program.

## 8.5.2 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.

## 8.6 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.

## 9 Version history

### 9.1 Changes in versions 6.19–6.27

- **Update** license agreement to version 2.9

### 9.2 Changes in versions 6.13–6.18

No functional changes.

### 9.3 Changes in versions 6.1–6.12

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

### 9.4 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`.

### 9.5 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.

### 9.6 Changes in version 4.11

- **New** support for reading PDF 2.0 documents.

### 9.7 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.

### 9.8 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 `-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.

## 9.9 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** feature “positional arguments”, which allows for selected sets of pages within the printed document to be printed using different options.
- **New** option `-wg` to move watermark to background layer.
- **New** option `-wa` to change text alignment of watermark.

## 10 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 1/2 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