3-Heights™
PDF Merge Split API

Version 6.11.0
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1 Introduction

The 3-Heights™ PDF Merge Split API 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 API 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 conforming files.

1.1 Functions

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

1.1.1 Features

The 3-Heights™ PDF Merge Split API 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 conformance 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
- Set or copy the color profile for the output device (output intent)
- Set or copy document information and metadata (XMP)
- Extract the number of pages, the media box and crop box of a PDF document
- Extract XMP metadata from a PDF document
- Add embedded files to a PDF document
- Optimize page resources when merging PDF documents
- Set passwords and permission flags
- Process from the file system and from memory
- 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) (not PDF 2.0)
- Set the page mode, initial page layout, 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

**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)

**1.2 Interfaces**
The following interfaces are available
- C
- .NET
- Java
- COM
1.3 Operating Systems

The 3-Heights™ PDF Merge Split API 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.

1.4 How to Best Read this Manual

If you are reading this manual for the first time, i.e. would like to evaluate the software, the following steps are suggested.

1. Read the chapter Introduction to verify this product meets your requirements.
2. Identify what interface your programming language uses.
3. Read and follow the instructions in the chapter Installation and Deployment.
4. In the chapter Programming Interfaces find your programming language. Please note that not every language is covered in this manual.
   For most programming languages there is sample code available. For a start it is generally best to refer to these samples rather than writing code from scratch.
5. (Optional) Read the chapter User’s Guide for general information about the API. Read the Interface Reference for specific information about the functions of the API.
2 Installation and Deployment

2.1 Windows

The 3-Heights™ PDF Merge Split API comes as a ZIP archive or as a NuGet package.

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 API”. 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.
   The product comes as a Zip Archive containing all files, or as a NuGet Package containing all files for development in .NET.
   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 ZIP archive as well as the NuGet package contain both the 32-bit and the 64-bit version of the product.
3. 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 (see also Zip Archive):

<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>
<tr>
<td>include</td>
<td>Contains header files to include in your C/C++ project.</td>
</tr>
<tr>
<td>jar</td>
<td>Contains Java archive files for Java components.</td>
</tr>
<tr>
<td>lib</td>
<td>Contains the object file library to include in your C/C++ project.</td>
</tr>
<tr>
<td>samples</td>
<td>Contains sample programs in various programming languages</td>
</tr>
</tbody>
</table>

4. The usage of the NuGet package is described in section NuGet Package.
5. (Optional) Register your license key using the License Management.
6. Identify which interface you are using. Perform the specific installation steps for that interface described in Interface Specific Installation Steps.

2.2 Linux and macOS

This section describes installation steps required on Linux or macOS.

The Linux and macOS version of the 3-Heights™ PDF Merge Split API provides two interfaces:

- Java interface
- Native C interface

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin/x64/libPdfSplMrgAPI.so</td>
<td>This is the shared library that contains the main functionality. The file's extension differs on macOS (.dylib instead of .so).</td>
</tr>
<tr>
<td>doc/<em>.</em></td>
<td>Documentation</td>
</tr>
<tr>
<td>include/<em>.</em></td>
<td>Contains header files to include in your C/C++ project.</td>
</tr>
<tr>
<td>jar/MSPA.jar</td>
<td>Java API archive.</td>
</tr>
<tr>
<td>samples</td>
<td>Example code.</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:

   ldd libPdfSplMrgAPI.so

   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 shared library from one of the standard library directories, e.g:

   ln -s /opt/pdf-tools.com/bin/x64/libPdfSplMrgAPI.so /usr/lib

4. Optionally register your license key using the license manager.
5. Identify which interface you are using. Perform the specific installation steps for that interface described in Interface Specific Installation Steps.

2.2.2 macOS

The shared library must have the extension .jnilib for use with Java. We suggest that you create a file link for this purpose by using the following command:

   ln libPdfSplMrgAPI.dylib libPdfSplMrgAPI.jnilib
2.3 Zip Archive

The 3-Heights™ PDF Merge Split API provides four different interfaces. The installation and deployment of the software depend on the interface you are using. The table below shows the supported interfaces and examples with which programming languages they can be used.

<table>
<thead>
<tr>
<th>Interface</th>
<th>Programming Languages</th>
</tr>
</thead>
</table>
| .NET      | The MS software platform .NET can be used with any .NET capable programming language such as:  
|           | - C#                    
|           | - VB .NET               
|           | - J#                    
|           | - others                
|           | For a convenient way to use this interface, see [NuGet Package](#). |
| Java      | The Java interface is available on all platforms. |
| COM       | The component object model (COM) interface can be used with any COM-capable programming language, such as:  
|           | - MS Visual Basic       
|           | - MS Office Products such as Access or Excel (VBA)  
|           | - C++                   
|           | - VBScript              
|           | - others                
|           | This interface is available in the Windows version only. |
| C         | The native C interface is for use with C and C++. This interface is available on all platforms. |

### 2.3.1 Development

The software developer kit (SDK) contains all files that are used for developing the software. The role of each file with respect to the four different interfaces is shown in table **Files for Development**. The files are split in four categories:

- **Req.** This file is required for this interface.
- **Opt.** This file is optional. See also table **File Description** to identify which files are required for your application.
- **Doc.** This file is for documentation only.
- **Empty field** An empty field indicates this file is not used at all for this particular interface.

#### Files for Development

<table>
<thead>
<tr>
<th>Name</th>
<th>.NET</th>
<th>Java</th>
<th>COM</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin&lt;platform&gt;\PdfSplMrgAPI.dll</td>
<td>Req.</td>
<td>Req.</td>
<td>Req.</td>
<td>Req.</td>
</tr>
<tr>
<td>bin*NET.dll</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bin*NET.xml</td>
<td></td>
<td></td>
<td></td>
<td>Doc.</td>
</tr>
</tbody>
</table>
### Files for Development

<table>
<thead>
<tr>
<th>Name</th>
<th>.NET</th>
<th>Java</th>
<th>COM</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>doc\PdfSplMrgAPI.idl</code></td>
<td></td>
<td></td>
<td></td>
<td>Doc.</td>
</tr>
<tr>
<td><code>doc\javadoc\*.*</code></td>
<td></td>
<td></td>
<td></td>
<td>Doc.</td>
</tr>
<tr>
<td><code>include\pdfsplmrgapi_c.h</code></td>
<td>Req.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>include\*.*</code></td>
<td>Opt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>jar\MSPA.jar</code></td>
<td>Req.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>lib\&lt;platform&gt;\PdfSplMrgAPI.lib</code></td>
<td>Req.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The purpose of the most important distributed files of is described in table **File Description**.

#### File Description

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>bin\&lt;platform&gt;\PdfSplMrgAPI.dll</code></td>
<td>This is the DLL that contains the main functionality (required), where <code>&lt;platform&gt;</code> is either Win32 or x64 for the 23-bit or the 64-bit library respectively.</td>
</tr>
<tr>
<td><code>bin\*NET.dll</code></td>
<td>The .NET assemblies are required when using the .NET interface. The files <code>bin\*NET.xml</code> contain the corresponding XML documentation for MS Visual Studio.</td>
</tr>
<tr>
<td><code>doc\*.*</code></td>
<td>Various documentations.</td>
</tr>
<tr>
<td><code>include\*.*</code></td>
<td>Contains files to include in your C / C++ project.</td>
</tr>
<tr>
<td><code>lib\&lt;platform&gt;\PdfSplMrgAPI.lib</code></td>
<td>On Windows operating systems, the object file library needs to be linked to the C/C++ project.</td>
</tr>
<tr>
<td><code>jar\MSPA.jar</code></td>
<td>The Java API archive.</td>
</tr>
<tr>
<td><code>samples\*.*</code></td>
<td>Contains sample programs in different programming languages.</td>
</tr>
</tbody>
</table>

#### 2.3.2 Deployment

For the deployment of the software only a subset of the files are required. Which files are required (Req.), optional (Opt.) or not used (empty field) for the four different interfaces is shown in the table below.

---

1. Not required for Linux or macOS.
2. These files must reside in the same directory as PdfSplMrgAPI.dll.
Files for Deployment

<table>
<thead>
<tr>
<th>Name</th>
<th>.NET</th>
<th>Java</th>
<th>COM</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin&lt;platform&gt;\PdfSplMrgAPI.dll</td>
<td>Req.</td>
<td>Req.</td>
<td>Req.</td>
<td>Req.</td>
</tr>
<tr>
<td>bin*.NET.dll</td>
<td>Req.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>jar\MSPA.jar</td>
<td>Req.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The deployment of an application works as described below:

1. Identify the required files from your developed application (this may also include color profiles).
2. Identify all files that are required by your developed application.
3. Include all these files into an installation routine such as an MSI file or simple batch script.
4. Perform any interface-specific actions (e.g. registering when using the COM interface).

**Example:** This is a very simple example of how a COM application written in Visual Basic 6 could be deployed.

1. The developed and compiled application consists of the file application.exe. Color profiles are not used.
   - The main DLL PdfSplMrgAPI.dll must be distributed.
2. All files are copied to the target location using a batch script. This script contains the following commands:
   ```
copy application.exe %targetlocation\.
copy PdfSplMrgAPI.dll %targetlocation\.
```
3. For COM, the main DLL needs to be registered in silent mode (/s) on the target system. This step requires Power-User privileges and is added to the batch script.
   ```
regsvr32 /s %targetlocation%\PdfSplMrgAPI.dll.
```

### 2.4 NuGet Package

Nuget is a package manager that facilitates the integration of libraries for the software development in .NET. The nuget package for the 3-Heights™ PDF Merge Split API contains all the libraries needed, managed and native.

**Installation**  Download the package `PdfTools.PdfSplMrg.6.11.0.nupkg` from your account on [https://www.pdf-tools.com/](https://www.pdf-tools.com/) to some suitable location.

In Visual Studio click on “Tools” and then “Options”. Select “NuGet Package Manager” and add the location of the downloaded package in “Package Sources”.

Right-click on a .NET project in Visual Studio and select “Manage NuGet Packages...”. Finally, select the package source that was defined above and browse to the desired package.


The required native libraries are loaded automatically. All project platforms are supported, including “AnyCPU”.

In order to use the software, you must first install a license key for the 3-Heights™ PDF Merge Split API. To do this you have to download the product kit and use the license manager in it. See also License Management.
2.5 Interface Specific Installation Steps

2.5.1 COM Interface

**Registration**  Before you can use the 3-Heights™ PDF Merge Split API component in your COM application program you have to register the component using the `regsvr32.exe` program that is provided with the Windows operating system. The following command shows the registration of PdfSplMrgAPI.dll. Note that in Windows Vista and later, the command needs to be executed from an administrator shell.

```
regsvr32 "C:\Program Files\PDF Tools AG\bin\<platform>\PdfSplMrgAPI.dll"
```

Where `<platform>` is `Win32` for the 32-bit and `x64` for the 64-bit version.

If you are using a 64-bit operating system and would like to register the 32-bit version of the 3-Heights™ PDF Merge Split API, you need to use the `regsvr32` from the directory `%SystemRoot%\SysWOW64` instead of `%SystemRoot%\System32`.

If the registration process succeeds, a corresponding dialog window is displayed. The registration can also be done silently (e.g. for deployment) using the switch `/s`.

**Other Files**  The other DLLs do not need to be registered, but for simplicity it is suggested that they reside in the same directory as the `PdfSplMrgAPI.dll`.

2.5.2 Java Interface

The 3-Heights™ PDF Merge Split API requires Java version 7 or higher.

**For compilation and execution**  When using the Java interface, the Java wrapper `jar\MSPA.jar` needs to be on the CLASSPATH. This can be done by either adding it to the environment variable CLASSPATH, or by specifying it using the switch `-classpath`:

```
javac -classpath ".;C:\Program Files\PDF Tools AG\jar\MSPA.jar" sampleApplication.java
```

**For execution**  Additionally the library `PdfSplMrgAPI.dll` needs be in one of the system’s library directories or added to the Java system property `java.library.path`. This can be achieved by either adding it dynamically at program startup before using the API, or by specifying it using the switch `-Djava.library.path` when starting the Java VM. Choose the correct subdirectory (`x64` or `Win32` on Windows) depending on the platform of the Java VM.

---

1 Otherwise you get the following message: `LoadLibrary("PdfSplMrgAPI.dll") failed - The specified module could not be found.`

4 On Windows defined by the environment variable PATH and e.g. on Linux defined by `LD_LIBRARY_PATH`.

5 If the wrong data model is used, there is an error message similar to this: "Can’t load IA 32-bit .dll on a AMD 64-bit platform"
2.5.3 .NET Interface

The 3-Heights™ PDF Merge Split API does not provide a pure .NET solution. Instead, it consists of a native library and .NET assemblies, which call the native library. This has to be accounted for when installing and deploying the tool.

It is recommended to use the NuGet Package. This ensures the correct handling of both the .NET assemblies and the native library.

Alternatively, the files in the Zip Archive can be used directly in a Visual Studio project targeting .NET Framework 2.0 or later. To achieve this, proceed as follows.

The .NET assemblies (*.NET.dll) are to be added as references to the project; They are needed at compile time. PdfSplMrgAPI.dll is not a .NET assembly, but a native library. It is not to be added as a reference to the project. Instead, it is loaded during execution of the application.

For the operating system to find and successfully load the native library PdfSplMrgAPI.dll, it must match the executing application’s bitness (32-bit versus 64-bit) and it must reside in either of the following directories:

- In the same directory as the application that uses the library.
- In a subdirectory win-x86 or PathWin-x64 for 32-bit or 64-bit applications respectively.
- In a directory that is listed in the PATH environment variable

In Visual Studio, when using the platforms “x86” or “x64”, the above can be achieved by adding the 32-bit or 64-bit PdfSplMrgAPI.dll respectively as an “existing item” to the project, and setting its property “Copy to output directory” to true. When using the “AnyCPU” platform, then you have to make sure by some other means that both the 32-bit and the 64-bit PdfSplMrgAPI.dll are copied to subdirectories win-x86 and win-x64 of the output directory respectively.

2.5.4 C Interface

- The header file pdfsplmrgapi_c.h needs to be included in the C/C++ program.
- On Windows operating systems, the library PdfSplMrgAPI.lib needs to be linked to the project.
- The dynamic link library PdfSplMrgAPI.dll needs to be in a path of executables (e.g. on the environment variable %PATH%).

2.6 Uninstall, Install a New Version

If you have used the ZIP file for the installation: In order to uninstall the product, undo all the steps done during installation, e.g. un-register using regsvr32.exe /u, delete all files, etc.

Installing a new version does not require to previously uninstall the old version. The files of the old version can directly be overwritten with the new version.

2.7 Note about the Evaluation License

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

The 3-Heights™ PDF Merge Split API requires a valid license in order to run correctly. If no license key is set or the license is not valid, then most of the interface elements documented in Interface Reference will fail with an error code and error message indicating the reason.

More information about license management is available in the license key technote.
4 Programming Interfaces

4.1 Visual Basic 6

After installing the 3-Heights™ PDF Merge Split API and registering the COM interface (see Installation and Deployment), you find a Visual Basic 6 example with file extension .vpb in the directory samples/VB/. You can either use this sample as a base for an application, or you can start from scratch.

If you start from scratch, here is a quick start guide:

1. First create a new Standard-Exe Visual Basic 6 project. Then include the 3-Heights™ PDF Merge Split API component to your project.

2. Draw a new Command Button and optionally rename it if you like.

3. Double-click the command button and insert the few lines of code below. All that you need to change is the path of the file name.

   ```vbp
   Private Sub Command1_Click()
   Dim InDoc As New PDFSPLMRGAPILib.InDoc
   Dim OutDoc1 As New PDFSPLMRGAPILib.OutDoc
   Dim OutDoc2 As New PDFSPLMRGAPILib.OutDoc

   ' Setup what to copy
   Dim CopyOptions = ePdfCopyAnnotations Or _
   ePdfCopyFormFields Or _
   ePdfCopyLinks Or _
   ePdfCopyLogicalStructure Or _
   ePdfCopyNamedDestinations Or _
   ePdfCopyOutlines Or _
   ePdfCopyAssociatedFiles Or _
   ePdfMergeOCGs

   'Create 2 output files, one of them being encrypted, printing allowed
   OutDoc1.Create "P:\PDF\out1.pdf", "", "owner", ePermPrint
   OutDoc2.Create "P:\PDF\out2.pdf"
   InDoc.Open "P:\PDF\input.pdf"
   OutDoc1.CopyAttributes InDoc
   ```
4.2 .NET

There should be at least one .NET sample for MS Visual Studio available in the ZIP archive of the Windows version of the 3-Heights™ PDF Merge Split API. The easiest for a quick start is to refer to this sample.

In order to create a new project from scratch, do the following steps:

1. Start Visual Studio and create a new C# or VB project.
2. Add references to the .NET assemblies.
   To do so, in the “Solution Explorer” right-click your project and select “Add Reference…”. The “Add Reference” dialog will appear. In the tab “Browse”, browse for the .NET assemblies libpdfNET.dll and PdfSplMrgNET.dll.
   Add them to the project as shown below:

![Add Reference Dialog](image)

3. Import namespaces (Note: This step is optional, but useful.)
4. Write your code.

Steps 3 and 4 are shown separately for C# and Visual Basic.

4.2.1 Visual Basic

3. Double-click “My Project” to view its properties. On the left hand side, select the menu “References”. The .NET assemblies you added before should show up in the upper window. In the lower window import the namespaces Pdftools.Pdf, and Pdftools.PdfSpMrg.
   You should now have settings similar as in the screenshot below:
4. The .NET interface can now be used as shown below:

   **Example:**

   ```csharp
   Dim indoc As New Pdftools.PdfSplMrg.InDoc
   Dim outdoc As New Pdftools.PdfSplMrg.OutDoc
   indoc.Open(...) 
   ...
   ```

4.2.2 C#

3. Add the following namespaces:

   **Example:**

   ```csharp
   using Pdftools.Pdf;
   using Pdftools.PdfSplMrg;
   ```

4. The .NET interface can now be used as shown below:
Example:

```csharp
using (InDoc indoc = new InDoc())
{
    indoc.Open(...);
    using (OutDoc outdoc = new OutDoc())
    {
    ...
    }
}
```

### 4.2.3 Deployment

This is a guideline on how to distribute a .NET project that uses the 3-Heights™ PDF Merge Split API:

1. The project must be compiled using Microsoft Visual Studio. See also [NET Interface](#).
2. For deployment, all items in the project’s output directory (e.g. bin\Release) must be copied to the target computer. This includes the 3-Heights™ PDF Merge Split API’s .NET assemblies (*.NET.dll) as well as the native library (PdfSplMrplgAPI.dll) in its 32 bit or 64 bit version or both. The native library can alternatively be copied to a directory listed in the PATH environment variable, e.g. %SystemRoot%\System32.
3. It is crucial, that the native library PdfSplMrplgAPI.dll is found at execution time, and that the native library’s format (32 bit versus 64 bit) matches the operating system.
4. The output directory may contain multiple versions of the native library, e.g. for Windows 32 bit, Windows 64 bit, MacOS 64 bit, and Linux 64 bit. Only the versions that match the target computer’s operating system need be deployed.
5. If required by the application, optional DLLs must be copied to the same folder. See [Deployment](#) for a list and description of optional DLLs.

### 4.2.4 Troubleshooting: TypeInitializationException

The most common issue when using the .NET interface is that the correct native DLL PdfSplMrplgAPI.dll is not found at execution time. This normally manifests when the constructor is called for the first time and an exception of type System.TypeInitializationException is thrown.

This exception can have two possible causes, distinguishable by the inner exception (property **InnerException**):

- **System.DllNotFoundException** Unable to load DLL PdfSplMrplgAPI.dll: The specified module could not be found.
- **System.BadImageFormatException** An attempt was made to load a program with an incorrect format.

The following sections describe in more detail, how to resolve the respective issue.

#### Troubleshooting: DllNotFoundException

This means, that the native DLL PdfSplMrplgAPI.dll could not be found at execution time.

Resolve this by either:

- using the NuGet Package.
- adding PdfSplMrplgAPI.dll as an existing item to your project and set its property “Copy to output directory” to “Copy if newer”, or
- adding the directory where PdfSplMrplgAPI.dll resides to the environment variable `%Path%`, or
- manually copying PdfSplMrplgAPI.dll to the output directory of your project.
**Troubleshooting: BadImageFormatException**

The exception means, that the native DLL `PdfSplMrgAPI.dll` has the wrong “bitness” (i.e. platform 32 vs. 64 bit). There are two versions of `PdfSplMrgAPI.dll` available in the Zip Archive: one is 32-bit (directory `bin\Win32`) and the other 64-bit (directory `bin\x64`). It is crucial, that the platform of the native DLL matches the platform of the application's process.

(Using the **NuGet Package** normally ensures that the matching native DLL is loaded at execution time.)

The platform of the application's process is defined by the project's platform configuration for which there are 3 possibilities:

**AnyCPU**  This means, that the application will run as a 32-bit process on 32-bit Windows and as 64-bit process on 64-bit Windows. When using AnyCPU, then a different native DLL has to be used, depending on the Windows platform. This can be ensured either when installing the application by installing the matching native DLL, or at application start-up by determining the application's platform and ensuring the matching native DLL is loaded. The latter can be achieved by placing both the 32 bit and the 64 bit native DLL in subdirectories `win-x86` and `win-x64` of the application's directory respectively.

**x86**  This means, that the application will always run as 32-bit process, regardless of the platform of the Windows installation. The 32-bit DLL runs on all systems.

**x64**  This means, that the application will always run as 64-bit process. As a consequence the application will not run on a 32-bit Windows system.
5 User’s Guide

5.1 Basics

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

![Diagram of Merge Split API]

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

**Note:** Merging PDF 1.x and PDF 2.0 is currently not supported and results in an error code PDF_E_INVCOMPLIANCE.

5.2 How to Create Documents that Conform to PDF/A

The 3-Heights™ PDF Merge Split API does not have a built-in PDF to PDF/A Converter. This means it can only create PDF/A conforming documents if the input-documents conform to PDF/A already.

Items that need to be considered when creating PDF/A documents are:

1. **Output Intent:** Every PDF/A document that uses device specific color spaces (which is the case for most files, even if they only contain text in black color) must have an output intent embedded.
   - The output intent can either be copied from an input file using CopyOutputIntent or CopyAttributes, or it can be taken from a color profile that resides on the operating system using OutputIntent. In either case it is required that the output intent is set before any pages are copied from input to output.
2. **Metadata:** A PDF/A document requires to have XML metadata. There are two ways to set the metadata:
   - Copy the metadata from an existing input document using CopyMetadata or CopyAttributes.
   - Set them directly using SetXMPMetadata or SetXMPMetadataMem.
3. **Encryption:** PDF/A does not allow encryption. In order to prevent encrypting a PDF output document, make sure to:
   - set owner and user password to an empty string, and
   - set the permissions flags to ePermNoEncryption

Code snippet in C#:

```csharp
outdoc.Create("output.pdf", "", "", PDFPermission.ePermNoEncryption);
```
4. Tagging information: PDF/A level A conformance requires the document to be tagged. Make sure to copy tagging information by setting the `ePdfCopyLogicalStructure` flag (see `TPdfCopyOption`) when calling `CopyPages2`.

5. Embedded files and associated files: Embedded files can be copied using `CopyEmbeddedFiles`. For PDF/A-3 conformance, the `ePdfCopyAssociatedFiles` flag must be set (see `TPdfCopyOption`) in order to copy the embedded file's associations in `CopyPages2`.

## 5.3 How to Efficiently Use the API

### 5.3.1 How to Copy Pages

The Merge Split API supports copying single pages and page ranges. Prior to copying pages you have to define copy options (`TPdfCopyOption`) that specify what to copy and whether to form fields, links, or other annotations.

**Setup copy options:**

The following options are recommended for general splitting and merging operations: (See the C include file `pdf-copydecl.h` for exact values of `TPdfCopyOption` as these are not exposed in the COM interface.)

```plaintext
Dim options = ePdfCopyAnnotations Or _
   ePdfCopyFormFields Or _
   ePdfCopyLinks Or _
   ePdfCopyLogicalStructure Or _
   ePdfCopyNamedDestinations Or _
   ePdfCopyOutlines Or _
   ePdfCopyAssociatedFiles Or _
   ePdfMergeOCGs Or _
   ePdfSeparateAcroForms
```

**Canonical Way for Copying one Document:**

```plaintext
Dim outdoc As New PDFSPLMRGAPILib.OutDoc
Dim indoc As New PDFSPLMRGAPILib.InDoc
If Not outdoc.Create(...) Then 'do error handling
If Not indoc.Open(...) Then 'do error handling
If Not indoc.CopyToAttributes(indoc) Then 'do error handling
If Not outdoc.CopyToPages2(indoc, 1, -1, options) Then 'do error handling
   indoc.Close()
   outdoc.Close()
```

**Efficient use of API:**

```plaintext
Dim outdoc As New PDFSPLMRGAPILib.OutDoc
Dim indoc As New PDFSPLMRGAPILib.InDoc
outdoc.Create(...)
indoc.Open(...)  
outdoc.CopyToPages2 indoc, 1, 10, options
indoc.Close()
outdoc.Close()
```
Inefficient use of API:

```vbnet
Dim outdoc As New PDFSPLMRGAPILib.OutDoc
Dim indoc As New PDFSPLMRGAPILib.InDoc
outdoc.Create(...)  
indoc.Open(...)  
For i = 1 To 10  
    outdoc.CopyPages2 indoc, i, i, options  
Next i
indoc.Close()  
outdoc.Close() 
```

The resulting output file is the same. However the first method is much more efficient. Why? Because when copying a page, it's not just the page content that needs to be copied but also data structures in the document’s catalogue dictionary. Examples are outlines, form fields, named destinations or the output intent. These data structures have to be processed as a whole for each page range. This happens one time in the first and ten times in the second code snippet.

If performance is crucial and for some reason you have to copy multiple times from the same input to the same output document, you can improve performance by leaving the following flags clear in `TPdfCopyOption` when calling `CopyPages2`:

- `ePdfCopyOutlines`
- `ePdfCopyNamedDestinations`

### 5.3.2 Operation on Multiple Documents

While working with multiple input and or output documents special care should be taken to keep at any time as few documents open as possible. The Close methods of the input and output documents should be called at the earliest time possible in order to free associated resources.

### 5.3.3 Features and their Impact on Performance

The performance of the 3-Heights™ PDF Merge Split API is determined by the complexity of the input documents as well as by the options chosen. The following flags of `TPdfCopyOption` have an impact on performance (ordered by effect on performance):

- **Tagged PDF:** (`ePdfCopyLogicalStructure`)  
  Copying and merging of logical structure information is complex and requires both time and memory. You may deactivate this option, if performance is more important to you than preserving tagging information.

- **Interactive Form Fields:** (`ePdfCopyFormFields`)  
  If the input documents contain interactive form fields that need not be editable in the output document, the FlattenFormFields option can be used. This speeds the merge process up significantly while preserving the visual appearance of form fields.

- **Optimize Resources:** (`ePdfOptimizeResources`)  
  Detecting and merging duplicate resources takes both time and memory.

- **Outlines:** (`ePdfCopyOutlines`)  
  Copying and merging of outlines takes some time.

- **Named Destinations:** (`ePdfCopyNamedDestinations`)  
  Copying and merging of named destinations takes both time and memory.
5.4 Error Handling

Most methods of the 3-Heights™ PDF Merge Split API can either succeed or fail depending on user input, state of the PDF Merge Split API, or the state of the underlying system. It is important to detect and handle these errors, to get accurate information about the nature and source of the issue at hand.

Methods communicate their level of success or failure using their return value. Which return values have to be interpreted as failures is documented in the chapter Interface Reference. To identify the error on a programmatic level, check the property ErrorCode. The property ErrorMessage provides a human readable error message, describing the error.

Example:

```csharp
public Boolean Open(string file, string password)
{
    if (!indoc.Open(file, password))
    {
        if (indoc.ErrorCode == PDFErrorCode.PDF_E_PASSWORD)
        {
            password = InputBox.Show("Password incorrect. Enter correct password:");
            return Open(file, password);
        }
        else
        {
            MessageBox.Show(String.Format("Error {0}: {1}", indoc.ErrorCode, indoc.ErrorMessage));
            return false;
        }
    }
    [...]
}
```
6 Interface Reference

6.1 InDoc Interface

6.1.1 Close

Method: Boolean Close()

Close an opened input file. If the document is already closed the method does nothing.

Returns:

True The file was closed successfully.

False Otherwise.

6.1.2 CropBox

Property (get): Variant CropBox

This property returns the crop box of the current page defined by the property Page. The crop box rectangle is described by the coordinates left, bottom, right, top. If no crop box is defined, the media box is returned. The values are returned as an array of four single precision real numbers. This property cannot be set.

In order to get the dimensions of the page as it is displayed by a viewer application, the rectangle must be rotated according to the property Rotate.

6.1.3 ErrorCode

Property (get): TPDFErrorCode ErrorCode

This property can be accessed to receive the latest error code. This value should only be read if a function call on the PDF Merge Split API has returned a value, which signals a failure of the function (see chapter Error Handling). See also enumeration TPDFErrorCode. PDF-Tools error codes are listed in the header file bseerror.h. Please note that only few of them are relevant for the 3-Heights™ PDF Merge Split API.
6.1.4 ErrorMessage

Property (get): String ErrorMessage

Return the error message text associated with the last error (see property ErrorCode). This message can be used to inform the user about the error that has occurred. This value should only be read if a function call on the PDF Merge Split API has returned a value, which signals a failure of the function (see chapter Error Handling).

Note: Reading this property if no error has occurred, can yield Nothing if no message is available.

6.1.5 GetInfoEntry

Method: String GetInfoEntry(String szKey)

Return the value of an entry in the document info dictionary. 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). See PDF Reference 1.7 section “10.2.1 Document Information Dictionary” for more information about the document’s info dictionary.

Parameter:

szKey [String] The string, such as "Author" or "Subject", defining the entry in the document info dictionary.

Returns:

- The string corresponding to the entry if it exists.
- Nothing otherwise.

6.1.6 GetXMPMetadata

Method: Boolean GetXMPMetadata(String FileName)

Write the XMP metadata to the specified file.

6.1.7 GetXMPMetadataMem

Method: Variant GetXMPMetadataMem()

Returns XMP metadata as byte-array.
6.1.8 MediaBox

**Property (get):** Variant MediaBox

Use this property to get the PDF “MediaBox” of the current page defined by the property Page. The MediaBox rectangle is described by the coordinates left, bottom, right, top. The values are returned as an array of four single precision real numbers. The media box is required, it defines the physical boundaries of the medium on which the page is intended to be displayed or printed.

Usually the MediaBox is rotated by viewer applications according to the property Rotate.

6.1.9 Open

**Method:** Boolean Open(String Filename, String Password)

Open a PDF file, i.e. make the objects contained in the document accessible. If another document is already open, it is closed first.

**Parameters:**

Filename [String] The file name and optionally the file path, drive or server string according to the operating systems file name specification rules.

Password [String] (optional) The user or the owner password of the encrypted PDF document. If this parameter is left out an empty string is used as a default.

**Returns:**

True The file could be successfully opened.

False The file does not exist, it is corrupt, or the password is not valid. Use the properties ErrorCode and ErrorMessage for additional information.

6.1.10 OpenMem

**Method:** Boolean OpenMem(Variant MemBlock, String Password)

Open a PDF file, i.e. make the objects contained in the document accessible. If a document is already open, it is closed first.

**Parameters:**

MemBlock [Variant] The memory block containing the PDF file given as a one dimensional byte array.
**Password**  [String] (optional) The user or the owner password of the encrypted PDF document. If this parameter is left out an empty string is used as a default.

**Returns:**

**True**  The document could be successfully opened.

**False**  The document could not be opened, it is corrupt, or the password is not valid.

### 6.1.11 Page

**Property (get, set):**  Long  Page

This property allows to set and get the currently selected page of an open document given its page number. The numbers are counted from 1 for the first page to the value of the PageCount attribute for the last page. If the document is closed zero is returned.

### 6.1.12 PageCount

**Property (get):**  Long  PageCount

Get the number of pages of an open document. If the document is closed or if the document is a collection (also known as PDF Portfolio) then this property is 0.

### 6.1.13 Rotate

**[Deprecated] Property (get):**  Integer  Rotate

Deprecated in Version 4.7 since it has no use anymore.

### 6.2 OutDoc Interface

#### 6.2.1 AddAssociatedFile

**Method:**  Boolean  AddAssociatedFile(String  FileName, String  Name, Integer  Associate, String  AFRelationship, String  MIMEType, String  Description, DATE  ModDate)

Add a file to the document's embedded files. For PDF/A-3, the embedded file is associated with an object of the document, i.e. it is an associated file. This method must be called after Create and before Close. The file is embedded as-is. Embedding files is not allowed for PDF/A-1 and restricted to PDF/A conforming files for PDF/A-2.
Parameters:

FileName [String] The path (or URL) to the file to be embedded.

Name [String] The name used for the embedded file. This name is presented to the user when viewing the list of embedded files. Default: FileName with the path removed.

Associate [Integer] (Default: -1) The object to associate the embedded file with. -1 for none, 0 for document, number greater than 0 for respective page. If the embedded file is associated with a page, the page must have been copied already.

AFRelationship [String] (Default: "Unspecified") The relationship of the embedded file to the object associate. (Ignored, if Associate is -1.) Allowed values are "Source", "Data", "Alternative", "Supplement", and "Unspecified".

MimeType [String] (Default: "application/octet-stream") Mime-type of the embedded file. Common values other than the default are "application/pdf", "application/xml", or "application/msword".

Description [String] (Default: "") A description of the embedded file. This is presented to the user when viewing the list of embedded files.

ModDate [DATE] The modify date of the file. Default: The modify date of the file on the file system or current time, if not available.

Returns:

True The file was embedded successfully.
False Otherwise.

Example:

```
outdoc.AddAssociatedFile "c:\data\input.doc", ",", 0, "Source", "application/msword", ",", 0
```

6.2.2 AddEmbeddedFile

Method: Boolean AddEmbeddedFile(String FileName, String Name)

This is a simplified call that is equal to AddAssociatedFile with default arguments. This is for convenience, for example when embedding files in a PDF/A-2 conforming document.

6.2.3 AddOutlineItem

This method adds a new outline (bookmark) item including name and its position. To apply multiple outlines, call the function multiple times. The relevant parameters depend on the parameter Mode. The outline item is inserted at the end of the existing outline tree.

**Parameters:**

- **Text** [String] The displayed text.
- **PageNo** [Long] The target page number in this document.
- **Left** [Single] The left position in points.
- **Bottom** [Single] The bottom position in points.
- **Right** [Single] The right position in points.
- **Top** [Single] The top position in points.
- **Zoom** [Single] The zoom level; 1 = 100%.
- **Mode** [TPDFDestMode] The destination type. See [TPDFDestMode](#). The parameters **Left**, **Bottom**, **Right**, **Top**, and **Zoom** are only relevant for certain modes.

**Example:**

```vbnet
Dim outdoc As New PDFSPLMRGAPILib.outdoc
Dim indoc As New PDFSPLMRGAPILib.indoc
Dim copyoptions = ePdfCopyAnnotations Or _
    ePdfCopyFormFields Or _
    ePdfCopyLinks Or _
    ePdfCopyLogicalStructure Or _
    ePdfCopyNamedDestinations Or _
    ePdfCopyOutlines Or _
    ePdfCopyAssociatedFiles Or _
    ePdfMergeOCGs

If indoc.Open("in.pdf", ") Then
    outdoc.Create "out.pdf"
    outdoc.CopyOutlines = False
    outdoc.CopyAttributes indoc
    outdoc.CopyPages2 indoc, 1, -1, copyoptions
    outdoc.AddOutlineItem "Page 1, Fit", 1, 0, 0, 0, 0, 1
    outdoc.AddOutlineItem "Page 2, @50,400,300%", 2, 50, 0, 0, 400, 3, 0
    outdoc.AddOutlineItem "Page 3, FitH", 3, 0, 0, 0, 2000, 0, 2
    outdoc.Close
    indoc.Close
End If
Set indoc = Nothing
Set outdoc = Nothing
```
### 6.2.4 AddOutlineItem2


This method adds a new outline (bookmark) item including name and its position. To apply multiple outlines, call the function multiple times. The relevant parameters depend on the parameter Mode. The outline item is inserted in the end of the existing outline tree at the hierarchy level specified. This method can be used to create an arbitrary outline hierarchy and can be used in combination with the method **CopyOutlineItems2**.

**Parameters:**

- **Text** [String] The displayed text.
- **PageNo** [Long] The target page number in this document.
- **Left** [Single] The left position in points.
- **Bottom** [Single] The bottom position in points.
- **Right** [Single] The right position in points.
- **Top** [Single] The top position in points.
- **Zoom** [Single] The zoom level; 1 = 100%.
- **Mode** [Integer] The destination type. See **TPDFDestMode**. The parameters Left, Bottom, Right, Top, and Zoom are only relevant for certain modes.
- **Level** [Integer] The hierarchy level within the existing outline tree at which the outline item is appended. Level 0 for top level.
- **Open** [Boolean] Whether or not this outline should initially be open (child outline items expanded) or closed (child outline items collapsed).

### 6.2.5 Author

<table>
<thead>
<tr>
<th>Property (get, set):</th>
<th>String Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>&quot;&quot;</td>
</tr>
</tbody>
</table>

This property sets the Author attribute in the document.

### 6.2.6 AutoLinearize

<table>
<thead>
<tr>
<th>Property (get, set):</th>
<th>Boolean AutoLinearize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>False</td>
</tr>
</tbody>
</table>

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3-Heights™ PDF Merge Split API, September 15, 2020 | 30/53
Note: With this option enabled, non-Latin characters in the output file name are not supported.

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 API automatically apply linearization or refrain from doing so based on the estimated file size increase.
Also, with this option enabled, PDF 2.0 documents are automatically excluded from linearization.
See also Linearize for more information for linearized PDFs.

Note: If this property is set to True then the value given to Linearize is ignored.

6.2.7 Close

Method: Boolean Close()

Close an opened input file. If the document is already closed the method does nothing.

Returns:

True The file was closed successfully.
False Otherwise.

6.2.8 CopyAssociatedFiles

[Deprecated] Property (get, set): Boolean CopyAssociatedFiles

Deprecated in Version 4.7. Use ePdfCopyAssociatedFiles (see TPdfCopyOption) in CopyPages2.

6.2.9 CopyAttributes

Method: Boolean CopyAttributes(InDoc InDoc)

Copy all the document attributes from the given InDoc. Calling this method is equivalent with calling the methods CopyMetadata, CopyViewerProperties, and CopyOutputIntent. This method should be called prior to calling CopyPages2.
6.2.10 CopyEmbeddedFiles

**Method:** Boolean CopyEmbeddedFiles(InDoc InDoc, Boolean All)

This method copies embedded files and associated files from the input document.

**Parameters:**

**InDoc** [InDoc] The input document.

**All** [Boolean] If set to True: Copy all embedded files. If set to False: Copy embedded files associated with document and pages copied with CopyPages2 only. (PDF/A-3 only, ePdfCopyAssociatedFiles flag in TPdfCopyOption must be set when calling CopyPages2.)

6.2.11 CopyForms

**[Deprecated] Property (get, set):** Boolean CopyForms

Deprecated in Version 4.7. Use ePdfCopyFormFields and ePdfFlattenFormFields (see TPdfCopyOption) in CopyPages2.

6.2.12 CopyLogicalStructure

**[Deprecated] Property (get, set):** Boolean CopyLogicalStructure

Deprecated in Version 4.7. Use ePdfCopyLogicalStructure (see TPdfCopyOption) in CopyPages2.

6.2.13 CopyMetadata

**Method:** Boolean CopyMetadata(InDoc InDoc)

Copy info object and XMP metadata from an InDoc. This method should only be called once per output document. Setting the XMP metadata automatically adjusts and thereby overrides the current document info entries. Therefore document info entries must always be applied after setting the XMP metadata to become effective (applies to properties Author, Keywords, Subject and Title).

6.2.14 CopyOptionalContent

**Method:** Boolean CopyOptionalContent(InDoc InDoc, String Text)

Copy configuration data for optional content groups (layers). The groups are collected under the name given in the parameter Text. If this parameter is Nothing, then the document title of InDoc is used as Text, unless the document title is empty in which case the file name is chosen.
This method is intended to be used prior to calling CopyPages2 when the ePdfMergeOCGs flag is cleared. (See TPdfCopyOption.)

6.2.15 CopyOutlines

[Deprecated] Property (get, set): Boolean CopyOutlines

Default: True

Deprecated in Version 4.7. Use eCopyOutlines (see TPdfCopyOption) in CopyPages2 or in CopyOutlineItems2.

6.2.16 CopyOutlineItems


6.2.17 CopyOutlineItems2

Method: Boolean CopyOutlineItems2(InDoc InDoc, Long FirstPage, Long LastPage, Integer Level, TPdfCopyOption CopyOptions)

Copy outline items of the page range. The outline items are inserted in the end of the existing outline tree at the hierarchy level specified. The pages of the page range must be copied using CopyPages2 before calling the CopyOutlineItems2 method. The method CopyOutlineItems2 can be used in combination with the AddOutlineItem2 method.

Parameters:

InDoc  [InDoc]  The input document.

FirstPage  [Long]  Specifies the start of the page range in the input document. All outline items belonging to this page range are copied.


Level  [Integer]  Specifies the level hierarchy at which the outline items are inserted. 0 for top level.

CopyOptions  [TPdfCopyOption]  Specifies what to copy. (See TPdfCopyOption.) For this method, only the following flags are relevant: ePdfCopyOutlines, ePdfCopyLogicalStructure, ePdfCopyNamedDestinations, and ePdfCopyAssociatedFiles.

Example:

Dim outdoc As New PDFSPLMRGAPILib.outdoc
Dim indoc As New PDFSPLMRGAPILib.indoc
options = ePdfCopyAnnotations Or _
  ePdfCopyFormFields Or _
6.2.18 **CopyOutputIntent**

**Method:** Boolean CopyOutputIntent(InDoc InDoc)

Copy the PDF/A output intent. This method should only be called once per output document. It should be called prior to copying any pages.

6.2.19 **CopyPages**


Deprecated in Version 4.7. Use CopyPages2 instead.

6.2.20 **CopyPages2**

**Method:** Boolean CopyPages2(InDoc InDoc, Long FirstPage, Long LastPage, TPDFCopyOptions CopyOptions)

This method copies a range of pages from the InDoc. The method returns True if all pages were copied successfully.

Depending on the CopyOptions set, outlines, form fields associated with the pages, etc... are copied as well. (See TPdfCopyOption.)

6.2.21 **CopyViewerProperties**

**Method:** Boolean CopyViewerProperties(InDoc InDoc)

Copy viewer properties, which include: Page Layout, Page Mode, Open Actions, Piece Info and Collection properties (if CopyEmbeddedFiles is used only).
6.2.22 Create

<table>
<thead>
<tr>
<th>Method:</th>
<th>Boolean Create(String FileName, String UserPassword, String OwnerPassword, Long PermissionFlags)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method:</td>
<td>Boolean Create2(String FileName, String UserPassword, String OwnerPassword, Long PermissionFlags, Long KeyLength, String StrF, String StmF)</td>
</tr>
</tbody>
</table>

Create an output PDF document, apply the security settings and save the content from the input file to the output file.

**Note:**
- With Version 4.1.13.0 Create2 was added with three new parameters for key length, string filter and stream filter to support AES-V2 and AES-V3 encryption.
- The last three parameters (KeyLength, StrF, StmF) are only relevant in specific cryptographic situations. In all other cases, it is easiest to use the default values 128, "V2", "V2".

**Parameters:**

**FileName** [String] The file name and optionally the file path, drive or server string according to the operating systems file name specification rules.

**UserPassword** [String] (optional) The user password of the encrypted PDF document.

**OwnerPassword** [String] (optional) The owner password of the encrypted PDF document. If the owner password is empty, the user password is used instead.

**PermissionFlags** [Long] (optional) Set the permission flags of the PDF document. This option requires an owner password to be set. By default no permissions are granted. The permissions that can be granted are listed in TPDFPermission. To not encrypt the output document, set PermissionFlags to -1, user and OwnerPassword to "". In order to allow high quality printing, flags ePermPrint and ePermDigitalPrint need to be set.

**KeyLength** [Long] (Default: 128) The key length is a determining factor of the strength of the encrypting algorithm and the amount of time to break the cryptographic system. For RC4 the key length can be any value from 40 to 128 that is a multiple of 8. For AESV2 the key length is automatically set to 128, for AESV3 to 256.

**Note:**
- Certain PDF viewers only support 40 and 128 bit encryption. Other tools, such as the 3-Heights™ tools also support other encryption key lengths.
- 256 bit encryption requires Acrobat 9 or later.

**StrF** [String] (Default: "V2") Set the string crypt filter. Setting this value to an empty string or Nothing means the default filter is used. Supported crypt filters:

- **"None"** The application does not decrypt data.
- **"V2"** (PDF 1.2) The application asks the security handler for the encryption key and implicitly decrypts data using the RC4 algorithm.
"RC4"  Same as "V2"

"AESV2"  (PDF 1.6) The application asks the security handler for the encryption key and implicitly decrypts
data using the AES-V2 128 bit algorithm.

"AESV3"  (PDF 1.7) The application asks the security handler for the encryption key and implicitly decrypts
data using the AES-V3 256 bit algorithm.

StmF  [String]  (Default: "V2")  Set the stream crypt filter. Supported values are "None", "V2", "RC4",
"AESV2" and "AESV3". Note that certain viewers require the stream crypt filter to be equal to the string crypt
filter, e.g. both must be RC4 or AES. Other tools, such as the 3-Heights™ PDF tools do not have this limitation.
Setting this value to an empty string or Nothing, means the default filter is used.

Returns:

True  The file was created successfully.

False  The file was not created. This can be due to permissions or a locked file, or another reason. See also
ErrorCode and ErrorMessage.

6.2.23 CreateInMemory

<table>
<thead>
<tr>
<th>Method:</th>
<th>Boolean CreateInMemory()</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method:</td>
<td>Boolean CreateInMemory2(String UserPassword, String OwnerPassword, Long PermissionFlags, Long KeyLength, String StrF, String StmF)</td>
</tr>
</tbody>
</table>

This method saves the output PDF in memory as a byte array. (See also method GetPdf.) For a description of the
parameters of CreateInMemory2, see method Create.

Returns:

True  The PDF document was created successfully.

False  The PDF document was not created successfully. See also ErrorCode and ErrorMessage.

6.2.24 ErrorCode

| Property (get): | TPDFErrorCode ErrorCode |

This property can be accessed to receive the latest error code. This value should only be read if a function call on
the PDF Merge Split API has returned a value, which signales a failure of the function (see chapter Error Handling).
See also enumeration TPDFErrorCode. PDF-Tools error codes are listed in the header file bseerror.h. Please
note that only few of them are relevant for the 3-Heights™ PDF Merge Split API.

6.2.25 ErrorMessage

| Property (get): | Boolean ErrorMessage |
| Default: | False |
Return the error message text associated with the last error (see property ErrorCode). Note that the property is Nothing if no message is available.

### 6.2.26 FlattenAnnotations

[Deprecated] Property (get, set): Boolean FlattenAnnotations

Deprecated in Version 4.7. Use ePdfFlattenAnnotations (see TPdfCopyOption) in CopyPages2.

### 6.2.27 FlattenFormFields

[Deprecated] Property (get, set): Boolean FlattenFormFields

Default: False

Deprecated in Version 4.7. Use ePdfFlattenFormFields (see TPdfCopyOption) in CopyPages2.

### 6.2.28 FlattenSigAppearance

[Deprecated] Property (get, set): Boolean FlattenSigAppearance

Deprecated in Version 4.7. Use ePdfFlattenAnnotations (see TPdfCopyOption) in CopyPages2.

### 6.2.29 GetPdf

Method: Variant GetPdf()

Get the output file from memory. See also method CreateInMemory.

**Returns:**

A byte array containing the output PDF. In certain programming languages, such as Visual Basic 6, the type of the byte array must explicitly be Variant.

### 6.2.30 InfoEntry

Method: String InfoEntry(String Key)

Retrieve or add a key-value pair to the document info dictionary. Values of predefined keys are also stored in the XMP metadata package.

Popular entries specified in the PDF Reference 1.7 and accepted by most PDF viewers are "Title", "Author", "Subject", "Creator" (sometimes referred to as Application) and "Producer" (sometimes referred to as PDF Creator).
Parameter:

Key [String] A key as string.

Returns:

The value as string.

Examples in Visual Basic 6:

Get the document title.

\[ t = \text{doc}.\text{InfoEntry}("Title") \]

Set the document title.

\[ \text{doc}.\text{InfoEntry}("Title") = "My Title" \]

Set the creation date to 13:55:33, April 5, 2010, UTC+2.

\[ \text{doc}.\text{InfoEntry}("CreationDate") = "D:20100405135533 + 02'00'" \]

6.2.31 Keywords

Property (get, set): String Keywords

Add keywords to the document or retrieve keywords of the document.

6.2.32 LicenseIsValid

Property (get): Boolean LicenseIsValid

Check if the license is valid.

6.2.33 Linearize

Property (get, set): Boolean Linearize

Default: False

Note: This property is ignored when AutoLinearize is set to True.

Note: With this option enabled, non-Latin characters in the output file name are not supported.
Get or set whether to linearize the PDF output file, i.e. optimize file for fast web access. The 3-Heights™ PDF Merge Split API does not support linearization of PDF 2.0 documents. For such documents, processing fails. In order to automatically disable linearization for PDF 2.0 use `AutoLinearize`.

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.

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.

### 6.2.34 MergeOptionalContent

```plaintext
[Deprecated] Property (get, set): Boolean MergeOptionalContent
```

Deprecated in Version 4.7. Use `ePdfMergeOCGs` (see `TPdfCopyOption`) in `CopyPages2`.

### 6.2.35 OptimizeResources

```plaintext
[Deprecated] Property (get, set): Boolean OptimizeResources
```

Deprecated in Version 4.7. Use `ePdfOptimizeResources` (see `TPdfCopyOption`) in `CopyPages2`.

### 6.2.36 OutputIntent

```plaintext
Property (set): String OutputIntent
   Default: ""
```

Load the PDF/A output intent's color profile from specified file.

### 6.2.37 PageLayout

```plaintext
Property (set): TPDFPageLayout PageLayout
```

Set the page layout that shall be used when the document is opened. Alternatively the page layout can be copied from an input document using the method `CopyViewerProperties`. See `TPDFPageLayout` for an explanation of the different page layouts.
6.2.38 PageMode

**Property (set):** TPDFPageMode PageMode

Set the page mode that specifies how the document shall be displayed when opened. Alternatively the page mode can be copied from an input document using the method CopyViewerProperties. See TPDFPageMode for an explanation of the different page modes.

6.2.39 ProductVersion

**Property (get):** String ProductVersion

Get the version of the 3-Heights™ PDF Merge Split API in the format “A.C.D.E”.

6.2.40 RemoveNamedDestins

**[Deprecated] Property (get, set):** Boolean RemoveNamedDestins

Deprecated in Version 4.7. Use ePdfCopyNamedDestinations (see TPdfCopyOption) in CopyPages2. If this property is set, all named destinations of the input document are removed and all internal named destinations converted to regular destinations.

6.2.41 Rotate

**Property (get, set):** Integer Rotate

Default: 0

The number of degrees by which the page should be rotated additionally when the document is viewed (or printed). This value must be set before copying pages to this output document with CopyPages2. A positive value is a clockwise rotation. The value must be a multiple of 90. I.e. valid values are -270, -180, -90, 0, 90, 180, 270. The default is 0.

6.2.42 SetLicenseKey

**Method:** Boolean SetLicenseKey(String LicenseKey)

Set the license key.

6.2.43 SetOpenAction

**Method:** Boolean SetOpenAction(Long PageNo, Single Left, Single Bottom, Single Right, Single Top, Single Zoom, TPDFDestMode Mode)
The open action defines which page shall be presented to the user initially upon opening the document.

**Parameters:**

- **PageNo** [Long] The target page number.
- **Left** [Single] The left position in points.
- **Bottom** [Single] The bottom position in points.
- **Right** [Single] The right position in points.
- **Top** [Single] The top position in points.
- **Zoom** [Single] The zoom level; 1 = 100%.
- **Mode** [TPDFDestMode] The destination type. See TPDFDestMode.

### 6.2.44 SetViewerPreference

**Method:** Boolean `SetViewerPreference(String Key, String Value)`

Add an entry to the viewer preferences dictionary. All properties defined in the PDF Reference 1.7 and earlier are supported.

**Parameters:**

- **Key** [String] The name of the entry.
- **Value** [String] A string representation of the value. Names: value string, Booleans: "true" or "false", Integers: decimal numbers like "22", Arrays: comma-separated list of items like "1, 3, 55"

### 6.2.45 SetXMPMetadata

**Method:** Boolean `SetXMPMetadata(String FileName)`

Load XMP metadata from specified file. Setting the XMP metadata automatically adjusts and thereby overrides the current document info entries. Therefore document info entries must always be applied after setting the XMP metadata to become effective (applies to properties "Author", "Keywords", "Subject" and "Title").

### 6.2.46 SetXMPMetadataMem

**Method:** Boolean `SetXMPMetadataMem(Variant Mem)`

Load XMP metadata from a byte array. See also SetXMPMetadata.
6.2.47 Subject

**Property (get, set):** String **Subject**

Default: ""

This property sets the Subject attribute of the document.

6.2.48 Title

**Property (get, set):** String **Title**

Default: ""

This property sets the Title attribute of the document.

6.3 Enumerations

**Note:** Depending on the interface, enumerations may have TPDF as prefix (COM, C) or PDF as prefix (.NET) or no prefix at all (Java).

6.3.1 TPdfCopyOption Enumeration

The recommended default value for CopyOptions is:

```java
options = ePdfCopyAnnotations Or _
  ePdfCopyFormFields Or _
  ePdfCopyLinks Or _
  ePdfCopyLogicalStructure Or _
  ePdfCopyOutlines Or _
  ePdfCopyAssociatedFiles Or _
  ePdfMergeOCGs
```

When creating PDF/A level A documents, e.g. PDF/A-2a, or if universal accessibility is important, also add `ePdfCopyLogicalStructure`.

<table>
<thead>
<tr>
<th>TPDFCopyOption</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePdfCopyAnnotations</td>
<td>Copy interactive annotations such as sticky notes or highlight annotations.</td>
</tr>
</tbody>
</table>

### TPDFCopyOption

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ePdfCopyFormFields</strong></td>
<td>Copy interactive form fields. Note that when merging multiple documents with form fields, it is important that no two different form fields have the same name. Otherwise one of the fields might have to be renamed (see <code>ePdfSeparateAcroForms</code>). Consider using <code>ePdfFlattenFormFields</code> when merging multiple forms.</td>
</tr>
<tr>
<td><strong>ePdfCopyLinks</strong></td>
<td>Copy links (document internal and external links).</td>
</tr>
<tr>
<td><strong>ePdfCopyLogicalStructure</strong></td>
<td>Copy logical structure information. Logical structure information in a PDF defines the structure of content, such as titles, paragraphs, figures, reading order, tables or articles. Logical structure elements can be “tagged” with descriptions or alternative text. E.g. “tagging” allows the contents of an image to be described to the visually impaired. It is recommended to use this option, if all input documents are “tagged”. Otherwise this could be deactivated in order to create smaller output files and get a much better performance. This option is required for PDF/A level A conformance (e.g. PDF/A-1a, PDF/A-2a, PDF/A-3a).</td>
</tr>
<tr>
<td><strong>ePdfCopyNamedDestinations</strong></td>
<td>Copy named destinations. A document may contain a mapping of names to destinations within the document. These names can then be used in link annotations or outlines in order to refer to destinations within the document. Links within the document will work regardless of the state of this flag. If <code>ePdfCopyNamedDestinations</code> is not used, all named destinations of the input document are removed and all internal named destinations converted to regular destinations. This is much faster than copying named destinations. If a document is split into multiple documents with the intention of merging the pieces back together at a later time, this flag should be used. If the document uses named destinations, links between the pieces will work after merging if <code>ePdfCopyNamedDestinations</code> is used.</td>
</tr>
<tr>
<td><strong>ePdfCopyOutlines</strong></td>
<td>Copy all outline items (bookmarks) that point to the copied pages. The structure of the outline tree in the output document will be the same as in the input document, regardless of the order in which pages are copied.</td>
</tr>
</tbody>
</table>
## TPDFCopyOption

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ePdfFlattenAnnotations</strong></td>
<td>Flatten annotations preserves the visual appearance of annotations, but discards all interactive elements. When using this option, it is recommended to leave the <code>ePdfCopyAnnotations</code> flag cleared. Note that this option does not flatten form fields, signature appearances and links, even though technically these are annotations as well.</td>
</tr>
<tr>
<td><strong>ePdfFlattenFormFields</strong></td>
<td>Flatten form fields preserves the visual appearance of form fields, but discards all interactive elements. When using this option, it is recommended to leave the <code>ePdfCopyFormFields</code> flag cleared. Often, form fields have no associated visual appearance stored in the document. For such fields an appearance must be generated when flattening. The 3-Heights™ PDF Merge Split API currently cannot generate an appearance for all types of form fields. If an appearance generation failed then an <code>ErrorCode</code> is set. See also <code>TPDFErrorCode</code>.</td>
</tr>
<tr>
<td><strong>ePdfFlattenSignatureAppearances</strong></td>
<td>Flatten the visual appearance of signed signature fields. A digital signature consists of two parts: First, 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. Second, 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 API 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 the flag <code>ePdfFlattenSignatureAppearances</code>.</td>
</tr>
<tr>
<td><strong>ePdfOptimizeResources</strong></td>
<td>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. However, the merging process uses more time and memory resources.</td>
</tr>
<tr>
<td><strong>ePdfCopyAssociatedFiles</strong></td>
<td>Copy associated files. For PDF/A-3 conformance, this option must be set and the method <code>CopyEmbeddedFiles</code> must be called.</td>
</tr>
</tbody>
</table>
### TPDFCopyOption

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePdfMergeOCGs</td>
<td>Merge compatible optional content groups (layers). If this option is set the configuration of optional content is compared with the input file. 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. If this option is not set then no configuration of optional content groups is copied. In this case one can use the method CopyOptionalContent to copy such configuration information.</td>
</tr>
<tr>
<td>ePdfSeparateAcroForms</td>
<td>Keep AcroForm fields from different files separate even if they are identical. This option has only an effect, if ePdfCopyFormFields is used. AcroForm fields are key-value pairs. The key (name) is important if for example the form's content is submitted to a web server or modified using JavaScript actions embedded within the document. For most forms it is therefore crucial that the name of form fields is preserved. This option controls the behavior of the 3-Heights™ PDF Merge Split API when merging files that contain form fields with the same name. If this option is set, fields are renamed if the output document already contains a field of the same name. If this option is not set, fields are merged into one field if they are of the same type and have the same value. Otherwise fields are renamed. Note that if two fields are merged, multiple widget annotations (i.e. the appearance of the field on pages) will be associated with the same form field and therefore will always show the same value.</td>
</tr>
</tbody>
</table>

### 6.3.2 TPDFDestMode Enumeration

A PDF destination defines a particular view of the document including the page, the location on the page and the zoom factor. There are eight different modes (enumerated by TPDFDestMode) to specify the location on the page and the zoom factor. Depending on the mode, between 0 and 4 parameters are required to define the destination.

### TPDFDestMode Table

<table>
<thead>
<tr>
<th>Value</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>eDestModeXYZ</td>
<td>left top zoom</td>
<td>The upper left corner of the view is positioned at the coordinate (left, top) with the given zoom factor.</td>
</tr>
<tr>
<td>eDestModeFit</td>
<td></td>
<td>The view is such that the whole page is visible.</td>
</tr>
<tr>
<td>eDestModeFitH</td>
<td>top</td>
<td>The view is top-aligned with top and shows the whole page width.</td>
</tr>
</tbody>
</table>
**TPFDestMode Table**

<table>
<thead>
<tr>
<th>eDestModeFitV</th>
<th>left</th>
<th>The view is left-aligned with left and shows the whole page height.</th>
</tr>
</thead>
<tbody>
<tr>
<td>eDestModeFitR</td>
<td>left, bottom, right, top</td>
<td>The view contains the rectangle specified the two coordinates (left, bottom) and (right, bottom).</td>
</tr>
<tr>
<td>eDestModeFitB</td>
<td></td>
<td>The view is such that the pages bounding box is visible.</td>
</tr>
<tr>
<td>eDestModeFitBH</td>
<td>top</td>
<td>The view is top-aligned with top and shows the whole width of the page’s bounding box.</td>
</tr>
<tr>
<td>eDestModeFitBV</td>
<td>left</td>
<td>The view is left-aligned with left and shows the whole height of the page’s bounding box.</td>
</tr>
</tbody>
</table>

For more information about PDF destinations please see Chapter 8.2.1 in the PDF Reference 1.7.

### 6.3.3 TPDFErrorCode Enumeration

All TPDFErrorCode enumerations start with a prefix, such as PDF_, followed by a single letter which is one of S, E, W or I, an underscore and a descriptive text.

The single letter gives an indication of the severity of the error. These are: Success, Error, Warning and Information. In general, an error is returned if an operation could not be completed, e.g. no valid output file was created. A warning is returned if the operation was completed, but problems occurred in the process.

A list of all error codes is available in the C API’s header file bseerror.h, the javadoc documentation of com.pdf tools.NativeLibrary.ERRORCODE and the .NET documentation of Pdftools.Pdf.PDFErrorCode. Note that only a few are relevant for the 3-Heights™ PDF Merge Split API, most of which are listed here:

**TPDFErrorCode Table**

<table>
<thead>
<tr>
<th>TPDFErrorCode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDF_S_SUCCESS</td>
<td>The operation was completed successfully.</td>
</tr>
<tr>
<td>LIC_E_NOTSET, LIC_E_NOTFOUND, ...</td>
<td>Various license management related errors.</td>
</tr>
<tr>
<td>PDF_E_FILEOPEN</td>
<td>Failed to open the file.</td>
</tr>
<tr>
<td>PDF_E_FILECREATE</td>
<td>Failed to create the file.</td>
</tr>
<tr>
<td>PDF_E_PASSWORD</td>
<td>The authentication failed due to a wrong password.</td>
</tr>
<tr>
<td>PDF_E_UNKSECHANDLER</td>
<td>The file uses a proprietary security handler, e.g. for a proprietary digital rights management (DRM) system.</td>
</tr>
</tbody>
</table>
The file contains unrendered XFA form fields, i.e. the file is an XFA and not a PDF file.

The XFA (XML Forms Architecture) specification is referenced as an external document to ISO 32’000-1 (PDF 1.7) and has not yet been standardized by ISO. Technically spoken, an XFA form is included as a resource in a shell PDF. The PDF’s page content is generated dynamically from the XFA data, which is a complex, non-standardized process. For this reason, XFA is forbidden by the ISO Standards ISO 19’005-2 (PDF/A-2) and ISO 32’000-2 (PDF 2.0) and newer.

When merging PDF documents, the conformances of the input files are incompatible, e.g. PDF 1.7 and PDF 2.0.

XFA stream was not copied.
SubmitForm action was not copied.
Partial SubmitForm action altered to submit all fields.
Signature annotation was not copied.
Value or default value of a field was discarded due to field name collision.
Renamed a form field due to field name collision.
Failed to generate an appearance for a form field.

6.3.4 TPDFPermission Enumeration

An enumeration for permission flags. If a flag is set, the permission is granted.

<table>
<thead>
<tr>
<th>TPDFPermissionFlag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePermNoEncryption</td>
<td>Do not apply encryption. This enumeration value shall not be combined with other values. When using this enumeration set both passwords to an empty string or Nothing.</td>
</tr>
<tr>
<td>ePermNone</td>
<td>Grant no permissions</td>
</tr>
<tr>
<td>ePermPrint</td>
<td>Low resolution printing</td>
</tr>
<tr>
<td>ePermModify</td>
<td>Changing the document</td>
</tr>
<tr>
<td>ePermCopy</td>
<td>Content copying or extraction</td>
</tr>
<tr>
<td>ePermAnnotate</td>
<td>Annotations</td>
</tr>
</tbody>
</table>
### TPDFPermission Table

<table>
<thead>
<tr>
<th>Permission</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePermFillForms</td>
<td>Filling of form fields</td>
</tr>
<tr>
<td>ePermSupportDisabilities</td>
<td>Support for disabilities</td>
</tr>
<tr>
<td>ePermAssemble</td>
<td>Document assembly</td>
</tr>
<tr>
<td>ePermDigitalPrint</td>
<td>High resolution printing</td>
</tr>
<tr>
<td>ePermAll</td>
<td>Grant all permissions</td>
</tr>
</tbody>
</table>

Changing permissions or combining multiple permissions is done using a bitwise “or” operator.

**Note:** The special value ePermNoEncryption cannot be combined with any other values.

Changing the current permissions in Visual Basic should be done like this:

**Allow Printing**

```
Permission = Permission Or ePermPrint
```

**Prohibit Printing**

```
Permission = Permission And Not ePermPrint
```

### 6.3.5 TPDPDFPageLayout Enumeration

The page layout defines how the document’s pages are displayed when it is opened. There are six different layouts (enumerated by TPDPDFPageLayout) to specify which content of the document is visible when it is opened.

### TPDPDFPageLayout Table

<table>
<thead>
<tr>
<th>PageLayout</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePageLayoutSinglePage</td>
<td>One page is displayed at a time.</td>
</tr>
<tr>
<td>ePageLayoutOneColumn</td>
<td>Pages are displayed in one column.</td>
</tr>
<tr>
<td>ePageLayoutTwoColumnLeft</td>
<td>Pages are displayed in two columns, with odd-numbered pages on the left.</td>
</tr>
<tr>
<td>ePageLayoutTwoColumnRight</td>
<td>Pages are displayed in two columns, with odd-numbered pages on the right.</td>
</tr>
<tr>
<td>ePageLayoutTwoPageLeft</td>
<td>Two pages are displayed at a time, with odd-numbered pages on the left.</td>
</tr>
<tr>
<td>ePageLayoutTwoPageRight</td>
<td>Two pages are displayed at a time, with odd-numbered pages on the right.</td>
</tr>
</tbody>
</table>

For more information please see Chapter 3.6.1 in the PDF Reference 1.7.
6.3.6 TPDFPageMode Enumeration

The page mode defines how the document is displayed when it is opened. There are six different modes (enumerated by TPDFPageMode) to specify which content of the document is visible when it is opened.

**TPDFPageMode Table**

<table>
<thead>
<tr>
<th>PageMode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePageModeUseNone</td>
<td>Neither document outline nor thumbnail images are displayed.</td>
</tr>
<tr>
<td>ePageModeUseOutlines</td>
<td>The document outline is visible.</td>
</tr>
<tr>
<td>ePageModeUseThumbs</td>
<td>Thumbnail images are visible.</td>
</tr>
<tr>
<td>ePageModeFullScreen</td>
<td>The document is displayed in full-screen mode. The menu bar, window controls, or any other windows are not visible.</td>
</tr>
<tr>
<td>ePageModeUseOC</td>
<td>The optional content group panel is visible.</td>
</tr>
<tr>
<td>ePageModeUseAttachments</td>
<td>The attachment panel appears.</td>
</tr>
</tbody>
</table>

For more information please see Chapter 3.6.1 in the **PDF Reference 1.7**.
7 Examples

Examples in various programming languages are included in the ZIP files of the release and evaluation versions.
8 Version History

Some of the documented changes below may be preceded by a marker that specifies the interface technologies the change applies to. E.g. [C, Java] applies to the C and the Java interface.

8.1 Changes in Version 6

- [Java] **Changed** minimal supported Java language version to 7 [previously 6].
- [PHP] **Removed** all versions of the PHP interface.
- [.NET] **New** availability of this product as NuGet package for Windows, macOS and Linux.
- [.NET] **New** support for .NET Core versions 1.0 and higher. The support is restricted to a subset of the operating systems supported by .NET Core, see Operating Systems.
- [.NET] **Changed** platform support for NuGet packages: The platform "AnyCPU" is now supported for .NET Framework projects.
- **Changed** handling of conformance in all methods that copy from an input document to an output document: The conformance of the target document is adapted automatically and if that's not possible, an error is generated.

8.2 Changes in Version 5

- **New** additional supported operating system: Windows Server 2019.
- [PHP] **New** extension PHP 7.3 (non thread safe) for Linux.

8.3 Changes in Version 4.12

- **New** support for encryption according to PDF 2.0 (revision 6, replaces deprecated revision 5).
- **New** HTTP proxy setting in the GUI license manager.
- [.NET, C, COM, Java, PHP] **New** property AutoLinearize to automatically choose whether to linearize the output document or not.
- **Changed** values of the error codes PDF_E_RICHTEXT and PDF_W_RICHTEXT.

8.4 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.

8.5 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.

[C] Clarified Error handling of TPdfStreamDescriptor functions.

### 8.6 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.
- [C] Changed return value pfGetLength of TPDFStreamDescriptor to pos_t6.
- [PHP] New interface for Windows and Linux. Supported versions are PHP 5.6 & 7.0 (Non Thread Safe). The PdfSplMrgAPI PHP Interface is contained in the 3-Heights™ PDF Tools PHP5.6 Extension and the 3-Heights™ PDF Tools PHP7.0 Extension.
- [C] Changed 32-bit binaries on Windows that link to the API need to be recompiled due to a change of the used mangling scheme.

### 8.7 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.

**Interface OutDoc**

- [NET] Deprecated method GetLicenseIsValid.
- [NET] New property LicenseIsValid.

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6 This has no effect on neither the .NET, Java, nor COM API
9 Licensing, Copyright, and Contact

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