

User Manual



3-Heights™ PDF Merge Split Shell

Version 4.7



PDF-TOOLS.COM
Premium PDF Technology

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1 Introduction

The purpose of the 3-Heights™ PDF Merge Split Shell is to either merge several PDF files into one output file or to split one or several PDF files into several output files.

2 Installation

2.1 Windows

The 3-Heights™ PDF Merge Split Shell comes as a ZIP archive containing various files including runtime binary executable code, files required for the developer, documentation and license terms.

1. Download the ZIP archive of the product from your download account at <https://www.pdf-tools.com>.
2. Unzip the file using a tool like WinZip available from WinZip Computing, Inc. at <http://www.winzip.com> to a directory on your hard disk where your program files reside (e.g. C:\Program Files\PDF Tools AG)
3. Check the appropriate option to preserve file paths (folder names). The unzip process now creates the following subdirectories:

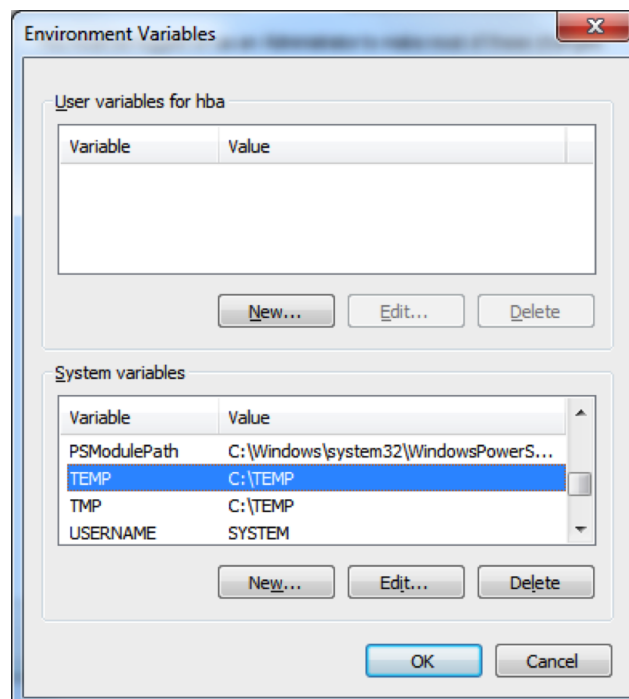
Subdirectory	Description
bin	Contains the runtime executable binary code.
doc	Contains documentation files.

4. To easily use the 3-Heights™ PDF Merge Split Shell from a shell, the directory needs to be included in the “Path” environment variable.
5. Optionally register your license key using the [License Management](#).

2.1.1 How to set the Environment Variable “Path”

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

Select “Path” and “Edit”, then add the directory where pdfsplmrg.exe is located to the “Path” variable. If the environment variable “Path” does not exist, create it.



2.2 Unix

This section describes installation steps required on all Unix platforms, which includes Linux, Mac OS X, Sun Solaris, IBM AIX, HP-UX, FreeBSD and others.

2.2.1 All Unix Platforms

1. Unpack the archive in an installation directory, e.g. `/opt/pdf-tools.com/`
2. Copy or link the executable into one of the standard executable directories, e.g:

```
ln -s /opt/pdf-tools.com/bin/pdfsplmrg /usr/bin
```

3. Verify that the GNU shared libraries required by the product are available on your system:
 - *On Linux:*

```
ldd pdfsplmrg
```

- *On AIX:*

```
dump -H pdfsplmrg
```

In case you have not installed the GNU shared libraries yet, proceed as follows:

- a. Go to <http://www.pdf-tools.com> and navigate to "Support" → "Resources".
 - b. Download the GNU shared libraries for your platform.
 - c. Extract the archive and copy or link the libraries into your library directory, e.g `/usr/lib` or `/usr/lib64`.
 - d. Verify that the GNU shared libraries required by the product are available on your system now.
4. Optionally register your license key using the [Command Line License Manager Tool](#).

2.3 Note about the Evaluation License

With the evaluation license the 3-Heights™ PDF Merge Split Shell automatically adds a watermark to the output files.

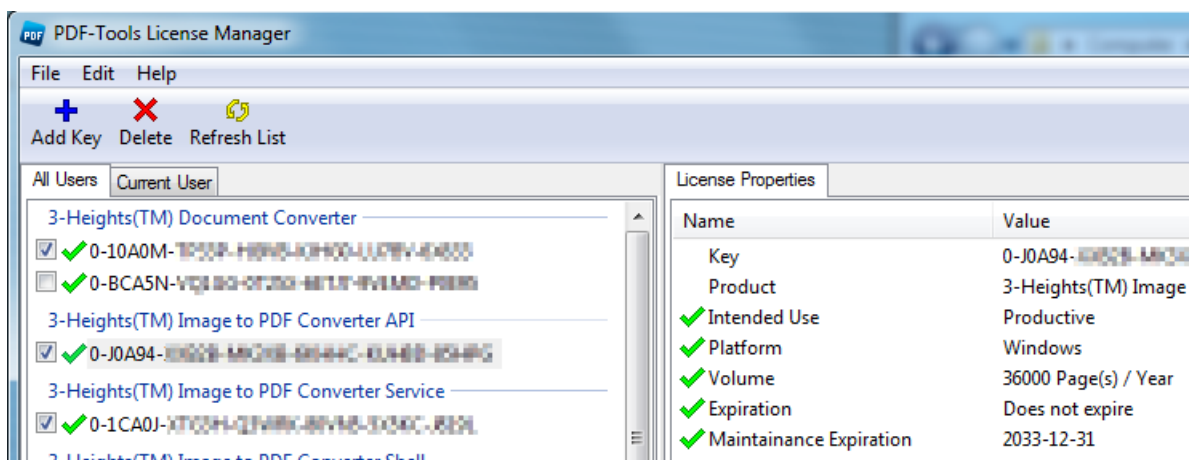
3 License Management

There are three possibilities to pass the license key to the application:

1. The license key is installed using the GUI tool (graphical user interface). This is the easiest way if the licenses are managed manually. It is only available on Windows.
2. The license key is installed using the shell tool. This is the preferred solution for all non-Windows systems and for automated license management.
3. The license key is passed to the application at run-time via the switch `-lk`. This is the preferred solution for OEM scenarios.

3.1 Graphical License Manager Tool

The GUI tool `LicenseManager.exe` is located in the `bin` directory of the product kit.



3.1.1 List all installed license keys

The license manager always shows a list of all installed license keys in the left pane of the window. This includes licenses of other PDF Tools products. The user can choose between:

- Licenses available for all users. Administrator rights are needed for modifications.
- Licenses available for the current user only.

3.1.2 Add and delete license keys

License keys can be added or deleted with the "Add Key" and "Delete" buttons in the toolbar.

- The "Add key" button installs the license key into the currently selected list.
- The "Delete" button deletes the currently selected license keys.

3.1.3 Display the properties of a license

If a license is selected in the license list, its properties are displayed in the right pane of the window.

3.1.4 Select between different license keys for a single product

More than one license key can be installed for a specific product. The check-box on the left side in the license list marks the currently active license key.

3.2 Command Line License Manager Tool

The command line license manager tool `licmgr` is available in the `bin` directory for all platforms except Windows. A complete description of all commands and options can be obtained by running the program without parameters:

```
licmgr
```

List all installed license keys:

```
licmgr list
```

The currently active license for a specific product is marked with a star `'*'` on the left side.

Add and delete license keys:

Install new license key:

```
licmgr store X-XXXXXX-XXXXXX-XXXXXX-XXXXXX-XXXXXX
```

Delete old license key:

```
licmgr delete X-XXXXXX-XXXXXX-XXXXXX-XXXXXX-XXXXXX
```

Both commands have the optional argument `-s` that defines the scope of the action:

- g** For all users
- u** Current user

Select between different license keys for a single product:

```
licmgr select X-XXXXXX-XXXXXX-XXXXXX-XXXXXX-XXXXXX
```

3.3 License Key Storage

Depending on the platform the license management system uses different stores for the license keys.

3.3.1 Windows

The license keys are stored in the registry:

- "HKLM\Software\PDF Tools AG" (for all users)
- "HKCU\Software\PDF Tools AG" (for the current user)

3.3.2 Mac OS X

The license keys are stored in the file system:

- /Library/Application Support/PDF Tools AG (for all users)

- ~/Library/Application Support/PDF Tools AG (for the current user)

3.3.3 Unix/Linux

The license keys are stored in the file system:

- /etc/opt/pdf-tools (for all users)
- ~/.pdf-tools (for the current user)

Note: The user, group and permissions of those directories are set solely by the license manager tool. It may be necessary to change permissions to make the licenses readable for all users. Example:

```
chmod -R go+rx /etc/opt/pdf-tools
```

4 User's Guide

4.1 Basics

The 3-Heights™ PDF Merge Split Shell uses a multiple-in/multiple-out architecture. This means it can keep multiple inputs and outputs open and copy pages from the input to the output documents. This allows for flexible and efficient merge and split operations.

The 3-Heights™ PDF Merge Split Shell not only merges and splits pages, but also resources (images, fonts, color spaces, etc.), form fields and outlines (bookmarks). That means if a large document is split into several smaller documents, and they are then merged back into one document, it should result in the original document.

4.2 Modes of Operation

The 3-Heights™ PDF Merge Split Shell supports three modes of operation which are activated by means of the options `-m`, `-s`, and `-c`. If none of these options are specified then the merge mode is activated.

4.2.1 Merge Mode

In this mode one or several input documents are specified, each potentially with a page set `-pg`. The input documents are then merged in the order of appearance on the command line to the output document. This is the default mode of operation.

Example: Two documents are merged as:

```
pdfsplmrg in1.pdf in2.pdf out.pdf
```

Example: Merge all PDF documents as:

```
pdfsplmrg *.pdf out.pdf
```

Example: Input documents can be specified several times and pages can be selected with the `-pg` option.

```
pdfsplmrg -pg 1-2 in1.pdf in2.pdf -pg 9 in1.pdf out.pdf
```

4.2.2 Split Mode

This mode is activated by specifying the `-s` option. In this mode one or several input documents are merged as in the [Merge Mode](#). The resulting document is, however, split into chunks.

Example: A document is split into chunks of (at most) 5 pages as:

```
pdfsplmrg -s :5 in.pdf out.pdf
```

Example: A document is split according to its outlines (bookmarks) on the first level of the outline hierarchy:

```
pdfsplmrg -s o in.pdf out.pdf
```

Example: Two documents are first merged. The result is then split into chunks of (at most) 5 pages:

```
pdfsplmrg -s :5 in1.pdf in2.pdf out.pdf
```

Example: Input documents can be specified several times and pages can be selected with the `-pg` option.

```
pdfsplmrg -s :5 -pg 1-20 in1.pdf in2.pdf out.pdf
```

4.2.3 Collate Mode

This mode is activated by specifying the `-c` option. In this mode, input files are treated in one of two ways:

- If the option `-pc` is specified for an input file, then this input file is split into chunks. The *m*'th chunk will end up in the *m*'th output file.
- If a page set `-pg` (or no option) is specified for an input file, then the specified page set (or all pages) will end up in every output file.

Example: A document is split into chunks of (at most) 5 pages as:

```
pdfsplmrg -c -pc :5 in.pdf out.pdf
```

Example: A document is split according to its outlines (bookmarks) on the first level of the outline hierarchy:

```
pdfsplmrg -c -pc o in.pdf out.pdf
```

The two examples above result in the same output files as the first two examples in [Split Mode](#).

Example: A first document is split into 5-page chunks. Each of these chunks is merged with a second document into a separate output file:

```
pdfsplmrg -c -pc :5 in1.pdf in2.pdf out.pdf
```

Example: A title document is merged with each of the outlines of another document:

```
pdfsplmrg -c title.pdf -pc o in.pdf out.pdf
```

Example: The first page of a title document is merged with a 2-page chunk of a first document and a 5-page chunk of a second document:

```
pdfsplmrg -c -pg 1 title.pdf -pc :2 in1.pdf -pc :5 in2.pdf out.pdf
```

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Switches are options that are provided with the command to define how the document should be processed.

Switches can occur in two forms: As stand-alone option, such as `-ow` (optimize for fast web view) or they may require a parameter, such as `-pw password` (set password to read encrypted input document).

Switches are parsed from left to right. If the same switch is applied multiple times the last set value is applied.

Input File Names

Wildcards characters "*" and "?" are permitted and expand into a set of input files.

Note: If options for input files precede an input file name with wildcards then these options will only be applied to the first file in the set.

Output File Names

The last parameter of the command line should always be the output document. When splitting, several output files are created. For numbering the output files a `printf` format mechanism is used. For example:

```
out%3.2d.pdf
```

specifies a number with field width 3 and precision 2. If the output file name contains no % character, then an automatic number is generated.

The argument supplied to the format is always an integer number (the page number). Therefore, you can use `d` (for decimal), `x` (for hexadecimal), `u` (unsigned decimal), or `o` (octal). Specifying `s` (char string) will result in a crash, because the page number will not be a valid string address.

See <http://www.cplusplus.com/reference/cstdio/printf> for a complete specification of `printf`.

5.1 Mode Selection Options

5.1.1 -m Merge Mode

```
Merge Mode -m
```

Activate the [Merge Mode](#). This is the default mode.

5.1.2 -s Split Mode

```
Split Mode -s <spec>
```

Activate the [Split Mode](#). This option requires a parameter `<spec>` which can be either of the two following:

:n This indicates that the document should be split into `n`-page sized chunks. For example: `-s :5` specifies a chunk size of 5 pages. The last chunk has less than `n` pages if the total number of pages is not a multiple of `n`.

- o This indicates that the document should be split according to the document outlines (bookmarks). Only the first level in the outline hierarchy is honored. If the document has no outlines then it is regarded as one contiguous chunk.

If several input files are given then these are merged before splitting.

5.1.3 -c Collate Mode

Collate Mode -c

Activate the [Collate Mode](#).

5.2 General Options

5.2.1 @<filename> Use a Control File

Use a Control File @<filename>

Read the parameters from a control file. This is particularly useful for long commands, as usually shells have a limited length of a command. Each option and file name is to be written on a new line in the control file. Use double quotes around strings containing blanks.

Example: Control file control.txt

```
-go
-od
"First Document.pdf"
"Second Document.pdf"
"Another Document.pdf"
"Output Document.pdf"
```

Example: A command using a control file:

```
pdfsplmrg @control.txt
```

5.2.2 -ca Copy Associated Files

Copy Associated Files -ca

If this option is set then associated files in an input document are copied to the output document.

5.2.3 -cm Copy XMP Metadata from PDF Document

Copy XMP Metadata from PDF Document -cm <file>

Specify a document from which the XMP metadata (if present) is copied to each output document.

5.2.4 -co Copy Output Intent from PDF Document

Copy Output Intent from PDF Document -co <file>

Specify a document from which the output intent (if present) is copied to each output document.

5.2.5 -cv Copy Viewer Properties from PDF Document

Copy Viewer Properties from PDF Document -cv <file>

Specify a document from which viewer properties are copied. These include: PageLayout, PageMode, OpenActions, and PiecInfo.

5.2.6 -fa Flatten Annotations

Flatten Annotations -fa

Set the option to flatten all annotations.

Flattening means that the potentially interactive annotations are drawn as non-interactive graphic elements onto the page. The aim is that the document looks the same, but is not interactive anymore.

Note: Note that this option does not flatten form fields, signature appearances and links, even though technically these are annotations as well. Use [-ff](#) and [-fs](#) to flatten form fields and signature appearances.

5.2.7 -ff Flatten Form Fields

Flatten Form Fields -ff

If this option is set then form fields annotations and annotations of unsigned signature appearances are removed and flattened.¹

Flattening means that the potentially interactive form fields are drawn as non-interactive graphic elements onto the page. The aim is that the document looks the same, but is not interactive anymore. Note that setting this option implies the option [-sf](#).

5.2.8 -fs Flatten Signature Appearances

Flatten Signature Appearances -fs

If this option is set then appearances of signatures are flattened.

¹ Up to version 4.5.14.0 of the 3-Heights™ PDF Merge Split Shell the option -ff also flattened signed signature appearances. In newer versions the option -fs must be used to get the same result.

A digital signature consists of two parts:

- A cryptographic part that includes a hash value based on the content of the document that is being signed. If the document is modified at a later time, the computed hash value is no longer correct and the signature becomes invalid, i.e. the validation will fail and will report that the document has been modified since the signature has been applied.
- An optional visual appearance on a page of the PDF document. The signature appearance can be useful to indicate the presence of a digital signature by a particular signer.

Processing the PDF with 3-Heights™ PDF Merge Split Shell breaks the signature, and therefore the cryptographic part needs to be removed. In general, the visual appearance is regarded as worthless without the cryptographic part, it is removed by default. The visual appearance can be preserved by setting [-fs](#).

5.2.9 -gf Generate Separate Forms

Generate Separate Forms [-gf](#)

If this option is set form fields of different input files are not merged. This means that fields are renamed if the output document already contains a field of the same name.

Note that this option has no effect, if either the option [-ff](#) or [-sf](#) are set.

5.2.10 -go Generate Outlines

Generate Outlines [-go](#)

If this option is set then an outline item (bookmark) is generated in the output document for each input document. The name of the outline item is generated as follows: If the input document has a title in its information directory then this title is used, otherwise the filename of the input document is used. Note that you can override the name of the outline item with [-ot](#).

Unless the option [-so](#) is set, all outline items present in an input document are copied to the output document and placed as child elements of this input document's outline item.

5.2.11 -id Set Value in the Document Information Dictionary

Set Value in the Document Information Dictionary [-id <key> <value>](#)

Set the value of an document information dictionary entry [<key>](#) in each output document. Popular entries specified in the [PDF Reference 1.7](#) are "Title", "Author", "Subject", "Creator" (sometimes referred to as Application), and "Producer" (sometimes referred to as PDF Creator). If the entry already exists then the previous entry is overwritten. If the key corresponds to a standard metadata key then the XMP metadata is updated accordingly.

Example: Overwrite the default producer:

```
pdfsplmrg -id Producer "MyProgram 1.2" input.pdf output.pdf
```

5.2.12 -lk Set License Key

Set License Key [-lk <key>](#)

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

```
pdfsplmrg -lk X-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ...
```

This is required in an OEM scenario only.

5.2.13 -oad Set an Open Action

Set an Open Action -oad <page> <mode> <par1> <par2> <par3> <par4>

Set a "PDF OpenAction Destination" for each output document. This option has at most 6 parameters.

<page> The target page number. (Required)

<mode> The name of the destination mode. (Required)

<par1> <par2> <par3> <par4> Further parameters, all numerical values. (Optional)

<mode>	<par1>	<par2>	<par3>	<par4>	Description
XYZ	left	top	zoom		The upper left corner of the view is positioned at the coordinate (left , top) with the given zoom factor.
Fit					The view is such that the whole page is visible.
FitH	top				The view is top-aligned with top and shows the whole page width.
FitV	left				The view is left-aligned with left and shows the whole page height.
FitR	left	bottom	right	top	The view contains the rectangle specified the two coordinates (left , bottom) and (right , bottom).
FitB					The view is such that the pages bounding box is visible.
FitBH	top				The view is top-aligned with top and shows the whole width of the page's bounding box.
FitBV	left				The view is left-aligned with left and shows the whole height of the page's bounding box.

In the table above, <left> and <right> are x-coordinates, <bottom> and <top> are y-coordinates in PDF user space. The units are PDF points (A4 = 595x842 points, Letter = 612x792 points). The parameter <zoom> is a zoom factor.

Example: Add an open action destination such that the PDF is opened at the top of the first page (assuming that the page size is A4) in "fit width"-mode:

```
pdfsplmrg -oad 1 FitH 842 input.pdf output.pdf
```

5.2.14 -od Optimize Resources

Optimize Resources -od

Find and merge redundant resources from different input files. Equal fonts, images and color spaces are detected. By activating this feature, much smaller output files are created, if similar files are merged. The merging process takes, however, more time and memory resources.

5.2.15 -ow Optimize for the Web

Optimize for the Web -ow

Add so called linearization tags to the output documents. A linearized document has a slightly larger file size than a non-linearized file, and provides the following features (among others):

- When a document is opened through a PDF viewing application plug-in for an Internet browser, the first page can be viewed without downloading the entire PDF file.
- When another page is requested by the user, that page is displayed as quickly as possible and incrementally as data arrives, without downloading the entire PDF file.

5.2.16 -pm Set Page Mode

Set Page Mode -pm <mode>

Set a page mode for each output document. This option has one parameter, a numerical value, to select the page mode.

Value	Page Mode
0	UseNone
1	UseOutlines
2	UseThumbs
3	FullScreen
4	UseOC
5	UseAttachments

(See Table 3.25 in the [PDF Reference 1.7](#) for more information on page modes.)

5.2.17 -sf Remove Interactive Form Fields

Remove Interactive Form Fields -sf

Do not copy interactive form fields. See also [-ff](#).

5.2.18 -sg Remove Optional Content Configuration

Remove Optional Content Configuration -sg

By default, compatible optional content groups (layers) are merged when merging input documents. Specifically, the current configuration of optional content is compared with the input document. If it is found to be the same then the optional content groups are assumed to be the same in the input and the output document and merging takes place. If they are different then optional content groups are assumed to be distinct and they are simply added.

By specifying this option, the above mechanism is deactivated and no configuration of optional content groups is copied to the output document.

5.2.19 -s1 Remove Logical Structure

Remove Logical Structure -s1

By default, logical structure information is copied. If only some of the input documents contain such information, then this option can be used to discard any logical structure information in order to create smaller output files and gain some speed up. This option must not be specified for PDF/A level A conformance.

5.2.20 -sn Remove Named Destinations

Remove Named Destinations -sn

If this property is set, all named destinations of the input document are removed and all internal named destinations are converted to regular destinations.

Use this option with care: If a document is split into multiple documents with the intention of merging the pieces back together at a later time, this option should not be used. The reason is that links between the pieces will not work after the merge.

Note: Even if this option is set the output document might contain named destinations. This is because the PDF Merge Split Shell needs to create named destinations under some circumstances in order to preserve links.

5.2.21 -so Remove Outlines

Remove Outlines -so

If this option is set then no outlines (bookmarks) are copied to the output documents.

5.2.22 -v Verbose Mode

Verbose Mode -v

This option turns on the verbose mode.

In the verbose mode, file actions and copy actions are written to the standard output.

5.3 Options for Input Documents

5.3.1 -ot Outline Title

Outline Title -ot <name>

This option only has significance if `-go` is used. This option overrides the automatic name for a generated outline by the name given in <name>.

5.3.2 -pc Split Specification in Collate Mode

Split Specification in Collate Mode -pc <spec>

In [Collate Mode](#), an input document can be split into several chunks by using this option.

The parameter <spec> must have either of the two following forms:

- **n** This indicates that the document should be split into n-sized chunks. For example: `-pc :5` specifies a chunk size of 5 pages. If the total number of pages is not a multiple of <n> then the last chunk has less than <n> pages.
- **o** This indicates that the document should be split according to the document outlines (bookmarks). Only the first level in the outline hierarchy is honored. If the document has no outlines then it is regarded as one contiguous chunk.

5.3.3 -pg Page Set

Page Set -pg <pageset>

By default, an input document is copied to the output document(s) in its entirety. This option allows specifying a set of pages to be copied. This option can be used in all three modes of operation but it cannot be combined with the `-pc` option.

The <pageset> is a comma-separated list of page ranges, each of which has the form <n>-<m> or <n>, where <n> and <m> are page numbers of the input document. The parameter <pageset> must not contain spaces.

Example: Copy pages 3, 4, 5, 2, 6, 7, and 8 from `input.pdf` to `output.pdf`:

```
pdfsplmrg -pg 3-5,2,6-8 input.pdf output.pdf
```

5.3.4 -pw Read an Encrypted PDF File

Read an Encrypted PDF File -pw <pwd>

When the input PDF file is encrypted and has a user password set (the password to open the PDF), the password can be provided as parameter of the switch -pw.

6 Licensing, Copyright, and Contact

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pdfsales@pdf-tools.com