

# **Coherent PDF Library (libcpdf)**

## **Developer's Manual**

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## Note

The chapters are numbered to be the same as those in the manual for the Coherent PDF Command Line Tools ([cpdfmanual.pdf](#)). However, some of the content has moved where circumstances dictate – for example, encryption is wholly described in Chapter 1 rather than Chapter 4.



# Installation

The Coherent PDF Library is provided either in compiled form (the archive file `libcpdf.a` and the library header `cpdfplibwrapper.h`), or as source code. Instructions for building from source are included in the distribution.

**Linux, Unix and OS/X** Place `libcpdf.a`, `libbigarray.a` and `libunix.a` somewhere suitable. Instruct your C linker to link with them. Place `cpdfplibwrapper.h` somewhere suitable and instruct your C compiler to search for headers there. The library is now ready for use.

**Microsoft Windows** Place `libcpdf.dll` somewhere suitable and instruct your C compiler to link with it. Place `cpdfplibwrapper.h` somewhere suitable and instruct your C compiler to search for headers there. The library is now ready for use.





## 0 Preliminaries

---

```
/* The function cpdf_startup must be called with argv before using the
library. */
void cpdf_startup (char **);

/* Set demo mode. Upon library startup is false. If set, files written will
 * have the text DEMO stamped over each page. This stamping will also slow down
 * the library significantly. */
void cpdf_setDemo(int);

/* Errors. lastError and lastErrorString hold information about the last error
 * to have occurred. They should be consulted after each call. If
 * cpdf_lastError is non-zero, there was an error, and cpdf_lastErrorString
 * gives details. If cpdf_lastError is zero, there was no error on the most
 * recent cpdf call. */
int cpdf_lastError;
char* cpdf_lastErrorString;

/* Clear the current error state. */
void cpdf_clearError (void);

/* A debug function which prints some information about resource usage. This
 * can be used to detect if PDFs or ranges are being deallocated properly. */
void cpdf_onExit (void);

/* Remove a PDF from memory, given its number. */
void cpdf_deletePdf(int);

/* Calling replacePdf(a, b) places PDF b under number a. Original a and b are
 * no longer available. */
void cpdf_replacePdf(int, int);

/* To enumerate the list of currently allocated PDFs, call
 * cpdf_startEnumeratePDFs which gives the number, n, of PDFs allocated, then
 * cpdf_enumeratePDFsInfo and cpdf_enumeratePDFsKey with index numbers from
 * 0...(n - 1). Call cpdf_endEnumeratePDFs to clean up. */
int cpdf_startEnumeratePDFs(void);
int cpdf_enumeratePDFsKey(int);
char* cpdf_enumeratePDFsInfo(int);
void cpdf_endEnumeratePDFs(void);
```

---



# 1 Basics

---

```
/* Convert a figure in centimetres to points (72 points to 1 inch) */
double cpdf_ptOfCm (double);

/* Convert a figure in millimetres to points (72 points to 1 inch) */
double cpdf_ptOfMm (double);

/* Convert a figure in inches to points (72 points to 1 inch) */
double cpdf_ptOfIn (double);

/* Convert a figure in points to centimetres (72 points to 1 inch) */
double cpdf_cmOfPt (double);

/* Convert a figure in points to millimetres (72 points to 1 inch) */
double cpdf_mmOfPt (double);

/* Convert a figure in points to inches (72 points to 1 inch) */
double cpdf_inOfPt (double);

/* A page range is a list of page numbers used to restrict operations to
 * certain pages. A page specification is a textual description of a page
 * range, such as "1-12,18-end". Here is the syntax:

o A dash (-) defines ranges, e.g. 1-5 or 6-3.

o A comma (,) allows one to specify several ranges, e.g. 1-2,4-5.

o The word end represents the last page number.

o The words odd and even can be used in place of or at the end of a page range
to restrict to just the odd or even pages.

o The word reverse is the same as end-1.

o The word all is the same as 1-end.

o A range must contain no spaces.

o A tilde defines a page number counting from the end of the document
rather than the beginning. Page is the last page, the penultimate page
etc. */

/* Parse a page specification with reference to a given PDF (the PDF is
```

## 1. BASICS

---

```
 * supplied so that page ranges which reference pages which do not exist are
 * rejected). */
int cpdf_parsePagespec(int, char*);

/* Validates a page specification so far as is possible in the absence of the
 * actual document */
int cpdf_validatePagespec(char *);

/* Build a page specification from a page range. For example, the range
 * containing 1,2,3,6,7,8 in a document of 8 pages might yield "1-3,6-end" */
char* cpdf_stringOfPagespec(int, int);

/* Create a range with no pages in */
int cpdf_blankRange(void);

/* Delete a range. Ranges should be deleted once finished with. */
void cpdf_deleteRange(int);

/* Build a range from one page to another inclusive. For example,
 * cpdf_range(3,7) gives the range 3,4,5,6,7 */
int cpdf_range(int, int);

/* Make a range which contains just the even pages of another range */
int cpdf_even(int);

/* Make a range which contains just the odd pages of another range */
int cpdf_odd(int);

/* Make the union of two ranges cpdf_union(a,b) gives a range containing the
 * pages in range a and range b. */
int cpdf_rangeUnion(int, int);

/* Make the difference of two ranges. cpdf_difference(a, b) gives a range
 * containing all the pages in a except for those which are also in b */
int cpdf_difference(int, int);

/* Deduplicate a range, making a new one */
int cpdf_removeDuplicates(int);

/* Give the number of pages in a range */
int cpdf_rangeLength(int);

/* Get the page number at position n in a range, where n runs from 0 to
 * rangeLength - 1. For example, cpdf_rangeGet(range, n) gives the page number
 * at position n in the range. */
int cpdf_rangeGet(int, int);

/* Calling cpdf_rangeAdd(range, page) will add the page to a range, if it is
 * not already there. */
int cpdf_rangeAdd(int, int);

/* cpdf_isInRange(range, page) returns true if the page is in the range, false
 * otherwise. */
int cpdf_isInRange(int, int);
```

---

```

/* Load a PDF file from a given file. Also supply a user password (possibly
 * blank) in case the file is encrypted. It won't be decrypted, but sometimes
 * the password is needed just to load the file. */
int cpdf_fromFile(char*, char*);

/* Load a PDF from a file, doing only minimal parsing. The objects will be read
 * and parsed when they are actually needed. Use this when the whole file won't
 * be required. Also supply a user password (possibly blank) in case the file
 * is encrypted. It won't be decrypted, but sometimes the password is needed
 * just to load the file. */
int cpdf_fromFileLazy(char*, char*);

/* Create a blank document with pages of the given width (in points), height
 * (in points), and number of pages. */
int cpdf_blankDocument(double, double, int);

/* Standard page sizes. */
enum cpdf_papersize
{cpdf_a0portrait /** A0 portrait */,
 cpdf_a1portrait /** A1 portrait */,
 cpdf_a2portrait /** A2 portrait */,
 cpdf_a3portrait /** A3 portrait */,
 cpdf_a4portrait /** A4 portrait */,
 cpdf_a5portrait /** A5 portrait */,
 cpdf_a0landscape /** A0 landscape */,
 cpdf_a1landscape /** A1 landscape */,
 cpdf_a2landscape /** A2 landscape */,
 cpdf_a3landscape /** A3 landscape */,
 cpdf_a4landscape /** A4 landscape */,
 cpdf_a5landscape /** A5 landscape */,
 cpdf_usletterportrait /** US Letter portrait */,
 cpdf_usletterlandscape /** US Letter landscape */,
 cpdf_uslegalportrait /** US Legal portrait */,
 cpdf_uslegallandscape /** US Legal landscape */};

/* Make a blank document given a page size and number of pages. */
int cpdf_blankDocumentPaper(enum cpdf_papersize, int);

/* Return the number of pages in a PDF. */
int cpdf_pages(int);

/* Return the number of pages in a given PDF, with given user encryption
 * password. cpdf_pagesFast(password, filename) tries to do this as fast as
 * possible, without loading the whole file. */
int cpdf_pagesFast(char*, char*);

/* cpdf_toFile (pdf, filename, linearize, make_id) writes the file to a given
 * filename. If linearize is true, it will be linearized. If make_id is true,
 * it will be given a new ID. */
void cpdf_toFile(int, char*, int, int);

/* The range containing all the pages in a given document */
int cpdf_all(int);

```

## 1. BASICS

---

```
/* Returns true if a documented is encrypted, false otherwise. */
int cpdf_isEncrypted(int);

/* Attempt to decrypt a PDF using the given user password. The error code is
 * non-zero if the decryption fails. */
void cpdf_decryptPdf(int, char*);

/* Attempt to decrypt a PDF using the given owner password. The error code is
 * non-zero if the decryption fails. */
void cpdf_decryptPdfOwner(int, char*);

/* File permissions. These are inverted, in the sense that the presence of one
 * of them indicates a restriction. */
enum cpdf_permission
{cpdf_noEdit /** Cannot edit the document */,
 cpdf_noPrint /** Cannot print the document */,
 cpdf_noCopy /** Cannot copy the document */,
 cpdf_noAnnot /** Cannot annotate the document */,
 cpdf_noForms /** Cannot edit forms in the document */,
 cpdf_noExtract /** Cannot extract information */,
 cpdf_noAssemble /** Cannot assemble into a bigger document */,
 cpdf_noHqPrint /** Cannot print high quality */};

/* Encryption methods. Suffixes 'false' and 'true' indicates lack of or
 * presence of encryption for XML metadata streams */
enum cpdf_encryptionMethod
{cpdf_pdf40bit /** 40 bit RC4 encryption */,
 cpdf_pdf128bit /** 128 bit RC4 encryption */,
 cpdf_aes128bitfalse /** 128 bit AES encryption, do not encrypt metadata. */,
 cpdf_aes128bittrue /** 128 bit AES encryption, encrypt metadat */,
 cpdf_aes256bitfalse, /** Deprecated. Do not use for new files */
 cpdf_aes256bittrue, /** Deprecated. Do not use for new files */
 cpdf_aes256bitisofalse /** 256 bit AES encryption, do not encrypt metadata. */,
 cpdf_aes256bitisottrue /** 256 bit AES encryption, encrypt metadata */};

/* Write a file with encryption:
cpdf_toFileEncrypted(
    pdf, Document
    encryption_method, Encryption method
    permissions, Permissions array
    permission_length, Length of permissions array
    owner_password, Owner password, blank if none
    user_passwordi, User password, blank if none
    linearize, If true, linearize
    makeid, If true, make a new ID
    filename) Filename
*/
void cpdf_toFileEncrypted(int, int, int*, int, char*, char*, int, int, char*);

/* Write a modified file, re-encrypting it.

cpdf_toFileReencrypting(original, decrypted_and_modified, userpw, filename)
```

---

*original is the original document, as read from file. decrypted\_and\_modified is the processed file, ready to write. userpw is the user password for the PDF. filename is the name of the file to write.*

*The PDF 'modified' is no longer usable and can be deleted.*

*\*/*

**void** cpdf\_toFileRecrypting(**int**, **int**, **char\***, **char\***);

*/\* Return true if the given permission (restriction) is present. \*/*

**int** cpdf\_hasPermission(**int**, **enum** cpdf\_permission);

*/\* Return the encryption method currently in use on a file. \*/*

**enum** cpdf\_encryptionMethod cpdf\_encryptionKind(**int**);

---





## 2 Merging and Splitting

---

```
/* Given an array of PDFs, and its length, merge the files into a new one */
int cpdf_mergeSimple(int*, int);

/* cpdf_merge (pdfs, len, retain_numbering, remove_duplicate_fonts) merges the
 * PDFs. If retain_numbering is true page labels are not rewritten. If
 * remove_duplicate_fonts is true, duplicate fonts are merged. This is useful
 * when the source documents for merging originate from the same source. */
int cpdf_merge(int*, int, int, int);

/* This is the same as cpdf_merge, except that it has an additional argument -
 * an array of page ranges. This is used to select the pages to pick from each
 * PDF. This avoids duplication of information when multiple discrete parts of
 * a source PDF are included. */
int cpdf_mergeSame(int*, int, int, int, int*);

/* cpdf_selectPages(pdf, range) returns a new document which just those pages
 * in the page range. */
int cpdf_selectPages(int, int);
```

---



### 3 Pages

---

```
/* cpdf_scalePages(pdf, range, x scale, y scale) scales the page dimensions and
 * content by the given scale, about (0, 0). Other boxes (crop etc. are altered
 * as appropriate) */
void cpdf_scalePages(int, int, double, double);

/* cpdf_scaleToFit(pdf, range, width height) scales the content to fit new page
 * dimensions (width x height). Other boxed (crop etc. are altered as
 * appropriate) */
void cpdf_scaleToFit(int, int, double, double);

/* cpdf_scaleToFitPaper(pdf, range, papersize) scales the page content to fit
 * the given page size. */
void cpdf_scaleToFitPaper(int, int, enum cpdf_papersize);

/* Positions on the page. Used for scaling about a point, and adding text. */
enum cpdf_anchor
{cpdf_posCentre /** Absolute centre */,
 cpdf_posLeft /** Absolute left */,
 cpdf_posRight /** Absolute right */,
 cpdf_top /** Top top centre of the page */,
 cpdf_topLeft /** The top left of the page */,
 cpdf_topRight /** The top right of the page */,
 cpdf_left /** The left hand side of the page, halfway down */,
 cpdf_bottomLeft /** The bottom left of the page */,
 cpdf_bottom /** The bottom middle of the page */,
 cpdf_bottomRight /** The bottom right of the page */,
 cpdf_right /** The right hand side of the page, halfway down */,
 cpdf_diagonal /** Diagonal, bottom left to top right */,
 cpdf_reverseDiagonal /** Diagonal, top left to bottom right */ };

/* A position is an anchor (above) and zero or one or two parameters
 * (cpdf_coord1, cpdf_coord2).
 * cpdf_posCentre: Two parameters, x and y
 * cpdf_posLeft: Two parameters, x and y
 * cpdf_posRight: Two parameters, x and y
 * cpdf_top: One parameter -- distance from top
 * cpdf_topLeft: One parameter -- distance from top left
 * cpdf_topRight: One parameter -- distance from top right
 * cpdf_left: One parameter -- distance from left middle
 * cpdf_bottomLeft: One parameter -- distance from bottom left
 * cpdf_bottom: One parameter -- distance from bottom
 * cpdf_bottomRight: One parameter -- distance from bottom right
```

### 3. PAGES

---

```
* cpdf_right: One parameter -- distance from right
* cpdf_diagonal: Zero parameters
* cpdf_reverseDiagonal: Zero paremeters
*/
struct cpdf_position {
    int cpdf_anchor /** Position anchor */ ;
    double cpdf_coord1 /** Parameter one */;
    double cpdf_coord2 /** Parameter two */;
};

/* cpdf_scaleContents(pdf, range, position, scale) scales the contents of the
 * pages in the range about the point given by the cpdf_position, by the scale
 * given. */
void cpdf_scaleContents(int, int, struct cpdf_position, double);

/* cpdf_shiftContents(pdf, range, dx, dy) shifts the content of the pages in
 * the range. */
void cpdf_shiftContents(int, int, double, double);

/* cpdf_rotate(pdf, range, rotation) changes the viewing rotation to an
 * absolute value. Appropriate rotations are 0, 90, 180, 270. */
void cpdf_rotate(int, int, int);

/* cpdf_rotateBy(pdf, range, rotation) changes the viewing rotation by a given
 * number of degrees. Appropriate values are 90, 180, 270. */
void cpdf_rotateBy(int, int, int);

/* cpdf_rotateContents rotates the content about the centre of the page by the
 * given number of degrees, in a clockwise direction. */
void cpdf_rotateContents(int, int, double);

/* cpdf_upright(pdf, range) changes the viewing rotation of the pages in the
 * range, counter-rotating the dimensions and content such that there is no
 * visual change. */
void cpdf_upright(int, int);

/* cpdf_hFlip(pdf, range) flips horizontally the pages in the range. */
void cpdf_hFlip(int, int);

/* cpdf_vFlip(pdf, range) flips vertically the pages in the range. */
void cpdf_vFlip(int, int);

/* cpdf_crop(pdf, range, x, y, w, h) crops a page, replacing any existing crop
 * box. The dimensions are in points. */
void cpdf_crop(int, int, double, double, double, double);

/* cpdf_removeCrop(pdf, range) removes any crop box from pages in the range. */
void cpdf_removeCrop(int, int);

/* cpdf_removeTrim(pdf, range) removes any crop box from pages in the range. */
void cpdf_removeTrim(int, int);

/* cpdf_removeArt(pdf, range) removes any crop box from pages in the range. */
void cpdf_removeArt(int, int);
```

---

```
/* cpdf_removeBleed(pdf, range) removes any crop box from pages in the range. */  
void cpdf_removeBleed(int, int);
```

---



## 4 Encryption

*Covered in Chapter 1.*





## 5 Compression

---

```
/* These functions can be used to compress and decompress all the streams in a  
 * PDF file, for example for manual inspection. A PDF's streams are typically  
 * compressed. Do not expect compression to reduce the size of an  
 * already-compressed PDF. */  
  
/* Compress any uncompressed streams in the given PDF using the Flate  
 * algorithm. */  
void cpdf_compress(int);  
  
/* Uncompress any streams in the given PDF, so long as the compression method  
 * is supported. */  
void cpdf_decompress(int);
```

---



## 6 Bookmarks

---

```
/* Start the bookmark retrieval process for a given PDF. */
void cpdf_startGetBookmarkInfo(int);

/* Get the number of bookmarks for the PDF given to cpdf_startGetBookmarkInfo
 * */
int cpdf_numberBookmarks(void);

/* Get bookmark level for the given bookmark (0...(n - 1)) */
int cpdf_getBookmarkLevel(int);

/* Get the bookmark target page for the given PDF (which must be the same as
 * the PDF passed to cpdf_startGetBookmarkInfo) and bookmark (0...(n - 1)) */
int cpdf_getBookmarkPage(int, int);

/* Return the text of bookmark (0...(n - 1)) */
char* cpdf_getBookmarkText(int);

/* End the bookmark retrieval process, cleaning up. */
void cpdf_endGetBookmarkInfo(void);
```

---



## 7 Presentations

*Not supported by libcpdf. Use the command line tools instead.*



## 8 Logos, Watermarks and Stamps

---

```
/* cpdf_stampOn(pdf, stamp_pdf, range) stamps stamp_pdf on top of all the pages
 * in the document which are in the range. The stamp is placed with its origin
 * at the origin of the target document. */
void cpdf_stampOn(int, int, int);

/* cpdf_stampOn(pdf, stamp_pdf, range) stamps stamp_pdf under all the pages in
 * the document which are in the range. The stamp is placed with its origin at
 * the origin of the target document. */
void cpdf_stampUnder(int, int, int);

/* cpdf_combinePages(under, over) combines the PDFs page-by-page, putting each
 * page of 'over' over each page of 'under' */
int cpdf_combinePages(int, int);

/* Adding text. Adds UTF8 text to a PDF, if the characters exist in the font.
 * */

/* Special codes

%Page Page number in arabic notation (1, 2, 3...)
%roman Page number in lower-case roman notation (i, ii, iii...)
%Roman Page number in upper-case roman notation (I, II, III...)
%EndPage Last page of document in arabic notation
%Label The page label of the page
%EndLabel The page label of the last page
%filename The full file name of the input document
%a Abbreviated weekday name (Sun, Mon etc.)
%A Full weekday name (Sunday, Monday etc.)
%b Abbreviated month name (Jan, Feb etc.)
%B Full month name (January, February etc.)
%d Day of the month (01-31)
%e Day of the month (1-31)
%H Hour in 24-hour clock (00-23)
%I Hour in 12-hour clock (01-12)
%j Day of the year (001-366) %m Month of the year (01-12)
%M Minute of the hour (00-59) %p "a.m" or "p.m"
%S Second of the minute (00-61)
%T Same as %H:%M:%S
%u Weekday (1-7, 1 = Monday)
%w Weekday (0-6, 0 = Monday)
%Y Year (0000-9999)
%% The % character.
```

## 8. LOGOS, WATERMARKS AND STAMPS

---

```
*/

/** The standard fonts */
enum cpdf_font
{cpdf_timesRoman /** Times Roman */,
 cpdf_timesBold /** Times Bold */,
 cpdf_timesItalic /** Times Italic */,
 cpdf_timesBoldItalic /** Times Bold Italic */,
 cpdf_helvetica /** Helvetica */,
 cpdf_helveticaBold /** Helvetica Bold */,
 cpdf_helveticaOblique /** Helvetica Oblique */,
 cpdf_helveticaBoldOblique /** Helvetica Bold Oblique */,
 cpdf_courier /** Courier */,
 cpdf_courierBold /** Courier Bold */,
 cpdf_courierOblique /** Courier Oblique */,
 cpdf_courierBoldOblique /** Courier Bold Oblique */};

/** Justifications for multi line text */
enum cpdf_justification
{cpdf_leftJustify /** Left justify */,
 cpdf_CentreJustify /** Centre justify */,
 cpdf_RightJustify /** Right justify */};

/** Add text */
void cpdf_addText
(int /** If true, don't actually add text but collect metrics. */,
 int /** Document */,
 int /** Page Range */,
 char* /** The text to add */,
 struct cpdf_position /** Position to add text at */,
 double /** Linespacing, 1.0 = normal */,
 int /** Starting Bates number */,
 enum cpdf_font /** Font */,
 double /** Font size in points */,
 double /** Red component of colour, 0.0 - 1.0 */,
 double /** Green component of colour, 0.0 - 1.0 */,
 double /** Blue component of colour, 0.0 - 1.0 */,
 int /** If true, text is added underneath rather than on top */,
 int /** If true, position is relative to crop box not media box */,
 int /** If true, text is outline rather than filled */,
 double /** Opacity, 1.0 = opaque, 0.0 = wholly transparent */,
 enum cpdf_justification /** Justification */,
 int /** If true, position is relative to midline of text, not baseline */,
 char* /** filename that this document was read from (optional) */
);

/* To return metrics about the text which would be added. Call cpdf_addText
 * first with the first argument set to false, and the other arguments filled
 * in as appropriate. Now, the metrics have been collected. Call
 * cpdf_addTextHowMany to find out how many lines of text there are. Now, for
 * each line (1...n), the functions cpdf_addTextReturn* give the metrics of the
 * text as calculated. */
int cpdf_addTextHowMany(void);
```



---

```
char* cpdf_addTextReturnText(int);  
double cpdf_addTextReturnX(int);  
double cpdf_addTextReturnY(int);  
double cpdf_addTextReturnRotation(int);  
double cpdf_addTextReturnBaselineAdjustment(void);  
  
/* cpdf_removeText will remove any text added by libcpdf. */  
void cpdf_removeText(int, int);  
  
/* Return the width of a given string in the given font in thousandths of a  
 * point. */  
int cpdf_textWidth (enum cpdf_font, char);
```

---



## 9 Multipage Facilities

---

```
/* Impose a document two up */
void cpdf_twoUp(int);

/* Pad a document (first argument) before each page in the given range (second
* argument) */
void cpdf_padBefore(int, int);

/* Pad a document (first argument) after each page in the given range (second
* argument) */
void cpdf_padAfter(int, int);
```

---



## 10 Annotations

*Not supported in libcpdf. Use the command line tools instead.*



## 11 Document Information and Metadata

---

```
/* Retrieving font information. First, call cpdf_startGetFontInfo(pdf). Now  
 * call cpdf_numberFonts to return the number of fonts. For each font, call one  
 * or more of cpdf_getFontPage, cpdf_getFontName, cpdf_getFontType, and  
 * cpdf_getFontEncoding to return information. Finally, call  
 * cpdf_endGetFontInfo to clean up. */  
void cpdf_startGetFontInfo(int);  
int cpdf_numberFonts(void);  
int cpdf_getFontPage(int);  
char* cpdf_getFontName(int);  
char* cpdf_getFontType(int);  
char* cpdf_getFontEncoding(int);  
void cpdf_endGetFontInfo(void);  
  
/* Find out if a document is linearized as quickly as possible without loading  
 * it. */  
int cpdf_isLinearized(char*);  
  
/* Return the minor version number of a document. */  
int cpdf_getVersion(int);  
  
/* Return the title of a document. */  
char* cpdf_getTitle(int);  
  
/* Return the author of a document. */  
char* cpdf_getAuthor(int);  
  
/* Return the subject of a document. */  
char* cpdf_getSubject(int);  
  
/* Return the keywords of a document. */  
char* cpdf_getKeywords(int);  
  
/* Return the creator of a document. */  
char* cpdf_getCreator(int);  
  
/* Return the producer of a document. */  
char* cpdf_getProducer(int);  
  
/* Return the creation date of a document. */  
char* cpdf_getCreationDate(int);  
  
/* Return the modification date of a document. */
```

## 11. DOCUMENT INFORMATION AND METADATA

---

```
char* cpdf_getModificationDate(int);

/* cpdf_setVersion(pdf, version) sets the minor version number of a document. */
void cpdf_setVersion(int, int);

/* Set the title of a document from a UTF8 encoded string */
void cpdf_setTitle(int, char*);

/* Set the author of a document from a UTF8 encoded string */
void cpdf_setAuthor(int, char*);

/* Set the subject of a document from a UTF8 encoded string */
void cpdf_setSubject(int, char*);

/* Set the keywords of a document from a UTF8 encoded string */
void cpdf_setKeywords(int, char*);

/* Set the creator of a document from a UTF8 encoded string */
void cpdf_setCreator(int, char*);

/* Set the producer of a document from a UTF8 encoded string */
void cpdf_setProducer(int, char*);

/* Set the creation date of a document from a UTF8 encoded string */
void cpdf_setCreationDate(int, char*);

/* Set the modification date of a document from a UTF8 encoded string */
void cpdf_setModificationDate(int, char*);

/* Dates: Month 1-31, day 1-31, hours (0-23), minutes (0-59), seconds (0-59),
 * h_offset is the offset from UT in hours (-23 to 23); h_offset is the offset
 * from UT in minutes (-59 to 59). */

/* cpdf_getDateComponents(datestring, year, month, day, hour, minute, second,
 * hour_offset, minute_offset) returns the components from a PDF date string. */
void cpdf_getDateComponents(char*, int*, int*, int*, int*, int*, int*, int*, int*);

/* cpdf_dateStringOfComponents(year, month, day, hour, minute, second,
 * hour_offset, minute_offset) builds a PDF date string from individual
 * components. */
char* cpdf_dateStringOfComponents(int, int, int, int, int, int, int, int, int);

/* cpdf_hasBox(pdf, pagenumber, boxname) returns true, if that page has the
 * given box. E.g. "/CropBox" */
int cpdf_hasBox(int, int, char*);

/* Get a box given the document, page range, min x, max x, min y, max y in
 * points. Only succeeds if such a box exists, as checked by cpdf_hasBox */
void cpdf_getMediaBox(int, int, double*, double*, double*, double*);
void cpdf_getCropBox(int, int, double*, double*, double*, double*);
void cpdf_getTrimBox(int, int, double*, double*, double*, double*);
void cpdf_getArtBox(int, int, double*, double*, double*, double*);
void cpdf_getBleedBox(int, int, double*, double*, double*, double*);
```



---

```

/* Set a box given the document, page range, min x, max x, min y, max y in
 * points. */
void cpdf_setMediabox(int, int, double, double, double, double);
void cpdf_setCropBox(int, int, double, double, double, double);
void cpdf_setTrimBox(int, int, double, double, double, double);
void cpdf_setArtBox(int, int, double, double, double, double);
void cpdf_setBleedBox(int, int, double, double, double, double);

/* Mark a document as trapped. */
void cpdf_markTrapped(int);

/* Mark a document as untrapped. */
void cpdf_markUntrapped(int);

/* Document Layouts. See ISO standard for details. */
enum cpdf_layout
{cpdf_singlePage,
 cpdf_oneColumn,
 cpdf_twoColumnLeft,
 cpdf_twoColumnRight,
 cpdf_twoPageLeft,
 cpdf_twoPageRight};

/* Set the page layout for a document */
void cpdf_setPageLayout(int, enum cpdf_layout);

/* Document page modes. See ISO standard for details. */
enum cpdf_pageMode
{cpdf_useNone,
 cpdf_useOutlines,
 cpdf_useThumbs,
 cpdf_useOC,
 cpdf_useAttachments};

/* Set the page mode for a document */
void cpdf_setPageMode(int, enum cpdf_pageMode);

/* cpdf_hideToolbar(doc, flag) sets the hide toolbar flag */
void cpdf_hideToolbar(int, int);

/* cpdf_hideMenubar(doc, flag) sets the hide menu bar flag */
void cpdf_hideMenubar(int, int);

/* cpdf_hideWindowUi(doc, flag) sets the hide window UI flag */
void cpdf_hideWindowUi(int, int);

/* cpdf_fitWindow(doc, flag) sets the fit window flag */
void cpdf_fitWindow(int, int);

/* cpdf_centerWindow(doc, flag) sets the center window flag */
void cpdf_centerWindow(int, int);

/* cpdf_displayDocTitle(doc, flag) sets the display doc title flag */
void cpdf_displayDocTitle(int, int);

```

## 11. DOCUMENT INFORMATION AND METADATA

---

```
/* Set the XML metadata of a document, given a file name */
void cpdf_setMetadataFromFile(int, char*);

/* Set the XML metadata from a byte array. cpdf_setMetadataFromByteArray(pdf,
 * data, length) uses length characters from data. */
void cpdf_setMetadataFromByteArray(int, void*, int);

/* Return the XML metadata. cpdf_getMetadata(pdf, &length) returns the metadata
 * and fills in length. */
void* cpdf_getMetadata(int, int*);

/* Remove the XML metadata from a document */
void cpdf_removeMetadata(int);
```

---

## 12 File Attachments

---

```
/* Attach a file, given its file name, and the pdf. It is attached at document
* level. */
void cpdf_attachFile(char*, int);

/* Attach a file, given its file name, pdf, and the page number to which it
* should be attached. */
void cpdf_attachFileToPage(char*, int, int);

/* Remove all page- and document-level attachments from a document */
void cpdf_removeAttachedFiles(int);

/* List information about attachments. Call cpdf_startGetAttachments first,
* then cpdf_startGetAttachments to find out how many there are. Then
* cpdf_getAttachmentName to return each one 0...(n - 1). Finally, call
* cpdf_endGetAttachments to clean up. */
void cpdf_startGetAttachments(int);
int cpdf_numberGetAttachments(void);
char* cpdf_getAttachmentName(int);
void cpdf_endGetAttachments(void);
```

---



## 13 Miscellaneous

---

```
/* Make a draft document. The first argument is the document, second the range,  
 * third is a boolean -- true to replace images with boxes, false to replace  
 * them with nothing. */  
void cpdf_draft(int, int, int);
```

```
/* Blacken all text in the given document and range */  
void cpdf_blackText(int, int);
```

```
/* Blacken all lines in the given document and range */  
void cpdf_blackLines(int, int);
```

```
/* Blacken all fills in the given document and range */  
void cpdf_blackFills(int, int);
```

```
/* Thicken lines. cpdf_thinLines(pdf, range, min_thickness) thickens every line  
 * less than min_thickness to min_thickness */  
void cpdf_thinLines(int, int, double);
```

```
/* Copy the /ID from the first document to the second. */  
void cpdf_copyId(int, int);
```

---



## 14 Page Labels

---

```
enum cpdf_pageLabelStyle
{cpdf_decimalArabic, /* 1,2,3... */
 cpdf_uppercaseRoman, /* I, II, III... */
 cpdf_lowercaseRoman, /* i, ii, iii... */
 cpdf_uppercaseLetters, /* A, B, C... */
 cpdf_lowercaseLetters}; /* a, b, c... */

/* Add a set of page labels.

cpdf_addPageLabels(pdf, style, prefix, offset, range)

The prefix is prefix text for each label. The range is the page range the
labels apply to. Offset can be used to shift the numbering up or down.

*/
void cpdf_addPageLabels(int, enum cpdf_pageLabelStyle, char*, int, int);
```

---





## 15 Special functionality 1 – Encryption and Permission status

---

```
/* Internal status of a pdf loaded by the library. This is data kept separate  
 * from the actual PDF. */  
enum cpdf_pdfStatus  
{cpdf_notEncrypted,  
  cpdf_encrypted,  
  cpdf_wasDecryptedWithUser,  
  cpdf_wasDecryptedWithOwner};  
  
/* Return the status of a PDF */  
enum cpdf_pdfStatus cpdf_lookupPdfStatus(int);  
  
/* Does a PDF have a given permission, assuming it is or was encrypted? */  
int cpdf_hasPermissionStatus(int, enum cpdf_permission);  
  
/* What is (or was) the encryption method? */  
enum cpdf_encryptionMethod cpdf_lookupPdfEncryption(int);  
  
/* Find the user password which was used to decrypt a PDF, if it has status  
 * cpdf_wasDecryptedWithUser */  
char* cpdf_lookupPdfUserPassword(int);
```

---



## 16 Special functionality 2 – Undo

---

```
/* Cpdf can hold multiple versions of each PDF, sharing data between them to  
 * save memory. */  
  
/* Mark a document for update. This copies the document so the change can be  
 * undone later */  
void cpdf_aboutToUpdate(int);  
  
/* Same, but when a deep copy (no sharing of data) is required. */  
void cpdf_aboutToUpdateDeep(int);  
  
/* Abort such an update due to an error part-way through the update */  
void cpdf_abortUpdate(int);  
  
/* Undo a document. Returns true if managed to undo, false if nothing to undo  
 * to. */  
int cpdf_undo(int);  
  
/* Redo a document. Returns true if managed to redo, false if nothing to redo  
 * to. */  
int cpdf_redo(int);
```

---



# A Dates

Dates in PDF are specified according to the following format:

D : YYYYMMDDHHmmSSOHh' mm'

where:

- YYYY is the year;
- MM is the month;
- DD is the day (01-31);
- HH is the hour (00-23);
- mm is the minute (00-59);
- SS is the second (00-59);
- O is the relationship of local time to Universal Time (UT), denoted by '+', '-' or 'Z';
- Hh is the absolute value of the offset from UT in hours (00-23);
- mm is the absolute value of the offset from UT in minutes (00-59).

A contiguous prefix of the parts above can be used instead, for lower accuracy dates. For example:

D:2011 (2011)

D:20110103 (3rd March 2011)

D:201101031854-08'00' (3rd March 2011, 6:54PM, US Pacific Standard Time)



## B Example Program in C

This program loads a file from disk and writes out a document with the original included three times. Note the use of `cpdf_startup`, `cpdf_lastError` and `cpdf_clearError`.

```
#include <stdbool.h>
#include "cpdfplibwrapper.h"

int main (int argc, char ** argv)
{
    /* Initialise cpdf */
    cpdf_startup(argv);

    /* Clear the error state */
    cpdf_clearError();

    /* We will take the input hello.pdf and repeat it three times */
    int mergepdf = cpdf_fromFile("hello.pdf", "");

    /* Check the error state */
    if (cpdf_lastError) return 1;

    /* The array of PDFs to merge */
    int pdfs[] = {mergepdf, mergepdf, mergepdf};

    /* Clear the error state */
    cpdf_clearError();

    /* Merge them */
    int merged = cpdf_mergeSimple(pdfs, 3);

    /* Check the error state */
    if (cpdf_lastError) return 1;

    /* Clear the error state */
    cpdf_clearError();

    /* Write output */
    cpdf_toFile(merged, "merged.pdf", false, false);

    /* Check the error state */
    if (cpdf_lastError) return 1;

    return 0;
}
```

