

User Manual



3-Heights™ PDF Merge Split Shell

Version 4.12.26.2



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1 Introduction

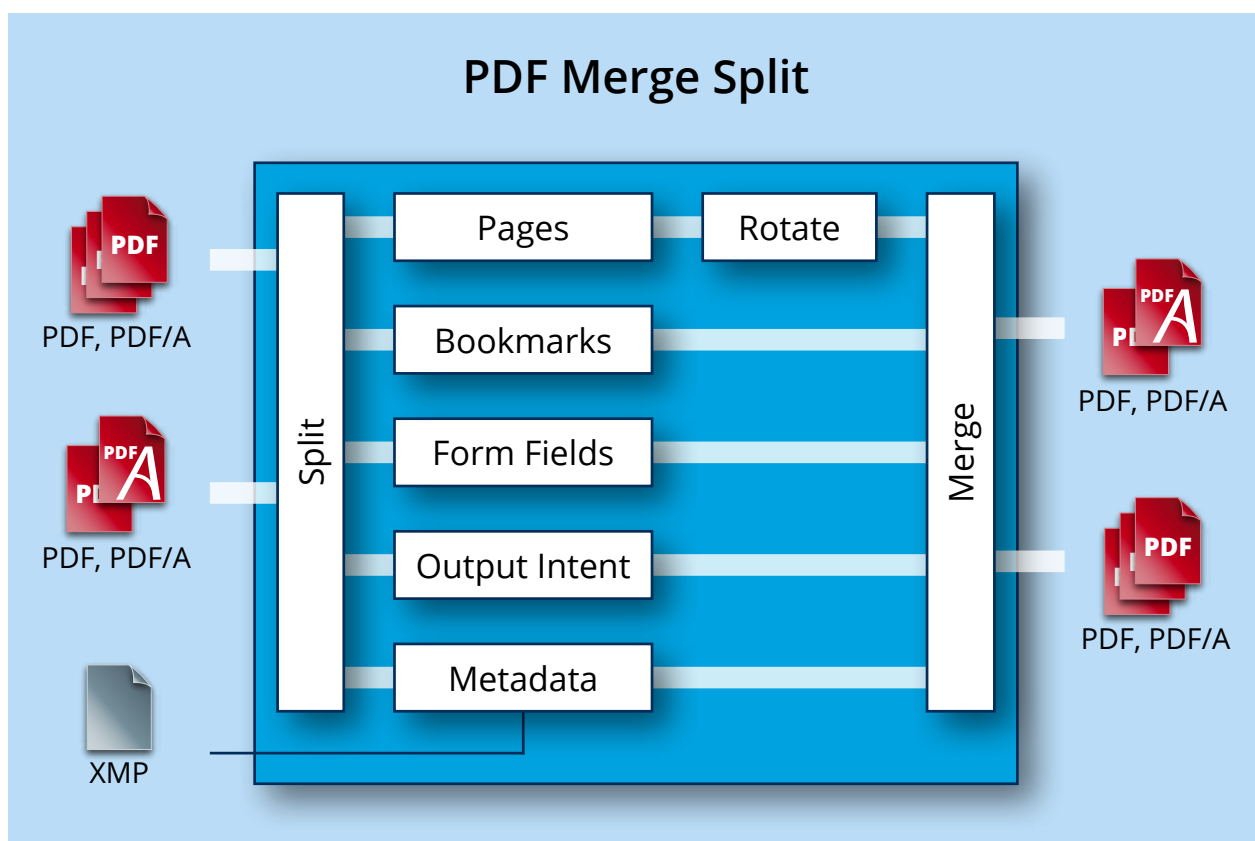
The 3-Heights™ PDF Merge Split Shell is a component for splitting and merging the pages of PDF documents with useful additional functions.

In addition to its main functions of splitting and merging, the 3-Heights™ PDF Merge Split Shell can also rotate pages, copy or add metadata and other document attributes such as document outlines (bookmark), form fields, color profiles for output devices and much more, as well as flattening form fields.

A special feature is the component's ability to process and create PDF/A-compliant files.

1.1 Functions

The 3-Heights™ PDF Merge Split Shell can operate on multiple input and output documents in one processing step.



1.1.1 Features

The 3-Heights™ PDF Merge Split Shell comes with the following features:

- Merge different PDF documents or pages thereof to form a single PDF document
- Split a PDF document of many pages into a number of smaller PDF documents
- Process PDF/A documents: If all the input documents are PDF/A, then the output is PDF/A with automatically chosen version and compliance level (down-grade).
- Automatic PDF version upgrade when merging documents with differing PDF version. Merging PDF 1.x and PDF 2.0 is currently not supported.
- Rotate pages
- Flatten or remove form fields and annotations

- Copy the color profile for the output device (output intent)
- Copy document information and metadata (XMP)
- Add embedded files to a PDF document
- Optimize page resources when merging PDF documents
- Set passwords and permission flags
- Copy or remove outlines (bookmarks) and create custom outlines
- Merge or remove document structure information
- Remove named destinations
- Set document information entries (title, author, ...)
- Write a linearized PDF (fast web view)
- Set the page mode and open action
- Split vertical or horizontal double pages into single pages

Input Formats

- PDF 1.x (PDF 1.0, ..., PDF 1.7)
- PDF 2.0
- PDF/A-1, PDF/A-2, PDF/A-3

Output Formats

- PDF 1.x (PDF 1.0, ..., PDF 1.7)
- PDF 2.0
- PDF/A-1, PDF/A-2, PDF/A-3

Compliance

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)

1.2 Operating Systems

The 3-Heights™ PDF Merge Split Shell is available for the following operating systems:

- Windows 7, 8, 8.1, 10 – 32 and 64 bit
- Windows Server 2008, 2008 R2, 2012, 2012 R2, 2016 – 32 and 64 bit
- HP-UX 11i and later PA-RISC2.0 – 32 bit
- HP-UX 11i and later ia64 (Itanium) – 64 bit
- IBM AIX 6.1 and later – 64 bit
- Linux 2.6 – 32 and 64 bit
- Oracle Solaris 2.8 and later, SPARC and Intel
- FreeBSD 4.7 and later (32 bit) or FreeBSD 9.3 and later (64 bit, on request)
- macOS 10.4 and later – 32 and 64 bit

2 Installation

2.1 Windows

The 3-Heights™ PDF Merge Split Shell comes as a ZIP archive or MSI installer.

The installation of the software requires the following steps.

1. You need administrator rights to install this software.
2. Log in to your download account at <http://www.pdf-tools.com>. Select the product “PDF Merge Split Shell”. If you have no active downloads available or cannot log in, please contact pdfsales@pdf-tools.com for assistance.

You will find different versions of the product available. We suggest to download the version, which is selected by default. If another is required, it can be selected using the combo box.

There is an MSI (*.msi) and a ZIP (*.zip) version available. The MSI (Microsoft Installer) provides an installation routine that installs and uninstalls the product for you. The ZIP version allows you to select and install everything individually.

There are 32 and 64-bit versions of the product available. While the 32-bit version runs on both, 32 and 64-bit platforms, the 64-bit version runs on 64-bit platforms only. The MSI installs the 64-bit version, whereas the ZIP file contains both the 32-bit and the 64-bit version of the product. Therefore, on 32-bit systems, the ZIP file must be used.

3. If you select an MSI version, start it and follow the steps in the installation routine.
4. If you are using the ZIP version, follow the steps below. Unzip the archive to a local folder, e.g. C:\Program Files\PDF Tools AG\.

This creates the following subdirectories:

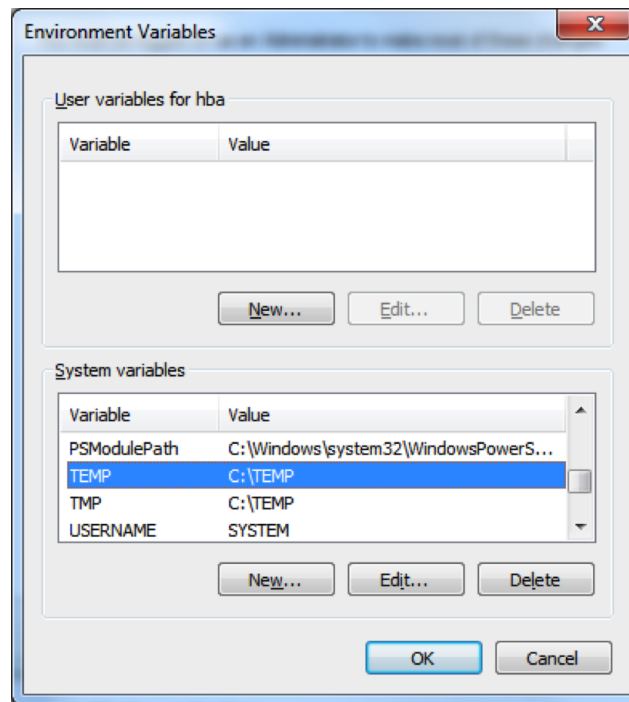
Subdirectory	Description
bin	Contains the runtime executable binaries.
doc	Contains documentation.

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

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, macOS, Oracle Solaris, IBM AIX, HP-UX, FreeBSD and others.

Here is an overview of the files that come with the 3-Heights™ PDF Merge Split Shell:

File Description

Name	Description
bin/<platform>/pdfsplmrg	This is the main executable. The directory <platform> is either x86 containing the 32-bit version of the product, or x64 for 64-bit.
doc/*.*	Documentation

2.2.1 All Unix Platforms

1. Unpack the archive in an installation directory, e.g. /opt/pdf-tools.com/
2. 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 the above reports any missing libraries you have three options:

- a. Download an archive that is linked to another version of the GNU shared libraries and verify whether they are available on your system. Use any version whose requirements are met. Note that this option is not available for all platforms.
- b. Use your system's package manager to install the missing libraries. On Linux it usually suffices to install the package `libstdc++6`.
- c. Use GNU shared libraries provided by PDF Tools AG:
 1. Go to <http://www.pdf-tools.com> and navigate to "Support" → "Utilities".
 2. Download the GNU shared libraries for your platform.
 3. Install the libraries manually according your system's documentation. On Linux this typically involves copying them to your library directory, e.g. `/usr/lib` or `/usr/lib64`, and running `ldconfig`.
 4. Verify that the GNU shared libraries required by the product are available on your system now.
3. Create a link to the executable from one of the standard executable directories, e.g:

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

4. Optionally register your license key using the [Command Line License Manager Tool](#).

2.3 Uninstall

If you have used the MSI for the installation, go to Start → 3-Heights™ PDF Merge Split Shell... → Uninstall...

If you have used the ZIP file for the installation: In order to uninstall the product, undo all the steps done during installation.

2.4 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

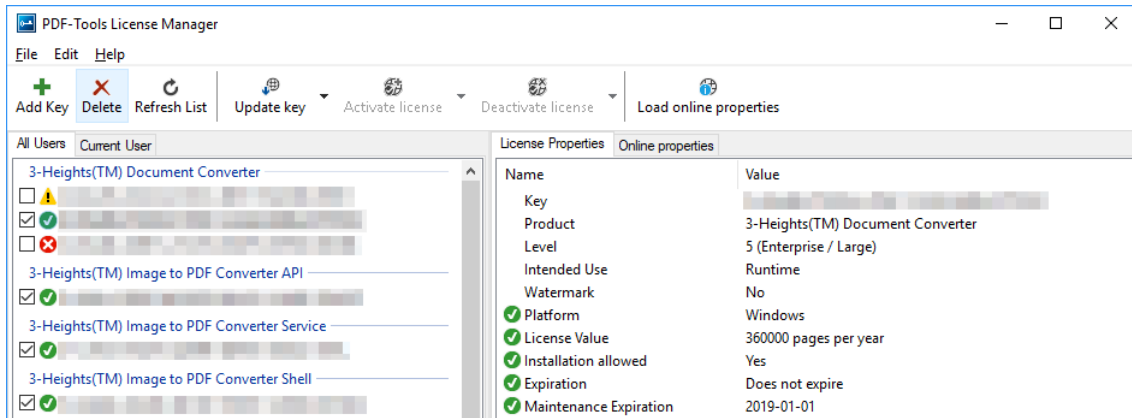
3.1 License Installation and Management

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.

3.1.1 Graphical License Manager Tool

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



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.

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.

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.

3.1.2 Command Line License Manager Tool

The command line license manager tool `licmgr` is available in the `bin\x86` and `bin\x64` directory.

Note: The command line tool licmgr is not included in Windows platform kits, as the GUI tool is the recommended tool for managing Licenses. A Windows licmgr shelltool is available on request.

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 * on the left side.

Example:

```
>licmgr list
Local machine:
  Product Name:
    1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
    1-YYYYY-YYYYY-YYYYY-YYYYY-YYYYY-YYYYY-YYYYY
    * 1-ZZZZZ-ZZZZZ-ZZZZZ-ZZZZZ-ZZZZZ-ZZZZZ-ZZZZZ
Current user:
```

Add and delete license keys

Install new license key:

```
licmgr store 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

Delete old license key:

```
licmgr delete 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

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

g For all users

u Current user

Display the properties of a license

```
licmgr info 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

Properties that invalidate the license are marked with an X, properties that require attention are marked with an !. In that case an additional line with a comment is displayed.

Example:

```
>licmgr info 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
- Key:          1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
- Product:      Product Name
- Features:     Feature1,Feature2
- Intended use: Development
- Watermark:    No
- Platform:    Windows
- Installation: Yes
! Activation:   2018-05-07
                (The license has not yet been activated.)
- Expiration:   Does not expire
- Maintenance: 2019-04-27
```

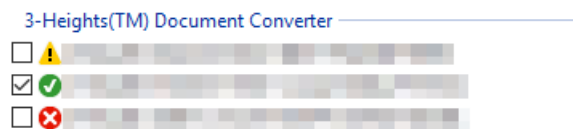
3.2 License Selection and Precedence

3.2.1 Selection

If multiple keys for the same product are installed in the same scope, only one of them can be active at the same time.

Installed keys that are not selected are not considered by the software!

In the Graphical User Interface use the check box on the left side of the license key to mark a license as selected.



With the Command Line Interface use the `select` subcommand:

```
licmgr select 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

3.2.2 Precedence

License keys are considered in the following order:

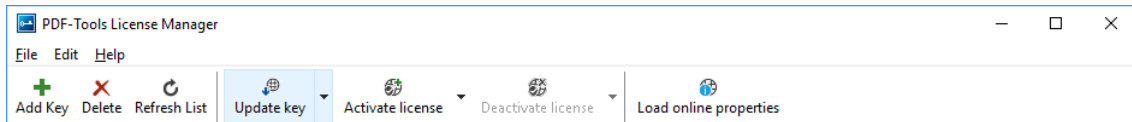
1. License key passed at runtime.
2. License selected for the current user
3. License selected for the current user ([legacy key format](#))
4. License selected for all users
5. License selected for all users ([legacy key format](#))

The first matching license is used, regardless whether it is valid or not.

3.3 Key Update

If a license property like the maintenance expiration date changes, the key can be update directly in the license manager.

In the Graphical User Interface select the license and press the button "Update Key" in the toolbar:



With the Command Line Interface use the update subcommand:

```
licmgr update 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

3.4 License activation

New licenses keys have to be activated (except for OEM licenses).

Note: Licenses that need activation have to be installed in the license manager and must not be passed to the component at runtime.

The license activation is tied to a specific computer. If the license is installed at user scope, the activation is also tied to that specific user. The same license key can be activated multiple times, if the license quantity is larger than 1.

Every license key includes a date, after which the license has to be activated, which is typically 10 days after the issuing date of the key. Prior to this date, the key can be used without activation and without any restrictions.

3.4.1 Activation

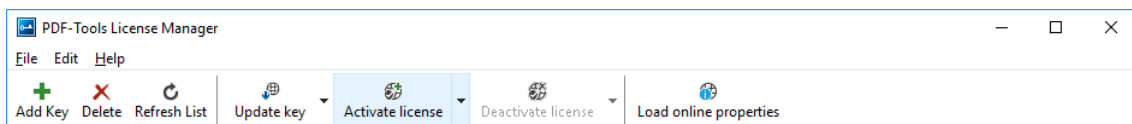
The License can be activated directly within the license manager. Every activation increases the activation count of the license by 1.

It is recommended to add a comment to the activation request which helps keeping track of all activations for a specific license key. In case of problems it also helps us providing support.

The comment is stored in the activation database as long as the license key remains activated. Upon deactivation it is deleted from the database immediately.

All activations and the corresponding comments can be examined using the **Load online properties** function of the license manager. The information is accessible to anyone with access to the license key.

In the Graphical User Interface select the license and press the button "Activate license" in the toolbar:



It is recommended to add a comment to the activation request by using the subsequent dialog box.

With the Command Line Interface use the activate subcommand:

```
licmgr activate 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

Note that the key has to be installed first.

It is recommended to add a comment to the activation request by using the `-c` or `-cd` option:

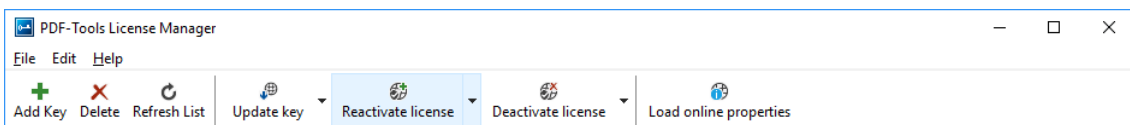
```
licmgr activate -cd 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
licmgr activate -c "custom comment" 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

3.4.2 Reactivation

The activation is tied to specific properties of the computer like the MAC address or host name. If one of these properties changes, the activation becomes invalid and the license has to be reactivated. A reactivation does **not** increase the activation count on the license.

The process for reactivation is the same as for the activation.

In the Graphical User Interface the button "Activate license" changes to "Reactivate license":



With the Command Line Interface the subcommand `activate` is used again:

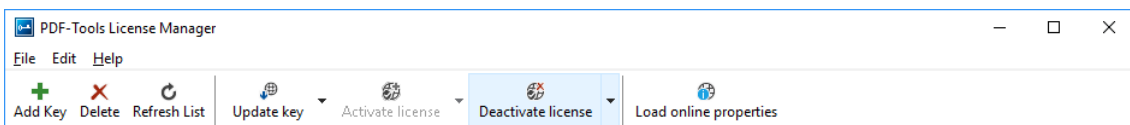
```
licmgr activate 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

3.4.3 Deactivation

To move a license to a different computer, it has to be deactivated first. Deactivation decreases the activation count of the license by 1.

The process for deactivation is similar to the activation process.

In the Graphical User Interface select the license and press the button "Deactivate license" in the toolbar:



With the Command Line Interface use the `deactivate` subcommand:

```
licmgr deactivate 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

3.5 Offline Usage

The following actions in the license manager need access to the internet:

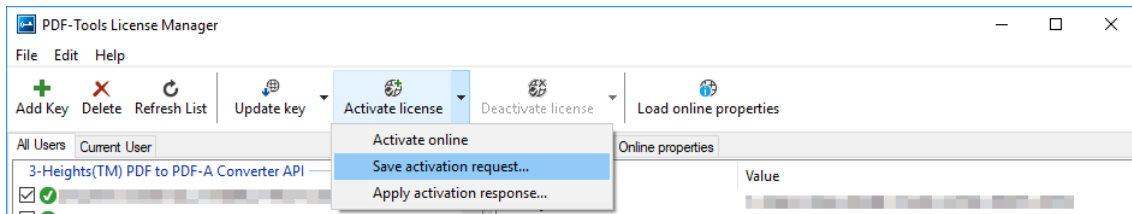
- [License Activation](#)
- [License Reactivation](#)

- [License Deactivation](#)
- [Key Update](#)

On systems without internet access, a three step process can be used instead, using a form on the PDF Tools website.

3.5.1 First Step: Create a Request File

In the Graphical User Interface select the license and use the dropdown menu on the right side of the button in the toolbar:



With the Command Line Interface use the `-fs` option to specify the destination path of the request file:

```
licmgr activate -fs activation_request.bin 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

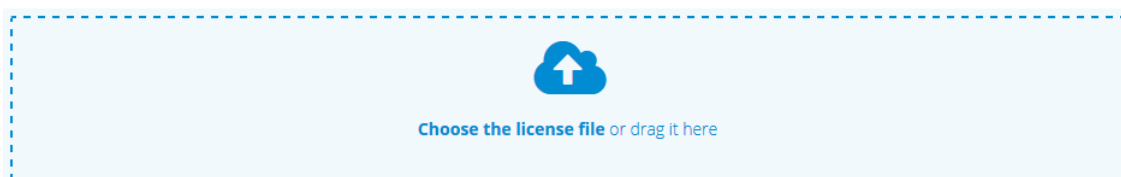
License Deactivation: When saving the deactivation request file, the license is **deactivated immediately** and cannot be used any further. It can however only be activated again after completing the deactivation on the website.

3.5.2 Second Step: Use Form on Website

Open the following website in a web browser: <http://www.pdf-tools.com/pdf20/en/mypdftools/licenses-kits/license-activation/> Upload the request by dragging it onto the marked area:

License activation (offline)

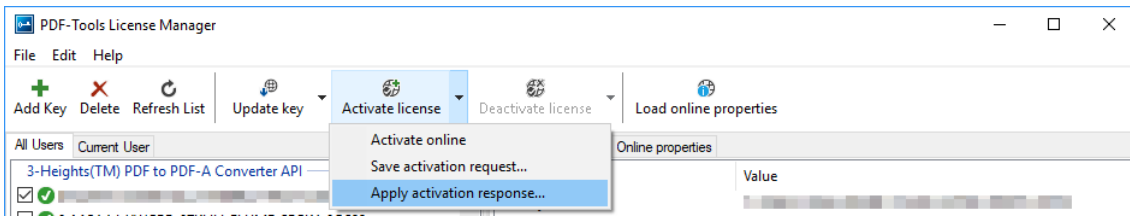
Upload your license request. For more information and instructions please check the manual of your product.



Upon success, the response will be downloaded automatically if necessary.

3.5.3 Third Step: Apply the Response File

In the Graphical User Interface select the license and use the dropdown menu on right side of the button in the toolbar:



With the Command Line Interface use the `-fl` option to specify the source path of the response file:

```
licmgr activate -fl activation_response.bin 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

3.6 License Key Versions

As of 2018 all new keys will have the format 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX. Legacy keys with the old format 0-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX are still accepted for a limited time period.

For compatibility reasons, old and new version keys can be installed side by side and one key of each version can be selected at the same time. In that case, the software always uses the new version.

3.7 License Key Storage

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

3.7.1 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)

3.7.2 macOS

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)

3.7.3 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
```


3.8 Troubleshooting

3.8.1 License key cannot be installed

The license key cannot be installed in the license manager application. The error message is: "Invalid license format."

Possible causes:

- The license manager application is an older version that only supports the [legacy key format](#).

Solution

Use a current version of the license manager application or use a license key in the legacy key format if available.

3.8.2 License is not visible in license manager

The license key was successfully installed previously but is not visible in the license manager anymore. The software is still working correctly.

Possible causes:

- The license manager application is an older version that only supports the [legacy key format](#).

Solution

Use a current version of the license manager application.

3.8.3 License is not found at runtime

The license is not found at runtime by the software. The error message is: "No license key was set."

Possible causes:

- The license key is actually missing (not installed).
- The license key is installed but not selected in the license manager.
- The application is an older version that only supports the [legacy key format](#), while the license key has the new license format.

Solution

Install and select a valid license key that is compatible with the installed version of the software or use a newer version of the software. The new license key format is supported starting with version 4.10.26.1

For compatibility reasons, one license key of each format can be selected at the same time.

3.8.4 Eval watermark is displayed where it should not

The software prints an evaluation watermark onto the output document, even if the installed license is a productive one.

Possible causes:

- There is an evaluation license key selected for the **current user**, that takes precedence over the key for **all users**.

Note: The software might be run under a different user than the license manager application.

- An evaluation license key that is passed at runtime takes precedence over those selected in the license manager.
- There is an evaluation license key selected with a [newer license format](#) that takes precedence over the key in the older format.
- The software was not restarted after changing the license key from an evaluation key to a productive one.

Solution

Disable or remove all evaluation license in all scopes, check that no evaluation key is passed at runtime and restart the software.

3.8.5 Activation is not recognized

The license is installed and activated in the license manager, but the software does not recognize it as activated. The error message is: "The license has not been activated."

Possible causes:

- There is an unregistered license key selected for the **current user**, that takes precedence over the key for **all users**. This leads to an error even if the same license is registered for all users.

Note: The software might be run under a different user than the license manager application.

- A license key that is passed at runtime takes precedence over those selected in the license manager. This leads to an error even if the same license is registered in the license manager.

Note: Licenses that need activation have to be installed in the license manager and must not be passed to the component at runtime.

- The software was not restarted after activating the license.

Solution

Disable, remove or activate all unregistered licenses in all scopes, check that no key is passed at runtime and restart the software.

3.8.6 Activation is invalidated too often

The license activation is invalidated regularly, for no obvious reason.

Possible causes:

- The MAC address used for computing the machine fingerprint is not static. This may happen e.g. for virtual network adapters with dynamic MAC address (VPN, Juniper, ...).

Solution

Update to a newer version (≥ 4.12) of the PDF Tools product, deactivate the license key using the new license manager and activate it again. After that, an improved fingerprinting algorithm is used.

Deactivation and activation have to be **executed separately**, a reactivation of the license in one step does not change the fingerprinting algorithm and thus does not solve the problem.

Note: After this procedure, older products might not recognize the activation as valid anymore. Reactivating the license using an old license manager will revert the activation to the old fingerprinting algorithm.

As an alternative, remove any virtual network adapter with a dynamic MAC address.

3.8.7 Connection to the licensing service fails

The license activation/deactivation/update fails because the license manager cannot reach the licensing server.

The error message depends on the platform and the exact error condition.

Possible causes:

- The computer is not connected to the internet.
- The connection is blocked by a corporate firewall.

Solution

Make sure that the computer is connected to the internet and that the host `www.pdf-tools.com` is reachable on port 443 (HTTPS).

If this is not possible, try [Offline Usage](#) instead.

3.8.8 Offline usage fails due to a request/response mismatch

The offline license activation/deactivation/update fails because the response file does not match the request file.

The error message is: "Mismatch between request and response."

Possible causes:

- The response file is applied to a different machine than the request file was created.
- The response file is applied to a different user than the request file was created.
- The response file was applied to a specific user while the request was created for all users, or vice versa.
- The response file is applied to the wrong license key.
- Another request file has been created between creating the request file and applying the response file.
- The license key was updated between creating the request file and applying the response file.
- The license key was removed and re-added between creating the request file and applying the response file.

Solution

Delete any old request and response files to make sure they are not used by accident.

Retry the entire process as outlined in [chapter 3.5](#) and refrain from making any other license-related actions between creating the request file and applying the response file.

Make sure that the response file is applied to exactly the same license key in exactly the same location (machine, all users or specific user) where the request file was created.

4 User's Guide

The 3-Heights™ PDF Merge Split Shell provides two executables:

- `pdfsplmrg` is used to split and combine pages from several input documents into several output documents.
- `pdfsplitpage` is used to split each page of a double-page document into two.

4.1 Shell `pdfsplmrg`

The `pdfsplmrg` tool uses a multiple-in/multiple-out architecture, thus allowing flexible and efficient merge and split operations. Merging and splitting is not confined to pages, but also affects resources (images, fonts, color spaces, etc.), form fields, outlines (bookmarks), tags, and more. Notably, these elements are merged correctly, when previously split from the same document.

4.1.1 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.

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
```

Note: Merging PDF 1.x and PDF 2.0 is currently not supported and results in an exit code 4. Additionally, the following error message is printed:

```
* Error: Invalid compliance specified.
```

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
```

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
```

4.2 Shell pdfsplitpage

The `pdfsplitpage` tool takes one input document and splits every page that exceeds the given dimension (either height or width) into two pages.

Example: Split all pages that are wider than 210 mm (the paper width of A4) into two pages:

```
pdfsplitpage -w 595 input.pdf output.pdf
```

Note that the units of all dimensions given to `-w` and `-h` must be specified in PDF points (1 in/72).

Note: If you plan to use both `pdfsplmrg` and `pdfsplitpage`, then you should use `pdfsplmrg` first and `pdfsplitpage` second.

4.3 Return Codes

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

Return Codes

Value	Description
0	Success.
1	Couldn't open input file.
2	PDF output file could not be created.
3	Error with given options, e.g. too many parameters.
4	Generic processing error.
10	License error, e.g. invalid license key.

5 Interface Reference

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.

5.1 Shell pdfsplmrg

Input File Names

Wildcard 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`.

5.1.1 Mode Selection Options

-m Merge Mode

```
Merge Mode -m
```

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

-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.

-c Collate Mode

Collate Mode `-c`

Activate the [Collate Mode](#).

5.1.2 General Options

@<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
```

Add Embedded File

```
Add Embedded File -ae <file>
Set Embedded File Name -aen <name>
Set Embedded File Association Object -aea <n>
Set Embedded File Association Relationship -aer <rel>
Set Embedded File Mime-Type -aem <mime>
Set Embedded File Description -aes <desc>
Set Embedded File Modification Date -aed <date>
```


Add a file to each output document's embedded files. The file is embedded as-is. Embedding files is not allowed for PDF/A-1 and is restricted to PDF/A compliant files for PDF/A-2. When using the option `-aea` and the output document is PDF/A-3, then the embedded file is associated with an object of the output document, i.e. it is an **associated file**. Otherwise this option has no effect.

Note: Several files can be embedded by using the `-aa` option multiple times. The options `-aen`, `-aea`, `-aer`, `-aem`, `-aes`, and `-aed`, if given, always apply to the preceding option `-ae`.

Parameters:

- <file>** The path (or URL) to the file to be embedded.
- <name>** The name used for the embedded file. This name is presented to the user when viewing the list of embedded files. Default: **<file>**'s name with the path removed.
- <n>** The object to associate the embedded file with. `-1` for none, `0` for document, number greater than `0` for respective page. Default: `-1`.
- <rel>** The relationship of the embedded file to the object associate. (Ignored, if **<n>** is `-1`.) Allowed values are "Source", "Data", "Alternative", "Supplement", and "Unspecified". Default: "Unspecified".
- <mime>** Mime-type of the embedded file. Common values other than the default are "application/pdf", "application/xml", or "application/msword". Default: "application/octet-stream".
- <desc>** A description of the embedded file. This is presented to the user when viewing the list of embedded files.
- <date>** The modify date of the file in ISO 8601 format as described in the [W3C note](#):
- ```
<YYYY>-<MM>-<DD>T<hh>:<mm>:<ss><TZD>
```
- **<YYYY>** year
  - **<MM>** month
  - **<DD>** day
  - **<hh>** hour
  - **<mm>** minute
  - **<ss>** second
  - **<TZD>** time zone designator (Z or `+<hh>:<mm>` or `-<hh>:<mm>`)
- Example: `2016-07-16T19:20:30+01:00`
- Default: The modify date of the file on the file system or current time, if not available.

**Example:** Add an embedded file.

```
pdfsplmrg -aa "C:\path\to\file.txt" -aan "My File.txt" input.pdf output.pdf
```

**Example:** Add an associated file to a PDF/A-3.

```
pdfsplmrg -aa "C:\path\to\file.doc" -aaa 0 -aar "Source" ^
-aam "application/msword" inPDFA3.pdf outPDFA3.pdf
```

## -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.

### **-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.

### **-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.

### **-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.

### **-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.

### **-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.<sup>1</sup>

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](#).

<sup>1</sup> 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.

## -fs Flatten Signature Appearances

### Flatten Signature Appearances -fs

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

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](#).

## -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. Usually this is the intent when merging documents.

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

## -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.

## -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:

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

## -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 ...
```

This is required in an OEM scenario only.

## -o Owner Password

**Owner Password** -o <owner>

The owner password is required to change the security settings of the document. In order to apply permission flags, an owner password must be set. Permission flags are set with the switch [-p](#).

**Example:** Encrypt a document and set the owner password to <owner>.

```
pdfsplmrg -o owner input.pdf output.pdf
```

## -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).         |

|                    |                   |                                                                                                        |
|--------------------|-------------------|--------------------------------------------------------------------------------------------------------|
| <code>FitB</code>  |                   | The view is such that the pages bounding box is visible.                                               |
| <code>FitBH</code> | <code>top</code>  | The view is top-aligned with <code>top</code> and shows the whole width of the page's bounding box.    |
| <code>FitBV</code> | <code>left</code> | The view is left-aligned with <code>left</code> 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
```

## **-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.

## **-ow Optimize for the Web**

**Optimize for the Web** `-ow`

**Note:** This option has no effect when combined with `-owa`.

Linearize the PDF output file, i.e. optimize file for fast web access.

A linearized document has a slightly larger file size than a non-linearized file and provides the following main features:

- When a document is opened in a PDF viewer of a web browser, the first page can be viewed without downloading the entire PDF file. In contrast, a non-linearized PDF file must be downloaded completely before the first page can be displayed.
- 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.

The above applies only if the PDF viewer supports fast viewing of linearized PDFs.

**Note:** In order to make use of a linearized PDF file, the PDF must reside as a "file" on the web-server. It must not be streamed.

When enabling this option, then no PDF objects will be stored in object streams in the output PDF. For certain input documents this can lead to a significant increase of file size.

## -owa Automaticall Optimize for the Web

**Automaticall Optimize for the Web** -owa

Automatically decide whether to linearize the PDF output file for fast web access.

Applying linearization can lead to a large increase in file size for certain documents. Enabling this option lets the 3-Heights™ PDF Merge Split Shell automatically apply linearization or refrain from doing so based on the estimated file size increase.

See also [-OW](#) for more information for linearized PDFs.

**Note:** When -owa is given, then the option [-ow](#) has no effect.

## -p Permission Flags

**Permission Flags** -p <flags>

This option sets the permission flags. It is only usable when producing encrypted documents. I.e. at least an owner password must be set with [-o](#), and additionally a user password can be set with [-u](#). When omitting the option -p then all permissions are granted. The permissions that can be granted are listed below.

### Permission Flags

| Flag | Description                                |
|------|--------------------------------------------|
| p    | allow printing (low resolution)            |
| m    | allow changing the document                |
| c    | allow content copying or extraction        |
| o    | allow commenting                           |
| f    | allow filling of form fields               |
| s    | allow content extraction for accessibility |
| a    | allow document assembly                    |
| d    | allow high quality printing                |
| ∅    | allow nothing (no permissions are granted) |

The actual <flags> given to this option is a string that contains one or several of the permission flags above.

**Note:** The value ∅ cannot be combined with any other permission flags.

**Example:** The following command sets the owner password to “owner” and the permission flags to “allow printing in low resolution” and “allow form filling”.

```
pdfsplmrg -o owner -p pf input.pdf output.pdf
```

**Example:** “High quality printing” requires the standard printing flag to be set too.

```
pdfsplmrg -o owner -p pd input.pdf output.pdf
```

For further information about the permission flags, see [PDF Reference 1.7](#) Section 3.5.2.

## -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.)

## -sf Remove Interactive Form Fields

```
Remove Interactive Form Fields -sf
```

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

## -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.

## -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 compliance.

## -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.

## -so Remove Outlines

**Remove Outlines** -so

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

## -u User Password

**User Password** -u <user>

Set the user password of the document. If a document which has a user password is opened for any purpose (such as viewing, printing, editing), either the user or the owner password must be provided.

Someone who knows the user password is able to open and read the document. Someone who knows the owner password is able to open, read and modify (e.g. change passwords) the document. A PDF document can have none, either, or both passwords.

**Example:** Encrypt a document with a user and an owner password.

```
pdfsplmrg -u userpassword -o ownerpassword input.pdf output.pdf
```



## -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.

## 5.1.3 Options for Input Documents

### -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>.

### -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.

### -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
```

### -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`.

## 5.2 Shell pdfsplitpage

### 5.2.1 `-h` Set the Page Height Threshold

**Set the Page Height Threshold** `-h <height>`

Pages in the input document that are taller than `<height>` are split into two consecutive pages in the output document.

#### Parameter:

`<height>` The threshold height in PDF points (1 PDF point = 1/72 inch)

When combining this option with `-w` and a page exceeds both the threshold height and the threshold width, then the page is split only into two pages according to `-w` and a warning is printed.

### 5.2.2 `-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.

```
pdfsplitpage -lk X-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ...
```

This is required in an OEM scenario only.

### 5.2.3 `-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 processed 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:

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

When a PDF is encrypted with a user password and the password is not provided or is incorrect, the 3-Heights™ PDF Merge Split Shell cannot read and process the file. Instead it will generate the following error message:

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

## 5.2.4 -w Set Page Width Threshold

**Set Page Width Threshold** -w <width>

Pages in the input document that are wider than <width> are split into two consecutive pages in the output document.

### Parameter:

<width> The threshold width in PDF points (1 PDF point = 1/72 inch)

When combining this option with [-h](#) and a page exceeds both the threshold height and the threshold width, then the page is split only into two pages according to [-w](#) and a warning is printed.

# 6 Version History

## 6.1 Changes in Version 4.12

- **New** support for encryption according to PDF 2.0 (revision 6, replaces deprecated revision 5).

### Shell pdfsp1mrg

- **New** option `-owa` to automatically choose whether to linearize the output document or not.
- **New** options `-o`, `-u`, `-p` for encrypting output PDFs with a user password and/or an owner password and specifying permission flags.

### Shell pdfsplitpage

No functional changes.

## 6.2 Changes in Version 4.11

- **New** support for the creation of appearance streams for free text annotations that contain rich text content.
- **New** support for reading and writing PDF 2.0 documents.
- **New** support for the creation of output files larger than 10GB (not PDF/A-1).
- **New** optimization of output file size for documents that contain structure information.

### Shell pdfsp1mrg

- **New** treatment of the DocumentID. In contrast to the InstanceID the DocumentID of the output document is inherited from the input document when copying a single document.

### Shell pdfsplitpage

No functional changes.

## 6.3 Changes in Version 4.10

- **Changed** the behavior when copying outlines. The outline structure in the output file now always matches the outline structure in the input file, regardless of the order in which pages are copied.
- **Improved** reparation of corrupt form fields.
- **New** support for writing PDF objects into object streams. Most objects that are contained in object streams in the input document are now also stored in object streams in the output document. When enabling linearization, however, no objects are stored in object streams.
- **Improved** robustness against corrupt input PDF documents.

## 6.4 Changes in Version 4.9

- **Improved** support for and robustness against corrupt input PDF documents.
- **Improved** repair of embedded font programs that are corrupt.
- **Improved** metadata generation for standard PDF properties.

### Shell pdfsplmrg

The tool allows adding of embedded or associated files by means of the following new options:

- **New** option -ae
- **New** option -aea
- **New** option -aed
- **New** option -aem
- **New** option -aen
- **New** option -aer
- **New** option -aes

## 6.5 Changes in Version 4.8

- **New** warning issued if input page range is outside of the input document's pages.
- **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.

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