

The `attachfile2` package

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Abstract

This package can be used to attach files to a PDF document. It is a further development of Scott Pakin's package `attachfile` for pdfTeX. Apart from bug fixes, package `attachfile2` adds support for `dvips`, some new options, gets and writes meta information data about the attached files.

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*Please report any issues at <https://github.com/ho-tex/attachfile2/issues>

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1 Documentation

1.1 Introduction

The PDF format ([3]) allows the inclusion of files inside the PDF document. The included files can be bound to an annotation on a page. Or they can be recorded in a sorted list of embedded files. The packages `attachfile` or `attachfile2` follow the first approach, package `embedfile` uses the latter method.

1.1.1 Future development

My dream is a large package that merges the features of all these packages mentioned before:

- Files can be attached to a page.
- Files can be attached to the document.
- An easy user interface for simple, common tasks and beginners.
- An interface for the advanced users that want to setup every detail.
- Support of many drivers (`pdftex`, `dvips`, `dvipdfm`, ...).
- ...

However, I have not managed to take the time for this project. Instead:

- First I experimented with package `attachfile`, adding driver support, fixing bugs, The result is currently named as `attachfile2`. It uses an external script to get file properties (size, date, checksum, ...).
- In order to avoid an external program for getting basic file properties I provided a patch “EscapeAndOther” for pdfTeX that was accepted for version 1.30.
- Package `embedfile` closes a gap left by the packages for attaching files and allows the embedding of files to the document. Also it makes use of the new primitives of pdfTeX.

Until this future becomes true, I provide the intermediate step `attachfile2` at its current state. There are many things to do:

- Documentation, documentation, ...
- Improving portability of the Perl script `pdfatfi.pl` (Windows, non-GNU, ...).
- Comfortable program for extracting embeddd files.
- Embedding files to the document, see package `embedfile`.
- Additionally use featurers of pdf_TE_X 1.30. With a recent pdf_TE_X the Perl script step is then obsolete.
- GoToE links.
- Layout of PinPush, especially the tip does not scale well.
- Driver for `dvipsone`, similar to `dvips`, changes:
 - coordinate transformation need to be fixed here, `hdvipson.def` contains:


```

          /DvipsToPDF { 65781 div } def
          /PDFToDvips { 65781 mul } def
          
```
 - Syntax for `\special`: `hdvipson.def` contains both `\special{! #1}` and `\special{headertext= #1}`. Are bothe the same?
- File name conversion, see PDF specification:


```

      c:\somewhere\foobar.txt → /c/somewhere/foobar.txt
      
```
- Option `scale` for icons?
- Compatibility for plain T_EX.
- ToDos for `atfidvips.def`.

1.2 User interface

Basically this package `attachfile2` follows the user interface of package `attachfile`, look into its documentation ([1]).

1.2.1 New options

- Driver options `dvips`, `pdftex`, `dvipdfmx` and `xetex` that is an alias for `dvipdfmx`.
- Option `driverfallback` specifies a DVI driver if the driver cannot be detected automatically.
- New options `final` and `draft`.
- New option `scale` for scaling the annotation rectangle.
- Option `nofiles` for controlling the generation of the auxiliary file `.atfi`.
- New option `ucfilespec` for file names with characters outside ASCII (PDF 1.7).
- New option `locked` to set the Locked flag.

1.2.2 Option color

Package `attachfile`'s option `color` only understands explicit RGB values as three space separated real numbers in the range from 0 to 1.

This package `attachfile2` extends the syntax. The usual color specifications of packages `color` or `xcolor` may be used. The latter one requires that package `xcolor` is loaded. Without package `xcolor` a limited range of explicit color specifications are supported, the color models `rgb` and `gray` (and `cmyk` if package `hyperref`'s option `pdfversion` is set to 1.7 or greater.

Example without package `xcolor`:

```
\documentclass{article}
\usepackage[color={1 0 .5}]{attachfile2}
% Spaces in option values in \usepackage or \documentclass
% must be protected by curly braces. Otherwise LaTeX strips
% the spaces and the package would see 'color=10.5'.
% This protection is not necessary for \attachfilesetup.
\attachfilesetup{color=1 0 .5}
\attachfilesetup{color=[rgb]{1,0,.5}}
\attachfilesetup{color=[gray]{.5}}
```

The following example with package `xcolor` shows additional color specifications:

```
\documentclass{article}
\usepackage{xcolor}
\definecolor{attachfilecolor}{cmyk}{.1,.2,.3,.4}
\usepackage{color=red}{attachfile2}
\attachfilesetup{color=red}
\attachfilesetup{color=attachfilecolor}
```

For experts. If the color is used in annotations, the color is converted with the help of package `xcolor` to RGB. PDF versions 1.7 or later also understand color models Gray and CMYK. The PDF version is detected if the experimental option `pdfversion` of package `hyperref` is used, example:

```
\documentclass{article}
\usepackage[pdfversion=1.7]{hyperref}
\usepackage{attachfile2}
```

However, currently only driver `pdftex` also supports the actual setting of the PDF version in the output PDF file.

1.2.3 Perl script `pdfatfi.pl`

This package also tries to get and add meta information data, such as file size, file date, checksum, As package `embedfile` shows the new features of pdf \TeX 1.30 are very useful for getting this kind of data. Since version 2.6 these data are used if available.

For older versions of pdf \TeX and X \TeX the Perl script `pdfatfi.pl` is provided to get this data. The use of the Perl script is not mandatory. This data can be shown by PDF viewers, but they are not a requirement of the PDF specification.

Package `attachfile2` and the Perl script communicate via an auxiliary file with file extension `.atfi`. The script is used between two L \TeX runs and updates the auxiliary file, example for `dvips`:

```
latex test
pdfatfi test
latex test
dvips test
ps2pdf test.ps test.pdf
```

1.3 Changes to attachfile

Some of the changes I can remember:

- Support for dvips.
- Support for dvipdfmx/X_YTeX.
- Setting and filling the /Param entry for files (file date, file size, ...).
- Perl script pdfatfi.pl.
- New options.
- Bug fixes.
- ...

2 Implementation

2.1 Package

```
1 <*package>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{attachfile2}%
4 [2024-01-18 v2.12 Attach files into PDF (HO)]%
```

2.1.1 Loading of packages

```
5 \RequirePackage{iftex}[2019/11/07]
6 \RequirePackage{keyval}
7 \RequirePackage{color}
8 \RequirePackage{infwarerr}[2010/04/08]
9 \RequirePackage{ltxcmds}[2010/04/26]
10 \RequirePackage{kvoptions}[2009/07/21]
11 \RequirePackage{pdftexcmds}[2010/04/01]
12 \RequirePackage{pdfescape}[2007/11/11]
```

Package hyperref is needed because of \pdfstringdef.

```
13 \RequirePackage{hyperref}
14 \RequirePackage{hycolor}[2008/07/29]
```

2.1.2 Value checking

\atfi@Match

```
15 \ltx@ifundefined{pdfmatch}{%
16   \def\atfi@Match#1#2#3#4#5{%
17   }%
18   \def\atfi@Match#1#2#3{%
19     \begingroup
20     \edef\^{\ltx@backslashchar\string^}%
21     \edef\.\{\ltx@backslashchar.}%
22     \let#\ltx@hashchar
23     \edef\[\{\ltx@backslashchar[]% ]]
24     \edef\$\{\ltx@backslashchar$}%
25     \let%\ltx@percentchar
26     \edef\&\string&%
27     \edef\(\{\ltx@backslashchar(%
28     \edef\)\{\ltx@backslashchar)%
29     \edef\|\{\ltx@backslashchar|}%
30     \edef\*\{\ltx@backslashchar*}%
31     \edef\+\{\ltx@backslashchar+}%
32     \edef\?\{\ltx@backslashchar?}%
33     \edef\{\{\ltx@backslashchar\ltx@leftbracechar}%
34     \edef\}\{\ltx@rightbracechar}%
35     \edef\\\{\ltx@backslashchar\ltx@backslashchar}%
```

```

36 \edef\~{\string~}%
37 \ifcase\pdfmatch#3{#2}{#1} %
38 \endgroup
39 \expandafter\ltx@secondoftwo
40 \or
41 \endgroup
42 \expandafter\ltx@firstoftwo
43 \else
44 \atfi@Warning{%
45 Internal error: Wrong pattern!\MessageBreak
46 --> #2 <--\MessageBreak
47 Pattern check ignored%
48 }%
49 \endgroup
50 \expandafter\ltx@firstoftwo
51 \fi
52 }%

```

\atfi@PatToken

```

53 \def\atfi@PatToken{%
54 [%
55 -% first character
56 !%
57 \#\$%\&'%
58 *\+\.%
59 0-9%
60 A-Z%
61 \^_\'%
62 a-z%
63 \{\}\|\~%
64 ]+%
65 }%

```

\atfi@CR

```

66 \begingroup
67 \lccode64=13 % @
68 \lowercase{\endgroup
69 \def\atfi@CR{@}%
70 }%

```

\atfi@PatQuotedString

```

71 \def\atfi@PatQuotedString{%
72 "%
73 ([^"\\@atfi@CR]|\.)*%
74 "%
75 }%
76 \ltx@ifpackagelater{ltxcmds}{2010/09/11}{-}{-}%

```

\atfi@ltx@leftbracechar

```

77 \begingroup
78 \lccode'0='{\relax
79 \lowercase{\endgroup
80 \def\ltx@leftbracechar{0}%
81 }%

```

\ltx@rightbracechar

```

82 \begingroup
83 \lccode'0='\relax
84 \lowercase{\endgroup
85 \def\ltx@rightbracechar{0}%
86 }%

```

```

87 }%
88 }

\atfi@Warning
89 \def\atfi@Warning{\PackageWarning{attachfile2}}

2.1.3 Option declarations

90 \SetupKeyvalOptions{%
91   family=AtFi,%
92   prefix=atfi@%
93 }

\atfi@setup
94 \def\atfi@setup{\setkeys{AtFi}}

Options draft and final.
95 \DeclareBoolOption{draft}
96 \DeclareComplementaryOption{final}{draft}

Option mimetype.

\atfi@mimetype
97 \def\atfi@mimetype{}

98 \define@key{AtFi}{mimetype}{%
99   \edef\atfi@mimetype{#1}%
100  \ifx\atfi@mimetype\ltx@empty
101  \else
102    \atfi@Match\atfi@mimetype{%
103      ~(application|audio|image|model|text|video|x-\atfi@PatToken)%
104      /%
105      ([a-z\-\+\_\.\0-9]+)%
106      (; ?\atfi@PatToken=(\atfi@PatToken|\atfi@PatQuotedString))*$%
107    }{icase}{}%
108    \atfi@Warning{%
109      Invalid value ‘\atfi@mimetype’\MessageBreak
110      of option ‘mimetype’.\MessageBreak
111      Value is discarded%
112    }%
113    \let\atfi@mimetype\ltx@empty
114  }%
115  \fi
116  \ifx\atfi@mimetype\ltx@empty
117  \else
118    \EdefEscapeName\atfi@mimetype{\atfi@mimetype}%
119    \edef\atfi@mimetype{/Subtype/\atfi@mimetype}%
120  \fi
121 }

Option icon
122 \define@key{AtFi}{icon}{%
123   \def\atfi@icon{/Name/#1}%
124   \def\atfi@icon@icon{#1}%
125 }
126 \atfi@setup{icon=PushPin}

Option color
127 \define@key{AtFi}{color}{%
128   \HyColor@AttachfileColor{#1}%
129   \atfi@color@tex\atfi@color@inline\atfi@color@annot
130   {attachfile2}{color}%
131 }
132 \atfi@setup{color=1 0.9255 0.7765}

```

time options timezone and date

`\atfi@pad@ii`

```
133 \def\atfi@pad@ii#1{%
134   \ifnum#1>9 %
135     \number#1%
136   \else
137     0\number#1%
138   \fi%
139 }
```

`atfi@timezone`

```
140 \let\atfi@timezone\ltx@empty
141 \define@key{AtFi}{timezone}{\def\atfi@timezone{#1}}
```

`\atfi@time`

```
142 \edef\atfi@time{\the\time}
```

`\atfi@hours`

```
143 \def\atfi@hours{%
144   \numexpr\dimexpr0.01667\dimexpr\atfi@time sp\relax\relax\relax
145 }
```

`\atfi@minutes`

```
146 \def\atfi@minutes{%
147   \numexpr\atfi@time-60*\atfi@hours\relax
148 }
```

`\atfi@seconds`

```
149 \def\atfi@seconds{0}
```

`\atfi@date`

```
150 \def\atfi@date{%
151   /M(D:\the\year
152     \atfi@pad@ii\month
153     \atfi@pad@ii\day
154     \atfi@pad@ii\atfi@hours
155     \atfi@pad@ii\atfi@minutes
156     \atfi@pad@ii\atfi@seconds
157     \atfi@timezone)%
158 }
159 \define@key{AtFi}{date}{%
160   \EdefEscapeString\atfi@date{#1}%
161   \edef\atfi@date{/M(\atfi@date)}%
162 }
```

Text options author, description, and subject

`\atfi@pdfstringdef`

```
163 \DeclareRobustCommand{\atfi@pdfstringdef}[2]{%
164   \pdfstringdef\atfi@temp@string{#2}%
165   \edef#1{\atfi@temp@string}%
166 }
```

`\atfi@NoValue`

```
167 \def\atfi@NoValue{\NoValue}
```


`\atfi@DefNoValueName`

```
168 \def\atfi@DefNoValueName#1#2#3{%
169   \def#1{#3}%
170   \ifx#1\atfi@NoValue
171     \let#1\ltx@empty
172   \else
173     \atfi@pdfstringdef#1{#1}%
174     \edef#1{/#2(#1)}%
175   \fi
176 }
```

Name for annotation to be used in GoToE actions

`\atfi@annotname`

```
177 \let\atfi@annotname\ltx@empty
178 \define@key{AtFi}{annotname}[\NoValue]{%
179   \atfi@DefNoValueName\atfi@annotname{NM}{#1}%
180 }
```

Option author.

`\atfi@author`

```
181 \def\atfi@author{}
182 \define@key{AtFi}{author}[\NoValue]{%
183   \atfi@DefNoValueName\atfi@author{T}{#1}%
184 }
```

Option description.

`\atfi@description`

```
185 \def\atfi@description{}
186 \define@key{AtFi}{description}[\NoValue]{%
187   \atfi@DefNoValueName\atfi@description{Contents}{#1}%
188 }
```

Option subject.

`\atfi@subject`

```
189 \def\atfi@subject{}
190 \define@key{AtFi}{subject}[\NoValue]{%
191   \atfi@DefNoValueName\atfi@subject{Subj}{#1}%
192 }
```

Option print.

```
193 \DeclareBoolOption[true]{print}
```

Option zoom.

```
194 \DeclareBoolOption[true]{zoom}
```

Option locked.

```
195 \DeclareBoolOption[true]{locked}
```

Option appearance.

```
196 \DeclareBoolOption[true]{appearance}
```

Option scale.

```
197 \DeclareStringOption[1]{scale}
```

Option ucfilespec.

`\atfi@ucfilespec`

```
198 \def\atfi@ucfilespec{}
```

```

199 \define@key{AtFi}{ucfilespec}[1]{%
200   \def\atfi@ucfilespec{#1}%
201   \ifx\atfi@ucfilespec\ltx@empty
202   \else
203     \atfi@pdfstringdef\atfi@ucfilespec{#1}%
204   \fi
205 }

Option nofiles.
206 \DeclareBoolOption{nofiles}

Driver options.
207 \let\atfi@driver\ltx@empty
208 \def\atfi@driver@pdftex{pdftex}
209 \def\atfi@driver@luatex{luatex}
210 \def\atfi@driver@dvi{dvips}
211 \def\atfi@driver@dvi{dvipdfmx}

212 \DeclareVoidOption{pdftex}{%
213   \ifpdf
214     \let\atfi@driver\atfi@driver@pdftex
215   \else
216     \let\atfi@driver\ltx@empty
217     \PackageError{attachfile2}{%
218       Wrong driver option 'pdftex',\MessageBreak
219       because pdfTeX in PDF mode is not detected%
220     }\@ehc
221   \fi
222 }
223 \DeclareVoidOption{luatex}{%
224   \let\atfi@driver\atfi@driver@luatex
225 }
226 \DeclareVoidOption{dvi}{%
227   \let\atfi@driver\atfi@driver@dvi
228 }
229 \DeclareVoidOption{dvi}{%
230   \let\atfi@driver\atfi@driver@dvi
231 }
232 \DeclareVoidOption{xetex}{%
233   \let\atfi@driver\atfi@driver@dvi
234 }

235 \DeclareStringOption{driverfallback}

```

\attachfilesetup

```

236 \DeclareRobustCommand{\attachfilesetup}[1]{\setkeys{AtFi}{#1}}

237 \DeclareLocalOptions{%
238   annotname,%
239   appearance,%
240   author,%
241   color,%
242   date,%
243   description,%
244   icon,%
245   mimetype,%
246   nofiles,%
247   print,%
248   scale,%
249   subject,%
250   timezone,%
251   ucfilespec,%
252   zoom,%
253   locked,%
254 }

```

2.1.4 Option calling

Timezone setting, ...

```
255 \InputIfFileExists{attachfile.cfg}{-}{-}
256 \ProcessKeyvalOptions*
```

`\atfi@DisableOption`

```
257 \def\atfi@DisableOption{%
258   \DisableKeyvalOption[action=error,package=attachfile2]{AtFi}%
259 }
```

2.1.5 Evaluate driver options

```
260 \ifpdf
261   \ifluatex
262     \let\atfi@driver\atfi@driver@luatex
263   \else
264     \let\atfi@driver\atfi@driver@pdftex
265   \fi
266 \else
267   \ifxetex
268     \let\atfi@driver\atfi@driver@dvipdfmx
269   \else
270     \ifx\atfi@driver\ltx@empty
271       \ifx\atfi@driverfallback\ltx@empty
272         \else
273           \expandafter\let\expandafter\atfi@driver
274             \csname atfi@driver@\atfi@driverfallback\endcsname
275           \ifx\atfi@driver\atfi@driver@dvips
276             \else
277               \ifx\atfi@driver\atfi@driver@dvipdfmx
278                 \else
279                   \let\atfi@driver\ltx@empty
280                   \PackageWarningNoLine{attachfile2}{%
281                     Option 'driverfallback' with unsupported\MessageBreak
282                     DVI driver (\atfi@driverfallback)%
283                   }%
284                 \fi
285             \fi
286           \fi
287         \ifx\atfi@driver\ltx@empty
288           \PackageWarningNoLine{attachfile2}{%
289             Driver is not specified,\MessageBreak
290             enforce draft settings%
291           }%
292         \atfi@drafttrue
293       \fi
294     \fi
295   \fi
296 \fi

297 \atfi@DisableOption{pdftex}
298 \atfi@DisableOption{dvips}
299 \atfi@DisableOption{dvipdfmx}
300 \atfi@DisableOption{xetex}
301 \atfi@DisableOption{driverfallback}
```

2.1.6 Evaluate options draft/final

`\notextattachfile`

```
302 \DeclareRobustCommand{\notextattachfile}[2][ ]{%
303   \begingroup
304     \atfi@setup{#1}%
```

```

305 \ifatfi@print
306 \leavevmode
307 \begingroup
308 \HyColor@UseColor\atfi@color@tex
309 #2\strut
310 \endgroup
311 \else
312 \sbox\ltx@zero{#2\strut}%
313 \makebox[\wd0]{}%
314 \fi
315 \endgroup
316 }

317 \atfi@DisableOption{draft}%
318 \atfi@DisableOption{final}%
319 \ifatfi@draft
320 \def\atfi@dummys@pushpin{%
321 \raisebox{-1.25bp}{\parbox[b][14bp]{24bp}{}}%
322 }%
323 \DeclareRobustCommand{\textattachfile}[3][{}]{%
324 \notextattachfile[#{1}]{#3}%
325 }%
326 \DeclareRobustCommand{\noattachfile}[1][{}]{%
327 \notextattachfile[#{1}]{\atfi@dummys@pushpin}%
328 }%
329 \DeclareRobustCommand{\attachfile}[2][{}]{%
330 \noattachfile[#{1}]%
331 }%
332 \expandafter\endinput
333 \fi

```

2.1.7 Load driver file

```
334 \input{atfi-\atfi@driver.def}
```

2.1.8 Graphics

\atfi@acroGraph@data

```

335 \def\atfi@acroGraph@data{%
336 \atfi@GSAVE
337 0.5 \atfi@SETGRAYFILL
338 1.1133 0 20.7202 18.2754 \atfi@RECTFILL
339 0 \atfi@SETFLAT
340 0.5 \atfi@SETLINEWIDTH
341 4 \atfi@SETMITERLIMIT
342 \atfi@RECTSTROKEFILL{%
343 1 \atfi@SETGRAYFILL
344 }{%
345 0 \atfi@SETGRAYSTROKE
346 }{%
347 0.25 1.6453 20.145 17.7715 %
348 }%
349 0 \atfi@SETGRAYFILL
350 2.7319 4.1367 3.9571 13.8867 \atfi@RECTFILL
351 8.7031 4.1367 3.9571 9.8867 \atfi@RECTFILL
352 14.7471 4.1367 3.9571 11.8867 \atfi@RECTFILL
353 \atfi@color@inline{FILL}%
354 1.689 3.0938 3.9571 13.8867 \atfi@RECTFILL
355 7.6602 3.0938 3.9571 9.8867 \atfi@RECTFILL
356 13.7041 3.0938 3.9571 11.8867 \atfi@RECTFILL
357 \atfi@GRESTORE
358 }

```

\atfi@acroGraph

```

359 \def\atfi@acroGraph{%
360   \raisebox{-1.5bp}{\parbox[b][20bp]{22bp}{%
361     \rule{0pt}{0pt}\atfi@literal{\atfi@acroGraph@data}}}%
362   }%
363 }

```

\atfi@acroPaperclip@data

```

364 \newcommand{\atfi@acroPaperclip@data}{%
365   \atfi@GSAVE
366   0.75 \atfi@SETGRAYSTROKE
367   0 \atfi@SETFLAT
368   2.5 \atfi@SETLINEWIDTH
369   1 \atfi@SETLINECAP
370   4 \atfi@SETMITERLIMIT
371   1.9619 11.7559 \atfi@MOVETO
372   1.9619 3.3037 1.9619 2.5059 \atfi@CURVETOY
373   1.9619 1.707 4.0947 1.25 \atfi@CURVETOY
374   7.4141 1.25 \atfi@LINETO
375   9.4292 1.8223 9.4292 3.3066 \atfi@CURVETOY
376   9.4292 4.79 9.4292 16.8945 \atfi@CURVETOY
377   9.7852 18.1514 8.481 18.1514 \atfi@CURVETOY
378   7.1768 18.1514 5.1616 18.1514 \atfi@CURVETOY
379   3.8574 17.9209 3.8574 16.8945 \atfi@CURVETOY
380   3.8574 15.8652 3.8574 6.6172 \atfi@CURVETOY
381   4.3325 5.418 5.1025 5.418 \atfi@CURVETOY
382   5.8726 5.418 6.5845 5.418 \atfi@CURVETOY
383   7.6812 5.6455 7.6812 6.4736 \atfi@CURVETOY
384   7.6812 7.3027 7.6812 11.5264 \atfi@CURVETOY
385   \atfi@STROKE
386   0 \atfi@SETGRAYSTROKE
387   1.2495 12.4404 \atfi@MOVETO
388   1.2495 3.9883 1.2495 3.1895 \atfi@CURVETOY
389   1.2495 2.3906 3.3833 1.9326 \atfi@CURVETOY
390   6.7026 1.9326 \atfi@LINETO
391   8.7178 2.5068 8.7178 3.9902 \atfi@CURVETOY
392   8.7178 5.4736 8.7178 17.5781 \atfi@CURVETOY
393   9.0732 18.834 7.769 18.834 \atfi@CURVETOY
394   6.4653 18.834 4.4497 18.834 \atfi@CURVETOY
395   3.146 18.6055 3.146 17.5781 \atfi@CURVETOY
396   3.146 16.5498 3.146 7.3018 \atfi@CURVETOY
397   3.6201 6.1016 4.3911 6.1016 \atfi@CURVETOY
398   5.1611 6.1016 5.873 6.1016 \atfi@CURVETOY
399   6.9692 6.3301 6.9692 7.1572 \atfi@CURVETOY
400   6.9692 7.9863 6.9692 12.21 \atfi@CURVETOY
401   \atfi@STROKE
402   \atfi@color@inline{STROKE}%
403   1 \atfi@SETLINEWIDTH
404   1.2495 12.4404 \atfi@MOVETO
405   1.2495 3.9883 1.2495 3.1895 \atfi@CURVETOY
406   1.2495 2.3906 3.3833 1.9326 \atfi@CURVETOY
407   6.7026 1.9326 \atfi@LINETO
408   8.7178 2.5068 8.7178 3.9902 \atfi@CURVETOY
409   8.7178 5.4736 8.7178 17.5781 \atfi@CURVETOY
410   9.0732 18.834 7.769 18.834 \atfi@CURVETOY
411   6.4653 18.834 4.4497 18.834 \atfi@CURVETOY
412   3.146 18.6055 3.146 17.5781 \atfi@CURVETOY
413   3.146 16.5498 3.146 7.3018 \atfi@CURVETOY
414   3.6201 6.1016 4.3911 6.1016 \atfi@CURVETOY
415   5.1611 6.1016 5.873 6.1016 \atfi@CURVETOY
416   6.9692 6.3301 6.9692 7.1572 \atfi@CURVETOY
417   6.9692 7.9863 6.9692 12.21 \atfi@CURVETOY
418   \atfi@STROKE
419   \atfi@GRESTORE

```

420 }

\atfi@acroPaperclip

```
421 \def\atfi@acroPaperclip{%
422   \raisebox{-1.25bp}{\parbox[b][21bp]{12bp}{%
423     \rule{0pt}{0pt}\atfi@literal{\atfi@acroPaperclip@data}}%
424   }%
425 }
```

\atfi@acroPushPin@data

```
426 \def\atfi@acroPushPin@data{%
427   \atfi@GSAVE
428   1 \atfi@SETLINEWIDTH
429   1 6 \atfi@MOVETO
430  11 6 \atfi@LINETO
431  11 13 \atfi@LINETO
432  12 13 \atfi@LINETO
433  14 11 \atfi@LINETO
434  21 11 \atfi@LINETO
435  22 12 \atfi@LINETO
436  23 12 \atfi@LINETO
437  23 2 \atfi@LINETO
438  22 2 \atfi@LINETO
439  21 3 \atfi@LINETO
440  14 3 \atfi@LINETO
441  12 1 \atfi@LINETO
442  11 1 \atfi@LINETO
443  11 6 \atfi@LINETO
444   \atfi@FILLSTROKE{%
445     \atfi@color@inline{FILL}%
446   }{%
447     0 \atfi@SETGRAYSTROKE
448   }%
449   0.5 \atfi@SETGRAYSTROKE
450   0 7 \atfi@MOVETO
451  10 7 \atfi@LINETO
452  10 8 \atfi@LINETO
453   1 8 \atfi@LINETO
454   \atfi@STROKE
455   1 \atfi@SETGRAYSTROKE
456  12 12 \atfi@MOVETO
457  14 10 \atfi@LINETO
458  22 10 \atfi@LINETO
459  22 11 \atfi@LINETO
460   \atfi@STROKE
461   \atfi@GRESTORE
462 }
```

\atfi@acroPushPin

```
463 \def\atfi@acroPushPin{%
464   \raisebox{-1.25bp}{\parbox[b][14bp]{24bp}{%
465     \rule{0pt}{0pt}\atfi@literal{\atfi@acroPushPin@data}}%
466   }%
467 }
```

\atfi@acroTag@data

```
468 \def\atfi@acroTag@data{%
469   \atfi@GSAVE
470   0.5 \atfi@SETGRAYFILL
471  10.0542 14.9873 \atfi@MOVETO
472  24.27 14.9873 \atfi@LINETO
473  25.252 14.0059 \atfi@LINETO
```

```

474 25.252 1.1455 \atfi@LINETO
475 24.1064 0 \atfi@LINETO
476 9.9609 0 \atfi@LINETO
477 6.0327 6.0088 \atfi@LINETO
478 6.0327 9.002 \atfi@LINETO
479 10.0542 14.9873 \atfi@LINETO
480 9.3994 9.376 \atfi@MOVETO
481 8.5215 9.376 7.8096 8.5596 7.8096 7.5527 \atfi@CURVETO
482 7.8096 6.5449 8.5215 5.7285 9.3994 5.7285 \atfi@CURVETO
483 10.2778 5.7285 10.9897 6.5449 10.9897 7.5527 \atfi@CURVETO
484 10.9897 8.5596 10.2778 9.376 9.3994 9.376 \atfi@CURVETO
485 \atfi@CLOSEPATH
486 \atfi@FILL
487 0 \atfi@SETFLAT
488 0.5 \atfi@SETLINEWIDTH
489 4 \atfi@SETMITERLIMIT
490 1 \atfi@SETLINEJOIN
491 8.5107 16.5313 \atfi@MOVETO
492 22.7266 16.5313 \atfi@LINETO
493 23.7085 15.5488 \atfi@LINETO
494 23.7085 2.6895 \atfi@LINETO
495 22.563 1.543 \atfi@LINETO
496 8.4175 1.543 \atfi@LINETO
497 4.4893 7.5527 \atfi@LINETO
498 4.4893 10.5449 \atfi@LINETO
499 8.5107 16.5313 \atfi@LINETO
500 7.856 10.9199 \atfi@MOVETO
501 6.978 10.9199 6.2661 10.1035 6.2661 9.0957 \atfi@CURVETO
502 6.2661 8.0879 6.978 7.2715 7.856 7.2715 \atfi@CURVETO
503 8.7344 7.2715 9.4463 8.0879 9.4463 9.0957 \atfi@CURVETO
504 9.4463 10.1035 8.7344 10.9199 7.856 10.9199 \atfi@CURVETO
505 \atfi@CLOSEPATH
506 \atfi@FILLSTROKE{%
507   \atfi@color@inline{FILL}%
508 }{%
509   0 \atfi@SETGRAYSTROKE
510 }%
511 1 \atfi@SETLINEWIDTH
512 12.3291 12.2656 \atfi@MOVETO
513 21.1206 12.2656 \atfi@LINETO
514 \atfi@STROKE
515 12.3291 9.1797 \atfi@MOVETO
516 21.1206 9.1797 \atfi@LINETO
517 \atfi@STROKE
518 12.3291 6.1875 \atfi@MOVETO
519 21.1206 6.1875 \atfi@LINETO
520 \atfi@STROKE
521 % 0 \atfi@SETGRAYSTROKE % redundant?
522 0.5 \atfi@SETLINEWIDTH
523 0 9.0488 \atfi@MOVETO
524 6.2661 9.0957 \atfi@LINETO
525 \atfi@STROKE
526 1.4028 5.2148 \atfi@MOVETO
527 1.4028 9.6094 \atfi@LINETO
528 1.6831 10.6387 2.4316 10.6387 \atfi@CURVETO
529 3.6475 10.6387 3.5542 9.0488 \atfi@CURVETO
530 \atfi@STROKE
531 \atfi@GRESTORE
532 }

```

\atfi@acroTag

```

533 \def\atfi@acroTag{%
534   \raisebox{-1.6bp}{\parbox[b] [17bp] {25bp}{%

```

```

535 \rule{0pt}{0pt}\atfi@literal{\atfi@acroTag@data}}%
536 }%
537 }

```

2.1.9 Reading the .atfi file

Commands used in \jobname.atfi:

- attachfile@timezone{<timezone in PDF format>}
- \attachfile@file[
 - Size=<size>,
 - CreationDate=<date>, % <date> local time without "D:" and timezone
 - ModDateTZ=<date+TZ>,
 - ModDate=<date>,
 - Checksum=<checksum>
]{<filename as hex string>}

\attachfile@timezone

```

538 \def\attachfile@timezone#1{%
539 \ifx\#1\%
540 % no timezone information given
541 \else
542 \def\atfi@timezone{#1}%
543 \fi
544 }

```

\attachfile@file

```

545 \newcommand*{\attachfile@file}[2] [] {%
546 \EdefUnescapeHex\atfi@filename{#2}%
547 \ifx\atfi@filename\ltx@empty
548 \PackageError{attachfile2}{Empty file name}\@ehc
549 \else
550 \namedef{atfi@file@\atfi@filename}{#1}%
551 \fi
552 }

```

```

553 \InputIfFileExists{\jobname.atfi}{-}{-}%

```

```

554 \newif\ifatfi@checksum
555 \define@key{AtFi@file}{Checksum}{%
556 \atfi@checksumtrue
557 \edef\atfi@params{\atfi@params/Checksum<#1>}%
558 }

```

```

559 \newif\ifatfi@creationdate
560 \define@key{AtFi@file}{CreationDateTZ}{%
561 \ifatfi@creationdate
562 \else
563 \atfi@creationdatetrue
564 \edef\atfi@params{%
565 \atfi@params
566 /CreationDate(#1)%
567 }%
568 \fi
569 }

```

```

570 \define@key{AtFi@file}{CreationDate}{%
571 \ifatfi@creationdate
572 \else
573 \atfi@creationdatetrue
574 \edef\atfi@params{%
575 \atfi@params
576 /CreationDate(#1\atfi@timezone)%
577 }%

```



```

578 \fi
579 }

580 \newif\ifatfi@moddate
581 \define@key{AtFi@file}{ModDateTZ}{%
582 \ifatfi@moddate
583 \else
584 \atfi@moddatetrue
585 \edef\atfi@params{%
586 \atfi@params
587 /ModDate(#1)%
588 }%
589 \fi
590 }

591 \define@key{AtFi@file}{ModDate}{%
592 \ifatfi@moddate
593 \else
594 \atfi@moddatetrue
595 \edef\atfi@params{%
596 \atfi@params
597 /ModDate(D:#1\atfi@timezone)%
598 }%
599 \fi
600 }

```

\atfi@pdftexdata

```

601 \let\atfi@temp\ltx@one
602 \ltx@ifundefined{pdf@filesize}{%
603 \let\atfi@temp\ltx@zero
604 }{}
605 \ltx@ifundefined{pdf@filemoddate}{%
606 \let\atfi@temp\ltx@zero
607 }{}
608 \ltx@ifundefined{pdf@filemdfivesum}{%
609 \let\atfi@temp\ltx@zero
610 }{}
611 \ifcase\atfi@temp
612 \let\atfi@pdftexdata\ltx@gobble
613 \or
614 \def\atfi@pdftexdata#1{%
615 \edef\atfi@temp{\pdf@filesize{#1}}%
616 \ifx\atfi@temp\ltx@empty
617 \else
618 \setkeys{AtFi@file}{Size=\atfi@temp}%
619 \edef\atfi@temp{\pdf@filemoddate{#1}}%
620 \ifx\atfi@temp\ltx@empty
621 \else
622 \setkeys{AtFi@file}{ModDateTZ=\atfi@temp}%
623 \fi
624 \edef\atfi@temp{\pdf@filemdfivesum{#1}}%
625 \ifx\atfi@temp\ltx@empty
626 \else
627 \setkeys{AtFi@file}{Checksum=\atfi@temp}%
628 \fi
629 \fi
630 }%
631 \fi

```

2.1.10 Writing the .atfi file

Respect \nofiles and option nofiles. \nofiles has more weight than option nofiles.

```

632 \if@filesw
633 \else
634 \atfi@nofilestrue
635 \fi
636 \ifatfi@nofiles
637 \PackageInfo{attachfile2}{%
638   File '\jobname.atfi' will not be written because of\MessageBreak
639   \string\nofiles\space or option 'nofiles'%
640 }%

\atfi@writefile
641 \let\atfi@writefile\ltx@gobble

642 \else

\atfi@stream
643 \newwrite\atfi@stream

644 \immediate\openout\atfi@stream=\jobname.atfi\relax
645 \immediate\write\atfi@stream{%
646   \string\attachfile@timezone{\atfi@timezone}%
647 }%

\atfi@writefile
648 \def\atfi@writefile#1{%
649   \begingroup
650   \EdefEscapeHex\atfi@temp{#1}%
651   \immediate\write\atfi@stream{%
652     \string\attachfile@file[%
653       \ltx@ifundefined{atfi@file@#1}{-}{\@nameuse{atfi@file@#1}}%
654     ]{\atfi@temp}%
655   }%
656   \endgroup
657 }%

658 \fi
659 \atfi@DisableOption{nofiles}

\atfi@attachfile
660 \def\atfi@attachfile#1#2{%
661   \ltx@ifundefined{atfi@fileobj@#2}{%
662     \atfi@writefile{#2}%
663   }{%
664     % don't need duplicates
665   }%
666   \atfi@setup{#1}%
667   \atfi@embedfile{#2}%
668   \atfi@set@appearance@icon
669   \atfi@flags@to@int
670   \atfi@insert@file@annot{#2}%
671   \endgroup
672 }

```

2.1.11 Annotation appearance

```

\atfi@appearancewidth
673 \newlength{\atfi@appearancewidth}

\atfi@appearanceheight
674 \newlength{\atfi@appearanceheight}

\atfi@appearancedepth
675 \newlength{\atfi@appearancedepth}

```

```

\atfi@appearancebox
676 \newsavebox{\atfi@appearancebox}

\atfi@set@appearance@icon
677 \def\atfi@set@appearance@icon{%
678 \ltx@ifundefined{atfi@appobj@\atfi@icon@icon}{%
679 \savebox{\atfi@appearancebox}{%
680 \nameuse{atfi@acro\atfi@icon@icon}%
681 }%
682 \expandafter
683 \xdef\csname atfi@appwidth@\atfi@icon@icon\endcsname{%
684 \the\wd\atfi@appearancebox
685 }%
686 \expandafter
687 \xdef\csname atfi@appheight@\atfi@icon@icon\endcsname{%
688 \the\ht\atfi@appearancebox
689 }%
690 \expandafter
691 \xdef\csname atfi@appdepth@\atfi@icon@icon\endcsname{%
692 \the\dp\atfi@appearancebox
693 }%
694 \atfi@xform@icon
695 \global\expandafter\let
696 \csname atfi@appobj@\atfi@icon@icon\endcsname
697 \atfi@appearanceobj
698 }{%
699 }%
700 % optimization: \setlength dropped
701 \atfi@appearancewidth=%
702 \nameuse{atfi@appwidth@\atfi@icon@icon}\relax
703 \atfi@appearanceheight=%
704 \nameuse{atfi@appheight@\atfi@icon@icon}\relax
705 \atfi@appearancedepth=%
706 \nameuse{atfi@appdepth@\atfi@icon@icon}\relax
707 \expandafter\let\expandafter\atfi@appearanceobj
708 \csname atfi@appobj@\atfi@icon@icon\endcsname
709 }

\atfi@set@appearance
710 \def\atfi@set@appearance#1{%
711 \savebox{\atfi@appearancebox}{#1}%
712 \atfi@appearancewidth=\wd\atfi@appearancebox
713 \atfi@appearanceheight=\ht\atfi@appearancebox
714 \atfi@appearancedepth=\dp\atfi@appearancebox
715 \atfi@xform
716 }

717 \newcounter{atfi@flags}

\atfi@flags@to@int
718 \DeclareRobustCommand{\atfi@flags@to@int}{%
719 \setcounter{atfi@flags}{0}%
720 \ifatfi@print
721 \addtocounter{atfi@flags}{4}%
722 \fi%
723 \ifatfi@zoom
724 \else
725 \addtocounter{atfi@flags}{8}%
726 \fi%
727 \ifatfi@locked
728 \addtocounter{atfi@flags}{128}%
729 \fi%
730 }

```

```

\atfi@textattachfile
731 \def\atfi@textattachfile#1#2{%
732   \endgroup
733   \atfi@textattachfile@i{#1}{#2}%
734 }

\atfi@textattachfile@i
735 \def\atfi@textattachfile@i#1#2#3{%
736   \ltx@ifundefined{atfi@fileobj@#2}{%
737     \atfi@writefile{#2}%
738   }{%
739     % don't need duplicates
740   }%
741   \atfi@setup{#1}%
742   \atfi@embedfile{#2}%
743   \atfi@set@appearance{%
744     \leavevmode
745     \begingroup
746       \HyColor@UseColor\atfi@color@tex
747       #3\strut
748     \endgroup
749   }%
750   \atfi@flags@to@int
751   \atfi@insert@file@annot{#2}%
752 \endgroup
753 }

\attachfile
754 \DeclareRobustCommand{\attachfile}[1] [] {%
755   \begingroup
756     \let\do\@makeoother
757     \dospecials
758     \catcode'\{=1\relax
759     \catcode'\}=2\relax
760     \atfi@attachfile{#1}%
761 }

\textattachfile
762 \DeclareRobustCommand{\textattachfile}[1] [] {%
763   \begingroup
764     \begingroup
765       \let\do\@makeoother
766       \dospecials
767       \catcode'\{=1\relax
768       \catcode'\}=2\relax
769       \atfi@textattachfile{#1}%
770 }

\noattachfile
771 \DeclareRobustCommand{\noattachfile}[1] [] {%
772   \begingroup
773     \atfi@setup{#1}%
774     \atfi@set@appearance@icon
775     \ifatfi@print
776     \expandafter
777     \atfi@refxform\csname atfi@appobj@\atfi@icon@icon\endcsname
778     \else
779       \makebox[\atfi@appearancewidth]{%
780     \fi
781   \endgroup
782 }

783 </package>

```

2.2 Drivers

2.2.1 pdfTeX

```
784 <*pdftex>
785 \NeedsTeXFormat{LaTeX2e}
786 \ProvidesFile{atfi-pdftex.def}%
787 [2024-01-18 v2.12 attachfile2 driver for pdfTeX (HO)]%
```

Macros for graphics data

\atfi@literal

```
788 \let\atfi@literal\pdfliteral

789 \def\atfi@GSAVE{q }
790 \def\atfi@GRESTORE{Q }
791 \def\atfi@SETLINEWIDTH{w }
792 \def\atfi@LINETO{l }
793 \def\atfi@MOVETO{m }
794 \def\atfi@STROKE{S }
795 \def\atfi@FILL{f }
796 % \atfi@FILLSTROKE{<fill color>}{<stroke color>}
797 \def\atfi@FILLSTROKE#1#2{#1#2B }
```

color: uppercase are stroke colors, lowercase non-stroke (fill) colors PS, however, does not different between stroke and not-stroke colors

```
798 \def\atfi@SETRGBCOLORSTROKE{RG }
799 \def\atfi@SETRGBCOLORFILL{rg }
800 \def\atfi@SETGRAYSTROKE{G }
801 \def\atfi@SETGRAYFILL{g }
802 \def\atfi@SETCMYKCOLORSTROKE{K }
803 \def\atfi@SETCMYKCOLORFILL{k }
804 \def\atfi@RECTFILL{re f }
805 \def\atfi@RECTSTROKEFILL#1#2#3{#1#2#3re B }
806 \def\atfi@SETMITERLIMIT{M }
807 \def\atfi@SETFLAT{i }
808 \def\atfi@SETLINECAP{J }
809 \def\atfi@CURVETO{c }
810 \def\atfi@CURVETOv{v }
811 \def\atfi@CURVETOY{y }
812 \def\atfi@CLOSEPATH{h }
813 \def\atfi@SETLINEJOIN{j }
```

File embedding

```
814 \define@key{AtFi@file}{Size}{%
815   \edef\atfi@params{\atfi@params/Size #1}%
816 }
```

\atfi@embedfile

```
817 \def\atfi@embedfile#1{%
818   \ltx@ifundefined{atfi@fileobj@#1}{%
819     \begingroup
820     \let\atfi@params\ltx@empty
821     \expandafter\let\expandafter\atfi@temp
822       \csname atfi@file@#1\endcsname
823     \ifx\atfi@temp\ltx@empty
824       \let\atfi@temp\relax
825     \fi
826     \ifx\atfi@temp\relax
827       \atfi@pdftexdata{#1}%
828     \else
829       \edef\x{%
830         \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
831       }%
```

```

832     \x
833     \fi
834     \ifx\atfi@params\ltx@empty
835     \else
836         \edef\atfi@params{/Params<<\atfi@params>>}%
837     \fi
838     \immediate\pdfobj stream attr {%
839         /Type/EmbeddedFile%
840         \atfi@mimetype
841         \atfi@params
842     } file {#1}%
843     \expandafter
844     \xdef\csname atfi@fileobj@#1\endcsname{\the\pdfastobj}%
845 \endgroup
846 }{%
847     % file already embedded
848 }%
849 }

```

Annotation appearance

\atfi@xform input: \atfi@appearancebox, output: \atfi@appearanceobj

```

850 \def\atfi@xform{%
851     \immediate\pdfxform\atfi@appearancebox
852     \edef\atfi@appearanceobj{\the\pdflastxform}%
853 }

```

\atfi@xform@icon

```

854 \let\atfi@xform@icon\atfi@xform

```

\atfi@refxform

```

855 \def\atfi@refxform#1{%
856     \pdfrefxform#1\relax
857 }

```

File attachment annotation

\atfi@insert@file@annot

```

858 \def\atfi@insert@file@annot#1{%
859     \rule{0pt}{0pt}%
860     \ifatfi@appearance
861         \def\atfi@appearance@dict{%
862             /AP<<%
863                 /N \atfi@appearanceobj\space 0 R%
864                 /R \atfi@appearanceobj\space 0 R%
865                 /D \atfi@appearanceobj\space 0 R%
866             >>%
867         }%
868     \else
869         \let\atfi@appearance@dict\ltx@empty
870     \fi
871     \ltx@ifundefined{atfi@fsobj@#1}{%
872         \begingroup
873         \hypersetup{unicode=false}%
874         \atfi@pdfstringdef\atfi@file{#1}%
875         \immediate\pdfobj{%
876             <<%
877                 /Type/Filespec%
878                 /F(\atfi@file)%
879                 \ifx\atfi@ucfilespec\ltx@empty
880                 \else
881                     /UF(\atfi@ucfilespec)%

```

```

882         \fi
883         /EF<<%
884         /F \@nameuse{atfi@fileobj@#1} 0 R%
885         >>%
886         >>%
887     }%
888     \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
889     \the\pdflastobj
890     }%
891 \endgroup
892 }{%
893 }%
894 \pdfannot width \atfi@scale\atfi@appearancewidth
895             height \atfi@scale\atfi@appearanceheight
896             depth \atfi@scale\atfi@appearancedepth {%
897 /Subtype/FileAttachment%
898 \atfi@icon
899 \atfi@color@annot
900 \atfi@author
901 \atfi@date
902 \atfi@annotname
903 \atfi@description
904 \atfi@subject
905 \atfi@appearance@dict
906 /F \theatfi@flags
907 /FS \@nameuse{atfi@fsobj@#1} 0 R%
908 }%
909 \rule{0pt}{\atfi@appearanceheight}%
910 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
911 \rule{\atfi@appearancewidth}{0pt}%
912 }
913 </pdfTeX>

```

2.3 luatex

```

914 <*luatex>
915 \NeedsTeXFormat{LaTeX2e}
916 \ProvidesFile{atfi-luatex.def}%
917 [2024-01-18 v2.12 attachfile2 driver for luaTeX (HO)]%
918 \protected\def\atfi@literal          {\pdfextension literal}
919 \def\atfi@GSAVE{q }
920 \def\atfi@GRESTORE{Q }
921 \def\atfi@SETLINEWIDTH{w }
922 \def\atfi@LINETO{l }
923 \def\atfi@MOVETO{m }
924 \def\atfi@STROKE{S }
925 \def\atfi@FILL{f }
926 \def\atfi@FILLSTROKE#1#2{#1#2B }
927 \def\atfi@SETRGBCOLORSTROKE{RG }
928 \def\atfi@SETRGBCOLORFILL{rg }
929 \def\atfi@SETGRAYSTROKE{G }
930 \def\atfi@SETGRAYFILL{g }
931 \def\atfi@SETCMYKCOLORSTROKE{K }
932 \def\atfi@SETCMYKCOLORFILL{k }
933 \def\atfi@RECTFILL{re f }
934 \def\atfi@RECTSTROKEFILL#1#2#3{#1#2#3re B }
935 \def\atfi@SETMITERLIMIT{M }
936 \def\atfi@SETFLAT{i }
937 \def\atfi@SETLINECAP{J }
938 \def\atfi@CURVETO{c }
939 \def\atfi@CURVETOv{v }
940 \def\atfi@CURVETOY{y }

```

```

941 \def\atfi@CLOSEPATH{h }
942 \def\atfi@SETLINEJOIN{j }
943 \define@key{AtFi@file}{Size}{%
944   \edef\atfi@params{\atfi@params/Size #1}%
945 }
946 \def\atfi@embedfile#1{%
947   \ltx@ifundefined{atfi@fileobj@#1}{%
948     \begingroup
949     \let\atfi@params\ltx@empty
950     \expandafter\let\expandafter\atfi@temp
951       \csname atfi@file@#1\endcsname
952     \ifx\atfi@temp\ltx@empty
953       \let\atfi@temp\relax
954     \fi
955     \ifx\atfi@temp\relax
956       \atfi@pdftexdata{#1}%
957     \else
958       \edef\x{%
959         \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
960       }%
961       \x
962     \fi
963     \ifx\atfi@params\ltx@empty
964     \else
965       \edef\atfi@params{/Params<<\atfi@params>>}%
966     \fi
967     \immediate\pdfextension obj stream attr {%
968       /Type/EmbeddedFile%
969       \atfi@mimetype
970       \atfi@params
971     } file {#1}%
972     \expandafter
973     \xdef\csname atfi@fileobj@#1\endcsname{\the\numexpr\pdffeedback lastobj\relax}%
974   \endgroup
975 }{%
976   % file already embedded
977 }%
978 }
979 \def\atfi@xform{%
980   \immediate\saveboxresource\atfi@appearancebox
981   \edef\atfi@appearanceobj{\the\lastsavedboxresourceindex}%
982 }
983 \let\atfi@xform@icon\atfi@xform
984 \def\atfi@refxform#1{%
985   \useboxresource#1\relax
986 }
987 \def\atfi@insert@file@annot#1{%
988   \rule{0pt}{0pt}%
989   \ifatfi@appearance
990     \def\atfi@appearance@dict{%
991       /AP<<%
992         /N \atfi@appearanceobj\space 0 R%
993         /R \atfi@appearanceobj\space 0 R%
994         /D \atfi@appearanceobj\space 0 R%
995       >>%
996     }%
997   \else
998     \let\atfi@appearance@dict\ltx@empty
999   \fi
1000 \ltx@ifundefined{atfi@fsobj@#1}{%
1001   \begingroup
1002   \hypersetup{unicode=false}%

```



```

1003     \atfi@pdfstringdef\atfi@file{#1}%
1004     \immediate\pdfextension obj{%
1005         <<%
1006         /Type/Filespec%
1007         /F(\atfi@file)%
1008         \ifx\atfi@ucfilespec\ltx@empty
1009         \else
1010         /UF(\atfi@ucfilespec)%
1011         \fi
1012         /EF<<%
1013         /F \@nameuse{atfi@fileobj@#1} 0 R%
1014         >>%
1015     >>%
1016     }%
1017     \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
1018         \the\numexpr\pdffeedback lastobj\relax
1019     }%
1020     \endgroup
1021 }{%
1022 }%
1023 \pdfextension annot width \atfi@scale\atfi@appearancewidth
1024                             height \atfi@scale\atfi@appearanceheight
1025                             depth \atfi@scale\atfi@appearancedepth {%
1026     /Subtype/FileAttachment%
1027     \atfi@icon
1028     \atfi@color@annot
1029     \atfi@author
1030     \atfi@date
1031     \atfi@annotname
1032     \atfi@description
1033     \atfi@subject
1034     \atfi@appearance@dict
1035     /F \theatfi@flags
1036     /FS \@nameuse{atfi@fsobj@#1} 0 R%
1037 }%
1038 \rule{0pt}{\atfi@appearanceheight}%
1039 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1040 \rule{\atfi@appearancewidth}{0pt}%
1041 }
1042 </luatex>

```

2.3.1 dvips

```

1043 <*dvips>
1044 \NeedsTeXFormat{LaTeX2e}
1045 \ProvidesFile{atfi-dvips.def}%
1046 [2024-01-18 v2.12 attachfile2 driver for dvips (HO)]%

```

Macros for graphics data

\atfi@literal

```

1047 \def\atfi@literal#1{%
1048     \special{ps:atfi_dict begin{#1}atfi_?pdfmark end}%
1049 }

```

\atfi@header

```

1050 \def\atfi@header#1{%
1051     \special{! #1}%
1052 }

1053 \atfi@header{%
1054     userdict begin 20 dict dup /atfi_dict exch def end begin%
1055     /atfi_?pdfmark systemdict %
1056     dup/pdfmark known%

```

```

1057   {%
1058     /exec get def%
1059   }{%
1060     /pop get def%
1061   } ifelse%
1062   {%
1063     %
1064     % x y width height atfi_re ->
1065     languagelevel 2 ge {%
1066       /atfi_rectfill { rectfill } bind def%
1067       /atfi_rectstroke { rectstroke } bind def%
1068     }{%
1069       /atfi_rect {%
1070         /atfi_height exch def%
1071         /atfi_width exch def%
1072         /atfi_x exch def%
1073         /atfi_y exch def %
1074         newpath %
1075         atfi_x atfi_y moveto %
1076         atfi_x atfi_width add atfi_y lineto %
1077         atfi_x atfi_width add atfi_y atfi_height add lineto %
1078         atfi_x atfi_y atfi_height add lineto %
1079         closepath%
1080       } bind def%
1081       /atfi_rectfill {%
1082         atfi_rect fill%
1083       } bind def%
1084       /atfi_rectstroke {%
1085         atfi_rect stroke%
1086       } bind def%
1087     } ifelse%
1088     /atfi_curveto_v {%
1089       currentpoint 6 2 roll curveto%
1090     } bind def%
1091     /atfi_curveto_y {%
1092       2 copy curveto%
1093     } bind def%
1094     %
1095     % help macro for atfi_convert_date
1096     /atfi_two {%
1097       dup 10 lt%
1098       {%
1099         1 string cvs %
1100         exch 1 add exch%
1101       }{%
1102         2 string cvs%
1103       } ifelse %
1104       putinterval%
1105     } bind def%
1106     %
1107     % <seconds since 1970-01-01> atfi_convert_date -> (D:...Z)
1108     /atfi_convert_date {%
1109       dup%
1110       /atfi_days exch 3600 idiv 24 idiv def%
1111       % calc date part
1112       /atfi_year 1970 def%
1113     {%
1114       atfi_year 400 mod 0 eq %
1115       atfi_year 100 mod 0 ne %
1116       atfi_year 4 mod 0 eq %
1117       and or%
1118     }{366}{365} ifelse %

```

```

1119         dup atfi_days lt%
1120         {%
1121             atfi_days exch sub /atfi_days exch def%
1122             /atfi_year atfi_year 1 add def%
1123         }{%
1124             exit%
1125         } ifelse%
1126     } loop%
1127     /atfi_month 1 def%
1128     /atfi_days atfi_days 1 add def %
1129     31 atfi_days lt%
1130     {%
1131         atfi_days 31 sub /atfi_days exch def%
1132         /atfi_month atfi_month 1 add def %
1133         366 eq {29} {28} ifelse dup atfi_days lt%
1134         {%
1135             atfi_days exch sub /atfi_days exch def%
1136             /atfi_month atfi_month 1 add def %
1137             31 atfi_days lt%
1138             {%
1139                 atfi_days 31 sub /atfi_days exch def%
1140                 /atfi_month atfi_month 1 add def %
1141                 30 atfi_days lt%
1142                 {%
1143                     atfi_days 30 sub /atfi_days exch def%
1144                     /atfi_month atfi_month 1 add def %
1145                     31 atfi_days lt%
1146                     {%
1147                         atfi_days 31 sub /atfi_days exch def%
1148                         /atfi_month atfi_month 1 add def %
1149                         30 atfi_days lt%
1150                         {%
1151                             atfi_days 30 sub /atfi_days exch def%
1152                             /atfi_month atfi_month 1 add def %
1153                             31 atfi_days lt%
1154                             {%
1155                                 atfi_days 31 sub /atfi_days exch def%
1156                                 /atfi_month atfi_month 1 add def %
1157                                 31 atfi_days lt%
1158                                 {%
1159                                     atfi_days 31 sub /atfi_days exch def%
1160                                     /atfi_month atfi_month 1 add def %
1161                                     30 atfi_days lt%
1162                                     {%
1163                                         atfi_days 30 sub /atfi_days exch def%
1164                                         /atfi_month atfi_month 1 add def %
1165                                         31 atfi_days lt%
1166                                         {%
1167                                             atfi_days 31 sub /atfi_days exch def%
1168                                             /atfi_month atfi_month 1 add def %
1169                                             30 atfi_days lt%
1170                                             {%
1171                                                 atfi_days 30 sub /atfi_days exch def%
1172                                                 /atfi_month atfi_month 1 add def %
1173                                                 31 atfi_days lt%
1174                                                 {%
1175                                                     atfi_days 31 sub /atfi_days exch def%
1176                                                     /atfi_month atfi_month 1 add def%
1177                                                 } if%
1178                                             } if%
1179                                         } if%
1180                                     } if%

```

```

1181         } if%
1182         } if%
1183         } if%
1184         } if%
1185         } if%
1186         } if%
1187     } { pop } ifelse%
1188 }{ pop } ifelse %
1189 % calc time part
1190 3600 24 mul mod %
1191 dup 3600 idiv dup /atfi_hour exch def %
1192 3600 mul sub %
1193 dup 60 idiv dup /atfi_min exch def %
1194 60 mul sub %
1195 /atfi_sec exch def%
1196 (D:19700101000000Z)%
1197 dup 2 atfi_year 4 string cvs putinterval %
1198 dup 6 atfi_month atfi_two %
1199 dup 8 atfi_days atfi_two %
1200 dup 10 atfi_hour atfi_two %
1201 dup 12 atfi_min atfi_two %
1202 dup 14 atfi_sec atfi_two%
1203 } bind def %
1204 %
1205 % <filename> atfi_calc_checksum -> /Checksum <checksum>
1206 % or returns nothing, if MD5Encode is not given
1207 false %
1208 languagelevel 2 ge {%
1209     (MD5Encode)%
1210     { pop true or }%
1211     (MD5Encode) length string%
1212     /Filter %
1213     resourceforall%
1214 } if%
1215 {%
1216     /atfi_calc_checksum {%
1217         /atfi_checksum 16 string def%
1218         /atfi_file exch (r) file def%
1219         /atfi_md5sum atfi_checksum /MD5Encode filter def %
1220         % not too efficient to read and write byte by byte,
1221         % using a buffer is probably faster
1222         atfi_size {%
1223             atfi_file read%
1224             {%
1225                 atfi_md5sum exch write%
1226             } if%
1227         } repeat %
1228         atfi_md5sum closefile %
1229         atfi_file closefile%
1230         /Checksum atfi_checksum%
1231     } bind def%
1232 }{%
1233     /atfi_calc_checksum { pop } bind def%
1234 } ifelse%
1235 %
1236 /atfi_pttobp { 72.27 div 72 mul } bind def%
1237 /atfi_pdftodvipsx { 72.27 div Resolution mul } bind def%
1238 /atfi_pdftodvipsy { 72.27 div VResolution mul } bind def%
1239 %
1240 } atfi_?pdfmark %
1241 end%
1242 }

```

```

1243 \def\atfi@GSAVE{gsave }
1244 \def\atfi@GRESTORE{grestore }
1245 \def\atfi@SETLINEWIDTH{setlinewidth }
1246 \def\atfi@LINETO{lineto }
1247 \def\atfi@MOVETO{moveto }
1248 \def\atfi@STROKE{stroke }
1249 \def\atfi@FILL{fill }
1250 \def\atfi@FILLSTROKE#1#2{gsave #1 fill grestore #2 stroke }
1251 \def\atfi@SETRGBCOLORSTROKE{setrgbcolor }
1252 \def\atfi@SETRGBCOLORFILL{setrgbcolor }
1253 \def\atfi@SETGRAYSTROKE{setgray }
1254 \def\atfi@SETGRAYFILL{setgray }
1255 \def\atfi@SETCMYKCOLORSTROKE{setcmykcolor }
1256 \def\atfi@SETCMYKCOLORFILL{setcmykcolor }
1257 \def\atfi@RECTFILL{atfi_rectfill }
1258 \def\atfi@RECTSTROKEFILL#1#2#3{%
1259   #3%
1260   #1%
1261   gsave atfi_rectfill grestore %
1262   #2%
1263   #3%
1264   atfi_rectstroke %
1265   #1%
1266 }
1267 \def\atfi@SETMITERLIMIT{setmiterlimit }
1268 \def\atfi@SETFLAT{setflat }
1269 \def\atfi@SETLINECAP{setlinecap }
1270 \def\atfi@CURVETO{curveto }
1271 \def\atfi@CURVETOv{atfi_curveto_v }
1272 \def\atfi@CURVETOy{atfi_curveto_y }
1273 \def\atfi@CLOSEPATH{closepath }
1274 \def\atfi@SETLINEJOIN{setlinejoin }

1275 \newcounter{atfi@obj}
1276 \renewcommand*{\theatfi@obj}{%
1277   {atfi_obj_\number\c@atfi@obj}%
1278 }

```

File embedding Most values for Params dictionary found in the .atfi file have priority:

- Recalculation (md5sum, ...) is avoided.
- An external script has more possibilities than programming at PostScript level (operating system, getting the date and time values of the file with correct interpretation.
- Exception: status is called to test file existence, thus we get the value of size for free.

```

1279 \define@key{AtFi@file}{Size}{}

```

\atfi@embedfile

```

1280 \def\atfi@embedfile#1{%
1281   \ltx@ifundefined{atfi@fileobj@#1}{%
1282     \atfi@pdfstringdef\atfi@psfilename{#1}%
1283     \stepcounter{atfi@obj}%
1284     \expandafter\xdef\csname atfi@fileobj@#1\endcsname{\theatfi@obj}%
1285     \begingroup
1286       \let\atfi@params\ltx@empty
1287       \expandafter\let\expandafter\atfi@temp
1288         \csname atfi@file@#1\endcsname
1289       \ifx\atfi@temp\ltx@empty

```

```

1290     \let\atfi@temp\relax
1291     \fi
1292     \ifx\atfi@temp\relax
1293         \atfi@pdftexdata{#1}%
1294     \else
1295         \edef\x{%
1296             \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
1297         }%
1298         \x
1299     \fi
1300     \atfi@literal{%
1301         /atfi_filename(\atfi@psfilename)def %
1302         atfi_filename status%
1303     {%

```

ok: file found

save parameters of status command

```

1304         /atfi_created exch def%
1305         /atfi_referenced exch def%
1306         /atfi_size exch def %
1307         pop %

```

drop parameter "pages" (storage space), never needed

ghostscript:

```

    created:      stat.st_ctime
    referenced:   stat.st_mtime
    stat.st_ctime: interpretation depends on operating system:
                  * unix: inode change time (not interesting)
                  * win32: probably creation time
                    --> /CreationDate
    stat.st_mtime: modification time --> /ModDate
    time values are seconds since 1970-01-01, GMT

```

TODD: ghostscript offers "getenv" for getting the value of an environment variable. That could be used to detect windows and setting the /CreationDate entry.

TODD: how are these values interpreted by other distiller programs?

```

1308     [%
1309         /_objdef \theatfi@obj
1310         /type/stream%
1311     /OBJ pdfmark%
1312     [%
1313         \theatfi@obj
1314     <<%
1315         /Type/EmbeddedFile%
1316         \atfi@mimetype
1317         /Params%
1318     <<%
1319         \atfi@params
1320         %
1321         /Size atfi_size%
1322         %
1323         /product where%
1324     {%
1325         pop %

```

check for ghostscript

```

1326         product (Ghostscript) search%
1327         {%
1328         pop pop pop %

```

ghostscript is running

```

1329         \ifatfi@creationdate

```

```

1330         \else
1331             false % TODO: test for windows
1332         {%
1333             /CreationDate atfi_created atfi_convert_date%
1334         } if%
1335     \fi
1336     \ifatfi@moddate
1337     \else
1338         /ModDate atfi_referenced atfi_convert_date%
1339     \fi
1340 } if%
look for MD5Encode filter and calculate CheckSum
1341     } if %
1342     \ifatfi@checksum
1343     \else
1344         atfi_filename atfi_calc_checksum%
1345     \fi
1346     >>%
1347     >>%
1348     /PUT pdfmark%
1349     [%
1350         \theatfi@obj
1351         atfi_filename (r) file%
1352     /PUT pdfmark%
1353     [%
1354         \theatfi@obj
1355     /CLOSE pdfmark%
1356 }]{%
error: file not found
currently nothing is done
1357     } ifelse%
1358 }%
1359 \endgroup
1360 }{%
file already embedded
1361 }%
1362 }

```

Annotation appearance output: \atfi@appearanceobj
input: \atfi@appearancebox, \atfi@icon@icon

atfi@xfrom@icon

```

1363 \def\atfi@xform@icon{%
1364     \stepcounter{atfi@obj}%
1365     \edef\atfi@appearanceobj{\theatfi@obj}%
1366     \atfi@literal{%
1367         [%
1368             /_objdef \atfi@appearanceobj
1369             /BBox[%
1370                 0 %
1371                 0 %
1372                 \strip@pt\wd\atfi@appearancebox\space atfi_pttopb %
1373                 \strip@pt\dimexpr\dp\atfi@appearancebox
1374                 +\ht\atfi@appearancebox\relax\space atfi_pttopb%
1375             ]%
1376             /BP pdfmark %
1377             \csname atfi@acro\atfi@icon@icon @data\endcsname
1378             [%
1379             /EP pdfmark%
1380         }%
1381     }%

```

\atfi@xform output: \atfi@appearanceobj, input: \atfi@appearancebox

```
1382 \def\atfi@xform{%
1383   \stepcounter{atfi@obj}%
1384   \edef\atfi@appearanceobj{\theatfi@obj}%
1385   \begingroup
1386     \setbox\ltx@zero=\hbox{%
1387       \atfi@literal{%
1388         [%
1389           /_objdef \atfi@appearanceobj
1390           /BBox[%
1391             currentpoint %
1392             \strip@pt\dp\atfi@appearancebox\space sub %
1393             currentpoint %
1394             exch \strip@pt\wd\atfi@appearancebox\space add %
1395             exch \strip@pt\ht\atfi@appearancebox\space add%
1396           ]%
1397           /BP pdfmark %
1398           gsave %
1399           currentpoint %
1400           2 copy translate %
1401           72.27 Resolution div 72.27 VResolution div neg scale %
1402           exch neg exch neg translate%
1403         ]%
1404         \usebox{\atfi@appearancebox}%
1405         \atfi@literal{%
1406           grestore%
1407           [%
1408             /EP pdfmark%
1409           ]%
1410         ]%
1411         % do not allocate any space for xobject definition
1412         \dp\ltx@zero=\z@
1413         \ht\ltx@zero=\z@
1414         \wd\ltx@zero=\z@
1415         \mbox{\usebox\ltx@zero}%
1416       \endgroup
1417 }
```

\atfi@refxform

```
1418 \def\atfi@refxform#1{%
1419   \raisebox{-\atfi@appearancedepth}{%
1420     \atfi@literal{%
1421       gsave %
1422       currentpoint translate %
1423       Resolution 72 div VResolution neg 72 div scale%
1424       [#1 /SP pdfmark % hash-ok
1425       grestore%
1426     ]%
1427     \makebox[\atfi@appearancewidth]{}%
1428   }%
1429   \rule{0pt}{\atfi@appearanceheight}%
1430 }
```

File attachment annotation

\atfi@insert@file@annot

```
1431 \def\atfi@insert@file@annot#1{%
1432   \rule{0pt}{0pt}%
1433   \ifatfi@appearance
1434     \def\atfi@appearance@dict{%
1435       /AP<<%
1436       /N \atfi@appearanceobj
```



```

1437         /R \atfi@appearanceobj
1438         /D \atfi@appearanceobj
1439     >>%
1440 }%
1441 \else
1442     \let\atfi@appearance@dict\ltx@empty
1443 \fi
1444 \ltx@ifundefined{atfi@fsobj@#1}{%
1445     \stepcounter{atfi@obj}%
1446     \expandafter
1447     \xdef\csname atfi@fsobj@#1\endcsname{\theatfi@obj}%
1448     \begingroup
1449     \hypersetup{unicode=false}%
1450     \atfi@pdfstringdef\atfi@file{#1}%
1451     \atfi@literal{%
1452         [%
1453             /_objdef \theatfi@obj
1454             /type/dict%
1455             /OBJ pdfmark%
1456             [%
1457                 \theatfi@obj
1458                 <<%
1459                 /Type/Filespec%
1460                 /F(\atfi@file)%
1461                 \ifx\atfi@ucfilespec\ltx@empty
1462                 \else
1463                 /UF(\atfi@ucfilespec)%
1464                 \fi
1465                 /EF<<%
1466                 /F \csname atfi@fileobj@#1\endcsname
1467                 >>%
1468                 >>%
1469             /PUT pdfmark%
1470             ]%
1471         \endgroup
1472     }{%
1473     }%
1474     \atfi@literal{%
1475         [%
1476             /Subtype/FileAttachment%
1477             \atfi@icon
1478             \atfi@color@annot
1479             \atfi@author
1480             \atfi@date
1481             \atfi@annotname
1482             \atfi@description
1483             \atfi@subject
1484             \atfi@appearance@dict
1485             /F \theatfi@flags
1486             /FS \csname atfi@fsobj@#1\endcsname
1487             /Rect[%
1488                 currentpoint %
1489                 \strip@pt\dimexpr\atfi@scale\atfi@appearancedepth\relax
1490                 \space atfi_pdftodvipsy add %
1491                 currentpoint %
1492                 exch %
1493                 \strip@pt\dimexpr\atfi@scale\atfi@appearancewidth\relax
1494                 \space atfi_pdftodvipsx add %
1495                 exch %
1496                 \strip@pt\dimexpr\atfi@scale\atfi@appearanceheight\relax
1497                 \space atfi_pdftodvipsy sub %
1498             ]%

```

```

1499   /ANN pdfmark%
1500   }%
1501   \rule{0pt}{\atfi@appearanceheight}%
1502   \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1503   \rule{\atfi@appearancewidth}{0pt}%
1504 }
1505 </dvips>

```

2.3.2 dvipdfmx

```

1506 <*dvipdfmx>
1507 \NeedsTeXFormat{LaTeX2e}
1508 \ProvidesFile{atfi-dvipdfmx.def}%
1509 [2024-01-18 v2.12 attachfile2 driver for dvipdfmx/XeTeX (HO)]%

```

Macros for graphics data

`\atfi@special`

```

1510 \def\atfi@special#1{%
1511   \special{pdf:#1}%
1512 }

```

`\atfi@literal`

```

1513 \def\atfi@literal#1{%
1514   \atfi@special{content #1}%
1515 }

1516 \def\atfi@GSAVE{q }
1517 \def\atfi@GRESTORE{Q }
1518 \def\atfi@SETLINEWIDTH{w }
1519 \def\atfi@LINETO{l }
1520 \def\atfi@MOVETO{m }
1521 \def\atfi@STROKE{S }
1522 \def\atfi@FILL{f }
1523 \def\atfi@FILLSTROKE#1#2{#1#2B }
1524 \def\atfi@SETRGBCOLORSTROKE{RG }
1525 \def\atfi@SETRGBCOLORFILL{rg }
1526 \def\atfi@SETGRAYSTROKE{G }
1527 \def\atfi@SETGRAYFILL{g }
1528 \def\atfi@SETCMYKCOLORSTROKE{K }
1529 \def\atfi@SETCMYKCOLORFILL{k }
1530 \def\atfi@RECTFILL{re f }
1531 \def\atfi@RECTSTROKEFILL#1#2#3{#1#2#3re B }
1532 \def\atfi@SETMITERLIMIT{M }
1533 \def\atfi@SETFLAT{i }
1534 \def\atfi@SETLINECAP{J }
1535 \def\atfi@CURVETO{c }
1536 \def\atfi@CURVETOv{v }
1537 \def\atfi@CURVETOY{y }
1538 \def\atfi@CLOSEPATH{h }
1539 \def\atfi@SETLINEJOIN{j }

1540 \newcounter{atfi@obj}
1541 \renewcommand*{\theatfi@obj}{%
1542   @atfi_obj_\number\c@atfi@obj
1543 }

```

File embedding

```

1544 \define@key{AtFi@file}{Size}{%
1545   \edef\atfi@params{\atfi@params/Size #1}%
1546 }

```

\atfi@embedfile

```
1547 \def\atfi@embedfile#1{%
1548   \ltx@ifundefined{atfi@fileobj@#1}{%
1549     \stepcounter{atfi@obj}%
1550     \begingroup
1551     \let\atfi@params\ltx@empty
1552     \expandafter\let\expandafter\atfi@temp
1553       \csname atfi@file@#1\endcsname
1554     \ifx\atfi@temp\ltx@empty
1555       \let\atfi@temp\relax
1556     \fi
1557     \ifx\atfi@temp\relax
1558       \atfi@pdftexdata{#1}%
1559     \else
1560       \edef\x{%
1561         \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
1562       }%
1563       \x
1564     \fi
1565     \ifx\atfi@params\ltx@empty
1566     \else
1567       \edef\atfi@params{/Params<<\atfi@params>>}%
1568     \fi
1569     \edef\atfi@FILE{#1}%
1570     \filename@parse\atfi@FILE
1571     \ifx\filename@area\ltx@empty
1572       \edef\atfi@FILE{.\atfi@FILE}%
1573     \fi
1574     \EdefEscapeString\atfi@FILE{\atfi@FILE}%
1575     \atfi@special{fstream %
1576       \theatfi@obj
1577       (\atfi@FILE)%
1578       <<%
1579       /Type/EmbeddedFile%
1580       \atfi@mimetype
1581       \atfi@params
1582       >>%
1583     }%
1584     \atfi@special{close \theatfi@obj}%
1585     \expandafter
1586     \xdef\csname atfi@fileobj@#1\endcsname{\theatfi@obj}%
1587   \endgroup
1588 }{%
1589   % file already embedded
1590 }%
1591 }
```

Annotation appearance

\atfi@xform input: \atfi@appearancebox, output: \atfi@appearanceobj

```
1592 \def\atfi@xform{%
1593   \stepcounter{atfi@obj}%
1594   \smash{%
1595     \rlap{%
1596       \atfi@special{bobj \theatfi@obj\space
1597         width \the\wd\atfi@appearancebox\space
1598         height \the\ht\atfi@appearancebox\space
1599         depth \the\dp\atfi@appearancebox
1600       }%
1601       \usebox\atfi@appearancebox
1602     \atfi@special{exobj}%
1603   }%
```

```

1604 }%
1605 \edef\atfi@appearanceobj{\theatfi@obj}%
1606 }

```

\atfi@xform@icon

```

1607 \let\atfi@xform@icon\atfi@xform

```

\atfi@refxform

```

1608 \def\atfi@refxform#1{%
1609 \leavevmode
1610 \atfi@special{uxobj #1}%
1611 }

```

File attachment annotation

\atfi@insert@file@annot

```

1612 \def\atfi@insert@file@annot#1{%
1613 \rule{Opt}{Opt}%
1614 \ifatfi@appearance
1615 \def\atfi@appearance@dict{%
1616 /AP<<%
1617 /N \atfi@appearanceobj
1618 /R \atfi@appearanceobj
1619 /D \atfi@appearanceobj
1620 >>%
1621 }%
1622 \else
1623 \let\atfi@appearance@dict\ltx@empty
1624 \fi
1625 \ltx@ifundefined{atfi@fsobj@#1}{%
1626 \begingroup
1627 \ifxetex
1628 \let\atfi@temp\Hy@Warning
1629 \let\Hy@Warning\ltx@gobble
1630 \fi
1631 \Hy@unicodedefalse%
1632 \ifxetex
1633 \let\Hy@Warning\atfi@temp
1634 \fi
1635 \atfi@pdfstringdef\atfi@file{#1}%
1636 \stepcounter{atfi@obj}%
1637 \atfi@special{obj \theatfi@obj <<%
1638 /Type/Filespec%
1639 /F(\atfi@file)%
1640 \ifx\atfi@ucfilespec\ltx@empty
1641 \else
1642 /UF(\atfi@ucfilespec)%
1643 \fi
1644 /EF<<%
1645 /F \@nameuse{atfi@fileobj@#1}%
1646 >>%
1647 >>%
1648 }%
1649 \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
1650 \theatfi@obj
1651 }%
1652 \endgroup
1653 }{%
1654 }%
1655 \begingroup
1656 \dimen@=\atfi@scale\atfi@appearancewidth
1657 \edef\atfi@rule{width \the\dimen@}%

```

```

1658 \dimen@=\atfi@scale\atfi@appearanceheight
1659 \edef\atfi@rule{\atfi@rule\space height \the\dimen@}%
1660 \dimen@=\atfi@scale\atfi@appearancedepth
1661 \edef\atfi@rule{\atfi@rule\space depth \the\dimen@}%
1662 \atfi@special{ann \atfi@rule
1663 <<%
1664 /Subtype/FileAttachment%
1665 \atfi@icon
1666 \atfi@color@annot
1667 \atfi@author
1668 \atfi@date
1669 \atfi@annotname
1670 \atfi@description
1671 \atfi@subject
1672 \atfi@appearance@dict
1673 /F \theatfi@flags
1674 /FS \@nameuse{atfi@fsobj@#1}%
1675 >>%
1676 }%
1677 \endgroup
1678 \rule{0pt}{\atfi@appearanceheight}%
1679 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1680 \rule{\atfi@appearancewidth}{0pt}%
1681 }
1682 </dviptfm>

```

2.4 Perl script pdfatfi.pl

```

1683 <*pdfatfi>
1684 #!/usr/bin/env perl
1685 use strict;
1686 $^W=1; # turn warning on
1687 #
1688 # pdfatfi.pl
1689 #
1690 # Copyright (C) 2005-2010, 2012 Heiko Oberdiek.
1691 #
1692 # This work may be distributed and/or modified under the
1693 # conditions of the LaTeX Project Public License, either
1694 # version 1.3c of this license or (at your option) any later
1695 # version. This version of this license is in
1696 # https://www.latex-project.org/lppl/lppl-1-3c.txt
1697 # and the latest version of this license is in
1698 # https://www.latex-project.org/lppl.txt
1699 # and version 1.3 or later is part of all distributions of
1700 # LaTeX version 2005/12/01 or later.
1701 #
1702 # This work has the LPPL maintenance status "maintained".
1703 #
1704 # The Current Maintainers of this work are
1705 # Heiko Oberdiek and the Oberdiek Package Support Group
1706 # https://github.com/ho-tex/attachfile2/issues
1707 #
1708 # See file "attachfile2.pdf" for a list of files that belong to
1709 # this project.
1710 #
1711 # This file "pdfatfi.pl" may be renamed to "pdfatfi"
1712 # for installation purposes.
1713 #
1714 my $prj = 'pdfatfi';
1715 my $file = "$prj.pl";
1716 my $program = uc($file) if $file =~ /\w+/;

```

```

1717 my $version      = "2.9";
1718 my $date          = "2019/11/26";
1719 my $author        = "Heiko Oberdiek";
1720 my $copyright     = "Copyright (c) 2005-2010, 2012 by $author.";
1721 #
1722 # History:
1723 #   2005/05/21 v1.0: First release.
1724 #   2006/08/16 v2.2: Included in DTX file of attachfile2.dtx.
1725 #   2010/09/27 v2.6: Keys ModDateTZ and CreationDateTZ added.
1726 #   2016/05/16 v2.8: Option --version added.
1727 #   2019/11/24 v2.10: adapted version to attachfile2 version.
1728 #
1729
1730 use POSIX qw(strftime); # %z is used (GNU)
1731 use Digest::MD5;
1732
1733 ### program identification
1734 my $title = "$program $version, $date - $copyright\n";
1735
1736 ### error strings
1737 my $Error = "!!! Error: "; # error prefix
1738
1739 ### variables
1740 my $atffile;
1741
1742 ### option variables
1743 my @bool = ("false", "true");
1744 $::opt_help      = 0;
1745 $::opt_quiet     = 0;
1746 $::opt_debug     = 0;
1747 $::opt_verbose   = 0;
1748 $::opt_version   = 0;
1749
1750 my $usage = <<"END_OF_USAGE";
1751 ${title}Syntax:  \L$program\E [options] <file[.atfi]>
1752 Function: Help program for LaTeX package "attachfile2".
1753 Options:                (defaults:)
1754 --help                  print usage
1755 --version               print version number
1756 --(no)quiet            suppress messages          ($bool[$::opt_quiet])
1757 --(no)verbose          verbose printing          ($bool[$::opt_verbose])
1758 --(no)debug            debug informations        ($bool[$::opt_debug])
1759 END_OF_USAGE
1760
1761 ### process options
1762 my @OrgArgv = @ARGV;
1763 use Getopt::Long;
1764 GetOptions(
1765   "help!",
1766   "version!",
1767   "quiet!",
1768   "debug!",
1769   "verbose!",
1770 ) or die $usage;
1771 !$::opt_help or die $usage;
1772 if ($::opt_version) {
1773   print "$prj $date v$version\n";
1774   exit(0);
1775 }
1776 @ARGV == 1 or die "$usage$Error Missing jobname!\n";
1777
1778 $::opt_quiet = 0 if $::opt_verbose;

```

```

1779
1780 print $title unless $::opt_quiet;
1781
1782 ### get jobname
1783 $atffile = $ARGV[0];
1784 if (!-f $atffile && -f "$atffile.atfi") {
1785     $atffile .= ".atfi";
1786 }
1787 -f $atffile or die "$Error File '$atffile' not found!\n";
1788
1789 print "* job file      = $atffile\n" if $::opt_verbose;
1790
1791 if ($::opt_debug) {
1792     print <<"END_DEB";
1793     * OSNAME: $^O
1794     * PERL_VERSION: $]
1795     * ARGV: @OrgArgv
1796     END_DEB
1797 }
1798
1799 my $tmpfile = $atffile . ".tmp";
1800
1801 my $timezone = strftime "%z", localtime;
1802
1803 sub gettz ($) {
1804     my $time = shift;
1805     my $tz = strftime "%z", localtime($time);
1806     return '' unless $tz;
1807     return 'Z' if $tz eq '+0000';
1808     $tz =~ s/^( [+ - ] \d \d ) ( \d \d ) $ / $1 '$2' /;
1809     return $tz;
1810 }
1811
1812 open(IN, $atffile) or die "$Error Cannot open '$atffile'!\n";
1813 open(OUT, ">$tmpfile") or die "$Error Cannot write '$tmpfile'!\n";
1814
1815 while(<IN>) {
1816     # timezone
1817     if (s/^(\\attachfile@timezone\{.*\})$/$1$timezone$2/) {
1818         print "* timezone      = $timezone\n" if $::opt_verbose;
1819     }
1820
1821     # file entry
1822     if (/^(\\attachfile@file\[ [^\ ] * \] \{ ( . * ) \} $ /) {
1823         my $hexfile = $1;
1824         my $file = pack('H*', $hexfile);
1825         my @s = stat($file);
1826         if (@s == 0) {
1827             print "!!! Warning: File '$file' not found!\n";
1828         }
1829         else {
1830             my $size = $s[7];
1831             my $mtime = $s[9];
1832             my $ctime = $s[10]; # inode change time
1833
1834             my ($sec, $min, $hour, $mday, $mon, $year) =
1835                 localtime($mtime);
1836             my $moddate = sprintf("%04d%02d%02d%02d%02d",
1837                 $year + 1900, $mon + 1, $mday,
1838                 $hour, $min, $sec);
1839             my $moddatetz = 'D:' . $moddate . gettz($mtime);
1840

```

```

1841     # Manual page "perlport" says that "ctime" is creation
1842     # time instead of inode change time for "Win32" and
1843     # "Mac OS", but it is unsupported for "Mac OS X".
1844     my $creationdate = "";
1845     my $creationdatetz = "";
1846     if ($^O eq 'MSWin32') { # cygwin?
1847         ($sec, $min, $hour, $mday, $mon, $year) =
1848             localtime($ctime);
1849         $creationdate = sprintf("%04d%02d%02d%02d%02d",
1850             $year + 1900, $mon + 1, $mday,
1851             $hour, $min, $sec);
1852         $creationdatetz =
1853             'D:' . $creationdate . gettz($ctime);
1854     }
1855
1856     # md5 checksum
1857     my $checksum = "";
1858     my $ctx = Digest::MD5->new;
1859     if (open(FILE, $file)) {
1860         $ctx->addfile(*FILE);
1861         $checksum = $ctx->hexdigest;
1862         close(FILE);
1863     }
1864     else {
1865         print "!!! Warning: File '$file' cannot be read,"
1866             . " dropping checksum!\n";
1867     }
1868
1869     $_ = "\\attachfile\@file["
1870         . "ModDateTZ=$moddatetz"
1871         . ",Size=$size"
1872         . ($checksum ? ",Checksum=$checksum" : "")
1873         . ($creationdatetz ?
1874             ",CreationDateTZ=$creationdatetz" :
1875             ($creationdate ?
1876                 ",CreationDate=$creationdate" : ""))
1877         . "]{hexfile}\n";
1878     if ($::opt_verbose) {
1879         print "* file entry   = $file\n";
1880         print "  size           = $size\n";
1881         print "  moddate          = $moddate\n";
1882         print "  creationdate     = $creationdate\n";
1883         print "    if $creationdate;
1884         print "  checksum        = $checksum\n" if $checksum;
1885     }
1886 }
1887 }
1888
1889 print OUT $_;
1890 }
1891
1892 close(IN);
1893 close(OUT);
1894
1895 unlink($atffile) or die "$Error Cannot delete old '$atffile'!\n";
1896 rename $tmpfile, $atffile
1897     or die "$Error Cannot move '$tmpfile' to '$atffile'!\n";
1898
1899 print "*** ready. ***\n" unless $::opt_quiet;
1900
1901 __END__
1902 </pdfatfi>

```



```

1903 ⟨*pdfatfiman⟩
1904 .TH pdfatfi 1 "2019-11-24"
1905 .SH NAME
1906 pdfatfi \- Help program for the LaTeX package attachfile2.
1907 .SH SYNOPSIS
1908 pdfatfi <command> [<options>] <file[.atfi]>]
1909 .SH DESCRIPTION
1910 Helper program for the LaTeX package attachfile2.
1911
1912 This package also tries to get and add meta information data,
1913 such as file size, file date, checksum, ....
1914
1915 The script pdfatfi.pl is provided for use with old versions of
1916 pdfTeX and XeTeX that do not provide access
1917 to file metadata.
1918
1919 The use of the Perl script is not mandatory. This data can be shown
1920 by PDF viewers, but they are not a requirement of the PDF specification.
1921
1922 Package attachfile2 and the Perl script communicate
1923 via an auxiliary file with file extension .atfi. The script
1924 is used between two LaTeX runs and updates the auxiliary file.
1925
1926 .nf
1927 latex test
1928 pdfatfi test
1929 latex test
1930 dvips test
1931 ps2pdf test.ps test.pdf
1932 .fi
1933
1934 .SH OPTIONS
1935 Various options are supported
1936 .IP --help
1937 Show help text.
1938 .IP --version
1939 Print version number
1940 .IP --(no)quiet
1941 Suppress/don't suppress messages
1942 .IP --(no)verbose
1943 Verbose (not verbose) printing.
1944 .IP --(no)debug
1945 Debug information printed (not printed)
1946 .SH BUGS
1947 Please log issues on the GitHub homepage:
1948 .br
1949 https://github.com/ho-tex/attachfile2/issues.
1950 .SH AUTHOR
1951 Heiko Oberdiek (ho-tex@tug.org)
1952 .SH SEE ALSO
1953 See attachfile2.pdf for more details.
1954 ⟨/pdfatfiman⟩

```

3 Installation

3.1 Download

Package. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/attachfile2/attachfile2.dtx](#) The source file.

[CTAN:macros/latex/contrib/attachfile2/attachfile2.pdf](#) Documentation.

¹[CTAN:pkg/attachfile2](#)

Bundle. All the packages of the bundle ‘attachfile2’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:install/macros/latex/contrib/attachfile2.tds.zip](#)

TDS refers to the standard “A Directory Structure for T_EX Files” ([CTAN:pkg/tds](#)). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the `attachfile2.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip attachfile2.tds.zip -d ~/texmf
```

Script installation. Check the directory `TDS:scripts/attachfile2/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/attachfile2/pdfatfi.pl
cp scripts/attachfile2/pdfatfi.pl /usr/local/bin/
```

3.3 Package installation

Unpacking. The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain T_EX:

```
tex attachfile2.dtx
```

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
attachfile2.sty → tex/latex/attachfile2/attachfile2.sty
atfi-dvips.def → tex/latex/attachfile2/atfi-dvips.def
atfi-pdftex.def → tex/latex/attachfile2/atfi-pdftex.def
atfi-dvipdfmx.def → tex/latex/attachfile2/atfi-dvipdfmx.def
pdfatfi.pl → scripts/attachfile2/pdfatfi.pl
attachfile2.pdf → doc/latex/attachfile2/attachfile2.pdf
attachfile2.dtx → source/latex/attachfile2/attachfile2.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`’s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

3.4 Refresh file name databases

If your T_EX distribution (T_EX Live, MiK_TE_X, ...) relies on file name databases, you must refresh these. For example, T_EX Live users run `texhash` or `mktexlsr`.

3.5 Script installation

This package comes with a Perl script `pdfatfi.pl`. Install it somewhere so that it is executed, when it is called as `pdfatfi` on the command line. Example for installing it under Linux:

```
cp pdfatfi.pl /usr/local/bin/pdfatfi
chmod +x /usr/local/bin/pdfatfi
```

3.6 Some details for the interested

Unpacking with \LaTeX . The `.dtx` chooses its action depending on the format:

plain \TeX : Run `docstrip` and extract the files.

\LaTeX : Generate the documentation.

If you insist on using \LaTeX for `docstrip` (really, `docstrip` does not need \LaTeX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{attachfile2.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with `pdf \LaTeX` :

```
pdflatex attachfile2.dtx
makeindex -s gind.ist attachfile2.idx
pdflatex attachfile2.dtx
makeindex -s gind.ist attachfile2.idx
pdflatex attachfile2.dtx
```

4 References

- [1] Scott Pakin: *The attachfile package*; 2005/02/20 v1.2; [CTAN:pkg/attachfile](#).
- [2] Heiko Oberdiek: *The embedfile package*; 2006/08/16 v1.0; [CTAN:pkg/embedfile](#).
- [3] Adobe Systems Incorporated: *PDF Reference, Version 1.7*,
- [4] Network Working Group: RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*, November 1996; <http://www.rfc-editor.org/>.
- [5] IANA (Internet Assigned Numbers Authority): *MIME Media Types*, May 2006; <http://www.iana.org/assignments/media-types/>.

5 History

[2005/02/23 v2.0]

- New options: `draft/final`.
- New option `scale` for scaling the annotation rectangle.
- Supported driver options: `pdftex`, `dvips`.
- Configuration file `'attachfile.cfg'` supported.
- Dependency of package `calc` dropped.
- ϵ - \TeX (`\numexpr`, `\dimexpr`) used.
- New auxiliary file `\jobname.atfi` to get data unavailable by (pdf) \TeX , controlled by `\nofiles` and option `nofiles`.
- Use of package `prokvopt` (never released).

[2005/10/07 v2.1]

- Option `annotname` for naming annotations (this name can be used for embedded go-to actions).

[2006/08/17 v2.2]

- Use of package `kvoptions` instead of `prokvopt`.
- DTX framework.
- A little documentation.

[2007/04/11 v2.3]

- Line ends sanitized.

[2008/07/29 v2.4]

- Improved color support. Option `color` now understands the usual color specifications if package `xcolor` is loaded.

[2009/09/25 v2.5]

- New option `ucfilespec` (since PDF 1.7).
- Fix: `hyperref`'s option `unicode` is disabled for file names except for `ucfilespec`.

[2010/09/27 v2.6]

- Support for `dvipdfmx` added, new option `dvipdfmx` and alias option `xetex`. (Thanks Will Robertson for pointing to `\special{pdf:fstream ...}`).
- New option `driverfallback`.
- All options except driver options are local options, that means they are ignored as global options.
- Some options are disabled after they are used (driver options, `draft`, `final`, `nofiles`).
- Driver files renamed from `atfi<driver>.def` to `atfi-<driver>.def`.
- Bug fix: `\textattachfile` now adds an entry into the `.atfi` file.
- Program `pdfatfi.pl` sets modification and creation time with time zone, because the time zone offset might differ with the file date.

[2012/04/18 v2.7]

- Program `pdfatfi.pl`: Option `version` added.

[2016/05/16 v2.8]

- Documentation updates.

[2019/07/24 v2.9]

- Added `luatex` driver (UF, issue 69)

[2019/11/24 v2.10]

- Fix perl header comment
- Address perl warning
Scalar value @s[7] better written as \$s[7] at pdfatfi.pl line 147
- use CTAN:pkg/iftex not CTAN:pkg/ifpdf, CTAN:pkg/ifxetex,
CTAN:pkg/ifluatex.

[2019/11/26 v2.11]

- Add man file for pdfatfi.

[2024-01-18 v2.12]

- Doc corrected for issue 7

6 Index

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