

# The luacolor package

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## Abstract

Package luacolor implements color support based on LuaTeX's node attributes.

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

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## 1 Documentation

### 1.1 Introduction

This package uses a Lua<sub>T</sub><sub>E</sub>X's attribute register to to annotate nodes with color information. If a color is set, then the attribute register is set to this color and all nodes created in its scope (current group) are annotated with this attribute. Now the color property behaves much the same way as the font property.

### 1.2 Usage

Package `color` is loaded automatically by this package `luacolor`. If you need a special driver option or you prefer package `xcolor`, then load it before package `luacolor`, for example:

```
\usepackage[dvipdfmx]{xcolor}
```

The package `luacolor` is loaded without options:

```
\usepackage{luacolor}
```

It is able to detect PDF mode and DVI drivers are differentiated by its color specials. Therefore the package do need driver options.

Then it redefines the color setting commands to set attributes instead of what-sits for color.

At last the attribute annotations of the nodes in the output box must be analyzed to insert the necessary color what-sits. Currently Lua<sub>T</sub><sub>E</sub>X lacks an appropriate callback function. Therefore package `atbegshi` is used to get control before a box is shipped out.

`\luacolorProcessBox {⟨box⟩}`

Macro `\luacolorProcessBox` processes the box `⟨box⟩` in the previously described manner. It is automatically called for pages, but not for XForm objects. Before passing a box to `\pdfxform`, call `\luacolorProcessBox` first.

### 1.3 Limitations

**Ligatures with different colored components:** Package `luacolor` sees the ligature after the paragraph building and page breaking, when a page is to be shipped out. Therefore it cannot break ligatures, because the components might occupy different space. Therefore it is the responsibility of the ligature forming process to deal with different colored glyphs that form a

ligature. The user can avoid the problem entirely by explicitly breaking the ligature at the places where the color changes.

...

## 2 Implementation

1 (\*package)

### 2.1 Catcodes and identification

```

2 \begingroup\catcode61\catcode48\catcode32=10\relax%
3 \catcode13=5 % ^^M
4 \endlinechar=13 %
5 \catcode123=1 % {
6 \catcode125=2 % }
7 \catcode64=11 % @
8 \def\x{\endgroup
9 \expandafter\edef\csname LuaCol@AtEnd\endcsname{%
10 \endlinechar=\the\endlinechar\relax
11 \catcode13=\the\catcode13\relax
12 \catcode32=\the\catcode32\relax
13 \catcode35=\the\catcode35\relax
14 \catcode61=\the\catcode61\relax
15 \catcode64=\the\catcode64\relax
16 \catcode123=\the\catcode123\relax
17 \catcode125=\the\catcode125\relax
18 }%
19 }%
20 \x\catcode61\catcode48\catcode32=10\relax%
21 \catcode13=5 % ^^M
22 \endlinechar=13 %
23 \catcode35=6 % #
24 \catcode64=11 % @
25 \catcode123=1 % {
26 \catcode125=2 % }
27 \def\TMP@EnsureCode#1#2{%
28 \edef\LuaCol@AtEnd{%
29 \LuaCol@AtEnd
30 \catcode#1=\the\catcode#1\relax
31 }%
32 \catcode#1=#2\relax
33 }
34 \TMP@EnsureCode{34}{12}% "
35 \TMP@EnsureCode{39}{12}% '
36 \TMP@EnsureCode{40}{12}% (
37 \TMP@EnsureCode{41}{12}% )
38 \TMP@EnsureCode{42}{12}% *
39 \TMP@EnsureCode{43}{12}% +
40 \TMP@EnsureCode{44}{12}% ,
41 \TMP@EnsureCode{45}{12}% -
42 \TMP@EnsureCode{46}{12}% .
43 \TMP@EnsureCode{47}{12}% /
44 \TMP@EnsureCode{58}{12}% :
45 \TMP@EnsureCode{60}{12}% <
46 \TMP@EnsureCode{62}{12}% >
47 \TMP@EnsureCode{91}{12}% [
48 \TMP@EnsureCode{93}{12}% ]
49 \TMP@EnsureCode{95}{12}% _ (other!)
50 \TMP@EnsureCode{96}{12}% `
51 \edef\LuaCol@AtEnd{\LuaCol@AtEnd\noexpand\endinput}

```

Package identification.

```

52 \NeedsTeXFormat{LaTeX2e}
53 \ProvidesPackage{luacolor}%
54 [2019/07/25 v1.12 Color support via LuaTeX's attributes (HO)]

```

## 2.2 Check for LuaTeX

Without LuaTeX there is no point in using this package.

```

55 \RequirePackage{infwarerr}[2010/04/08]%
56 \RequirePackage{ifluatex}[2010/03/01]%
57 \RequirePackage{ifpdf}[2011/01/30]%
58 \RequirePackage{itxcmds}[2011/04/18]%
59 \RequirePackage{color}

```

require ltuatex rather than luatex package support for LuaTeX allocations.

```

60 \ifluatex
61   \ifx\newattribute\@undefined
62     \RequirePackage{ltuatex}%
63   \fi
64 \else
65   \@PackageError{luacolor}{%
66     This package may only be run using LuaTeX%
67   }\@ehc
68   \expandafter\LuaCol@AtEnd
69 \fi%

```

\LuaCol@directlua

```

70 \let\LuaCol@directlua\directlua

```

## 2.3 Check for disabled colors

```

71 \ifcolors@
72 \else
73   \@PackageWarningNoLine{luacolor}{%
74     Colors are disabled by option `monochrome'%
75   }%
76   \def\set@color{}%
77   \def\reset@color{}%
78   \def\set@page@color{}%
79   \def\define@color#1#2{}%
80   \expandafter\LuaCol@AtEnd
81 \fi%

```

## 2.4 Load module and check version

```

82 \LuaCol@directlua{%
83   require("luacolor")%
84 }

85 \begingroup
86   \edef\x{\LuaCol@directlua{tex.write("2019/07/25 v1.12")}}%
87   \edef\y{%
88     \LuaCol@directlua{%
89       if oberdiek.luacolor.getversion then %
90         oberdiek.luacolor.getversion()%
91       end%
92     }%
93   }%
94   \ifx\x\y
95   \else
96     \@PackageError{luacolor}{%
97       Wrong version of lua module.\MessageBreak
98       Package version: \x\MessageBreak
99       Lua module: \y
100    }\@ehc
101 \fi

```

```
102 \endgroup
```

## 2.5 Find driver

```
103 \ifpdf
104 \else
105 \begingroup
106 \def\current@color{}%
107 \def\reset@color{}%
108 \setbox\z@=\hbox{%
109 \begingroup
110 \set@color
111 \endgroup
112 }%
113 \edef\reserved@a{%
114 \LuaCol@directlua{%
115 oberdiek.luacolor.dvidetect()}%
116 }%
117 }%
118 \ifx\reserved@a\@empty
119 \@PackageError{luacolor}{%
120 DVI driver detection failed because of\MessageBreak
121 unrecognized color \string\special
122 }{\@ehc
123 \endgroup
124 \expandafter\expandafter\expandafter\LuaCol@AtEnd
125 \else
126 \@PackageInfoNoLine{luacolor}{%
127 Type of color \string\special: \reserved@a
128 }%
129 \fi%
130 \endgroup
131 \fi
```

## 2.6 Attribute setting

```
\LuaCol@Attribute
```

```
132 \ltx@ifundefined{newluatexattribute}{%
133 \newattribute\LuaCol@Attribute
134 }{%
135 \newluatexattribute\LuaCol@Attribute
136 }
137 \ltx@ifundefined{setluatexattribute}{%
138 \let\LuaCol@setattribute\setattribute
139 }{%
140 \let\LuaCol@setattribute\setluatexattribute
141 }
142 \LuaCol@directlua{%
143 oberdiek.luacolor.setattribute(\number\allocationnumber)%
144 }
```

```
\set@color
```

```
145 \protected\def\set@color{%
146 \LuaCol@setattribute\LuaCol@Attribute{%
147 \LuaCol@directlua{%
148 oberdiek.luacolor.get("\luaescapestring{\current@color}")%
149 }%
150 }%
151 }
```

```
\reset@color
```

```
152 \def\reset@color{}
```

## 2.7 Whatsit insertion

```
\luacolorProcessBox
153 \def\luacolorProcessBox#1{%
154   \LuaCol@directlua{%
155     oberdiek.luacolor.process(\number#1)%
156   }%
157 }

158 \RequirePackage{atbegshi}[2011/01/30]
159 \AtBeginShipout{%
160   \luacolorProcessBox\AtBeginShipoutBox
161 }

    Set default color.
162 \set@color
```

## 2.8 \pdfxform support

```
163 \ifpdf
164   \ifx\pdfxform\@undefined
165     \let\pdfxform\saveboxresource
166   \fi
167   \ltx@ifundefined{pdfxform}{%
168     \directlua{%
169       tex.enableprimitives('',{%
170         'pdfxform','pdflastxform','pdfrefxform'%
171       })%
172     }%
173   }-%
174   \ltx@ifundefined{protected}{%
175     \directlua{tex.enableprimitives('',{'protected'})}%
176   }-%
177   \ltx@ifundefined{pdfxform}{%
178     \@PackageWarning{luacolor}{\string\pdfxform\space not found}%
179   }-%
180   \let\LuaCol@org@pdfxform\pdfxform
181   \begingroup\expandafter\expandafter\expandafter\endgroup
182   \expandafter\ifx\csname protected\endcsname\relax
183     \@PackageWarning{luacolor}{\string\protected\space not found}%
184   \else
185     \expandafter\protected
186   \fi
187   \def\pdfxform{%
188     \begingroup
189     \afterassignment\LuaCol@pdfxform
190     \count@=%
191   }%
192   \def\LuaCol@pdfxform{%
193     \luacolorProcessBox\count@
194     \LuaCol@org@pdfxform\count@
195     \endgroup
196   }%
197 }-%
198 \fi

199 \LuaCol@AtEnd%
200 (/package)
```

## 2.9 Lua module

```
201 (*lua)
```

Box zero contains a `\hbox` with the color `\special`. That is analyzed to get the prefix for the color setting `\special`.

```

202 oberdiek = oberdiek or {}
203 local luacolor = oberdiek.luacolor or {}
204 oberdiek.luacolor = luacolor

getversion()
205 function luacolor.getversion()
206   tex.write("2019/07/25 v1.12")
207 end

```

### 2.9.1 Driver detection

```

208 local ifpdf = tonumber(tex.outputmode or tex.pdfoutput) > 0
209 local prefix
210 local prefixes = {
211   dvips = "color ",
212   dvipdfm = "pdf:sc ",
213   truetex = "textcolor:",
214   pctexps = "ps:",
215 }
216 local patterns = {
217   ["^color "] = "dvips",
218   ["^pdf: *begincolor "] = "dvipdfm",
219   ["^pdf: *bcolor "] = "dvipdfm",
220   ["^pdf: *bc "] = "dvipdfm",
221   ["^pdf: *setcolor "] = "dvipdfm",
222   ["^pdf: *scolor "] = "dvipdfm",
223   ["^pdf: *sc "] = "dvipdfm",
224   ["^textcolor:"] = "truetex",
225   ["^ps:"] = "pctexps",
226 }

info()
227 local function info(msg, term)
228   local target = "log"
229   if term then
230     target = "term and log"
231   end
232   texio.write_nl(target, "Package luacolor info: " .. msg .. ".")
233   texio.write_nl(target, "")
234 end

dvidetect()
235 function luacolor.dvidetect()
236   local v = tex.box[0]
237   assert(v.id == node.id("hlist"))
238   for v in node.traverse_id(node.id("whatsit"), v.head) do
239     if v and v.subtype == node.subtype("special") then
240       local data = v.data
241       for pattern, driver in pairs(patterns) do
242         if string.find(data, pattern) then
243           prefix = prefixes[driver]
244           tex.write(driver)
245           return
246         end
247       end
248       info("\\special{" .. data .. "}", true)
249       return
250     end
251   end
252   info("Missing \\special", true)
253 end

```

## 2.9.2 Color strings

```
254 local map = {
255   n = 0,
256 }

get()

257 function luacolor.get(color)
258   tex.write("" .. luacolor.getvalue(color))
259 end
```

getvalue()

```
260 function luacolor.getvalue(color)
261   local n = map[color]
262   if not n then
263     n = map.n + 1
264     map.n = n
265     map[n] = color
266     map[color] = n
267   end
268   return n
269 end
```

## 2.9.3 Attribute register

setattribute()

```
270 local attribute
271 function luacolor.setattribute(attr)
272   attribute = attr
273 end
```

getattribute()

```
274 function luacolor.getattribute()
275   return attribute
276 end
```

## 2.9.4 Whatsit insertion

```
277 local LIST = 1
278 local LIST_LEADERS = 2
279 local LIST_DISC = 3
280 local COLOR = 4
281 local RULE = node.id("rule")
282 local node_types = {
283   [node.id("hlist")] = LIST,
284   [node.id("vlist")] = LIST,
285   [node.id("rule")] = COLOR,
286   [node.id("glyph")] = COLOR,
287   [node.id("disc")] = LIST_DISC,
288   [node.id("whatsit")] = {
289     [node.subtype("special")] = COLOR,
290     [node.subtype("pdf_literal")] = COLOR,
291     [node.subtype("pdf_save")] = COLOR,
292     [node.subtype("pdf_restore")] = COLOR, -- probably not needed
293 -- TODO (DPC) [node.subtype("pdf_refximage")] = COLOR,
294   },
295   [node.id("glue")] =
296     function(n)
297       if n.subtype >= 100 then -- leaders
298         if n.leader.id == RULE then
299           return COLOR
300         else
301           return LIST_LEADERS
```



```

302     end
303   end
304 end,
305 }

get_type()
306 local function get_type(n)
307   local ret = node_types[n.id]
308   if type(ret) == 'table' then
309     ret = ret[n.subtype]
310   end
311   if type(ret) == 'function' then
312     ret = ret(n)
313   end
314   return ret
315 end

316 local mode = 2 -- luatex.pdfliteral.direct
317 local WHATSIT = node.id("whatsit")
318 local SPECIAL = node.subtype("special")
319 local PDFLITERAL = node.subtype("pdf_literal")
320 local DRY_FALSE = false
321 local DRY_TRUE = true

traverse()
322 local function traverse(list, color, dry)
323   if not list then
324     return color
325   end
326   local head
327   if get_type(list) == LIST then
328     head = list.head
329   elseif get_type(list) == LIST_DISC then
330     head = list.replace
331   else
332     texio.write_nl("!!! Error: Wrong list type: " .. node.type(list.id))
333     return color
334   end
335   (debug)texio.write_nl("traverse: " .. node.type(list.id))
336   for n in node.traverse(head) do
337     (debug)texio.write_nl(" node: " .. node.type(n.id))
338     local t = get_type(n)
339     (debug)texio.write_nl("TYPE " .. tostring(t) .. " " .. tostring(node.type(node.getid(n))) .. " " .. tostring(node.get-
340       subtype(n)))
341     if t == LIST or t == LIST_DISC then
342       color = traverse(n, color, dry)
343     elseif t == LIST_LEADERS then
344       local color_after = traverse(n.leader, color, DRY_TRUE)
345       if color == color_after then
346         traverse(n.leader, color, DRY_FALSE or dry)
347       else
348         traverse(n.leader, "", DRY_FALSE or dry)
349       % The color status is unknown here, because the leader box
350       % will or will not be set.
351       color = ""
352     end
353     elseif t == COLOR then
354       local v = node.has_attribute(n, attribute)
355       if v then
356         local newColor = map[v]
357         if newColor ~= color then
358           color = newColor
359         if dry == DRY_FALSE then

```

```

359     local newNode
360     if ifpdf then
361         newNode = node.new(WHATSIT, PDFLITERAL)
362         newNode.mode = mode
363         newNode.data = color
364     else
365         newNode = node.new(WHATSIT, SPECIAL)
366         newNode.data = prefix .. color
367     end
368     head = node.insert_before(head, n, newNode)
369 end
370 end
371 end
372 end
373 end
374 if get_type(list) == LIST then
375     list.head = head
376 else
377     list.replace = head
378 end
379 return color
380 end

```

process()

```

381 function luacolor.process(box)
382     local color = ""
383     local list = tex.getbox(box)
384     traverse(list, color, DRY_FALSE)
385 end
386 </lua>

```

## 3 Test

```

387 <{*test1}
388 \documentclass{article}
389 \usepackage{color}
390 </test1>

```

### 3.1 Catcode checks for loading

```

391 <{*test1}
392 \catcode`\{=1 %
393 \catcode`\}=2 %
394 \catcode`\#=6 %
395 \catcode`\@=11 %
396 \expandafter\ifx\csname count@\endcsname\relax
397     \countdef\count@=255 %
398 \fi
399 \expandafter\ifx\csname @gobble\endcsname\relax
400     \long\def\@gobble#1{}%
401 \fi
402 \expandafter\ifx\csname @firstofone\endcsname\relax
403     \long\def\@firstofone#1{#1}%
404 \fi
405 \expandafter\ifx\csname loop\endcsname\relax
406     \expandafter\@firstofone
407 \else
408     \expandafter\@gobble
409 \fi
410 {%
411     \def\loop#1\repeat{%

```

```

412 \def\body{#1}%
413 \iterate
414 }%
415 \def\iterate{%
416 \body
417 \let\next\iterate
418 \else
419 \let\next\relax
420 \fi
421 \next
422 }%
423 \let\repeat=\fi
424 }%
425 \def\RestoreCatcodes{}
426 \count@=0 %
427 \loop
428 \edef\RestoreCatcodes{%
429 \RestoreCatcodes
430 \catcode\the\count@=\the\catcode\count@\relax
431 }%
432 \ifnum\count@<255 %
433 \advance\count@ 1 %
434 \repeat
435
436 \def\RangeCatcodeInvalid#1#2{%
437 \count@=#1\relax
438 \loop
439 \catcode\count@=15 %
440 \ifnum\count@<#2\relax
441 \advance\count@ 1 %
442 \repeat
443 }
444 \def\RangeCatcodeCheck#1#2#3{%
445 \count@=#1\relax
446 \loop
447 \ifnum#3=\catcode\count@
448 \else
449 \errmessage{%
450 Character \the\count@\space
451 with wrong catcode \the\catcode\count@\space
452 instead of \number#3%
453 }%
454 \fi
455 \ifnum\count@<#2\relax
456 \advance\count@ 1 %
457 \repeat
458 }
459 \def\space{ }
460 \expandafter\ifx\csname LoadCommand\endcsname\relax
461 \def\LoadCommand{\input luacolor.sty\relax}%
462 \fi
463 \def\Test{%
464 \RangeCatcodeInvalid{0}{47}%
465 \RangeCatcodeInvalid{58}{64}%
466 \RangeCatcodeInvalid{91}{96}%
467 \RangeCatcodeInvalid{123}{255}%
468 \catcode`\@=12 %
469 \catcode`\=0 %
470 \catcode`\%=14 %
471 \LoadCommand
472 \RangeCatcodeCheck{0}{36}{15}%
473 \RangeCatcodeCheck{37}{37}{14}%

```

```

474 \RangeCatcodeCheck{38}{47}{15}%
475 \RangeCatcodeCheck{48}{57}{12}%
476 \RangeCatcodeCheck{58}{63}{15}%
477 \RangeCatcodeCheck{64}{64}{12}%
478 \RangeCatcodeCheck{65}{90}{11}%
479 \RangeCatcodeCheck{91}{91}{15}%
480 \RangeCatcodeCheck{92}{92}{0}%
481 \RangeCatcodeCheck{93}{96}{15}%
482 \RangeCatcodeCheck{97}{122}{11}%
483 \RangeCatcodeCheck{123}{255}{15}%
484 \RestoreCatcodes
485 }
486 \Test
487 \csname @@end\endcsname
488 \end
489 </test1>

```

### 3.2 Driver detection

```

490 (*test2)
491 \NeedsTeXFormat{LaTeX2e}
492 \ifcsname driver\endcsname
493 \expandafter\PassOptionsToPackage\expandafter{\driver}{color}%
494 \pdfoutput=0 %
495 \fi
496 \documentclass{minimal}
497 \usepackage{luacolor}[2018/11/01]
498 \csname @@end\endcsname
499 \end
500 </test2>

501 (*test3)
502 \NeedsTeXFormat{LaTeX2e}

503 \documentclass{minimal}
504 \usepackage{luacolor}[2018/11/01]
505 \usepackage{qstest}
506 \IncludeTests{*}
507 \LogTests{log}{*}{*}
508 \makeatletter

509 \@@end
510 </test3>

```

## 4 Installation

### 4.1 Download

**Package.** This package is available on CTAN<sup>1</sup>:

[CTAN:macros/latex/contrib/oberdiek/luacolor.dtx](http://ctan.org/macros/latex/contrib/oberdiek/luacolor.dtx) The source file.

[CTAN:macros/latex/contrib/oberdiek/luacolor.pdf](http://ctan.org/macros/latex/contrib/oberdiek/luacolor.pdf) Documentation.

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

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](http://ctan.org/install/macros/latex/contrib/oberdiek.tds.zip)

*TDS* refers to the standard “A Directory Structure for T<sub>E</sub>X Files” ([CTAN:tds/tds.pdf](http://ctan.org/tds/tds.pdf)). Directories with `texmf` in their name are usually organized this way.

---

<sup>1</sup><http://ctan.org/pkg/luacolor>

## 4.2 Bundle installation

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

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

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

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

## 4.3 Package installation

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

```
tex luacolor.dtx
```

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

```
luacolor.sty → tex/latex/oberdiek/luacolor.sty
luacolor.lua → scripts/oberdiek/luacolor.lua
luacolor.pdf → doc/latex/oberdiek/luacolor.pdf
luacolor.dtx → source/latex/oberdiek/luacolor.dtx
```

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

## 4.4 Refresh file name databases

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

## 4.5 Some details for the interested

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain T<sub>E</sub>X:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

If you insist on using L<sup>A</sup>T<sub>E</sub>X for `docstrip` (really, `docstrip` does not need L<sup>A</sup>T<sub>E</sub>X), then inform the autodetect routine about your intention:

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

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

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

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

An example follows how to generate the documentation with pdfL<sup>A</sup>T<sub>E</sub>X:

```

pdflatex luacolor.dtx
makeindex -s gind.ist luacolor.idx
pdflatex luacolor.dtx
makeindex -s gind.ist luacolor.idx
pdflatex luacolor.dtx

```

## 5 Catalogue

The following XML file can be used as source for the [T<sub>E</sub>X Catalogue](#). The elements `caption` and `description` are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is `luacolor.xml`.

```

511 (*catalogue)
512 <?xml version='1.0' encoding='us-ascii'?>
513 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
514 <entry datestamp='$Date$' modifier='$Author$' id='luacolor'>
515   <name>luacolor</name>
516   <caption>Color support based on LuaTeX's node attributes.</caption>
517   <authorref id='auth:oberdiek' />
518   <copyright owner='Heiko Oberdiek' year='2007,2009-2011' />
519   <license type='lppl1.3' />
520   <version number='1.11' />
521   <description>
522     This package implements color support based on LuaTeX's node
523     attributes.
524   <p />
525     The package is part of the <xref refid='oberdiek'>oberdiek</xref> bundle.
526 </description>
527   <documentation details='Package documentation'
528     href='ctan:/macros/latex/contrib/oberdiek/luacolor.pdf' />
529   <ctan file='true' path='/macros/latex/contrib/oberdiek/luacolor.dtx' />
530   <miktex location='oberdiek' />
531   <texlive location='oberdiek' />
532   <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip' />
533 </entry>
534 </catalogue>

```

## 6 History

### [2007/12/12 v1.0]

- First public version.

### [2009/04/10 v1.1]

- Fixes for changed syntax of `\directlua` in LuaT<sub>E</sub>X 0.36.

### [2010/03/09 v1.2]

- Adaptation for package `luatex` 2010/03/09 v0.4.

### [2010/12/13 v1.3]

- Support for `\pdfxform` added.
- Loaded package `luatexbase-attr` recognized.
- Update for LuaT<sub>E</sub>X: 'list' fields renamed to 'head' in v0.65.0.

**[2011/03/29 v1.4]**

- Avoid whatsit insertion if option `monochrome` is used (thanks Manuel Pégourié-Gonnard).

**[2011/04/22 v1.5]**

- Bug fix by Manuel Pégourié-Gonnard: A typo prevented the detection of whatsits and applying color changes for `\pdfiternal` and `\special` nodes that might contain typesetting material.
- Bug fix by Manuel Pégourié-Gonnard: Now colors are also applied to leader boxes.
- Unnecessary color settings are removed for leaders boxes, if after the leader box the color has not changed. The costs are a little runtime, leader boxes are processed twice.
- Additional whatsits that are colored: `pdf_refximage`.
- Workaround for bug with `node.insert_before` removed for the version after LuaTeX 0.65, because bug was fixed in 0.27. (Thanks Manuel Pégourié-Gonnard.)

**[2011/04/23 v1.6]**

- Bug fix for nested leader boxes.
- Bug fix for leader boxes that change color, but are not set because of missing place.
- Version check for Lua module added.

**[2011/10/22 v1.7]**

- Lua functions `getattribute` and `getvalue` added to tell other external Lua functions the attribute register number for coloring.

**[2011/11/01 v1.8]**

- Use of `node.subtype` instead of magic numbers.

**[2016/05/13 v1.9]**

- More use of `node.subtype` instead of magic numbers.
- luatex 85 updates

**[2016/05/16 v1.10]**

- Documentation updates.

**[2018/11/22 v1.11]**

- handle issue 43.
- removed pre-0.65 stuff

**[2019/07/25 v1.12]**

- removed uses of module function, see PR70

## 7 Index

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