

The pdfcomment package

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v3.0b, released 2026-06-15

1 Implementation

```
1 <*package>

2 \ProvidesExplPackage {pdfcomment} {2026-06-15} {3.0b}
3 {PDF annotations and comments}
4 \IfPDFManagementActiveF{\RequirePackageWithOptions{pdfcomment-2018-11-01}}
5 \IfPDFManagementActiveF{\endinput}
6 \RequirePackage{hyperref}
```

1.1 Variables

Default values. The commands use goptd.

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

*Initial implementation done by Josef Kleber

```

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

```

Variables for local command options

```

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

```

This can probably go at some time.

```
83 \gdef\pc@lopt@c{}
84 \gdef\pc@lopt@ic{}
85 \gdef\pc@lopt@cdate{}
86 \gdef\pc@lopt@l{}
87 \gdef\pc@lopt@le{}
88 \gdef\pc@lopt@cap{}
89 \gdef\pc@lopt@cp{}
90 \gdef\pc@lopt@co{}
```

Booleans

```
91 \newif\ifpc@gopt@final\pc@gopt@finalfalse
92 \newif\ifpc@lopt@disable\pc@lopt@disablefalse
93 \bool_new:N \@@_lopt_printS0final_bool
94 \newif\ifpc@annot@samepage\pc@annot@samepagetrue
95 \newif\ifpc@annot@secondpage\pc@annot@secondpagefalse
96 \newif\ifpc@ignorespaces\pc@ignorespacesfalse
97 \newif\ifpc@firstcolumn\pc@firstcolumntrue
98 \newif\ifpc@Sfirstcolumn\pc@Sfirstcolumntrue
99 \newif\ifpc@Efirstcolumn\pc@Efirstcolumntrue
```

A few counter

```
100 \newcounter{pc@count@i}
101 \newcounter{pc@count@ii}
102 \newcounter{pc@count@iii}
103 \newcounter{pc@count@iv}
```

Temporary boxes. TODO change names

```
104 \newbox\pc@mathannot@box%
105 \newbox\pc@nullbox%
```

Temporary lengths.

```
106 \newlength{\pc@dima}
107 \newlength{\pc@dimb}
```

Other lengths.

```
108 \newlength{\pc@Sposx}%
109 \newlength{\pc@Sposy}%
110 \newlength{\pc@Eposx}%
111 \newlength{\pc@Eposy}%
112 \newlength{\pc@column}%
113 \newlength{\pc@box@width}%
114 \newlength{\pc@box@height}%
115 \newlength{\pc@box@depth}%

```

Variables to hold the coordinate of the QuadPoints

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

```

```

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

```

1.2 List of pdfcomments

```

135 \newcommand{\lpcname}{List~of~pdfcomments}%
136 \gdef\pc@lpc@format{\pc@lopt@author\ -- \pc@lopt@subject}%
137 \gdef\pc@lopt@liststyle{AuthorSubject}%
138 %

```

1.3 Key definitions

```

139 \keys_define:nn{pdfcomment}
140 {
141   avatar.code:n =
142   {
143     \cs_if_exist_use:cF { pc@avatar@#1 }
144     {
145       \PackageWarning{pdfcomment}{Unknown~avatar~ #1\MessageBreak%
146         skip~assignment}%
147     }
148   }
149 }
150
151 \keys_define:nn{pdfcomment}
152 {
153   style.code:n =
154   {
155     \cs_if_exist_use:cF { pc@style@#1 }
156     {
157       \PackageWarning{pdfcomment}{Unknown~style~ #1\MessageBreak%
158         skip~assignment}%
159     }
160   }
161 }
162
163 \keys_define:nn{pdfcomment}
164 {
165   ,subject .tl_set:N = \pc@lopt@subject
166   ,subject .initial:o = \pc@goptd@subject
167 }
168
169 \keys_define:nn{pdfcomment}
170 {
171   ,color .code:n =

```

```

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

```

```

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

```

```

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

```

```

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

```



```

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

```

```

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

```

```

496   local.code:n =
497     {\PackageWarning{pdfcomment}{The~option~'local'~is~ignored}}
498   }
499
500 \keys_define:nn{pdfcomment}
501 {
502   ,liststyle .code:n = {\setliststyle{#1}}
503   ,liststyle .groups:n = {listofpdfcomments}
504 }
505
506 \keys_define:nn{pdfcomment}
507 {
508   ,heading .tl_set:N = \pc@lopt@liststyle
509   ,heading .groups:n = {listofpdfcomments}
510 }
511 \ProcessKeyOptions[pdfcomment]\relax%
512 %
513 \RequirePackage{etoolbox}%
514 \RequirePackage{zref-savepos}[2007/04/22]%
515 \zref@require@unique%
516 \RequirePackage{refcount}%
517 \RequirePackage{ifthen}%
518 \RequirePackage{marginnote}%
519 \RequirePackage{soulpos}%
520 %\RequirePackage{hyperref}
521 %
522 % Using the options draft, final in \pdfcommentsetup makes absolutely no sense!
523 % Therefore, they are switched off at "\AtBeginDocument"
524 % and a warning is issued by xkeyval.sty, if used.

```

1.4 Tagging Socket(s)

```

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

```

1.5 Standard building blocks

1.5.1 Annotation keys

The keys generally allowed in annotations

```

540 <@@=pdfcomment>

```

541 \pdfdict_new:n {l__pdfcomment_core_dict}

Type: automatic
Subtype:

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

Rect: automatic
Contents:

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

P: ignored. TODO?
NM: ignored. TODO?
M: date

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

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

545 \pdfdict_put:nnn {l__pdfcomment_core_dict} {F} {4}

AP, AS: appearance. TODO!
Border: ignored. See BS. TODO?
C: color

546 \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.

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

BM: blend mode, ignored. TODO?
Lang: (pdf 2.0) TODO

1.5.2 Markup annotation keys

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

548 \pdfdict_new:n {l__pdfcomment_markup_dict}

T: the title/author of a markup.

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

Popup: ignored. TODO?
RC: ignored. TODO?
CreationDate:

550 \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:

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

RT: currently ignored. Needs an IRT entry. TODO?
IT: Intent. Currently ignored. TODO?

1.6 Keys of text annotations

```
552 \pdfdict_new:n      {l__pdfcomment_text_dict}
553 \pdfdict_set_eq:nn {l__pdfcomment_text_dict} {l__pdfcomment_core_dict}
```

Open: a boolean flag

```
554 \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

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

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

1.6.1 Keys for freetext annotations

```
556 \pdfdict_new:n      {l__pdfcomment_freetext_dict}
557 \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.

```
558 \pdfdict_put:nnn {l__pdfcomment_freetext_dict}
559     {DA}
560     {(</\pc@lopt@font\space \pc@lopt@fontsize\space Tf\space\pc@hyenc@fontcolor
561       \space rg)}
```

Q: justification, integer, 0, 1 or 2

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

RC: currently ignored. TODO?

DS: currently ignored. TODO?

CL: callout (needs IT=FreeTextCallout):

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

IT: intent. One of FreeText, FreeTextTypeWriter, FreeTextCallout

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

BE:

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

RD: currently ignored. TODO?

BS:

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

LE

```
568 \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.

```
569 \cs_new_protected:Npn \__pdfcomment_dict_update_freetext:
570 {
571   \str_if_eq:eeT {\pc@lopt@type}{/FreeTextTypewriter}
572   {%
573     \tl_set:Nn\pc@lopt@linewidth{0}
574     \tl_set:Nn\pc@lopt@color{}
575   }%
576 }
```

1.7 Keys for square and circle annotations

```
577 \pdfdict_new:n      {l__pdfcomment_geometric_dict}
578 \pdfdict_set_eq:nn {l__pdfcomment_geometric_dict}{l__pdfcomment_core_dict}
579 \pdfdict_put:nnn    {l__pdfcomment_geometric_dict} {BE} {<</S /\pc@lopt@bse/I~\pc@lopt@bsei>>}
580 \pdfdict_put:nnn    {l__pdfcomment_geometric_dict} {BS}
581      {<</W~\pc@lopt@linewidth/S/\pc@lopt@borderstyle/D~[\pc@lopt@dashstyle]>>}
582 \pdfdict_put:nnn {l__pdfcomment_geometric_dict} {IC} {\pc@lopt@icolor}
```

1.8 Keys for line annotations

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

```
583 \pdfdict_new:n      {l__pdfcomment_line_dict}
584 \pdfdict_set_eq:nn {l__pdfcomment_line_dict}{l__pdfcomment_core_dict}
```

L: see below in update command.

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

BS:

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

LE: line endings.

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

IC: internal color

```
589 \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.

```
590 \cs_new_protected:Npn \__pdfcomment_dict_update_line:
591 {
592   \str_if_eq:eeTF{\pc@lopt@caption}{none}
593   {
594     \pdfdict_put:nnn {l__pdfcomment_line_dict} {Cap}{false}
595   }
596   {
597     \pdfdict_put:nnn {l__pdfcomment_line_dict} {Cap}{true}
598     \pdfdict_put:nnn {l__pdfcomment_line_dict} {CP} {/\pc@lopt@caption}
599     \pdfdict_put:nnn {l__pdfcomment_line_dict}
600       {CO}
601       {[\pc@lopt@captionhoffset\space \pc@lopt@captionvoffset]}
602   }
603 }
```

1.9 Keys for Polygon and PolyLine annotations

```
604 \pdfdict_new:n{1__pdfcomment_poly_dict}
605 \pdfdict_set_eq:nn {1__pdfcomment_poly_dict}{1__pdfcomment_core_dict}
```

Vertices:

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

LE (meaning full only for polyline)

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

BS:

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

IC: internal color

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

BE (meaningful only for polygon)

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

IT, Measure, Path: currently ignored. TODO?

1.10 Keys for tool tips

Note: tooltips are form fields!

```
612 \pdfdict_new:n {1__pdfcomment_tooltip_dict}
613 \pdfdict_set_eq:nn {1__pdfcomment_tooltip_dict}{1__pdfcomment_core_dict}
```

This is are field keys, not widget keys!

```
614 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {TU}{\pc@pdfenc@contents}
615 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {T} {(tooltip \thexref@unique)}
616 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {FT}{/Btn}
617 \pdfdict_put:nnn {1__pdfcomment_tooltip_dict} {Ff}{65536}
```

Widget keys. H: TODO: allow more options?

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

We set a different flag value here.

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

1.11 Keys for text markup annotations

Highlight, Underline, Squiggly, StrikeOut:

```
621 \pdfdict_new:n {1__pdfcomment_textmarkup_dict}
622 \pdfdict_set_eq:nn {1__pdfcomment_textmarkup_dict}{1__pdfcomment_core_dict}
623 \pdfdict_put:nnn {1__pdfcomment_textmarkup_dict} {QuadPoints} {[ \pc@annot@quadpoints]}
```

1.12 Collecting references

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

```
624 \cs_new_protected:Npn \__pdfcomment_collect_objid:
625 {
626   \tl_if_empty:eF{\pc@lopt@id}
627   {
628     \tl_put_right:Ne\pc@collect@PDFOBJID{,\pdfannot_ref_last:}
629   }
630 }
631 \cs_new_protected:Npn \__pdfcomment_save_objid:
632 {
633   \tl_if_empty:eF{\pc@lopt@id}
634   {
635     \pc@save@PDFOBJID{\pc@lopt@id}
636   }
637 }
```

1.13 \pdfcomment

```
638 \newcommand{\pdfcomment}[2] []
639 {
640   \ifhmode\unskip\fi
641   \ifvmode\leavevmode\fi
```

TODO Check if the command needs to be set globally!

```
642   \group_begin:
643   \gdef\pc@collect@PDFOBJID{S}
644   \keys_set:nn{\pdfcomment}{#1}
645   \def\pc@lopt@subtype{/Text}
646   \def\pc@lopt@comment{#2}
```

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

```
647   \pc@encode@PDF{#2}
648   \ifpc@gopt@final\else
649     \ifpc@lopt@disable\else
650       \hspace*{0pt}
```

This creates the list entry

```
651     \pc@create@lpc
```

Typeset the text annotation in a box of size zero.

```
652     \vbox%
653     {\tagpdfpara0ff
654       \hsize=0pt
655       \noindent
656       \vspace{\pc@lopt@voffset}
657       \hbox to 0pt
658       {
659         \vsize=0pt
660         \hskip\pc@lopt@hoffset
```



```

661         \UseTaggingSocket{pdfcomment/annotbox}
662         {l__pdfcomment_text_dict}
663         {
664             \pdfannot_box:nnne
665             {\normalbaselineskip}
666             {\normalbaselineskip}
667             {Opt}
668             {
669                 \pdfdict_use:n {l__pdfcomment_text_dict}
670                 \pdfdict_use:n {l__pdfcomment_markup_dict}
671             }
672         }

```

TODO: check

```

673         \__pdfcomment_collect_objid:
674         \__pdfcomment_save_objid:
675         \hss%
676     }%
677 }%
678 \hspace{\pc@lopt@hspace}
679 \fi
680 \fi
681 \group_end:
682 }%

```

1.14 \pdfmargincomment

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

```

683 \newcommand{\pdfmargincomment}[2] []
684 {
685     \ifhmode\unskip\fi
686     \ifvmode\leavevmode\fi
687     \group_begin:
688     \gdef\pc@collect@PDFOBJID{S}
689     \keys_set:nn{pdfcomment}{#1}
690     \def\pc@lopt@subtype{/Text}
691     \def\pc@lopt@comment{#2}

```

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

```

692     \pc@encode@PDF{#2}
693     \ifpc@gopt@final\else
694         \ifpc@lopt@disable\else
695             \hspace*{Opt}
696             \pc@create@lpc

```

Center marginnotes:

```

697         \renewcommand{\raggedleftmarginnote}{\pc@raggedleftmarginnote}
698         \renewcommand{\raggedrightmarginnote}{\pc@raggedrightmarginnote}

```

Typeset the annotation in a `\marginnote`:

```

699     \marginnote
700     {

```

```

701         \vbox
702         { \tagpdfparaOff
703           \hsize=0pt
704           \noindent
705           \vspace{\pc@lopt@voffset}
706           \hbox to 0pt
707           {
708             \vsize=0pt
709             \hskip\pc@lopt@hoffset
710             \UseTaggingSocket{pdfcomment/annotbox}
711             {l__pdfcomment_text_dict}
712             {
713               \pdfannot_box:nnne
714               {\normalbaselineskip}
715               {\normalbaselineskip}
716               {0pt}
717               {
718                 \pdfdict_use:n {l__pdfcomment_text_dict}
719                 \pdfdict_use:n {l__pdfcomment_markup_dict}
720               }
721             }
722             \__pdfcomment_collect_objid:
723             \__pdfcomment_save_objid:
724             \hss
725           }
726         }
727         \hspace{\pc@lopt@hspace}
728     }
729     \fi
730 \fi
731 \group_end:
732 }

```

1.15 pdffreetextcomment

```

733 \newcommand{\pdffreetextcomment}[2] []
734 {
735   \ifhmode\unskip\fi
736   \ifvmode\leavevmode\fi
737   \group_begin:
738   \gdef\pc@collect@PDFOBJID{S}
739   \keys_set:nn{pdfcomment}{#1}
740   \def\pc@lopt@subtype{/FreeText}
741   \def\pc@lopt@comment{#2}
742   \__pdfcomment_dict_update_freertext:

```

Encode Contents, Author and Subject and colors:

```

743   \pc@encode@PDF{#2}
744   \ifpc@gopt@final\else
745     \ifpc@lopt@disable\else
746       \hspace*{0pt}

```

typeset freetext annotation

```

747       \vbox to 0pt

```

```

748     {
749         \tagpdfparaOff
750         \hsize=0pt
751         \noindent%
752         \vskip-\pc@lopt@voffset
753         \hbox to 0pt
754         {
755             \vsize=0pt
756             \hskip\pc@lopt@hoffset
757             \pc@create@lpc
758             \UseTaggingSocket{pdfcomment/annotbox}
759             {l__pdfcomment_freetext_dict}
760             {
761                 \pdfannot_box:nne
762                 {\dim_eval:n{\pc@lopt@width+0pt}}
763                 {\dim_eval:n{\pc@lopt@height+0pt}}
764                 {\dim_eval:n{\pc@lopt@depth+0pt}}
765                 {
766                     \pdfdict_use:n {l__pdfcomment_freetext_dict}
767                     \pdfdict_use:n {l__pdfcomment_markup_dict}
768                 }
769             }
770             \__pdfcomment_collect_objid:
771             \__pdfcomment_save_objid:
772             \hss
773         }
774     \vss
775 }
776 \fi
777 \fi
778 \group_end:
779 }

```

1.16 \pdfsquarecomment

```

780 \newcommand{\pdfsquarecomment}[2] []
781 {
782     \ifhmode\unskip\fi
783     \ifvmode\leavevmode\fi
784     \group_begin:
785     \gdef\pc@collect@PDFOBJID{S}
786     \keys_set:nn{pdfcomment}{#1}
787     \def\pc@lopt@subtype{/Square}
788     \def\pc@lopt@comment{#2}

```

Encode Contents, Author and Subject and color

```

789     \pc@encode@PDF{#2}
790     \ifpc@gopt@final\else
791         \ifpc@lopt@disable\else
792             \hspace*{0pt}

```

typeset square annotation

```

793         \vbox to 0pt
794         {

```

```

795         \tagpdfparaOff
796         \hsize=0pt
797         \noindent
798         \vskip-\pc@lopt@voffset
799         \hbox to 0pt
800     {
801         \vsize=0pt
802         \hskip\pc@lopt@hoffset
803         \pc@create@lpc
804         \UseTaggingSocket{pdfcomment/annotbox}
805         {l__pdfcomment_geometric_dict}
806         {
807             \pdfannot_box:nne
808             {\dim_eval:n{\pc@lopt@width+0pt}}
809             {\dim_eval:n{\pc@lopt@height+0pt}}
810             {\dim_eval:n{\pc@lopt@depth+0pt}}
811             {
812                 \pdfdict_use:n {l__pdfcomment_geometric_dict}
813                 \pdfdict_use:n {l__pdfcomment_markup_dict}
814             }
815         }
816         \__pdfcomment_collect_objid:
817         \__pdfcomment_save_objid:
818         \hss
819     }
820     \vss
821 }
822 \fi
823 \fi
824 \group_end:
825 }

```

1.17 \pdfcirclecomment

```

826 \newcommand{\pdfcirclecomment}[2] []
827 {
828     \ifhmode\unskip\fi
829     \ifvmode\leavevmode\fi
830     \group_begin:
831     \gdef\pc@collect@PDFOBJID{S}
832     \keys_set:nn{pdfcomment}{#1}
833     \def\pc@lopt@subtype{/Circle}
834     \def\pc@lopt@comment{#2}

```

Encode Contents, Author and Subject and color

```

835     \pc@encode@PDF{#2}
836     \ifpc@gopt@final\else
837         \ifpc@lopt@disable\else
838             \hspace*{0pt}%

```

typeset circle annotation

```

839         \vbox to 0pt
840         {
841             \tagpdfparaOff

```

```

842         \hsize=0pt
843         \noindent
844         \vskip-\pc@lopt@voffset
845         \hbox to 0pt
846         {
847             \vsize=0pt
848             \hskip\pc@lopt@hoffset
849             \pc@create@lpc
850             \UseTaggingSocket{pdfcomment/annotbox}
851             {l__pdfcomment_geometric_dict}
852             {
853                 \pdfannot_box:nne
854                 {\dim_eval:n{\pc@lopt@width+0pt}}
855                 {\dim_eval:n{\pc@lopt@height+0pt}}
856                 {\dim_eval:n{\pc@lopt@depth+0pt}}
857                 {
858                     \pdfdict_use:n {l__pdfcomment_geometric_dict}
859                     \pdfdict_use:n {l__pdfcomment_markup_dict}
860                 }
861             }
862             \__pdfcomment_collect_objid:
863             \__pdfcomment_save_objid:
864             \hss
865         }
866         \vss
867     }
868     \fi
869     \fi
870     \group_end:
871 }%

```

1.18 \pdflinecomment

```

872 \newcommand{\pdflinecomment}[2]{}
873 {
874     \ifhmode\unskip\fi
875     \ifvmode\leavevmode\fi
876     \group_begin:
877     \gdef\pc@collect@PDFOBJID{S}
878     \keys_set:nn{pdfcomment}{#1}
879     \def\pc@lopt@comment{#2}
880     \pc@encode@PDF{#2}
881     \ifpc@gopt@final\else
882         \ifpc@lopt@disable\else
883             \hspace*{0pt}
884             \pc@create@lpc
885             \vbox to 0pt
886             {
887                 \tagpdfparaOff
888                 \hsize=0pt
889                 \noindent
890                 \hbox to 0pt
891                 {
892                     \vsize=0pt

```

```

893 \tl_if_eq:NnTF\pc@lopt@subtype{/Line}
894 {
895   \__pdfcomment_dict_update_line:
896   \UseTaggingSocket{pdfcomment/annotbox}
897   {l__pdfcomment_line_dict}
898   {
899     \pdfannot_box:nnne
900     {\dim_eval:n{\pc@lopt@width+0pt}}
901     {\dim_eval:n{\pc@lopt@height+0pt}}
902     {\dim_eval:n{\pc@lopt@depth+0pt}}
903     {
904       \pdfdict_use:n {l__pdfcomment_line_dict}
905       \pdfdict_use:n {l__pdfcomment_markup_dict}
906     }
907   }
908 }
909 {
910   \UseTaggingSocket{pdfcomment/annotbox}
911   {l__pdfcomment_poly_dict}
912   {
913     \pdfannot_box:nnne
914     {\dim_eval:n{\pc@lopt@width+0pt}}
915     {\dim_eval:n{\pc@lopt@height+0pt}}
916     {\dim_eval:n{\pc@lopt@depth+0pt}}
917     {
918       \pdfdict_use:n {l__pdfcomment_poly_dict}
919       \pdfdict_use:n {l__pdfcomment_markup_dict}
920     }
921   }
922 }
923 \__pdfcomment_collect_objid:
924 \__pdfcomment_save_objid:
925 \hss
926 }
927 \vss
928 }
929 \fi
930 \fi
931 \group_end:
932 }

```

1.19 \pdfmarkupcomment

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

```

933 \newcommand{\pdfmarkupcomment}[3] [] % #1 option, #2 text, #3 comment
934 {
935   \leavevmode
936   \group_begin:
937   \gdef\pc@collect@PDFOBJID{S}
938   \keys_set:nn{pdfcomment}{#1}
939   \def\pc@lopt@comment{#3}
940   \ifmmode%
941     \zsavepos{pdfcomment:\thexref@unique}
942     \zref@refused{pdfcomment:\thexref@unique}

```

```

943 \setlength{\pc@Sposx}{\zposx{pdfcomment:\thezref@unique}sp}
944 \setlength{\pc@Sposy}{\zposy{pdfcomment:\thezref@unique}sp}
945 \stepcounter{zref@unique}%
946 \setlength{\pc@Eposx}{\zposx{pdfcomment:\thezref@unique}sp}
947 \setlength{\pc@Eposy}{\zposy{pdfcomment:\thezref@unique}sp}
948 \ifpc@gopt@final\else
949 \ifpc@lopt@disable\else
950 \setbox\pc@nullbox=
951 \hbox{\SuspendTagging{}\pc@encode@PDF{#3}$\pc@lopt@mathstyle#2$}
952 \setbox\pc@mathannot@box=\hbox to\wd\pc@nullbox
953 {
954 \vrule height\ht\pc@nullbox-depth\dp\pc@nullbox-width\z@
955 \hfill
956 \pc@annot@calc@pos@math
957 \edef\pc@annot@quadpoints
958 {
959 \pc@x@one\space\pc@y@one\space\pc@x@two\space\pc@y@two\space
960 \pc@x@three\space\pc@y@three\space\pc@x@four\space\pc@y@four
961 }
962 \UseTaggingSocket
963 {pdfcomment/annotbox}
964 {l__pdfcomment_textmarkup_dict}
965 {
966 \pdfannot_box:nnne {0pt} {0pt} {0pt}
967 {
968 \pdfdict_use:n {l__pdfcomment_textmarkup_dict}
969 \pdfdict_use:n {l__pdfcomment_markup_dict}
970 }
971 }
972 }
973 \__pdfcomment_collect_objid:
974 \wd\pc@mathannot@box\z@
975 \ht\pc@mathannot@box\z@
976 \dp\pc@mathannot@box\z@
977 \box\pc@mathannot@box
978 \nobreak%
979 \fi
980 \fi
981 \ifpc@gopt@final
982 \str_if_eq:eeTF{\pc@lopt@subtype}{/StrikeOut}
983 {
984 \bool_if:NTF\__pdfcomment_lopt_printS0final_bool
985 {#2\pc@ignorespacesfalse}
986 {\pc@ignorespacestrue}
987 }
988 {
989 #2\pc@ignorespacesfalse
990 }
991 \else
992 \ifpc@lopt@disable
993 \str_if_eq:eeTF{\pc@lopt@subtype}{/StrikeOut}
994 {
995 \bool_if:NTF\__pdfcomment_lopt_printS0final_bool
996 {#2\pc@ignorespacesfalse}

```

```

997         {\pc@ignorespacestrue}
998     }
999     {
1000         #2\pc@ignorespacesfalse
1001     }
1002     \else
1003         #2\pc@ignorespacesfalse
1004     \fi
1005 \fi
1006 \zsavapos{pdfcomment:\thezref@unique}
1007 \zref@refused{pdfcomment:\thezref@unique}
1008 \stepcounter{zref@unique}
1009 \else
1010     \pc@encode@PDF{#3}
1011     \settoheight{\pc@box@height}{#2}
1012     \str_if_eq:eeTF
1013     {\pc@lopt@subtype}
1014     {/Underline}
1015     {
1016         \settodepth{\pc@box@depth}{Tq}
1017     }
1018     {
1019         \settodepth{\pc@box@depth}{#2}
1020     }
1021 \def\Soul@preamble
1022 {
1023     \def\ulp@skern{0pt}
1024     \def\ulp@ekern{0pt}
1025     \def\ulp@sgap{0pt}
1026     \def\ulp@egap{0pt}
1027     \def\ulp@pos{\z@}

```

Here the annotation is created:

```

1028     \def\ulp@draw{\pc@soul@markup}
1029     \ulp@preamble
1030 }
1031 \let\Soul@postamble\ulp@postamble
1032 \let\Soul@everyspace\ulp@everyspace

```

For tagging we need a fake space:

```

1033 \def\Soul@everyspace##1
1034 {
1035     \ulp@stepput\@ne
1036     ##1\use:c{pdffakepace}\space
1037     \ulp@stepput\@ne
1038 }
1039 \let\Soul@everyhyphen\ulp@everyhyphen
1040 \let\Soul@everyexhyphen\ulp@everyexhyphen
1041 \let\Soul@everysyllable\@empty
1042 \def\Soul@everytoken{\the\Soul@token}
1043 \ifpc@gopt@final
1044     \str_if_eq:eeTF
1045     {\pc@lopt@subtype}
1046     {/StrikeOut}

```



```

1047     {
1048       \bool_if:NTF\__pdfcomment_lopt_printSofinal_bool
1049       {\SuspendTagging{}\SOUL@{#2}\ResumeTagging{}\pc@ignorespacesfalse}
1050       {\pc@ignorepacestrue}
1051     }
1052     {
1053       #2\pc@ignorespacesfalse
1054     }
1055   \else
1056     \ifpc@lopt@disable
1057       \str_if_eq:eeTF
1058       {\pc@lopt@subtype}
1059       {\StrikeOut}
1060     {
1061       \bool_if:NTF\__pdfcomment_lopt_printSofinal_bool
1062       {#2\pc@ignorespacesfalse}
1063       {\pc@ignorepacestrue}
1064     }
1065     {
1066       #2\global\pc@ignorespacesfalse
1067     }
1068   \else
1069     \SuspendTagging{}\SOUL@{#2}\ResumeTagging{}
1070     \pc@ignorespacesfalse
1071   \fi
1072   \fi
1073 \fi
1074 \ifpc@gopt@final\else
1075   \ifpc@lopt@disable\else
1076     \pc@create@lpc
1077   \fi
1078 \fi
1079 \__pdfcomment_save_objid:
1080 \ifpc@ignorespaces
1081   \ignorespaces
1082 \fi
1083 \group_end:
1084 }%

```

1.20 pdfsidelinecomment

This is a Line annotation.

```

1085 \newenvironment{pdfsidelinecomment}[2] []
1086 {
1087   \ifhmode\unskip\fi
1088   \ifvmode\leavevmode\fi
1089   \gdef\pc@collect@PDFOBJID{S}
1090   \keys_set:nn{pdfcomment}{#1}
1091   \def\pc@lopt@subtype{/Line}
1092   \def\pc@lopt@comment{#2}
1093   \__pdfcomment_dict_update_line:

```

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

```

1094   \pc@encode@PDF{#2}

```

```

1095 \zsavapos{pdfcomment:slc:\thepc@count@iv}
1096 \zref@refused{pdfcomment:slc:\thepc@count@iv}
1097 \setlength{\pc@Sposx}{\zposx{pdfcomment:slc:\thepc@count@iv}sp}
1098 \setlength{\pc@Sposy}{\zposy{pdfcomment:slc:\thepc@count@iv}sp}
1099 \stepcounter{pc@count@iv}
1100 \setlength{\pc@Eposx}{\zposx{pdfcomment:slc:\thepc@count@iv}sp}
1101 \setlength{\pc@Eposy}{\zposy{pdfcomment:slc:\thepc@count@iv}sp}
1102 \settoheight{\pc@box@height}{Tq}
1103 \settoheight{\pc@box@depth}{Tq}
1104 \stepcounter{pc@count@i}
1105 \label{pdfcomment:pageS:\thepc@count@i}
1106 \refused{pdfcomment:pageS:\thepc@count@i}
1107 \def\pc@pS{\getpagerefnumber{pdfcomment:pageS:\thepc@count@i}}
1108 \def\pc@pE{\getpagerefnumber{pdfcomment:pageE:\thepc@count@i}}
1109 \str_if_eq:eeTF {\pc@pS}{\pc@pE}
1110   {\pc@annot@samepagetrue}
1111   {\pc@annot@samepagefalse}
1112 \pc@firstcolumntrue
1113 \pc@calc@textblockpos
1114 \setlength{\pc@column}{\pc@x@right@text bp}
1115 \addtolength{\pc@column}{3pt}
1116 \ifnum\pc@Sposx<\pc@column
1117   \pc@Sfirstcolumntrue
1118 \else
1119   \pc@Sfirstcolumnfalse
1120 \fi
1121 \ifnum\pc@Eposx<\pc@column
1122   \pc@Efirstcolumntrue
1123 \else
1124   \pc@Efirstcolumnfalse
1125 \fi
1126 \ifpc@annot@samepage\else
1127   \ifpc@gopt@final\else
1128     \ifpc@lopt@disable\else
1129       % 1st part of annotation on 1st page
1130       \if@twocolumn
1131         \ifpc@Sfirstcolumn
1132           \PackageError{pdfcomment}
1133           {
1134             \string\pdfsidelinecomment\space supports~only~one\MessageBreak
1135             column~or~ page~ break~ in~ twocolumn~ mode!!\MessageBreak
1136             Your~ comment~ is~ too~ long!
1137           }
1138         \else
1139           % start in second column
1140           \pc@annot@secondpagefalse
1141           \pc@calc@sidelinepos
1142           \renewcommand{\pc@y@two}{\pc@y@bottom@text}
1143
1144           \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1145           \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[{\pc@lopt@linebegin\space/None}
1146             \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1147           \fi
1148         \else

```

```

1149         \pc@annot@secondpagefalse
1150         \pc@calc@sidelinepos
1151         \renewcommand{\pc@y@two}{\pc@y@bottom@text}
1152
1153         \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1154         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@linebegin\space/None]}
1155         \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1156
1157         \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1158         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ /None\space \pc@lopt@linebegin]}
1159         \marginnote{\pc@create@annot@sideline}
1160     \fi
1161 \fi
1162 \fi
1163 \fi
1164 }
1165 {
1166     \zsavapos{pdfcomment:slc:\thepc@count@iv}
1167     \zref@refused{pdfcomment:slc:\thepc@count@iv}
1168     \label{pdfcomment:pageE:\thepc@count@i}
1169     \refused{pdfcomment:pageE:\thepc@count@i}
1170     \stepcounter{pc@count@iv}
1171     \ifpc@gopt@final\else
1172         \ifpc@lopt@disable\else
1173             \ifpc@annot@samepage
1174                 % annot complete on one page
1175                 \if@twocolumn
1176                     \ifpc@Sfirstcolumn
1177                         \ifpc@Efirstcolumn
1178                             % complete in first column
1179                             \pc@firstcolumntrue
1180                             \pc@calc@sidelinepos
1181
1182                             \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1183                             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space \pc@lopt@linebegin]}
1184                             \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1185
1186                         \else
1187                             % column break
1188                             \pc@firstcolumntrue
1189                             \pc@calc@sidelinepos
1190                             \renewcommand{\pc@y@two}{\pc@y@bottom@text}
1191
1192                             \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1193                             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ /None\space \pc@lopt@linebegin]}
1194                             \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1195
1196                             \pc@firstcolumnfalse
1197                             \pc@calc@sidelinepos
1198                             \renewcommand{\pc@y@one}{\pc@y@top@text}
1199
1200                             \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1201                             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ /None\space \pc@lopt@lineend]}
1202                             \marginnote{\pc@create@annot@sideline}

```

```

1203
1204     \fi
1205 \else
1206     \ifpc@Efirstcolumn
1207         % not possible
1208     \else
1209         % complete in seconds column
1210         \pc@firstcolumnfalse
1211         \pc@calc@sidelinepos
1212
1213         \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1214         \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@linebegin\space \pc@lopt@lineend\space \pc@lopt@line}
1215         \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1216     \fi
1217 \fi
1218 \else
1219     \pc@calc@sidelinepos
1220
1221     \def\pc@lopt@line{\pc@x@two\space\pc@y@one\space\pc@x@two\space\pc@y@two}
1222     \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@linebegin\space \pc@lopt@lineend\space \pc@lopt@line}
1223     \marginnote{\pc@create@lpc\pc@create@annot@sideline}
1224
1225     \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1226     \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space \pc@lopt@linebegin\space \pc@lopt@line}
1227     \marginnote{\pc@create@annot@sideline}
1228
1229 \fi
1230 \else
1231     % 2nd part of annotation on 2nd page
1232     \if@twocolumn
1233         \ifpc@Efirstcolumn
1234             % end in first column
1235             \pc@firstcolumntrue
1236             \pc@annot@secondpagetrue
1237             \pc@calc@sidelinepos
1238             \renewcommand{\pc@y@one}{\pc@y@top@text}
1239
1240             \def\pc@lopt@line{\pc@x@one\space\pc@y@two\space\pc@x@one\space\pc@y@one}
1241             \pdfdict_put:nne {l__pdfcomment_line_dict} {LE} {[ \pc@lopt@lineend\space \None]}
1242             \marginnote{\pc@create@annot@sideline}
1243
1244         \else
1245             \PackageError{pdfcomment}
1246             {
1247                 \string\pdfsidelinecomment\space supports~ only~ one\MessageBreak
1248                 column~ or~ page~ break~ in~ twocolumn~ mode!\MessageBreak
1249                 Your~ comment~ is~ too~ long!
1250             }
1251         \fi
1252     \else
1253         \pc@annot@secondpagetrue
1254         \pc@calc@sidelinepos
1255         \renewcommand{\pc@y@one}{\pc@y@top@text}
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} {[None\space\pc@lopt@lineend]}
1259         \marginnote{\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/None]}
1263         \marginnote{\pc@create@annot@sideline}
1264
1265         \fi
1266     \fi
1267 \fi
1268 \fi
1269 \__pdfcomment_save_objid:
1270 }

```

The helper command with the annotation:

`\pc@create@annot@sideline`

```

1271 \newcommand{\pc@create@annot@sideline}
1272 {
1273     \ifpc@gopt@final\else
1274         % typeset line annotation (see: PDF Reference)
1275         \vbox to 0pt
1276         {\tagpdfparaOff
1277         \hsize=0pt
1278         \noindent
1279         \hbox to 0pt
1280         {
1281             \vsize=0pt
1282             \UseTaggingSocket{pdfcomment/annotbox}
1283             {l__pdfcomment_line_dict}
1284             {
1285                 \pdfannot_box:nnne
1286                 {\dim_eval:n{\pc@lopt@width+0pt}}
1287                 {\dim_eval:n{\pc@lopt@height+0pt}}
1288                 {\dim_eval:n{\pc@lopt@depth+0pt}}
1289                 {
1290                     \pdfdict_use:n {l__pdfcomment_line_dict}
1291                     \pdfdict_use:n {l__pdfcomment_markup_dict}
1292                 }
1293             }
1294             \hss
1295         }
1296         \vss
1297     }
1298     \ifpc@annot@samepage
1299         \__pdfcomment_collect_objid:
1300     \else
1301         \ifpc@annot@secondpage
1302             \__pdfcomment_collect_objid:
1303         \else
1304             \fi
1305         \fi
1306     \fi
1307 }

```

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

1.21 \pdfreply

```
1308 \newcommand{\pdfreply}[2] []
1309 {
1310   \ifhmode\unskip\fi
1311   \ifvmode\leavevmode\fi
1312   \group_begin:
1313   \gdef\pc@collect@PDFOBJID{S}
1314   \keys_set:nn{pdfcomment}{#1}
1315   \def\pc@lopt@subtype{/Text}
1316   \def\pc@lopt@comment{#2}
```

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

```
1317   \pc@encode@PDF{#2}
1318   \ifpc@gopt@final\else
1319     \ifpc@lopt@disable\else
1320       \hspace*{0pt}%
1321       %\pc@create@lpc% ????????
1322       % typeset text annotation (see: PDF Reference)
```

TODO: check logic

```
1323   \xdef\pc@zref@PDFOBJID{\pc@get@PDFOBJID{\pc@lopt@replyto}}
1324   \clist_map_inline:Nn \pc@zref@PDFOBJID
1325   {
1326     \str_if_eq:eeTF{##1}{A}
1327     {
1328       \xdef\pc@collect@PDFOBJID{\pc@collect@PDFOBJID,A}
1329     }
1330     {
1331       \str_if_eq:eeF{##1}{S}
1332       {
1333         \pdfdict_put:nnn {l__pdfcomment_text_dict} {IRT}{##1}
1334         \vbox
1335         {\tagpdfparaOff
1336          \hsize=0pt
1337          \noindent
1338          \vspace{\pc@lopt@voffset}
1339          \hbox to 0pt
1340          {
1341            \vsize=0pt
1342            \hskip\pc@lopt@hoffset
1343            \UseTaggingSocket{pdfcomment/annotbox}
1344            {l__pdfcomment_text_dict}
1345            {
1346              \pdfannot_box:nnne
1347              {0pt}
1348              {\normalbaselineskip}
1349              {0pt}
1350              {
1351                \pdfdict_use:n{l__pdfcomment_text_dict}
1352                \pdfdict_use:n {l__pdfcomment_markup_dict}
1353              }
1354            }
1355          }
1356        }
1357      }
1358    }
1359  }
```

```

1354         }
1355         \__pdfcomment_collect_objid:
1356         \hss
1357     }
1358 }
1359 }
1360 }
1361 }
1362 \__pdfcomment_save_objid:
1363 \fi
1364 \fi
1365 \group_end:
1366 }

```

1.22 \pdftooltip

\pdftooltip

```

1367 \newcommand{\pdftooltip}[3] []
1368 {
1369     \leavevmode
1370     \group_begin:
1371     \gdef\pc@collect@PDFOBJID{S}
1372     \keys_set:nn{pdfcomment}{#1}
1373     \def\pc@lopt@subtype{/Widget}
1374     \def\pc@lopt@comment{#3}
1375     \ifmmode
1376         \setbox\pc@nullbox=\hbox{\SuspendTagging{}\pc@encode@PDF{#3}}
1377         \setbox\pc@nullbox=\hbox{\SuspendTagging{}$\pc@lopt@mathstyle#2$}
1378     \else
1379         \pc@encode@PDF{#3}
1380         \setbox\pc@nullbox=\hbox{\SuspendTagging{}#2}
1381     \fi
1382     \ifpc@lopt@disable
1383         #2
1384     \else
1385         \AssignStructureRole{pdfcomment/annot}{Form}
1386         \UseTaggingSocket{pdfcomment/annotbox}
1387         {l__pdfcomment_tooltip_dict}
1388         {
1389             \pdfannot_box:nnne
1390             {\wd\pc@nullbox}
1391             {\ht\pc@nullbox}
1392             {\dp\pc@nullbox}
1393             {
1394                 \pdfdict_use:n{l__pdfcomment_tooltip_dict}
1395             }
1396         }
1397         #2
1398     \fi
1399     \stepcounter{zref@unique}
1400     \group_end:
1401 }

```

(End of definition for \pdftooltip.)

1.23 \pdfsquaretooltip

\pdfsquaretooltip

```

1402 \newbox\pc@tmp@box
1403 \NewDocumentCommand\pdfsquaretooltip{0{}}mm}
1404 {
1405   \leavevmode
1406   \sbox\pc@tmp@box{#2}%
1407   \kern0pt\pdfsquarecomment
1408     [liststyle=,
1409     linewidth=0pt,
1410     opacity=0,
1411     color=,icolor=,
1412     width=\wd\pc@tmp@box,
1413     height=\ht\pc@tmp@box,
1414     depth=\dp\pc@tmp@box,#1]
1415     {#3}
1416   \usebox\pc@tmp@box
1417 }

```

(End of definition for \pdfsquaretooltip.)

1.24 Setup commands

\pdfcommentsetup

```

1418 \newcommand{\pdfcommentsetup}[2] []
1419 {
1420   \keys_set:nn{pdfcomment}{#1,#2}
1421 }

```

(End of definition for \pdfcommentsetup.)

Define predefined set of options (Avatar)

\defineavatar

```

1422 \newcommand{\defineavatar}[2]
1423 {
1424   \cs_if_exist:cTF {pc@avatar@#1}
1425   {
1426     \cs_set:cpn {pc@avatar@#1}{\keys_set:nn{pdfcomment}{#2}}
1427   }
1428   {
1429     \cs_new:cpn {pc@avatar@#1}{\keys_set:nn{pdfcomment}{#2}}
1430   }
1431 }
1432 %

```

(End of definition for \defineavatar.)

Define predefined set of options (Style)

\definestyle

```

1433 \newcommand{\definestyle}[2]
1434 {
1435   \cs_if_exist:cTF {pc@style@#1}

```



```

1436 {
1437   \cs_set:cpn {pc@style@#1}{\keys_set:nn{pdfcomment}{#2}}
1438 }
1439 {
1440   \cs_new:cpn {pc@style@#1}{\keys_set:nn{pdfcomment}{#2}}
1441 }
1442 }

```

(End of definition for `\definestyle`.)

1.25 List of pdf comments

The format of the list entries:

```

1443 \newcommand\l@lpcsec{\@dottedtocline{1}{0em}{0em}}%

```

Define predefined set of liststyles:

`\defineliststyle`

```

1444 \newcommand{\defineliststyle}[2]
1445 {
1446   \cs_if_exist:cTF {__pdfcomment_set_list_style_#1:}
1447   {
1448     \cs_set_protected:cpn {__pdfcomment_set_list_style_#1:}
1449     { \cs_set:Npn \pc@lpc@format {#2} }
1450     % Warning?
1451   }
1452   {
1453     \cs_new_protected:cpn {__pdfcomment_set_list_style_#1:}
1454     { \cs_set:Npn \pc@lpc@format {#2} }
1455   }
1456 }

```

(End of definition for `\defineliststyle`.)

Setting the list style:

`\setliststyle`

```

1457 \newcommand{\setliststyle}[1]
1458 {
1459   \cs_if_exist_use:cF { __pdfcomment_set_list_style_#1: }
1460   {
1461     \setliststyle{AuthorSubject}
1462     \PackageWarning{pdfcomment}
1463     {
1464       Unknown~liststyle~#1~\MessageBreak
1465       in~command~setliststyle~\MessageBreak
1466       Using~liststyle~AuthorSubject~instead!
1467     }
1468   }
1469 }

```

(End of definition for `\setliststyle`.)

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

```

1470 \cs_new_protected:cpn {__pc_set_list_style:}
1471 { \cs_set_eq:N \pc@lpc@format \prg_do_nothing: }
1472 \defineliststyle
1473 {}
1474 {}
1475 \defineliststyle
1476 {AuthorSubject}
1477 {\pc@lopt@author\ -\ \pc@lopt@subject}
1478 \defineliststyle
1479 {AuthorSubjectDeadline}
1480 {\pc@lopt@author\ -\ \pc@lopt@subject\ (\pc@lopt@deadline)}
1481 \defineliststyle
1482 {SubjectAuthorComment}
1483 {\pc@lopt@subject\ (\pc@lopt@author) :\ \pc@lopt@comment}
1484 \defineliststyle
1485 {SubjectAuthorCommentDeadline}
1486 {\pc@lopt@subject\ (\pc@lopt@author) :\ \pc@lopt@comment\ (\pc@lopt@deadline)}
1487 \defineliststyle
1488 {AuthorComment}
1489 {\pc@lopt@author :\ \pc@lopt@comment}
1490 \defineliststyle
1491 {AuthorCommentDeadline}
1492 {\pc@lopt@author :\ \pc@lopt@comment\ (\pc@lopt@deadline)}
1493 \defineliststyle
1494 {SubjectComment}
1495 {\pc@lopt@subject :\ \pc@lopt@comment}
1496 \defineliststyle
1497 {SubjectCommentDeadline}
1498 {\pc@lopt@subject :\ \pc@lopt@comment\ (\pc@lopt@deadline)}
1499 \defineliststyle
1500 {Comment}
1501 {\pc@lopt@comment}
1502 \defineliststyle
1503 {CommentDeadline}
1504 {\pc@lopt@comment\ (\pc@lopt@deadline)}

```

The list of pdf comments

```

1505 \newcommand{\listofpdfcomments}[1] []
1506 {
1507   \keys_set_groups:nnn {pdfcomment}{listofpdfcomments}{#1}
1508   \ifpc@gopt@final\else
1509     \@ifundefined{chapter}%
1510     {
1511       \section*{\lpcname\@mkboth{\lpcname}{\lpcname}}
1512       \addcontentsline{toc}{section}{\lpcname{}}
1513     }
1514     {
1515       \chapter*{\lpcname\@mkboth{\lpcname}{\lpcname}}
1516       \addcontentsline{toc}{chapter}{\lpcname{}}
1517     }
1518     \@starttoc{lpc}
1519   \fi
1520 }

```

The command that creates the list entries in the annotations:

`\pc@create@lpc`

```

1521 \newcommand{\pc@create@lpc}%
1522 {
1523   \cs_if_eq:NNF\pc@lpc@format\prg_do_nothing:
1524   {
1525     \MakeLinkTarget[pdfcomment]{}
1526     \addcontentsline{lpc}{lpcsec}{\protect\numberline{}\pc@lpc@format}
1527   }
1528 }

```

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

1.26 Helper code

These properties are used for the reply command:

```

1529 \zref@newlist{pdfcomment}
1530 \zref@newprop{PCPDFOBJID}[]{\pc@collect@PDFOBJID}
1531 \zref@addprop{pdfcomment}{PCPDFOBJID}
1532
1533 \newcommand*{\pc@save@PDFOBJID}[1]
1534 {
1535   \zref@labelbylist{#1}{pdfcomment}
1536 }
1537 \newcommand*{\pc@get@PDFOBJID}[1]
1538 {
1539   \zref@extract{#1}{PCPDFOBJID}
1540 }

```

The command that encodes the text in PDF format.

```

1541 \newcommand{\pc@encode@PDF}[1]
1542 {
1543   \tl_if_empty:oTF {\pc@lopt@deadline}
1544   {
1545     \pdfstringdef\pc@pdfenc@contents{#1}
1546   }
1547   {
1548     \pdfstringdef\pc@pdfenc@contents{#1\textCR{\pc@lopt@deadline}}
1549   }
1550   \tl_gset:Ne\pc@pdfenc@contents {(\pc@pdfenc@contents)}
1551   \pdfstringdef\pc@pdfenc@author {\pc@lopt@author}
1552   \tl_gset:Ne\pc@pdfenc@author {(\pc@pdfenc@author)}
1553   \pdfstringdef\pc@pdfenc@subject {\pc@lopt@subject}
1554   \tl_gset:Ne\pc@pdfenc@subject {(\pc@pdfenc@subject)}
1555 }

1556 \cs_set_eq:NN\pc@pttobp\dim_to_decimal_in_bp:n
1557
1558
1559 \newcommand{\pc@annot@calc@pos@math}
1560 {
1561   \renewcommand{\pc@x@one}
1562     {\pc@pttobp{\pc@Sposx}}

```

```

1563 \renewcommand{\pc@x@two}
1564   {\pc@pttobp{\dimexpr \pc@Sposx + \wd\pc@nullbox\relax}}
1565 \renewcommand{\pc@x@three}
1566   {\pc@pttobp{\pc@Sposx}}
1567 \renewcommand{\pc@x@four}
1568   {\pc@pttobp{\dimexpr \pc@Sposx + \wd\pc@nullbox\relax}}
1569 \renewcommand{\pc@y@one}
1570   {\pc@pttobp{\dimexpr \pc@Sposy + \ht\pc@nullbox + 1pt\relax}}
1571 \renewcommand{\pc@y@two}
1572   {\pc@pttobp{\dimexpr \pc@Sposy + \ht\pc@nullbox + 1pt\relax}}
1573 \renewcommand{\pc@y@three}
1574   {\pc@pttobp{\dimexpr \pc@Sposy - \dp\pc@nullbox - 1pt\relax}}
1575 \renewcommand{\pc@y@four}
1576   {\pc@pttobp{\dimexpr \pc@Sposy - \dp\pc@nullbox - 1pt\relax}}
1577 \setlength{\pc@dima}{\dimexpr \pc@Sposy - \dp\pc@nullbox - 1pt\relax}
1578 \setlength{\pc@dimb}{\dimexpr \pc@Eposy - \dp\pc@nullbox - 1pt\relax}
1579 }
1580
1581 \newcommand{\pc@annot@complete}
1582 {
1583   \renewcommand{\pc@x@one}{\pc@pttobp{\pc@Sposx}}
1584   \renewcommand{\pc@x@two}{\pc@pttobp{\pc@Eposx}}
1585   \renewcommand{\pc@x@three}{\pc@pttobp{\pc@Sposx}}
1586   \renewcommand{\pc@x@four}{\pc@pttobp{\pc@Eposx}}
1587   \renewcommand{\pc@y@one}
1588     {\pc@pttobp{\dimexpr \pc@Sposy + \pc@box@height + 1pt\relax}}
1589   \renewcommand{\pc@y@two}
1590     {\pc@pttobp{\dimexpr \pc@Eposy + \pc@box@height + 1pt\relax}}
1591   \renewcommand{\pc@y@three}
1592     {\pc@pttobp{\dimexpr \pc@Sposy - \pc@box@depth - 1pt\relax}}
1593   \renewcommand{\pc@y@four}
1594     {\pc@pttobp{\dimexpr \pc@Eposy - \pc@box@depth - 1pt\relax}}
1595   \def\pc@annot@quadpoints
1596   {
1597     \pc@x@one\space\pc@y@one\space
1598     \pc@x@two\space\pc@y@two\space
1599     \pc@x@three\space\pc@y@three\space
1600     \pc@x@four\space\pc@y@four
1601   }
1602   \UseTaggingSocket{pdfcomment/annotbox}
1603   {l__pdfcomment_textmarkup_dict}
1604   {
1605     \pdfannot_box:nne {0pt} {0pt} {0pt}
1606     {
1607       \pdfdict_use:n {l__pdfcomment_textmarkup_dict}
1608       \pdfdict_use:n {l__pdfcomment_markup_dict}
1609     }%
1610   }
1611   \__pdfcomment_collect_objid:
1612 }
1613
1614
1615 \newcommand*{\pc@soul@markup}
1616 {

```

```

1617 \stepcounter{pc@count@iii}
1618 \zsavapos{pdfcomment_soul_markup:\thepc@count@iii}
1619 \zref@refused{pdfcomment_soul_markup:\thepc@count@iii}
1620 \setlength{\pc@Sposx}{\zposx{pdfcomment_soul_markup:\thepc@count@iii}sp}
1621 \setlength{\pc@Sposy}{\zposy{pdfcomment_soul_markup:\thepc@count@iii}sp}
1622 \str_if_eq:eeT {\pc@lopt@subtype}{/StrikeOut}
1623 {
1624   \addtolength{\pc@Sposy}{1pt}
1625 }
1626 \setlength{\pc@Eposx}{\pc@Sposx}
1627 \addtolength{\pc@Eposx}{\ulwidth}
1628 \setlength{\pc@Eposy}{\pc@Sposy}
1629 \pc@annot@complete
1630 }
1631
1632 \newcommand{\pc@calc@textblockpos}
1633 {
1634   \if@twoside
1635     \stepcounter{pc@count@ii}
1636     \label{pdfcomment:ts:page:\thepc@count@ii}
1637     \refused{pdfcomment:ts:page:\thepc@count@ii}
1638     \ifodd\getpagerefnumber{pdfcomment:ts:page:\thepc@count@ii}
1639       \if@twocolumn
1640         \ifpc@firstcolumn
1641           \renewcommand{\pc@x@left@text}
1642             {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1643           \renewcommand{\pc@x@right@text}
1644             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \columnwidth}}%
1645         \else
1646           \renewcommand{\pc@x@left@text}
1647             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth - \columnwidth}}
1648           \renewcommand{\pc@x@right@text}
1649             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1650         \fi
1651       \else
1652         \renewcommand{\pc@x@left@text}
1653             {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1654         \renewcommand{\pc@x@right@text}
1655             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1656       \fi
1657     \else
1658       \if@twocolumn%
1659         \ifpc@firstcolumn%
1660           \renewcommand{\pc@x@left@text}
1661             {\pc@pttobp{1in + \hoffset + \evensidemargin}}
1662           \renewcommand{\pc@x@right@text}
1663             {\pc@pttobp{1in + \hoffset + \evensidemargin + \columnwidth}}
1664         \else
1665           \renewcommand{\pc@x@left@text}
1666             {\pc@pttobp{1in + \hoffset + \evensidemargin + \textwidth - \columnwidth}}
1667           \renewcommand{\pc@x@right@text}
1668             {\pc@pttobp{1in + \hoffset + \evensidemargin + \textwidth}}
1669         \fi
1670       \else

```

```

1671         \renewcommand{\pc@x@left@text}
1672             {\pc@pttobp{1in + \hoffset + \evensidemargin}}
1673         \renewcommand{\pc@x@right@text}
1674             {\pc@pttobp{1in\relax + \hoffset + \evensidemargin + \textwidth}}
1675     \fi
1676 \fi
1677 \else
1678     \if@twocolumn
1679         \ifpc@firstcolumn
1680             \renewcommand{\pc@x@left@text}
1681                 {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1682             \renewcommand{\pc@x@right@text}
1683                 {\pc@pttobp{1in + \hoffset + \oddsidemargin + \columnwidth}}
1684         \else
1685             \renewcommand{\pc@x@left@text}
1686                 {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth - \columnwidth}}
1687             \renewcommand{\pc@x@right@text}
1688                 {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1689         \fi
1690     \else
1691         \renewcommand{\pc@x@left@text}
1692             {\pc@pttobp{1in + \hoffset + \oddsidemargin}}
1693         \renewcommand{\pc@x@right@text}
1694             {\pc@pttobp{1in + \hoffset + \oddsidemargin + \textwidth}}
1695     \fi
1696 \fi
1697 \renewcommand{\pc@y@top@text}
1698     {\pc@pttobp{\paperheight - 1in - \voffset - \topmargin - \headheight - \headsep}}
1699 \renewcommand{\pc@y@bottom@text}
1700     {
1701     \pc@pttobp
1702     {\paperheight - 1in - \voffset - \topmargin - \headheight -
1703     \headsep - \textheight
1704     }
1705 }
1706 }
1707
1708 \newcommand{\pc@calc@sidelinepos}
1709 {
1710     \if@twoside
1711         \stepcounter{pc@count@ii}
1712         \label{pdfcomment:ts:page:\thepc@count@ii}
1713         \refused{pdfcomment:ts:page:\thepc@count@ii}
1714         \ifodd\getpagerefnumber{pdfcomment:ts:page:\thepc@count@ii}
1715             \renewcommand{\pc@x@one}
1716                 {\pc@pttobp{ 1in + \hoffset + \oddsidemargin - \pc@lopt@linesep bp }}
1717             \renewcommand{\pc@x@two}
1718                 {\pc@pttobp{ 1in + \hoffset + \oddsidemargin + \textwidth +
1719                 \pc@lopt@linesep bp }}
1720         \else
1721             \renewcommand{\pc@x@one}
1722                 {\pc@pttobp{ 1in + \hoffset + \evensidemargin - \pc@lopt@linesep bp }}
1723             \renewcommand{\pc@x@two}
1724                 {\pc@pttobp{ 1in + \hoffset + \evensidemargin + \textwidth +

```

```

1725         \pc@lopt@linesep bp }}
1726     \fi
1727 \else
1728     \renewcommand{\pc@x@one}
1729     {\pc@pttobp{ 1in + \hoffset + \oddsidemargin - \pc@lopt@linesep bp }}
1730     \renewcommand{\pc@x@two}
1731     {\pc@pttobp{ 1in + \hoffset + \oddsidemargin + \textwidth +
1732                 \pc@lopt@linesep bp }}
1733 \fi
1734 \renewcommand{\pc@y@one}{\pc@pttobp{ \pc@Sposy + \pc@box@height + 1pt}}
1735 \renewcommand{\pc@y@two}{\pc@pttobp{ \pc@Eposy - \pc@box@depth - 1pt}}
1736 \renewcommand{\pc@y@top@text}
1737     {\pc@pttobp{ \paperheight - 1in - \voffset - \topmargin -
1738                 \headheight - \headsep}}
1739 \renewcommand{\pc@y@bottom@text}
1740     {\pc@pttobp{ \paperheight - 1in - \voffset - \topmargin -
1741                 \headheight - \headsep - \textheight}}
1742 }
1743 </package>

```