

Sentences Installation Guide

Sentences Version 4.0

A publication of Lazysoft Ltd.

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Sentences Installation Guide

The *Sentences Installation Guide* contains information on hardware and software requirements for Sentences, and instructions on how to perform an initial installation of Sentences.

Read this first

This section contains important information about the Sentences License file and about Sentences components and their installation. Please read this section first before you start to install Sentences.

Sentences License file

Sentences Version 4.0 requires the presence of a License file on the Sentences server. You cannot run Sentences if the License file is not present. The License file is supplied to customers on payment of the appropriate license fee. The License file lists the licensed components and includes a digital key for verification. In the case of evaluation versions of Sentences the digital key also verifies the evaluation expiry date. If you choose to purchase additional components, Lazysoft supplies you with an updated License file.

The License file is named `SentencesLicense.txt` and should be placed in the home directory of your Sentences server installation.

The default location for the Sentences server directory on Windows platforms is `C:\Program Files\Lazy\Sentences40`.

The default location for the Sentences server directory on Solaris, Linux, or AIX systems is `/usr/local/Lazy/Sentences40`.

If you have any question regarding your License file, please contact Lazysoft Support.

Sentences components and their installation

A range of additional components is available with Sentences Version 4.0.

LazyView

The Sentences LazyView tool enables you to view data in one or more external data sources (for example relational databases and Excel spreadsheets) alongside data from Sentences chapters in one integrated view. LazyView does not require any additional installation.

LazyView is only enabled when an appropriate License file is present on your system. The appropriate License file is supplied on payment of an additional license fee. LazyView is available in both the Sentences Enterprise Edition and the Sentences Personal Edition.

For more information, please see the *LazyView Guide*.

Application Suite

The Sentences Application Suite is a set of modular applications that introduce Sentences' features and showcase its potential. The applications within the suite centre on core business functions, and use both the native Sentences Explorer interface and additional custom HTML and applet interfaces.

The Application Suite requires the installation of additional files and directories, which are not installed automatically when you select the **Typical** installation option. If you select the **Custom** installation option you may choose to include or omit the Application

Suite from the list of optional components. The Application Suite is always enabled when the appropriate files and directories have been installed.

The Application Suite is not available with Sentences Personal Edition. For more information, please see the *Sentences Application Suite Guide*.

System requirements

The following section lists the hardware and software requirements for Sentences.

System requirements for the Enterprise Edition server

This section describes the hardware and software requirements for the Sentences Enterprise Edition server.

Common requirements for server platforms

The following common requirements for the Sentences Enterprise Edition server apply to all platforms.

- at least 1GB RAM (2GB RAM recommended)
- up to 200MB available hard drive space for the Java SE Development Kit 7 (Java SDK)
- up to 200MB available hard drive space for the Sentences initial installation, including the Tomcat Web server
- approximately 100MB additional available hard drive space used by temporary files during the installation process
- A suitable Java Enterprise Edition Application Server available to your platform for example:
 - Apache Geronimo
 - Oracle Glassfish or WebLogic Application Servers
 - Red Hat JBoss Application Server
 - IBM WebSphere Application Server
 - Microsoft Internet Information Server (with a suitable servlet container)
- additional hard drive space for your Sentences data
- suitable networking software supporting TCP/IP networking
- Java SE Development Kit Version 1.6 or higher available to your platform from Oracle, IBM or Apple.

Note The initial installation of Sentences Enterprise Edition installs and configures Tomcat 4.1.18 as a minimalist test Web server. Tomcat is a servlet container with optional Web server capabilities.

Platform specific requirements

- Windows platforms: A Microsoft supported Windows Server 2008 or Windows 7 or later server platform with an Intel or compatible processor; 1GHz minimum.
- UNIX/Linux platforms: Any suitable platform with an Intel or compatible processor; 1GHz minimum. Any Debian, Red Hat or Ubuntu based Linux

operating system, any IBM supported AIX platform capable of supporting Java and a J2EE web server.

- Solaris platforms: A Solaris SPARC or Solaris x86 Solaris platform; 1GHz minimum processor. an Oracle supported release of Solaris operating system; version 9 or higher.
- IBM i platforms: any IBM supported i platform (AS/400, iSeries, i5OS); versions V5R4, 6.1.x, 7.1 or above.
- Mac OS X Server : Any Mac OS X Server Version 10.7 or later.

Running Sentences server on other platforms

It may be possible to run the Sentences Enterprise Edition server on platforms other than those listed above. Please contact Lazysoft Technical support for details.

System requirements for the Enterprise Edition client

This section describes the hardware and software requirements for the Sentences Enterprise Edition client.

Common requirements for client platforms

The following common hardware and software requirements for the Sentences Enterprise Edition client apply to all platforms.

- A Java Runtime Environment (JRE) Version 7 or higher (Mac OS X platforms may be a version behind the latest Oracle and IBM releases). 32-bit and 64-bit versions of the JRE are available for most platforms.
- At least 512MB RAM (1GB RAM recommended). More memory will be required if large amounts of data are to be exported.
- Approximately 100MB available hard drive space for the Java Runtime Environment.
- If embedding Sentences Applets into web pages, a suitable browser will be required. Note that 32-bit browsers will use 32-bit Java Plugins and must use the 32-bit JRE. If using a 64-bit JRE then a suitable 64-bit browser must be installed.

Platform specific requirements

The Sentences Enterprise Edition client will run as a Desktop Application on Windows, Unix/Linux, Solaris and Mac OS X platforms.

The Sentences Enterprise Edition client can also be embedded into web applications using Java Plugin technology. A suitable browser is required for this purpose and the browsers available are dependent on the operating system.

- Windows platforms: Firefox V3.6 or higher; Internet Explorer V8 or higher; Chrome V19 or higher; Opera 11 or higher; Safari 5 or higher.
- Unix/Linux platforms: Firefox V3.6 or higher; Chrome V19 or higher; Opera 11 or higher.
- Mac OS X platforms: Firefox V3.6 or higher; Chrome V19 or higher; Opera 11 or higher; Safari 5 or higher.

Upgrading from earlier versions of Sentences

Do not uninstall any earlier version of Sentences before you have completed all the tasks required for upgrading to Sentences Version 4.0 listed below.

Due to changes to the internal format of chapter files and to the rearrangement of the Sentences installation directories, you must install Sentences Version 4.0 and its related directories in different locations from those used by any earlier version of Sentences.

The following procedures apply to Sentences Versions 3.5 and 3.6. To upgrade from any earlier version of Sentences, please contact Lazysoft Technical Support.

Important steps before upgrading

Before you upgrade to Sentences Version 4.0 make sure you are using a current version of Sentences Version 3.5 (build 3.5.56 or later) or Sentences Version 3.6 (build 3.6.7 or later).

Before you upgrade to Sentences 4.0 we strongly recommend that you perform a backup of your Sentences installation, including all your profiles and chapters. For more information on performing a backup please see the *Sentences User's Guide*.

Using the Java SDK

If your existing installation of Sentences server is on a Windows, Solaris, or Linux platform and used the Java Runtime Environment (JRE) and not the Java Software Development Kit (Java SDK) we strongly recommend that you install the Java SDK before installing Sentences Version 4.0. For more information see the section “Java requirements for all other platforms” on page 16.

Existing Sentences applications

Sentences chapter files from earlier versions cannot be used with Sentences Version 4.0. This means that you must export your Sentences applications from any earlier version and import them into Version 4.0 using the `Export` and `Import` commands.

Upgrading from earlier versions of Sentences

The `Export` command creates an export file which is an external representation of a profile including of all the chapters within that profile. The `Import` command reads the export file and creates new chapter files for each chapter which it defines.

Independent profiles

Chapters may be used in one or many profiles. Data or schema dependencies can be created between any pair of chapters in the same profile. To maintain these dependencies all chapters that are linked must be exported together. Each profile you export must be *independent*, that is it must contain a set of chapters which has no dependencies outside of the set.

If your existing profiles are independent then you can follow the procedure given below to upgrade them to Version 4.0. If your existing profiles are not independent you must create new profiles, for the purpose of upgrading, that do contain a set of chapters with no dependencies outside of the set. This may require you to set up a single profile containing all of your existing chapters. You must not include the system chapter `Profiles.chap` in any of the profiles you wish to upgrade.

Do not use the `-force` option with the `Export` command for this upgrade. If it is used some dependencies or links between chapters will be lost. If a profile appears to need the

`-force` option, this indicates that the profile does include chapters with external dependencies and therefore is not an independent profile.

For more details of the `Export` procedure see the section “To export a database” in the *Sentences User’s Guide*. For more details of the `Import` procedure see the section “To import a set of chapters” in the *Sentences User’s Guide*.

Customised versions of example applications

When you import your own customised versions of any of the example applications supplied with Sentences, such as the Human Resources example or any of the examples from the Application Suite, you should use both the `-overwrite` and the `-renumber` switches. When you use the `-renumber` switch Sentences imports your chapters and creates your profiles at the same time so you do not need to create them after the import. For more details of the `Import` procedure see the section “To import a set of chapters” in the *Sentences User’s Guide*.

Upgrade steps

The following procedure lists the steps required to upgrade your existing Sentences applications to Sentences Version 4.0. You should complete this procedure separately for each independent profile you wish to upgrade.

1. Start your existing version of Sentences and identify or create the required independent profile or profiles as defined above. You must not include the system chapter `Profiles.chap` in any of these profiles.
2. Shut down your existing version of Sentences and use the `Export` command from that version of Sentences to export each independent profile to a new export file. You should not use the `-force` option with the `Export` command for this upgrade.
3. Use the `Import` command in your Sentences Version 4.0 installation to import the export files you created in the previous step. In Sentences Version 4.0 the `Import` command does not create profiles but only imports sets of related chapters, and in doing so maintains the validity of references between chapter files. For more details of the import procedure see the section “To import a set of chapters” in the *Sentences User’s Guide*.
4. Run Sentences Version 4.0 and use the **New Profile** command to create the profiles you need using the imported chapters. See the section “Creating a new profile” in the *Sentences User’s Guide* for more details. Make sure that you define a **Query changes** chapter wherever required in the profiles you create. You may use the same chapter as one defined for **Schema changes** or **Data changes**. If a **Query changes** chapter is not defined users are unable to save any updates to queries.
5. The *Sentences User’s Guide* gives details of an optional procedure for transferring the profiles database between systems which uses XML Export and XML Import. This procedure may be used when upgrading from Version 3.x to Version 4.0. For full instructions see the section “Transferring the profiles database” in the *User’s Guide*.
6. If you have an application that uses a custom API program you must recompile your program code, using the same Java version that you are using for Sentences Version 4.0, before running it with Sentences Version 4.0. You must restart the Sentences server after making changes to your program code.
7. If you have an application that uses a trigger you must recompile your code, using the same Java version that you are using for Sentences Version 4.0, and save it to a Java archive (JAR) file. You must place the JAR file in a directory you specify in the `TriggerPath` parameter of the `Server.properties` file so that Sentences can recognise the trigger automatically. The default setting for the `TriggerPath`

parameter is `<Sentences_home>\Triggers`. You must restart the Sentences server after adding or removing trigger JAR files or making changes to the `Server.properties` file.

8. If you have an application that uses a custom datatype you must recompile your code, using the same Java version that you are using for Sentences Version 4.0, and save it to a Java archive (JAR) file. You must place the JAR file in a directory you specify in the `DatatypePath` parameter of the `Server.properties` file so that Sentences can recognise the custom datatype automatically. The default setting for the `DatatypePath` parameter is `<Sentences_home>\Datatypes`. You must restart the Sentences server after adding or removing custom datatype JAR files or making changes to the `Server.properties` file. In Sentences Version 4.0 it is no longer necessary for custom datatypes to be directly accessible by HTTP from the client.

Sentences Enterprise Edition initial server installation

Please follow the instructions in this section carefully when you install Sentences Version 4.0 for the first time.

To allow you to test that Sentences is installed correctly the Sentences Version 4.0 installer always installs Sentences as a Web application running with a Web server in accordance with the general principles of the Java™ 2 Platform, Enterprise Edition (J2EE) specification.

The Web server installed by the Sentences installer is Tomcat version 4.1.18, distributed by the Apache Software Foundation.

Sentences may also be installed as a Web application with any J2EE compatible Web server. A Java Web archive (WAR) file is supplied for this purpose.

Alternatively, you can configure Sentences to run with your preferred combination of Web server and servlet container.

You must install Sentences Version 4.0 using different locations from those used by any previous version of Sentences due to changes in the directory structure for Sentences and changes to the internal format of chapter files.

Sentences has been written in the Java programming language for maximum platform portability and has been tested on a range of platform, Web server, and servlet container configurations.

If you are considering installing Sentences on a platform that is not listed in this *Installation Guide*, please see the Lazysoft Web site or contact Lazysoft Technical support.

Sentences installation and the Java programming language

Sentences is written in the Java programming language. The installation program for Sentences also uses Java. You must have either the Java Software Development Kit (known as the Java SDK) or the Java Runtime Environment (known as the JRE) installed on the computer running the Sentences server. You also need the JRE installed on all computers running the Sentences client.

Java requirements for IBM i platforms

When installing the Sentences Enterprise Edition Server on IBM i servers you must use IBM Java, version 1.7 or above and the java archive files will require pre-compiling. See the IBM documentation for details.

<http://publib.boulder.ibm.com/infocenter/series/v7r1m0/index.jsp?topic=/cl/crtjvapg.htm>

Java requirements for all other platforms

Sentences requires a version of Java from either Oracle, IBM or Apple depending upon your platform. The Java™ Standard Edition, Runtime Environment (known as the JRE) is all that is required to run the Sentences Enterprise Edition server, however there is another Java installation that includes additional functionality used by the Tomcat server. The Java™ Standard Edition, Software Development Kit (known as the Java SDK) contains these additional files as well as the JRE.

Although the Sentences server runs correctly with the JRE, Tomcat requires a development environment in order to run Java Server Pages (JSPs). JSPs are used by some of the Application Suite examples. If you wish to run the Application Suite, you must install the Java SDK.

For this reason, we strongly recommend that wherever possible the Java SDK is installed on all computers running the Sentences server. The Java SDK includes all the components of the JRE.

If you are deploying the Sentences as a Java Web Archive into a Java Application Server such as Glassfish or WebSphere then the Application Server will already have a suitable JDK installed for it to use.

The Sentences client requires the JRE when run using Java WebStart technology as a Desktop Application. When Sentences client is embedded into Web Pages the browser will use a Java Plug-in which is installed as part of the JRE.

You may download the latest versions of the Java SDK and the JRE directly from the Oracle, IBM or Apple Web sites.

You must have the JRE or Java SDK installed before you install and run Sentences Personal Edition or Sentences Enterprise Edition server or client.

Sentences Version 4.0 runs with any release of Java version 1.6 or later. We strongly recommend using Java version 1.6 on server platforms. We strongly recommend Java version 1.7 for the Sentences client.

Java installation notes

It has been noted that uninstalling versions of Java SDK or JRE do not always cleanly uninstall all references in the Windows Registry. It is highly recommended that any installations of Java that are no longer needed are uninstalled before installing the latest version.

Installing a version of Java older than the currently installed version can lead to unpredictable effects; especially with browser plugins.

Choosing installation locations

When you install Sentences you need to specify:

- the Sentences installation location (referred to as <Sentences_home>)
- a location for Sentences Data and log files

The Sentences Data location has subdirectories that are used for Sentences chapters, images, and trace files used to log database activity. It is also where output from scheduled tasks will be saved by default.

You must install Sentences Version 4.0 in different locations from those used for earlier versions of Sentences.

Information on upgrading your existing Sentences applications is given in “Upgrading from earlier versions of Sentences” in this *Installation Guide*. For further assistance, please contact your Lazysoft representative or contact Lazysoft Technical support.

Installing Sentences

Note *The instructions in this section refer to the installer for Windows, Linux, and Solaris platforms. A pure Java installer is available for the IBM i. For instructions please see the Sentences Installation Guide for IBM iSeries or contact Lazysoft Technical support).*

The Java SDK must be installed on your computer before you install Sentences Enterprise Edition server.

To install Sentences Enterprise Edition, follow these steps:

1. Download the Sentences installer from the location sent to you.
2. When installing on Windows operating systems the file is: `sentences-ee-4.0.exe`
When installing on Unix/Linux operating systems the file is: `sentences_ee_4_0.sh`
When installing on Mac OS X operating systems the file is: `sentences_ee_4.0.zip`
or an installation application folder called `sentences_ee_4.0`

3. Run the installation file. The installation files are self extracting archives.

On some Unix/Linux systems you may need to open a shell and run the following command:

```
sh ./sentences_ee_4.0.sh
```

By default the Sentences installer runs in a GUI mode. On systems other than Microsoft Windows you must ensure that your display is configured for you to run a GUI application. For example on X-Windows based systems the `DISPLAY` environment variable must be correctly configured and you must have permission to access the display.

The Sentences installers for Unix/Linux may also be run without a GUI in console mode using the following command:

```
sh ./sentences_ee_4_0.sh -i console
```

The Sentences installer also supports a pure-Java console mode for use on the IBM I servers. For full details of how to use this installer, please see the *Installation Guide for IBM iSeries*.

The installation program displays the **Introduction** window. You can navigate through the installation procedure by clicking **Next**, **Previous**, or **Cancel**.

4. Read the License agreement and then select the statement beginning **I accept** on the License Agreement screen and then click **Next**.
5. Choose either the **Typical** or the **Custom** installation. Selecting the **Custom** installation option allows you to select additional components for installation, set the port numbers to be used by Tomcat and set additional parameters for the Java Virtual Machine.
6. Select the location of your installed Java Virtual Machine, and then click **Next**. If, for example, you installed the Java SDK version 1.6.0_32 in its default location on a Windows platform, then the Java Virtual machine is located at:

```
C:\Program Files\Java\jdk1.6.0_32\bin\java.exe
```

The Java Virtual Machine you select here is used by the Tomcat Web server and by Sentences' command line tools.

If the installer does not find your Java Virtual Machine automatically use the **Choose Another** button to select the location in which you installed the Java Virtual Machine.

If you have chosen a JRE version of the Java Virtual Machine Sentences displays a reminder that some of the Application Suite examples require a Java development environment. If you have chosen a Java SDK version of the Java Virtual Machine this reminder is not displayed.

7. Select or type in a location for the Sentences server directory, and click **Next**.

The default location for the Sentences server on Windows platforms is

```
C:\Program Files\Lazy\Sentences40
```

The default location for the Sentences server on Unix/Linux systems is

```
/usr/local/Lazy/Sentences40
```

You must install Sentences Version 4.0 using new locations (see “[Upgrading from earlier versions of Sentences](#)”).

8. Select or type in a location for the Sentences Data directory and click **Next**. The default location for Sentences Data on Windows platforms is

```
C:\SentencesData40
```

The default location for Sentences on Unix/Linux systems is

```
/usr/local/Lazy/SentencesData40
```

9. If you selected **Custom** installation, Sentences allows you to select optional components for your installation. There is only one optional component: The Application Suite examples. If you would like to install this component then check the box and click **Next**.
10. If you selected **Custom** installation, Sentences displays the default port numbers for the Tomcat Web server and allows you to amend them as required. By default Tomcat installed by Sentences listens for HTTP requests on port 8090, and port 8095 is used to shut down Tomcat. If these port numbers are not suitable for your system you may change them here. Make any changes you require and click **Next**.
11. If you selected **Custom** installation, Sentences displays the default values for the Java Virtual Machine additional parameters and allows you to amend them as required. The Java Virtual Machine memory parameters that can be used are in the format:

```
-Xmx512m -Xms512m -showversion
```

where `-Xmx` specifies the maximum system memory that can eventually be used (shown here with the example value `512m` meaning 512MB), and `-Xms` specifies the initial amount of memory to be allocated (shown here with the example value `512m` meaning 512MB). The `-showversion` parameter is optional and displays the version of java being used in the console window when Tomcat is started, Make any changes you require and click **Next**.
12. If your Sentences License file is already available on your system you may specify its location on the Copy Existing Sentences License File window. Sentences copies the file to your installation directory. If you do not specify the file location at this stage, you may still complete the installation. You must copy the License file to your Sentences installation directory before you can run Sentences. This window is not displayed if a Sentences License file is already present in the directory location in which you are installing Sentences. Click **Next** to continue.
13. Review the summary of installation choices you have made and if they are correct click **Install** to complete the installation. If you want to change any of your choices click **Previous**.
14. When any optional components are being installed Sentences displays a message notifying you that the profiles for these components are being installed. This may

take several minutes depending on the speed of your system. A further message is displayed to tell you that the profiles have been imported successfully, or to notify of any problems that may have occurred.

Note: The Application Suite is not installed by default if you select the Typical installation option.

15. When the installation is complete, Sentences displays an informational message. Before running Sentences, make sure that your License File is in your Sentences directory. On Windows systems you can start Sentences Enterprise Edition by double-clicking the Sentences icon on your Windows desktop. For further information on using Sentences please see the Sentences Tutorial and the Sentences User's Guide.

Starting the Tomcat Test Server

A minimal version of Tomcat is installed as a server to enable you to run Sentences Enterprise Edition immediately. This Tomcat server is not intended to be used as a production server but for testing and evaluation purposes.

The desktop shortcut created by the installer will start a small utility that you can use to start and stop the Sentences test server. The executable file is located in the installation directory.

On a Windows platform this will be

```
<Sentences_home>/SentencesLauncher.exe
```

On a Unix platform this will be

```
<Sentences_home>\SentencesLauncher.sh
```

The utility tells you whether the Tomcat test server is running and provides links to start and stop the Tomcat test server, launch the client and access examples.

Installing Tomcat as a Windows Service

It is straightforward to set up an existing Sentences Tomcat test server installation as a Windows service. A utility called JavaService is available for the purpose from

<http://forge.ow2.org/projects/javaservice/>

Note that there are different versions for 32-bit and 64-bit environments.

Further help can be obtained if required from Lazysoft support.

Deploying Sentences to an Application Server

Inside the Sentences installation is a pre-built Web Archive file for deploying the Sentences Server to a Java Application Server such as Glassfish or WebSphere.

```
<Sentences_home>/Tomcat4/webapps/Sentences.war
```

This WAR file contains the same content as the Tomcat test server but can be used as the basis for any customised web application you create. Inside the WAR file is a `web.xml` file that describes the web application. It contains an “environment entry” that specifies the location of the Sentences Server.properties file. This file in turn holds the locations of Sentences Data, Log files, Custom Triggers, Custom Datatypes, Stylesheets and other configurable properties.

Other customisation of the WAR file will include the addition of Java Database Connection libraries for use in LazyView and any static or dynamic web content.

The WAR file is a standard Java Enterprise Edition file that all Java Application Servers will accept. Consult your specific Application Server for details of how to deploy a WAR file.

Sentences Enterprise Edition initial client installation

Installing the Java Runtime Environment for clients

You can install the Sun Java Runtime Environment from the Oracle Web site appropriate to your browser and platform:

<http://java.com/en/download/testjava.jsp>

By default the Sentences web application contains a welcome page that detects the browser and operating system of the client and any installed JRE. If the JRE is not installed or requires upgrading to the minimum required version then the page will either redirect the user or show instructions on how to install the latest JRE.

If a suitable version of the JRE is installed and the browser plugin is enabled then the welcome page includes a link to launch the Sentences client as a desktop application. Upon first launch, a desktop shortcut will be created that can be used without the need for a browser next time.

If you have developed your own application and embedded Sentences applets into it, then you will have created a “home” page which can use the same detection of browser, platform and JRE to assist new users of your application.

See the `launch.html` webpage for an example of how to use the javascript library to detect the browser, platform and JRE in your own web pages and launch Sentences as a desktop application. See the `DataformApplet.html` webpage in the `Examples/HTML` installation directory for an example of how to use the javascript library to detect the browser, platform and JRE in your own web pages and embed Sentences applets in the HTML.

Java browser plugins

Please note that if you intend to use both the 32-bit and 64-bit versions of a browser then you will need to install both versions of the Java Runtime Environment. The 32-bit version of a browser can only detect and use the 32-bit version of Java Runtime Environment. Similarly, the 64-bit version of a browser can only detect and use the 64-bit version of Java Runtime Environment.

It is possible to disable Java plugins in each of the browsers and in the Java Control Panel. Different versions of JRE have different options for enabling and disabling these plugins. Please consult the Oracle website for details:

http://java.com/en/download/help/enable_browser.xml