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Installing LexEVS with its LexGrid Model/DB (back end)

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Introduction

This document is a section of the Installation Guide.

This section provides requirements, instructions, and troubleshooting information for installing LexEVS with its LexGrid Medel/DB (back end).

Minimal system requirements

- Internet connection (Required so LexEVS can accesses XML Schema Definition files from an external location)
- 2 GB RAM
- Tested Platforms (Similar Hardware Specification for Operating System)

LexEVS has been tested on the platforms shown in Table 1.

	Linux Server	Linux Server	Windows
Model	HP Proliant DL 380	Penguin	Dell Latitude
CPU	2 x Intel® Xeon™ Processor 2.80GHz	Dual AMD Opteron 248 processors (64 bit)	1 x Intel® Pentium™ Processor 2.00GHz
Memory	4 GB	16Gb	1.5Gb
Local Disk	System 2 x 36GB (RAID 1) Data = 2 x 146 (RAID 1)	250 GB Raid 1 disk drive(s) 250 GB stand along disk drive	System 1 x 80GB
OS	Red Hat Linux ES 3 (RPM 2.4.21-20.0.1)	Fedora Core 3 (64 bit) OS	Windows XP Professional

Table 1 - Platform Testing Environment

Software requirements

Required Software - Not Included in LexEVS

You must download and install the required software that is not included with LexEVS (listed in Table 2). The software name, version, description, and URL hyperlinks (for download) are indicated in the table.

Software Name	Version	Description	URL
Java Software Development Kit (SDK):Java 2 Standard Edition (J2SE)	j2sdk1.5.0_04 or higher	The J2SE Software Development Kit (SDK) supports creating J2SE applications	http://java.sun.com/javaee/downloads/
MySQL Database*	MySQL (5.0.45) or higher	MySQL 5.0 Community Edition	http://downloads.mysql.com/archives.php?p=mysql-5.0&v=5.0.45
PostgreSQL*	8.x or higher	Open source relational database management system	http://www.postgresql.org/

*MySQL or PostgreSQL installation is required.

Table 2 - Required software and technology for LexEVS

Optional Software

Optional software to use with LexEVS is listed in Table 3. The included (**Incl**.) column indicates (with a **Yes**) if the software is packaged with the SDK. **No** indicates that you must supply the software. A hyperlink is included for your reference to appropriate sources.

Software Name	Version	Description	URL	Incl.
Eclipse IDE	3.4.x	An open platform for tool integration which provides tool developers with flexibility and control over their software technology used for product development. This tool can be optionally used to review Java source code.	http://www.eclipse.org/downloads/	No

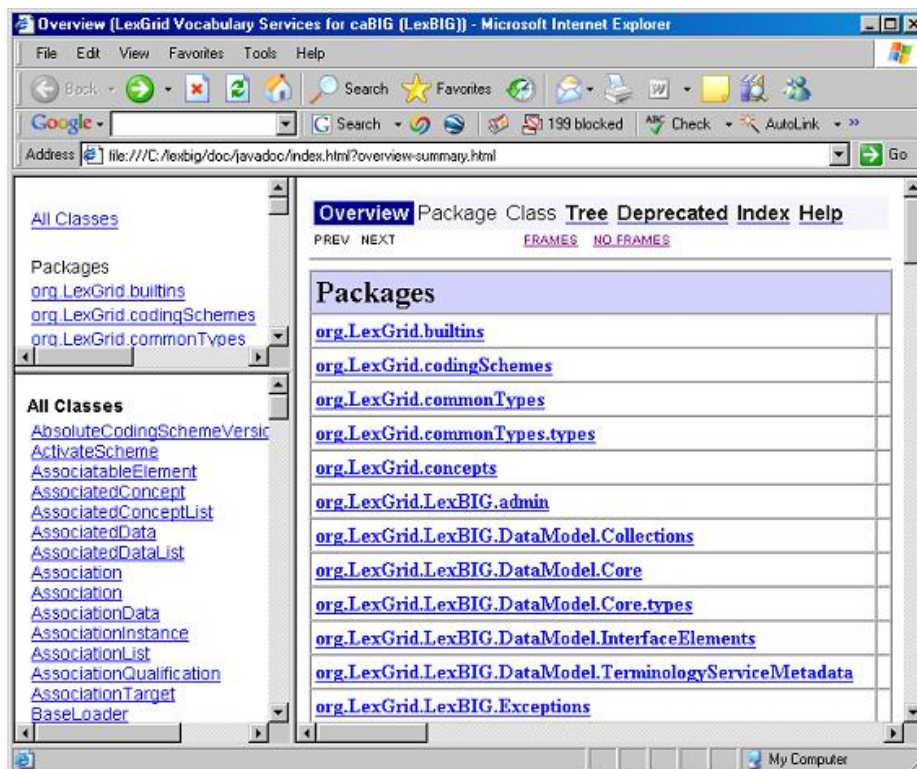*Table 3 - Optional software and technology for LexEVS*

> **NOTE:**
> Some database drivers not included with the LexEVS installer. Downloaded drivers are placed in the `{LEXEVS_DIRECTORY}/runtime/sqlDrivers` and the `{LEXEVS_DIRECTORY}/runtime-components/sqlDrivers` directories .

Documentation

The following documentation is part of the LexEVS install package.

Useful tools included in LexEVS

- *Javadoc* – The full API is described using Javadocs. Your JavaDocs will be generated to the `{LEXEVS_DIRECTORY}\doc\javadoc` directory. Use a web browser to open the `index.html` file to start browsing documentation. For more information on Javadoc see http://java.sun.com/j2se/javadoc/ .

> **NOTE:**
> Main LexEVS Components listed above give an API summary.
> Full javadocs for **LexEVS v5.0** are avalable here:
> LexEVS Javadocs zip file🔒
> You can also browse them from here:
> Local Runtime LexEVS
> Web-endabled LexEVS
> LexEVS Analytical Grid Services
> LexEVS Data Grid Services
>
> Full javadocs for **LexEVS v5.1** are avalable here:
> LexEVS 5.1 JavaDocs🔒
> You can also browse them from here:

What's inside

This section describes the location and organization of installed materials. Following installation, many of the following hierarchy of files and directories will be available (some features are optionally installable):

<As located in the LexEVS installation root directory>

Directory	Description[of content
`/admin`	*Installed by default. This directory provides a centralized point for command line scripts that can be executed to perform administrative functions such as the loading, activation/deactivation, and removal of vocabulary resources.* *Object code used to carry out these functions is included directly in the LexEVS runtime components. Source code is included in the `/source` directory in the `lbAdmin-src.jar` (described below).*
`/doc`	*Optionally installed. This directory provides documentation related to LexEVS services, configuration, and execution. This guide is distributed in the `/doc` top-level directory.*
`/doc/javadoc`	*This directory provides documentation for model classes and public interfaces available to LexEVS programmers. Also included with each object representation is a UML-based model diagram that shows the object, its attributes and operations, and immediately linked objects. The diagrams work to provide clickable navigation through the javadoc materials.*
`/examples`	*Optionally installed. This directory provides a small number of example programs.* *Refer to the `README.txt` file in this directory for instructions used to configure and run the example programs. The examples are intended to provide a limited interactive demonstration of LexEVS capabilities.* *Source and object code for the example programs is provided under the `/examples/org` subdirectory. Source materials are also centrally archived under the `/source` directory in the file `lbExamples-src.jar`.*
`/examples /resources`	*Contains sample vocabulary content for reference by the example programs; use the `/examples/LoadSampleData` command-line script to load.*
`/gui`	*Optionally installed. This folder contains programs and supporting files to launch the LexEVS Graphical User Interface (GUI). The GUI provides convenient centralized access to administrative functions as well as support to test and exercise most of the LexEVS API.* *The GUI is launched using a platform-specific script file in the `/gui` directory. The name of the platform (e.g. Windows, OSX, etc) is included in the file name.* *Program source and related materials are centrally archived under the `/source` directory in the file `lbGUI-src.jar`.*
`/logs`	*Default location for log files, which can be modified by the LOG_FILE_LOCATION entry in the `lbconfig.props` file (see next section).*
`/resources`	*Installed by default. This directory contains resources referenced and written directly by the LexEVS runtime. It should, in general, be considered off-limits to modify or remove the content of this directory without specific guidance and reason to do so. Files typically stored to this location include the vocabulary registry (tracking certain metadata for installed content) and indexes used to facilitate query over the installed content.* *One file of particular interest in this directory is the `/resources/config/lbconfig.props` file. This file controls access to the database repository and other settings used to tune the LexEVS runtime behavior. Contents of this file should be set according to instructions provided by the* LexEVS Administrator's Guide.
`/runtime`	*Installed by default. This directory contains a Java archive (.jar) file containing the combined object code of the LexEVS runtime, LexEVS administrative interfaces, and any additional code they are dependent on. All required code for execution of LexEVS administrative and runtime services is installed to this directory.* ■ *`/runtime/lbPatch.jar`* *In the course of the product lifecycle, it is possible that smaller fixes will be introduced as a patch to the initially distributed runtime. Including this file in the classpath ensures automatic accessibility to the calling program without requiring adjustment. All patches are cumulative (there is at most one patch file introduced per release; all patch-level fixes are cumulative).* ■ *`/runtime/lbRuntime.jar`* *This is the standard runtime file, including all LexEVS and dependency code required for program execution except for SQL drivers (see next).*
`/runtime`	*The JDBC drivers used to connect to database repositories are not included in the `lbRuntime.jar`. Instead, the runtime scans this directory for the drivers to include. This can be overridden by path settings in the `lbconfig.props` file.* ***Note:*** *while the LexEVS software package ships with JDBC drivers to certain open source databases such as mySQL and PostgreSQL, this folder provides a mechanism to introduce updated drivers or to add drivers for additional*

`/sqldrivers`	*supported database systems.*
	For example, the Oracle database is supported by the runtime environment. However, the drivers are not redistributed with the LexEVS software. To run against Oracle, an administrator would add a jar with the appropriate JDBC driver to this directory and then reference it in the `lbconfig.props` *settings.*
`/runtime-components`	*Optionally installed. Due to license considerations for additional materials (as described by the* `license.pdf` *and* `license.txt` *files in the install directory), the cumulative runtime provided in the* `lbRuntime.jar` *is not redistributable.* *This directory contains a finer grain breakdown of object code into logical components and 3rd party inclusions. All components are redistributable under their own license agreements, which are provided along with each archive.* *The top-level of the* `/runtime-components` *directory contains all code produced for the LexEVS project in the* `lexbig.jar`. ***Note:** These files are included as an alternative to the* `lbRuntime.jar` *for code execution and redistribution. There is no need to include any of these files in the Java classpath if you are already including the* `lbPatch.jar` *and* `lbRuntime.jar` *described above.*
`/runtime-components/extLib`	*This subdirectory includes all 3rd party code redistributed with the LexEVS runtime, along with respective license agreements.*
`/source`	*Optionally installed. This directory provides central accessibility to Java source for all code developed for the LexEVS project.*
`/test`	*Optionally installed. This directory provides an automated test bucket that can be used by System Administrators to verify node installation. Note that the* `/runtime/config/lbconfig.props` *file must still be configured for database access prior to invoking the test bucket.* *Testcases are launched via the TestRunner command-line script. Several reporting options are provided and are further described in the* LexEVS Administrator's Guide.
`/uninstaller`	*Contains an executable jar that can be invoked by an administrator to uninstall files originally introduced by the LexEVS installation.*

Installation

Go to LexEVS back end installation instructions.

Troubleshooting

Warning	**Tips and pitfalls**

Upgrading LexEVS

Upgrading LexEVS may require reloading content. Be sure to read the release notes for each LexEVS release before installing the latest version. Preserve configuration files and indexes unless instructed to reload or do otherwise in the release notes. These files include config.props, registry.xml and the entire lbIndex directory in the resources directory.

Single and Multiple Database Configuration Changes

Do not attempt to change database configurations from single database mode to multi-database mode and vice versa after loading in one mode or the other. LexEVS does not support both configurations at once.

Failed and Interrupted Loads

LexEVS loads of content are generally handled in a robust manner and failed loads clean up after themselves relatively well when dbms' are properly configured to allow database drop functions by LexEVS. However, exiting the application in the middle of a load may cause unpredictable consequences with databases, indexes and lock files left in a state that will cause subsequent loads of the same terminology to fail.

- Often these can be remedied by deleting the lock.xml file followed by using the cleanup function.
- Other steps may need to be taken if this doesn't work, including dropping databases as a dba, deleting the index file for the offending terminology, and editing the registry.xml and metadata.xml files by hand.
- A quick, dirty solution is to drop all databases and delete all configuration files except config.props.

When to Scale a Dbms for a Large Number of Connections

If LexEVS is configured for multi-database loads and has multiple users connecting to all terminologies, then the administrator will need to scale database configurations to adapt to this. If you have large number of terminologies loaded and a large user base

connecting to the service using the lbGUI, then you will need the database configuration for number of connections scaled appropriately or users may not be able to connect. ***Note: Loading in single database mode can eliminate this problem.***

MySQL Driver Issues

LexEVS is no longer distributed with a Java MySQL driver due to licensing concerns. If LexEVS reports an error concerning establishing a connection to the MySQL server yet the MySQL CLI is able to connect, an adjustment in the version of Connector/J may be required.

The latest version of Connector/J is available from MySQL.org. The new jar should be placed in the LexGrid/LexBIG/2.0.0/runtime/sqlDrivers/ directory. If you are changing drivers remove the existing driver jar file to ensure that the class loader does not incorrectly load the older driver file.

MySQL Perfomance Problems

If the user experiences slow performance when loading or accessing terminologies a review of the suggested configuration parameters for the dbms is recommended. Pay particular attention to the MySQL values.

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