Full-Documentation of BaseX

BaseX-Team

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Chapter 1. Introduction

BaseX is a native, open-source XML database and efficient XQuery/XQuery Full Text processor. It supports very large XML instances and offers a visual, interactive frontend. BaseX is written in Java and freely available for download. It is developed by the Database and Information Systems Group at the University of Konstanz.

1. Prerequisites

1.1. Operating System

BaseX was tested on the following platforms:

- Windows 2000, XP, Vista, 7
- Linux: Debian/Ubuntu, SuSE, Redhat
- Max OS X (10.4+)
- OpenBSD (4.3)

Every other platform with a Java VM should be able to run BaseX.

1.2. Software

To run any version of BaseX, you need version 1.5 or later of the Java runtime environment (JRE) or development kit (JDK).

The latest version of Java can be downloaded at `http://www.java.com` or `http://java.sun.com` .

1.3. Hardware

BaseX works with very limited resources (400 MHz, 64 MB RAM). To work with larger databases, however, you might benefit from more RAM. If you encounter main memory limits, there are several things you can try:

- Increase Java's virtual memory
- Switch off database indexes
- Use BaseX's internal XML parser

2. Installation

BaseX works without any installation. The following files can be downloaded from the homepage:

- *BaseX.jar*: simple JAR file
- *BaseX.exe*: a JAR file, which is wrapped into a Windows executable
- *BaseX-XQJ.jar*: XQuery for Java Database API
- *BaseX-XMLDB.jar*: XML:DB Database API

- *BaseX-Complete.zip*: JAR files, sources, documentation and files to build the project

The JAR file and the Windows executable can be launched with a simple double-click. The "Complete" package contains the following files and directories (selection):

Project Directory

```
doc             Project documentation
etc             Various files for project handling
src             Project sources
.project         Eclipse project file
makefile        Linux Makefile
BaseX.jar       Public JAR file
license.txt     Licensing Information
readme.txt      Project Information
build.xml       Ant Build file
input.xml       XML sample document
```

In the *etc* folder, you find Linux scripts and Windows batch files which can moved into your PATH environment to speedup execution.

3. Quick Start

By double-clicking the JAR file, the graphical interface is launched. If you start BaseX on the command line, or use the scripts mentioned above, you have some more options:

Console version

```
java -cp BaseX.jar org.basex.BaseX
```

Running the server and a client instance

```
java -cp BaseX.jar org.basex.BaseXServer
```

```
java -cp BaseX.jar org.basex.BaseXClient
```

GUI version (granting more memory)

```
java -Xmx512m -jar BaseX.jar
```

4. Starting with BaseX GUI

5. Starting with BaseX Console

6. Using BaseX as Server

7. Starting BaseX as a service

Chapter 2. Working with the BaseX Console

1. Launching BaseX in console mode

Your Text

2. Description of the Console Features

You can type in help in the console to get a list of all BaseX commands. Several commands can be separated by semicolons. To evaluate commands without entering the console mode, you can use the -q option on the command line

2.1. Database Commands

- Create (create [DB|FS|INDEX] [...]): Creates database from XML or filesystem, or creates index
- Open (open [database]): Opens the specified [database].
- Info (info [DB|INDEX|TABLE]?): Shows information on the currently opened database.
- Close (close): Closes the current database.
- List (list): Lists all available databases.
- Drop (drop [DB|INDEX] [...]): Drops a database or an index.
- Export (export [file]): Exports the current context set to an XML [file].
- Optimize (optimize): Optimizes the current database structures.

2.2. Query Commands

- XQuery (xquery [query]): Evaluates an XQuery and prints the result.
- Find (find [query]): Evaluate a simple keyword [query] and print its results. This command is used in the simple search mode in the GUI.
- CS (cs [query]): Evaluates the specified XPath [query] and set the result as new context set.

2.3. Update Commands

- Copy (copy [pos] [source] [target]): Copy database nodes. Evaluates the [source] query and copies the resulting nodes as child nodes into the [target] query. [pos] specifies the child position; if 0 is specified, the nodes are inserted as last child. The queries should be enclosed by brackets.
- Delete (delete ["target"]): Delete database nodes resulting from the specified [target] query. The query should be enclosed by brackets.
- Insert (insert [fragment|element|attribute|text|comment|pi] [...]): Insert database nodes. Insert a fragment or a specific node at the specified child [pos] of the specified [target] query.

- Update (update [element|attribute|text|comment|pi] [...]): Update database nodes satisfying the specified [target] query.

2.4. General Commands

- Help (help [command]): Get help on BaseX commands. If [command] is specified, information on the specific command is printed; otherwise, all commands are listed. If 'all' is specified, hidden commands are included.
- Set (set [option] [value?]): Sets global options. The currently set values can be shown with the info command.
- Exit (exit/quit): Leave the console mode of BaseX.

Chapter 3. Working with the BaseX GUI

1. Description of all the Views in the GUI

- Text View: Displays query results and other textual output.
- Map View: This visualization represents all data in a TreeMap. All nodes of the XML document are represented as rectangles, filling the complete area. You can choose in the Menu Options/Map Layout the different Algorithms: Split, Strip, Squarified and Slice and Dice Layout.
- Folder View: This visualization displays all XML nodes in a usual tree view.
- Table View: This visualization displays all XML nodes in a table with rows and columns.
- Scatterplot View: This visualizations displays all XML nodes in a scatterplot.

2. Description of the GUI Features

Your Text

Chapter 4. General Information

1. Location of BaseX Files

Your Text

Chapter 5. Description of BaseX-Features

1. XQuery Implementation

Your Text

2. XQuery Full-Text Implementation

Your Text

3. Description of the Indexes

Your Text

Chapter 6. Developer's Guide

1. Programming with BaseX API

Your Text

2. Programming with XML:DB API

Your Text

3. Programming with XQuery API

Your Text