The pdftexcmds package

Heiko Oberdiek
<oberdiek@uni-freiburg.de>

2009/04/10 v0.4

Abstract

LuaTeX provides most of the commands of pdfTeX 1.40. However a number of utility functions are removed. This package tries to fill the gap and implements some of the missing primitive using Lua.

Contents

1 Documentation

Some primitives of pdfTeX are not defined by LuaTeX. This package implements macro based solutions using Lua code for the following missing pdfTeX primitives;

- `\pdfstrcmp`

- \pdfunescapehex
- \pdfescapehex
- \pdfescapename
- \pdfescapestring
- \pdffilesize
- \pdffilemoddate
- \pdffiledump
- \pdfmdfivesum
- \immediate\write18

The original names of the primitives cannot be used:

- The syntax for their arguments cannot easily simulated by macros. The primitives using key words such as `file` (\pdfmdfivesum) or `offset` and `length` (\pdffiledump) and uses ⟨*general text*⟩ for the other arguments. Using token registers assignments, ⟨*general text*⟩ could be catched. However, the simulated primitives are expandable and register assignments would destroy this important property. (⟨*general text*⟩ allows something like `\expandafter\bgroup ...}`.)
- The original primitives can be expanded using one expansion step. The new macros need two expansion steps because of the additional macro expansion. Example:

  `\expandafter\foo\pdffilemoddate{file}`
  vs. `\expandafter\expandafter\expandafter\foo\pdf@filemoddate{file}`.

LuaTeX isn't stable yet and thus the status of this package is *experimental*. Feedback is welcome.

1.1 General principles

Naming convention: Usually this package defines a macro \pdf@⟨*cmd*⟩ if pdfTeX provides \pdf⟨*cmd*⟩.

Arguments: The order of arguments in \pdf@⟨*cmd*⟩ is the same as for the corresponding primitive of pdfTeX. The arguments are ordinary undelimited TeX arguments, no ⟨*general text*⟩ and without additional keywords.

Expandibility: The macro \pdf@⟨*cmd*⟩ is expandable if the corresponding pdfTeX primitive has this property. Exact two expansion steps are necessary (first is the macro expansion).

Without LuaTeX: The macros \pdf@⟨*cmd*⟩ are mapped to the commands of pdfTeX if they are available. Otherwise they are undefined.

1.2 Macros

`\pdf@strcmp` {⟨*stringA*⟩} {⟨*stringB*⟩}

Same as \pdfstrcmp{⟨*stringA*⟩}{⟨*stringB*⟩}.

`\pdf@unescapehex` {⟨*string*⟩}

Same as \pdfunescapehex{⟨*string*⟩}. The argument is a byte string given in hexadecimal notation. The result are character tokens from 0 until 255 with catcode 12 and the space with catcode 10.

`\pdf@escapehex` {⟨*string*⟩}
`\pdf@escapestring` {⟨*string*⟩}
`\pdf@escapename` {⟨*string*⟩}

Same as the primitives of pdfTEX. However pdfTEX does not know about characters with codes 256 and larger. Thus the string is treated as byte string, characters with more than eight bits are ignored.

`\pdf@filesize` {⟨*filename*⟩}

Same as `\pdffilesize{`⟨*filename*⟩`}`.

`\pdf@filemoddate` {⟨*filename*⟩}

Same as `\pdffilemoddate{`⟨*filename*⟩`}`.

`\pdf@filedump` {⟨*offset*⟩} {⟨*length*⟩} {⟨*filename*⟩}

Same as `\pdffiledump offset` ⟨*offset*⟩ `length` ⟨*length*⟩ `{`⟨*filename*⟩`}`. Both ⟨*offset*⟩ and ⟨*length*⟩ must not be empty, but must be a valid TEX number.

`\pdf@mdfivesum` {⟨*string*⟩}

Same as `\pdfmdfivesum{`⟨*string*⟩`}`. Keyword `file` is supported by macro `\pdf@filemdfivesum`.

`\pdf@filemdfivesum` {⟨*filename*⟩}

Same as `\pdfmdfivesum file{`⟨*filename*⟩`}`.

`\pdf@shellescape`

Same as `\pdfshellescape`. It expands to `1` if external commands can be executed and `0` otherwise. In pdfTEX external commands must be enabled first by command line option or configuration option. In LuaTEX option `--safer` disables the execution of external commands.

`\pdf@system` {⟨*cmdline*⟩}

It is a wrapper for `\immediate\write18` in pdfTEX or `os.execute` in LuaTEX.

In theory `os.execute` returns a status number. But its meaning is quite undefined. Are there some reliable properties? Does it make sense to provide an user interface to this status exit code?

1.2.1 Experimental

`\pdf@unescapehexnative` {⟨*string*⟩}
`\pdf@escapehexnative` {⟨*string*⟩}
`\pdf@escapenamenative` {⟨*string*⟩}
`\pdf@mdfivesumnative` {⟨*string*⟩}

The variants without `native` in the macro name are supposed to be compatible with pdfTEX. However characters with more than eight bits are not supported and are ignored. If LuaTEX is running, then its UTF-8 coded strings are used.

Thus the full unicode character range is supported. However the result differs from pdfTeX for characters with eight or more bits.

`\pdf@pipe` {⟨*cmdline*⟩}

It calls ⟨*cmdline*⟩ and returns the output of the external program in the usual manner as byte string (catcode 12, space with catcode 10). The Lua documentation says, that the used `io.popen` may not be available on all platforms. Then macro `\pdf@pipe` is undefined.

2 Implementation

```
1 ⟨*package⟩
```

2.1 Reload check and package identification

Reload check, especially if the package is not used with LaTeX.

```
2 \begingroup
3   \catcode44 12 % ,
4   \catcode45 12 % -
5   \catcode46 12 % .
6   \catcode58 12 % :
7   \catcode64 11 % @
8   \catcode123 1 % {
9   \catcode125 2 % }
10  \expandafter\let\expandafter\x\csname ver@pdftexcmds.sty\endcsname
11  \ifx\x\relax % plain-TeX, first loading
12  \else
13    \def\empty{}%
14    \ifx\x\empty % LaTeX, first loading,
15      % variable is initialized, but \ProvidesPackage not yet seen
16    \else
17      \catcode35 6 % #
18      \expandafter\ifx\csname PackageInfo\endcsname\relax
19        \def\x#1#2{%
20          \immediate\write-1{Package #1 Info: #2.}%
21        }%
22      \else
23        \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
24      \fi
25      \x{pdftexcmds}{The package is already loaded}%
26      \aftergroup\endinput
27    \fi
28  \fi
29 \endgroup
```

Package identification:

```
30 \begingroup
31   \catcode35 6 % #
32   \catcode40 12 % (
33   \catcode41 12 % )
34   \catcode44 12 % ,
35   \catcode45 12 % -
36   \catcode46 12 % .
37   \catcode47 12 % /
38   \catcode58 12 % :
39   \catcode64 11 % @
40   \catcode91 12 % [
41   \catcode93 12 % ]
42   \catcode123 1 % {
43   \catcode125 2 % }
```

```
  \expandafter\ifx\csname ProvidesPackage\endcsname\relax
    \def\x#1#2#3[#4]{\endgroup
      \immediate\write-1{Package: #3 #4}%
      \xdef#1{#4}%
    }%
  \else
    \def\x#1#2[#3]{\endgroup
      #2[{#3}]%
      \ifx#1\@undefined
        \xdef#1{#3}%
      \fi
      \ifx#1\relax
        \xdef#1{#3}%
      \fi
    }%
  \fi
\expandafter\x\csname ver@pdftexcmds.sty\endcsname
\ProvidesPackage{pdftexcmds}%
  [2009/04/10 v0.4 LuaTeX support for pdfTeX utility functions (HO)]
```

2.2 Catcodes

```
\begingroup
  \catcode123 1 % {
  \catcode125 2 % }
  \def\x{\endgroup
    \expandafter\edef\csname pdftexcmds@AtEnd\endcsname{%
      \catcode35 \the\catcode35\relax
      \catcode64 \the\catcode64\relax
      \catcode123 \the\catcode123\relax
      \catcode125 \the\catcode125\relax
    }%
  }%
\x
\catcode35 6 % #
\catcode64 11 % @
\catcode123 1 % {
\catcode125 2 % }
\def\TMP@EnsureCode#1#2{%
  \edef\pdftexcmds@AtEnd{%
    \pdftexcmds@AtEnd
    \catcode#1 \the\catcode#1\relax
  }%
  \catcode#1 #2\relax
}
\TMP@EnsureCode{10}{12}% ^^J
\TMP@EnsureCode{33}{12}% !
\TMP@EnsureCode{34}{12}% "
\TMP@EnsureCode{39}{12}% '
\TMP@EnsureCode{40}{12}% (
\TMP@EnsureCode{41}{12}% )
\TMP@EnsureCode{42}{12}% *
\TMP@EnsureCode{43}{12}% +
\TMP@EnsureCode{44}{12}% ,
\TMP@EnsureCode{45}{12}% -
\TMP@EnsureCode{46}{12}% .
\TMP@EnsureCode{47}{12}% /
\TMP@EnsureCode{58}{12}% :
\TMP@EnsureCode{60}{12}% <
\TMP@EnsureCode{61}{12}% =
\TMP@EnsureCode{62}{12}% >
\TMP@EnsureCode{94}{7}% ^ (superscript)
```

```
\TMP@EnsureCode{95}{12}% _ (other)
\TMP@EnsureCode{96}{12}% `
\TMP@EnsureCode{126}{12}% ~ (other)
```

2.3 Load package infwarerr

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname RequirePackage\endcsname\relax
  \input infwarerr.sty\relax
  \input ifluatex.sty\relax
\else
  \RequirePackage{infwarerr}[2007/09/09]%
  \RequirePackage{ifluatex}[2009/04/10]%
\fi
```

2.4 Without LuaTeX

```
\ifluatex
\else
  \@PackageInfo{pdftexcmds}{LuaTeX not detected}%
  \def\pdftexcmds@nopdftex{%
    \@PackageInfoNoLine{pdftexcmds}{pdfTeX >= 1.30 not detected}%
    \let\pdftexcmds@nopdftex\relax
  }%
  \def\pdftexcmds@temp#1{%
    \begingroup\expandafter\expandafter\expandafter\endgroup
    \expandafter\ifx\csname pdf#1\endcsname\relax
      \pdftexcmds@nopdftex
    \else
      \expandafter\def\csname pdf@#1\expandafter\endcsname
      \expandafter##\expandafter{%
        \csname pdf#1\endcsname
      }%
    \fi
  }%
  \pdftexcmds@temp{strcmp}%
  \pdftexcmds@temp{escapehex}%
  \let\pdf@escapehexnative\pdf@escapehex
  \pdftexcmds@temp{unescapehex}%
  \let\pdf@unescapehexnative\pdf@unescapehex
  \pdftexcmds@temp{escapestring}%
  \pdftexcmds@temp{escapename}%
  \pdftexcmds@temp{filesize}%
  \pdftexcmds@temp{filemoddate}%
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname pdfshellescape\endcsname\relax
    \pdftexcmds@nopdftex
  \else
    \def\pdf@shellescape{%
      \pdfshellescape
    }%
  \fi
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname pdffiledump\endcsname\relax
    \pdftexcmds@nopdftex
  \else
    \def\pdf@filedump#1#2#3{%
      \pdffiledump offset#1 length#2{#3}%
    }%
  \fi
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname pdfmdfivesum\endcsname\relax
    \pdftexcmds@nopdftex
  \else
```

```
    \def\pdf@mdfivesum#{\pdfmdfivesum}%
    \let\pdf@mdfivesumnative\pdf@mdfivesum
    \def\pdf@filemdfivesum#{\pdfmdfivesum file}%
  \fi
  \def\pdf@system#{%
    \immediate\write18%
  }%
  \pdftexcmds@AtEnd
  \expandafter\endinput
\fi
```

`\pdftexcmds@directlua`

```
\ifnum\luatexversion<36 %
  \def\pdftexcmds@directlua{\directlua0 }%
\else
  \let\pdftexcmds@directlua\directlua
\fi
```

2.5 Load module

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname RequirePackage\endcsname\relax
  \input luatex-loader.sty\relax
\else
  \RequirePackage{luatex-loader}[2009/04/10]%
\fi
\pdftexcmds@directlua{%
  require("oberdiek.pdftexcmds")%
}
```

2.6 Lua functions

`\pdftexcmds@toks`

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname newtoks\endcsname\relax
  \toksdef\pdftexcmds@toks=0 %
\else
  \csname newtoks\endcsname\pdftexcmds@toks
\fi

\ifnum\luatexversion<36 %
\else
  \catcode`\0=9 %
\fi
```

`\pdf@strcmp`

```
\long\def\pdf@strcmp#1#2{%
  \directlua0{%
    oberdiek.pdftexcmds.strcmp("\luaescapestring{#1}",%
        "\luaescapestring{#2}")%
  }%
}%
```

`\pdf@escapehex`

```
\long\def\pdf@escapehex#1{%
  \directlua0{%
    oberdiek.pdftexcmds.escapehex("\luaescapestring{#1}", "byte")%
  }%
}%
```

`\pdf@escapehexnative`

```
\long\def\pdf@escapehexnative#1{%
```

```
    \directlua0{%
      oberdiek.pdftexcmds.escapehex("\luaescapestring{#1}")%
    }%
}%
```

\pdf@unescapehex

```
\def\pdf@unescapehex#1{%
  \the\expandafter\pdftexcmds@toks
  \directlua0{%
    oberdiek.pdftexcmds.toks="pdftexcmds@toks"%
    oberdiek.pdftexcmds.unescapehex("\luaescapestring{#1}", "byte")%
  }%
}%
```

\pdf@unescapehexnative

```
\def\pdf@unescapehexnative#1{%
  \the\expandafter\pdftexcmds@toks
  \directlua0{%
    oberdiek.pdftexcmds.toks="pdftexcmds@toks"%
    oberdiek.pdftexcmds.unescapehex("\luaescapestring{#1}")%
  }%
}%
```

\pdf@escapestring

```
\long\def\pdf@escapestring#1{%
  \directlua0{%
    oberdiek.pdftexcmds.escapestring("\luaescapestring{#1}", "byte")%
  }%
}
```

\pdf@escapename

```
\long\def\pdf@escapename#1{%
  \directlua0{%
    oberdiek.pdftexcmds.escapename("\luaescapestring{#1}", "byte")%
  }%
}
```

\pdf@escapenamenative

```
\long\def\pdf@escapenamenative#1{%
  \directlua0{%
    oberdiek.pdftexcmds.escapename("\luaescapestring{#1}")%
  }%
}
```

\pdf@filesize

```
\def\pdf@filesize#1{%
  \directlua0{%
    oberdiek.pdftexcmds.filesize("\luaescapestring{#1}")%
  }%
}
```

\pdf@filemoddate

```
\def\pdf@filemoddate#1{%
  \directlua0{%
    oberdiek.pdftexcmds.filemoddate("\luaescapestring{#1}")%
  }%
}
```

\pdf@filedump

```
\def\pdf@filedump#1#2#3{%
  \directlua0{%
```

```
    oberdiek.pdftexcmds.filedump("\luaescapestring{\number#1}",%
        "\luaescapestring{\number#2}",%
        "\luaescapestring{#3}")%
  }%
}%
```

\pdf@mdfivesum

```
\long\def\pdf@mdfivesum#1{%
  \directlua0{%
    oberdiek.pdftexcmds.mdfivesum("\luaescapestring{#1}", "byte")%
  }%
}%
```

\pdf@mdfivesumnative

```
\long\def\pdf@mdfivesumnative#1{%
  \directlua0{%
    oberdiek.pdftexcmds.mdfivesum("\luaescapestring{#1}")%
  }%
}%
```

\pdf@filemdfivesum

```
\def\pdf@filemdfivesum#1{%
  \directlua0{%
    oberdiek.pdftexcmds.filemdfivesum("\luaescapestring{#1}")%
  }%
}%
```

\pdf@shellescape

```
\def\pdf@shellescape{%
  \directlua0{%
    oberdiek.pdftexcmds.shellescape()%
  }%
}
```

\pdf@system

```
\def\pdf@system#1{%
  \directlua0{%
    oberdiek.pdftexcmds.system("\luaescapestring{#1}")%
  }%
}
```

\pdf@lastsystemstatus

```
\def\pdf@lastsystemstatus{%
  \directlua0{%
    oberdiek.pdftexcmds.lastsystemstatus()%
  }%
}
```

\pdf@lastsystemexit

```
\def\pdf@lastsystemexit{%
  \directlua0{%
    oberdiek.pdftexcmds.lastsystemexit()%
  }%
}
```

```
\catcode`\0=12 %
```

\pdf@pipe Check availability of `io.popen` first.

```
\ifnum0%
    \pdftexcmds@directlua{%
      if io.popen then %
```

```
        tex.write("1")%
      end%
    }%
    =1 %
  \def\pdf@pipe#1{%
    \the\expandafter\pdftexcmds@toks
    \pdftexcmds@directlua{%
      oberdiek.pdftexcmds.toks="pdftexcmds@toks"%
      oberdiek.pdftexcmds.pipe("\luaescapestring{#1}")%
    }%
  }%
\fi

\pdftexcmds@AtEnd
```
⟨/package⟩

2.7 Lua module

⟨∗lua⟩

```
module("oberdiek.pdftexcmds", package.seeall)
local systemexitstatus
function strcmp(A, B)
  if A == B then
    tex.write("0")
  elseif A < B then
    tex.write("-1")
  else
    tex.write("1")
  end
end
local function utf8_to_byte(str)
  local i = 0
  local n = string.len(str)
  local t = {}
  while i < n do
    i = i + 1
    local a = string.byte(str, i)
    if a < 128 then
      table.insert(t, string.char(a))
    else
      if a >= 192 and i < n then
        i = i + 1
        local b = string.byte(str, i)
        if b < 128 or b >= 192 then
          i = i - 1
        elseif a == 194 then
          table.insert(t, string.char(b))
        elseif a == 195 then
          table.insert(t, string.char(b + 64))
        end
      end
    end
  end
  return table.concat(t)
end
function escapehex(str, mode)
  if mode == "byte" then
    str = utf8_to_byte(str)
  end
  tex.write((string.gsub(str, ".",
    function (ch)
      return string.format("%02X", string.byte(ch))
```

```
    end
  )))
end
```

See procedure `unescapehex` in file `utils.c` of pdfTEX. Caution: `tex.write` ignores leading spaces.

```
function unescapehex(str, mode)
  local a = 0
  local first = true
  local result = {}
  for i = 1, string.len(str), 1 do
    local ch = string.byte(str, i)
    if ch >= 48 and ch <= 57 then
      ch = ch - 48
    elseif ch >= 65 and ch <= 70 then
      ch = ch - 55
    elseif ch >= 97 and ch <= 102 then
      ch = ch - 87
    else
      ch = nil
    end
    if ch then
      if first then
        a = ch * 16
        first = false
      else
        table.insert(result, a + ch)
        first = true
      end
    end
  end
  if not first then
    table.insert(result, a)
  end
  if mode == "byte" then
    local utf8 = {}
    for i, a in ipairs(result) do
      if a < 128 then
        table.insert(utf8, a)
      else
        if a < 192 then
          table.insert(utf8, 194)
          a = a - 128
        else
          table.insert(utf8, 195)
          a = a - 192
        end
        table.insert(utf8, a + 128)
      end
    end
    result = utf8
  end
  tex.settoks(toks, string.char(unpack(result)))
end
```

See procedure `escapestring` in file `utils.c` of pdfTEX.

```
function escapestring(str, mode)
  if mode == "byte" then
    str = utf8_to_byte(str)
  end
  tex.write((string.gsub(str, ".",
    function (ch)
      local b = string.byte(ch)
      if b < 33 or b > 126 then
```

```
413         return string.format("\\%.3o", b)
414       end
415       if b == 40 or b == 41 or b == 92 then
416         return "\\" .. ch
417       end
```

Lua 5.1 returns the match in case of return value `nil`.

```
418       return nil
419     end
420   )))
421 end
```

See procedure `escapename` in file `utils.c` of pdfTEX.

```
422 function escapename(str, mode)
423   if mode == "byte" then
424     str = utf8_to_byte(str)
425   end
426   tex.write((string.gsub(str, ".",
427     function (ch)
428       local b = string.byte(ch)
429       if b == 0 then
```

In Lua 5.0 `nil` could be used for the empty string, But `nil` returns the match in Lua 5.1, thus we use the empty string explicitly.

```
430         return ""
431       end
432       if b <= 32 or b >= 127
433           or b == 35 or b == 37 or b == 40 or b == 41
434           or b == 47 or b == 60 or b == 62 or b == 91
435           or b == 93 or b == 123 or b == 125 then
436         return string.format("#%.2X", b)
437       else
```

Lua 5.1 returns the match in case of return value `nil`.

```
438         return nil
439       end
440     end
441   )))
442 end
443 function filesize(filename)
444   local foundfile = kpse.find_file(filename, "tex", true)
445   if foundfile then
446     local size = lfs.attributes(foundfile, "size")
447     if size then
448       tex.write(size)
449     end
450   end
451 end
```

See procedure `makepdftime` in file `utils.c` of pdfTEX.

```
452 function filemoddate(filename)
453   local foundfile = kpse.find_file(filename, "tex", true)
454   if foundfile then
455     local date = lfs.attributes(foundfile, "modification")
456     if date then
457       local d = os.date("*t", date)
458       if d.sec >= 60 then
459         d.sec = 59
460       end
461       local u = os.date("!*t", date)
462       local off = 60 * (d.hour - u.hour) + d.min - u.min
463       if d.year ~= u.year then
464         if d.year > u.year then
465           off = off + 1440
466         else
467           off = off - 1440
```

```
        end
      elseif d.yday ~= u.yday then
        if d.yday > u.yday then
          off = off + 1440
        else
          off = off - 1440
        end
      end
      local timezone
      if off == 0 then
        timezone = "Z"
      else
        local hours = math.floor(off / 60)
        local mins = math.abs(off - hours * 60)
        timezone = string.format("%+03d'%02d'", hours, mins)
      end
      tex.write(string.format("D:%04d%02d%02d%02d%02d%02d%s",
          d.year, d.month, d.day, d.hour, d.min, d.sec, timezone))
    end
  end
end
function filedump(offset, length, filename)
  length = tonumber(length)
  if length and length > 0 then
    local foundfile = kpse.find_file(filename, "tex", true)
    if foundfile then
      offset = tonumber(offset)
      if not offset then
        offset = 0
      end
      local filehandle = io.open(foundfile, "r")
      if filehandle then
        if offset > 0 then
          filehandle:seek("set", offset)
        end
        local dump = filehandle:read(length)
        escapehex(dump)
      end
    end
  end
end
function mdfivesum(str, mode)
  if mode == "byte" then
    str = utf8_to_byte(str)
  end
  escapehex(md5.sum(str))
end
function filemdfivesum(filename)
  local foundfile = kpse.find_file(filename, "tex", true)
  if foundfile then
    local filehandle = io.open(foundfile, "r")
    if filehandle then
      local contents = filehandle:read("*a")
      escapehex(md5.sum(contents))
    end
  end
end
function shellescape()
  if os.execute then
    tex.write("1")
  else
    tex.write("0")
```

```
  end
end
function system(cmdline)
  systemexitstatus = nil
  texio.write_nl("log", "system(" .. cmdline .. ") ")
  if os.execute then
    texio.write("log", "executed.")
    systemexitstatus = os.execute(cmdline)
  else
    texio.write("log", "disabled.")
  end
end
function lastsystemstatus()
  local result = tonumber(systemexitstatus)
  if result then
    local x = math.floor(result / 256)
    tex.write(result - 256 * math.floor(result / 256))
  end
end
function lastsystemexit()
  local result = tonumber(systemexitstatus)
  if result then
    tex.write(math.floor(result / 256))
  end
end
function pipe(cmdline)
  local result
  systemexitstatus = nil
  texio.write_nl("log", "pipe(" .. cmdline ..") ")
  if io.popen then
    texio.write("log", "executed.")
    local handle = io.popen(cmdline, "r")
    if handle then
      result = handle:read("*a")
      handle:close()
    end
  else
    texio.write("log", "disabled.")
  end
  if result then
    tex.settoks(toks, result)
  else
    tex.settoks(toks, "")
  end
end
```

⟨/lua⟩

3 Test

3.1 Catcode checks for loading

⟨*test1⟩

```
\catcode`\{=1 %
\catcode`\}=2 %
\catcode`\#=6 %
\catcode`\@=11 %
\expandafter\ifx\csname count@\endcsname\relax
  \countdef\count@=255 %
\fi
\expandafter\ifx\csname @gobble\endcsname\relax
  \long\def\@gobble#1{}%
\fi
```

```
\expandafter\ifx\csname @firstofone\endcsname\relax
  \long\def\@firstofone#1{#1}%
\fi
\expandafter\ifx\csname loop\endcsname\relax
  \expandafter\@firstofone
\else
  \expandafter\@gobble
\fi
{%
  \def\loop#1\repeat{%
    \def\body{#1}%
    \iterate
  }%
  \def\iterate{%
    \body
      \let\next\iterate
    \else
      \let\next\relax
    \fi
    \next
  }%
  \let\repeat=\fi
}%
\def\RestoreCatcodes{}
\count@=0 %
\loop
  \edef\RestoreCatcodes{%
    \RestoreCatcodes
    \catcode\the\count@=\the\catcode\count@\relax
  }%
\ifnum\count@<255 %
  \advance\count@ 1 %
\repeat

\def\RangeCatcodeInvalid#1#2{%
  \count@=#1\relax
  \loop
    \catcode\count@=15 %
  \ifnum\count@<#2\relax
    \advance\count@ 1 %
  \repeat
}
\expandafter\ifx\csname LoadCommand\endcsname\relax
  \def\LoadCommand{\input pdftexcmds.sty\relax}%
\fi
\def\Test{%
  \RangeCatcodeInvalid{0}{47}%
  \RangeCatcodeInvalid{58}{64}%
  \RangeCatcodeInvalid{91}{96}%
  \RangeCatcodeInvalid{123}{255}%
  \catcode`\@=12 %
  \catcode`\\=0 %
  \catcode`\{=1 %
  \catcode`\}=2 %
  \catcode`\#=6 %
  \catcode`\[=12 %
  \catcode`\]=12 %
  \catcode`\%=14 %
  \catcode`\ =10 %
  \catcode13=5 %
  \LoadCommand
  \RestoreCatcodes
```

```
}
\Test
\csname @@end\endcsname
\end
```

⟨/test1⟩

4 Installation

4.1 Download

Package. This package is available on CTAN[1]:

CTAN:macros/latex/contrib/oberdiek/pdftexcmds.dtx The source file.

CTAN:macros/latex/contrib/oberdiek/pdftexcmds.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

TDS refers to the standard "A Directory Structure for TEX Files" (CTAN:tds/tds.pdf). Directories with `texmf` in their name are usually organized this way.

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 pdftexcmds.dtx
```

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

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

[1] ftp://ftp.ctan.org/tex-archive/

4.4 Refresh file name databases

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

4.5 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is pdftk, e.g. unpack the file into the current directory:

```
pdftk pdftexcmds.pdf unpack_files output .
```

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

plain-TEX: Run docstrip and extract the files.

LATEX: Generate the documentation.

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

```
latex \let\install=y\input{pdftexcmds.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 pdfLATEX:

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

5 History

[2007/11/11 v0.1]

- First version.

[2007/11/12 v0.2]

- Short description fixed.

[2007/12/12 v0.3]

- Organization of Lua code as module.

[2009/04/10 v0.4]

- Adaptation for syntax change of `\directlua` in LuaTEX 0.36.

6 Index

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