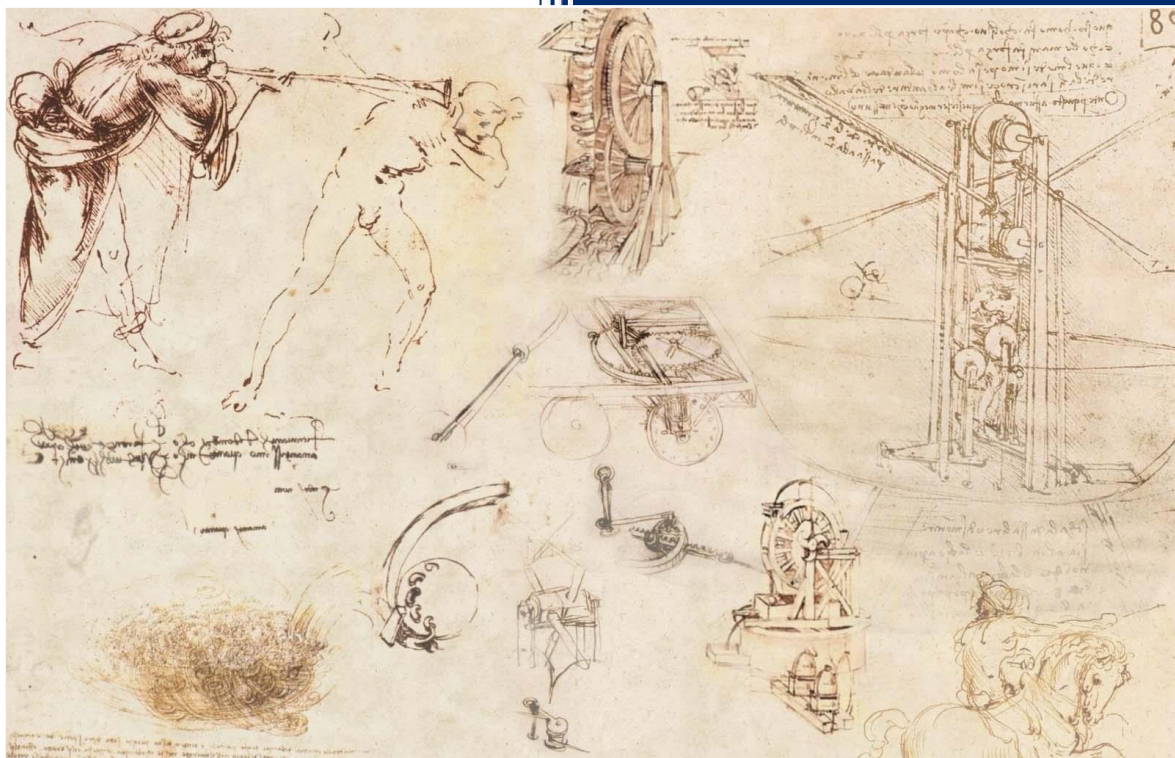




DENKBARES
KM & AI SOLUTIONS

Knowledge Base Book User Manual



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1 Overview

This user manual describes the installation, configuration, and use of the knowledge base book application. The application generates a DocBook XML file of an executable d3web knowledge base, i.e., the knowledge base book. The DocBook XML can be used for further transformations. The delivered application produces a PDF printout.

1.1 Background

A knowledge base book contains the full version of a developed knowledge base generated automatically from the binary knowledge base file. It specifies all parts of the knowledge relevant for the reasoning process.

The intended use of a knowledge base book is primarily targeted to the review process of the knowledge base, i.e., manually reading, discussing, and verifying the developed knowledge. Additionally, the knowledge base book can be used as a reference for deployed knowledge bases and for presentation and demonstration purposes.

1.2 Intended Use

The provided application should be operated by experienced users having basic skills in command line execution. The application was designed to be embedded into a continuous process, thus called by a script when a new knowledge base is deployed. Since, the generated knowledge base book heavily depends on the binary knowledge base, the resulting document should be bundled, when filed into a version control system. The proposed bundle is as follows:

1. The knowledge base book as PDF document.
2. The knowledge base as a d3web binary file.
3. The (archived) content of the wiki installation (to have a baseline, when review comments are fed back into the development system).

1.3 Changes

Version 1.1: Resources of the knowledge base are now inserted as a list in the knowledge base book. For the document formats TXT, XML, PNG, JPG, JPEG, SVG, GIF, and TIFF also the content is printed.

Version 1.2: Second page is now empty, removed file information from footer.

2 Installation and Use

2.1 System Requirements

The installation requires the following components to be installed:

- Oracle Java 6 or better (<http://www.java.com>)
- Graphviz 2.28.0 or better (<http://www.graphviz.org>)
Note: Graphviz is used to generate graphs from DiaFlux models.

The application uses the technologies DocBook 5 (www.docbook.org) and XSL-FO, that are already included in the distribution of the application.

2.2 Installation

The application comes in two installation variants: An executable java version and a MS-Windows executable. For both variants the folders for the DocBook template (`template`) and required libraries (`lib`) are included.

The application is started by double-clicking the executable (`jar` or `exe`). Alternatively, you can use the command line version for more options:

```
> java -jar KnowledgeBaseBook.jar [OPTIONS]
```

The available options are as follows (the default values are given in parentheses):

```
-k path to the knowledge base (knowledgebase.d3web)  
-t path to template file (template/main.xml)  
-l path to the logo image (template/logo.png)  
-c path to the custom layer (template/customLayer.xml)  
-o path of the output file (KBB.pdf)  
-r revision of the document (${docrev})  
-i id of the document (${docid})  
-h help
```

Notes:

1. If you double-click the executable, the application expects a binary knowledge base with the name `knowledgebase.d3web` in the same folder as the executable file.
2. The main template file, the custom layer and the `docbook-xsl` folder are expected to be in the same parent folder (default: `template`).

3 Configuration

3.1 Structure of the Document

Templates can flexibly configure the presentation of the knowledge base book. That way, the delivered template provides a skeleton of the generated DocBook source. At distinct locations, markers (`KbbFragments`) in the templates reference to positions, where content of the knowledge base should be printed.

The entire template is partitioned into different files and can be found in the folder `template`.

The structure of the template is as follows:

- **main.xml**: The master document referencing to the chapters of the knowledge base book.
- **titlepage.xml**: The title page of the resulting document.
- **instructions.xml**: Provides a predefined text for the chapter “About this Document”.
- **terminology.xml**: Provides the chapter printing the terminology of the knowledge base (e.g., questions and solutions)
- **derivationKnowledge.xml**: Provides the chapter, where all derivation knowledge of the knowledge base is printed, for instance, abstractions rules, DiaFlux models, etc.
- **pluginConfig.xml**: Displays all d3web plugins, that were used to develop the printed knowledge base.
- **withoutExporter.xml**: All knowledge elements are shown here, that have not been handled in previous chapters. This chapter functions as a “fallback”, when there exist elements in the knowledge base that are not covered by printers of the Knowledge Base Book application.
- **index.xml**: This part handles the print of the index of this document.

You are free to modify the files by inserting text and structure into the documents. All available tags in the documents are valid DocBook elements, except the element `<KbbFragment/>`, which is used by the application to insert corresponding knowledge elements (as a DocBook sub-tree) at these positions.

3.2 Style of the Document

Using standard XSL-FO scripts generates the PDF file. These are located in the directory `docbook-xsl-1.76.1`. It is recommended to **not** change these files directly, but to overwrite specific styles using the file `customLayer.xml`, which is located in the folder `template`.

The style sheet document `customLayer.xml` already provides a number of adaptations with respect to the layout and the style of the generated PDF document, e.g., the color of headlines, the formatting of numbers, etc.

3.3 Further Reading

There exists a number of books covering DocBook authoring and DocBook XSL style transformations. We recommend the following publications:

- Norman Walsh: *DocBook 5: The Definitive Guide*, O'Reilly, 2010
(full book available online at: <http://www.docbook.org/>)
- Bob Stayton: *DocBook XSL: The Complete Guide*, Sagehill Enterprises, 2007
(full book online at: <http://www.sagehill.net/book-description.html>)

4 Licenses and Libraries

The Knowledge Base Book application itself comes as closed source. The following libraries are used with the corresponding licenses:

- Graphviz 2.28.0 or better (<http://www.graphviz.org>) for DiaFlux
Eclipse Public License - v 1.0
- DocBook XSL Stylesheets (<http://docbook.sourceforge.net/release/xsl/current>)
for PDF transformation
Public domain
- Apache FOP (<http://xmlgraphics.apache.org/fop/>) for PDF transformation
Apache License, version 2.0