3-Heights™
Image to PDF Converter Shell

Version 6.6.0
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1 Introduction

1.1 Description

The 3-Heights™ Image to PDF Converter Shell converts raster image formats to PDF and PDF/A. PDF/A has been acknowledged world-wide as the ISO standard for long-term archiving since 2005. The Image to PDF Converter is used to convert images into a standardized format, for instance for electronic archiving or electronic data exchange. It is also possible to include metadata from external sources. The Converter is characterized by a robust design, high throughput and accurate image reproduction. The optional OCR add-in makes output files searchable in full text mode.

1.2 Functions

The 3-Heights™ Image to PDF Converter Shell converts raster image formats such as JPEG, TIFF or PNG to PDF or PDF/A. It can merge pages from various image files to form a single PDF and can also split multi-page image files into single page PDF files. Further options include defining page size and resolution, image scaling and the inclusion of (external) metadata. Optical character recognition (OCR) is also available as an option.

1.2.1 Features

Image to PDF

- Conversion of single page or multi-page raster images to PDF
- Convert JPM to PDF/A-2 with MRC
Set PDF conformance
Automatic or selectable image compression, depending on the image type
Automatic or selectable PDF page size
Selectable page area
Selectable image quality for lossy compression
Set image position
Set scaling
Set standard resolution (DPI / X and Y coordinates)
Set encryption and user access permissions
Selectable and embeddable ICC color profile
Define alternative texts (tagging) and image language
Set document attributes
Optional JPEG image recompression
Set image orientation (portrait or landscape)
Optical character recognition (OCR)
Embedding XMP metadata
Support for image masks
Support for mixed raster content (MRC)

Image to Image

Split single page or multi-page raster images into individual, single page images
Merge multiple images to form one multi-page image
Convert to an image format of the same color depth
Modify TIFF image compression
Set quality index for lossy image compression
Create lossless JBIG2 images and lossy/lossless JPEG2000
Set resolution and image dimensions

PdfOcr

Recognition of machine generated texts
Recognition of typewriter scripts and barcodes (1D)
Image manipulation
Image pre-processing

1.2.2 Formats

Input Formats

- BMP (1, 2, 4, 8, 24 bit)
- GIF (2 to 8 bit)
- JBIG2 (lossless compression)
- JPEG, JPEG2000 and JPEG-LS (Grayscale, RGB)
- JPM
- PBM and PNG (1 to 8, 24 bit)
- TIFF
  - Bitonal: uncompressed, CCITT G3, CCITT G3-2D, CCITT G4, LZW, ZIP, Packbits
  - Grayscale, RGB and CMYK: uncompressed, LZW, JPEG, JPEG (old), ZIP, Packbits
Output Formats - Image to PDF Converter

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

Output Formats - Image to Image Converter

- All input formats plus EPS

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
- Quality assurance: Isartor test suite

1.3 Operating Systems

The 3-Heights™ Image to PDF Converter Shell is available for the following operating systems:

- Windows Client 7+ | x86 and x64
- Linux:
  - Red Hat, CentOS, Oracle Linux 7+ | x64
  - Fedora 29+ | x64
  - Debian 8+ | x64
  - Other: Linux kernel 2.6+, GCC toolset 4.8+ | x64
- macOS 10.10+ | x64

‘+’ indicates the minimum supported version.
2 Installation

2.1 Windows

The 3-Heights™ Image to PDF Converter Shell comes as a ZIP archive or as an 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 "Image to PDF Converter 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. A different version can be selected using the combo box.
   There is an MSI (*.msi) package and a ZIP (*.zip) archive available. The MSI (Microsoft Installer) package provides an installation routine that installs and uninstalls the product for you. The ZIP archive allows you to select and install everything manually.
   There is a 32 and a 64-bit version of the product available. While the 32-bit version runs on both, 32 and 64-bit platforms, the 64-bit version runs on 64-bit platforms only. The MSI installs the 64-bit version, whereas the ZIP archive contains both the 32-bit and the 64-bit version of the product. Therefore, on 32-bit systems, the ZIP archive must be used.
3. If you select an MSI package, start it and follow the steps in the installation routine.
4. If you are using the ZIP archive, do the following. Unzip the archive to a local folder, e.g. C:\Program Files\PDF Tools AG\.
   This creates the following subdirectories:
<table>
<thead>
<tr>
<th>Subdirectory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin</td>
<td>Contains the runtime executable binaries.</td>
</tr>
<tr>
<td>doc</td>
<td>Contains documentation.</td>
</tr>
</tbody>
</table>

5. (Optional) To easily use the 3-Heights™ Image to PDF Converter Shell from a shell, the directory needs to be included in the “Path” environment variable.
6. (Optional) Register your license key using the License Management.
7. Ensure the cache directory exists as described in chapter Special Directories.
8. Make sure your platform meets the requirements regarding fonts described in chapter Fonts.
9. (Optional) Download and install the 3-Heights™ OCR Enterprise Add-On and the OCR Engine as described in the respective manuals:
   - 3-Heights™ OCR Service: OcrService.pdf from the separate product kit.

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 img2pdf.exe is located to the “Path” variable. If the environment variable “Path” does not exist, create it.
2.2 Linux and macOS

This section describes installation steps required on Linux or macOS.

Here is an overview of the files that come with the 3-Heights™ Image to PDF Converter Shell:

**File Description**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin/x64/img2pdf</td>
<td>This is the main executable.</td>
</tr>
<tr>
<td>bin/x64/*.ocr</td>
<td>These are OCR plugin modules.</td>
</tr>
<tr>
<td>doc/<em>.</em></td>
<td>Documentation</td>
</tr>
</tbody>
</table>

2.2.1 Linux

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:

   ```bash
   ldd img2pdf
   ```

   In case the above reports any missing libraries you have three options:
   a. Download an archive that is linked to a different 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. It usually suffices to install the package `libstdc++6`.
   c. Use GNU shared libraries provided by PDF Tools AG:
      2. Download the GNU shared libraries for your platform.
3. Install the libraries manually according your system's documentation. 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/x64/img2pdf /usr/bin
   ```

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

5. Ensure the cache directory exists as described in chapter [Special Directories](#).

6. Make sure your platform meets the requirements regarding fonts described in chapter [Fonts](#).

7. (Optional) Download and install the 3-Heights™ OCR Enterprise Add-On and the OCR Engine as described in the respective manuals:
   - 3-Heights™ OCR Add-On for ABBYY FineReader Engine v10: [OcrAbbyy10.pdf](#)
   - 3-Heights™ OCR Add-On for ABBYY FineReader Engine v11: [OcrAbbyy11.pdf](#)
   - 3-Heights™ OCR Add-On for ABBYY FineReader Engine v12: [OcrAbbyy12.pdf](#)
   - 3-Heights™ OCR Service: [OcrService.pdf](#) from the separate product kit.

### 2.3 Uninstall

If you have used the MSI for the installation, go to Start → 3-Heights™ Image to PDF Converter 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 Color Profiles

In PDF/A the usage of uncalibrated color spaces (DeviceGray, DeviceRGB, and DeviceCMYK) is prohibited because colors that are specified in this way cannot be reproduced reliably on multiple output devices. Therefore, when converting to PDF/A, a color profile has to be embedded.

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

#### 2.4.1 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` directory
2. `Icc`, which must be a direct sub-directory of where the `img2pdf.exe` resides.

**Linux and macOS**

1. `$PDF_ICC_PATH` if the environment variable is defined
2. The current working directory

#### 2.4.2 Set other Color Profiles

Another color profile may be set using the options `-oi` or `-cs`.

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2.4.3 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:

- [http://www.color.org/srgbprofiles.html](http://www.color.org/srgbprofiles.html)

2.5 Fonts

Fonts are required, if OCR is preformed and OCR text is added to a PDF document. Hereby it is crucial, that the fonts available in the Font Directories contain all characters required for the OCR text. For example, when recognizing Japanese OCR text, it is recommended to add the fonts “MS Mincho” or “MS Gothic” to the Font Directories.

2.5.1 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™ Image to PDF Converter Shell. Otherwise the font cache cannot be updated and the font directories have to be scanned on each program startup.

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

2.6 Note about the Evaluation License

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

2.7 Special Directories

2.7.1 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 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.
**Linux and macOS**

1. The path specified by the `$PDFTMPDIR` environment variable.
2. The path specified by the `$TMP` environment variable.
3. The `/tmp` directory.

### 2.7.2 Cache Directory

The cache directory is used for data that is persisted 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 will degrade 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`

**Linux and macOS**

- If the user has a home directory:
  
  `~/.pdf-tools/Caches`

- If the user has no home directory:
  
  `<TempDirectory>/pdf-tools/Caches`

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

### 2.7.3 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 will 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` directory `Fonts`, which must be a direct sub-directory of where `img2pdf.exe` resides.

**macOS**

1. `/System/Library/Fonts`
2. `/Library/Fonts`

**Linux**

1. `/usr/share/fonts`
2. `/usr/local/share/fonts`
3. `~/.fonts`
4. `$PDFFONTDIR` or `/usr/lib/X11/fonts/Type1`
3 License Management

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

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 shell tool is available in the **Utilities & Tools** section of your **My PDF Tools** customer account.

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-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-XXXXX
```

**Delete old license key:**

```
licmgr delete 1-XXXXX-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-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:

```bash
>licmgr info 1-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
- Key:          1-XXXXX-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:

```bash
licmgr select 1-XXXXX-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 updated 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-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-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-XXXXX |

3.5 Proxy Setting

A proxy URL can be configured for computers that cannot access the internet without a web proxy.
Note: The proxy must allow connections via HTTP CONNECT to the server www.pdf-tools.com:443.

In the Graphical User Interface press the button “Settings” in the toolbar:

and enter the proxy URL in the respective field:

3.6 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.

3.6.1 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-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.
3.6.2 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:

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

3.6.3 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

3.7 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-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.

3.8 License Key Storage

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

3.8.1 Windows

The license keys are stored in the registry:

- “HKLM\SOFTWARE\PDF Tools AG” (for all users)
3.8.2 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)

3.8.3 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
```

3.9 Troubleshooting

3.9.1 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.

3.9.2 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.
3.9.3 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.

3.9.4 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.

3.9.5 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.

3.9.6 Activation is invalidated too often

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

Possible causes:
- One of the properties used to calculate the system fingerprint is changing frequently.

Solution
Update to a newer version 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.

3.9.7 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.

### 3.9.8 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 as 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 3.6](#) 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 Getting Started

3-Heights™ Image to PDF Converter Shell provides three separate programs:

**img2pdf**  this executable is for converting most raster images files, such as TIFF, JPEG, PNG, BMP, GIF, etc. to a PDF or PDF/A document. The majority of this documentation is dedicated to this executable.

**img2img**  this executable is for converting a raster image from one format to another raster image format, e.g. from BMP to PNG.

**jpm2pdf**  this executable is for converting a JPM image (JPEG 2000, Part 6) to a PDF/A-2 document with Mixed Raster Content (MRC).

**pdfocr**  this executable is used in combination with an optical character recognition (OCR) engine to make PDF documents searchable by performing OCR on embedded images.

All features of the tools are listed in their usage. The usage can be retrieved by typing the name of the executable, such as `img2pdf`, without parameters.

The simplest command requires an input image file parameter and an output PDF file as parameters:

```plaintext
img2pdf input.tif output.pdf
```

It converts an image type file to a PDF document. If the image is multi-page TIFF image, then each page in the image will be converted to a page in the PDF output document.

To convert and concatenate several image files into one PDF document, add the input files as additional parameters before the output file:

```plaintext
img2pdf input1.tif input2.jpg input3.gif output.pdf
```

### 4.1 Specify the Folder of the Output File

The output folder can simply be added in front of the output file name

```plaintext
img2pdf input.pdf myfolder\output.pdf
```

or absolute (Windows):

```plaintext
img2pdf input.pdf C:\myfolder\output.pdf
```

### 4.2 The Use of Wildcards (*)

The 3-Heights™ Image to PDF Converter Shell supports wildcards. If a directory for example contains the following input JPEG files:

- A01.jpg
- A02.jpg
- A03.jpg
- B01.jpg
- B02.jpg

```plaintext
img2pdf *.jpg myfolder\output.pdf
```

or absolute (Windows):

```plaintext
img2pdf *.jpg C:\myfolder\output.pdf
```
Then the following command processes all JPEG files starting with the letter "A".

```
img2pdf A*.jpg output.pdf
```

**Note:** The file extension of the input files must always be a supported format. When using wildcards, it is helpful to set the verbose mode option `-v`. The command then looks like this:

```
img2pdf -v *.jpg output.pdf
```

And the generated output message looks like this:

Wildcards return a list of existing files. If you would like to convert all files in a directory to individual output files, it is required to use a variable to name the output files.

**Example:** Use the `for` command of the Windows CMD shell, to convert all JPEG files to individual PDF files with the same name and the extension `.pdf`, in the same directory:

```
for %f in (*.jpg) do img2pdf -v %f %~nf.pdf
```

**Example:** Of course, one can adjust the paths, or use a different output name:

```
for %f in (C:\InputDir\*.jpg) do img2pdf -v %f C:\OutputDir\%~nf.pdf
```

**Note:** Variables used in a batch file (.bat) require two leading `%` instead of one.

### 4.3 Converting Images to Images

To convert an image file to an image file with another format, you just need to enter the image to image executable, the file name and the desired output image file name, with the correct extension:

```
img2img input.tif output.jpg
```

**Note:** that the image to image converter cannot change the color depth.

### 4.4 JPM to PDF/A

Use the `jpg2pdf` executable to convert a JPEG 2000 Part 6 to a PDF/A-2 document.

```
jpm2pdf input.jpm output.pdf
```
The tool can create optional content groups which can be used by the reader of the PDF document to switch off and on the various MRC layers.

```
jpm2pdf -ocg input.jpm output.pdf
```

## 4.5 PdfOcr

After the PDF OCR Import Shell and the 3-Heights™ OCR Enterprise Add-On are installed, you can list the available OCR Add-Ons to retrieve the name of the OCR engine using the command `pdfocr -le` as shown below:

**Example:**

```
pdfocr -le
List of available OCR engines:
- abbyy10
- abbyy11
- service
End of list.
```

The list includes only the entries of the available OCR Add-ons. The entries in the list indicate which of the Add-Ons `pdfocrpluginservice.ocr`, `pdfocrpluginAbbyy10.ocr` and `pdfocrpluginAbbyy11.ocr` are found. The Add-Ons are required to communicate with the actual OCR-engine or service. Being able to list the Add-Ons does not necessarily mean the OCR-engine is installed and ready. How the OCR-engine is installed is described in the documentation `PdfOcrEnterprise.pdf`.

Once the name (e.g. “abbyy11”) is known, it is provided as argument to the switch `-ocr`. The command following example is the basic command to apply OCR to a document, i.e. the input document `input.pdf` is read, OCR is applied, and the resulting, ocr'ed document is saved as `output.pdf`.

**Example:** Set the OCR engine to the “Abbyy FineReader 11 OCR Engine”

```
pdfocr -ocr abbyy11 input.pdf output.pdf
```

Additional OCR engine dependant settings or settings related to encryption are described in the chapter [Interface Reference](#).
5 Interface Reference

5.1 Options for Image to PDF

5.1.1 @\textit{filename} Use a Control File

<table>
<thead>
<tr>
<th>Use a Control File @\textit{filename}</th>
</tr>
</thead>
</table>

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

\begin{verbatim}
-q 80  
-i "Title=My Title"
"C:\Some Path\input.tif"
output.pdf
\end{verbatim}

**Example:** A command using a control file:

`img2pdf @control.txt`

5.1.2 -a Adjust the Page Size to the Size of the Image

<table>
<thead>
<tr>
<th>Adjust the Page Size to the Size of the Image -a</th>
</tr>
</thead>
</table>

Adjust the pages of the PDF document to the size of the image. This disables -c and -f.

5.1.3 -aa Set Alternate Text

<table>
<thead>
<tr>
<th>Set Alternate Text -aa \textit{alt}</th>
</tr>
</thead>
</table>

In order to create a document that conforms to PDF/A-2a, an image must have an alternate text. The option -aa sets this alternate text. This option is only relevant in combination with PDF/A-2a. The default text is "Imported image".

**Example:** Set the conformance to PDF/A-2a and set the alternative text for the image to "some text".

`img2pdf -cl pdfa-2a -aa "some text" input.tif output.pdf`
5.1.4  -al  Set Language for Alternate Text

Set Language for Alternate Text  -al <lang>

Set the language for the alternate text that is set using the option -aa. The default language is US-EN. Other languages can be set using the corresponding abbreviations, e.g. DE (German), FR (French), etc.

**Example:**  Set the conformance to PDF/A-2a, set the alternative text to "Beschreibung" and the language to German.

```
img2pdf -cl pdfa-2a -aa "Beschreibung" -al DE input.tif output.pdf
```

5.1.5  -ao  Adjust page orientation

Adjust page orientation  -ao

When set, every page of the PDF is oriented in such a way that the longer side length of the input image conforms with the longer side length of the corresponding page.

**Example:**  Fit input TIFF (multipage) to PDF with A5 pages. Adjust orientation of every PDF page to corresponding input TIFF page.

```
img2pdf -ao -f -sp 420 595 input.tif output.pdf
```

5.1.6  -ax  Add XMP Metadata

Add XMP Metadata  -ax <file>

Specify a file with XMP metadata, which are added to the output document. The XMP metadata are copied only and not checked for PDF conformance.

5.1.7  -b  Set Bits per Pixel

Set Bits per Pixel  -b <n>

Set the color depth. Available: Bi-tonal: 1. When using 1 bit per pixel, it is suggested to set a suitable dithering algorithm (option -h).

**Example:**  Convert to bitonal and use LZW compression.

```
img2pdf -b 1 -fb 3 input.jpg output.pdf
```
5.1.8  **-bc Set Crop Box**

<table>
<thead>
<tr>
<th>Set Crop Box</th>
<th>-bc &lt;x&gt; &lt;y&gt; &lt;w&gt; &lt;h&gt;</th>
</tr>
</thead>
</table>

Set the crop box. It takes four parameters: x-position, y-position, width and height. All values are in PDF points (A4 = 595 x 842 points).

The crop box is a rectangle, defining the visible region of the page. When the page is displayed or printed, its contents are to be clipped (cropped) to this rectangle and then imposed on the output medium in some implementation-defined manner.

**Example:** The following command creates an image with a crop box that is positioned 50 points from the left border, 100 points from the bottom, is 150 points wide and 200 points high.

```bash
img2pdf -bc 50 100 150 200 input.tif output.pdf
```

If no crop box is set, the crop box is equal to the media box.

5.1.9  **-c Center Images**

<table>
<thead>
<tr>
<th>Center Images</th>
<th>-c</th>
</tr>
</thead>
</table>

Center the images on the pages horizontally and vertically. This disables **-a**.

5.1.10  **-cl Set Conformance Level**

<table>
<thead>
<tr>
<th>Set Conformance Level</th>
<th>-cl &lt;level&gt;</th>
</tr>
</thead>
</table>

Set the PDF conformance level. Supported conformance levels are:

- **pdf1.x**  Regular PDF versions 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7
- **pdf2.0**  Regular PDF version 2.0
- **pdfa-1b**  PDF/A-1b format
- **pdfa-1a**  PDF/A 1a format (accessibility)
- **pdfa-2b**  PDF/A 2b format
- **pdfa-2u**  PDF/A 2u format (Unicode)
- **pdfa-2a**  PDF/A 2a format (accessibility)
- **pdfa-3b**  PDF/A 3b format
- **pdfa-3u**  PDF/A 3u format (Unicode)
- **pdfa-3a**  PDF/A 3a format (accessibility)

The default is **pdf1.7**.

**Example:** To create a document that conforms to PDF/A-1b, use a setting like this:

```bash
img2pdf -cl pdfa-2b input.tif output.pdf
```
Note: In order to create PDF/A compatible documents, it may be required to provide a color profile. The color profile will then be embedded in the PDF/A document. (See switches `-cs` and `-oi`)

Selecting a PDF/A conformance level will automatically generate the XML metadata and other requirements to meet the PDF/A specification. If JPEG2000 images are to be converted to PDF/A and the JPEG2000 compression shall be retained, a PDF/A-2 or PDF/A-3 conformance level must be selected.

### 5.1.11 -cs Color Space Profile

**Color Space Profile** `-cs`

Set a color profile for embedding in the output PDF. The color profile provided here is used directly for the image’s color space in the output PDF. See also `-oi` for setting the PDF’s output intent.

At maximum three profiles (one RGB profile, one CMYK profile, and one Gray profile) can be set by using at most one `-oi` switch and/or at most three `-cs` switches.

**Example:** Set a color profile for all RGB images in the PDF.

```
img2pdf -cs "C:\Windows\system32\spool\drivers\color\sRGB\Color Space Profile.icm" input.jpg output.pdf
```

### 5.1.12 -d Set Resolution in DPI

**Set Resolution in DPI** `-d <dpi>`

Set the default resolution in dots per inch (DPI) if not provided from the image. The default is 96. If the resolution is given by the image then this option does not have any effect. Basically the switch `-d` changes the amount of dots per inch by changing the size of the image in the PDF document. The size of the raster image in pixel is not changed.

**Example:** Set the resolution to 150 DPI.

```
img2pdf -d 150 input.tif output.pdf
```

### 5.1.13 -f Fit the Image Size to the Page Size

**Fit the Image Size to the Page Size** `-f`

Scale the image to fit on the page dimensions. This disables `-a`.

### 5.1.14 -fb Bi-tonal Image Compression

**Bi-tonal Image Compression** `-fb <compr>`
Set the bi-tonal image compression. Default is 6 (CCITT Fax Group 4). See Compression Types for possible codecs.

Example: Set the compression for bi-tonal images to CCITT Fax Group 3.

\[
\text{img2pdf} \ -fb \ 4 \ \text{input.tif} \ \text{output.pdf}
\]

5.1.15 -fc Color / Grey Scale Image Compression

Color / Grey Scale Image Compression -fc \( <\text{compr}> \)

Set the color / grey image compression. Default is 1 (JPEG). See Compression Types for possible codecs.

Example: Set the compression for color images to JPEG2000.

\[
\text{img2pdf} \ -fc \ 8 \ \text{input.jpg} \ \text{output.pdf}
\]

5.1.16 -h Dithering Mode

Dithering Mode -h \( <\text{mode}> \)

Set the dithering mode. Allowed values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>no dithering</td>
</tr>
<tr>
<td>1</td>
<td>(Default) Floyd-Steinberg</td>
</tr>
<tr>
<td>2</td>
<td>Halftone block</td>
</tr>
<tr>
<td>3</td>
<td>Halftone continuous</td>
</tr>
<tr>
<td>4</td>
<td>G3 Optimized</td>
</tr>
<tr>
<td>5</td>
<td>G4 Optimized</td>
</tr>
<tr>
<td>6</td>
<td>Atkinson dithering is very fast and produces images that can be compressed really well with reasonably good image quality.</td>
</tr>
</tbody>
</table>

Dithering provides a better image quality, especially for 1 bit images, at the cost of a larger file size.

Example: Convert image to bi-tonal, use dithering mode halftone continuous and use jbig2 compression

\[
\text{img2pdf} \ -h \ 3 \ -b \ 1 \ -fb \ 7 \ \text{input.jpg} \ \text{output.tif}
\]
### 5.1.17 -fi Indexed Image Compression

Indexed Image Compression  -fi <compr>

Set the indexed image compression. Default is 2 (Flate). See [Compression Types](#) for possible codecs.

**Example:** Set the compression for indexed images to LZW.

```bash
img2pdf -fi 3 input.tif output.pdf
```

### 5.1.18 -fr Recompress JPEG Streams

Recompress JPEG Streams  -fr

Re-compress JPEG streams. This is useful for JPEG streams that cannot be read by certain (older) PDF viewing applications.

### 5.1.19 -fu Unpack Indexed Images

Unpack Indexed Images  -fu

This switch instructs the converter to unpack images with bits per sample of less than 8 to exactly 8 bits.

### 5.1.20 -i Set Document Information

Set Document Information  -i <key=value>

Set document properties, such as “Title”, “Author”, “Subject”, “Keywords”.

**Example:** Set the title and the author entries of the document properties.

```bash
img2pdf -i Title="My Title" -i Author="My Name" input.tif output.pdf
```

### 5.1.21 -le List OCR Engines

List OCR Engines  -le

OCR engines are accessed through the corresponding OCR interface DLLs. At present interfacing the following engines are supported:

- **Abbyy FineReader 11 OCR Engine**
  - This engine is accessed by the OCR interface DLL `pdfocrpluginAbbyy11.ocr`.

- **Abbyy FineReader 10 OCR Engine**
  - This engine is accessed by the OCR interface DLL `pdfocrpluginAbbyy10.ocr`.

© PDF Tools AG – Premium PDF Technology
3-Heights™ OCR Service  This service is accessed by the OCR interface DLL pdfocrpluginService.ocr. The service accesses the Abbyy FineReader 10 or 11 OCR Engine.

The OCR interface DLLs are provided by the 3-Heights™ Image to PDF Converter Shell. The OCR engine is provided as a separate product, such as 3-Heights™ OCR Enterprise Add-On.

Here is an example of listing available OCR engines:

```
img2pdf -le
List of available OCR engines:
- abbyy11
- abbyy10
- service
End of list.
```

In order to make use of the OCR engine, the OCR interface DLL and the OCR engine must be installed. The switch -le lists all available OCR interface DLLs. It does not verify the corresponding OCR engine is installed and can be initialized. The OCR engine is actually accessed when using the switch -ocr.

5.1.22  **-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.

```
img2pdf -lk X-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ...
```

This is required in an OEM scenario only.

5.1.23  **-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›.

```
img2pdf -o ‹owner› input.pdf output.pdf
```

5.1.24  **-ocb  Convert Images to Bitonal before OCR Recognition**

```
Convert Images to Bitonal before OCR Recognition  -ocb
```

Specify whether the images should be converted to bi-tonal (black and white) before OCR recognition. Enabling this feature can improve the memory consumption of the OCR process.
5.1.25 -ocbc Embed barcodes

Embed the recognized barcodes in the XMP metadata.

5.1.26 -ocd Resolution for OCR Recognition

Resample images to target resolution before they are sent to the OCR engine. If no value is set, images are re-sampled to 300 DPI for OCR, which is the preferred resolution for most OCR engines.

5.1.27 -oci Do not deskew image

Do not de-skew original image (with -ocs only). This option specifies whether the image and text are de-skewed according to the recognized skew angle.

- With option -oci:
  Do not change skew of images (i.e. do not change appearance of the page). This setting is recommended for born-digital documents.
- Without option -oci:
  Rotate image, such that lines of text are made horizontal. This might change the appearance of the page. This setting is recommended for scanned documents.

5.1.28 -ocl Set OCR Language

In order to optimize the performance of the OCR engine, it can be given hints what languages are used. The default language of the Abbyy FineReader 11 OCR Engine is English. This switch can only be used if the switch -ocr is set. This setting depends on the OCR engine.

The following switch set the languages to English and German:

```
img2pdf -ocr abbyy11 -ocl "English, German" input.tif output.pdf
```

See also documentation for the 3-Heights™ OCR Add-On.

5.1.29 -ocr Load OCR Engine

If a PDF document has to be made fully text searchable even if the text is part of a raster image then the images which are contained in the PDF document must be run through an OCR engine. With this switch the user can select an OCR engine, e.g. Abbyy11, and instruct the tool to embed the recognized text as a hidden layer on top of the
image. If the add-in is not found or the engine cannot be initialized (because it is not installed or the license key is not valid) then an error message is issued.

The name of the OCR engine can be retrieved using the switch `-le`. If the switch `-ocr` is not used, no OCR is applied.

**Example:** The following switch sets the OCR engine to the OCR Service

```
img2pdf -ocr service input.tif output.pdf
```

See also documentation for the 3-Heights™ OCR Add-On.

### 5.1.30 -ocri Reembed preprocessed image

**Reembed preprocessed image** `-ocri`

This option currently requires the `-occs` to be set.

The OCR engine de-skews and de-noises the input image before recognizing the characters. This option controls whether the 3-Heights™ Image to PDF Converter Shell should use the preprocessed image or keep the original image.

This option has only an effect, if the preprocessed image is provided by the OCR engine, which depends on the type and settings of the engine.

If this option is set, the resulting image may have a different color space, compression and size.

Since this option currently requires `-occs`, it is recommended only for simple scanned documents.

### 5.1.31 -ocp Set OCR Parameters

**Set OCR Parameters** `-ocp <params>`

Using this switch, OCR engine specific parameters (key/value pairs) can be set to optimize the performance.

The following switch sets a predefined profile (i.e. a configuration setting) which is optimized for creating electronic archives with high accuracy:

```
img2pdf -ocr abbyy11 -ocp "PredefinedProfile = DocumentArchiving_Accuracy"
input.tif output.pdf
```

See also documentation for the 3-Heights™ OCR Add-On.

### 5.1.32 -occs Correct skew angle

**Correct skew angle** `-occs`

Correct the skew angle of images.

This option has only an effect, if the required information is provided by the OCR engine, which depends on the type and settings of the engine.

This option might change the appearance of the page and is only recommended for simple scanned documents that consist of a single image.
Using the option for digital-born documents may destroy the page layout.

### 5.1.33 -ocs Do Not Re-embed De-skewed Image

<table>
<thead>
<tr>
<th>Do Not Re-embed De-skewed Image -ocs</th>
</tr>
</thead>
</table>

The OCR engine de-skews and de-noises the input image before recognizing the characters. This option controls whether the 3-Heights™ Image to PDF Converter Shell should use the de-skewed image or keep the original image.

- With option -ocs:
  - Embed the original image (also see option -oci). This setting is recommended for born-digital documents.
- Without option -ocs:
  - Embed the de-skewed and de-noised image from the OCR engine. This might change the appearance of the page. This setting is recommended for scanned documents.

### 5.1.34 -oct Threshold Resolution for OCR

<table>
<thead>
<tr>
<th>Threshold Resolution for OCR -oct (n)</th>
</tr>
</thead>
</table>

Only images with a higher resolution than the threshold are re-sampled before OCR. The default is 400 DPI. If set to -1, no re-sampling is applied.

**Example:** Resample all images with a resolution of more than 300 DPI to 300 DPI:

```
img2pdf -ocd 300 -oct 1 input.tif output.pdf
```

**Example:** Resample all images with a resolution of 400 DPI or more to 300 DPI (default):

```
img2pdf -ocd 300 -oct 400 input.tif output.pdf
```

**Example:** Do not resample:

```
img2pdf -oct -1 input.tif output.pdf
```

**Compatibility Note:** Initially this switch was called -ocD and then renamed to -oct to avoid confusions with the switch -ocd.

### 5.1.35 -ocx Export recognized ocr text to file

<table>
<thead>
<tr>
<th>Export recognized ocr text to file -ocx (\text{&lt;file&gt;})</th>
</tr>
</thead>
</table>

Export the retrieved OCR text to a file. This function can only be used in combination with an OCR engine (see -ocr). When an OCR engine is set, the OCR text is always embedded in the resulting PDF document. If this method is used, it is in addition also extracted to a file.

The output format is a table, where rows are separated by a new line and columns are separated by a tabulator. The table contains the following columns:
<table>
<thead>
<tr>
<th>Output column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page</td>
<td>Page number</td>
</tr>
<tr>
<td>Image</td>
<td>PDF object number which contains the image</td>
</tr>
<tr>
<td>FontSize</td>
<td>Font size in points</td>
</tr>
<tr>
<td>FontName</td>
<td>Font name, for any barcode font the name is Barcode. This value is only set if the font name is returned by the OCR engine.</td>
</tr>
</tbody>
</table>
| FontFamily    | 1 Serif  
2 SansSerif  
3 Monospaced  
This value is only set if provided by the OCR engine. |
| FontStyles    | 2 Bold  
4 Italic  
8 Underline  
16 Strikeout  
This value is only set if provided by the OCR engine. 
Example: 6 = 2 + 4 = Bold + Italic |
| Baseline      | Baseline of the text |
| Left, Top, Right, Bottom | Bounding box of the text in PDF coordinates |
| String        | Recognized text |

**Example:** Write extracted text to the file text.txt.

```bash
img2pdf -ocr abbyy11 -ocx text.txt input.tif output.pdf
```

### 5.1.36 -oi Set Output Intent

**Set Output Intent** -oi `<profile>`

The output intent holds the output color profile. Color profiles are usually provided with the OS. On Windows for example they can be found at `C:\Windows\System32\spool\drivers\color`. Alternatively profiles can be found here:

- [www.color.org/srgbprofiles.html](http://www.color.org/srgbprofiles.html)

**Note:** Most color profiles are copyrighted, therefore you should read the license agreements on the above links before using the color profiles.
Example: Set the output intent to a specific profile that exists on the system.

```
img2pdf -oi "C:\Windows\system32\spool\drivers\color\sRGB Color Space Profile.icm" input.tif output.pdf
```

### 5.1.37 -or Set Image Orientation

**Set Image Orientation**

- **or** `<n>`

Set the orientation of the image. Available orientations are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(Default)</td>
<td>inherent Undefined</td>
</tr>
<tr>
<td>1</td>
<td>top-left</td>
<td>Untransformed</td>
</tr>
<tr>
<td>2</td>
<td>top-right</td>
<td>Horizontal flip</td>
</tr>
<tr>
<td>3</td>
<td>bottom-right</td>
<td>Rotation by 180°</td>
</tr>
<tr>
<td>4</td>
<td>bottom-left</td>
<td>Vertical flip</td>
</tr>
<tr>
<td>5</td>
<td>left-top</td>
<td>Rotation by 90° clockwise followed by horizontal flip</td>
</tr>
<tr>
<td>6</td>
<td>right-top</td>
<td>Rotation by 90° clockwise</td>
</tr>
<tr>
<td>7</td>
<td>right-bottom</td>
<td>Rotation by 90° clockwise followed by vertical flip</td>
</tr>
<tr>
<td>8</td>
<td>left-bottom</td>
<td>Rotation by 90° counter-clockwise</td>
</tr>
</tbody>
</table>

### 5.1.38 -ow Optimize for the Web

**Optimize for the Web**

- **ow**

Add so called linearization tags to the document. 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.

### 5.1.39 -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

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>allow nothing (no permissions are granted)</td>
</tr>
<tr>
<td>4</td>
<td>allow printing (low resolution)</td>
</tr>
<tr>
<td>8</td>
<td>allow changing the document</td>
</tr>
<tr>
<td>16</td>
<td>allow content copying or extraction</td>
</tr>
<tr>
<td>32</td>
<td>allow annotations</td>
</tr>
<tr>
<td>256</td>
<td>allow filling of form fields</td>
</tr>
<tr>
<td>512</td>
<td>support disabilities</td>
</tr>
<tr>
<td>1024</td>
<td>allow document assembly</td>
</tr>
<tr>
<td>2048</td>
<td>allow high quality printing</td>
</tr>
</tbody>
</table>

Any combination of permissions can be granted by adding up their values.

**Example:** The following command sets the owner password to “owner” and the permission flags to allow “printing in low resolution” 4 and “allow form filling” 256.

```
img2pdf -o owner -p 260 input.tif output.pdf
```

**Example:** “High quality printing” 2048 requires the standard printing flag 4 to be set too.

```
img2pdf -o owner -p 2052 input.tif output.pdf
```

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

### 5.1.40 -pg Page Range

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

If not all pages should be printed, the page range can be defined using the switch -pg. Use 1 for the first page, use -1 for the last page.

**Example:** Convert the first page only.

```
img2pdf -pg 1 1 input.tif output.pdf
```

**Example:** Convert all but the first page.

```
img2pdf -pg 2 -1 input.tif output.pdf
```
5.1.41 -q Set Image Quality

Set Image Quality  -q <quality>

Some image compression algorithms, such as JPEG or JPEG2000 support lossy compression. The quality index can be controlled using the option -q. The lowest quality index is 1, the highest is 100. The default value is 80. If the quality is set to 100, JPEG2000 images are compressed lossless.

Example: Set the image quality to 100 use JPEG2000 with lossless compression for color images:

```
img2pdf -fc 8 -q 100 input.jpg output.pdf
```

5.1.42 -rw Report decode errors

Report decode errors  -rw

Return error code if decode errors occur.

5.1.43 -sb Set Border Size

Set Border Size  -sb <n>

Define the width of a white border around the image in pages of the PDF document. The units are points (1 point = 1/72 inch). The default is 0 points. The border is not increasing the dimensions of the page set by the option -sp.

Example: Set the width of the border to 20 points.

```
img2pdf -sb 20 input.tif output.pdf
```

5.1.44 -sp Set Page Dimensions

Set Page Dimensions  -sp <w> <h>

Set the dimensions of the pages of the PDF document in points (1 point = 1/72 inch). The default is A4 (595 x 842 points). Disables option -a.

Example: Create “Letter” sized PDF pages.

```
img2pdf -sp 612 792 input.tif output.pdf
```

5.1.45 -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.

```
img2pdf -u userpassword -o ownerpassword input.tif output.pdf
```

### 5.1.46 `-v` Verbose Mode

**Verbose Mode**

This option turns on the verbose mode.

In the verbose mode, additional information during the processing is written to the shell.

### 5.2 Options for Image to Image

#### 5.2.1 `-cb` Bi-tonal Image Compression

**Bi-tonal Image Compression**

Set the bi-tonal image compression. Default is 6 (CCITT Fax Group 4). See [Compression Types: TIFF Only](#) for possible codecs.

**Example:** Set the compression for bi-tonal images to CCITT Fax Group 3.

```
img2img -cb 4 input.tif output.tif
```

#### 5.2.2 `-cc` Color / Grey Scale Image Compression

**Color / Grey Scale Image Compression**

Set the color / grey image compression. Default is 9 (TIFFJPEG). See [Compression Types: TIFF Only](#) for possible codecs.

**Example:** Set the compression for color images to JPEG.

```
img2img -cc 1 input.jpg output.tif
```
5.2.3 -ci Indexed Image Compression

Indexed Image Compression -ci 〈compr〉

Set the indexed image compression. Default is 3 (LZW). See Compression Types: TIFF Only for possible codecs.

Example: Set the compression for indexed images to Flate.

```
img2img -ci 2 input.tif output.tif
```

5.2.4 -d Set Resolution

Set Resolution -d 〈dpi〉

Set the resolution of the output image in dots per inch (DPI). The width and the height remain constant. If furthermore option -r is set, true_width and true_height are constant, whereas the width and the height are changed. This latter case results in a resampling of the image. For more information about the behavior see Specification of Resolution and Image Dimensions.

Example: Set the resolution of output file to 300 DPI and let true_width and true_height be constant.

```
img2img -d 300 -r input.tif output.tif
```

5.2.5 -dd Set Default Resolution

Set Default Resolution -dd 〈dpi〉

Set the default resolution of the input image in dots per inch (DPI). It is only effective in case where the input image has no resolution stated. Default 96 DPI.

Example: Set the default resolution of input file to 72 DPI.

```
img2img -dd 72 input.tif output.bmp
```

5.2.6 -fu Unpack Indexed Images

Unpack Indexed Images -fu

This switch instructs the converter to unpack images with bits per sample of less than 8 to exactly 8 bits.

5.2.7 -hp Set Height

Set Height -hp 〈height〉
Set the height in pixels of the output image. The width is calculated respecting proportions. If the width is set too (see `-wp`), the height is omitted. For more information about the behavior see Specification of Resolution and Image Dimensions.

**Example:** Set height of output file to 1800 pixels.

```
img2img -hp 1800 input.tif output.bmp
```

### 5.2.8  `-ht` Set True Height

```
Set True Height -ht <true_height>
```

Set the true_height in mm of output image. The true_width is calculated respecting proportions. If the true_width is set too (see `-wt`), the true_height is omitted. For more information about the behavior see Specification of Resolution and Image Dimensions.

**Example:** Set true_height of output file to 500 mm and let the resolution be constant.

```
img2img -ht 500 -r input.bmp output.jpg
```

### 5.2.9  `-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.

```
img2pdf -lk X-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ...
```

This is required in an OEM scenario only.

### 5.2.10  `-m` Merge Input to Multi-Page Output

```
Merge Input to Multi-Page Output -m
```

Merge several input files into one image output file.

**Example:** Merge all TIFF files in a folder into one TIFF file.

```
img2img -m *.tif output.tif
```

### 5.2.11  `-pg` Page Range

```
Page Range -pg <first> <last>
```

If not all pages should be converted, the page range can be defined using the switch `-pg`. Use 1 for the first page, use `-1` for the last page. This switch is not available when merging (see `-m`).

**Example:** Convert the first page only.

```
img2img -pg 1 1 input.tiff output.tiff
```

**Example:** Convert all but the first page to jpg.

```
img2img -pg 2 -1 -s input.tiff output%d.jpg
```

### 5.2.12 `-q` Set Image Quality

**Set Image Quality** `-q <quality>`

Set the quality index for lossy compression such as JPEG. Allowed values are 1 (lowest) to 100 (highest). Default is 80.

**Example:** Set the image quality to 50.

```
img2img -q 50 input.jpg output.jpg
```

A quality index of 100 means lossless compression if the format supports it (JPEG2000).

### 5.2.13 `-r` Allow Resampling

**Allow Resampling** `-r`

Forces resampling in situations where only the resolution (see `-d`) or only the true_width/true_height (see `-wt`, `-ht`) is set. For more information about the behavior see Specification of Resolution and Image Dimensions.

**Example:** Set resolution of output to 72 DPI, let true_width and true_height be constant.

```
img2img -r -d 72 input.tif output.tif
```

### 5.2.14 `-s` Split Multi-Page Input to Single-Page Output

**Split Multi-Page Input to Single-Page Output** `-s`

Split a multiple page input file (e.g. a 5-page TIFF file) into single page output files (e.g. 5 separate TIFF files).

### 5.2.15 `-t` Transform Colors from CMYK to RGB

**Transform Colors from CMYK to RGB** `-t`
Apply a color conversion and convert CMYK to RGB.

5.2.16 -wp  Set Width

```plaintext
Set Width   -wp <width>
```

Set the width in pixels of the output image. The height is calculated respecting proportions. If the height is set too (see -hp), the height is omitted. For more information about the behavior see Specification of Resolution and Image Dimensions.

**Example:**  Set width of output file to 1500 pixels and resolution to 300 DPI.

```
img2img -wp 1500 -d 300 input.tif output.bmp
```

5.2.17 -wt  Set True Width

```plaintext
Set True Width   -wt <true_width>
```

Set the true_width in mm of output image. The true_height is calculated respecting proportions. If the true_height is set too (see -ht), the true_height is omitted. For more information about the behavior see Specification of Resolution and Image Dimensions.

**Example:**  Set true_width of output file to 500 mm and width to 1000 pixels.

```
img2img -wt 500 -wp 1000 input.bmp output.tif
```

5.3 Options for PdfOcr

5.3.1 -le  List OCR Engines

```plaintext
List OCR Engines   -le
```

OCR engines are accessed through the corresponding OCR interface DLLs. At present interfacing the following engines are supported:

**Abbyy FineReader 11 OCR Engine**  This engine is accessed by the OCR interface DLL `pdfocrpluginAbbyy11.ocr`.

**Abbyy FineReader 10 OCR Engine**  This engine is accessed by the OCR interface DLL `pdfocrpluginAbbyy10.ocr`.

**3-Heights™ OCR Service**  This service is accessed by the OCR interface DLL `pdfocrpluginService.ocr`. The service accesses the Abbyy FineReader 10 or 11 OCR Engine.

The OCR interface DLLs are provided by the 3-Heights™ Image to PDF Converter Shell. The OCR engine is provided as a separate product, such as 3-Heights™ OCR Enterprise Add-On.
Here is an example of listing available OCR engines:

```
img2pdf -le
List of available OCR engines:
- abbyy11
- abbyy10
- service
End of list.
```

In order to make use of the OCR engine, the OCR interface DLL and the OCR engine must be installed. The switch `-le` lists all available OCR interface DLLs. It does not verify the corresponding OCR engine is installed and can be initialized. The OCR engine is actually accessed when using the switch `-ocr`.

### 5.3.2 -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.

```
img2pdf -lk X-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ...
```

This is required in an OEM scenario only.

### 5.3.3 -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>`.

```
img2pdf -o owner input.pdf output.pdf
```

### 5.3.4 -oca Rotate the image to the detected angle

```
Rotate the image to the detected angle -oca
```

The OCR engine may detect that an image needs to be rotated in order to have the text in an up-right position. If this is the case and this switch is used then the original image is replaced by the rotated image.

### 5.3.5 -ocb Convert Images to Bitonal before OCR Recognition

```
Convert Images to Bitonal before OCR Recognition -ocb
```

Specify whether the images should be converted to bi-tonal (black and white) before OCR recognition. Enabling this feature can improve the memory consumption of the OCR process.
5.3.6  -ocbc  Embed barcodes

Embed barcodes -ocbc

Embed the recognized barcodes in the XMP metadata.

5.3.7  -occs  Correct skew angle

Correct skew angle -occs

Correct the skew angle of images.
This option has only an effect, if the required information is provided by the OCR engine, which depends on the type and settings of the engine.
This option might change the appearance of the page and is only recommended for simple scanned documents that consist of a single image.
Using the option for digital-born documents may destroy the page layout.

5.3.8  -ocd  Resolution for OCR Recognition

Resolution for OCR Recognition -ocd \n
Resample images to target resolution before they are sent to the OCR engine. If no value is set, images are re-sampled to 300 DPI for OCR, which is the preferred resolution for most OCR engines.

5.3.9  -oci  Do not deskew image

Do not deskew image -oci

Do not de-ske original image (with -ocs only). This option specifies whether the image and text are de-skewed according to the recognized skew angle.
- With option -oci:
  Do not change skew of images (i.e. do not change appearance of the page). This setting is recommended for born-digital documents.
- Without option -oci:
  Rotate image, such that lines of text are made horizontal. This might change the appearance of the page. This setting is recommended for scanned documents.

5.3.10 -ocl  Set OCR Language

Set OCR Language -ocl \languages\n
In order to optimize the performance of the OCR engine, it can be given hints what languages are used. The default language of the Abbyy FineReader 11 OCR Engine is English. This switch can only be used if the switch -ocr is set. This setting depends on the OCR engine.
The following switch set the languages to English and German:
5.3.11  -ocm  OCR mode

Specify behavior of the 3-Heights™ Image to PDF Converter Shell for files with existing OCR text. Available OCR modes are the following:

1. Only perform OCR for images without existing OCR text (default).
2. If OCR engine is active, remove old OCR text and perform OCR for all images. Hence, existing OCR text is not removed if OCR engine is not active.
3. Only perform OCR if input file contains no text.

Example: Set OCR mode 2

```plaintext
img2pdf -ocr abbyy11 -ocm 2 input.tif output.pdf
```

5.3.12  -ocp  Set OCR Parameters

Using this switch, OCR engine specific parameters (key/value pairs) can be set to optimize the performance.

The following switch sets a predefined profile (i.e. a configuration setting) which is optimized for creating electronic archives with high accuracy:

```plaintext
img2pdf -ocr abbyy11 -ocp "PredefinedProfile = DocumentArchiving_Accuracy" input.tif output.pdf
```

See also documentation for the 3-Heights™ OCR Add-On.

5.3.13  -ocr  Load OCR Engine

If a PDF document has to be made fully text searchable even if the text is part of a raster image then the images which are contained in the PDF document must be run through an OCR engine. With this switch the user can select an OCR engine, e.g. Abbyy11, and instruct the tool to embed the recognized text as a hidden layer on top of the image. If the add-in is not found or the engine cannot be initialized (because it is not installed or the license key is not valid) then an error message is issued.

The name of the OCR engine can be retrieved using the switch -le. If the switch -ocr is not used, no OCR is applied.
**Example:** The following switch sets the OCR engine to the OCR Service

```
img2pdf -ocr service input.tif output.pdf
```

See also documentation for the 3-Heights™ OCR Add-On.

### 5.3.14 -ocri Reembed preprocessed image

This option currently requires the `-occs` to be set.

The OCR engine de-skews and de-noises the input image before recognizing the characters. This option controls whether the 3-Heights™ Image to PDF Converter Shell should use the preprocessed image or keep the original image.

This option has only an effect, if the preprocessed image is provided by the OCR engine, which depends on the type and settings of the engine.

If this option is set, the resulting image may have a different color space, compression and size.

Since this option currently requires `-occs`, it is recommended only for simple scanned documents.

### 5.3.15 -ocs Do Not Re-embed De-skewed Image

The OCR engine de-skews and de-noises the input image before recognizing the characters. This option controls whether the 3-Heights™ Image to PDF Converter Shell should use the de-skewed image or keep the original image.

- **With option -ocs:**
  Embed the original image (also see option `-oci`). This setting is recommended for born-digital documents.

- **Without option -ocs:**
  Embed the de-skewed and de-noised image from the OCR engine. This might change the appearance of the page. This setting is recommended for scanned documents.

### 5.3.16 -oct Threshold Resolution for OCR

Only images with a higher resolution than the threshold are re-sampled before OCR. The default is 400 DPI. If set to `-1`, no re-sampling is applied.

**Example:** Resample all images with a resolution of more than 300 DPI to 300 DPI:

```
img2pdf -ocd 300 -oct 1 input.tif output.pdf
```

**Example:** Resample all images with a resolution of 400 DPI or more to 300 DPI (default):

```
img2pdf -ocd 300 -oct 400 input.tif output.pdf
```
5.3.17 -p Permission 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.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>allow nothing (no permissions are granted)</td>
</tr>
<tr>
<td>4</td>
<td>allow printing (low resolution)</td>
</tr>
<tr>
<td>8</td>
<td>allow changing the document</td>
</tr>
<tr>
<td>16</td>
<td>allow content copying or extraction</td>
</tr>
<tr>
<td>32</td>
<td>allow annotations</td>
</tr>
<tr>
<td>256</td>
<td>allow filling of form fields</td>
</tr>
<tr>
<td>512</td>
<td>support disabilities</td>
</tr>
<tr>
<td>1024</td>
<td>allow document assembly</td>
</tr>
<tr>
<td>2048</td>
<td>allow high quality printing</td>
</tr>
</tbody>
</table>

Any combination of permissions can be granted by adding up their values.

Example: The following command sets the owner password to "owner" and the permission flags to allow "printing in low resolution" 4 and "allow form filling" 256.

```
img2pdf -o owner -p 268 input.tif output.pdf
```

Example: “High quality printing” 2048 requires the standard printing flag 4 to be set too.

```
img2pdf -o owner -p 2052 input.tif output.pdf
```

For further information about the permission flags, see PDF Reference 1.7 Section 3.5.2.
5.3.18 -pw  Read an Encrypted PDF File

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:

```
img2pdf -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™ Image to PDF Converter Shell cannot read and process the file. Instead it will generate the following error message:

```
Password wasn’t correct.
```

5.3.19 -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.

```
img2pdf -u userpassword -o ownerpassword input.tif output.pdf
```

5.3.20 -v  Verbose Mode

**Verbose Mode**  -v

This option turns on the verbose mode.

In the verbose mode, additional information during the processing is written to the shell.

5.4  Supported Image Extensions

The following extensions are supported:
## 5.5 Compression Types

The following compression types can be set.

<table>
<thead>
<tr>
<th>Value</th>
<th>Compression</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>raw</td>
</tr>
<tr>
<td>1</td>
<td>JPEG</td>
</tr>
<tr>
<td>2</td>
<td>Flate (ZIP)</td>
</tr>
<tr>
<td>3</td>
<td>LZW</td>
</tr>
<tr>
<td>4</td>
<td>CCITT Fax Group 3</td>
</tr>
<tr>
<td>5</td>
<td>CCITT Fax Group 3 2D</td>
</tr>
<tr>
<td>6</td>
<td>CCITT Fax Group 4</td>
</tr>
<tr>
<td>7</td>
<td>JBIG2 (Supported in PDF 1.4 or later)</td>
</tr>
<tr>
<td>8</td>
<td>JPEG2000 (Supported in PDF 1.5 or later, not supported in PDF/A-1)</td>
</tr>
</tbody>
</table>

## 5.6 Compression Types: TIFF Only

The following compression types can be set for converting TIFF files.
### 5.7 Specification of Resolution and Image Dimensions

The three image dimensions (resolution, true_width and width) depend on each other. They have to satisfy the following relation (the same is true for the height and the true_height):

\[
\text{resolution} = \frac{\text{width}}{\text{true_width}}.
\]

If the width (see `-wp`) and the height (see `-hp`) are set at the same time, the height is omitted due to priority of width. Equivalently, true_width has priority to true_height. All transformations are done respecting image proportions. The option `-r` (allow_resampling) can be used to force in certain situations to perform a resampling. The table below enlists the possible parameter combinations and shows the behavior of the Image to Image Converter Shell.

<table>
<thead>
<tr>
<th>Options</th>
<th>Properties of Output Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>-d</td>
<td></td>
</tr>
<tr>
<td>-wp/-hp</td>
<td></td>
</tr>
<tr>
<td>-wt/-ht</td>
<td></td>
</tr>
<tr>
<td>-r</td>
<td></td>
</tr>
<tr>
<td>not set</td>
<td>not set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>not set</td>
<td>set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>not set</td>
<td>set/not set</td>
</tr>
<tr>
<td>set/not set</td>
<td></td>
</tr>
<tr>
<td>not set</td>
<td>set/not set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>set</td>
<td>set/not set</td>
</tr>
<tr>
<td>set/not set</td>
<td></td>
</tr>
<tr>
<td>set</td>
<td>set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>not set</td>
<td>set/not set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>set</td>
<td>set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>set</td>
<td>set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
<tr>
<td>set</td>
<td>set</td>
</tr>
<tr>
<td>set</td>
<td></td>
</tr>
</tbody>
</table>

Compression types 7 (Jbig) and 8 (JPEG2000) are not applicable for TIFF.
<table>
<thead>
<tr>
<th>set</th>
<th>not set</th>
<th>not set</th>
<th>not set</th>
<th>width/height constant, true_width/true_height modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>set</td>
<td>set</td>
<td>not set</td>
<td>set/not set</td>
<td>true_width/true_height modified</td>
</tr>
<tr>
<td>set</td>
<td>not set</td>
<td>set</td>
<td>set/not set</td>
<td>width/height modified</td>
</tr>
<tr>
<td>set</td>
<td>set</td>
<td>set</td>
<td>set/not set</td>
<td>width/height and true_width/true_height have priority over resolution</td>
</tr>
</tbody>
</table>
6 Return Codes

All return codes other than 0 indicate an error in the processing. Messages with return code 0 are written to stdout, messages with return codes other than 0 are written to stderr. Status and processing messages with no return code can be written to either stdout or stderr; see specific list of messages below. Providing no options returns the usage and return code 0.

6.1 Image to PDF Converter

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Meaning</th>
<th>Possible Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Success</td>
<td>- No return string</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Return usage</td>
</tr>
<tr>
<td>1</td>
<td>Input File could not be opened or invalid parameters</td>
<td>- &quot;Couldn't open control file&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &quot;Too many parameters&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &quot;Couldn't import image file %s.&quot;</td>
</tr>
<tr>
<td>2</td>
<td>The PDF Output File could not be written.</td>
<td>- &quot;Couldn't create output file %s&quot;</td>
</tr>
<tr>
<td>3</td>
<td>Option error</td>
<td>- &quot;Key/value pair %s doesn't contain a '='&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &quot;Invalid option %s.&quot;</td>
</tr>
<tr>
<td>4</td>
<td>OCR error</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Decode errors</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>License error</td>
<td></td>
</tr>
<tr>
<td>none</td>
<td>Information (stdout)</td>
<td>- &quot;Done.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &quot;Converting file %s(%d)&quot;</td>
</tr>
</tbody>
</table>

In the above table, %s is the corresponding parameter name (file name or option) and %d a page counter.

6.2 Image to Image Converter

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Meaning</th>
<th>Possible Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Success</td>
<td>- No return string</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Return usage</td>
</tr>
</tbody>
</table>
### Table: Return Codes Image to PDF Converter

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Success.</td>
</tr>
<tr>
<td>1</td>
<td>Couldn't open input file.</td>
</tr>
<tr>
<td>2</td>
<td>PDF output file could not be created.</td>
</tr>
<tr>
<td>4</td>
<td>OCR engine error.</td>
</tr>
<tr>
<td>5</td>
<td>OCR parameter error.</td>
</tr>
<tr>
<td>6</td>
<td>OCR error.</td>
</tr>
<tr>
<td>10</td>
<td>License error, e.g. invalid license key.</td>
</tr>
</tbody>
</table>

In the above table, `%s` is the corresponding parameter name (file name or option) and `%d` a page counter.

### 6.3 PdfOcr

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

7.1 Changes in Version 6

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

7.2 Changes in Version 5


7.3 Changes in Version 4.12

- New OCR plugin "abbyy12" for the ABBYY FineReader 12 engine.
- Improved reading and recovery of corrupt TIFF images.
- New HTTP proxy setting in the GUI license manager.

Shell img2pdf

- Changed behavior, option set page dimension - sp disables option adjust page - a.

7.4 Changes in Version 4.11

- New support for reading and writing PDF 2.0 documents.
- Improved font subsetting of CFF and OpenType fonts.
- Improved repair of corrupt image streams.

7.5 Changes in Version 4.10

Shell img2pdf

- New option - ao: Adjust page orientation.

Shell img2img

- New option - pg first last: If not all pages should be converted, the page range can be defined explicitly.

7.6 Changes in Version 4.9

- Improved metadata generation for standard PDF properties.
- New option - h: Set the dithering algorithm.
- New option - b: Set the color depth. Available: Bi-tonal: 1. When using 1 bit per pixel, it is suggested to set a suitable dithering algorithm.
7.7 Changes in Version 4.8

Shell img2img

- **New** option `-hp` to set the height of the image in pixel.
- **New** option `-ht` to set the true height of the image in mm.
- **New** option `-wp` to set the width of the image in pixel.
- **New** option `-wt` to set the true width of the image in mm.
- **New** option `-r` to force resampling.
- **New** option `-dd` to set the resolution of input image, if input image has none.
- **Changed** option `-d`, no resampling performed when set only.
- **Deprecated** option `-h`, use now `-hp`.
- **Deprecated** option `-w`, use now `-wp`. 
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