

The pdfcomment package

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1 Implementation

```
1 <*package>

2 \ProvidesExplPackage
3 {pdfcomment}
4 {2026-06-12}
5 {3.0a}
6 {PDF annotations and comments}
7 \IfPDFManagementActiveF{\RequirePackageWithOptions{pdfcomment-2018-11-01}}
8 \IfPDFManagementActiveF{\endinput}
9 \RequirePackage{hyperref}
```

1.1 Variables

Default values. The commands use goptd.

```
10 \gdef\pc@goptd@subject{}
11 \gdef\pc@goptd@color{0~0~1}
12 \gdef\pc@goptd@author{}
13 \gdef\pc@goptd@deadline{}
14 \gdef\pc@goptd@icon{Comment}
15 \gdef\pc@goptd@open{false}
16 \gdef\pc@goptd@hspace{0pt}
17 \gdef\pc@goptd@voffset{0pt}
18 \gdef\pc@goptd@hoffset{0pt}
19 \gdef\pc@goptd@width{0pt}
20 \gdef\pc@goptd@height{0pt}
21 \gdef\pc@goptd@depth{0pt}
22 \gdef\pc@goptd@opacity{1.0}
23 \gdef\pc@goptd@markup{Highlight}
24 \gdef\pc@goptd@font{Helv}
25 \gdef\pc@goptd@fontsize{12bp}
26 \gdef\pc@goptd@fontcolor{0.0~0.0~0.0}
27 \gdef\pc@goptd@justification{0}
28 \gdef\pc@goptd@borderstyle{S}
29 \gdef\pc@goptd@linewidth{1bp}
30 \gdef\pc@goptd@dashstyle{3~3}
31 \gdef\pc@goptd@bse{S}
```

*Initial implementation done by Josef Kleber

```

32 \gdef\pc@goptd@bsei{1}
33 \gdef\pc@goptd@type{freetext}
34 \gdef\pc@goptd@lineend{/OpenArrow}
35 \gdef\pc@goptd@linebegin{/None}
36 \gdef\pc@goptd@icolor{1~1~0}
37 \gdef\pc@goptd@line{50~50~300~600}
38 \gdef\pc@goptd@caption{inline}
39 \gdef\pc@goptd@captionhoffset{0pt}
40 \gdef\pc@goptd@captionvoffset{0pt}
41 \gdef\pc@goptd@linesep{0.5cm}
42 \gdef\pc@goptd@disable{false}
43 \gdef\pc@goptd@id{}
44 \gdef\pc@goptd@date{\c_sys_timestamp_str}
45 \gdef\pc@goptd@timezone{+00'00'}
46
47 \gdef\pc@hyenc@fontcolor{0.0~0.0~0.0}

```

Variables for local command options

```

48 \def\pc@lopt@subject{}
49 \def\pc@lopt@color{}
50 \def\pc@lopt@author{}
51 \def\pc@lopt@deadline{}
52 \def\pc@lopt@icon{}
53 \def\pc@lopt@open{}
54 \def\pc@lopt@hspace{}
55 \def\pc@lopt@voffset{}
56 \def\pc@lopt@hoffset{}
57 \def\pc@lopt@width{}
58 \def\pc@lopt@height{}
59 \def\pc@lopt@depth{}
60 \def\pc@lopt@opacity{}
61 \def\pc@lopt@font{}
62 \def\pc@lopt@fontsize{}
63 \def\pc@lopt@fontcolor{}
64 \def\pc@lopt@justification{}
65 \def\pc@lopt@borderstyle{}
66 \def\pc@lopt@linewidth{}
67 \def\pc@lopt@dashstyle{}
68 \def\pc@lopt@bse{}
69 \def\pc@lopt@bsei{}
70 \def\pc@lopt@type{}
71 \def\pc@lopt@lineend{}
72 \def\pc@lopt@linebegin{}
73 \def\pc@lopt@icolor{}
74 \def\pc@lopt@line{}
75 \def\pc@lopt@caption{}
76 \def\pc@lopt@captionhoffset{}
77 \def\pc@lopt@captionvoffset{}
78 \def\pc@lopt@linesep{}
79 \def\pc@lopt@mathstyle{}
80 \def\pc@lopt@disable{}
81 \def\pc@lopt@id{}
82 \def\pc@lopt@date{}
83 \def\pc@lopt@replyto{}

```

```

84 \def\pc@lopt@timezone{}
85 \def\pc@lopt@subtype{/Text}

```

This can probably go at some time.

```

86 \gdef\pc@lopt@c{}
87 \gdef\pc@lopt@ic{}
88 \gdef\pc@lopt@cdate{}
89 \gdef\pc@lopt@l{}
90 \gdef\pc@lopt@le{}
91 \gdef\pc@lopt@cap{}
92 \gdef\pc@lopt@cp{}
93 \gdef\pc@lopt@co{}

```

Booleans

```

94 \newif\ifpc@gopt@final\pc@gopt@finalfalse
95 \newif\ifpc@lopt@disable\pc@lopt@disablefalse
96 \bool_new:N \@@_lopt_printSOfinal_bool
97 \newif\ifpc@annot@samepage\pc@annot@samepagetrue
98 \newif\ifpc@annot@secondpage\pc@annot@secondpagefalse
99 \newif\ifpc@ignorespaces\pc@ignorespacesfalse
100 \newif\ifpc@firstcolumn\pc@firstcolumntrue
101 \newif\ifpc@Sfirstcolumn\pc@Sfirstcolumntrue
102 \newif\ifpc@Efirstcolumn\pc@Efirstcolumntrue

```

A few counter

```

103 \newcounter{pc@count@i}
104 \newcounter{pc@count@ii}
105 \newcounter{pc@count@iii}
106 \newcounter{pc@count@iv}

```

Temporary boxes. TODO change names

```

107 \newbox\pc@mathannot@box%
108 \newbox\pc@nullbox%

```

Temporary lengths.

```

109 \newlength{\pc@dima}
110 \newlength{\pc@dimb}

```

Other lengths.

```

111 \newlength{\pc@Sposx}%
112 \newlength{\pc@Sposy}%
113 \newlength{\pc@Eposx}%
114 \newlength{\pc@Eposy}%
115 \newlength{\pc@column}%
116 \newlength{\pc@box@width}%
117 \newlength{\pc@box@height}%
118 \newlength{\pc@box@depth}%

```

Variables to hold the coordinate of the QuadPoints

```

119 \newcommand{\pc@x@one}{}%
120 \newcommand{\pc@x@two}{}%
121 \newcommand{\pc@x@three}{}%
122 \newcommand{\pc@x@four}{}%
123 \newcommand{\pc@y@one}{}%

```

```

124 \newcommand{\pc@y@two}{}%
125 \newcommand{\pc@y@three}{}%
126 \newcommand{\pc@y@four}{}%
127 %
128 \newcommand{\pc@x@left@text}{}%
129 \newcommand{\pc@x@right@text}{}%
130 \newcommand{\pc@y@top@text}{}%
131 \newcommand{\pc@y@bottom@text}{}%
132 %
133 \gdef\pc@version{}%
134 \gdef\pc@collect@PDFOBJID{}%
135 %
136 \newcommand{\pc@raggedleftmarginnote}{\centering}%
137 \newcommand{\pc@raggedrightmarginnote}{\centering}%

```

1.2 List of pdfcomments

```

138 \newcommand{\lpcname}{List~of~pdfcomments}%
139 \gdef\pc@lpc@format{\pc@lopt@author\ -- \pc@lopt@subject}%
140 \gdef\pc@lopt@liststyle{AuthorSubject}%
141 %

```

1.3 Key definitions

```

142 \keys_define:nn{pdfcomment}
143 {
144   avatar.code:n =
145   {
146     \cs_if_exist_use:cF { pc@avatar@#1 }
147     {
148       \PackageWarning{pdfcomment}{Unknown~avatar~ #1\MessageBreak%
149       skip~assignment}%
150     }
151   }
152 }
153
154 \keys_define:nn{pdfcomment}
155 {
156   style.code:n =
157   {
158     \cs_if_exist_use:cF { pc@style@#1 }
159     {
160       \PackageWarning{pdfcomment}{Unknown~style~ #1\MessageBreak%
161       skip~assignment}%
162     }
163   }
164 }
165
166 \keys_define:nn{pdfcomment}
167 {
168   ,subject .tl_set:N = \pc@lopt@subject
169   ,subject .initial:o = \pc@goptd@subject
170 }
171

```

```

172 \keys_define:nn{pdfcomment}
173 {
174   ,color .code:n =
175   {
176     \tl_if_blank:eTF {#1}
177     {\tl_set:Nn\pc@lopt@color{}}
178     {
179       \HyColor@XZeroOneThreeFour{#1}{\pc@lopt@color}{pdfcomment}{color}
180       \tl_set:Nc \pc@lopt@color {[\pc@lopt@color]}
181     }
182   }
183   ,color .initial:o = \pc@goptd@color
184 }
185
186 \keys_define:nn{pdfcomment}
187 {
188   ,author .tl_set:N = \pc@lopt@author
189   ,author .initial:o = \pc@goptd@author
190 }
191
192
193 \keys_define:nn{pdfcomment}
194 {
195   ,deadline .tl_set:N = \pc@lopt@deadline
196   ,deadline .initial:o = \pc@goptd@deadline
197 }
198
199 \keys_define:nn{pdfcomment}
200 {
201   ,icon.code:n = {\tl_set:Nn \pc@lopt@icon {/#1}}
202   ,icon.initial:o = \pc@goptd@icon
203 }
204
205 \keys_define:nn{pdfcomment}
206 {
207   ,open .choice:
208   ,open/true .code:n = \tl_set:Nn \pc@lopt@open{true}
209   ,open/false.code:n = \tl_set:Nn \pc@lopt@open{false}
210   ,open.default:n = true
211   ,open.initial:o = \pc@goptd@open
212 }
213
214 \keys_define:nn{pdfcomment}
215 {
216   ,hspace .tl_set:N = \pc@lopt@hspace
217   ,hspace .value_required:n = true
218   ,hspace .initial:o = \pc@goptd@hspace
219 }
220
221 \keys_define:nn{pdfcomment}
222 {
223   ,voffset .tl_set:N = \pc@lopt@voffset
224   ,voffset .value_required:n = true
225   ,voffset .initial:o = \pc@goptd@voffset

```

```

226 }
227
228 \keys_define:nn{pdfcomment}
229 {
230   ,hoffset .tl_set:N = \pc@lopt@hoffset
231   ,hoffset .value_required:n = true
232   ,hoffset .initial:o = \pc@goptd@hoffset
233 }
234
235
236 \keys_define:nn{pdfcomment}
237 {
238   ,width .tl_set:N = \pc@lopt@width
239   ,width .value_required:n = true
240   ,width .initial:o = \pc@goptd@width
241 }
242
243 \keys_define:nn{pdfcomment}
244 {
245   ,height .tl_set:N = \pc@lopt@height
246   ,height .value_required:n = true
247   ,height .initial:o = \pc@goptd@height
248 }
249
250 \keys_define:nn{pdfcomment}
251 {
252   ,depth .tl_set:N = \pc@lopt@depth
253   ,depth .value_required:n = true
254   ,depth .initial:o = \pc@goptd@depth
255 }
256
257 \keys_define:nn{pdfcomment}
258 {
259   ,opacity .tl_set:N = \pc@lopt@opacity
260   ,opacity .value_required:n = true,
261   ,opacity .initial:o = \pc@goptd@opacity
262 }
263
264 \keys_define:nn{pdfcomment}
265 {
266   ,markup .choices:nn =
267     {Highlight,Underline,Squiggly,StrikeOut}
268     {
269       \tl_set:Nn\pc@lopt@subtype{/#1}
270     }
271   ,markup .initial:o = \pc@goptd@markup
272 }
273
274 \keys_define:nn{pdfcomment}
275 {
276   ,font .tl_set:N = \pc@lopt@font
277   ,font .value_required:n = true
278   ,font .initial:o = \pc@goptd@font
279 }

```

```

280
281 \keys_define:nn{pdfcomment}
282 {
283   ,fontsize .code:n = \tl_set:Nn \pc@lopt@fontsize {\pc@pttobp{#1}}
284   ,fontsize .value_required:n = true
285   ,fontsize .initial:o = \pc@goptd@fontsize
286 }
287
288 \keys_define:nn{pdfcomment}
289 {
290   ,fontcolor .code:n =
291   {
292     \tl_if_blank:eTF {#1}
293     {\tl_set:Nn\pc@lopt@fontcolor{}}
294     {
295       \HyColor@XZeroOneThreeFour{#1}{\pc@hyenc@fontcolor}{pdfcomment}{color}
296     }
297   }
298   ,fontcolor .value_required:n = true
299   ,fontcolor .initial:o = \pc@goptd@fontcolor
300 }
301
302 \keys_define:nn{pdfcomment}
303 {
304   ,justification .choices:nn =
305   {left,center,right}
306   {\tl_set:Nn\pc@lopt@justification{\int_eval:n{\l_keys_choice_int-1}}},
307   ,justification .value_required:n = true,
308   ,justification .initial:n = left %!!!default command can not used
309 }
310
311
312 \keys_define:nn{pdfcomment}
313 {
314   ,borderstyle .choice:
315   ,borderstyle/solid .code:n = \tl_set:Nn \pc@lopt@borderstyle {S}
316   ,borderstyle/dashed.code:n = \tl_set:Nn \pc@lopt@borderstyle {D}
317   ,borderstyle .initial:n = solid %default command can not used
318 }
319
320 \keys_define:nn{pdfcomment}
321 {
322   ,dashstyle .tl_set:N = \pc@lopt@dashstyle
323   ,dashstyle .value_required:n = true
324   ,dashstyle .initial:o = \pc@goptd@dashstyle
325 }
326
327 \keys_define:nn{pdfcomment}
328 {
329   ,linewidth .code:n = {\tl_set:Nn\pc@lopt@linewidth {\pc@pttobp{#1}}}
330   ,linewidth .value_required:n = true
331   ,linewidth .initial:o = \pc@goptd@linewidth
332 }
333

```

```

334 \keys_define:nn{pdfcomment}
335 {
336   ,bse .choice:
337   ,bse/none .code:n = {\tl_set:Nn\pc@lopt@bse{S}}
338   ,bse/cloudy.code:n = {\tl_set:Nn\pc@lopt@bse{C}}
339   ,bse .initial:n = none
340 }
341
342 \keys_define:nn{pdfcomment}
343 {
344   ,bsei .tl_set:N = \pc@lopt@bsei
345   ,bsei .value_required:n = true
346   ,bsei .initial:o = \pc@goptd@bsei
347 }
348
349 \keys_define:nn{pdfcomment}
350 {
351   ,type.choice:
352   ,type/freetext .code:n = \tl_set:Nn\pc@lopt@type{}
353   ,type/callout .code:n = \tl_set:Nn\pc@lopt@type{/FreeTextCallout}
354   ,type/typewriter .code:n = \tl_set:Nn\pc@lopt@type{/FreeTextTypewriter}
355   ,type/line .code:n = \tl_set:Nn\pc@lopt@type{/Line}\tl_set:Nn\pc@lopt@subtype{/Line}
356   ,type/polyline .code:n = \tl_set:Nn\pc@lopt@type{/PolyLine}\tl_set:Nn\pc@lopt@subtype{/PolyLine}
357   ,type/polygon .code:n = \tl_set:Nn\pc@lopt@type{/Polygon}\tl_set:Nn\pc@lopt@subtype{/Polygon}
358   ,type .initial:n = freetext
359 }
360
361
362 \keys_define:nn{pdfcomment}
363 {
364   ,lineend .tl_set:N = \pc@lopt@lineend
365   ,lineend .value_required:n = true
366   ,lineend .initial:o = \pc@goptd@lineend
367 }
368
369 \keys_define:nn{pdfcomment}
370 {
371   ,linebegin .tl_set:N = \pc@lopt@linebegin
372   ,linebegin .value_required:n = true
373   ,linebegin .initial:o = \pc@goptd@linebegin
374 }
375
376 \keys_define:nn{pdfcomment}
377 {
378   ,icolor .code:n =
379   {
380     \tl_if_blank:eTF {#1}
381     {\tl_set:Nn\pc@lopt@icolor{}}
382     {
383       \HyColor@XZeroOneThreeFour{#1}{\pc@lopt@icolor}{pdfcomment}{color}
384       \tl_set:Nn \pc@lopt@icolor {\pc@lopt@icolor}
385     }
386   }
387   ,icolor .value_required:n = true

```



```

388 ,icolor .initial:o = \pc@goptd@icolor
389 }
390
391 \keys_define:nn{pdfcomment}
392 {
393   ,caption .choice:
394   ,caption/none .code:n = \tl_set:Nn \pc@lopt@caption{none}
395   ,caption/inline.code:n = \tl_set:Nn \pc@lopt@caption{Inline}
396   ,caption/top .code:n = \tl_set:Nn \pc@lopt@caption{Top}
397   ,caption .initial:n = inline
398 }
399
400 \keys_define:nn{pdfcomment}
401 {
402   ,line .tl_set:N = \pc@lopt@line
403   ,line .value_required:n = true
404   ,line .initial:o = \pc@goptd@line
405 }
406
407 \keys_define:nn{pdfcomment}
408 {
409   ,captionhoffset .code:n = \tl_set:Nn\pc@lopt@captionhoffset{\pc@pttobp{#1}}
410   ,captionhoffset .value_required:n=true
411   ,captionhoffset .initial:o =\pc@goptd@captionhoffset
412 }
413
414
415 \keys_define:nn{pdfcomment}
416 {
417   ,captionvoffset .code:n = \tl_set:Nn\pc@lopt@captionvoffset{\pc@pttobp{#1}}
418   ,captionvoffset .value_required:n = true,
419   ,captionvoffset .initial:o = \pc@goptd@captionvoffset
420 }
421
422 \keys_define:nn{pdfcomment}
423 {
424   ,linesep .code:n = \tl_set:Nn\pc@lopt@linesep{\pc@pttobp{#1}}
425   ,linesep .value_required:n = true
426   ,linesep .initial:o = \pc@goptd@linesep
427 }
428
429 \keys_define:nn{pdfcomment}
430 {
431   ,disable .legacy_if_set:n={pc@lopt@disable}
432 }
433
434 \keys_define:nn{pdfcomment}
435 {
436   ,id .tl_set:N = \pc@lopt@id
437   ,id .value_required:n = true
438   ,id .initial:o = \pc@goptd@id
439 }
440
441 \keys_define:nn{pdfcomment}

```

```

442 {
443   ,date .code:n =
444     {
445       \tl_if_blank:nTF{#1}
446       {\tl_set:Nn\pc@lopt@date{}}
447       {\tl_set:Nn\pc@lopt@date{(#1)}}
448     }
449   ,date .value_required:n = true
450   ,date .initial:o = \pc@goptd@date
451 }
452
453
454 \keys_define:nn{pdfcomment}
455 {
456   ,timezone .tl_set:N = \pc@lopt@timezone
457   ,timezone .value_required:n = true
458   ,timezone .initial:o = \pc@goptd@timezone
459 }
460
461 \keys_define:nn{pdfcomment}
462 {
463   ,printSOfinal.bool_set:N = \@@_lopt_printSOfinal_bool
464   ,printSOfinal.initial:n = true
465 }
466
467
468 \keys_define:nn{pdfcomment}
469 {
470   ,dvipdfmx .code:n =
471     {\PackageWarning{pdfcomment}{The~option~'dvipdfmx'~is~ignored}}
472   ,version .code:n =
473     {\PackageWarning{pdfcomment}{The~option~'version'~is~ignored}}
474 }
475
476
477 \keys_define:nn{pdfcomment}
478 {
479   ,final .legacy_if_gset:n = pc@gopt@final
480   ,final .usage:n = preamble
481   ,draft .legacy_if_gset_inverse:n = pc@gopt@final
482   ,draft .usage:n = preamble
483 }
484
485 \keys_define:nn{pdfcomment}
486 {
487   ,mathstyle .tl_set:N = \pc@lopt@mathstyle
488   ,mathstyle .groups:n = {pdfmarkupcomment,pdftooltip}
489 }
490
491 \keys_define:nn{pdfcomment}
492 {
493   ,replyto .tl_set:N = \pc@lopt@replyto
494   ,replyto .groups:n = {pdfreply}
495 }

```

```

496 \keys_define:nn{pdfcomment}
497 {
498   local.code:n =
500     {\PackageWarning{pdfcomment}{The~option~'local'~is~ignored}}
501 }
502
503 \keys_define:nn{pdfcomment}
504 {
505   ,liststyle .code:n = {\setliststyle{#1}}
506   ,liststyle .groups:n = {listofpdfcomments}
507 }
508
509 \keys_define:nn{pdfcomment}
510 {
511   ,heading .tl_set:N = \pc@lopt@liststyle
512   ,heading .groups:n = {listofpdfcomments}
513 }
514 \ProcessKeyOptions[pdfcomment]\relax%
515 %
516 \RequirePackage{etoolbox}%
517 \RequirePackage{zref-savepos}[2007/04/22]%
518 \zref@require@unique%
519 \RequirePackage{refcount}%
520 \RequirePackage{ifthen}%
521 \RequirePackage{marginnote}%
522 \RequirePackage{soulpos}%
523 %\RequirePackage{hyperref}
524 %
525 % Using the options draft, final in \pdfcommentsetup makes absolutely no sense!
526 % Therefore, they are switched off at "\AtBeginDocument"
527 % and a warning is issued by xkeyval.sty, if used.

```

1.4 Tagging Socket(s)

```

528 \NewStructureName{pdfcomment/annot}
529 \AssignStructureRole{pdfcomment/annot}{Annot}
530 \NewTaggingSocket{pdfcomment/annotbox}{2}
531 \NewTaggingSocketPlug{pdfcomment/annotbox}{default}
532 {
533   \tag_mc_end_push:
534   \tag_struct_begin:n {tag=\UseStructureName{pdfcomment/annot}}
535   \pdfdict_put:nne {#1}{StructParent}{ \tag_struct_parent_int: }
536   #2
537   \exp_args:Nee
538   \tag_struct_insert_annot:nn {\pdfannot_ref_last:}{ \tag_struct_parent_int: }
539   \tag_struct_end:
540   \tag_mc_begin_pop:n{}
541 }
542 \AssignTaggingSocketPlug{pdfcomment/annotbox}{default}

```

1.5 Tagging support for marginnote

From <https://github.com/latex3/tagging-project/issues/165>

```

543 \long\def\@mn@@marginnote[#1]#2[#3]{%
544   \endgroup
545   \UseTaggingSocket{marginpar/begin}%<-----
546   \ifhmode
547     \@mn@@marginnote[{#1}]{#2}[{#3}]%
548     \@esphack
549   \else
550     \@mn@@marginnote[{#1}]{#2}[{#3}]%
551   \fi
552   \UseTaggingSocket{marginpar/end}%<-----
553 }
554 \renewcommand*{\mn@parboxrestore}{%
555   \UseTaggingSocket{para/restore}%<-----
556   \@tempskipa\parskip
557   \@parboxrestore
558   \parskip\@tempskipa
559 }
560 \renewcommand{\mn@zbox}[1]{%
561   \bgroup
562   \setbox\@tempboxa\vbox{#1\RawParEnd}%<----- avoid para end
563   \ht\@tempboxa\ht\strutbox
564   \dp\@tempboxa\dp\strutbox
565   \wd\@tempboxa\z@
566   \box\@tempboxa
567   \egroup
568 }%
569 \renewcommand{\mn@vadjust}[1]{%
570   \mn@zbox{\kern-\parskip
571     \tagpdfparaOff\leavevmode\tagpdfparaOn}%<----- avoid para begin structure
572   \vadjust{#1}%
573   \kern\parskip
574 }%
575 }

```

1.6 Standard building blocks

1.6.1 Annotation keys

The keys generally allowed in annotations

```

576 <@=pdfcomment>
577 \pdfdict_new:n {l__pdfcomment_core_dict}

```

Type: automatic

Subtype:

```

578 \pdfdict_put:nnn {l__pdfcomment_core_dict} {Subtype}{\pc@lopt@subtype}

```

Rect: automatic

Contents:

```

579 \pdfdict_put:nnn {l__pdfcomment_core_dict} {Contents}{\pc@pdfenc@contents}

```

P: ignored. TODO?

NM: ignored. TODO?

M: date

```
580 \pdfdict_put:nnn {l__pdfcomment_core_dict} {M}          {\pc@lopt@date}
```

F: annotflags. TODO: currently fix. Check needed options

```
581 \pdfdict_put:nnn {l__pdfcomment_core_dict} {F}          {4}
```

AP, AS: appearance. TODO!

Border: ignored. See BS. TODO?

C: color

```
582 \pdfdict_put:nnn {l__pdfcomment_core_dict} {C}          {\pc@lopt@color}
```

StructParent: Through tagging code.

OC: ignored. TODO?

AF: ignored. TODO?

ca: ignored. TODO?

CA: opacity, in PDF 2.0 only for non-markup annotations. Fix when AP are fixed.

```
583 \pdfdict_put:nnn {l__pdfcomment_core_dict} {CA}          {\pc@lopt@opacity}
```

BM: blend mode, ignored. TODO?

Lang: (pdf 2.0) TODO

1.6.2 Markup annotation keys

With the exception of the tooltip all annotation types currently supported are markup annotations.

```
584 \pdfdict_new:n {l__pdfcomment_markup_dict}
```

T: the title/author of a markup.

```
585 \pdfdict_put:nnn {l__pdfcomment_markup_dict} {T}          {\pc@pdfenc@author}
```

Popup: ignored. TODO?

RC: ignored. TODO?

CreationDate:

```
586 \pdfdict_put:nnn {l__pdfcomment_markup_dict} {CreationDate}{\pc@lopt@date}
```

IRT: object reference for replyto. Done in the replyto command. TODO add a general key?

Subj:

```
587 \pdfdict_put:nnn {l__pdfcomment_markup_dict} {Subj}      {\pc@pdfenc@subject}
```

RT: currently ignored. Needs an IRT entry. TODO?

IT: Intent. Currently ignored. TODO?

1.7 Keys of text annotations

```
588 \pdfdict_new:n      {l__pdfcomment_text_dict}
589 \pdfdict_set_eq:nn {l__pdfcomment_text_dict} {l__pdfcomment_core_dict}
```

Open: a boolean flag

```
590 \pdfdict_put:nnn {l__pdfcomment_text_dict} {Open}    {\pc@lopt@open}
```

Name: The name of the icon. Standard names are Comment, Key, Note, Help, New-Paragraph, Paragraph, Insert

```
591 \pdfdict_put:nnn {l__pdfcomment_text_dict} {Name}    {\pc@lopt@icon}
```

State, StateModel: currently ignored. Related to Annotation states.

1.7.1 Keys for freetext annotations

```
592 \pdfdict_new:n      {l__pdfcomment_freetext_dict}
593 \pdfdict_set_eq:nn {l__pdfcomment_freetext_dict}{l__pdfcomment_core_dict}
```

DA: font settings. TODO: check if defaults are ok nowadays... Check color model.

```
594 \pdfdict_put:nnn {l__pdfcomment_freetext_dict}
595     {DA}
596     {(</\pc@lopt@font\space \pc@lopt@fontsize\space Tf\space\pc@hyenc@fontcolor
597       \space rg)}
```

Q: justification, integer, 0, 1 or 2

```
598 \pdfdict_put:nnn {l__pdfcomment_freetext_dict} {Q}    {\pc@lopt@justification}
```

RC: currently ignored. TODO?

DS: currently ignored. TODO?

CL: callout (needs IT=FreeTextCallout):

```
599 \pdfdict_put:nnn {l__pdfcomment_freetext_dict} {CL}    {[{\pc@lopt@line]}
```

IT: intent. One of FreeText, FreeTextTypeWriter, FreeTextCallout

```
600 \pdfdict_put:nnn {l__pdfcomment_freetext_dict} {IT}    {\pc@lopt@type}
```

BE:

```
601 \pdfdict_put:nnn {l__pdfcomment_freetext_dict} {BE}    {<</S /\pc@lopt@bse/I~\pc@lopt@bsei>>}
```

RD: currently ignored. TODO?

BS:

```
602 \pdfdict_put:nnn {l__pdfcomment_freetext_dict} {BS}
603     {<</W~\pc@lopt@linewidth/S/\pc@lopt@borderstyle/D~[\pc@lopt@dashstyle]>>}
```

LE

```
604 \pdfdict_put:nnn {l__pdfcomment_freetext_dict} {LE}    {\pc@lopt@lineend}
```

In a FreeTextTypewriter color and line are currently removed. TODO: check if that is needed.

```
605 \cs_new_protected:Npn \__pdfcomment_dict_update_freetext:
606 {
607   \str_if_eq:eeT {\pc@lopt@type}{/FreeTextTypewriter}
608   {%
609     \tl_set:Nn\pc@lopt@linewidth{0}
610     \tl_set:Nn\pc@lopt@color{}
611   }%
612 }
```

1.8 Keys for square and circle annotations

```
613 \pdfdict_new:n      {l__pdfcomment_geometric_dict}
614 \pdfdict_set_eq:nn {l__pdfcomment_geometric_dict}{l__pdfcomment_core_dict}
615 \pdfdict_put:nnn    {l__pdfcomment_geometric_dict} {BE} {<</S /\pc@lopt@bse/I~\pc@lopt@bsei>>}
616 \pdfdict_put:nnn    {l__pdfcomment_geometric_dict} {BS}
617     {<</W~\pc@lopt@linewidth/S/\pc@lopt@borderstyle/D~[\pc@lopt@dashstyle]>>}
618 \pdfdict_put:nnn {l__pdfcomment_geometric_dict} {IC} {\pc@lopt@icolor}
```

1.9 Keys for line annotations

The command covers Line, Polygon and PolyLine, so some settings have to be updated in the command.

```
619 \pdfdict_new:n      {l__pdfcomment_line_dict}
620 \pdfdict_set_eq:nn {l__pdfcomment_line_dict}{l__pdfcomment_core_dict}
```

L: see below in update command.

```
621 \pdfdict_put:nnn {l__pdfcomment_line_dict} {L} {[\pc@lopt@line]}
```

BS:

```
622 \pdfdict_put:nnn {l__pdfcomment_line_dict} {BS}
623     {<</W~\pc@lopt@linewidth/S/\pc@lopt@borderstyle/D~[\pc@lopt@dashstyle]>>}
```

LE: line endings.

```
624 \pdfdict_put:nnn {l__pdfcomment_line_dict} {LE} {[\pc@lopt@linebegin\space\pc@lopt@lineend]}
```

IC: internal color

```
625 \pdfdict_put:nnn {l__pdfcomment_line_dict} {IC} {\pc@lopt@icolor}
```

LL, LLE, LLO: currently ignored. TODO?

Cap, CP: see below in update command.

IT: currently ignored. Either /LineArrow or /LineDimension. TODO?

Measure: currently ignored. TODO?

CO: see below in update command.

```
626 \cs_new_protected:Npn \__pdfcomment_dict_update_line:
627 {
628   \str_if_eq:eeTF{\pc@lopt@caption}{none}
629   {
630     \pdfdict_put:nnn {l__pdfcomment_line_dict} {Cap}{false}
631   }
632   {
633     \pdfdict_put:nnn {l__pdfcomment_line_dict} {Cap}{true}
634     \pdfdict_put:nnn {l__pdfcomment_line_dict} {CP} {\pc@lopt@caption}
635     \pdfdict_put:nnn {l__pdfcomment_line_dict}
636     {CO}
637     {[\pc@lopt@captionhoffset\space \pc@lopt@captionvoffset]}
638   }
639 }
```

1.10 Keys for Polygon and PolyLine annotations

```
640 \pdfdict_new:n{1__pdfcomment_poly_dict}
641 \pdfdict_set_eq:nn {1__pdfcomment_poly_dict}{1__pdfcomment_core_dict}
```

Vertices:

```
642 \pdfdict_put:nnn {1__pdfcomment_poly_dict} {Vertices} {[ \pc@lopt@line]}
```

LE (meaning full only for polyline)

```
643 \pdfdict_put:nnn {1__pdfcomment_poly_dict} {LE} {[ \pc@lopt@linebegin\space\pc@lopt@lineend]}
```

BS:

```
644 \pdfdict_put:nnn {1__pdfcomment_poly_dict} {BS}
645 {<</W~\pc@lopt@linewidth/S/\pc@lopt@borderstyle/D~[ \pc@lopt@dashstyle]>>}
```

IC: internal color

```
646 \pdfdict_put:nnn {1__pdfcomment_poly_dict} {IC} { \pc@lopt@icolor}
```

BE (meaningful only for polygon)

```
647 \pdfdict_put:nnn {1__pdfcomment_poly_dict} {BE} {<</S / \pc@lopt@bse/I~\pc@lopt@bsei>>}
```

IT, Measure, Path: currently ignored. TODO?

1.11 Keys for tool tips

Note: tooltips are form fields!

```
648 \pdfdict_new:n {1__pdfcomment_tooltip_dict}
649 \pdfdict_set_eq:nn {1__pdfcomment_tooltip_dict}{1__pdfcomment_core_dict}
```

This is are field keys, not widget keys!

```
650 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {TU}{\pc@pdfenc@contents}
651 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {T} {(tooltip \thexref@unique)}
652 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {FT}{/Btn}
653 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {Ff}{65536}
```

Widget keys. H: TODO: allow more options?

```
654 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {H}{/N}
```

We set a different flag value here.

```
655 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {F}{768}
656 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {BS}{<</W~0>>}
```

1.12 Keys for text markup annotations

Highlight, Underline, Squiggly, StrikeOut:

```
657 \pdfdict_new:n {1__pdfcomment_textmarkup_dict}
658 \pdfdict_set_eq:nn {1__pdfcomment_textmarkup_dict}{1__pdfcomment_core_dict}
659 \pdfdict_put:nnn {1__pdfcomment_textmarkup_dict} {QuadPoints} {[ \pc@annot@quadpoints]}
```


1.13 Collecting references

This is used for the `\pdfreply` command. TODO: check code

```
660 \cs_new_protected:Npn \__pdfcomment_collect_objid:
661 {
662   \tl_if_empty:eF{\pc@lopt@id}
663   {
664     \tl_put_right:Ne\pc@collect@PDFOBJID{,\pdfannot_ref_last:}
665   }
666 }
667 \cs_new_protected:Npn \__pdfcomment_save_objid:
668 {
669   \tl_if_empty:eF{\pc@lopt@id}
670   {
671     \pc@save@PDFOBJID{\pc@lopt@id}
672   }
673 }
```

1.14 \pdfcomment

```
674 \newcommand{\pdfcomment}[2] []
675 {
676   \ifhmode\unskip\fi
677   \ifvmode\leavevmode\fi
```

TODO Check if the command needs to be set globally!

```
678   \group_begin:
679   \gdef\pc@collect@PDFOBJID{S}
680   \keys_set:nn{\pdfcomment}{#1}
681   \def\pc@lopt@subtype{/Text}
682   \def\pc@lopt@comment{#2}
```

Encode Contents, Author and Subject to pdf encodings and transform color input to pdf color

```
683   \pc@encode@PDF{#2}
684   \ifpc@gopt@final\else
685     \ifpc@lopt@disable\else
686       \hspace*{0pt}
```

This creates the list entry

```
687   \pc@create@lpc
```

Typeset the text annotation in a box of size zero.

```
688   \vbox%
689   {\tagpdfpara0ff
690     \hsize=0pt
691     \noindent
692     \vspace{\pc@lopt@voffset}
693     \hbox to 0pt
694     {
695       \vsize=0pt
696       \hskip\pc@lopt@hoffset
```

```

697         \UseTaggingSocket{pdfcomment/annotbox}
698         {l__pdfcomment_text_dict}
699         {
700             \pdfannot_box:nnne
701             {\normalbaselineskip}
702             {\normalbaselineskip}
703             {Opt}
704             {
705                 \pdfdict_use:n {l__pdfcomment_text_dict}
706                 \pdfdict_use:n {l__pdfcomment_markup_dict}
707             }
708         }

```

TODO: check

```

709         \__pdfcomment_collect_objid:
710         \__pdfcomment_save_objid:
711         \hss%
712     }%
713 }%
714 \hspace{\pc@lopt@hspace}
715 \fi
716 \fi
717 \group_end:
718 }%

```

1.15 \pdfmargincomment

This is a text annotation moved into the margin. The `\marginnote` command is patched above.

```

719 \newcommand{\pdfmargincomment}[2] []
720 {
721     \ifhmode\unskip\fi
722     \ifvmode\leavevmode\fi
723     \group_begin:
724     \gdef\pc@collect@PDFOBJID{S}
725     \keys_set:nn{pdfcomment}{#1}
726     \def\pc@lopt@subtype{/Text}
727     \def\pc@lopt@comment{#2}

```

Encode Contents, Author and Subject and transform color input to pdf color

```

728     \pc@encode@PDF{#2}
729     \ifpc@gopt@final\else
730         \ifpc@lopt@disable\else
731             \hspace*{Opt}
732             \pc@create@lpc

```

Center marginnotes:

```

733         \renewcommand{\raggedleftmarginnote}{\pc@raggedleftmarginnote}
734         \renewcommand{\raggedrightmarginnote}{\pc@raggedrightmarginnote}

```

Typeset the annotation in a `\marginnote`:

```

735     \marginnote
736     {

```

```

737         \vbox
738         { \tagpdfparaOff
739           \hsize=0pt
740           \noindent
741           \vspace{\pc@lopt@voffset}
742           \hbox to 0pt
743           {
744             \vsize=0pt
745             \hskip\pc@lopt@hoffset
746             \UseTaggingSocket{pdfcomment/annotbox}
747             {l__pdfcomment_text_dict}
748             {
749               \pdfannot_box:nnne
750               {\normalbaselineskip}
751               {\normalbaselineskip}
752               {0pt}
753               {
754                 \pdfdict_use:n {l__pdfcomment_text_dict}
755                 \pdfdict_use:n {l__pdfcomment_markup_dict}
756               }
757             }
758             \__pdfcomment_collect_objid:
759             \__pdfcomment_save_objid:
760             \hss
761           }
762         }
763       \hspace{\pc@lopt@hspace}
764     }
765   \fi
766 \fi
767 \group_end:
768 }

```

1.16 pdffreetextcomment

```

769 \newcommand{\pdffreetextcomment}[2] []
770 {
771   \ifhmode\unskip\fi
772   \ifvmode\leavevmode\fi
773   \group_begin:
774   \gdef\pc@collect@PDFOBJID{S}
775   \keys_set:nn{pdfcomment}{#1}
776   \def\pc@lopt@subtype{/FreeText}
777   \def\pc@lopt@comment{#2}
778   \__pdfcomment_dict_update_freertext:

```

Encode Contents, Author and Subject and colors:

```

779   \pc@encode@PDF{#2}
780   \ifpc@gopt@final\else
781     \ifpc@lopt@disable\else
782       \hspace*{0pt}

```

typeset freetext annotation

```

783       \vbox to 0pt

```

```

784     {
785         \tagpdfparaOff
786         \hsize=0pt
787         \noindent%
788         \vskip-\pc@lopt@voffset
789         \hbox to 0pt
790         {
791             \vsize=0pt
792             \hskip\pc@lopt@hoffset
793             \pc@create@lpc
794             \UseTaggingSocket{pdfcomment/annotbox}
795             {l__pdfcomment_freetext_dict}
796             {
797                 \pdfannot_box:nne
798                 {\dim_eval:n{\pc@lopt@width+0pt}}
799                 {\dim_eval:n{\pc@lopt@height+0pt}}
800                 {\dim_eval:n{\pc@lopt@depth+0pt}}
801                 {
802                     \pdfdict_use:n {l__pdfcomment_freetext_dict}
803                     \pdfdict_use:n {l__pdfcomment_markup_dict}
804                 }
805             }
806             \__pdfcomment_collect_objid:
807             \__pdfcomment_save_objid:
808             \hss
809         }
810         \vss
811     }
812     \fi
813     \fi
814     \group_end:
815 }

```

1.17 \pdfsquarecomment

```

816 \newcommand{\pdfsquarecomment}[2] []
817 {
818     \ifhmode\unskip\fi
819     \ifvmode\leavevmode\fi
820     \group_begin:
821     \gdef\pc@collect@PDFOBJID{S}
822     \keys_set:nn{pdfcomment}{#1}
823     \def\pc@lopt@subtype{/Square}
824     \def\pc@lopt@comment{#2}

```

Encode Contents, Author and Subject and color

```

825     \pc@encode@PDF{#2}
826     \ifpc@gopt@final\else
827         \ifpc@lopt@disable\else
828             \hspace*{0pt}

```

typeset square annotation

```

829         \vbox to 0pt
830         {

```

```

831         \tagpdfparaOff
832         \hsize=0pt
833         \noindent
834         \vskip-\pc@lopt@voffset
835         \hbox to 0pt
836     {
837         \vsize=0pt
838         \hskip\pc@lopt@hoffset
839         \pc@create@lpc
840         \UseTaggingSocket{pdfcomment/annotbox}
841         {l__pdfcomment_geometric_dict}
842         {
843             \pdfannot_box:nnne
844             {\dim_eval:n{\pc@lopt@width+0pt}}
845             {\dim_eval:n{\pc@lopt@height+0pt}}
846             {\dim_eval:n{\pc@lopt@depth+0pt}}
847             {
848                 \pdfdict_use:n {l__pdfcomment_geometric_dict}
849                 \pdfdict_use:n {l__pdfcomment_markup_dict}
850             }
851         }
852         \__pdfcomment_collect_objid:
853         \__pdfcomment_save_objid:
854         \hss
855     }
856     \vss
857 }
858 \fi
859 \fi
860 \group_end:
861 }

```

1.18 \pdfcirclecomment

```

862 \newcommand{\pdfcirclecomment}[2] []
863 {
864     \ifhmode\unskip\fi
865     \ifvmode\leavevmode\fi
866     \group_begin:
867     \gdef\pc@collect@PDFOBJID{S}
868     \keys_set:nn{pdfcomment}{#1}
869     \def\pc@lopt@subtype{/Circle}
870     \def\pc@lopt@comment{#2}

```

Encode Contents, Author and Subject and color

```

871     \pc@encode@PDF{#2}
872     \ifpc@gopt@final\else
873         \ifpc@lopt@disable\else
874             \hspace*{0pt}%

```

typeset circle annotation

```

875         \vbox to 0pt
876         {
877             \tagpdfparaOff

```

```

878         \hsize=0pt
879         \noindent
880         \vskip-\pc@lopt@voffset
881         \hbox to 0pt
882         {
883             \vsize=0pt
884             \hskip\pc@lopt@hoffset
885             \pc@create@lpc
886             \UseTaggingSocket{pdfcomment/annotbox}
887             {l__pdfcomment_geometric_dict}
888             {
889                 \pdfannot_box:nne
890                 {\dim_eval:n{\pc@lopt@width+0pt}}
891                 {\dim_eval:n{\pc@lopt@height+0pt}}
892                 {\dim_eval:n{\pc@lopt@depth+0pt}}
893                 {
894                     \pdfdict_use:n {l__pdfcomment_geometric_dict}
895                     \pdfdict_use:n {l__pdfcomment_markup_dict}
896                 }
897             }
898             \__pdfcomment_collect_objid:
899             \__pdfcomment_save_objid:
900             \hss
901         }
902     \vss
903 }
904 \fi
905 \fi
906 \group_end:
907 }%

```

1.19 \pdflinecomment

```

908 \newcommand{\pdflinecomment}[2]{}
909 {
910     \ifhmode\unskip\fi
911     \ifvmode\leavevmode\fi
912     \group_begin:
913     \gdef\pc@collect@PDFOBJID{S}
914     \keys_set:nn{pdfcomment}{#1}
915     \def\pc@lopt@comment{#2}
916     \pc@encode@PDF{#2}
917     \ifpc@gopt@final\else
918         \ifpc@lopt@disable\else
919             \hspace*{0pt}
920             \pc@create@lpc
921             \vbox to 0pt
922             {
923                 \tagpdfparaOff
924                 \hsize=0pt
925                 \noindent
926                 \hbox to 0pt
927                 {
928                     \vsize=0pt

```

```

929      \tl_if_eq:NnTF\pc@lopt@subtype{/Line}
930      {
931        \__pdfcomment_dict_update_line:
932        \UseTaggingSocket{pdfcomment/annotbox}
933        {l__pdfcomment_line_dict}
934        {
935          \pdfannot_box:nnne
936          {\dim_eval:n{\pc@lopt@width+0pt}}
937          {\dim_eval:n{\pc@lopt@height+0pt}}
938          {\dim_eval:n{\pc@lopt@depth+0pt}}
939          {
940            \pdfdict_use:n {l__pdfcomment_line_dict}
941            \pdfdict_use:n {l__pdfcomment_markup_dict}
942          }
943        }
944      }
945      {
946        \UseTaggingSocket{pdfcomment/annotbox}
947        {l__pdfcomment_poly_dict}
948        {
949          \pdfannot_box:nnne
950          {\dim_eval:n{\pc@lopt@width+0pt}}
951          {\dim_eval:n{\pc@lopt@height+0pt}}
952          {\dim_eval:n{\pc@lopt@depth+0pt}}
953          {
954            \pdfdict_use:n {l__pdfcomment_poly_dict}
955            \pdfdict_use:n {l__pdfcomment_markup_dict}
956          }
957        }
958      }
959      \__pdfcomment_collect_objid:
960      \__pdfcomment_save_objid:
961      \hss
962    }
963    \vss
964  }
965  \fi
966  \fi
967  \group_end:
968 }

```

1.20 \pdfmarkupcomment

TODO: We need to get rid of soul with luatex.

```

969 \newcommand{\pdfmarkupcomment}[3] [] % #1 option, #2 text, #3 comment
970 {
971   \leavevmode
972   \group_begin:
973   \gdef\pc@collect@PDFOBJID{S}
974   \keys_set:nn{pdfcomment}{#1}
975   \def\pc@lopt@comment{#3}
976   \ifmmode%
977     \zsavepos{pdfcomment:\thexref@unique}
978     \zref@refused{pdfcomment:\thexref@unique}

```

```

979 \setlength{\pc@Sposx}{\zposx{pdfcomment:\thezref@unique}sp}
980 \setlength{\pc@Sposy}{\zposy{pdfcomment:\thezref@unique}sp}
981 \stepcounter{zref@unique}%
982 \setlength{\pc@Eposx}{\zposx{pdfcomment:\thezref@unique}sp}
983 \setlength{\pc@Eposy}{\zposy{pdfcomment:\thezref@unique}sp}
984 \ifpc@gopt@final\else
985 \ifpc@lopt@disable\else
986 \setbox\pc@nullbox=
987 \hbox{\SuspendTagging{}\pc@encode@PDF{#3}$\pc@lopt@mathstyle#2$}
988 \setbox\pc@mathannot@box=\hbox to\wd\pc@nullbox
989 {
990 \vrule height\ht\pc@nullbox-depth\dp\pc@nullbox-width\z@
991 \hfill
992 \pc@annot@calc@pos@math
993 \edef\pc@annot@quadpoints
994 {
995 \pc@x@one\space\pc@y@one\space\pc@x@two\space\pc@y@two\space
996 \pc@x@three\space\pc@y@three\space\pc@x@four\space\pc@y@four
997 }
998 \UseTaggingSocket
999 {pdfcomment/annotbox}
1000 {l__pdfcomment_textmarkup_dict}
1001 {
1002 \pdfannot_box:nnne {0pt} {0pt} {0pt}
1003 {
1004 \pdfdict_use:n {l__pdfcomment_textmarkup_dict}
1005 \pdfdict_use:n {l__pdfcomment_markup_dict}
1006 }
1007 }
1008 }
1009 \__pdfcomment_collect_objid:
1010 \wd\pc@mathannot@box\z@
1011 \ht\pc@mathannot@box\z@
1012 \dp\pc@mathannot@box\z@
1013 \box\pc@mathannot@box
1014 \nobreak%
1015 \fi
1016 \fi
1017 \ifpc@gopt@final
1018 \str_if_eq:eeTF{\pc@lopt@subtype}{/StrikeOut}
1019 {
1020 \bool_if:NTF\__pdfcomment_lopt_printS0final_bool
1021 {#2\pc@ignorespacesfalse}
1022 {\pc@ignorespacestrue}
1023 }
1024 {
1025 #2\pc@ignorespacesfalse
1026 }
1027 \else
1028 \ifpc@lopt@disable
1029 \str_if_eq:eeTF{\pc@lopt@subtype}{/StrikeOut}
1030 {
1031 \bool_if:NTF\__pdfcomment_lopt_printS0final_bool
1032 {#2\pc@ignorespacesfalse}

```



```

1033         {\pc@ignorespacestrue}
1034     }
1035     {
1036         #2\pc@ignorespacesfalse
1037     }
1038     \else
1039         #2\pc@ignorespacesfalse
1040     \fi
1041 \fi
1042 \zsavapos{pdfcomment:\thexref@unique}
1043 \zref@refused{pdfcomment:\thexref@unique}
1044 \stepcounter{zref@unique}
1045 \else
1046     \pc@encode@PDF{#3}
1047     \settoheight{\pc@box@height}{#2}
1048     \str_if_eq:eeTF
1049         {\pc@lopt@subtype}
1050         {/Underline}
1051     {
1052         \settodepth{\pc@box@depth}{Tq}
1053     }
1054     {
1055         \settodepth{\pc@box@depth}{#2}
1056     }
1057 \def\Soul@preamble
1058 {
1059     \def\ulp@skern{0pt}
1060     \def\ulp@ekern{0pt}
1061     \def\ulp@sgap{0pt}
1062     \def\ulp@egap{0pt}
1063     \def\ulp@pos{\z@}

```

Here the annotation is created:

```

1064     \def\ulp@draw{\pc@soul@markup}
1065     \ulp@preamble
1066 }
1067 \let\Soul@postamble\ulp@postamble
1068 \let\Soul@everyspace\ulp@everyspace

```

For tagging we need a fake space:

```

1069 \def\Soul@everyspace##1
1070 {
1071     \ulp@stepput\@ne
1072     ##1\use:c{pdffakepace}\space
1073     \ulp@stepput\@ne
1074 }
1075 \let\Soul@everyhyphen\ulp@everyhyphen
1076 \let\Soul@everyexhyphen\ulp@everyexhyphen
1077 \let\Soul@everyyllable\@empty
1078 \def\Soul@everytoken{\the\Soul@token}
1079 \ifpc@gopt@final
1080     \str_if_eq:eeTF
1081         {\pc@lopt@subtype}
1082         {/StrikeOut}

```

```

1083     {
1084         \bool_if:NTF\__pdfcomment_lopt_printSofinal_bool
1085         {\SuspendTagging{}\SOUL@{#2}\ResumeTagging{}\pc@ignorespacesfalse}
1086         {\pc@ignorepacestrue}
1087     }
1088     {
1089         #2\pc@ignorespacesfalse
1090     }
1091 \else
1092     \ifpc@lopt@disable
1093     \str_if_eq:eeTF
1094     {\pc@lopt@subtype}
1095     {/StrikeOut}
1096     {
1097         \bool_if:NTF\__pdfcomment_lopt_printSofinal_bool
1098         {#2\pc@ignorespacesfalse}
1099         {\pc@ignorepacestrue}
1100     }
1101     {
1102         #2\global\pc@ignorespacesfalse
1103     }
1104 \else
1105     \SuspendTagging{}\SOUL@{#2}\ResumeTagging{}
1106     \pc@ignorespacesfalse
1107 \fi
1108 \fi
1109 \fi
1110 \ifpc@gopt@final\else
1111     \ifpc@lopt@disable\else
1112     \pc@create@lpc
1113     \fi
1114 \fi
1115 \__pdfcomment_save_objid:
1116 \ifpc@ignorespaces
1117     \ignorespaces
1118 \fi
1119 \group_end:
1120 }%

```

1.21 pdfsidelinecomment

This is a Line annotation.

```

1121 \newenvironment{pdfsidelinecomment}[2] []
1122 {
1123     \ifhmode\unskip\fi
1124     \ifvmode\leavevmode\fi
1125     \gdef\pc@collect@PDFOBJID{S}
1126     \keys_set:nn{pdfcomment}{#1}
1127     \def\pc@lopt@subtype{/Line}
1128     \def\pc@lopt@comment{#2}
1129     \__pdfcomment_dict_update_line:

```

Encode Contents, Author and Subject and transform color input to pdf color

```

1130     \pc@encode@PDF{#2}

```

```

1131 \zsavapos{pdfcomment:slc:\thepc@count@iv}
1132 \zref@refused{pdfcomment:slc:\thepc@count@iv}
1133 \setlength{\pc@Sposx}{\zposx{pdfcomment:slc:\thepc@count@iv}sp}
1134 \setlength{\pc@Sposy}{\zposy{pdfcomment:slc:\thepc@count@iv}sp}
1135 \stepcounter{pc@count@iv}
1136 \setlength{\pc@Eposx}{\zposx{pdfcomment:slc:\thepc@count@iv}sp}
1137 \setlength{\pc@Eposy}{\zposy{pdfcomment:slc:\thepc@count@iv}sp}
1138 \settoheight{\pc@box@height}{Tq}
1139 \settoheight{\pc@box@depth}{Tq}
1140 \stepcounter{pc@count@i}
1141 \label{pdfcomment:pageS:\thepc@count@i}
1142 \refused{pdfcomment:pageS:\thepc@count@i}
1143 \def\pc@pS{\getpagerefnumber{pdfcomment:pageS:\thepc@count@i}}
1144 \def\pc@pE{\getpagerefnumber{pdfcomment:pageE:\thepc@count@i}}
1145 \str_if_eq:eeTF {\pc@pS}{\pc@pE}
1146   {\pc@annot@samepagetrue}
1147   {\pc@annot@samepagefalse}
1148 \pc@firstcolumntrue
1149 \pc@calc@textblockpos
1150 \setlength{\pc@column}{\pc@x@right@text bp}
1151 \addtolength{\pc@column}{3pt}
1152 \ifnum\pc@Sposx<\pc@column
1153   \pc@Sfirstcolumntrue
1154 \else
1155   \pc@Sfirstcolumnfalse
1156 \fi
1157 \ifnum\pc@Eposx<\pc@column
1158   \pc@Efirstcolumntrue
1159 \else
1160   \pc@Efirstcolumnfalse
1161 \fi
1162 \ifpc@annot@samepage\else
1163   \ifpc@gopt@final\else
1164     \ifpc@lopt@disable\else
1165       % 1st part of annotation on 1st page
1166       \if@twocolumn
1167         \ifpc@Sfirstcolumn
1168           \PackageError{pdfcomment}
1169           {
1170             \string\pdfsidelinecomment\space supports~only~one\MessageBreak
1171             column~or~ page~ break~ in~ twocolumn~ mode!!\MessageBreak
1172             Your~ comment~ is~ too~ long!
1173           }
1174         \else
1175           % start in second column
1176           \pc@annot@secondpagefalse
1177           \pc@calc@sidelinepos
1178           \renewcommand{\pc@y@two}{\pc@y@bottom@text}
1179
1180           \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1181           \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[{\pc@lopt@linebegin\space/None}
1182             \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1183           \fi
1184         \else

```

```

1185         \pc@annot@secondpagefalse
1186         \pc@calc@sidelinepos
1187         \renewcommand{\pc@y@two}{\pc@y@bottom@text}
1188
1189         \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1190         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@linebegin\space/None]}
1191         \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1192
1193         \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1194         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ /None\space \pc@lopt@linebegin]}
1195         \marginnote{\pc@create@annot@sideline}
1196     \fi
1197 \fi
1198 \fi
1199 \fi
1200 }
1201 {
1202     \zsavepos{pdfcomment:slc:\thepc@count@iv}
1203     \zref@refused{pdfcomment:slc:\thepc@count@iv}
1204     \label{pdfcomment:pageE:\thepc@count@i}
1205     \refused{pdfcomment:pageE:\thepc@count@i}
1206     \stepcounter{pc@count@iv}
1207     \ifpc@gopt@final\else
1208         \ifpc@lopt@disable\else
1209             \ifpc@annot@samepage
1210                 % annot complete on one page
1211                 \if@twocolumn
1212                     \ifpc@Sfirstcolumn
1213                         \ifpc@Efirstcolumn
1214                             % complete in first column
1215                             \pc@firstcolumntrue
1216                             \pc@calc@sidelinepos
1217
1218                             \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1219                             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space \pc@lopt@linebegin]}
1220                             \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1221
1222                         \else
1223                             % column break
1224                             \pc@firstcolumntrue
1225                             \pc@calc@sidelinepos
1226                             \renewcommand{\pc@y@two}{\pc@y@bottom@text}
1227
1228                             \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1229                             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ /None\space \pc@lopt@linebegin]}
1230                             \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1231
1232                         \pc@firstcolumnfalse
1233                         \pc@calc@sidelinepos
1234                         \renewcommand{\pc@y@one}{\pc@y@top@text}
1235
1236                             \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1237                             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ /None\space \pc@lopt@lineend]}
1238                             \marginnote{\pc@create@annot@sideline}

```

```

1239
1240 \fi
1241 \else
1242 \ifpc@Efirstcolumn
1243 % not possible
1244 \else
1245 % complete in seconds column
1246 \pc@firstcolumnfalse
1247 \pc@calc@sidelinepos
1248
1249 \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1250 \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@linebegin\space \pc@lopt@lineend\space \pc@lopt@line}
1251 \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1252 \fi
1253 \fi
1254 \else
1255 \pc@calc@sidelinepos
1256
1257 \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1258 \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@linebegin\space \pc@lopt@lineend\space \pc@lopt@line}
1259 \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1260
1261 \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1262 \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space \pc@lopt@linebegin\space \pc@lopt@line}
1263 \marginnote{\pc@create@annot@sideline}
1264
1265 \fi
1266 \else
1267 % 2nd part of annotation on 2nd page
1268 \if@twocolumn
1269 \ifpc@Efirstcolumn
1270 % end in first column
1271 \pc@firstcolumntrue
1272 \pc@annot@secondpagetrue
1273 \pc@calc@sidelinepos
1274 \renewcommand{\pc@y@one}{\pc@y@top@text}
1275
1276 \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1277 \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space \pc@lopt@linebegin\space \pc@lopt@line}
1278 \marginnote{\pc@create@annot@sideline}
1279
1280 \else
1281 \PackageError{pdfcomment}
1282 {
1283 \string\pdfsidelinecomment\space supports~ only~ one\MessageBreak
1284 column~ or~ page~ break~ in~ twocolumn~ mode!\MessageBreak
1285 Your~ comment~ is~ too~ long!
1286 }
1287 \fi
1288 \else
1289 \pc@annot@secondpagetrue
1290 \pc@calc@sidelinepos
1291 \renewcommand{\pc@y@one}{\pc@y@top@text}
1292

```

```

1293         \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1294         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[None\space\pc@lopt@lineend]}
1295         \marginnote{\pc@create@annot@sideline}
1296
1297         \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1298         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space/None]}
1299         \marginnote{\pc@create@annot@sideline}
1300
1301     \fi
1302 \fi
1303 \fi
1304 \fi
1305 \__pdfcomment_save_objid:
1306 }

```

The helper command with the annotation:

`\pc@create@annot@sideline`

```

1307 \newcommand{\pc@create@annot@sideline}
1308 {
1309     \ifpc@gopt@final\else
1310     % typeset line annotation (see: PDF Reference)
1311     \vbox to 0pt
1312     {\tagpdfparaOff
1313     \hsize=0pt
1314     \noindent
1315     \hbox to 0pt
1316     {
1317         \vsize=0pt
1318         \UseTaggingSocket{pdfcomment/annotbox}
1319         {l__pdfcomment_line_dict}
1320         {
1321             \pdfannot_box:nnne
1322             {\dim_eval:n{\pc@lopt@width+0pt}}
1323             {\dim_eval:n{\pc@lopt@height+0pt}}
1324             {\dim_eval:n{\pc@lopt@depth+0pt}}
1325             {
1326                 \pdfdict_use:n {l__pdfcomment_line_dict}
1327                 \pdfdict_use:n {l__pdfcomment_markup_dict}
1328             }
1329         }
1330         \hss
1331     }
1332     \vss
1333 }
1334 \ifpc@annot@samepage
1335     \__pdfcomment_collect_objid:
1336 \else
1337     \ifpc@annot@secondpage
1338         \__pdfcomment_collect_objid:
1339     \else
1340     \fi
1341 \fi
1342 \fi
1343 }

```

(End of definition for \pc@create@annot@sideline.)

1.22 \pdfreply

```
1344 \newcommand{\pdfreply}[2] []
1345 {
1346   \ifhmode\unskip\fi
1347   \ifvmode\leavevmode\fi
1348   \group_begin:
1349   \gdef\pc@collect@PDFOBJID{S}
1350   \keys_set:nn{pdfcomment}{#1}
1351   \def\pc@lopt@subtype{/Text}
1352   \def\pc@lopt@comment{#2}
```

Encode Contents, Author and Subject and transform color input to pdf color

```
1353   \pc@encode@PDF{#2}
1354   \ifpc@gopt@final\else
1355     \ifpc@lopt@disable\else
1356       \hspace*{0pt}%
1357       %\pc@create@lpc% ????????
1358       % typeset text annotation (see: PDF Reference)
```

TODO: check logic

```
1359   \xdef\pc@zref@PDFOBJID{\pc@get@PDFOBJID{\pc@lopt@replyto}}
1360   \clist_map_inline:Nn \pc@zref@PDFOBJID
1361   {
1362     \str_if_eq:eeTF{##1}{A}
1363     {
1364       \xdef\pc@collect@PDFOBJID{\pc@collect@PDFOBJID,A}
1365     }
1366     {
1367       \str_if_eq:eeF{##1}{S}
1368       {
1369         \pdfdict_put:nnn {l__pdfcomment_text_dict} {IRT}{##1}
1370         \vbox
1371         {\tagpdfparaOff
1372          \hsize=0pt
1373          \noindent
1374          \vspace{\pc@lopt@voffset}
1375          \hbox to 0pt
1376          {
1377            \vsize=0pt
1378            \hskip\pc@lopt@hoffset
1379            \UseTaggingSocket{pdfcomment/annotbox}
1380            {l__pdfcomment_text_dict}
1381            {
1382              \pdfannot_box:nnne
1383              {0pt}
1384              {\normalbaselineskip}
1385              {0pt}
1386              {
1387                \pdfdict_use:n{l__pdfcomment_text_dict}
1388                \pdfdict_use:n {l__pdfcomment_markup_dict}
1389              }
            }
          }
        }
      }
    }
  }
```

```

1390         }
1391         \__pdfcomment_collect_objid:
1392         \hss
1393     }
1394 }
1395 }
1396 }
1397 }
1398 \__pdfcomment_save_objid:
1399 \fi
1400 \fi
1401 \group_end:
1402 }

```

1.23 \pdftooltip

\pdftooltip

```

1403 \newcommand{\pdftooltip}[3] []
1404 {
1405     \leavevmode
1406     \group_begin:
1407     \gdef\pc@collect@PDFOBJID{S}
1408     \keys_set:nn{pdfcomment}{#1}
1409     \def\pc@lopt@subtype{/Widget}
1410     \def\pc@lopt@comment{#3}
1411     \ifmmode
1412         \setbox\pc@nullbox=\hbox{\SuspendTagging{}\pc@encode@PDF{#3}}
1413         \setbox\pc@nullbox=\hbox{\SuspendTagging{}$\pc@lopt@mathstyle#2$}
1414     \else
1415         \pc@encode@PDF{#3}
1416         \setbox\pc@nullbox=\hbox{\SuspendTagging{}#2}
1417     \fi
1418     \ifpc@lopt@disable
1419         #2
1420     \else
1421         \AssignStructureRole{pdfcomment/annot}{Form}
1422         \UseTaggingSocket{pdfcomment/annotbox}
1423         {l__pdfcomment_tooltip_dict}
1424         {
1425             \pdfannot_box:nnne
1426             {\wd\pc@nullbox}
1427             {\ht\pc@nullbox}
1428             {\dp\pc@nullbox}
1429             {
1430                 \pdfdict_use:n{l__pdfcomment_tooltip_dict}
1431             }
1432         }
1433         #2
1434     \fi
1435     \stepcounter{zref@unique}
1436     \group_end:
1437 }

```

(End of definition for \pdftooltip.)

1.24 \pdfsquaretooltip

\pdfsquaretooltip

```

1438 \newbox\pc@tmp@box
1439 \NewDocumentCommand\pdfsquaretooltip{0{}}mm}
1440 {
1441   \leavevmode
1442   \sbox\pc@tmp@box{#2}%
1443   \kern0pt\pdfsquarecomment
1444     [liststyle=,
1445     linewidth=0pt,
1446     opacity=0,
1447     color=,icolor=,
1448     width=\wd\pc@tmp@box,
1449     height=\ht\pc@tmp@box,
1450     depth=\dp\pc@tmp@box,#1]
1451     {#3}
1452   \usebox\pc@tmp@box
1453 }

```

(End of definition for \pdfsquaretooltip.)

1.25 Setup commands

\pdfcommentsetup

```

1454 \newcommand{\pdfcommentsetup}[2]{}
1455 {
1456   \keys_set:nn{pdfcomment}{#1,#2}
1457 }

```

(End of definition for \pdfcommentsetup.)

Define predefined set of options (Avatar)

\defineavatar

```

1458 \newcommand{\defineavatar}[2]
1459 {
1460   \cs_if_exist:cTF {pc@avatar@#1}
1461   {
1462     \cs_set:cpn {pc@avatar@#1}{\keys_set:nn{pdfcomment}{#2}}
1463   }
1464   {
1465     \cs_new:cpn {pc@avatar@#1}{\keys_set:nn{pdfcomment}{#2}}
1466   }
1467 }
1468 %

```

(End of definition for \defineavatar.)

Define predefined set of options (Style)

\definestyle

```

1469 \newcommand{\definestyle}[2]
1470 {
1471   \cs_if_exist:cTF {pc@style@#1}

```

```

1472     {
1473       \cs_set:cpn {pc@style@#1}{\keys_set:nn{pdfcomment}{#2}}
1474     }
1475     {
1476       \cs_new:cpn {pc@style@#1}{\keys_set:nn{pdfcomment}{#2}}
1477     }
1478   }

```

(End of definition for `\definestyle`.)

1.26 List of pdf comments

The format of the list entries:

```

1479 \newcommand\l@lpcsec{\@dottedtocline{1}{0em}{0em}}%

```

Define predefined set of liststyles:

`\defineliststyle`

```

1480 \newcommand{\defineliststyle}[2]
1481 {
1482   \cs_if_exist:cTF {__pdfcomment_set_list_style_#1:}
1483   {
1484     \cs_set_protected:cpn {__pdfcomment_set_list_style_#1:}
1485     { \cs_set:Npn \pc@lpc@format {#2} }
1486     % Warning?
1487   }
1488   {
1489     \cs_new_protected:cpn {__pdfcomment_set_list_style_#1:}
1490     { \cs_set:Npn \pc@lpc@format {#2} }
1491   }
1492 }

```

(End of definition for `\defineliststyle`.)

Setting the list style:

`\setliststyle`

```

1493 \newcommand{\setliststyle}[1]
1494 {
1495   \cs_if_exist_use:cF { __pdfcomment_set_list_style_#1: }
1496   {
1497     \setliststyle{AuthorSubject}
1498     \PackageWarning{pdfcomment}
1499     {
1500       Unknown~liststyle~#1~\MessageBreak
1501       in~command~setliststyle~\MessageBreak
1502       Using~liststyle~AuthorSubject~instead!
1503     }
1504   }
1505 }

```

(End of definition for `\setliststyle`.)

The predefined styles. The empty style suppresses the list entry.

```

1506 \cs_new_protected:cpn {__pc_set_list_style:}
1507 { \cs_set_eq:N \pc@lpc@format \prg_do_nothing: }
1508 \defineliststyle
1509 {}
1510 {}
1511 \defineliststyle
1512 {AuthorSubject}
1513 {\pc@lopt@author\ -\ \pc@lopt@subject}
1514 \defineliststyle
1515 {AuthorSubjectDeadline}
1516 {\pc@lopt@author\ -\ \pc@lopt@subject\ (\pc@lopt@deadline)}
1517 \defineliststyle
1518 {SubjectAuthorComment}
1519 {\pc@lopt@subject\ (\pc@lopt@author) :\ \pc@lopt@comment}
1520 \defineliststyle
1521 {SubjectAuthorCommentDeadline}
1522 {\pc@lopt@subject\ (\pc@lopt@author) :\ \pc@lopt@comment\ (\pc@lopt@deadline)}
1523 \defineliststyle
1524 {AuthorComment}
1525 {\pc@lopt@author :\ \pc@lopt@comment}
1526 \defineliststyle
1527 {AuthorCommentDeadline}
1528 {\pc@lopt@author :\ \pc@lopt@comment\ (\pc@lopt@deadline)}
1529 \defineliststyle
1530 {SubjectComment}
1531 {\pc@lopt@subject :\ \pc@lopt@comment}
1532 \defineliststyle
1533 {SubjectCommentDeadline}
1534 {\pc@lopt@subject :\ \pc@lopt@comment\ (\pc@lopt@deadline)}
1535 \defineliststyle
1536 {Comment}
1537 {\pc@lopt@comment}
1538 \defineliststyle
1539 {CommentDeadline}
1540 {\pc@lopt@comment\ (\pc@lopt@deadline)}

```

The list of pdf comments

```

1541 \newcommand{\listofpdfcomments}[1] []
1542 {
1543   \keys_set_groups:nnn {pdfcomment}{listofpdfcomments}{#1}
1544   \ifpc@gopt@final\else
1545     \@ifundefined{chapter}%
1546     {
1547       \section*{\lpcname\@mkboth{\lpcname}{\lpcname}}
1548       \addcontentsline{toc}{section}{\lpcname{}}
1549     }
1550     {
1551       \chapter*{\lpcname\@mkboth{\lpcname}{\lpcname}}
1552       \addcontentsline{toc}{chapter}{\lpcname{}}
1553     }
1554     \@starttoc{lpc}
1555   \fi
1556 }

```

The command that creates the list entries in the annotations:

`\pc@create@lpc`

```

1557 \newcommand{\pc@create@lpc}%
1558 {
1559   \cs_if_eq:NNF\pc@lpc@format\prg_do_nothing:
1560   {
1561     \MakeLinkTarget[pdfcomment]{}
1562     \addcontentsline{lpc}{lpcsec}{\protect\numberline{}\pc@lpc@format}
1563   }
1564 }

```

(End of definition for \pc@create@lpc.)

1.27 Helper code

These properties are used for the reply command:

```

1565 \zref@newlist{pdfcomment}
1566 \zref@newprop{PCPDFOBJID}[]{\pc@collect@PDFOBJID}
1567 \zref@addprop{pdfcomment}{PCPDFOBJID}
1568
1569 \newcommand*{\pc@save@PDFOBJID}[1]
1570 {
1571   \zref@labelbylist{#1}{pdfcomment}
1572 }
1573 \newcommand*{\pc@get@PDFOBJID}[1]
1574 {
1575   \zref@extract{#1}{PCPDFOBJID}
1576 }

```

The command that encodes the text in PDF format.

```

1577 \newcommand{\pc@encode@PDF}[1]
1578 {
1579   \tl_if_empty:oTF {\pc@lopt@deadline}
1580   {
1581     \pdfstringdef\pc@pdfenc@contents{#1}
1582   }
1583   {
1584     \pdfstringdef\pc@pdfenc@contents{#1\textCR{\pc@lopt@deadline}}
1585   }
1586   \tl_gset:Ne\pc@pdfenc@contents {(\pc@pdfenc@contents)}
1587   \pdfstringdef\pc@pdfenc@author {\pc@lopt@author}
1588   \tl_gset:Ne\pc@pdfenc@author {(\pc@pdfenc@author)}
1589   \pdfstringdef\pc@pdfenc@subject {\pc@lopt@subject}
1590   \tl_gset:Ne\pc@pdfenc@subject {(\pc@pdfenc@subject)}
1591 }

1592 \cs_set_eq:NN\pc@pttobp\dim_to_decimal_in_bp:n
1593
1594
1595 \newcommand{\pc@annot@calc@pos@math}
1596 {
1597   \renewcommand{\pc@x@one}
1598     {\pc@pttobp{\pc@Sposx}}

```

```

1599 \renewcommand{\pc@x@two}
1600   {\pc@pttobp{\dimexpr \pc@Sposx + \wd\pc@nullbox\relax}}
1601 \renewcommand{\pc@x@three}
1602   {\pc@pttobp{\pc@Sposx}}
1603 \renewcommand{\pc@x@four}
1604   {\pc@pttobp{\dimexpr \pc@Sposx + \wd\pc@nullbox\relax}}
1605 \renewcommand{\pc@y@one}
1606   {\pc@pttobp{\dimexpr \pc@Sposy + \ht\pc@nullbox + 1pt\relax}}
1607 \renewcommand{\pc@y@two}
1608   {\pc@pttobp{\dimexpr \pc@Sposy + \ht\pc@nullbox + 1pt\relax}}
1609 \renewcommand{\pc@y@three}
1610   {\pc@pttobp{\dimexpr \pc@Sposy - \dp\pc@nullbox - 1pt\relax}}
1611 \renewcommand{\pc@y@four}
1612   {\pc@pttobp{\dimexpr \pc@Sposy - \dp\pc@nullbox - 1pt\relax}}
1613 \setlength{\pc@dima}{\dimexpr \pc@Sposy - \dp\pc@nullbox - 1pt\relax}
1614 \setlength{\pc@dimb}{\dimexpr \pc@Eposy - \dp\pc@nullbox - 1pt\relax}
1615 }
1616
1617 \newcommand{\pc@annot@complete}
1618 {
1619   \renewcommand{\pc@x@one}{\pc@pttobp{\pc@Sposx}}
1620   \renewcommand{\pc@x@two}{\pc@pttobp{\pc@Eposx}}
1621   \renewcommand{\pc@x@three}{\pc@pttobp{\pc@Sposx}}
1622   \renewcommand{\pc@x@four}{\pc@pttobp{\pc@Eposx}}
1623   \renewcommand{\pc@y@one}
1624     {\pc@pttobp{\dimexpr \pc@Sposy + \pc@box@height + 1pt\relax}}
1625   \renewcommand{\pc@y@two}
1626     {\pc@pttobp{\dimexpr \pc@Eposy + \pc@box@height + 1pt\relax}}
1627   \renewcommand{\pc@y@three}
1628     {\pc@pttobp{\dimexpr \pc@Sposy - \pc@box@depth - 1pt\relax}}
1629   \renewcommand{\pc@y@four}
1630     {\pc@pttobp{\dimexpr \pc@Eposy - \pc@box@depth - 1pt\relax}}
1631   \def\pc@annot@quadpoints
1632   {
1633     \pc@x@one\space\pc@y@one\space
1634     \pc@x@two\space\pc@y@two\space
1635     \pc@x@three\space\pc@y@three\space
1636     \pc@x@four\space\pc@y@four
1637   }
1638   \UseTaggingSocket{pdfcomment/annotbox}
1639   {l__pdfcomment_textmarkup_dict}
1640   {
1641     \pdfannot_box:nne {0pt} {0pt} {0pt}
1642     {
1643       \pdfdict_use:n {l__pdfcomment_textmarkup_dict}
1644       \pdfdict_use:n {l__pdfcomment_markup_dict}
1645     }%
1646   }
1647   \__pdfcomment_collect_objid:
1648 }
1649
1650
1651 \newcommand*{\pc@soul@markup}
1652 {

```

```

1653 \stepcounter{pc@count@iii}
1654 \zsavapos{pdfcomment_soul_markup:\thepc@count@iii}
1655 \zref@refused{pdfcomment_soul_markup:\thepc@count@iii}
1656 \setlength{\pc@Sposx}{\zposx{pdfcomment_soul_markup:\thepc@count@iii}sp}
1657 \setlength{\pc@Sposy}{\zposy{pdfcomment_soul_markup:\thepc@count@iii}sp}
1658 \str_if_eq:eeT {\pc@lopt@subtype}{/StrikeOut}
1659 {
1660   \addtolength{\pc@Sposy}{1pt}
1661 }
1662 \setlength{\pc@Eposx}{\pc@Sposx}
1663 \addtolength{\pc@Eposx}{\ulwidth}
1664 \setlength{\pc@Eposy}{\pc@Sposy}
1665 \pc@annot@complete
1666 }
1667
1668 \newcommand{\pc@calc@textblockpos}
1669 {
1670   \if@twoside
1671     \stepcounter{pc@count@ii}
1672     \label{pdfcomment:ts:page:\thepc@count@ii}
1673     \refused{pdfcomment:ts:page:\thepc@count@ii}
1674     \ifodd\getpagerefnumber{pdfcomment:ts:page:\thepc@count@ii}
1675       \if@twocolumn
1676         \ifpc@firstcolumn
1677           \renewcommand{\pc@x@left@text}
1678             {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1679           \renewcommand{\pc@x@right@text}
1680             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \columnwidth}}%
1681         \else
1682           \renewcommand{\pc@x@left@text}
1683             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth - \columnwidth}}
1684           \renewcommand{\pc@x@right@text}
1685             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1686         \fi
1687       \else
1688         \renewcommand{\pc@x@left@text}
1689           {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1690         \renewcommand{\pc@x@right@text}
1691           {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1692       \fi
1693     \else
1694       \if@twocolumn%
1695         \ifpc@firstcolumn%
1696           \renewcommand{\pc@x@left@text}
1697             {\pc@pttobp{1in + \hoffset + \evensidemargin}}
1698           \renewcommand{\pc@x@right@text}
1699             {\pc@pttobp{1in + \hoffset + \evensidemargin + \columnwidth}}
1700         \else
1701           \renewcommand{\pc@x@left@text}
1702             {\pc@pttobp{1in + \hoffset + \evensidemargin + \textwidth - \columnwidth}}
1703           \renewcommand{\pc@x@right@text}
1704             {\pc@pttobp{1in + \hoffset + \evensidemargin + \textwidth}}
1705         \fi
1706       \else

```

```

1707     \renewcommand{\pc@x@left@text}
1708         {\pc@pttobp{1in + \hoffset + \evensidemargin}}
1709     \renewcommand{\pc@x@right@text}
1710         {\pc@pttobp{1in\relax + \hoffset + \evensidemargin + \textwidth}}
1711     \fi
1712 \fi
1713 \else
1714     \if@twocolumn
1715         \ifpc@firstcolumn
1716             \renewcommand{\pc@x@left@text}
1717                 {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1718             \renewcommand{\pc@x@right@text}
1719                 {\pc@pttobp{1in + \hoffset + \oddsidemargin + \columnwidth}}
1720         \else
1721             \renewcommand{\pc@x@left@text}
1722                 {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth - \columnwidth}}
1723             \renewcommand{\pc@x@right@text}
1724                 {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1725         \fi
1726     \else
1727         \renewcommand{\pc@x@left@text}
1728             {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1729         \renewcommand{\pc@x@right@text}
1730             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1731     \fi
1732 \fi
1733 \renewcommand{\pc@y@top@text}
1734     {\pc@pttobp{\paperheight - 1in - \voffset - \topmargin - \headheight - \headsep}}
1735 \renewcommand{\pc@y@bottom@text}
1736     {
1737     \pc@pttobp
1738     {\paperheight - 1in - \voffset - \topmargin - \headheight -
1739     \headsep - \textheight
1740     }
1741 }
1742 }
1743
1744 \newcommand{\pc@calc@sidelinepos}
1745 {
1746     \if@twoside
1747         \stepcounter{pc@count@ii}
1748         \label{pdfcomment:ts:page:\thepc@count@ii}
1749         \refused{pdfcomment:ts:page:\thepc@count@ii}
1750         \ifodd\getpagerefnumber{pdfcomment:ts:page:\thepc@count@ii}
1751             \renewcommand{\pc@x@one}
1752                 {\pc@pttobp{ 1in + \hoffset + \oddsidemargin - \pc@lopt@linesep bp }}
1753             \renewcommand{\pc@x@two}
1754                 {\pc@pttobp{ 1in + \hoffset + \oddsidemargin + \textwidth +
1755                 \pc@lopt@linesep bp }}
1756         \else
1757             \renewcommand{\pc@x@one}
1758                 {\pc@pttobp{ 1in + \hoffset + \evensidemargin - \pc@lopt@linesep bp }}
1759             \renewcommand{\pc@x@two}
1760                 {\pc@pttobp{ 1in + \hoffset + \evensidemargin + \textwidth +

```

```

1761         \pc@lopt@linesep bp }}
1762     \fi
1763 \else
1764     \renewcommand{\pc@x@one}
1765         {\pc@pttobp{ 1in + \hoffset + \oddsidemargin - \pc@lopt@linesep bp }}
1766     \renewcommand{\pc@x@two}
1767         {\pc@pttobp{ 1in + \hoffset + \oddsidemargin + \textwidth +
1768             \pc@lopt@linesep bp }}
1769 \fi
1770 \renewcommand{\pc@y@one}{\pc@pttobp{ \pc@Sposy + \pc@box@height + 1pt}}
1771 \renewcommand{\pc@y@two}{\pc@pttobp{ \pc@Eposy - \pc@box@depth - 1pt}}
1772 \renewcommand{\pc@y@top@text}
1773     {\pc@pttobp{ \paperheight - 1in - \voffset - \topmargin -
1774         \headheight - \headsep}}
1775 \renewcommand{\pc@y@bottom@text}
1776     {\pc@pttobp{ \paperheight - 1in - \voffset - \topmargin -
1777         \headheight - \headsep - \textheight}}
1778 }
1779 </package>

```