

# **Talend Open Studio for ESB Installation and Upgrade Guide for Windows**

**7.1.1**

# Contents

<b>Copyleft.....</b>	<b>3</b>
<b>Talend Open Studio for ESB: Prerequisites.....</b>	<b>5</b>
Preparing your installation.....	5
Hardware requirements.....	5
Software requirements.....	6
Setting up JAVA_HOME.....	13
<b>Installing your Talend Open Studio for ESB manually.....</b>	<b>15</b>
Installing and configuring your Talend Studio.....	15
Installing and configuring Talend ESB.....	21
<b>Upgrading your Talend products.....</b>	<b>31</b>
Backing up the environment.....	31
Upgrading the Talend projects in Talend Studio.....	31
<b>Appendices.....</b>	<b>32</b>
Cheatsheet: start and stop commands for Talend server modules.....	32
Supported Third-Party System/Database/Business Application Versions.....	33

# Copyleft

Adapted for 7.1.1. Supersedes previous releases.

Publication date: October 15, 2019

The content of this document is correct at the time of publication.

However, more recent updates may be available in the online version that can be found on [Talend Help Center](#).

This documentation is provided under the terms of the Creative Commons Public License (CCPL).

For more information about what you can and cannot do with this documentation in accordance with the CCPL, please read: <http://creativecommons.org/licenses/by-nc-sa/2.0/>.

## Notices

Talend and Talend ESB are trademarks of Talend, Inc.

Talend, Talend Integration Factory, Talend Service Factory, and Talend ESB are trademarks of Talend, Inc.

Apache CXF, CXF, Apache Karaf, Karaf, Apache Camel, Camel, Apache Maven, Maven, Apache Syncope, Syncope, Apache ActiveMQ, ActiveMQ, Apache Log4j, Log4j, Apache Felix, Felix, Apache ServiceMix, ServiceMix, Apache Ant, Ant, Apache Derby, Derby, Apache Tomcat, Tomcat, Apache ZooKeeper, ZooKeeper, Apache Jackrabbit, Jackrabbit, Apache Santuario, Santuario, Apache DS, DS, Apache Avro, Avro, Apache Abdera, Abdera, Apache Chemistry, Chemistry, Apache CouchDB, CouchDB, Apache Kafka, Kafka, Apache Lucene, Lucene, Apache MINA, MINA, Apache Velocity, Velocity, Apache FOP, FOP, Apache HBase, HBase, Apache Hadoop, Hadoop, Apache Shiro, Shiro, Apache Axiom, Axiom, Apache Neethi, Neethi, Apache WSS4J, WSS4J are trademarks of The Apache Foundation. Eclipse Equinox is a trademark of the Eclipse Foundation, Inc. Hyperic is a trademark of VMware, Inc. Nagios is a trademark of Nagios Enterprises, LLC.

All brands, product names, company names, trademarks and service marks are the properties of their respective owners.

## License Agreement

The software described in this documentation is licensed under the Apache License, Version 2.0 (the "License"); you may not use this software except in compliance with the License. You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0.html>. Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

This product includes software developed at AOP Alliance (Java/J2EE AOP standards), ASM, AntLR, Apache ActiveMQ, Apache Ant, Apache Avro, Apache Axiom, Apache Axis, Apache Axis 2, Apache Batik, Apache CXF, Apache Camel, Apache Chemistry, Apache Common Http Client, Apache Common Http Core, Apache Commons, Apache Commons Bcel, Apache Commons JXPath, Apache Commons Lang, Apache Derby Database Engine and Embedded JDBC Driver, Apache Geronimo, Apache Hadoop, Apache Hive, Apache HttpClient, Apache HttpComponents Client, Apache JAMES, Apache Log4j, Apache Lucene Core, Apache Neethi, Apache POI, Apache Pig, Apache Qpid-Jms, Apache Tomcat, Apache Velocity, Apache WSS4J, Apache WebServices Common Utilities, Apache Xml-RPC, Apache Zookeeper, Box Java SDK (V2), CSV Tools, DataStax Java Driver for Apache Cassandra, Ehcache, Ezmorph, Ganymed SSH-2 for Java, Google APIs Client Library for Java, Google Gson, Groovy, Guava: Google Core Libraries for Java, H2 Embedded Database and JDBC Driver, HsqlDB, Ini4j, JClouds, JLine,

JSON, JSR 305: Annotations for Software Defect Detection in Java, JUnit, Jackson Java JSON-processor, Java API for RESTful Services, JAXB, Jaxen, Jettison, Jetty, Joda-Time, Json Simple, MetaStuff, Mondrian, OpenSAML, Paracel JDBC Driver, PostgreSQL JDBC Driver, Resty: A simple HTTP REST client for Java, Rocoto, SL4J: Simple Logging Facade for Java, SQLite JDBC Driver, Simple API for CSS, SshJ, StAX API, StAXON - JSON via StAX, Talend Camel Dependencies (Talend), The Castor Project, The Legion of the Bouncy Castle, W3C, Woden, Woodstox : High-performance XML processor, XML Pull Parser (XPP), Xalan-J, Xerces2, XmlBeans, XmlSchema Core, Xmlsec - Apache Santuario, Zip4J, atinject, dropbox-sdk-java: Java library for the Dropbox Core API, google-guice. Licensed under their respective license.

# Talend Open Studio for ESB: Prerequisites

## Preparing your installation

### Software packages

This page details the software packages you need to download to install your Talend product.

In this page:

- YYYYMMDD\_HHmm corresponds to the package timestamp
- A.B.C. corresponds to package version number (Major. Minor. Patch.)

The software modules must be all in the same versions/revisions. This means that both YYYYMMDD\_HHmm and A.B.C must match on both client side and server side.

### Manual installation software packages

File name	Description
Talend-Studio-YYYYMMDD_HHmm-VA.B.C.zip	Studio IDE (GUI) To download it, go to <a href="#">this page</a>
Talend-Runtime-VA.B.C-YYYYMMDDHHmm.zip	Talend Runtime: OSGi Container including Talend JobServer. Talend Runtime is a standalone equivalent to the Talend ESB OSGi Container ( <code>container</code> folder) of Talend ESB.
Talend-ESB-YYYYMMDD_HHmm-VA.B.C.zip	Talend ESB: application integration solution with an OSGi Container, Service Locator, Service Activity Monitoring and Security Token Service. It includes the Talend Runtime (in the <code>container</code> folder) and provides additional parts like examples, standalone, Tomcat deployment relevant parts and other additional parts primarily used by Java Developers.

## Community and Support

There are several ways to get help and support for your Talend installation:

- [Official Talend Documentation](#). Here you can find everything to help you install and use your Talend product.
- [Talend Community](#). This is the place where you can ask questions to the community, and get answers.

## Hardware requirements

Before installing your Talend product, make sure the machines you are using meet the following hardware requirements recommended by Talend.

Memory and disk usage heavily depends on the size and nature of your Talend projects. However, in summary, if your Jobs include many transformation components, you should consider upgrading the total amount of memory allocated to your servers, based on the following recommendations.

## Memory usage

Product	Client/Server	Memory requirements (minimum-recommended)	Note
Talend Studio	Client	3GB – 4GB	
Talend Runtime	Server	2GB – 4GB	

**Note:** Depending on the number of executed processes running on a module, you may need to increase the available memory. If you have several products installed on the same host, Talend recommends to use an i7 CPU with 8 logical processors.

## Disk space requirements

Product	Client/Server	Required disk space for installation	Required disk space for use
Talend Studio	Client	3GB	3+ GB
Talend Runtime	Server	400MB	400+ MB

## Software requirements

### Compatible Operating Systems

This page details the recommended and supported Operating Systems for Talend products.

In the following documentation:

- recommended: designates an environment recommended by Talend based on our experiences and customer usage;
- supported: designates a supported environment for use with the listed component or service;
- supported with limitations: designates an environment that is supported by Talend but with certain conditions explained in notes.

### Talend Studio

Support type	Operating System (64-bit)	
Recommended	Linux	Ubuntu 18.04 LTS
	Windows	Microsoft Windows 10
Supported	Linux	Ubuntu 16.04 LTS
		Red Hat Enterprise Linux Server/ CentOS 7.5
		Red Hat Enterprise Linux Server/ CentOS 7.4

Support type	Operating System (64-bit)	
		Red Hat Enterprise Linux Server/ CentOS 7.3
		Red Hat Enterprise Linux Server/ CentOS 7.2
		Red Hat Enterprise Linux Server/ CentOS 7.1
		Red Hat Enterprise Linux Server/ CentOS 6.9
		Red Hat Enterprise Linux Server/ CentOS 6.8
	Windows	Microsoft Windows Professional 7
		Microsoft Windows Server 2016 RTM
		Microsoft Windows Server 2012 RTM
	Windows Server on AWS	Microsoft Windows Server 2016 RTM
		Microsoft Windows Server 2012 RTM
	Mac	Apple macOS 10.14/Mojave
		Apple macOS 10.13/High Sierra
		Apple macOS 10.12/Sierra
Deprecated	Mac	Apple OS X 10.11/El Capitan

## Talend Server modules

Given that Oracle has a stated compatibility statement for Redhat RHEL, Talend considers that Oracle Linux is supported, for those versions which correspond to RHEL versions that Talend lists in the User Documentation.

The server modules include:

- Talend ESB Servers
- Talend Runtime

Support type	Operating System		Processor
Recommended	Linux	Red Hat Enterprise Linux Server/CentOS 7.5	64 bits
	Windows	Microsoft Windows Server 2016	64 bits
Supported	Linux	Ubuntu 18.04 LTS	64 bits
		Red Hat Enterprise Linux Server/CentOS 6.8 to 7.6	64 bits

Support type	Operating System	Processor
		SUSE SLES 11 / 12
	Windows	Microsoft Windows Server 2012 / 2012 R2
		64 bits
		64 bits Except for Talend Data Preparation.

## Compatible Java Environments

The following tables provide information on the recommended Java Environment you should download and install to use your Talend product.

The Compiler Compliance Level corresponds to the Java version used for the Job code generation. This option can be changed in the Studio preferences. For more information, see the Talend Studio User Guide.

**Note:** All Talend products and associated third-party applications, such as the Hadoop cluster, should use the same Java version for compliance. Before you install or upgrade any associated third-party application, Talend recommends that you check which Java version they support.

In the following documentation:

- recommended: designates an environment recommended by Talend based on our experiences and customer usage;
- supported: designates a supported environment for use with the listed component or service;
- supported with limitations: designates an environment that is supported by Talend but with certain conditions explained in notes.

### Studio Java environments

Support type	JRE Version	Note
Recommended	OpenJDK 8	Recommended distribution: <a href="#">Zulu</a>
Recommended	Oracle 8	Studio JDK Compiler Compliance Level 1.8 (default)

### Server Java environments

The server modules include:

- Talend ESB Servers
- Talend Runtime

JRE Version	Talend JobServer	Talend MDM Server	Talend ESB/Talend Runtime	Talend ESB/ Microservices	Big Data Distributions	Talend Server Application	Comment/ Limitation
OpenJDK 8	 (R)	 (R)	 (R)	 (R)	Compatible with Java 1.8	 (R)	Recommended distribution: <a href="#">Zulu</a>

JRE Version	Talend JobServer	Talend MDM Server	Talend ESB/Talend Runtime	Talend ESB/ Microservices	Big Data Distributions	Talend Server Application	Comment/ Limitation
Oracle 8	 (R)	 (R)	 (R)	 (R)	Compatible with Java 1.8	 (R)	Compatible with Studio JDK Compiler Compliance Level 1.8

## Compatible Apache software and JMS Brokers for Talend ESB

The following tables provide information on the compatible Apache software and JMS Brokers for Talend ESB.

### Supported Apache software

Software	Note	More information
Apache Karaf 4.1.6	Service release upgrade.	<a href="#">Release notes</a>
Apache CXF 3.2.6	Service release upgrade.	<a href="#">Release notes</a>
Apache Camel 2.21.2	Minor release upgrade.	<a href="#">Release notes</a>
Apache ActiveMQ 5.15.5	Service release upgrade.	<a href="#">Release notes</a>

### Supported Messaging Brokers for SOAP/JMS

Software	More information
Apache ActiveMQ 5.15.5	<a href="#">Release notes</a>
IBM WebSphere MQ 7.5	<a href="#">Release notes</a>

## Compatible web application servers

The following tables provide information on the recommended and supported Web application servers for the Talend server modules.

In the following documentation:

- recommended: designates an environment recommended by Talend based on our experiences and customer usage;
- supported: designates a supported environment for use with the listed component or service;
- supported with limitations: designates an environment that is supported by Talend but with certain conditions explained in notes.

## Compatible containers

The following tables provide information on the recommended and supported containers for the Talend server modules.

In the following documentation:

- recommended: designates an environment recommended by Talend based on our experiences and customer usage;
- supported: designates a supported environment for use with the listed component or service;
- supported with limitations: designates an environment that is supported by Talend but with certain conditions explained in notes.

## Talend ESB

Support type	Runtime Containers	Note
Recommended	Talend Runtime (Apache Karaf) 7.0.1	Except for Talend Identity Management, where Apache Tomcat 8.5 is recommended.
	Apache Tomcat 8.5	Only for Talend Identity Management.
Supported	Apache Tomcat 8.5	Only for CXF Services, Camel Routes, Service Activity Monitoring, Talend Identity Management and Security Token Service.

## Compatible databases

The following tables provide information on the recommended and supported databases you can use with Talend server modules.

In the following documentation:

- recommended: designates an environment recommended by Talend based on our experiences and customer usage;
- supported: designates a supported environment for use with the listed component or service;
- supported with limitations: designates an environment that is supported by Talend but with certain conditions explained in notes.

## ESB Service Registry/Authorization/Event Logging

Support type	Database	Note
Recommended	MySQL 5.7	The corresponding Amazon Relational Database Service (Amazon RDS) is supported. Google Cloud SQL is supported.
	Oracle 12c Release 1	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
Supported	Derby DB > 10.8	
	MS SQL Server 2017	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.

Support type	Database	Note
	MS SQL Server 2016	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
	MS SQL Server 2014	
	MS SQL Server 2012 (SP2)	
	MySQL 8.0	
	Oracle 11g	
	PostgreSQL 10	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
	PostgreSQL 9.6	The corresponding Amazon Relational Database Service (Amazon RDS) is supported. Google Cloud SQL is supported.
	PostgreSQL 9.5	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.

## Port information

The following tables list the most important TCP/IP ports the Talend products use.

You need to make sure that your firewall configuration is compatible with these ports or change the default ports where needed.

Add the following websites to the whitelist on every machine that runs a Talend module:

URL	Port	Usage
update.talend.com	443	For downloading additional packages such as Bonita BPM Integration, Talend Metadata Bridge and upgrades from Talend Studio tools
talend-update.talend.com	443	For downloading libraries in Talend Studio (mainly for components)
www.talend.com	443	For testing and sending usage statistics from Talend Studio
talendforge.org	443	For using Talend Exchange in Talend Studio and for users actions such as clicking on forum links
community.talend.com	443	For user actions, such as clicking on Community links, etc.
help.talend.com	443	For user actions, such as clicking on help links, etc.

**Note:** If your deployment depends on other third-party software, you may need to add other URLs to your whitelist. Talend recommends that you whitelist all hostnames that have dynamic IP addresses.

In this table:

- **Port:** a TCP/IP port or a range of ports.
- **Direction:** In (Inbound) and Out (Outbound) refer to the direction of requests between a port and the service (or CFX route) communicating with it. For example, if a service is listening for HTTP requests on port 9080, then it is an inbound port because other services are performing requests on it. However, if the service calls another service on a given port, then it is an outbound port.
- **Usage:** which part of the Product component uses this port (for example 1099 is used by the JMX Monitoring component of Talend Runtime).
- **Configuration file:** the file or location where the value can be changed.
- **Note:** anything which is important to mention additionally.

### Talend Studio ports

Port	Direction	Usage	Configuration file
8090	IN	tESBProviderRequest (SOAP Data Server) and tRESTRRequest (REST Data Service default port)	REST: Preferences / Talend / ESB SOAP: tESBProviderRequest component details

### Talend ESB Ports

Port	Direction	Usage	Configuration file (./ etc)	Note
8040	IN	Standard HTTP port	org.ops4j.pax.web.cfg	See the Talend ESB Container Administration Guide for config scripts and also the admin: command which allows you to set ports to different values.
9001	IN	Standard HTTPS port	org.ops4j.pax.web.cfg	
1099	IN	JMX - RMI Registry Port	org.apache.karaf.management.cfg	
44444	IN	JMX - RMI Registry Port	org.apache.karaf.management.cfg	
8101	IN	Apache Karaf - SSH Port	org.apache.karaf.shell.cfg	

Port	Direction	Usage	Configuration file (./ etc)	Note
61616	IN	Messaging - ActiveMQ Broker Port	system.properties	
2181	OUT	ESB Locator - Apache Zookeeper Port	Server: org.talend.esb.locator.server.cfg  Client: org.talend.esb.locator.cfg	
1527	IN	ESB SAM Database - Apache Derby Port	The port value of the embedded Derby database depends on the Talend Runtime Container configuration, as the database is shipped with the container.	The embedded Apache Derby DB is only supported for Development and Testing purpose in production system environments. The Container, which hosts the SAM Server, needs access to the related Database port. The port depends on the Database and Database configuration.
8082	OUT	ESB Runtime Features Installer - Talend Artifact Repository access	org.ops4j.pax.url.mvn.cfg	
(*)	IN OUT	Customer Services, Routes etc.		Any of the Data Services, Routes and other components additionally deployed to the container might require additional port to be accessible.

## Setting up JAVA\_HOME

In order for your Talend product to use the Java environment installed on your machine, you must set the JAVA\_HOME environment variable.

### Procedure

1. Find the folder where Java is installed.

For example:

- C:\Program Files\Java\JREx.x.x
- C:\Program Files\Zulu

2. Open the **Start** menu and type `Environment variable` in the search bar to open the Environment variable properties.
3. Click **Environment Variables...**
4. Under **System Variables**, click **New...** to create a variable. Name the variable `JAVA_HOME`, enter the path to your Java environment, and click **OK**.
5. Under **System Variables**, select the **Path** variable, click **Edit...** and add the following variable at the end of the Path variable value: `;%JAVA_HOME%\bin`

# Installing your Talend Open Studio for ESB manually

## Installing and configuring your Talend Studio

### Unzip the archive

#### Procedure

1. Download your product from [this page](#).
2. Unzip it using 7-zip.

#### Results

When you extract it, you get two folders:

- `Runtime_ESBSE` that contains Talend Runtime and examples.
- `studio` that contains Talend Studio.

### Editing the memory and JVM settings

To gain in performance at runtime and when launching Talend Studio, proceed as follows: you can edit the memory settings in the `.ini`.

#### Procedure

1. Edit the `TOS_ESB-win-x86_64.ini` file.
2. Edit the memory attributes. For example:

```
-vmargs -Xms512m -Xmx1536m -XX:MaxMetaspaceSize=512m
```

**Tip:** For big projects, you may need to increase `Xmx` to `4096m`.

For more details, see <http://www.oracle.com/technetwork/java/hotspotfaq-138619.html>.

### Launching your Talend Studio

#### Procedure

Double-click the `TOS_ESB-win-x86_64.exe` executable to launch your Talend Studio.

### Installing external modules

Talend Studio requires specific third-party Java libraries or database drivers (`.jar` files) to be installed to connect to sources and targets.

Those libraries or database drivers, known as external modules, may be required by some of Talend components or by some connection wizards or by both. Due to license restrictions, Talend may not be able to ship some of these external modules within Talend Studio. You need to install them for your Studio to functional properly.

#### When to install external modules

Your Talend Studio will let you know when you need to install external modules and what external modules you need to install.

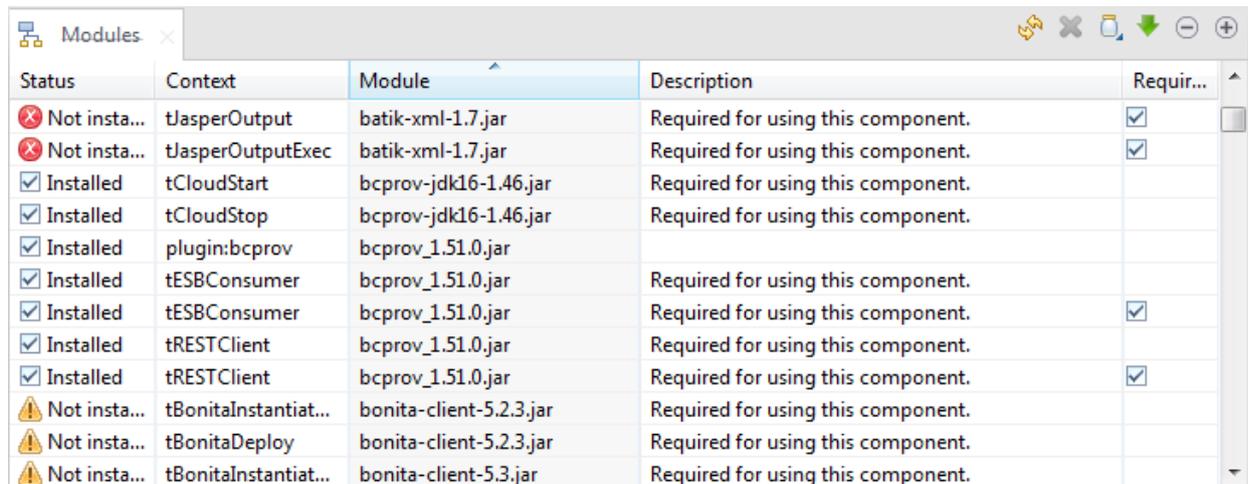
Your Talend Studio notify you about required external modules in several ways.

- The **Additional Talend packages** wizard opens when you launch your Talend Studio if any additional packages, including external modules, need to be installed for any features to function in the Studio.

**Tip:** The **Additional Talend packages** wizard also opens when you select **Help > Install Additional Packages** from the Studio menu.

- On your design workspace, if a component requires the installation of external modules before it can work properly, a red error indicator appears on the component. With your mouse pointer over the error indicator, you can see a tooltip message showing which external modules are required for that component to work.
- When you open the **Basic settings** or **Advanced settings** view of a component for which one or more external modules are required, you will see a piece of highlighted information about external modules, followed by an **Install** button. Clicking the **Install** button opens a wizard that will show you the external modules to be installed.
- The **Modules** view lists all the modules required for the Studio to work properly, including those Java libraries and drivers that you must install.

If the **Modules** view is not shown under your design workspace, go to **Window > Show View... > Talend** and then select **Modules** from the list.



Status	Context	Module	Description	Requir...
Not installed	tJasperOutput	batik-xml-1.7.jar	Required for using this component.	<input checked="" type="checkbox"/>
Not installed	tJasperOutputExec	batik-xml-1.7.jar	Required for using this component.	<input checked="" type="checkbox"/>
Installed	tCloudStart	bcprov-jdk16-1.46.jar	Required for using this component.	<input type="checkbox"/>
Installed	tCloudStop	bcprov-jdk16-1.46.jar	Required for using this component.	<input type="checkbox"/>
Installed	plugin:bcprov	bcprov_1.51.0.jar		<input type="checkbox"/>
Installed	tESBConsumer	bcprov_1.51.0.jar	Required for using this component.	<input type="checkbox"/>
Installed	tESBConsumer	bcprov_1.51.0.jar	Required for using this component.	<input checked="" type="checkbox"/>
Installed	tRESTClient	bcprov_1.51.0.jar	Required for using this component.	<input type="checkbox"/>
Installed	tRESTClient	bcprov_1.51.0.jar	Required for using this component.	<input checked="" type="checkbox"/>
Not installed	tBonitaInstantiat...	bonita-client-5.2.3.jar	Required for using this component.	<input type="checkbox"/>
Not installed	tBonitaDeploy	bonita-client-5.2.3.jar	Required for using this component.	<input type="checkbox"/>
Not installed	tBonitaInstantiat...	bonita-client-5.3.jar	Required for using this component.	<input type="checkbox"/>

In this view:

### Status

points out if a module is installed or not installed on your system.

The  icon indicates that the module is not necessarily required for the corresponding component or Metadata connection listed in this column.

The  icon indicates that the module is absolutely required for the corresponding component or Metadata connection.

<b>Context</b>	gives the name of the component or Metadata connection using the module. If this column is empty, the module is then required for the general use of your Talend Studio.
<b>Module</b>	gives the exact name of the module.
<b>Description</b>	explains why the module/library is required.
<b>Required</b>	the selected check box indicates that the module is required.



refreshes this view to reflect the latest module installation status.

In case of collaborative work, once a required module is installed in one user's studio, the other users can simply refresh their **Modules** view to add this module to their own studio(s).

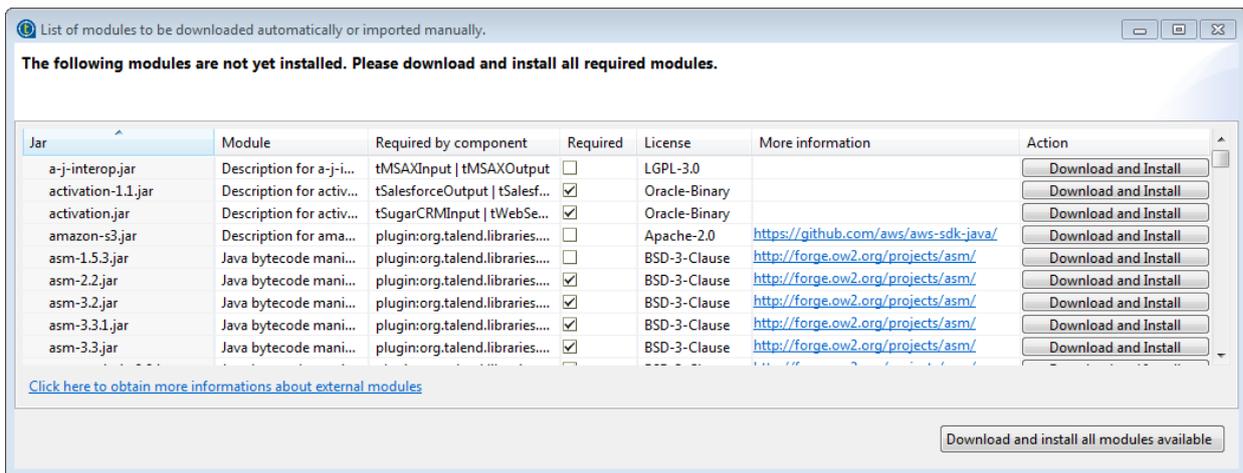


allows you to install an already downloaded external module into your Studio. For details, see [Installing external modules manually using the Modules view](#) on page 20



opens the Jar download and installation wizard, which will list all the required external modules that are not integrated in the Studio.

- A Jar installation wizard appears when you:
  - drop a component from the **Palette** if one or more external modules required for that component to work are missing in the Studio.
  - click the **Check** button in a Metadata connection setup wizard in the Studio if one or more external modules required for the connection are missing in the Studio.
  - click the **Guess schema** button in the **Component** view of a component if one or more external modules required for that component to work are missing in the Studio.
  - click **Install** on the top of the **Basic settings** or **Advanced settings** view of a component for which one or more required external modules are missing.
  - run a Job that involves components or Metadata connections for which one or more required external modules are missing.
  - click the  button in the **Modules** view.



This wizard:

- lists the external modules to be installed and the licenses under which they are provided,
- provides the URLs of the valid websites where they are downloadable,
- lets you download and install automatically all the modules available on the Talend website,
- allows you to download those not available on the Talend website by following the links provided in the **Action** column and then install them into your Studio manually.

When you drop a component, set up a connection, or guess the schema of a database, that requires an external module for which neither the Jar file nor its download URL information is available on the Talend website, the Jar installation wizard does not appear, but the **Error Log** view will present an error message informing you that the download URL for that module is not available. You can try to find and download it by yourself, and then install it manually into the Studio.

**Tip:** To show the **Error Log** view on the tab system, go to **Window > Show views**, then expand the **General** node and select **Error Log**.

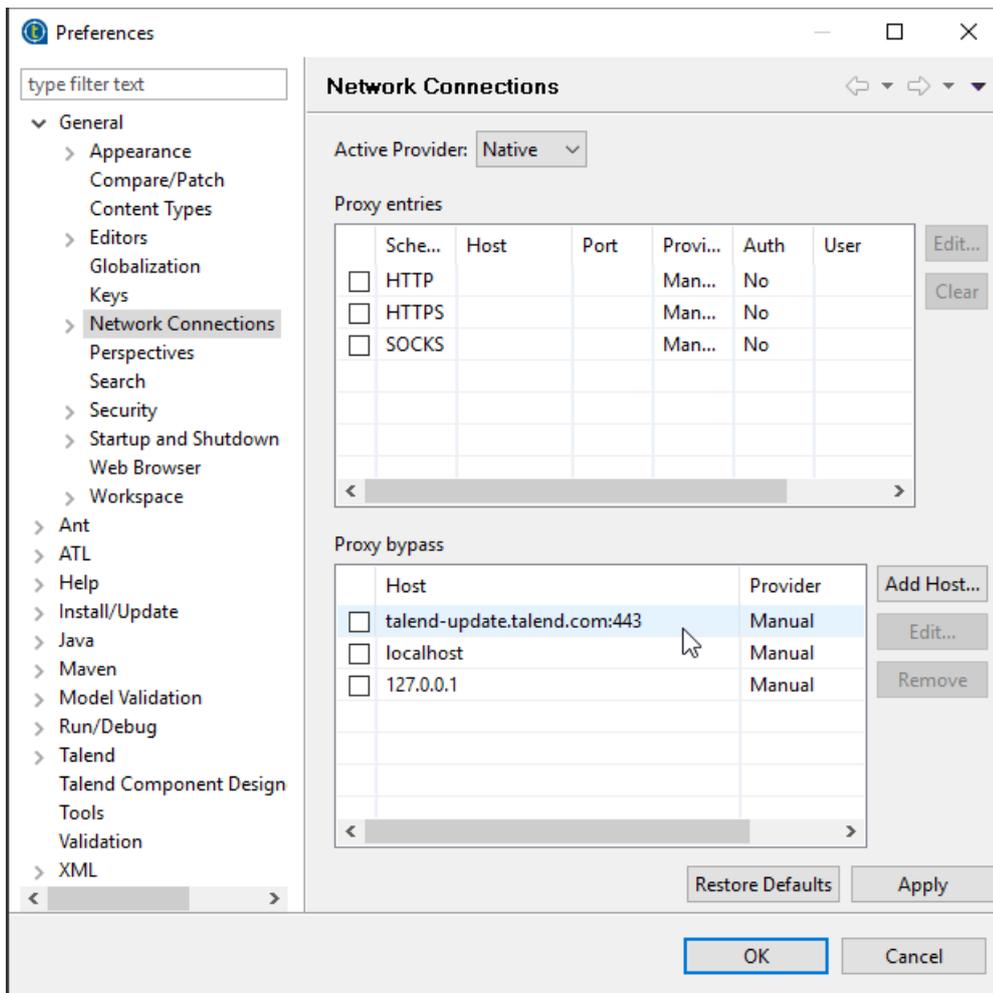
## Installing external modules from within the Studio

You can download and automatically install most external modules using the wizard provided by your Talend Studio.

### Before you begin

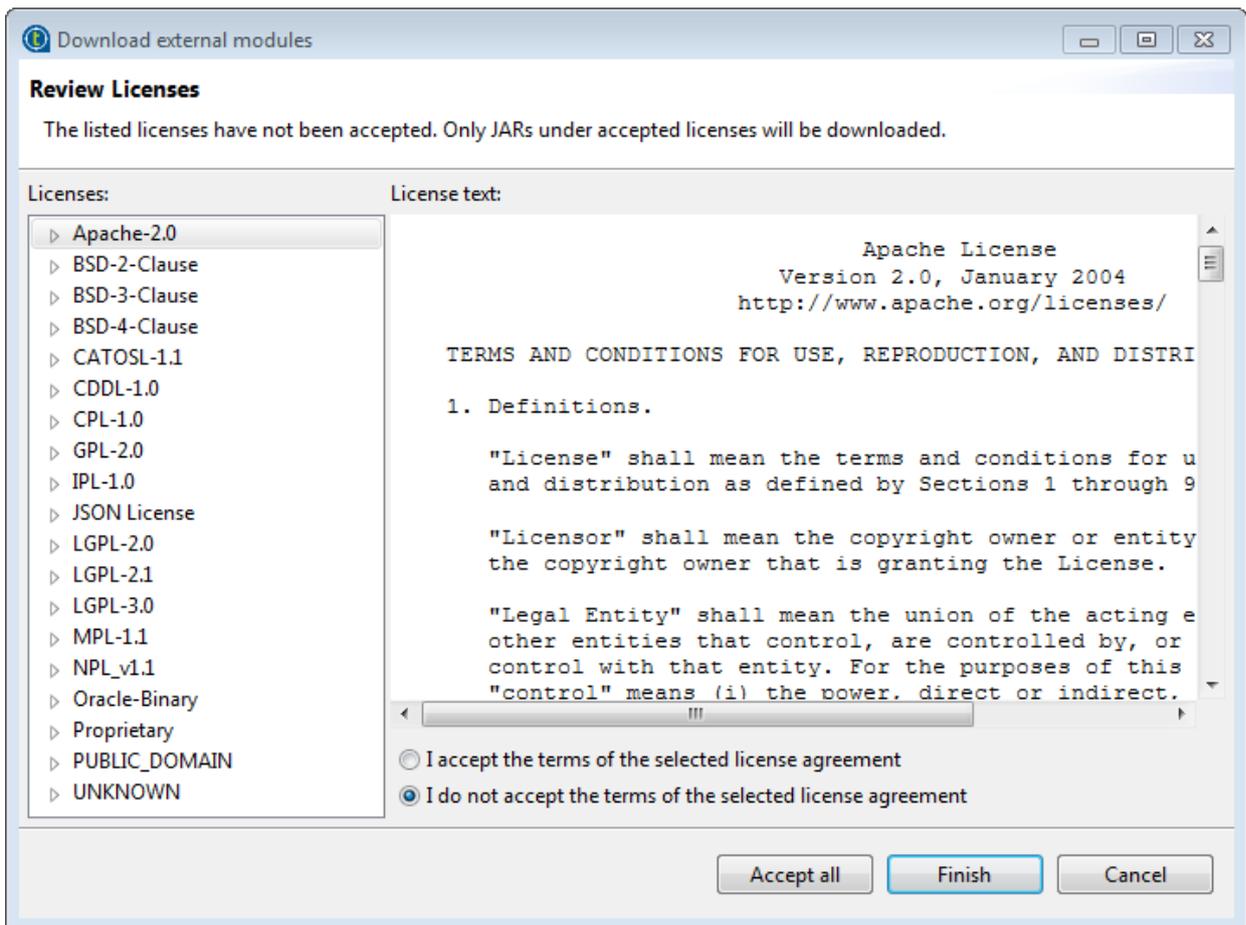
Make sure your Talend Studio has a secure Internet connection.

If you are working behind a network proxy, make sure you have correctly set up your proxy and add the web site `http://talend-update.talend.com` and the port 443 to your whitelist. To access the proxy settings, select **Window > Preferences** from the menu to open the **Preferences** window, then expand the **General** node and click **Network Connections**.



## Procedure

- Do the following to open the **Download external modules** dialog box:
  - In the **Additional Talend Packages** wizard, select the **Required third-party libraries** and/or **Optional third-party libraries** check boxes and click **Finish**.
  - In the Jar installation wizard, click the **Download and Install** button to install a particular module, or click the **Download and install all modules available** button to install all the available modules.



## 2. Accept the license terms and start the download and installation process:

- To download and install the external module(s) provided under a particular license, select that license from the **Licenses** pane, review the license terms, select the **I accept the terms of the license agreement** option, and click **Finish**.
- To download and install all external modules provided under all the listed licenses, click the **Accept all** button.

## Results

When the installation process is completed, the chosen external module or modules are installed into your Talend Studio, and you can use Talend Studio features that depend on these modules.

## Installing external modules manually using the Modules view

If you have already downloaded external modules, you can install them manually into your Talend Studio.

## Before you begin

If you are going to install the JDBC driver for Oracle 9i into your Talend Studio, change the file name from `ojdbc14.jar` to `ojdbc14-9i.jar` first.

## Procedure

1. Click the  button in the upper right corner of the **Modules** view or in the Jar installation wizard to browse your local file system.

2. In the **Open** dialog box of your file system, browse to the module you want to install, double-click the `.jar` file, or select it and then click **Open** to install it into your Talend Studio.

## Results

The dialog box closes and the selected module is installed in the library folder of the current Talend Studio.

## Installing external modules manually for Talend Web applications

Some modules required for a Talend Web application to work are not available on the Talend website but can be downloaded directly from external websites. Once downloaded, these modules must be placed in specific folders.

## Procedure

- For the Talend MDM Server, place the downloaded JDBC drivers for the Oracle and MySQL databases in the following folder:

```
<TomcatPath>/webapps/talendmdm/WEB-INF/lib
```

- For Talend Administration Center, place the downloaded modules in the following folder:

```
<TomcatPath>/webapps/org.talend.administrator/WEB-INF/lib
```

# Installing and configuring Talend ESB

Talend ESB is provided to you through an archive file named `Talend-ESB-VA.B.C.zip` that you can extract to install Talend ESB on your server machines.

The following procedures detail the installation and configuration of the ready-to-use tools contained in the Talend ESB package:

- [Running Talend ESB Container](#) on page 22
- [Installing Apache ActiveMQ](#) on page 23
- [Accessing Service Locator](#) on page 24
- [Installing Service Activity Monitoring](#) on page 25
- [Installing Security Token Services](#) on page 28
- [Enabling Syncope Login Module](#) on page 29

Note about the start commands: Instead of the individual start commands that you can find in the following sections, you can also use: `tesb:start-all` in the container, which starts all the Infrastructure Services, except the Event Logging features which have to be started individually with the `tesb:start-el-default` command.

For more information about the Infrastructure Services, see the Talend ESB Infrastructure Services Configuration Guide.

For more information about the logging modules and the advanced configuration of those Services, see [Installing and configuring Talend logging modules](#) and Talend ESB Container Administration Guide.

## Running Talend ESB Container

Once Talend ESB installed, you can access Talend ESB Container in the `Talend-ESB-VA.B.C/container` directory.

Talend ESB Container is an OSGI container, based on Apache Karaf, allowing you to deploy and execute various components and applications inside its `Talend-ESB-VA.B.C/container/deploy` folder.

### Procedure

1. Browse to the `Talend-ESB-VA.B.C/container/bin` directory.
2. Run the `trun.bat` file.

### Results

After starting Talend ESB Container, you need to wait a few seconds for initialization to complete before entering the commands. Karaf, on which the Talend ESB Container is built, starts the non core bundles in background. So even if the console is already available, the commands may not.

For more information on Talend ESB Container usage and configuration, see the Talend ESB Container Administration Guide and Talend ESB Infrastructure Services Configuration Guide.

Once Talend ESB Container is installed and launched, you will be able to install all the other components available in the Talend ESB package as features directly in the container. Thus, when launching Talend ESB Container, all the other components will be launched at the same time.

You also have the possibility to install these components as standalone.

**Warning:** When installing Talend ESB components as features in the container, you might encounter memory problems. For more information on how to increase the memory allocation of the container, see Talend ESB Container Administrator's Guide.

This implementation can ease the management of Talend ESB but if you want to create a cluster environment, you will need to replicate the container to have several containers with the right components installed as features in it, whereas if you are using the different components as standalone you will only have to duplicate the corresponding instance.

If you only want to use several basic containers, you can also use Talend Runtime, as Talend Runtime is the exact equivalent of the container folder provided in Talend ESB. For more information about the installation of Talend Runtime, see [Installing Talend Runtime](#).

### Customizing the access parameters of Talend ESB Container

How to configure the Talend ESB Container parameters in order to adapt it to your environment.

#### Procedure

1. Go to the following directory: `Talend-ESB-VA.B.C/container/etc`
2. Edit the following files for example:
  - `org.ops4j.pax.web.cfg` to change the HTTP listening port.
  - `org.apache.karaf.management.cfg` to manage RMI connection to connect to Talend ESB Container via JMX in order to manage and supervise each of its components and their activity from a JConsole, for example.

## Configure the proxy settings

How to configure the proxy settings of the Talend ESB Container according to your environment.

### Procedure

1. Open the following file to edit it: `Talend-ESB-VA.B.C/container/etc/org.ops4j.pax.web.cfg`
2. Uncomment the line: `org.ops4j.pax.url.mvn.proxySupport=true` so that the settings in the `settings.xml.sample` file are taken into account.
3. Update the `etc/settings.xml.sample` file according to your proxy configuration.

## Installing Apache ActiveMQ

ActiveMQ is a message broker enabling to support different messaging options. It will provide you high availability, performance, scalability, reliability and security for enterprise messaging. And it allows you to mediate events between distributed applications, guaranteeing that they reach their intended recipients.

Once Talend ESB installed, you can either access a standalone instance of ActiveMQ in the `Talend-ESB-VA.B.C/activemq` directory or install it as a Feature directly within the Talend ESB Container.

Once installed, ActiveMQ can be used in Talend's Mediation routes, for example.

### Running ActiveMQ as standalone

#### Procedure

1. Browse to the `Talend-ESB-VA.B.C/activemq/bin` directory.
2. Run the `activemq.bat` file.

### Configuring Apache ActiveMQ

There are a number of configuration options, and these are listed by entering `activemq -h`.

You can configure the ActiveMQ broker by using either a configuration file or via broker URI. For more information about the broker URI syntax, see the online [Apache ActiveMQ documentation](#).

The default location for configuration files is in `activemq/conf`.

For more information on how to configure Apache ActiveMQ, see the Talend ESB Infrastructure Services Configuration Guide.

### Installing Apache MQ as an OSGi Feature

ActiveMQ can also be installed as a Feature in Talend ESB Container, this way, it will be automatically launched when launching Talend ESB Container.

#### Procedure

1. In the Talend Runtime container, use the following command to start ActiveMQ: `karaf@trun> feature:install activemq`
2. By default, no broker is created in the Container. To start a broker within the Talend Runtime container, use the following command: `karaf@trun> feature:install activemq-broke  
r`

It creates a default broker named **amq-broker** and its configuration file: `<TalendRuntime Path>/container/etc/org.apache.activemq.server-default.cfg`. You can modify the broker's default configuration by editing this file. For more information on how to create multiple brokers, to remove or to query a broker, see the Talend ESB Infrastructure Services Configuration Guide.

This command also installs the ActiveMQ Web console, available at: `http://localhost:8040/activemqweb/`

For more information on ActiveMQ Web console advanced configuration, see the Talend ESB Infrastructure Services Configuration Guide.

## Install Apache ActiveMQ and create a broker

### Procedure

1. In the Talend Runtime container, use the following command to start ActiveMQ: `karaf@trun> feature:install activemq`
2. By default, no broker is created in the Container. To start a broker within the Talend Runtime container, use the following command: `karaf@trun> feature:install activemq-broker`

It creates a default broker named **amq-broker** and its configuration file: `<TalendRuntime Path>/container/etc/org.apache.activemq.server-default.cfg`. You can modify the broker's default configuration by editing this file. For more information on how to create multiple brokers, to remove or to query a broker, see the Talend ESB Infrastructure Services Configuration Guide.

This command also installs the ActiveMQ Web console, available at: `http://localhost:8040/activemqweb/`

For more information on ActiveMQ Web console advanced configuration, see the Talend ESB Infrastructure Services Configuration Guide.

## Accessing Service Locator

Service Locator provides automatic and transparent failover and load balancing between service Consumers and Providers and allows for dynamic endpoint registration and lookup.

Once Talend ESB installed, you can access the Service Locator in the `Talend-ESB-VA.B.C/zookeeper` directory or install it as a feature directly within the Talend ESB Container.

### Installing Service Locator as an OSGi Feature (Recommended)

Service Locator can also be installed as a Feature in Talend ESB Container, this way, it will be automatically launched when launching Talend ESB Container.

### Procedure

1. Run the Container.
2. Type in the following command to start the feature corresponding to Service Locator: `tesb:start-locator`.
3. To stop the Service Locator, type in the following command: `tesb:stop-locator`.

## Installing Service Locator as standalone (Alternative)

### Procedure

1. Open a command window.
2. Browse to the `Talend-ESB-VA.B.C/zookeeper/bin` directory.
3. Run the following command:

```
zkServer.cmd start
```

To customize the configuration of the Service Locator standalone, edit the file `Talend-ESB-VA.B.C/zookeeper/conf/zoo.cfg`. For more information on the parameters you can edit, see [Configuration file properties of the Service Locator standalone](#) on page 25.

### Configuration file properties of the Service Locator standalone

To customize the configuration of the Service Locator standalone, edit the following file: `Talend-ESB-VA.B.C/zookeeper/conf/zoo.cfg` and change the parameters according to your needs.

Field name	Description
<b>tickTime</b>	the basic time unit in milliseconds used by the Service Locator. It is used to do heartbeats, and the minimum session timeout will be twice the tickTime
<b>dataDir</b>	the location to store the in-memory database snapshots and, unless specified otherwise, the transaction log of updates to the database
<b>clientPort</b>	the port to listen for client connections

## Installing Service Activity Monitoring

Service Activity Monitoring (SAM) facilitates the capture of analysis of service activity, including service response times, traffic patterns, auditing and more, by capturing events and storing information. This component consists of two parts:

- Agents (`sam-agent`) which gather and send monitoring data
- A monitoring Server (`sam-server`) which processes and stores the data

The sequence of how these are used is as follows:

1. The Agent creates events out of requests and replies from both the service consumer and provider side.
2. The events are first collected locally and then sent to the Monitoring Server periodically (so as not to disturb the normal message flow).
3. When the Monitoring Server receives events from the Agent, it optionally uses filters and/or handlers on those events and stores them into a database.

The Agent and Monitoring Server are made available as follows:

- The agent is by default installed as a feature in Talend ESB Container.
- The Monitoring Server needs to be installed into a Servlet Container (Tomcat) or an OSGi Container (Talend ESB Container) and needs access to a database.

Once Talend ESB installed, you can access the Service Activity Monitoring server in the `Talend-ESB-VA.B.C/add-ons/sam` directory to install it or directly install it as a feature within the Talend ESB Container.

## Prerequisites to the Monitoring Server

The Monitoring Server requires a database engine to store Events data. The supported databases are listed in [Compatible databases](#) on page 10.

The following are the script files corresponding to the databases, run them to configure the database properly. You can find the SQL scripts in the `Talend-ESB-VA.B.C/add-ons/sam/db` directory.

SQL script filename	Database
<code>create.sql</code>	Apache Derby
<code>create_mysql.sql</code>	MySQL
<code>create_oracle.sql</code>	Oracle
<code>create_sqlserver.sql</code>	SQL Server
<code>create_h2.sql</code>	H2 Database Engine
<code>create_db2.sql</code>	IBM DB2

### Procedure

1. Make sure your chosen database is installed properly and is accessible.
2. Login with a user which has CREATE permissions.
3. Run the init SQL script for the corresponding database from the table above.

**Note:** If the value of `db.recreate` property in the `logserver.properties` is set to `true`, the init SQL script will be executed automatically when starting the Monitoring Server. But this is not recommended for any database except Apache Derby running in embedded mode.

### Results

You will then find the EVENTS and EVENTS\_CUSTOMINFO table have been created in your database.

Now, you can install the Monitoring server either in standalone or as a Feature in the Talend ESB Container.

### Installing SAM as an OSGi Feature (Recommended)

Service Activity Monitoring server can be installed as a feature in Talend ESB Container, this way, it will be automatically launched when launching Talend ESB Container.

### Procedure

1. Run the Container.
2. Type in the following command to start the SAM server Feature: `tesb:start-sam`.
3. To stop the SAM server, type in the following command: `tesb:stop-sam`.

### As Web application (Alternative)

To install the Service Activity Monitoring (SAM) server as Web application, you need to:

- deploy it in an Servlet Container.
- configure the database connection information,

- configure the Monitoring endpoint in the Talend ESB Container.

For more information, see the procedures below.

## Deploy SAM into Apache Tomcat

### Procedure

1. Copy the `sam-server-war.war` file of the `Talend-ESB-VA.B.C/add-ons/sam` directory.
2. Paste it in the `<TomcatPath>/webapps` directory. The next time you will start Tomcat, the SAM Server application will automatically be deployed on the server.

To do it in command line, you can use the following command:

```
copy Talend-ESB-VA.B.C/add-ons/sam/sam-server-war.war <TomcatPath>\webapps
```

3. You can check whether the SAM Server has been successfully installed and is running by going to the following URL: `http://localhost:8080/sam-server-war/services/sam`

**Warning:** `http://localhost:8080/sam-server-war/services/sam` is only given as example. Depending on your configuration, you may have to replace `<localhost>` with the IP address of the Web server and `<8080>` with the actual port used for the application.

## Configure the database connection information

### Procedure

1. Open the `<TomcatPath>/conf/context.xml` file and add the following lines, according to your database server:

For H2:

```
<Resource name="jdbc/datasource" auth="Container"
type="javax.sql.DataSource" username="sa" password=""
driverClassName="org.h2.Driver"
url="jdbc:h2:tcp://localhost/~/test"
maxActive="8" maxIdle="30" maxWait="10000"/>
```

For Derby:

```
<Resource name="jdbc/datasource" auth="Container"
type="javax.sql.DataSource" username="test" password="test"
driverClassName="org.apache.derby.jdbc.ClientDriver"
url="jdbc:derby://localhost:1527/db;create=true"
maxActive="8" maxIdle="30" maxWait="10000"/>
```

For MySQL:

```
<Resource name="jdbc/datasource" auth="Container"
type="javax.sql.DataSource" username="test" password="test"
driverClassName="com.mysql.jdbc.Driver"
url="jdbc:mysql://localhost:3306/test"
maxActive="8" maxIdle="30" maxWait="10000"/>
```

For DB2:

```
<Resource name="jdbc/datasource" auth="Container"
type="javax.sql.DataSource" username="db2admin" password="qwaszx"
driverClassName="com.ibm.db2.jcc.DB2Driver"
url="jdbc:db2://localhost:50000/TEST"
maxActive="8" maxIdle="30" maxWait="10000"/>
```

For SQLServer:

```
<Resource name="jdbc/datasource" auth="Container"
type="javax.sql.DataSource" username="test" password="test"
driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
url="jdbc:sqlserver://localhost:1029;instanceName=sqlexpress;databaseName=Test"
maxActive="8" maxIdle="30" maxWait="10000"/>
```

For Oracle:

```
<Resource name="jdbc/datasource" auth="Container"
type="javax.sql.DataSource" username="xxx" password="xxx"
driverClassName="oracle.jdbc.pool.OracleDataSource"
url="jdbc:oracle:thin:@localhost:1521:XE"
maxActive="8" maxIdle="30" maxWait="10000"/>
```

2. Check the database connection information specified in the following file, and edit them if needed: `<TomcatPath>/webapps/sam-server-war/WEB-INF/logserver.properties`

### Configure the Monitoring endpoint in the Talend ESB Container

#### Procedure

1. In the Service Activity Monitoring Server page available at `http://localhost:8080/sam-server-war/services/sam`, click the **services** link.
2. In the services page, copy the Endpoint address, for example: `http://localhost:8080/sam-server-war/services/MonitoringServiceSOAP`
3. Go to the Talend ESB Container configuration directory: `Talend-ESB-VA.B.C/container/etc` to configure its SAM agent with the right Monitoring endpoint.
4. Edit the `org.talend.esb.sam.agent.cfg` file.
5. Replace the **service.url** field with the new Endpoint address.

### Installing Security Token Services

An informal description of a Security Token Service is that it is a web service that offers some or all of the following services (among others):

- It can issue a Security Token of some sort based on presented or configured credentials.
- It can say whether a given Security Token is valid or not.
- It can renew (extend the validity of) a given Security Token.
- It can cancel (remove the validity of) a given Security Token.
- It can transform a given Security Token into a Security Token of a different sort.

Offloading this functionality to another service greatly simplifies client and service provider functionality, as they can simply call the STS appropriately rather than have to handle the security processing logic themselves. For example, the WSDL of a service provider might state that a particular type of security token is required to access the service. Then:

1. A client of the service can ask an STS for a Security Token of that particular type, which is then sent to the service provider.
2. The service provider could choose to validate the received token locally, or dispatch the token to an STS for validation.

These are the two most common use cases of an STS.

## Running STS server as feature in container (Recommended)

### Procedure

1. To enable the STS server Feature in the Karaf container, execute the following command:  
`tesb:start-sts`
2. The STS service will start automatically. To make sure that it is running, execute the `list` command in the console and find two additional bundles: **Apache CXF STS Core** and **Talend :: ESB :: STS :: CONFIG** which enable the STS functionality.

**Note:** It is normal that the status of this (fragment) bundle is only Resolved and not Active, as the other one.

Sample keys distributed with the RentACar demo should not be used in production. For more information on how to replace the keys used, see the chapter "Using STS with the Talend Runtime" from the Talend ESB Infrastructure Services Configuration Guide.

For additional information about the usage of STS, please read the Talend ESB STS User Guide and the chapter "Using STS with the Talend Runtime" from the Talend ESB Infrastructure Services Configuration Guide.

### Running STS server as Web application (Alternative)

The STS war file is located at `add-ons/sts/SecurityTokenService.war` of the distributive directory and ready for deployment on Tomcat.

For the STS war file deployment, please use standard deployment instructions for your J2EE container (Deployment guide for Tomcat 8.0: <http://tomcat.apache.org/tomcat-8.0-doc/deployer-howto.html>) and the chapter "Using STS with the Talend Runtime" from the Talend ESB Infrastructure Services Configuration Guide.

**Note:** Sample keys distributed with the RentACar demo should not be used in production. For more information on how to replace the keys used, see the chapter "Using STS with the Talend Runtime" from the Talend ESB Infrastructure Services Configuration Guide.

## Enabling Syncope Login Module

Talend Identity and Access Management, based on Apache Syncope, is a system that allows you to manage the user access to all the Talend web applications. For Talend ESB, it is used to manage users and groups within the ESB Runtime environment. So Talend Identity and Access Management is mandatory to use authentication and authorization with Talend ESB. For more information about how to install and configure Talend Identity and Access Management, see [Installing and configuring Talend Identity and Access Management](#).

Once Talend Identity and Access Management is installed, you can enable the Syncope Login Module in Talend ESB by deploying the Syncope blueprint XML file to the `Talend-ESB-VA.B.C/container/deploy` folder.

A template of the Blueprint descriptor is shown below:

```
<?xml version="1.0" encoding="UTF-8"?>
<blueprint xmlns="http://www.osgi.org/xmlns/blueprint/v1.0.0"
  xmlns:jaas="http://karaf.apache.org/xmlns/jaas/v1.1.0"
  xmlns:ext="http://aries.apache.org/blueprint/xmlns/blueprint-ext/v1.0.0">

  <jaas:config name="karaf" rank="2">
    <jaas:module className="org.apache.karaf.jaas.modules.syncope.Syncope
LoginModule"
      flags="required">
      address=http://localhost:9080/syncope/rest
      admin.user=admin
      admin.password=password
      version=2
    </jaas:module>
  </jaas:config>

  <service interface="org.apache.karaf.jaas.modules.BackingEngineFactory">
    <bean class="org.apache.karaf.jaas.modules.syncope.SyncopeBackingEngineFacto
ry"/>
  </service>

</blueprint>
```

The `address` property needs to be configured to reference your Syncope server. For Syncope 2.x, it must be set to `..syncope/rest` instead of `..syncope/cxf` for Syncope 1.x.

The credentials to access Syncope should also be configured.

The `version` property is used to select Syncope backend version, 1 or 2.

To check if Syncope Login Module is installed successfully:

## Procedure

1. Get the list of available Jaas realms.

```
karaf@trun> jaas:realm-list
Index | Realm Name | Login Module Class Name
-----+-----+-----
1     | karaf      | org.apache.karaf.jaas.modules.syncope.SyncopeLoginModule
```

2. Select Jaas Realm using Jaas realm index from previous step.

```
karaf@trun> jaas:realm-manage --index 1
```

3. Check Syncope users list.

```
karaf@trun(> jaas:user-list
```

# Upgrading your Talend products

## Backing up the environment

Before you start migrating your Talend solutions, make sure your environment is correctly backed up.

The environment backup process includes the following mandatory steps:

**Note:** These steps usually need to be completed in the following order.

1. Saving the local projects, see [Saving the local projects](#) on page 31.

### Saving the local projects

#### Procedure

1. Launch the Studio.
2. Click the  icon and export your local projects to an archive file.

## Upgrading the Talend projects in Talend Studio

### Importing your local projects

#### Procedure

1. Launch the new Talend Studio you have just installed.
2. In the login windows, select **Import** then import the archive file containing your local projects.

#### Results

The local projects are displayed in the **Project** list and appear on the Talend Studio **Repository** view.

For more information on how to export local projects to an archive file, see [Saving the local projects](#) on page 31.

# Appendices

## Cheatsheet: start and stop commands for Talend server modules

The following table sums up the commands or executables you can use to start and stop Talend server modules.

Talend server module	Start command/executable	Stop command/executable
Apache Tomcat service for Talend Administration Center	<code>net start &lt;TomcatService Name&gt;</code>	<code>net stop &lt;TomcatService Name&gt;</code>
JBoss service for Talend Administration Center	<code>net start "JBoss"</code>	<code>net stop "JBoss"</code>
Talend Runtime	<code>&lt;TalendRuntimePath&gt;\bin\trun.bat</code>	<b>Ctrl+C</b>
Talend Artifact Repository	<code>&lt;ArtifactRepositoryPath&gt;\bin\nexus.exe /run by default</code> or <code>nexus.bat console for Nexus 2</code>	<b>Ctrl+C</b>
Talend JobServer	<code>&lt;JobServerPath&gt;\start_rs.bat</code>	<code>&lt;JobServerPath&gt;\stop_rs.bat</code>
Talend Log Server	<code>&lt;LogServerPath&gt;\start_logserver.bat</code>	<code>&lt;LogServerPath&gt;\stop_logserver.bat</code>
Talend ESB	<code>tesb:start-all</code>	<code>tesb:stop-all</code>
Event Logging	<code>tesb:start-el-default</code>	<code>tesb:stop-el-default</code>
Talend Runtime Container	<code>&lt;TalendESBPath&gt;\container\bin\trun.bat</code>	<b>Ctrl+C</b>
Apache ActiveMQ	In Talend Runtime Container: <code>feature:install activemq</code>	<b>Ctrl+C</b>
Service Locator	<code>tesb:start-locator</code>	<code>tesb:stop-locator</code>
Service Activity Monitoring	<code>tesb:start-sam</code>	<code>tesb:stop-sam</code>
Security Token Service	<code>tesb:start-sts</code>	<code>tesb:stop-sts</code>

1: The command/executable to use depends whether you installed your Talend product using manual installation or using automatic installation.

## Supported Third-Party System/Database/Business Application Versions

This document provides the information about the versions of the systems or databases or business applications supported by Talend Studio.

### Supported systems, databases and business applications by Talend components

The access to these systems, databases and business applications varies depending on the Studio you are using.

Systems/Databases	Versions	OS	Note
Access	2003 2007	Windows	When working with Java 8, only the General collation mode is supported.
Amazon Aurora	Amazon Aurora MySQL edition v5 (MySQL 5.6/5.7)		
Amazon RDS for Microsoft SQL Server	N/A		
Amazon Redshift	Initial release of Amazon Redshift	N/A	
AS/400	V6R1 to V7R2 (Deprecated versions: V5R2 to V5R4/ V5R3 to V6R1)	N/A	
Bonita	6.5.2 7.2.4 (Deprecated versions: 5.2.3/5.3.1/5.6.1/5.10.1)	N/A	
Cassandra	3.0/3.1/3.2/3.3/3.4 (Deprecated versions: 1.1.2/1.2.2/2.0.0)	Windows + Linux	
CouchBase	5.x 6.0 (Deprecated versions: 2.0/4.x)	Windows	
CouchDB	1.0.2	Windows	
DB Generic	ODBC	Windows	
DynamoDB	No specified version	N/A	
Elasticsearch	2.3.x 5.6.x (Deprecated version: 1.7.x)	N/A	

Systems/Databases	Versions	OS	Note
EXASolution	6.0 and earlier	Windows	
Excel	N/A	N/A	
eXist-db	1.4.0	N/A	
FireBird	2.1	Windows + Linux	
FTP	N/A		
Greenplum	4.3.x 5.x (Deprecated version: 4.2.1.0)	Windows (client only) + Linux	
Hbase	N/A		
HDFS	N/A		
Hive	N/A		
HSQldb	1.8.0	N/A	
IBM DB2 and IBM DB2 Z/OS	10.5 11.1 (Deprecated version: 10.1)	Windows + Linux	
Impala	N/A		
Informix	11.50	Windows + Linux	
Ingres	10.2 11 (Deprecated version: 9.2)	Windows + Linux	
Interbase	(Deprecated versions: 7 and above)		
JavaDB	6	Windows + Linux	
JDBC	N/A		
JSON	N/A		
Kafka	0.8.2.0 0.9.0.1 0.10.0.1 1.1.0	Windows + Linux	The Kerberos kinit option and the Kerberos keytab option are both supported by Talend Studio. For information about the security options supported by the Kafka components, see <a href="#">Talend Help Center</a> .

Systems/Databases	Versions	OS	Note
LDAP	No version limitation	Windows + Linux	
MapRDB	N/A		
MarkLogic	V9	N/A	
MaxDB	7.6	N/A	
Microsoft Azure Blob Storage			
Microsoft Azure SQL Data Warehouse			
Microsoft AX	Dynamics AX 4.0 Dynamics AX 2012	N/A	
Microsoft CRM	2011 2015 2016	N/A	
Microsoft CRM Online	2011 2016	N/A	
Microsoft SQL Server	No version limitation	Windows + Linux	Microsoft SQL Server support is provided through the Microsoft SQL JDBC driver. For more information, see the <a href="#">Download Microsoft JDBC Driver for SQL Server</a> page.
MongoDB	3.4.x 3.6.x 4.0.x (Deprecated versions: 2.5.x/2.6.x/3.0.x/3.2.x)	Windows + Linux	
MySQL	MySQL 5.x MySQL 8.x MariaDB Google Cloud SQL (Deprecated version: MySQL 4)	Windows + Linux	
MOM	N/A		
Neo4j	1.x.x 2.x.x/2.2.x/2.3 3.2.x	Linux	

Systems/Databases	Versions	OS	Note
Netezza	7.0.x 7.1.x 7.2.x	Windows + Linux	
NetSuite	2018 (Deprecated versions: 2014/2016)	Windows + Linux	
OleDb	2000 2003 2005 2007 2010	N/A	
Oracle	Oracle 12c Release 1 Oracle 12c Release 2 Oracle 18c (Deprecated versions: Oracle 8i/Oracle 9i/Oracle 10g/Oracle 11g)	Windows + Linux	
ParAccel	3.1 3.5	N/A	
PostgreSQL	Prior to 9/9.x 9.x 10.x Google Cloud SQL	Windows + Linux	
PostgresPlus	Prior to 9/9.x 9.x	Windows + Linux	
Red Hat BRMS	6.1	Windows + Linux	
REST Service	N/A	Windows + Linux	
Sage X3	N/A		
Salesforce	V44 and earlier	Windows + Linux	
SAP	4.6		
SAP Business Suite (ERP)	Netweaver: From 7.3 to 7.5 ERP6.0, From EhP6 to EhP8	Windows	
SAP Business Warehouse (BW)	Netweaver: From 7.31 to 7.5	Windows	
SAP HANA	1.0 2.x	Windows	Supported through SAP JDBC driver
SAS	9.1 9.2	Windows + Linux	

Systems/Databases	Versions	OS	Note
SOAP Service	N/A		
SQLite	3.6.7	Windows + Linux	
Sqoop	N/A		
SugarCRM	5.2	Windows + Linux	
Sybase	12.5 12.7 15.2 15.5 15.7 16.0	Windows + Linux	
SybaseIQ	12.5 12.7 15.2 16.0	Windows + Linux	
Teradata	12 13 14 15 16	Windows + Linux	
VectorWise	2	Windows + Linux	
Vertica	9.0.x (Deprecated versions: 3/3.5/4/4.1/5.0/5.1/6.0/6.1.x/7.0.x/7.1.x)	Windows + Linux	
VtigerCRM	Vtiger 5.0 Vtiger 5.1	N/A	

## Messaging brokers supported by Talend messaging components

Component	Supported messaging brokers / standards
tJMSInput tJMSOutput	JMS standard 1.1
tMicrosoftMQInput tMicrosoftMQOutput	MicrosoftMQ 3.0
tMomInput tMomOutput	JBoss Messaging 1.4.4 WebSphere MQ 8.0 ActiveMQ 5.13.2