FIGURES

ConTEXt XML

Pragma ADE / Hasselt NL

Description

Within the TEX community there is a widely used database for bibliographic references, BIBTEX, but not for figures. To manage figures CONTEXT now supports a figures database. The database is setup in XML and converted to an interactive PDF figure library featuring ordered displays and a search mechanism. From the library figures can be included easily in CONTEXT documents.

Structure

Figures are described and maintained in an XML type file. Each figure is encapsulated in a `figure` element and the assembly of all figure elements is encapsulated in the main database element `figurelibrary`:

```
<figurelibrary language="en">
  ...
</figurelibrary>
```

The `figurelibrary` element has a language attribute to tell CONTEXT which language is used in the included texts. Only one language can be specified for each figure database. The default language is english and need not be specified.

The database has comment fields to describe shared characteristics of the figures. They are encapsulated in a `description` element. Several sub–elements or fields in the element are

supported and each field can be omitted, left empty or filled with many lines of text. The three dots `...` signify this option.

```
<description>
  <organization>...</organization>
  <project>...</project>
  <product>...</product>
  <comment>...</comment>
</description>
```

Each figure, as described in the figure element, has four fields of which two (`file` and `label`) are mandatory and must be completed, and two are optionally filled:

```
<figure>
  <file>filename.png</file>
  <label>symbolic name</label>
</figure>
```

If the figure file is available in several formats, such as PNG and JPG, and you don't supply the file's picture format in the file extension, CONTEXTlocates the most appropriate one automatically, knowing that the PDFTEX compiler can handle PDF, PNG and JPG formats and METAPOST, To keep the database general purpose we advise you, however, to supply the file extension together with the file name as shown.

If the figure is not yet available, a placeholder can be substituted for the future file name by replacing the `file` by a `dummy` sub–element:

```
<figure>
  <dummy width="4cm" height="3cm">to be made</dummy>
  <label>mandatory symbolic name</label>
</figure>
```

Note the positions of the <> brackets. The label element associates a symbolic name with the figure, to be used later to recall the figure from the database.

Usage

The figure library is a PDF file generated from the XML specification file, say myfile.xml, by processing it by TEXEXEC (a PERL script in the CONTEXT distribution available from PRAGMA ADE):

```
texexec --pdf --use=fig-make myfile.xml
```

The first switch (--pdf) tells TEXEXEC to generate a PDF file. The second switch (--use) invokes the style file fig-make[1] that comes with the CONTEXTdistribution. TEXEXEC invokes CONTEXT which calls PDFTEX with this style file.

The resulting PDF file receives the name myfile.pdf. It is an interactive figure library for a PDF viewer such as ACROBAT or GHOSTVIEW. Up front in the library file are the individual figures shown at their natural size. At the rear in the file is a summary with the descriptions, a table of contents and an index. Figure 1 below shows the figures of the example given later.

[1] This is synonym for x-fig-01

not yet available

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Figure 1 The first three pages of the figure library file.

Figure 2 shows the summary. In the summary the figures are shown first at a reduced height, second at their size with respect to A4 paper size, third with their descriptions.

At screen page bottom is a navigation menu to reach the table of contents or the alphabetically ordered index. Click on a figure to switch between full size and reduced size. Leave the viewer by clicking on `close`.

Instead of showing the figure relative to A4 paper size other sizes can be chosen with the TEXEXEC `--mode` command line switch:

page 4 page 5 page 6 page 7

Figure 2 The overview, table of contents and index of the figures that are present in the file.

```
texexec --pdf --use=fig-make --mode=letter
```

The options for `--mode` are `A4`, `letter` and `compact`, of which `A4` is default.

mode	meaning
`letter`	map the preview on letter size
`compact`	use an alternative presentation

XML example

The XML database specification file for the example shown above in figures 1 and 2 is:

```
<figurelibrary language="en">
```

```
<description>
  <organization>PRAGMA ADE</organization>
  <project>ConTeXt</project>
  <product>Beginners Manual</product>
  <comment>Figures</comment>
</description>

<figure>
  <file>hass01.png</file>
  <label>mill</label>
  <copyright>PRAGMA ADE</copyright>
  <comment>This mill was built in 1783.</comment>
</figure>

<figure>
  <file>hass02.png</file>
  <label>gate</label>
  <copyright>PRAGMA ADE</copyright>
  <comment>This gate was built in 1259.</comment>
</figure>

<figure>
  <dummy width="3cm" height="4cm">not yet available</dummy>
  <label>river</label>
```

```
    <copyright>PRAGMA ADE</copyright>
    <comment>The Zwarte Water (Black Water) river.</comment>
  </figure>

</figurelibrary>
```

TEX example

To apply the database to a CONTEXT document the figure library processing module must be specified:

```
\usemodule[fig-base]
```

Next specify which database to use:

```
\usefigurebase[myfile]
```

From this point in the document file you may place figures extracted from the (one or more) PDF libraries just specified:

```
\placefigure
  {A very old mill.}
  {\externalfigure[mill][width=4cm]}
```

Another example using more options of the \placefigure command is:

```
\placefigure
  [left] [fig:the gate] {This a gate.}
  {\externalfigure[gate][height=2cm]}
```

Figure 3 This a gate.

the result of which is shown in figure 3. A figure may also be included by its page number in the figure database:

```
\placefigure
  {This a gate.}
  {\externalfigure[myfile][page=2,width=.3\textwidth]}
```

This method is not recommended for a final document since updating the myfile figure database may change the page number of a figure thus resulting in a document with errors.

Finally, it continues to be possible to load a figure directly from disk:

```
\externalfigure[myfigure][width=4cm]
```

or

```
\useexternalfigure[my not too large figure][myfigure][width=4cm]
\externalfigure[my not too large figure]
```

When the figure base module is loaded, CONTEXT will first try to locate `myfile` in the XML database. When the figure cannot be found there, CONTEXT will search for a file with the name `myfigure`.

Apart from the already mentioned `mode` flag to TEXEXEC, there are no options that can be set.

Non–CONTEXT users can access the database by means of an additional file. For this, you need to run TEXEXEC one more:

```
texexec --pdf --use=fig-fake yourfile.xml
```

The resulting file, `yourfile.fig`, can be loaded in the normal way. The figures can then be accessed with:

```
\getfigurefile{label}
\getfigurepage{label}
```

Given that you have loaded `supp-pdf.tex`, you can now say something like:

```
\includefigurefile width 10cm height 4cm {label}
```

This method is a crude one and not to be used in CONTEXT.

Documentation

CONTEXT has many more options to include graphics in your document, including scaling, clipping, positioning, subtitling, grouping and general manipulating. These techniques and more

a found in the CONTEXT and MetaFun manuals available from our web site: www.pragma-ade.com.

Colofon

This manual is part of the CONTEXT distribution, and is authored and maintained by Hans Hagen & Ton Otten (with thanks to Karel Wesseling for the translation). CONTEXT is developed at PRAGMA ADE, Hasselt, The Netherlands. This manual is produced on October 26, 2001.