Generation of PDF/X and PDF/A compliant PDF's with PDFTEX — pdfx.sty

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QUICK LINKS

1. Introduction

PDF/X and PDF/A are umbrella terms used to denote several ISO standards that define different subsets of the PDF standard. The objective of PDF/X is to facilitate graphics exchange between document creator and printer and therefore, has all requirements related to printing. For instance, in PDF/X, all fonts need to be embedded and all images need to be CMYK or spot colors. PDF/X-2 and PDF/X-3 accept calibrated RGB and CIELAB colors along with all other specifications of PDF/X.

PDF/A defines a profile for archiving PDF documents, which ensures the documents can be reproduced the exact same way in years to come. A key element to achieving this is that PDF/A documents shall be 100% self contained. All the information needed to display the document in the same manner every time is embedded in the file. A PDF/A document is not permitted to be reliant on information from external sources. Other restrictions include avoidance of audio/video content, JavaScript and encryption. Mandatory inclusion of fonts, color profile and standards based metadata are absolutely essential for PDF/A.

This package currently supports generation of PDF/X and PDF/A compliant documents using PDFTEX. Support for additional standards is also included; see the complete list in Section 2.1 below.

2. Usage

2.1. Options

The package can be loaded with the command:

```
\usepackage[<option>]{pdfx}
```

where the options are as follows.

2.1.1. PDF/A options

PDF/A is an ISO standard intended for long-term archiving of electronic documents. It therefore emphasizes self-containedness and reproducibility, as well as machine readable metadata. The PDF/A standard has three conformance levels “a”, “b”, and “u”. Level “a” is the strictest, but is not yet fully implemented by the pdfx package. Conformance level “u” has the same requirements as level “b”, but with the additional requirement that all text in the document must have a Unicode mapping. However, the pdfx package produces such Unicode mappings even in level “b” files. The standard also has three different versions 1, 2, and 3, which were standardized in 2005, 2011, and 2012, respectively. Earlier versions contain a subset of the features of later versions, so for maximum portability, it is preferable to use a lower-numbered version. There is no conformance level “u” in version 1 of the standard. For many typical uses of PDF/A, it is sufficient to use PDF/A-1b.

- a-1a: generate PDF/A-1a. Experimental, not fully implemented.
- a-1b: generate PDF/A-1b.
- a-2a: generate PDF/A-2a. Experimental, not fully implemented.
- a-2b: generate PDF/A-2b.
- a-2u: generate PDF/A-2u.
- a-3a: generate PDF/A-3a. Experimental, not fully implemented.

- a-3b: generate PDF/A-3b.
- a-3u: generate PDF/A-3u.

2.1.2. PDF/E options

PDF/E is an ISO standard intended for documents used in engineering workflows. There is only one version of the PDF/E standard so far, and it is called PDF/E-1.

- e-1: generate PDF/E-1.

2.1.3. PDF/VT options

PDF/VT is an ISO standard intended as an exchange format for variable and transactional printing, and is an extension of the PDF/X-4 standard. The standard specifies three PDF/VT conformance levels. Level 1 is for single-file exchange, level 2 is for multi-file exchange, and level 2s is for streamed delivery. Currently, none of the PDF/VT conformance levels are fully implemented by the pdfx package.

- vt-1: generate PDF/VT-1. Experimental, not fully implemented.
- vt-2: generate PDF/VT-2. Experimental, not fully implemented.
- vt-2s: generate PDF/VT-2s. Experimental, not fully implemented.

2.1.4. PDF/X options

PDF/X is an ISO standard intended for graphics interchange. It emphasizes printing-related requirements, such as embedded fonts and color profiles. The PDF/X standard has a large number of variants and conformance levels. The basic variants are known as X-1, X-1a, X-3, X-4, and X-5. (Note that there is no X-2 standard, because it was either never published or withdrawn). The PDF/X-1a standard exists in revisions of 2001 and 2003, the PDF/X-3 standard exists in revisions of 2002 and 2003, and the PDF/X-4 and PDF/X-5 standards exist in revisions of 2008 and 2010. Moreover, some of these standards have a "p" version, which permits the use of an externally supplied color profile (instead of an embedded one), and/or a "g" version, which permits the use of external graphical content. Moreover, PDF/X-5 has an "n" version, which extends PDF/X-4p by permitting additional color spaces other than Grayscale, RGB, and CMYK. For many typical uses of PDF/X, it is sufficient to use PDF/X-1a.

- x-1: generate PDF/X-1.
- x-1a: generate PDF/X-1a. Options x-1a1 and x-1a3 are also available to specify PDF/X-1a:2001 or PDF/X-1a:2003 explicitly.
- x-3: generate PDF/X-3. Options x-302 and x-303 are also available to specify PDF/X-3:2002 or PDF/X-3:2003 explicitly.
- x-4: generate PDF/X-4. Options x-408 and x-410 are also available to specify PDF/X-4:2008 or PDF/X-4:2010 explicitly.
- x-4p: generate PDF/X-4p. Options x-4p08 and x-4p10 are also available to specify PDF/X-4p:2008 or PDF/X-4p:2010 explicitly. Experimental, not fully implemented.
- x-5g: generate PDF/X-5g. Options x-5g08 and x-5g10 are also available to specify PDF/X-5g:2008 or PDF/X-5g:2010 explicitly.

- `x-5n`: generate PDF/X-5n. Options `x-5n08` and `x-5n10` are also available to specify PDF/X-5n:2008 or PDF/X-5n:2010 explicitly. Experimental, not fully implemented.
- `x-5pg`: generate PDF/X-5pg. Options `x-5pg08` and `x-5pg10` are also available to specify PDF/X-5pg:2008 or PDF/X-5pg:2010 explicitly. Experimental, not fully implemented.

2.1.5. Other options

These options are experimental and should not normally be used.

- `noBOM`: do not generate the optional byte order marker in the embedded XMP metadata. Try this option in case there is an unexplained error involving the `xmpincl` package.
- `pdf13`: use PDF 1.3, overriding the version specified by the applicable standard. This may produce a non-standard-conforming PDF file.
- `pdf14`: use PDF 1.4, overriding the version specified by the applicable standard. This may produce a non-standard-conforming PDF file.
- `pdf15`: use PDF 1.5, overriding the version specified by the applicable standard. This may produce a non-standard-conforming PDF file.
- `pdf16`: use PDF 1.6, overriding the version specified by the applicable standard. This may produce a non-standard-conforming PDF file.
- `pdf17`: use PDF 1.7, overriding the version specified by the applicable standard. This may produce a non-standard-conforming PDF file.

2.2. Data file for metadata

As mentioned above, standards compliant PDF documents need metadata to be included. The `pdfx` package expects the metadata to be supplied in a special data file called `\jobname.xmpdata`. Here, `\jobname` is usually the basename of the document's main `.tex` file. For example, if your document source is in the file `main.tex`, then the metadata must be in a file called `main.xmpdata`. None of the individual metadata fields are mandatory, but for most documents, it makes sense to define at least the title and the author. Here is an example of a short `.xmpdata` file:

```
\Title{Baking through the ages}
\Author{A. Baker\sep C. Kneader}
\Keywords{cookies\sep muffins\sep cakes}
\Publisher{Baking International}
```

You may note that multiple authors and keywords have been separated by `\sep`. The `\sep` macro is only permitted in within the `\Author`, `\Keywords`, and `\Publisher` fields.

2.3. List of supported metadata fields

Here is a complete list of user-definable metadata fields currently supported, and their meanings. More may be added in the future. These commands can only be used in the `.xmpdata` file.

2.3.1. General information:

- `\Author`: the document's human author. Separate multiple authors with `\sep`.
- `\Title`: the document's title.
- `\Keywords`: list of keywords, separated with `\sep`.
- `\Subject`: the abstract.
- `\Publisher`: the publisher.

2.3.2. Copyright information:

- `\Copyright`: a copyright statement.
- `\CopyrightURL`: location of a web page describing the owner and/or rights statement for this document.
- `\Copyrighted`: "True" if the document is copyrighted, and "False" if it isn't. This is automatically set to "True" if either `\Copyright` or `\CopyrightURL` is specified, but can be overridden. For example, if the copyright statement is "Public Domain", this should be set to "False".

2.3.3. Publication information:

- `\PublicationType`: The type of publication. If defined, must be one of book, catalog, feed, journal, magazine, manual, newsletter, pamphlet. This is automatically set to "journal" if `\Journaltitle` is specified, but can be overridden.
- `\Journaltitle`: The title of the journal in which the document was published.
- `\Journalnumber`: The ISSN for the publication in which the document was published.
- `\Volume`: Journal volume.
- `\Issue`: Journal issue/number.
- `\Firstpage`: First page number of the published version of the document.
- `\Lastpage`: Last page number of the published version of the document.
- `\Doi` : Digital Object Identifier (DOI) for the document, without the leading "doi:".
- `\CoverDisplayDate`: Date on the cover of the journal issue, as a human-readable text string.
- `\CoverDate`: Date on the cover of the journal issue, in a format suitable for storing in a database field with a "date" data type.

2.4. Symbols permitted in metadata

Within the metadata, all printable ASCII characters except `\`, `{`, `}`, and `%` represent themselves. Also, all printable Unicode characters from the basic multilingual plane (i.e., up to code point U+FFFF) can be used directly with the UTF-8 encoding. (Please note: encodings other than UTF-8 are not currently supported in the metadata). Consecutive whitespace characters are combined into a single space. Whitespace after a macro such as `\copyright`, `\backslash`, or `\sep` is ignored. Blank lines are not permitted. Moreover, the following markup can be used:

- "`\ `": a literal space (for example after a macro)
- `\%`: a literal `%`

- \{: a literal {
- \}: a literal }
- \backslash: a literal backslash "\"
- \copyright: the © copyright symbol

The macro \sep is only permitted within \Author, \Keywords, and \Publisher. It is used to separate multiple authors, keywords, etc.

2.5. Color profiles

Most standards compliant PDF documents require a *color profile* to be embedded in the file. In a nutshell, such a profile determines precisely how the colors used in the document will be rendered when printed to a physical medium. This can be used to ensure that the document will look exactly the same, even when it is printed on different printers, paper types, etc. The inclusion of a color profile is necessary to make the document completely self-contained.

Since most LaTeX users are not graphics professionals and are not particularly picky about colors, the pdfx package includes default profiles that will be included when nothing else is specified. Therefore, the average user doesn't have to do anything special about color.

For users who have a specific color profile they wish to use, it is possible to do so by including a \setRGBcolorprofile or \setCMYKcolorprofile command in the .xmpdata file. Note that PDF/A and PDF/E require an RGB color profile, and PDF/X and PDF/VT require a CMYK color profile. Use the following commands to specify an RGB or CMYK color profile, respectively:

\setRGBcolorprofile{⟨*filename*⟩}{⟨*identifier*⟩}{⟨*info string*⟩}{⟨*registry URL*⟩}
\setCMYKcolorprofile{⟨*filename*⟩}{⟨*output intent*⟩}{⟨*identifier*⟩}{⟨*registry URL*⟩}

Within the arguments of these macros, the characters <, >, &, ^, _, #, $, and ~ can be used as themselves, but % must be escaped as \%. The defaults are:

```
\setRGBcolorprofile{sRGB_IEC61966-2-1_black_scaled.icc}
                   {sRGB_IEC61966-2-1_black_scaled}
                   {sRGB IEC61966 v2.1 with black scaling}
                   {http://www.color.org}

\setCMYKcolorprofile{coated_FOGRA39L_argl.icc}
                    {Coated FOGRA39}
                    {FOGRA39 (ISO Coated v2 300\% (ECI))}
                    {http://www.argyllcms.com/}
```

Some color profile files may be obtained from the International Color Consortium. Please take a look at http://www.color.org/iccprofile.xalter.

2.6. Notes on the internal representation of metadata

Within the PDF file, metadata is deposited in two places: some data goes into the native PDF /Info dictionary, and some data goes into an XMP packet stored separately within the file. XMP is Adobe's Extensible Metadata Platform, and is an XML-based format. See Adobe XMP Development Center for more exhaustive information about XMP. An XMP

Toolkit SDK which supports the GNU/Linux, Macintosh and Windows operating systems is also provided under modified BSD licence.

Some of the metadata, such as the author, title, and keywords, are stored **both** in the XMP packet and in the `/Info` dictionary. For the resulting file to be standard compliant, the two copies of the data must be identical. All of this is taken care of automatically by the `pdfx` package.

In principle, users can resort to alternate ways to create an XMP file for inclusion in PDF. In this case, users should create a file `pdfa.xmp` or `pdfx.xmp` (etc., depending on the PDF flavor) containing the pre-defined data. However, this is an error prone process and is not recommended for most users. If there is a particular field of metadata that you need and that is not currently supported, please contact the authors.

`pdfx` makes use of the `xmpincl` package to include `xmp` data into the PDF. The documentation of `xmpincl` package may help interested users to understand the process of `xmp` data inclusion.

2.7. Tutorials and technical notes

A tutorial with step-by-step instructions for generating PDF/A files can be found at: http://www.mathstat.dal.ca/~selinger/pdfa/.

Some technical notes about production problems the authors have encountered while generating PDF/A compliant documents are available here: http://support.river-valley.com/wiki/index.php?title=Generating_PDF/A_compliant_PDFs_from_pdftex.

3. Installing

The file `pdfx.dtx` is a composite document of program code and documentation in LaTeX format in the tradition of *literate programming*. To get the documentation that you are reading now, run (PDF)LaTeX on the file `pdfx.dtx`. Or better, use the included `Makefile`, which will also regenerate the index.

To install the package, first extract the program code, i.e., the file `pdfx.sty`, by running LaTeX or TeX on the file `pdfx.ins`. Create a directory named `pdfx` under `$TEXMF/tex/latex` and copy the files `pdfx.sty`, `8bit.def`, `glyphtounicode-cmr.tex`, as well as the `*.icc` and `*.xmp` files, to it. Then update TeX's file database using the appropriate command for your distribution and operating system (such as `texhash` or `mktexlsr`, or similar).

3.1. Limitations and dependencies

`pdfx.sty` works only with PDFTeX. It further depends on the following packages:

1. `xmpincl` for insertion of metadata into PDF.
2. `hyperref` for hyperlinking, bookmarks, etc.
3. `glyphtounicode.tex` maps glyph names to corresponding Unicode.

3.2. Files included

The following files are included in the archive:

3.2.1. Package files

- pdfx.sty — main package file generated from pdfx.dtx.
- pdfa.xmp — specimen xmp template for PDF/A.
- pdfe.xmp — specimen xmp template for PDF/E.
- pdfvt.xmp — specimen xmp template for PDF/VT.
- pdfx.xmp — specimen xmp template for PDF/X.
- 8bit.def — custom input encoding.
- glyphtounicode-cmr.tex — maps glyph names to corresponding Unicode for Computer Modern and other TEX-specific fonts.
- coated_FOGRA39L_argl.icc — a freely distributable CMYK color profile.
- sRGB_IEC61966-2-1_black_scaled.icc — a freely distributable RGB color profile.
- ICC_LICENSE.txt — the license for the color profiles.

3.2.2. Documentation

- README — Readme file.
- manifest.txt — file list.
- sample.tex, sample.xmpdata — a sample file with sample metadata.
- small2e-pdfx.tex, small2e-pdfx.xmpdata — another sample file with sample metadata.

3.2.3. Sources

- src/pdfx.dtx — composite package and documentation.
- src/pdfx.ins — installer batch file.
- src/rvdtx.sty — used by pdfx.dtx.
- src/Makefile — a Makefile for building the documentation.

3.3. Miscellaneous information

The package is released under the LATEX Project Public Licence. Bug reports, suggestions, feature requests, etc., may be sent to the original authors at cvr@river-valley.org and/or thanh@river-valley.org, or to the more recent contributors at ross.moore@mq.edu.au and/or selinger@mathstat.dal.ca.

4. Implementation

```
\@ifpackageloaded{pdfxmult}{%
 \PackageError{pdfx}%
 {^^JThis package may not be used in conjunction with the \space pdfxmult \space package}%
 {Type \space x <return> \space to exit; or just \space <return> \space to continue without t
 \expandafter\let\csname opt@pdfx.sty\endcsname\@empty\endinput
 }{}%
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{pdfx}
 [2015/02/17 v1.5.3 PDF/X and PDF/A support (CVR/HTH/RRM/PS)]
```

```
10
11 \newif\ifpdfx@noBOM \pdfx@noBOMfalse   % use a BOM in the XMP packet
12 \newif\ifpdfx@x \pdfx@xfalse   % PDF/X mode
13 \newif\ifpdfx@e \pdfx@efalse   % PDF/E mode; not implemented yet
14 \newif\ifpdfx@vt \pdfx@vtfalse   % PDF/VT mode, extension of  PDF/X
15 \newif\ifno@iccprofile   % used with PDF/X-4p and PDF/X-5pg
16
17 %% Not all combinations of the following parameters are meaningful.
18 \def\xmp@Part{1}               % PDF/A part: 1, 2, or 3
19 \def\xmp@Conformance{B}        % Conformance level: A, B, or U
20 \def\xmp@ReleaseDate{2005}     % 2001 for PDF/X-1, 2005 for PDF/A-1,
21                                % 2010 for PDF/A-2, 2012 for PDF/A-3.
22
23 %%  default is to create  PDF/A-1b
24 %%  options can change this for PDF/X or higher levels of PDF/A
25 \DeclareOption{a-1a}{\global\pdfx@xfalse\def\xmp@Part{1}\def\xmp@Conformance{A}\def\xmp@Releas
26 \DeclareOption{a-1b}{\global\pdfx@xfalse\def\xmp@Part{1}\def\xmp@Conformance{B}\def\xmp@Releas
27 \DeclareOption{a-2a}{\global\pdfx@xfalse\def\xmp@Part{2}\def\xmp@Conformance{A}\def\xmp@Releas
28 \DeclareOption{a-2b}{\global\pdfx@xfalse\def\xmp@Part{2}\def\xmp@Conformance{B}\def\xmp@Releas
29 \DeclareOption{a-2u}{\global\pdfx@xfalse\def\xmp@Part{2}\def\xmp@Conformance{U}\def\xmp@Releas
30 \DeclareOption{a-3a}{\global\pdfx@xfalse\def\xmp@Part{3}\def\xmp@Conformance{A}\def\xmp@Releas
31 \DeclareOption{a-3b}{\global\pdfx@xfalse\def\xmp@Part{3}\def\xmp@Conformance{B}\def\xmp@Releas
32 \DeclareOption{a-3u}{\global\pdfx@xfalse\def\xmp@Part{3}\def\xmp@Conformance{U}\def\xmp@Releas
33 \DeclareOption{x-1}{\global\pdfx@xtrue\def\xmp@Part{1}\def\xmp@Conformance{a}\def\xmp@ReleaseD
34 \DeclareOption{x-1a}{\global\pdfx@xtrue\def\xmp@Part{1}\def\xmp@Conformance{a}\def\xmp@Release
35 \DeclareOption{x-1a1}{\global\pdfx@xtrue\def\xmp@Part{1}\def\xmp@Conformance{a}\def\xmp@Releas
36 \DeclareOption{x-1a3}{\global\pdfx@xtrue\def\xmp@Part{1}\def\xmp@Conformance{a}\def\xmp@Releas
37 \DeclareOption{x-2}{\global\pdfx@xtrue\def\xmp@Part{2}\def\xmp@Conformance{}\def\xmp@ReleaseDa
38 \DeclareOption{x-3}{\global\pdfx@xtrue\def\xmp@Part{3}\def\xmp@Conformance{}\def\xmp@ReleaseDa
39 \DeclareOption{x-302}{\global\pdfx@xtrue\def\xmp@Part{3}\def\xmp@Conformance{}\def\xmp@Release
40 \DeclareOption{x-303}{\global\pdfx@xtrue\def\xmp@Part{3}\def\xmp@Conformance{}\def\xmp@Release
41 %%%  Later versions, yet to be fully implemented
42 \DeclareOption{x-4}{\global\pdfx@xtrue\def\xmp@Part{4}\def\xmp@Conformance{}\def\xmp@ReleaseDa
43 \DeclareOption{x-4p}{\global\pdfx@xtrue\global\no@iccprofiletrue
44   \def\xmp@Part{4}\def\xmp@Conformance{p}\def\xmp@ReleaseDate{2008}\global\pdfminorversion=6 }
45 \DeclareOption{x-408}{\global\pdfx@xtrue\def\xmp@Part{4}\def\xmp@Conformance{}\def\xmp@Release
46 \DeclareOption{x-410}{\global\pdfx@xtrue\def\xmp@Part{4}\def\xmp@Conformance{}\def\xmp@Release
47 \DeclareOption{x-4p08}{\global\pdfx@xtrue\global\no@iccprofiletrue
48   \def\xmp@Part{4}\def\xmp@Conformance{p}\def\xmp@ReleaseDate{2008}\global\pdfminorversion=6 }
49 \DeclareOption{x-4p10}{\global\pdfx@xtrue\global\no@iccprofiletrue
50   \def\xmp@Part{4}\def\xmp@Conformance{p}\def\xmp@ReleaseDate{2010}\global\pdfminorversion=6 }
51 \DeclareOption{x-5}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{}\def\xmp@ReleaseDa
52 \DeclareOption{x-5g}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{g}\def\xmp@Release
53 \DeclareOption{x-5n}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{n}\def\xmp@Release
54 \DeclareOption{x-5pg}{\global\pdfx@xtrue\global\no@iccprofiletrue
55   \def\xmp@Part{5}\def\xmp@Conformance{pg}\def\xmp@ReleaseDate{2008}\global\pdfminorversion=6
56 \DeclareOption{x-508}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{}\def\xmp@Release
57 \DeclareOption{x-5g08}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{g}\def\xmp@Relea
58 \DeclareOption{x-5n08}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{n}\def\xmp@Relea
59 \DeclareOption{x-5pg08}{\global\pdfx@xtrue\global\no@iccprofiletrue
60   \def\xmp@Part{5}\def\xmp@Conformance{pg}\def\xmp@ReleaseDate{2008}\global\pdfminorversion=6
61 \DeclareOption{x-510}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{}\def\xmp@Release
62 \DeclareOption{x-5g10}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{g}\def\xmp@Relea
63 \DeclareOption{x-5n10}{\global\pdfx@xtrue\def\xmp@Part{5}\def\xmp@Conformance{n}\def\xmp@Relea
64 \DeclareOption{x-5pg10}{\global\pdfx@xtrue\global\no@iccprofiletrue
65   \def\xmp@Part{5}\def\xmp@Conformance{pg}\def\xmp@ReleaseDate{2010}\global\pdfminorversion=6
66 \DeclareOption{e-1}{\global\pdfx@xfalse\global\pdfx@etrue
```

```
  \def\xmp@Part{1}\def\xmp@Conformance{}\def\xmp@ReleaseDate{2008}\global\pdfminorversion=6 }
\DeclareOption{vt-1}{\global\pdfx@xtrue\global\pdfx@vttrue
  \def\xmp@Part{4}\def\xmp@vtPart{1}\def\xmp@Conformance{}\def\xmp@vtConformance{}%
  \def\xmp@ReleaseDate{2010}\global\pdfminorversion=6 }
\DeclareOption{vt-2}{\global\pdfx@xtrue\global\pdfx@vttrue
  \def\xmp@Part{4}\def\xmp@vtPart{2}\def\xmp@Conformance{}\def\xmp@vtConformance{}%
  \def\xmp@ReleaseDate{2010}\global\pdfminorversion=6 }
\DeclareOption{vt-2s}{\global\pdfx@xtrue\global\pdfx@vttrue
  \def\xmp@Part{5}\def\xmp@vtPart{2}\def\xmp@Conformance{pg}\def\xmp@vtConformance{s}%
  \def\xmp@ReleaseDate{2010}\global\pdfminorversion=6 }

%% extra options to alter the PDF minor version, in case needed in special circumstances
\DeclareOption{pdf13}{\global\pdfminorversion=3 }
\DeclareOption{pdf14}{\global\pdfminorversion=4 }
\DeclareOption{pdf15}{\global\pdfminorversion=5 }
\DeclareOption{pdf16}{\global\pdfminorversion=6 }
\DeclareOption{pdf17}{\global\pdfminorversion=7 }

%% inhibits writing the XMP byte-order marker
\DeclareOption{noBOM}{\pdfx@noBOMtrue}

\pdfminorversion=4 %  assumed for PDF/A ;  options may change this for  PDF/X
\expandafter\ifx\csname pdfresetpageorigin\endcsname\relax\else
 \pdfresetpageorigin=0
\fi
\ProcessOptions

{\endlinechar=-1
 \everyeof{\noexpand}%
 \xdef\pdfx@bannerstring{\expandafter\scantokens\expandafter{\pdftexbanner}}
}%
\def\pdfx@testbannerstr{This is pdfTeX, Version 3.14159265-2.6-1.40.15 (TeX Live 2014/dev) kpa
\ifx\pdfx@bannerstring\pdfx@testbannerstr
 \typeout{This version of pdfTeX cannot write out upper-range character bytes, 128-255.}%
 \typeout{Any UTF-8 Unicode characters in the Metadata will not be written correctly.}%
 \typeout{Please update to a more stable version of pdfTeX.^^J}%
 \pdfx@noBOMtrue
\fi

\ifpdfx@x
 \pdfobjcompresslevel=0 \relax
 \expandafter\ifx\csname pdfinterwordspaceoff\endcsname\relax\else
  \pdfinterwordspaceoff
  \let\pdfinterwordspaceon\pdfinterwordspaceoff
  \let\pdfinterwordspace\relax
 \fi
 \expandafter\ifx\csname pdfgeninterwordspace\endcsname\relax\else
  \pdfgeninterwordspace=0 \relax
 \fi
 \pdfpageattr{/MediaBox[0 0 595 793]
              /BleedBox[0 0 595 793]
              /TrimBox[25 20 570 773]}
\fi
\ifnum\pdfminorversion >3 \relax
 \pdfmapline{+dummy-space <dummy-space.pfb}
 \expandafter\ifx\csname pdfgeninterwordspace\endcsname\relax\else
  \pdfgeninterwordspace=1 \relax
```

```
\fi
\fi
\ifpdfx@x
 \@ifpackageloaded{hyperref}{%
  \hypersetup{draft,pdftex,pdfpagemode=UseNone,bookmarks=false,pdfversion=1.\the\pdfminorversi
 }{%
  \RequirePackage[draft,pdftex,pdfpagemode=UseNone,bookmarks=false,pdfversion=1.\the\pdfminorv
 }%
\else
 \ifpdfx@e
  \@ifpackageloaded{hyperref}{%
   \hypersetup{draft,pdftex,pdfpagemode=UseNone,bookmarks=false,pdfversion=1.\the\pdfminorvers
  }{%
   \RequirePackage[draft,pdftex,pdfpagemode=UseNone,bookmarks=false,pdfversion=1.\the\pdfminor
  }%
 \else
 \@ifpackageloaded{hyperref}{%
  \hypersetup{pdftex,pdfa}%
 }{%
  \RequirePackage[pdftex,pdfa]{hyperref}
 }%
\fi\fi
\hypersetup{pdfencoding=unicode}

\RequirePackage{inputenc}

%%--------------------------------------------------------------------------
%% Macros for reading XMP data with special catcodes. Usage:
%%
%% \xmp@parse{continuation}{data}
%%
%% The effect is to read the data with special catcodes: '<', '>', and
%% '&' are "active", and '^', '_', '#', '$', '~' are "other". The data
%% is then bound to the locally scoped name \@this, and the
%% continuation is called.
\def\xmp@parse#1{%
 \begingroup
 \catcode`\<=13\catcode`\>=13\catcode`\&=13\catcode`\^=12
 \catcode`\_=12\catcode`\#=12\catcode`\$=12\catcode`\~=12
 \xmp@doparse{#1}%
}
\def\xmp@doparse#1#2{%
 \def\@this{#2}#1%
 \endgroup%
}

%%--------------------------------------------------------------------------
%% Local commands. They are only brought into scope during the reading
%% of xmpdata.
\def\pdfx@localcommands{%
 \def\Title{\xmp@parse{\global\let\xmp@Title\@this}}%
 \def\Author{\xmp@parse{\global\let\xmp@Author\@this}}%
 \def\Keywords{\xmp@parse{\global\let\xmp@Keywords\@this}}%
 \def\Subject{\xmp@parse{\global\let\xmp@Subject\@this}}%
 \def\CreatorTool{\xmp@parse{\global\let\xmp@CreatorTool\@this}}%
 \def\Producer{\xmp@parse{\global\let\xmp@Producer\@this}}%
 \def\Volume{\xmp@parse{\global\let\xmp@Volume\@this}}%
```

```
\def\Issue{\xmp@parse{\global\let\xmp@Issue\@this}}%
\def\CoverDisplayDate{\xmp@parse{\global\let\xmp@CoverDisplayDate\@this}}%
\def\CoverDate{\xmp@parse{\global\let\xmp@CoverDate\@this}}%
\def\Copyright{\xmp@parse{\global\let\xmp@Copyright\@this%
 \ifx\xmp@Copyrighted\@empty\gdef\xmp@Copyrighted{True}\fi}}%
\def\CopyrightURL{\xmp@parse{\global\let\xmp@CopyrightURL\@this%
 \ifx\xmp@Copyrighted\@empty\gdef\xmp@Copyrighted{True}\fi}}%
\def\Copyrighted{\xmp@parse{\global\let\xmp@Copyrighted\@this}}%
\def\Doi{\xmp@parse{\global\let\xmp@Doi\@this}}%
\def\Lastpage{\xmp@parse{\global\let\xmp@Lastpage\@this}}%
\def\Firstpage{\xmp@parse{\global\let\xmp@Firstpage\@this}}%
\def\PublicationType{\xmp@parse{\global\let\xmp@PublicationType\@this}}%
\def\Journaltitle{\xmp@parse{\global\let\xmp@Journaltitle\@this%
 \ifx\xmp@PublicationType\@empty\gdef\xmp@PublicationType{journal}\fi}}%
\def\Journalnumber{\xmp@parse{\global\let\xmp@Journalnumber\@this}}%
\def\Publisher{\xmp@parse{\global\let\xmp@Publisher\@this}}%
\def\AuthoritativeDomain{\xmp@parse{\global\let\xmp@AuthoritativeDomain\@this}}%
% some aliases for backward compatibility:
\let\Creator\CreatorTool%
\let\Org\Publisher%
\let\WebStatement\CopyrightURL%
% user-level commands for color profiles:
\let\setRGBcolorprofile\pdfx@setRGBcolorprofile%
\let\setCMYKcolorprofile\pdfx@setCMYKcolorprofile%
\let\setGRAYcolorprofile\pdfx@setGRAYcolorprofile%
}

%%-------------------------------------------------------------------------
%% Defaults

\def\xmp@Producer{pdfTeX}
\edef\xmp@CreatorTool{\@pdfcreator}

\global\let\xmp@Title\@empty
\global\let\xmp@Author\@empty
\global\let\xmp@Keywords\@empty
\global\let\xmp@Subject\@empty
\global\let\xmp@Volume\@empty
\global\let\xmp@Issue\@empty
\global\let\xmp@CoverDisplayDate\@empty
\global\let\xmp@CoverDate\@empty
\global\let\xmp@Copyright\@empty
\global\let\xmp@CopyrightURL\@empty
\global\let\xmp@Copyrighted\@empty
\global\let\xmp@Doi\@empty
\global\let\xmp@Lastpage\@empty
\global\let\xmp@Firstpage\@empty
\global\let\xmp@PublicationType\@empty
\global\let\xmp@Journaltitle\@empty
\global\let\xmp@Journalnumber\@empty
\global\let\xmp@Publisher\@empty
\global\let\xmp@AuthoritativeDomain\@empty

%%-------------------------------------------------------------------------
%% The following characters and markup can be used within the XMP data
%% defined by \Author, \Title, and so on.
%%
```

```
%% * All printable non-whitespace ASCII characters except
%%   '%', '{', '}', '\' can be used as themselves.
%%
%% * All printable non-whitespace UTF-8 encoded Unicode characters
%%   from the basic multilingual plane can be used as themselves.
%%
%% * As usual, consecutive whitespace characters are contracted to a
%%   single space. Whitespace after a macro such as \copyright is
%%   ignored. Blank lines are not permitted.
%%
%% * The following markup can be used:
%%   '\ '         - a literal space  (for example after a macro)
%%   \%           - a literal '%'
%%   \{           - a literal '{'
%%   \}           - a literal '}'
%%   \backslash   - a literal '\'
%%   \copyright   - the (c) copyright symbol
%%
%%   \sep         - only permitted within \Author, \Keywords, \Publisher.
%%
%% * For backward compatibility, \& and \TextCopyright are also
%%   provided. Their use is deprecated.

%%-----------------------------------------------------------------------
%% The macro \pdfx@actives binds the active characters
%% '&', '<', and '>' to \pdfx@amp, \pdfx@lt, and \pdfx@gt,
%% respectively, without actually making them active.
\begingroup
 \catcode`\<=13
 \catcode`\>=13
 \catcode`\&=13
 \gdef\pdfx@actives{
  \def&{\pdfx@amp}
  \def<{\pdfx@lt}
  \def>{\pdfx@gt}
 }
\endgroup

%%-----------------------------------------------------------------------
%% Markup bindings to be used during XMP generation.

{\obeyspaces\gdef\pdfx@sep{</rdf:li>^^J     <rdf:li>}}

\def\pdfx@xmpmarkup{%
 \pdfx@actives%
 \edef\@amp{\expandafter\@gobble\string\&}%
 \edef\@hash{\expandafter\@gobble\string\#}%
 \edef\ {\expandafter\@gobble\string\ }%
 \edef\%{\expandafter\@gobble\string\%}%
 \edef\{{\expandafter\@gobble\string\{}%
 \edef\}{\expandafter\@gobble\string\}}%
 \edef\backslash{\expandafter\@gobble\string\\}%
 \def\@unicode##1{\@amp\@hash x##1;}%
 \def\pdfx@amp{\@unicode{0026}}%
 \def\pdfx@lt{\@unicode{003c}}%
 \def\pdfx@gt{\@unicode{003e}}%
 \def\copyright{\@unicode{00A9}}%
```

```
\let\&\pdfx@amp               % for backward compatibility
\let\TextCopyright\copyright  % for backward compatibility
\let\sep\pdfx@sep%
}

%%-------------------------------------------------------------------------
%% Markup bindings to be used during PDF string generation.

\def\pdfx@pdfmarkup{%
 \pdfx@actives%
 \edef\%{\expandafter\@gobble\string\%}%
 \edef\{{\expandafter\@gobble\string\{}%
 \edef\}{\expandafter\@gobble\string\}}%
 \edef\pdfx@backslash{\expandafter\@gobble\string\\}%
 \def\backslash{\pdfx@backslash000\pdfx@backslash134}%
 \edef\pdfx@amp{\expandafter\@gobble\string\&}%
 \edef\pdfx@lt{\expandafter\@gobble\string\<}%
 \edef\pdfx@gt{\expandafter\@gobble\string\>}%
 \let\TextCopyright\copyright  % for backward compatibility
 \def\sep{, }%
 % Note: '\ ', \&, \copyright are already predefined by hyperref.
}

%%-------------------------------------------------------------------------
\def\pdfx@findUUID#1{\edef\pdfx@tmpstring{\pdfmdfivesum{#1}}
     \expandafter\pdfx@eightofnine\pdfx@tmpstring\end}
\def\pdfx@eightofnine#1#2#3#4#5#6#7#8#9\end{%
     \xdef\pdfx@eightchars{#1#2#3#4#5#6#7#8}
     \pdfx@fouroffive#9\end}
\def\pdfx@fouroffive#1#2#3#4#5\end{\xdef\pdfx@ffourchars{#1#2#3#4}
     \pdfx@sfouroffive#5\end}
\def\pdfx@sfouroffive#1#2#3#4#5\end{\xdef\pdfx@sfourchars{#1#2#3#4}
     \pdfx@tfouroffive#5\end}
\def\pdfx@tfouroffive#1#2#3#4#5\end{\xdef\pdfx@tfourchars{#1#2#3#4}
     \xdef\pdfx@laststring{#5}}

\def\pdfx@uuid{\pdfx@eightchars-%
          \pdfx@ffourchars-%
          \pdfx@sfourchars-%
          \pdfx@tfourchars-%
          \pdfx@laststring}

\pdfx@findUUID{\jobname.pdf}
\edef\xmp@docid{\pdfx@uuid}
\pdfx@findUUID{\pdfcreationdate}
\edef\xmp@instid{\pdfx@uuid}

%%-------------------------------------------------------------------------
%% -----   Color Profiles  -------
%% Define how to specify the profile, so the default
%% can be over-ridden in the  .xmpdata  file.

%% The user-level macros are only brought into scope during the reading
%% of xmpdata.
%%
%% Usage:
%% \setRGBcolorprofile{<filename>}{<identifier>}{<info string>}{<registry URL>}
```

```
%% \setCMYKcolorprofile{<filename>}{<output intent>}{<identifier>}{<registry URL>}
%% \setGRAYcolorprofile{<filename>}{<output intent>}{<identifier>}{<registry URL>}
%%
%% Within the arguments of each macro, the characters '<', '>', '&',
%% '^', '_', '#', '$', and '~' can be used as themselves, but
%% '%' must be escaped as '\%'.
%%
%% Note:
%% * RGB profile is used with PDF/A and PDF/E files.
%% * CMYK profile is used with PDF/X and PDF/VT files.
%% * GRAY profile is currently unused.
\def\pdfx@profilecatcodes{%
  \catcode`\<=12\catcode`\>=12\catcode`\&=12\catcode`\^=12
  \catcode`\_=12\catcode`\#=12\catcode`\$=12\catcode`\~=12
  \edef\%{\expandafter\@gobble\string\%}%
}
\def\pdfx@setRGBcolorprofile{%
  \begingroup
  \pdfx@profilecatcodes
  \pdfx@dosetRGBcolorprofile}
\def\pdfx@dosetRGBcolorprofile#1#2#3#4{%
  \xdef\pdfx@rgb@profile{#1}%  valid file name
  \xdef\pdfx@rgb@identifier{#2}%
  \xdef\pdfx@rgb@info{#3}%
  \pdfstringdef\pdfx@rgb@registry{#4}%  valid URL
  \endgroup}%  closes-off  \pdfx@setRGBcolorprofile
%%
\def\pdfx@setCMYKcolorprofile{%
  \begingroup
  \pdfx@profilecatcodes
  \pdfx@dosetCMYKcolorprofile}
\def\pdfx@dosetCMYKcolorprofile#1#2#3#4{%
 \xdef\pdfx@cmyk@profile{#1}%  valid file name
 \pdfstringdef\pdfx@cmyk@intent{#2}%  color intent
 \pdfstringdef\pdfx@cmyk@identifier{#3}%  text string identifier
 \pdfstringdef\pdfx@cmyk@registry{#4}%  valid URL
 \endgroup}%  closes-off  \pdfx@setCMYKcolorprofile
%%
\def\pdfx@setGRAYcolorprofile{%
  \begingroup
  \pdfx@profilecatcodes
  \pdfx@dosetGRAYcolorprofile}
\def\pdfx@dosetGRAYcolorprofile#1#2#3#4{%
 \xdef\pdfx@gray@profile{#1}%  valid file name
 \xdef\pdfx@gray@intent{#2}%
 \xdef\pdfx@gray@identifier{#3}%
 \pdfstringdef\pdfx@gray@registry{#4}%  valid URL
 \endgroup}%  closes-off  \pdfx@setGRAYcolorprofile
%%-----------------------------------------------------------------------
%% default color profiles
\pdfx@setRGBcolorprofile{sRGB_IEC61966-2-1_black_scaled.icc}
  {sRGB_IEC61966-2-1_black_scaled}
  {sRGB IEC61966 v2.1 with black scaling}
  {http://www.color.org}
\pdfx@setCMYKcolorprofile{coated_FOGRA39L_argl.icc}
  {Coated FOGRA39}
  {FOGRA39 (ISO Coated v2 300\% (ECI))}
```

```
409  {http://www.argyllcms.com/}
410\pdfx@setGRAYcolorprofile{Gray_linear.icc}
411  {}
412  {Custom}
413  {http://www.freedesktop.org/wiki/OpenIcc}
414%%-----------------------------------------------------------------------
415%% License for the file  sRGB_IEC61966-2-1_black_scaled.icc :
416%%
417%% Copyright International Color Consortium, 2009  -- http://www.color.org/
418%%
419%% It is hereby acknowledged that the file "sRGB_IEC61966-2-1_black_scaled.icc"
420%% is provided "AS IS" WITH NO EXPRESS OR IMPLIED WARRANTY.
421%%
422%% Licensing
423%%
424%% This profile is made available by the International Color Consortium,
425%% and may be copied, distributed, embedded, made, used, and sold without
426%% restriction. Altered versions of this profile shall have the original
427%% identification and copyright information removed and shall not be
428%% misrepresented as the original profile.
429%%
430%% Terms of use
431%%
432%% To anyone who acknowledges that the file "sRGB_IEC61966-2-1_black_scaled.icc"
433%% is provided "AS IS" WITH NO EXPRESS OR IMPLIED WARRANTY, permission
434%% to use, copy and distribute these file for any purpose is hereby
435%% granted without fee, provided that the file is not changed including
436%% the ICC copyright notice tag, and that the name of ICC shall not be
437%% used in advertising or publicity pertaining to distribution of the
438%% software without specific, written prior permission.  ICC makes no
439%% representations about the suitability of this software for any
440%% purpose.
441%%
442%%-----------------------------------------------------------------------
443%% License for the file  coated_FOGRA39L_argl.icc :
444%%
445%% The zlib/libpng License
446%%
447%% Copyright (c) 2008 Kai-Uwe Behrmann
448%%
449%% This software is provided 'as-is', without any express or implied
450%% warranty. In no event will the authors be held liable for any damages
451%% arising from the use of this software.
452%%
453%% Permission is granted to anyone to use this software for any purpose,
454%% including commercial applications, and to alter it and redistribute
455%% it freely, subject to the following restrictions:
456%%
457%%    1. The origin of this software must not be misrepresented; you
458%%    must not claim that you wrote the original software. If you use
459%%    this software in a product, an acknowledgment in the product
460%%    documentation would be appreciated but is not required.
461%%
462%%    2. Altered source versions must be plainly marked as such, and
463%%    must not be misrepresented as being the original software.
464%%
465%%    3. This notice may not be removed or altered from any source
```

```
%%    distribution.
%%--------------------------------------------------------------------

\begingroup
 \inputencoding{8bit}%
 \makeatletter
 \pdfx@localcommands
 \InputIfFileExists{\jobname.xmpdata}%
  {\typeout{**pdfx: Metadata file  \jobname.xmpdata  read successfully.}}%
  {\typeout{**pdfx: No file  \jobname.xmpdata . Metadata will be incomplete!}}
\endgroup
%% --------------------------------------------------------------------
\begingroup
\ifpdfx@x   %  PDF/X  needs a CMYK color profile for printing
 \def\0{\string\0}
 \catcode`\_ 12
 \ifno@iccprofile %  PDF/X-4p  and  PDF/X-5pg
   \immediate\pdfobj {<</FS /URL /F (http://www.color.org/registry/profiles/Coated_Fogra39L_VI
   \edef\OBJ@URLs{\the\pdflastobj}%
   \xdef\pdfx@cmyk@intent{Coated_Fogra39L_VIGC_300}%
   \xdef\pdfx@cmyk@identifier{Coated_Fogra39L_VIGC_300.icc}%
   \immediate\pdfobj {<<%
     /CheckSum <5449c505618a9b6c38634b4708ae9e37>^^J% d5f0714cd9d6092b6ac93b625f5d8a0c>%
     /ICCVersion (\004\002\000\000)%  4.2.0.0
     /ProfileCS (CMYK)^^J%
     /ProfileName (\pdfx@cmyk@identifier)^^J%
     /URLs [\OBJ@URLs\space 0 R ]
    >>} %
  \edef\OBJ@ICC{\the\pdflastobj}%
  \pdfcatalog{%
   /OutputIntents [ <<
   /Type/OutputIntent
   /S/GTS_PDFX
   /OutputCondition (\pdfx@cmyk@intent)%
   /OutputConditionIdentifier (\pdfx@cmyk@identifier)%
   /RegistryName(\pdfx@cmyk@registry)
   % extra dictionary required for PDF/X-4p and  PDF/X-5pg
   /DestOutputProfileRef \OBJ@ICC\space 0 R
  >> ]}%
 \else  %  PDF/X-1 , PDF/X-1a , PDF/X-3 , PDF/X-4 , PDF/X-5g
  \IfFileExists{\pdfx@cmyk@profile}{%
  %  embedded CMYK color profile
  \immediate\pdfobj stream attr{/N 4} file{\pdfx@cmyk@profile}%
  \edef\OBJ@CMYK{\the\pdflastobj}%
  \pdfcatalog{%
   /OutputIntents [ <<
   /Type/OutputIntent
   /S/GTS_PDFX
   /OutputCondition (\pdfx@cmyk@intent)%
   /OutputConditionIdentifier (\pdfx@cmyk@identifier)%
   /RegistryName(\pdfx@cmyk@registry)
   /DestOutputProfile \OBJ@CMYK\space 0 R
  >> ]}%
 }{%
  \errmessage{No color profile found to use for CMYK printing colors.}%
 }%
 \fi % end of  \ifno@iccprofile
```

```
\else
%%  PDF/A  needs an RGB color profile for on-screen rendering
 \IfFileExists{\pdfx@rgb@profile}{%
  \immediate\pdfobj stream attr{/N 3^^J/Alternate/DeviceRGB} file{\pdfx@rgb@profile}%
  \edef\OBJ@RGB{\the\pdflastobj}%
 }{%
  \errmessage{No color profile found to use for RGB screen colors.}%
 }%
 \pdfcatalog{%
   /ViewerPreferences <</DisplayDocTitle true >>
   /OutputIntents [ <<
   /Type /OutputIntent
   \ifpdfx@e
    /S/ISO_PDFE1
   \else
    /S/GTS_PDFA1
   \fi
    /OutputConditionIdentifier (\pdfx@rgb@identifier)%
   /DestOutputProfile \OBJ@RGB\space 0 R
   /Info(\pdfx@rgb@info)
   /RegistryName(\pdfx@rgb@registry)
  >>
 ]}%
\fi % end of  \ifpdfx@x
\endgroup

%% ------------------------------------------------------------------------
%% Make a version of \xmp@Keywords and \xmp@Author where \sep has been
%% replaced by a comma. The first is for the pdf:Keywords property,
%% which accepts a comma-separated string of keywords, and seems to be
%% mandatory for PDF/A-1 compliance. The second is for the dc:creator
%% property. Although it is defined to be a sequence of authors, Adobe
%% Acrobat will in fact ignore and delete all except the first author.
%% Therefore, it's safer to always separate authors by commas.

\begingroup
 \pdfx@xmpmarkup
 \def\sep{, }%
 \inputencoding{8bit}\makeatletter
 \xdef\xmp@@Keywords{\xmp@Keywords}
 \xdef\xmp@@Author{\xmp@Author}
\endgroup

%% ------------------------------------------------------------------------
\def\xmp@convertDate{\pdfx@getYear}
{\catcode`\D=12 \catcode`\:=12
 \gdef\pdfx@getYear D:#1#2#3#4{\edef\pdfx@xYear{#1#2#3#4}\pdfx@getMonth}
}
\def\pdfx@getMonth#1#2{\edef\pdfx@xMonth{#1#2}\pdfx@getDay}
\def\pdfx@getDay#1#2{\edef\pdfx@xDay{#1#2}\pdfx@getHour}
\def\pdfx@getHour#1#2{\edef\pdfx@xHour{#1#2}\pdfx@getMin}
\def\pdfx@getMin#1#2{\edef\pdfx@xMin{#1#2}\pdfx@getSec}
\def\pdfx@getSec#1#2{\edef\pdfx@xSec{#1#2}\pdfx@getTZh}
\def\pdfx@getTZh{\futurelet\pdfx@next\pdfx@getTzh@branches}

{\catcode`\@=11 \catcode`\Z=12 \catcode`\+=12 \catcode`\-=12
\gdef\pdfx@getTzh@branches{%
```

```
\ifx\pdfx@next Z\let\pdfx@getTzbranch\pdfx@getTznozone
\else\ifx\pdfx@next +\let\pdfx@getTzbranch\pdfx@getTzplus
\else\ifx\pdfx@next -\let\pdfx@getTzbranch\pdfx@getTzminus
\else\let\pdfx@getTzbranch\pdfx@getTzerror
\fi\fi\fi \pdfx@getTzbranch }

\catcode`\0=12
\gdef\pdfx@getTznozone Z#1\pdfx@getTzend{%
 \edef\pdfx@xTzh{+00}\edef\pdfx@xTzm{00}}
\gdef\pdfx@getTzplus +#1'#2'#3\pdfx@getTzend{%
 \edef\pdfx@xTzh{+#1}\edef\pdfx@xTzm{#2}%
 \ifx\relax#2\relax\def\pdfx@xTzm{00}\fi}
\gdef\pdfx@getTzminus -#1'#2'#3\pdfx@getTzend{%
 \edef\pdfx@xTzh{-#1}\edef\pdfx@xTzm{#2}%
 \ifx\relax#2\relax\def\pdfx@xTzm{00}\fi}
\expandafter\xmp@convertDate\pdfcreationdate''\pdfx@getTzend
\xdef\pdfx@convDate{\pdfx@xYear\pdfx@xMonth\pdfx@xDay\pdfx@xHour\pdfx@xMin\pdfx@xSec\pdfx@xTzh
\xdef\xmp@convDate{\pdfx@xYear-\pdfx@xMonth-\pdfx@xDay T\pdfx@xHour:\pdfx@xMin:\pdfx@xSec\pdfx
}% end of \catcode

%% ------------------------------------------------------------------------
%% \pdfx@topdfstring\toka\tokb: Convert the string in \tokb to a format
%% appropriate for PDF /Info strings, i.e., PDFDoc encoding or UTF-16
%% encoding, and store the result in \toka. As a special case, if \tokb
%% is \@empty, set \toka to \@empty.

\def\pdfx@topdfstring#1#2{%
 \ifx#2\@empty
  \global\let#1\@empty
 \else
  \begingroup
   \inputencoding{utf8}%
   \hypersetup{pdfencoding=unicode}%
   \pdfstringdef#1{#2}%
  \endgroup
 \fi
}

%% Convert the relevant XMP properties to PDF strings, expanding markup
%% (such as \sep, \&, \copyright, etc) in an appropriate way.
\begingroup
 \pdfx@pdfmarkup
 \pdfx@topdfstring\pdfx@Title\xmp@Title
 \pdfx@topdfstring\pdfx@Author\xmp@Author
 \pdfx@topdfstring\pdfx@Subject\xmp@Subject
 \pdfx@topdfstring\pdfx@Keywords\xmp@Keywords
 \pdfx@topdfstring\pdfx@CreatorTool\xmp@CreatorTool
 \pdfx@topdfstring\pdfx@Producer\xmp@Producer
\endgroup

\input glyphtounicode.tex
\input glyphtounicode-cmr.tex
\pdfgentounicode=1

\ifpdfx@x
 {\pdfinfo{%   order of these dictionary keys should not matter
   \ifx\pdfx@Author\@empty\else /Author(\pdfx@Author)\fi
```

```
637   /CreationDate(D:\pdfx@convDate)%
638   /Creator(\pdfx@CreatorTool)%
639   \ifnum\xmp@Part=1
640     /GTS_PDFXVersion(PDF/X-1\ifnum\xmp@ReleaseDate>2001\xmp@Conformance\fi:\xmp@ReleaseDate)%
641   \else
642    /GTS_PDFXVersion(PDF/X-\xmp@Part\xmp@Conformance\ifnum\xmp@Part< 4 :\xmp@ReleaseDate\fi)%
643   \fi
644   \ifnum\xmp@Part < 3
645      /GTS_PDFXConformance(PDF/X-\xmp@Part\xmp@Conformance:\xmp@ReleaseDate)%
646   \fi
647   \ifpdfx@vt %  support for PDF/VT extensions of  PDF/X-4  and PDF/X-5
648 %%     /GTS_PDFVTVersion(PDF/VT-\xmp@vtPart\xmp@vtConformance)%
649   \fi
650   \ifx\pdfx@Keywords\@empty\else /Keywords(\pdfx@Keywords)\fi
651   /ModDate(D:\pdfx@convDate)%
652   /Producer(\pdfx@Producer)%
653   \ifx\pdfx@Subject\@empty\else /Subject(\pdfx@Subject)\fi
654   \ifx\pdfx@Title\@empty\else /Title(\pdfx@Title)\fi
655   /Trapped/False%
656  }%  end of  PDF/X  info
657 }%
658 \else
659  \ifpdfx@e
660  {\pdfinfo{%   order of these dictionary keys should not matter
661    \ifx\pdfx@Author\@empty\else /Author(\pdfx@Author)\fi
662    /CreationDate(D:\pdfx@convDate)%
663    /Creator(\pdfx@CreatorTool)%
664    /GTS_PDFEVersion(PDF/E-1\xmp@Conformance:\xmp@ReleaseDate)%
665    \ifx\pdfx@Keywords\@empty\else /Keywords(\pdfx@Keywords)\fi
666    /ModDate(D:\pdfx@convDate)%
667    /Producer(\pdfx@Producer)%
668    \ifx\pdfx@Subject\@empty\else /Subject(\pdfx@Subject)\fi
669    \ifx\pdfx@Title\@empty\else /Title(\pdfx@Title)\fi
670    /Trapped/False%
671   }%  end of  PDF/E  info
672  }%
673  \else
674  \def\pdfx@confA{a}%
675  \def\pdfx@confB{b}%
676  \def\pdfx@confU{u}%
677  \edef\xmp@conformance{\csname pdfx@conf\xmp@Conformance\endcsname}%
678  \AtBeginDocument{%
679   \def\PDF@FinishDoc{%
680    \Hy@UseMaketitleInfos
681    \pdfinfo{%
682      \ifx\pdfx@Title\@empty\else /Title(\pdfx@Title)\fi
683      \ifx\pdfx@Author\@empty\else /Author(\pdfx@Author)\fi
684      \ifx\pdfx@Subject\@empty\else /Subject(\pdfx@Subject)\fi
685      \ifx\pdfx@Keywords\@empty\else /Keywords(\pdfx@Keywords)\fi
686       /Creator(\pdfx@CreatorTool)%
687      \ifx\@pdfcreationdate\@empty
688       /CreationDate(D:\pdfx@convDate)%
689      \else
690       /CreationDate(\@pdfcreationdate)%
691      \fi
692      \ifx\@pdfmoddate\@empty
693       /ModDate(D:\pdfx@convDate)%
```

```
694     \else
695      /ModDate(\@pdfmoddate)%
696     \fi
697     /Producer(\pdfx@Producer)%
698     /Trapped/False
699     /GTS_PDFA1Version (PDF/A-\xmp@Part\xmp@conformance:\xmp@ReleaseDate)%
700    }%  end of  PDF/A  info
701  }% end of  \PDF@FinishDoc
702 }% end of  \AtBeginDocument
703 \fi\fi
704
705 %%-----------------------------------------------------------------------
706 \RequirePackage{xmpincl}
707 \begingroup
708  \ifpdfx@x
709   \ifpdfx@vt
710    \def\xmp@template{pdfvt}%
711   \else
712    \def\xmp@template{pdfx}%    formerly  pdfx-1a
713   \fi
714  \else
715   \ifpdfx@e
716    \def\xmp@template{pdfe}%
717   \else
718    \def\xmp@template{pdfa}%
719  \fi\fi
720  % patch commands from  xmpincl.sty  ...
721  \def\pdfx@xmpinclStart{% supply byte-order marker
722   <?xpacket begin='^^ef^^bb^^bf'? id='W5M0MpCehiHzreSzNTczkc9d' ?> %
723  }%
724  \def\pdfx@xmpinclStartAlt{% no byte-order marker
725   <?xpacket begin=''? id='W5M0MpCehiHzreSzNTczkc9d' ?> %
726  }%
727  \def\pdfx@xmpinclEnd{%  allow XMP packet to be writable
728   <?xpacket end='w'?> %
729  }%
730  \let\mcs@xmpinclStart\pdfx@xmpinclStart
731  \let\mcs@xmpinclStartAlt\pdfx@xmpinclStartAlt
732  \ifpdfx@noBOM  % don't use the byte-order marker
733   \let\mcs@xmpinclStart\pdfx@xmpinclStartAlt
734  \fi
735  \let\mcs@xmpinclEnd\pdfx@xmpinclEnd
736 %% ... preventing their redefinition
737  \def\newcommand#1#2{}%
738  %
739  \pdfx@xmpmarkup
740  \catcode `\_ 12
741  \obeyspaces%  beware of 128 space characters in the next line -- for padding end of XMP packe
742  \def\padding@line{
743  \def\ifnot@empty#1#2{\ifx#1\@empty\else#2\fi}
744  \inputencoding{8bit}\makeatletter
745  \typeout{Using XMP template file: \xmp@template.xmp}%
746  \includexmp{\xmp@template}
747 \endgroup
748
749 %% disable hyperref options, to prevent changes that will cause an incompatibility
750  \Hy@DisableOption{pdfauthor}%
```

```
751 \Hy@DisableOption{pdftitle}%
752 \Hy@DisableOption{pdfsubject}%
753 \Hy@DisableOption{pdfcreator}%
754 \Hy@DisableOption{pdfcreationdate}%
755 \Hy@DisableOption{pdfmoddate}%
756 \Hy@DisableOption{pdfproducer}%
757 \Hy@DisableOption{pdfkeywords}%
758 \endinput
```

5. Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Change History

v1.00
General: Initial commit to the CVS. 1
v1.01
General: glyphtounicode-cmr.tex included with the package. 1
v1.3
General: Fix copyright in xmp files. 1
v1.5.4
General: Fixed timezone bug; Unicode support; more PDF variants; added color profiles. . 1