

The hyperbar package*

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This package extends the `hyperref` functionality for creating interactive forms to allow adding Barcode form fields supported by some modern PDF readers.

1 Usage

```
\BarcodeField[  
  \BarcodeField[  
    <type>,  
    width=<Barcode width>,  
    height=<Barcode height>,  
    tsv={<fields to encode in barcode>},<Further parameters>  
  ]<Some field name>
```

Barcode fields can be used like ordinary form fields as documented in the `hyperref` manual, section “PDF and HTML forms”. Especially all parameters documented there can be used in *<Further parameters>*. There are some additional parameters specific to `\BarcodeField`:

<type> One of the parameters `qr`, `datamatrix` or `pdf417` can be used to select the format of the generated barcode. If no such parameter is given, a PDF417 barcode is used.

symwidth The horizontal distance between the modules of the barcode in pixel assuming a resolution of 300 DPI. Default is 6.

symfactor Only used for PDF417. The ratio between the height and the width of the modules. Must be one of the values 1, 2, 3, 4. Default 4.

ecc The level of redundancy added to the data for error correction. Not used for Data-Matrix, valid values for QR-Codes are 0, 1, 2, 3. For PDF417 the valid range are integer values between 0 and 8.

tsv This is used as `tsv={<field1>,<field2>,<...>}` to automatically generate the encoded value of the barcode as a combination of the form fields with names *<field1>*, *<field2>*, ... The format is based on the Tab-separated value option of Adobe Acrobat with field names. The generated value contains two lines, the first line are all used field names separated by a tab, the second line consists of the tab-separated values.

If you prefer another format, the `calculate` parameter can be used instead to generate the value with customized Javascript code.

*This document corresponds to `hyperbar` v0.1, dated 2018/07/04.

Currently the only supported backend is pdfTeX.

2 Example

```
...
\usepackage{hyperbar}
...
\begin{document}
...
\begin{Form}
  \TextField[name=first,width=3cm,charsize=12pt]{Prenome}\
  \TextField[name=last,width=3cm,charsize=12pt]{Name}\
  \BarcodeField[width=10cm,height=1cm,tsv={first,last}]{BarcodeField}\
  \BarcodeField[datamatrix,symwidth=10,width=3cm,height=3cm,tsv={first,last}]{BarcodeF
  \BarcodeField[qr,width=3cm,height=3cm,tsv={first,last}]{BarcodeField3}
\end{Form}
\end{document}
```

This example creates a simple PDF form. In PDF-Reader supporting Barcode fields three types of barcodes will be visible under the form, which contain the information entered into the fields.

3 The implementation

```
1 \RequirePackage{hyperref}
2
3 \def\BarField@SetKeys{\kvsetkeys{BarField}}
4 \kv@set@family@handler{BarField}{\kv@processor@default{Field}{#1}{#2}}
5 \newcount\BarFld@barcodetype
6 \newcount\BarFld@symwidth
7 \newcount\BarFld@symfactor
8 \newcount\BarFld@ecc
9 \BarFld@barcodetype=0
10 \BarFld@symwidth=6
11 \BarFld@symfactor=2
12 \BarFld@ecc=2
13 \define@key{BarField}{pdf417}[] {%
14   \BarFld@barcodetype=0
15 }
16 \define@key{BarField}{qr}[] {%
17   \BarFld@barcodetype=1
18 }
19 \define@key{BarField}{datamatrix}[] {%
20   \BarFld@barcodetype=2
21 }
22 \define@key{BarField}{symwidth}{%
23   \BarFld@symwidth=#1\relax
24 }
25 \define@key{BarField}{symfactor}{%
26   \BarFld@symfactor=#1\relax
27 }
```

```

28 \define@key{BarField}{ecc}{%
29   \BarFld@ecc=#1\relax
30 }
31 \def\qBarcodeFld{\qBarcodeFld}
32 \def\BarFld@barcode@set@calculate@names#1#2#3,#4{%
33   \ifx\qBarcodeFld#4%
34     \expandafter\@firstoftwo
35   \else
36     \expandafter\@secondoftwo
37   \fi
38   {\def\Fld@calculate@code{event.value = event.value + " "%}
39   \def\Fld@format@code{event.value="#1#3\string\\n#2"+getField("#3").valueAsString;}}%
40   {\BarFld@barcode@set@calculate@names
41     {#1#3\string\\t}
42     {#2"+getField("#3").valueAsString+"\string\\t}%
43     #4%
44   }%
45 }
46 \define@key{Field}{tsv}{%
47   \BarFld@barcode@set@calculate@names{}-{}#1,\qBarcodeFld
48 }
49 \DeclareRobustCommand\BarcodeField{%
50   \ifnextchar[{\@BarcodeField}{\@BarcodeField[]}%
51 }
52 %% The following is based on the TextField implementation
53 %% from the hyperref bundle, file hpdftex.def, with only the
54 %% barcode specific fields added.
55 \def\BarField@FlagsBarcode{%
56   \HyField@FlagsAnnot{barcode field}%
57   \bitsetReset{HyField@Ff}%
58   \HyField@UseFlag{Ff}{ReadOnly}%
59   \HyField@UseFlag{Ff}{Required}%
60   \HyField@UseFlag{Ff}{NoExport}%
61   \HyField@UseFlag{Ff}{Multiline}%
62   \HyField@UseFlag{Ff}{DoNotSpellCheck}%
63   \HyField@UseFlag{Ff}{DoNotScroll}%
64   \HyField@PrintFlags{Ff}{text field}%
65   \bitsetIsEmpty{HyField@Ff}{%
66     \let\Fld@flags\ltx@empty
67   }{%
68     \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
69   }%
70 }
71 \def\LayoutBarcodeField#1#2{#2}
72 \def\MakeBarcodeField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}

```

The list used as the \DefaultOptionsofBarcode are the flags set by Acrobat according to Implementation Note E-7 to Adobe Extensions to ISO 32000.

```

73 \def\DefaultOptionsofBarcode{readonly,noexport,multiline,donotspellcheck}
74 \def\BarPDF@BarcodeDict{%
75   /Subtype/Widget%
76   \Fld@annotflags
77   \Fld@pageobjref
78   \Fld@annotnames
79   /FT/Tx%

```

```

80 \Fld@flags
81 /PMD \the\pdflastobj\space0 R%
82 /Q \Fld@align
83 /BS<</W \Fld@borderwidth\space /S /\Fld@borderstyle>>%

```

The /DataPrep field is optional with a default value of 0 according to the Adobe Supplement to ISO 32000, Extension Level 3. We still explicitly provide it because in reality Acrobat will not render the Barcode otherwise.

```

84 /DataPrep 0%
85 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
86 \ifx\Fld@bordercolor\relax\else 1\fi
87 \ifx\Fld@bcolor\relax \else 1\fi
88 \space
89 \else
90 /MK<<%
91 \ifnum\Fld@rotation=\z@
92 \else
93 /R \Fld@rotation
94 \fi
95 \ifx\Fld@bordercolor\relax
96 \else
97 /BC[\Fld@bordercolor]%
98 \fi
99 \ifx\Fld@bcolor\relax
100 \else
101 /BG[\Fld@bcolor]%
102 \fi
103 >>%
104 \fi
105 /DA(/Helv \strip@pt\Fld@charsize\space Tf%
106 \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
107 /DV(\Hy@escapestring{\Fld@default})%
108 /V(\Hy@escapestring{\Fld@value})%
109 \Fld@additionalactions
110 }
111 \def\@BarcodeField[#1]#2{%
112 \def\Fld@name{#2}%
113 \let\Fld@default\ltx@empty
114 \let\Fld@value\@empty
115 \def\Fld@width{\DefaultWidthofText}%
116 \def\Fld@height{\DefaultHeightofTextMultiline}%
117 \begingroup
118 \expandafter\BarField@SetKeys\expandafter{%
119 \DefaultOptionsofBarcode,#1%
120 }%
121 \PDFForm@Name
122 \BarField@FlagsBarcode
123 \ifFld@hidden\def\Fld@width{1sp}\fi
124 \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
125 \LayoutBarcodeField{#2}{%
126 \leavevmode
127 \HyAnn@AbsPageLabel
128 \immediate\pdfobjj{<<%
129 /Type/PaperMetaData%
130 /Version 1%

```

```

131      /Width \strip@pt\dimexpr\Fld@width*65536/\number\dimexpr\in\relax\relax
132      /Height \strip@pt\dimexpr\Fld@height*65536/\number\dimexpr\in\relax\relax
133      /XSymWidth \the\BarFld@symwidth
134      \ifcase\BarFld@barcodetype
135          /Symbology/PDF417%
136          /XSymHeight \the\numexpr\BarFld@symwidth*\BarFld@symfactor\relax
137          /ECC \the\BarFld@ecc
138      \or
139          /Symbology/QRCode%
140          /ECC \the\BarFld@ecc
141      \or
142          /Symbology/DataMatrix%
143      \fi

```

The `/Resolution` is optional according to the Specification but required in practice like `/DataPrep` above. Acrobat also fails with the default value 300, instead a decimal part is required.

```

144      /Resolution 300.0%
145      >>}%
146      \Hy@escapeform\BarPDF@BarcodeDict
147      \pdfstartlink user {\BarPDF@BarcodeDict}\relax
148      \MakeBarcodeField{\Fld@width}{\Fld@height}\pdfendlink
149      \HyField@AddToFields
150      }%
151  \endgroup
152 }

```

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