

doc_kit, a toolkit for Scilab documentation writers

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Chapter 1. Introduction

This toolkit contains all the command-line tools needed to write some documentation for Scilab.

As of version 5, Scilab uses a strict subset of DocBook 5 for all its documentation. This toolkit also contains tools (`manrev2sci` and `man2sci`) which may be used to convert from Scilab's old formats (`manrev.dtd` and `man.dtd`) to the new one.

Chapter 2. Installation

This toolkit already includes *all* the needed software components (Saxon, FOP, Batik, JEuclid, JavaHelp, Jing, etc), therefore you just need to install a Java™ Development Kit (JDK) 1.5+ in order to be able to run the command-line tools.

Note that installing a Java runtime (JRE) is insufficient because some command-line tools expect to have the `jar` utility (part of the JDK, not part of the JRE) in the `PATH`.

1. Unzip the distribution somewhere. This creates a `doc_kit/` directory.

```
C:\> unzip doc_kit.zip
C:\> dir
...
13/02/2008  14:19    <DIR>          doc_kit
...
```

2. All the command-line tools are found in the `bin/` subdirectory.

```
C:\doc_kit> cd bin
C:\doc_kit\bin> dir /w
...
[.]                [...]          man2sci          sci2jh
sciviewhelp        sci2html        manrev2sci        scivalid
scivalid.bat       manrev2sci.bat    man2sci.bat       sci2html.bat
sciviewhelp.bat    sci2pdf.bat       sci2pdf           sci2jh.bat
sci2chm.bat
...
```

All the above command-line tools are intended to be used directly from the `doc_kit/bin/` subdirectory.

3. Test your installation by converting this document (`doc_kit/doc/doc.xml`) to a JavaHelp `.jar` file.

- a. First make sure that the Java tools are actually in your `PATH`.

```
C:\doc_kit\bin> java -version
java version "1.6.0_04"
Java(TM) SE Runtime Environment (build 1.6.0_04-b12)
Java HotSpot(TM) Client VM (build 10.0-b19, mixed mode, sharing)

C:\doc_kit\bin> jar
Usage: jar {ctxui}[vfmOMe] ...
```

- b. Convert this document (`doc_kit/doc/doc.xml`) to JavaHelp using the `sci2jh` command-line tool.

```
C:\doc_kit\bin> sci2jh ..\doc\doc.xml C:\tmp\test_help.jar
```

Note that the generated JavaHelp file must end with `"_help.jar"` and not just with `".jar"`.

- c. Preview the contents of the generated `.jar` file using the `sciviewhelp` tool.

```
C:\doc_kit\bin> sciviewhelp C:\tmp\test_help.jar
```

Chapter 3. Contents of the distribution

bin/

Contains the command-line tools: shell scripts for use on Unix/Linux/Mac OS X and `.bat` files for use on Windows (2000, XP, Vista).

css/

Contains the CSS style sheets which are used to customize the look of the HTML pages generated by `sci2html`, `sci2chm` and `sci2jh`.

doc/

Contains this document in various formats.

docbook_xsl/

Contains a copy of the DocBook XSL style sheets. These style sheets are used to convert DocBook 5 documents (and hence, Scilab documentation) to HTML, PostScript, PDF, JavaHelp, etc.

legal/

Contains a README and a LICENSE file for each software component bundled with this toolkit.

lib/

Contains all the software components (that is, Java class libraries packaged as `.jar` files) bundled with this toolkit.

schema/

Contains `scilab.rnc`, the RELAX NG schema defining the DocBook 5 subset used for the documentation of Scilab.

src/

Contains the source code of two utility classes needed by the command-line tools of this toolkit. More information in "Recompiling the sources".

xsl/

convert/manrev2sci.xsl

The XSLT style sheet used to convert a document conforming to `manrev.dtd` to a document conforming to the DocBook 5 subset.

convert/man2manrevxsl

The XSLT style sheet used to convert a document conforming to `man.dtd` to a document conforming to `manrev.dtd`.

fo/docbook.xsl

Fixes bugs in the stock `docbook/fo/htmltbl.xsl`.

Chapter 4. The Scilab subset of DocBook 5

The documentation of Scilab must be written using the strict subset of DocBook 5 defined in `doc_kit/schema/scilab.rnc`. DocBook 5 elements are fully documented in "DocBook 5.0: The Definitive Guide", therefore there is not much to add here.

Important

The root element of a document which conforms to the Scilab DocBook 5 subset must have `version` attribute set to "5.0-subset Scilab". Example:

```
<?xml version="1.0" encoding="UTF-8" ?>
<refentry version="5.0-subset Scilab"
  xmlns="http://docbook.org/ns/docbook"
  ...
```

The subset comprises the following elements:

- `book` and its divisions:
 - `part`, `partintro`
 - `reference`
 - `chapter`, `section`
 - `appendix`
- **Meta-info elements:** `info`, `title`, `author`, `personname`, `affiliation`, `jobtitle`, `orgname`, `pubdate`, `keywordset`, `keyword`.
- `refentry` (the DocBook equivalent of a man page) and its divisions: `refnamediv`, `refname`, `refpurpose`, `refsynopsisdiv`, `synopsis`, `refsection`.
- **Displayed elements:**
 - `figure`, `mediaobject`, `imageobject`, `imagedata` (having either a `fileref` attribute or embedding MathML or SVG)
 - `example`
 - `note`
 - `equation`, `informalequation`
 - `table` (HTML tables only, that is, not CALS tables), `caption`, `informaltable`, `col`, `colgroup`, `tbody`, `thead`, `tfoot`, `tr`, `td`, `th`
- **Other block-level elements:**
 - `itemizedlist`, `orderedlist`, `listitem`
 - `variablelist`, `varlistentry`, `term`
 - `simplelist`, `member`
 - `para`

- `programlisting`
- **Inline-level elements:**
 - `emphasis`, `literal`
 - `phrase`, `replaceable`,
 - `subscript`, `superscript`
 - `link`
 - `indexterm`, `primary`
 - `inlinemediobject`
 - `inlineequation`

Chapter 5. The command-line tools

All command-line tools are self-documented. Simply execute the command without any argument to display a short help text. Example:

```
C:\doc_kit\bin> sciviewhelp
Usage: sciviewhelp javahelp_jar_file ... javahelp_jar_file
Allows to browse the contents of one or more
JavaHelp[tm] .jar files created using sci2jh.
The name of a JavaHelp .jar file must end with '_help.jar'.
```

man2sci, man2sci.bat

Converts a document conforming to `man.dtd` to a document conforming to `scilab.rnc`.

Usage: `man2sci in_man_xml_file out_scilab_xml_file`

manrev2sci, manrev2sci.bat

Converts a document conforming to `manrev.dtd` to a document conforming to `scilab.rnc`.

Usage: `manrev2sci in_manrev_xml_file out_scilab_xml_file`

sci2html, sci2html.bat

Converts an XML document conforming to `scilab.rnc` to multi-page HTML.

Usage: `sci2html in_xml_file out_html_directory`

sci2chm.bat

Converts an XML document conforming to `scilab.rnc` to a Windows HTML Help (".chm") file. Not available on platforms other than Windows.

By default, this script assumes that `hhc.exe` is found in "C:\Program Files\HTML Help Workshop\hhc.exe". If this is not the case, please modify the "hhc" variable found at the beginning of the ".bat" file.

Usage: `sci2chm in_xml_file out_chm_file`

sci2jh, sci2jh.bat

Converts an XML document conforming to `scilab.rnc` to a JavaHelp .jar file. `out_javahelp_jar_file` must end with "_help.jar".

Usage: `sci2jh in_xml_file out_javahelp_jar_file`

sci2pdf, sci2pdf.bat

Converts an XML document conforming to `scilab.rnc` to PDF or to PostScript. A PostScript file is generated if `out_pdf_or_ps_file` ends with ".ps".

Usage: `sci2pdf in_xml_file out_pdf_or_ps_file`

scivalid, scivalid.bat

Validates specified XML files against the `scilab.rnc` schema.

Usage: `scivalid xml_file ... xml_file`

sciviewhelp, sciviewhelp.bat

Allows to browse the contents of one or more JavaHelp .jar files created using `sci2jh`. The name of a JavaHelp .jar file must end with "_help.jar".

Usage: `sciviewhelp javahelp_jar_file ... javahelp_jar_file`

Chapter 6. Recompiling the sources

Directory `doc_kit/src/org/scilab/doc_kit/` contains the source code of two utility classes needed by some of the above command-line tools:

`HelpViewer.java`

The source code of `sciviewhelp`.

`CopyConvert.java`

A preprocessor used as the first pass in `sci2html`, `sci2chm`, `sci2jh` and `sci2pdf`.

This preprocessor:

- Creates a ``flat' (entity references are expanded; XIncludes are not supported) copy of the XML document to be transformed.
- If the source document contains an embedded MathML element (`imagedata/mml:math`), this element is extracted to a temporary file, then the temporary file is converted to a PNG image by the means of JEuclid. After doing this, the original `imagedata/mml:math` found in the source is replaced in the flat XML document by an `imagedata` element pointing to the generated PNG file (`imagedata/@fileref`).
- Same for embedded SVG elements which are converted to PNG images by the means of Batik.
- If the source document contains an `imagedata` element pointing to a MathML file (filename extension is `".mml"`), this file is converted to PNG by the means of JEuclid. After doing that, the `imagedata` element contained in the flat XML document is made to point to the `.png` file rather than to the `.mml` file.
- Same for `imagedata` elements pointing to SVG files (filename extension is `".svg"` or `".svgz"`), but in this case, it is Batik which is used to perform the conversion.
- Same for `imagedata` elements pointing to `".tex"` files (assumed to contain math equations), but in this case, it is T_EX+Ghostscript which are used to perform the conversion.

The `CopyConvert` preprocessor searches the following programs in the `PATH`: `latex`, `dvips`, `gs` on Unix/`gswin32c` on Windows, `ps2pdf`.

The above sources may be recompiled by running `ant` in the `doc_kit/src/` directory:

```
C:\doc_kit/src> dir /w
...
build.xml    [org]        [class]
...
C:\doc_kit/src> ant
Buildfile: build.xml

init:

compile:
...
```

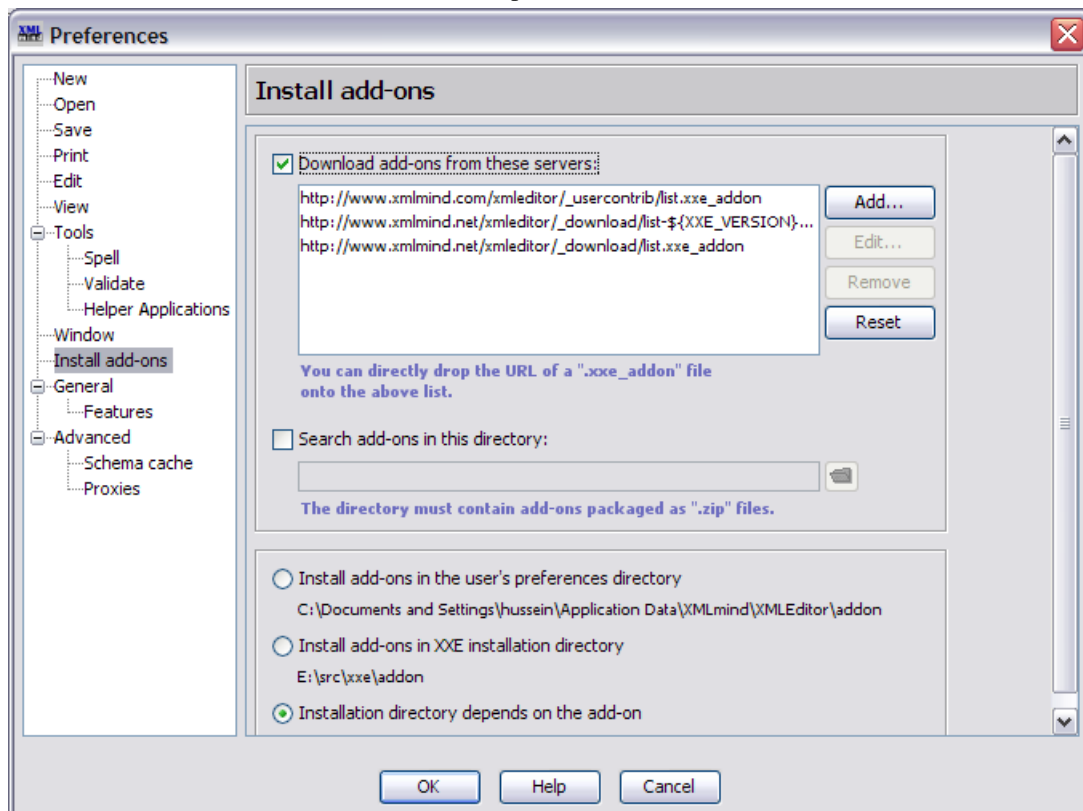
Doing this rebuilds `sci_doc_kit.jar` in `doc_kit/lib/`.

Chapter 7. Companion tools

- Inkscape, an excellent drawing tool natively supporting SVG.
- MiKTeX, an excellent T_EX distribution for Windows.
- XMLmind XML Editor, a visual XML editor with built-in support for DocBook 5. There are many fine XML editors but this one
 - has a free Personal Edition allowing to use it to create documentation for Open Source projects such as Scilab,
 - has a configuration specially designed to support the Scilab DocBook 5 subset.

This Scilab configuration is available as an add-on. This add-on may be downloaded and installed directly within XMLmind XML Editor using menu item **Options|Install Add-ons**. But before being able to do that, you must specify where to find such add-on. Fortunately this is done once for all:

1. Use menu item **Options|Preferences**.
2. Click on the **"Install Add-ons"** item in the left pane.



3. Click the **Add** button found at the right of the **"Download add-ons from these servers"** list.
4. Specify the following URL `"http://www.scilab.org/download/scilab_config.xex_addon"` when prompted, then click **OK**.
5. Click **OK** to close the **Preferences** dialog box.

From now, you can use menu item **Options|Install Add-ons** and select the add-on called **"A configuration for the Scilab subset of DocBook 5"** from the list of all available add-ons.