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## e-TrustEx Installation Guide

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## Table of Contents

<b>1. Introduction</b> .....	<b>4</b>
<b>2. Planning</b> .....	<b>5</b>
<b>3. System Requirements</b> .....	<b>6</b>
<b>3.1. Hardware requirements</b> .....	<b>6</b>
<b>3.2. Software requirements</b> .....	<b>6</b>
3.2.1. Operating System.....	6
3.2.2. Java Development Kit.....	6
3.2.3. Application Server .....	6
3.2.4. Database .....	6
3.2.5. Additional software.....	6
<b>4. Installation</b> .....	<b>7</b>
<b>4.1. Overview</b> .....	<b>7</b>
<b>4.2. Bill of Materials</b> .....	<b>7</b>
<b>4.3. Installation steps</b> .....	<b>7</b>
4.3.1. Install the operating system.....	7
4.3.2. Install the JDK .....	7
4.3.3. Install MySQL Server .....	7
4.3.4. (optional) Install Emma (or a MySQL management tool of your choice).....	8
4.3.5. Install JBoss .....	8
4.3.6. Install Eclipse .....	8
4.3.7. Install SoapUI .....	9
4.3.8. (optional, but recommended) Prevent uncontrolled environment changes	<b>Error! Bookmark not defined.</b>
<b>5. Deploying e-TrustEx</b> .....	<b>10</b>
<b>6. Verifying the system</b> .....	<b>11</b>
<b>7. Appendix 1 – Terms used in this document</b> .....	<b>12</b>

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## 1. INTRODUCTION

This document describes how to prepare the installation for the e-TrustEx application. This document is for system administrators who want to install e-TrustEx into an existing environment.

This document is divided into the following sections:

- (1) *Planning*: provides a high-level planning about the installation process;
- (2) *System Requirements*: describes the hardware and software required to complete the installation;
- (3) *Installation*: describes the detailed steps of the installation process;
- (4) *System verification*: describes the necessary steps in order to verify the correctness of the system installation.

In order to be familiar with the terms used in this document and before going on with the installation, read the [Appendix 1 – Terms used in this document](#) section.

## 2. PLANNING

This section of the document provides a first overview on the installation tasks.

The required steps for the installation are described below:

- (1) Make sure you have acquired all of the required packages and software to go ahead with the installation. For more information about the required packages and software see [System Requirements](#);
- (2) Decide which database management system you want to use for e-TrustEx. E-TrustEx was tested with JBoss 7.1.1 and MySQL 5.5 database;
- (3) Prepare the computer on which you want to install e-TrustEx, checking if it fulfils the requirements;
- (4) Follow the steps described in the [Installation chapter](#) in order to install e-TrustEx;
- (5) Check the correctness of the installation running basic tests on the application.

### 3. SYSTEM REQUIREMENTS

This chapter describes the hardware and software requirements that the system must satisfy in order to install e-TrustEx.

#### 3.1. Hardware requirements

The hardware requirements for the e-TrustEx installation depend on several factors, above all on availability and scalability requirements (number of documents to be exchanged, number of concurrent users, required SLAs, etc.). Therefore, they are tightly connected to the specific context in which e-TrustEx will be used. For this reason this section describes only the minimum hardware requirements to let e-TrustEx run.

E-TrustEx can be installed and used on any operating system that supports Java JEE. For performance reasons a 64-bit operating system is preferred. Your target environment must be able to support the chosen operating system, the Java JEE conformant application server and the database server.

For example, the following system specifications should be satisfactory in general:

- 2 Gb RAM;
- 1 GHz CPU;
- 2 Gb hard disk space.

#### 3.2. Software requirements

This section describes which software is required in order to install e-TrustEx on your system.

##### 3.2.1. *Operating System*

Because e-TrustEx is Java JEE based, it is cross-platform and can be installed and used on any operating system that supports Java.

##### 3.2.2. *Java Development Kit*

You must have a working installation of **JDK 1.6 or higher** before you can install correctly the whole environment in which e-TrustEx can run. You can install the 32-bit or 64-bit JVM as per your requirements. e-TrustEx was tested using the 64-bit Oracle JDK 1.6.

##### 3.2.3. *Application Server*

In order to run e-TrustEx, a Java EE application server is required.

e-TrustEx was tested using JBoss 7.1.1 as Java EE application server.

##### 3.2.4. *Database*

e-TrustEx needs an application database, used to store data directly generated by the application.

e-TrustEx was tested on MySQL 5.5 and database installation scripts are provided for this platform.

##### 3.2.5. *Additional software*

###### **SoapUI (Optional)**

In order to check the correctness of the e-TrustEx installation, a web service testing tool is required.

e-TrustEx was tested using SoapUI web service testing tool.

## 4. INSTALLATION

### 4.1. Overview

e-TrustEx is a JEE application, which runs in a customized Java application server environment. The JEE application is OS independent. e-TrustEx was developed on Ubuntu 12.04.2 LTS and Windows 7 Enterprise platforms. e-TrustEx was tested on JBoss, with a configured MySQL database. e-TrustEx is developed using Eclipse JEE. For certain database operations you would need MySQL tools. For testing the services provided by e-TrustEx you can use SoapUI. The platform have also been tested with Oracle database and Weblogic 12c application server.

### 4.2. Bill of Materials

This section enumerates all the files that are needed to create the development environment. Most files can be downloaded via the provided hyperlink.

For an Ubuntu Linux environment:

- Oracle Java JDK 7
- JBoss 7.1.1
  - additional files provided to customize the JBoss environment for e-TrustEx that can be found [here](#)
- MySQL server
  - Select the MySQL 5.5 database server metapackage from the Ubuntu Update Manager (see below for details)
- MySQL Java Connector version 5.1.21
  - [mysql-connector-java-5.1.21.jar](#)
- Eclipse JEE latest version from the [eclipse website](#)
- SoapUI latest version from the [soap ui website](#)

### 4.3. Installation steps

#### 4.3.1. Install the operating system

- (optional) Modify the default terminal profile, increase the scrollbar lines from the default value of 512 to 8192 for example. This should be enough to accommodate the extensive logging.

#### 4.3.2. Install the JDK

- Please note that Oracle Java JDK is needed instead of the default OpenJDK.

#### 4.3.3. Install MySQL Server

- There were problems installing version 5.5.25a-1 due to the different packaging. The latest MySQL 5.5 was installed using Ubuntu Update Manager.
- **Note: This step is only for Linux platforms, because on Windows it would cause errors!**  
Edit /etc/mysql/my.cnf and add the following line: lower\_case\_table\_names=1
- Create the initial database setup via running the necessary import scripts

- Make sure that the dba role is granted to the mysql user etrustex.
- Make sure that trustex\_user can login to MySQL. You might need to specify localhost as location instead of the default wildcard % in the connection server manager.
- Execute the sql scripts you can find [here](#) against your newly created database. The scripts names contain numbers. These numbers represents the order that must be used to execute the scripts

#### 4.3.4. (optional) Install Emma (or a MySQL management tool of your choice)

- Though MySQL Server installation contains MySQL Workbench, this might also be needed for convenience. Select and install it from Ubuntu Update Manager.

#### 4.3.5. Install JBoss

- Use/unzip all the additional files provided to customize the JBoss installation.
  - Replace the modules folder of you Jboss installation with the one included in the [modules.zip](#) file
  - Copy the [Jboss config file](#) in the standalone\configuration folder of your Jboss installation.
- Add the following JBoss user to ManagementRealm:  
 username: *manager*  
 password: *manage*
- (optional) You may override the default 60 seconds deployment timeout in standalone-etrustex.xml in order to avoid timeout errors upon deployment for slower environments:
 

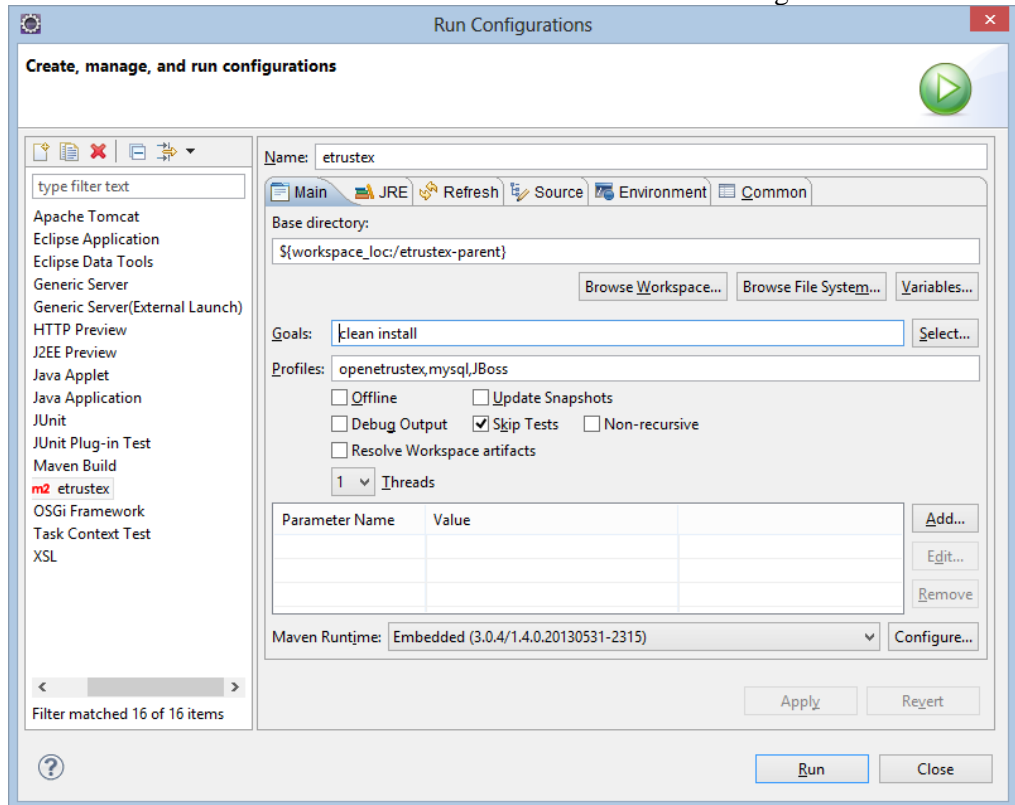
```
<subsystem xmlns="urn:jboss:domain:deployment-scanner:1.1">
  <deployment-scanner path="deployments" relative-to="jboss.server.base.dir"
    scan-interval="5000" deployment-timeout="300"/>
</subsystem>
```

#### 4.3.6. Install Eclipse

- Install the Maven2 Eclipse plugin if your eclipse version does not already have maven support plugin installed
- Install the Subclipse SVN client plugin from the eclipse marketplace
- Check out all the maven projects that you will find in the project svn repository under this [root folder](#)
- Start by installing the etrustex-parent project alone using the mvn clean install command or running the maven install command directly from eclipse
- Once the parent project is installed, configure a maven build in eclipse as follows:
  - Click run → run configurations



- Create a new maven build configuration :



- Make sure that you are using a java JDK and not a JRE to run the build.
- Make sure that the etrustex-types module is not commented out in the pom.xml of the etrustex-parent project. Once the types are built, this can be commented out to save time for the next builds, until the next change.
- Run the Build all maven target from the imported launch configurations

Under the etrustex-ear component in the target directory the build created a file named etrustex.ear. This is ready to be deployed.

#### 4.3.7. Install SoapUI

Please follow the instruction provided on the soap UI website to proceed to the installation.

## 5. DEPLOYING E-TRUSTEX

After having configured all of the resources described in the previous chapters, you can deploy e-TrustEx into the JBoss application server.

e-TrustEx is distributed as an EAR (Enterprise Archive). An enterprise archive is a file format used for packaging one or more modules into a single archive so that the deployment of the various modules onto an application server happens simultaneously and coherently.

Please use the recent e-TrustEx build produced by the Build all Maven target.

In order to deploy e-TrustEx you must follow these steps:

- Copy the [mysql-connector-java-5.1.21.jar](#) into your configured JBoss under the `<JBOSS_HOME>/standalone/deployments` folder
- Copy the e-TrustEx EAR archive into your configured JBoss under the `<JBOSS_HOME>/standalone/deployments` folder.
- Start JBoss using the following command `standalone -c=standalone-etrustex.xml`

## **6. VERIFYING THE SYSTEM**

After having completed the installation of the whole system, different test cases must be carried out in order to verify the correctness of the installation.

A test suite was created to reach this aim. The test suite contains a detailed documentation describing all the steps to be executed to verify the installation.

## 7. APPENDIX 1 – TERMS USED IN THIS DOCUMENT

EAR	An Enterprise ARchive is a file format used for packaging one or more modules into a single archive so that the deployment of the various modules onto an application server happens simultaneously and coherently.
JBOSS_HOME	JBoss installation root directory
(Java) JEE	Java Enterprise Edition
JDK	Java Development Kit