datepicker-pro: A Date picker using FLEX

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processed August 7, 2020

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1 ⟨*package⟩

1 Introduction

This package creates a date picker for a PDF document using a *rich media annotation* (RMA). Development of this package occurred in July, 2013.

When you have a text field that requires a date, the user clicks on the date picker icon to the right of the field and a floating window opens to display a standard calendar. The user may scroll through the dates and and choose a date by clicking one of the dates in the calendar. The floating window closes, and the formatted date appears in the input field.

The document author has some control over the positioning of the window; the window can open a various location in the application window: upper left, lower right, etc. There are numerous other options for customizing the calendar and formatting the return string.

Acrobat and Distiller required

This is a "pro" package for AeB, which mean the PDF creator is Adobe Distiller. The document author needs to use the usual combination of Acrobat and Distiller.

2 Options and Required Packages

The required packages are aeb_pro, eforms, and rmannot. The aeb_pro is used only to import icon appearance of the date picker push button. Obviously, eforms is for text fields and push buttons; and rmannot for importing the date picker SWF file into the document.

```
\RequirePackage{aeb_pro}[2013/08/05]
\RequirePackage{eforms}[2013/06/05]
\RequirePackage{rmannot}[2011/09/11]
```

3 The Main Code

`\useFLEXVer` determines the version of the FLEX SWF file to be used, supported are version 3 (`\useFLEXVer{3}`) and version 4 (`\useFLEXVer{4}`). As of this reading the version 4, the SWF file is very slow in loading, so version 3 is strongly recommended.

```
\newcommand{\useFLEXVer}[1]{\def\argi{#1}\ifnum\argi=3\relax
    \def\flexVer{3}\else\ifnum\argi=4\relax\def\flexVer{4}\else
    \def\flexVer{3}\PackageInfo{datepicker-pro}{FLEX version number not
    supported,\space\MessageBreak using FLEX 3}\fi\fi}
\def\flexVer{3}
\@onlypreamble\useFLEXVer
```

`\dppToolTip` is used for setting the tool tip of the icon push button.

```
\newcommand{\dppToolTip}[1]{\def\dpp@ToolTip{#1}}
\dppToolTip{Date Picker\n Click to toggle open and close\n
    Shift-click to clear and close}
\newcommand{\pickerOpts}[1]{\def\dpp@pickerOpts{#1}}
    \pickerOpts{}
\newcommand{\pickerInputOpts}[1]{\def\dpp@pickerInputOpts{#1}}
    \pickerInputOpts{}
\newcommand{\iconBenOpts}[1]{\def\dpp@iconBenOpts{#1}}
    \iconBenOpts{}
\newcommand{\pickersep}{3bp}
```

Options passed through the first optional argument of `\datepicker`.

`formatstring` **Format date string.** The `formatstring` uses various combinations of `M`, `D`, `Y`, and possible `E` as well as spaces and delimiters to format the date string. The following table was extracted from the page:

`http://help.adobe.com/en_US/FlashPlatform/reference/actionscript/3/mx/formatters/DateFormatter.html` (found here)

Pattern	Examples	Pattern	Examples
Y	YY = 05	D	D = 4
	YYY=2005		DD=04
	YYY=02005		
M	M = 7	E	E = 1
	MM=07		EE=01
	MMM=Jul		EEE=Mon
	MMMM=July		EEEE=Monday

One example is `formatstring={EEEE, DD. MMMM YYYY}`.

```
\define@key{ddp}{formatstring}[MM/DD/YYYY]{\def\dpp@FormatStr{#1}}
```

Formatting the calendar. The `dateChooser` control that is used in the SWF file contains the name of the month at the top and the names of the days of the week just below it. By default, the usual English month names are used (January, February, . . . ,December) and the usual English days of the week names are used (Sunday, Monday, . . . ,Saturday). However, these can be changed through the use of `monthnames` and `daynames`. For example,

`monthnames` `daynames`

```
monthnames={Jan,Feb,Mar,Apr,May,June,July,Aug,Sept,Oct,Nov,Dec}.
daynames={Su,M,Tu,W,Th,F,Sa}
```

The order must be the first month of the year (January, or the equivalent in another language) and the first day of the week (Sunday, or its equivalent). Some calendars consider Monday as the first day of the week, if this is so, *still* place Sunday, or its local equivalent, as the first entry in the list. A different starting day is set using the `firstday` key. Setting `firstday=1` puts Monday as the first day of the week on the calendar. The values of the keys `monthnames` and `daynames` are comma-delimited list of month or day names, for example,

`firstday`

```
daynames={So,Mo,Di,Mi,Do,Fr,Sa},
monthnames={Jan,Febr,Mrz,Apr,Mai,Jun,Jul,Aug,Sept,Okt,Nov,Dez},
```

The value of the key `firstday` is an integer, 0. . . 7.

```
\define@key{ddp}{daynames}[]{\def\ddp@DayNames{#1}}
\define@key{ddp}{monthnames}[]{\def\ddp@MonthNames{#1}}
\def\warningMsgFirstDay{%
    The value of firstday must be a\MessageBreak
    nonnegative integer less than 6.\MessageBreak
    Setting firstday=0%
}
\define@key{ddp}{firstday}[0]{%
    \@tempcnta=#1
    \def\ddp@FirstDayOfWeek{#1}%
    \ifnum\@tempcnta<0\relax\PackageWarning{datepicker-pro}
        {\warningMsgFirstDay}{}\def\ddp@FirstDayOfWeek{0}\else
    \ifnum\@tempcnta>6\relax\PackageWarning{datepicker-pro}
        {\warningMsgFirstDay}{}\def\ddp@FirstDayOfWeek{0}\fi\fi
}
```

Formatting the Month and Day in the return value. These keys are not needed unless in your `formatstring` you use `MMM`, `MMMM`, `DDD`, or `DDDD`. These should be consistent with the calendar headings as well. You don't want English days of the week on a German calendar. The key `monthnamesLong` is used with `MMMM` and `monthnamesShort` with `MMM`. Similarly, `daynamesLong` is used for formatting `DDDD` and `daynamesShort` is used with `DDD`. The values of each of these keys is a comma-delimited list of month or day names, for example

`monthnamesLong`
`monthnamesShort`
`daynamesLong`
`daynamesShort`

```
daynamesLong={Sonntag,Montag,Dienstag,Mittwoch,Donnerstag,%
    Freitag,Samstag},
daynamesShort={So,Mo,Di,Mi,Do,Fr,Sa},
monthnamesLong={Januar,Februar,März,April,Mai,Juni,Juli,%
    August,September,Oktober,November,Dezember},
monthnamesShort={Jan,Feb,Mrz,Apr,Mai,Jun,Jul,Aug,Sep,%
    Okt,Nov,Dez},
```

```
\define@key{ddp}{monthnamesLong}[]{\def\ddp@monthnamesLong{#1}}
\define@key{ddp}{monthnamesShort}[]{\def\ddp@monthnamesShort{#1}}
\define@key{ddp}{daynamesLong}[]{\def\ddp@daynamesLong{#1}}
\define@key{ddp}{daynamesShort}[]{\def\ddp@daynamesShort{#1}}
```

`halign`
`valign`
`hoffset`
`voffset`

The keys `halign`, `valign`, `hoffset`, and `voffset` determine the positioning of the floating windows when it opens. The default is the center of the window (for versions > 9), for version 9, this key is ignored and the window appears in the upper-right of the application window. See the documentation of the `rmannot` package for more detail.

```
\define@key{ddp}{halign}[center]{\def\ddp@halign{#1}}
\define@key{ddp}{valign}[center]{\def\ddp@valign{#1}}
\define@key{ddp}{hoffset}[0]{\def\ddp@hoffset{#1}}
\define@key{ddp}{voffset}[0]{\def\ddp@voffset{#1}}
```

Setting the dimensions of the window. The dimensions of the floating window are determined by `widthOfWindow` and `heightOfWindow`.

`widthOfWindow`
`heightOfWindow`

```
\define@key{ddp}{widthOfWindow}[180]{\def\ddp@widthOfWindow{#1}}
\define@key{ddp}{heightOfWindow}[180]{\def\ddp@heightOfWindow{#1}}
```

`\setPickerOpts` can be used to globally set picker options.

```
\newcommand{\setPickerOpts}[1]{\let\ddp@bsSAVE\\\let\ddp@uSAVE\u
  \def\\{\eqbs\eqbs}\def\u{\\u}%
  \edef\x{\noexpand\setkeys{ddp}{#1}}\x
  \let\\\ddp@bsSAVE\let\u\ddp@uSAVE
}
```

`\setPickerOptsToDefaults` resets picker options back to their original defaults.

```
\newcommand{\setPickerOptsToDefaults}{\let\ddp@bsSAVE\\\let\ddp@uSAVE\u
  \setkeys{ddp}{formatstring,daynames,monthnames,firstday,halign,%
      valign,hoffset,voffset,widthOfWindow,heightOfWindow,%
      monthnamesLong,monthnamesShort,daynamesLong,daynamesShort}%
  \let\\\ddp@bsSAVE\let\u\ddp@uSAVE
```

```
57 }
58 \setPickerOptsToDefaults
```

`\dppBtnAction` sets the action of the icon push button. When pressed, it simply activates the RMA, when shift-clicked, it resets the field and closes the RMA.

```
59 \def\dppBtnAction#1{%
60   var annot = this.getAnnotRichMedia(this.pageNum,"#1");\r
61   if (event.shift){\r\t
62     this.resetForm(["txt#1"]);\r\t
63     annot.activated=false;\r
64   } else
```

If widget is already activated close it, otherwise open it.

```
65         annot.activated=( annot.activated )?false:true;
66 }
```

`\datepicker` is the primary command for this package. It produces a readonly text field to hold the chosen date, a rich media annotation that holds the flash widget (SWF), `datepickerN.swf`, and a push button containing script to activate the annotation.

Naming conventions. Argument `#2` is the base name passed by the author. The name of the RMA is `name=#2`; the field name of the input text field is `txt#2` and the field name of the push button is `btn#2`. There is also a hidden text field named `htxt#2`.

```
67 \newcommand{\datepicker}[4][]{\begingroup
68   \def\\{\eqbs\eqbs}\def\u{\\u}
```

Expand `#1` then get options. Useful if options are passed as a macro.

```
69     \edef\x{\noexpand\setkeys{ddp}{#1}}\x
```

Set window related parameters.

```
70   \setWindowDimPos{width={default=\ddp@widthOfWindow},%
71     height={default=\ddp@heightOfWindow},%
72     position={halign=\ddp@halign,valign=\ddp@valign,
73     hoffset=\ddp@hoffset,voffset=\ddp@voffset}}%
```

This hidden field holds the date selected in a standard format of `MM/DD/YYYY`, this helps me to highlight the date when the user opens the date picker again.

```
74   \makebox[0pt][l]{\textField[\F{\FHidden}\BC{}\BG{}\W0
75     ]{htxt#2}{1bp}{1bp}}%
```

The text field that holds the date selected by the user through the date package.

```
76     \expandafter\textField\expandafter[\dpp@pickerInputOpts\Ff{\FfReadOnly}
77       \AA{\AAValidate{%
78         this.getAnnotRichMedia(this.pageNum,"#2").activated=false;}
79     }]{txt#2}{#3}{#4}\makebox[0pt][r]{%
```

Followed by the SWF widget, very small, invisible, transparent, and hidden by the text field.

```
80     \rmAnnot[invisible,transparentBG,deactivated=pageclose,
81       passcontext,\dpp@pickerOpts,windowed,name=#2,
82       flashvars={field=txt#2&formatstring=\dpp@FormatStr
```

```
      \ifx\ddp@DayNames\@empty\else
        &daynames=\ddp@DayNames\fi
      \ifx\ddp@MonthNames\@empty\else
        &monthnames=\ddp@MonthNames\fi
      \ifnum\ddp@FirstDayOfWeek=0 \else
        &firstday=\ddp@FirstDayOfWeek\fi
      \ifx\ddp@monthnamesLong\@empty\else
        &monthnamesLong=\ddp@monthnamesLong\fi
      \ifx\ddp@monthnamesShort\@empty\else
        &monthnamesShort=\ddp@monthnamesShort\fi
      \ifx\ddp@daynamesLong\@empty\else
        &daynamesLong=\ddp@daynamesLong\fi
      \ifx\ddp@daynamesShort\@empty\else
        &daynamesShort=\ddp@daynamesShort\fi
      }
  ]{4bp}{4bp}{dppDatePicker}}\kern\pickersep
```

Finally, the push button that has an icon for its appearance.

```
  \expandafter\pushButton\expandafter[\dpp@iconBenOpts\TU{\dpp@ToolTip}
    \H{O}\S{S}\BC{}\BG{}\FB{true}\I{null}\TP{1}
    \A{\JS{\dppBtnAction{#2}}}
  ]{btn#2}{\dp@iconWidth}{\dp@iconHeight}\endgroup
}
```

Installing the picker icon. We use `\declareMultiImages` from AeB Pro to create a simplified method of installing the picker icon.

`\setpickerIcon` The command takes two arguments, the path to the icon, and the names of the date picker fields.

```
\setpickerIcon{icons/dp_icon2.pdf}{PickADate,GERDate}
```

The second argument is a comma-delimited list picker names (the first argument of the `\datepicker` command).

```
\newcommand{\setpickerIcon}[2]{% #1=path, #2=placement
  \let\@thesetoks\@empty
  \@for\@dppName:=#2\do{\edef\@thesetoks{\@thesetoks btn\@dppName,}}%
  \def\stripOffComma##1,\@nil{\def\@placeIcons{##1}}%
  \expandafter\stripOffComma\@thesetoks\@nil
  \declareImageAndPlacement{name=dppIcon,path=#1,%
      placement={\@placeIcons}}%
```

We then write a `execJS` environment to a CUT file, then input it back in immediately. Here, I'm using the write handle from the comment package, brought in by AeB Pro. At this moment, it is not being used.

```
  \immediate\openout\CommentStream=ddpdocassmbly.cut
  \immediate\write\CommentStream{\string\begin{execJS}{dppicons}}%
  \immediate\write\CommentStream{\string\insertPreDocAssembly}%
  \immediate\write\CommentStream{\string\end{execJS}}%
  \immediate\closeout\CommentStream
```

```
  \input{ddpdocassmbly.cut}%
}
\@onlypreamble\setpickerIcon
```

\pickerIconWidth
\pickerIconHeight

The two commands \pickerIconWidth and \pickerIconHeight set the width and the height, respectively, of the icon picker icon. The default to 6bp.

```
\newcommand\pickerIconWidth[1]{\def\dp@iconWidth{#1}}
\pickerIconWidth{10bp}
\newcommand\pickerIconHeight[1]{\def\dp@iconHeight{#1}}
\pickerIconHeight{12bp}
```

4 Supporting Document JavaScript

The popDateField is called from the Flash widget to pass the date from the widget to the input field.

```
\begin{insDLJS}{dppdljs}{JavaScript for Date Picker Pro}
```

setDateField

The setDateField function is called by the widget to set the field value. The widget passes three arguments: fname (the field name that is the target of the date), value is the value of the field that will appear to the user, and svalue is the value formatted using the date template MM/DD/YYYY. This latter value is used to highlight this date if the user returns to the same calendar to change the date.

```
function _dppConvUnicode(v){
var fm,re,str=v;
re=/\\u([0-8A-Fa-f]{4})/g
  while ((fm=str.search(re))!=-1) {
   str=str.substring(0,fm)
   +eval("String.fromCharCode(0x"
   +str.substring(fm+2,fm+6)+")")
   +str.substring(fm+6);
  }
return str;
}
function setDateField(fname,value,svalue) {
%console.println("setDateField: fname="+fname
%    +", value="+value+", svalue="+svalue);
  var f = this.getField(fname);
  var g = this.getField("h"+fname);
  if (f !=null ) {
      f.value = _dppConvUnicode(value);
      g.value = svalue;
  }
}
```

getDateValue

The JavaScript function getDateValue is also called by the widget to get the current values of the target field. The return value is an object containing these two values.

```
function getDateValue(fname) {
```

```
%console.println("getDateValue: fname="+fname);
  var f = this.getField(fname);
  var g = this.getField("h"+fname);
  var value;
  if ( f != null )
      value = { value: f.value, svalue: g.value };
  return value;
}
\end{insDLJS}
```

We wait until after the preamble to see if the document author chooses a version for FLEX. We also check to see if a path to the widget has been set. The document author is required to define a path to the datepicker SWF with the name of \dppPath:

```
\definePath{\dppPath}{C:/Users/Public/Documents/My TeX Files/%
    tex/latex/aeb/aebpro/datepicker_pro/swf}
```

```
\def\dpp@initdpp{%
  \@ifundefined{dppPath}{\PackageError{datepicker-pro}
    {You must specify the path to datepicker\flexVer.swf\MessageBreak
    by defining \string\dppPath\space in the configuration file\MessageBreak
    dp-pro.cfg, see documentation}{}}
    {\saveNamedPath{dppDatePicker}{\dppPath/datepicker\flexVer.swf}}%
}
\AtBeginDocument{\dpp@initdpp}

\InputIfFileExists{dp-pro.cfg}{}{}
⟨/package⟩
```

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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.

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6 Change History

v1.1 (2016/05/07)
General: Added the configuration file dp-pro.cfg, used for specifying the path to SWF. 8

v1.2 (2016/05/17)
General: Added \iconBenOpts access to custom options for btn 2
Added access to custom options for btn 6

v1.3 (2018/07/02)
General: Handle non-ascii glyphs with unicode representation 7

v1.4 (2020/08/07)
General: Package author declares this package is obsolete as of December 2020, this is the month Adobe withdraws support for Flash Player (FLV,SWF, etc). 1