



Talend Open Studio for ESB Installation and Upgrade Guide for Linux

6.5.1

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Adapted for 6.5.1. Supersedes previous releases.

Publication date: January 18, 2018

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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 this page
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	Recommended alloc. memory	Note
Talend Studio	Client	3GB minimum, 4 GB recommended	
Talend Runtime	Server	2GB minimum, 4 GB recommended.	Memory requirements depend on the executed processes.

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

Ulimit settings on Unix systems

To make the most out of the Talend server modules and improve performance on Unix systems, you should set the limit of system resources (ulimit) to unlimited according to the Unix system used.

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.

The information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

Talend Studio

Support type	Operating System (64-bit)	
Recommended	Linux	Ubuntu 16.04 LTS
	Windows	Microsoft Windows Professional 7
Supported	Linux	Ubuntu 17.04
		Ubuntu 14.04 LTS
		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 6.8
		Red Hat Enterprise Linux Server/CentOS 6.7
	Windows	Microsoft Windows 10
		Microsoft Windows Server 2016 RTM
		Microsoft Windows Server 2012 RTM
	Mac	Apple macOS 10.13/High Sierra

Support type	Operating System (64-bit)	
		Apple macOS 10.12/Sierra
		Apple OS X 10.11/El Capitan
Deprecated	Windows	Microsoft Windows 8.1

Talend Server modules

The server modules include:

- Talend ESB Servers
- Talend Runtime

Support type	Operating System		Processor
Recommended	Linux	Red Hat Enterprise Linux Server/CentOS 7.3	64 bits
	Windows	Microsoft Windows Server 2012 R2	64 bits
Supported	Linux	Ubuntu 17.04	64 bits
		Ubuntu 16.04 LTS	64 bits
		Ubuntu 14.04 LTS	64 bits
		Ubuntu 12.04 LTS	64 bits
		Red Hat Enterprise Linux Server/CentOS 7.2	64 bits
		Red Hat Enterprise Linux Server/CentOS 7.1	64 bits
		Red Hat Enterprise Linux Server/CentOS 6.9	64 bits

Support type	Operating System		Processor
		Red Hat Enterprise Linux Server/CentOS 6.8	64 bits
		Red Hat Enterprise Linux Server/CentOS 6.7	64 bits
		SUSE SLES 12	64 bits
		SUSE SLES 11	64 bits
	Windows	Microsoft Windows Server 2016	64 bits
	Microsoft Windows Server 2012	64 bits Except for Talend Data Preparation.	
Deprecated	Unix	Solaris (SunOS) 11	x86/64 bits Only supported for Talend Administration Center, Talend CommandLine, Talend JobServer, Talend ESB and Talend Runtime.
			Sparc/64 bits Only supported for Talend ESB and Talend Runtime.

Support type	Operating System		Processor
		Solaris (SunOS) 10 At least patch level 9 should be installed.	x86/64 bits Only supported for Talend Administration Center, Talend CommandLine, Talend JobServer, Talend ESB and Talend Runtime.
		Sparc/64 bits Only supported for Talend ESB and Talend Runtime.	
		AIX 7.1	64 bits (IBM Java 8 only) Only supported for Talend CommandLine, Talend JobServer, Talend ESB and Talend Runtime.

Compatible Java Environment

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.

In the following documentation:

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- 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.

The information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

















Studio Java environments

Support type	JRE Version	Studio JDK Compiler Compliance Level	Note
Recommended	Oracle 8	1.8 (default)	
Supported	Oracle 8	1.7 (with restrictions)	Only supported for Big Data distributions requiring JDK 1.7. Routes are not supported by Talend Studio JDK Compiler Compliance Level 1.7.

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 Distribution	Talend Server Application	Comment/Limitation
Oracle 7					Compatible with Java 1.7 only		Compatible with Talend Studio JDK Compiler Compliance Level 1.7 only
Oracle 8	 (R)	 (R)	 (R)	 (R)	Compatible with Java 1.8	 (R)	Compatible with Talend Studio JDK Compiler Compliance Level 1.7 (default/recommended) or 1.8
IBM 8							Only for AIX and SUSE SLES (deprecated)

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.

The information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

Supported Apache software

Software	Notes	More information
Apache Karaf 4.1.3	Service release upgrade.	Release notes
Apache CXF 3.1.14	Service release upgrade.	Release notes
Apache Camel 2.17.3	Minor release upgrade.	Release notes
Apache ActiveMQ 5.14.1	Minor release upgrade.	Release notes
Apache Syncope 1.2.9	Minor release upgrade.	Release notes

Supported Messaging Brokers for SOAP/JMS

Software	More information
Apache ActiveMQ 5.14.1	Release notes
IBM WebSphere MQ 7.5	Release notes

Compatible web application servers

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

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- 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.

The information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

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.

The information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

Talend ESB

Support type	Runtime Containers	Note
Recommended	Talend Runtime (Apache Karaf) 6.5	Except for Talend Identity Management, where Apache Tomcat 8.0 is recommended.
	Apache Tomcat 8.0	Only for Talend Identity Management.
Supported	Apache Tomcat 8.0	Only for CXF Services, Camel Routes, Service Activity Monitoring, Talend Identity Management and Security Token Service.
Deprecated	Apache Tomcat 7	Only for CXF Services, Camel Routes, Service Activity Monitoring, Talend Identity Management and Security Token Service.

Support type	Runtime Containers	Note
	JBoss EAP 6.4	Only for CXF Services and Camel Routes.
	Weblogic 12c	Only for CXF Services and Camel Routes.
	IBM Websphere 8.5	Only for CXF Services and Camel Routes.

Compatible databases

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

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- 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.

The information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

ESB Service Registry/Authorization/Talend Identity Management/Event Logging

Support type	Database	Note
Recommended	MySQL 5.7	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
	Oracle 12c	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
Supported	Azure SQL	

Support type	Database	Note
	Derby DB > 10.8	
	MS SQL Server 2016	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
	MS SQL Server 2014	
	MS SQL Server 2012 (SP2)	
	MySQL 5.6	Only InnoDB table type is supported.
	Oracle 11g	
	PostgreSQL 9.6	The corresponding Google Cloud SQL is supported.
	PostgreSQL 9.5	The corresponding Amazon Relational Database Service (Amazon RDS) is supported.
	PostgreSQL 9.4	PostgreSQL JDBC driver 9.4 is used

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.

Additionally, add the following websites to the whitelist:

- update.talend.com on port 443
- www.bonita.com
- talend-update.talend.com on port 443
- www.talend.com on port 443
- talendforge.org on ports 80 and 443
- community.talend.com on port 443
- help.talend.com on port 443

In this table:

- **Port:** a TCP/IP port or a range of ports.
- **Direction:** In (Inbound); Out (Outbound) - related to the communication direction (for example a HTTP Port for a CXF Route or Service we listen on request) will be an 'Inbound' port. For example, a browser which sends a request to port 7080 will have this port as 'Outbound' port in this list.
- **Usage:** which part of the Product component uses this port (for example 1099 is used by the JMX Monitoring component of Talend Runtime).
- **Config:** the file or location where the value can be changed.
- **Remark:** anything which is important to mention additionally.

Talend Studio ports

Port	Direction	Usage	Config
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	Config (./etc)	Remark
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	

Port	Direction	Usage	Config (./etc)	Remark
1099	IN	JMX - RMI Registry Port	org.apache.kar af.management. cfg	
44444	IN	JMX - RMI Registry Port	org.apache.kar af.management. cfg	
8101	IN	Apache Karaf - SSH Port	org.apache.kar af.shell.cfg	
61616	IN	Messaging - ActiveMQ Broker Port	system.propert ies	
2181	IN OUT	ESB Locator - Apache Zookeeper Port	Server: org.talend.esb .locator.serv r.cfg Client: org.talend.esb .locator.cfg	

Port	Direction	Usage	Config (./etc)	Remark
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	

Port	Direction	Usage	Config (./etc)	Remark
(*)	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, usually `/usr/lib/jvm/java-x-oracle`.
2. Open a terminal.
3. Use the export command to set the JAVA_HOME and Path variables.

For example:

```
export JAVA_HOME=/usr/lib/jvm/jre1.8.0_65
export PATH=$JAVA_HOME/bin:$PATH
```

4. Add these lines at the end of the global profiles in the `/etc/profile` file or in the user profiles in the `~/.profile` file.

After changing one of these files you have to log on again.

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.

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-linux-gtk-x86_64.ini` file.
2. Edit the memory attributes. For example:

```
-vmargs -Xms40m -Xmx500m -XX:MaxMetaspaceSize=256m
```

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

Launching your Talend Studio

Procedure

Double-click the `TOS_ESB-linux-gtk-x86_64` executable to launch your Talend Studio.

You can also launch your Talend Studio from the terminal using the `TOS_ESB-linux-gtk-x86.sh` file.

If needed, add the execution rights to it using the following command:

```
chmod +x TOS_ESB-linux-gtk-x86.sh
```

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.

Identify required external modules

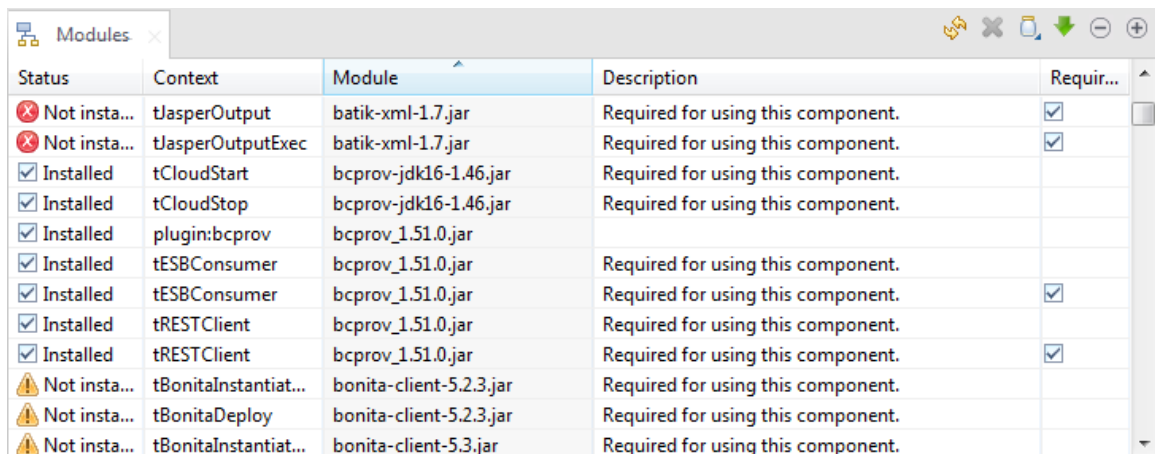
When you launch Talend Studio or select **Help > Install Additional Packages** in the Talend Studio menu, if any external modules are found missing for any features, the **Additional Talend packages** wizard opens, showing the **Optional** and **Required third-party libraries** check boxes. Make sure these check boxes are selected and click **Finish** to open the **Download external modules** dialog box, which lists all the available external modules, displays the license terms under which the external modules are provided, and lets you install all the modules at a single click. For more information, see [Install external modules](#) on page 25.

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 to use the components embedded in Talend Studio, including those Java libraries and drivers that you must install to get the relevant components or Metadata connection working.

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 insta...	tJasperOutput	batik-xml-1.7.jar	Required for using this component.	<input checked="" type="checkbox"/>
Not insta...	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.	
Installed	tCloudStop	bcprov-jdk16-1.46.jar	Required for using this component.	
Installed	plugin:bcprov	bcprov_1.51.0.jar		
Installed	tESBConsumer	bcprov_1.51.0.jar	Required for using this component.	
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 checked="" type="checkbox"/>
Installed	tRESTClient	bcprov_1.51.0.jar	Required for using this component.	<input checked="" type="checkbox"/>
Not insta...	tBonitaInstantiat...	bonita-client-5.2.3.jar	Required for using this component.	
Not insta...	tBonitaDeploy	bonita-client-5.2.3.jar	Required for using this component.	
Not insta...	tBonitaInstantiat...	bonita-client-5.2.3.jar	Required for using this component.	


The table below describes the information presented in the **Modules** view.

Column	Description
Status	<p>points out if a module is installed or not installed on your system.</p> <p>The  icon indicates that the module is not necessarily required for the corresponding component or Metadata connection listed in the Context column.</p> <p>The  icon indicates that the module is absolutely required for the corresponding component or Metadata connection.</p>
Context	<p>lists the name of Talend component or Metadata connection using the module. If this column is empty, the module is then required for the general use of Talend Studio.</p> <p>This column lists any external libraries added to the routines you create and save in your Talend Studio library folder. For more information, see the Talend Studio User Guide.</p>

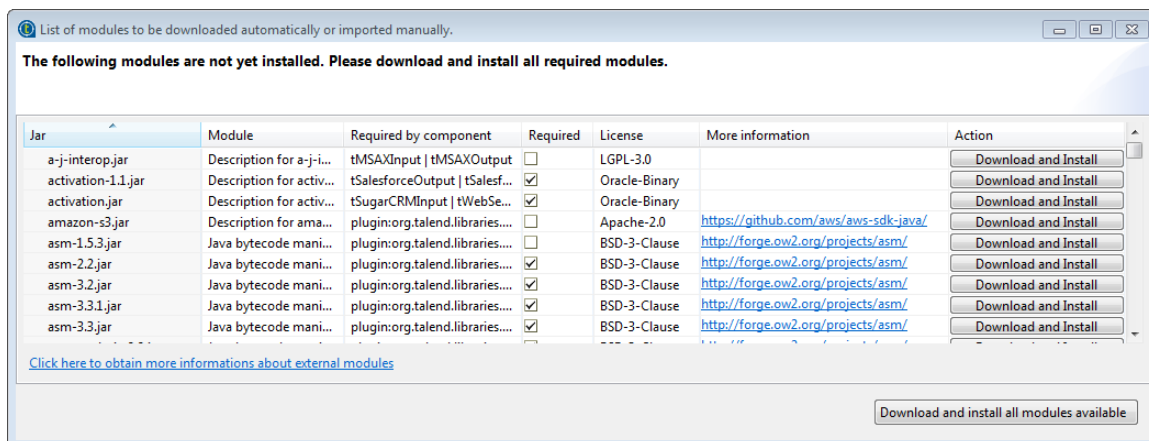
Column	Description
Module	lists the module exact name.
Description	explains why the module/library is required.
Required	the selected check box indicates that the module is required.

In addition to the **Modules** view, Talend Studio provides a mechanism that enables you to easily identify, download and install most of the required third-party modules from the Talend website and directs you to valid websites for the rest.

A Jar installation wizard appears whenever any required external module is found missing for any feature in Talend Studio, including when you:

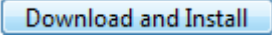



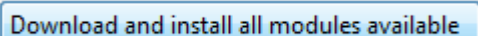

- drop a component from the **Palette** if one or more external modules required for that component to work are missing in Talend Studio, or
- click the **Check** button in a Metadata connection setup wizard in Talend Studio if one or more external modules required for the connection are missing in Talend Studio, or
- 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 Talend 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, or
- click the  button in the **Modules** view.

Note: When you click this button, the wizard that appears will list all the required external modules that are not integrated in Talend Studio.



The table below describes the information presented in the wizard.

Item	Description
Jar	The file name of the external module.
Module	A short description about the nature of the module.

Item	Description
Required by component	Lists the components that require the external module.
Required	The selected check box indicates that the module is required.
License	The license under which the module is provided.
More information	Provides the URL of the valid website where you can find more information about this module and download the module manually.
Action	<p>: Click to open the Download external modules dialog box to download and install the module, which is available on the Talend website;</p> <p> : Click the link to open the valid website to download the module, which is not available on the Talend website, and then click the jar button to import the downloaded module into your Talend Studio;</p> <p>: You need to find and download the module yourself and click the jar button to import it into your Talend Studio.</p>
	Click to open the Download external modules dialog box to download and install all the required modules that are available on the Talend website.
Do not show again	<p>Select to prevent the wizard from appearing again unless you click the  button in the Modules tab view.</p> <p>This check box shows only when you drop a component, set up a connection, or guess the schema of a database, that requires an external module, or click the Install button on the Component tab of a component that requires an external module.</p>
Click here to obtain more information about external modules	Click to go to Talend online documentation on installing third-party modules.

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

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

Install external modules

Downloading and installing modules in Talend Studio

Before you begin



Warning:

If you are working behind a network proxy, make sure you have correctly set up your proxy before you can download and install external modules in your Talend Studio.

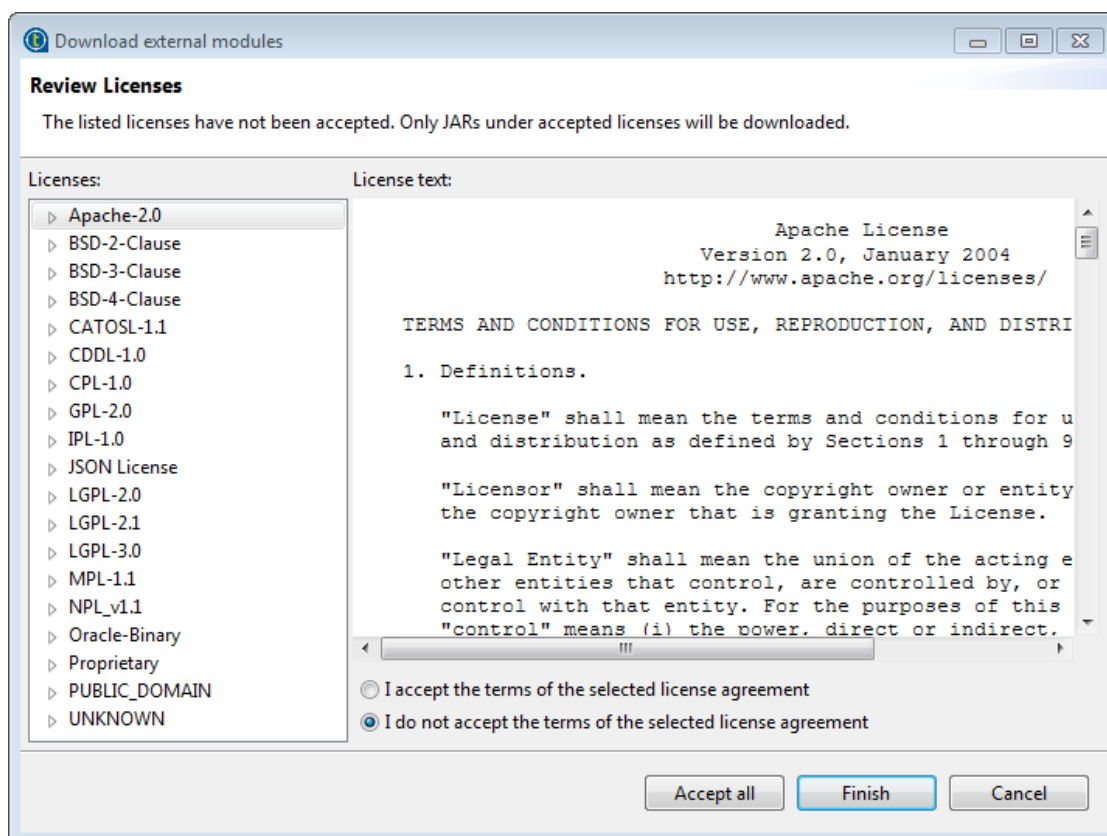
To access the proxy settings, select **Window > Preferences** from the menu to open the **Preferences** window, then expand the **General** node and click **Network Connections**.

Add the web site <http://talend-update.talend.com> and the port 443 to the whitelist.

Procedure

1. 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, or select **Help > Install Additional Packages** from the menu to open the **Additional Talend Packages** wizard. From this wizard, make sure the **Optional third-party libraries** and **Required third-party libraries** check boxes are selected and click **Finish**. The **Download external modules** dialog box opens.


Note: This **Additional Talend Packages** wizard appears automatically when you launch Talend Studio if any additional packages, including external modules, need to be installed for any features to function in Talend Studio.



2. 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 start the download and installation process. To download and install all external modules provided under all the listed licenses, click the **Accept all** button to start the download and installation process.

Upon installation of the chosen external module or modules, a dialog box appears to notify you about the number of modules successfully installed and/or about the modules failed to install, if any.

To install manually an external module you already have in your local file system, do the following:

- a) Click the  button in the upper right corner of the **Modules** view or in Jar installation wizard to browse your local file system. If the **Modules** view is not shown under your design workspace, go to **Window > Show View... > Talend** and then select **Modules** from the list.
- b) 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. The dialog box closes and the selected module is installed in the library folder of the current Talend Studio.

You can now use the component or Metadata connection dependant on this module in any of your Job designs.

Installing modules in Talend CommandLine

If you use Talend Studio and Talend CommandLine on different machines, you need to retrieve the downloaded .jar files and add them in Talend CommandLine.

Procedure

1. Make sure Talend CommandLine is not started, then download the external modules from the **Modules** view as explained in the previous procedure.

2. Copy the downloaded .jar files from `<StudioPath>/configuration/.m2` and paste them into `<CommandLinePath>/configuration/.m2`, where `<StudioPath>` and `<CommandLinePath>` are the installation directories of Talend Studio and Talend CommandLine respectively. Since these folders are hidden, make sure your system is configured to show hidden files and folders.

The `<CommandLinePath>/configuration/.m2` folder is not created by default. It is created the first time you start the Talend CommandLine application.

3. Restart Talend CommandLine.

You can now use the component or Metadata connection dependent on these modules.

Installing manually external modules downloaded from external Web sites for Talend Web applications

Some modules 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.

- For Talend Studio, the downloaded modules must be placed in the following folder:
`<StudioPath>/configuration/.m2`

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 27
- [Installing Apache ActiveMQ](#) on page 29
- [Accessing Service Locator](#) on page 30
- [Installing Service Activity Monitoring](#) on page 31
- [Installing Security Token Services](#) on page 35

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` 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 following command: `./activemq console`

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-broker`

It creates a default broker named **amq-broker** and its configuration file: `<TalendRuntimePath>/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/active-mqweb/>

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: `<TalendRuntimePath>/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/active-mqweb/>

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)

Before you begin

Make sure you have the relevant permissions to execute the locator startup scripts:

```
chmod a+x zookeeper/bin/*.sh
```

Procedure

1. Open a command window.
2. Browse to the Talend-ESB-VA.B.C/zookeeper/bin directory.
3. Run the following command:
zkServer.sh 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 31.

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
tickTime	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
dataDir	the location to store the in-memory database snapshots and, unless specified otherwise, the transaction log of updates to the database
clientPort	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 15.

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:

```
cp 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.

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 36 .

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 36.

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	sh <TomcatPath>/bin/startup.sh	sh <TomcatPath>/bin/shutdown.sh
JBoss service for Talend Administration Center	sh <JBossPath>/bin/run.sh	sh <JBossPath>/bin/shutdown.sh
Talend Runtime	<TalendRuntimePath>/bin/trun	Ctrl+C
Talend Artifact Repository	nexus.sh console	Ctrl+C
Talend JobServer	<JobServerPath>/start_rs.sh	<JobServerPath>/stop_rs.sh
Talend Log Server	sh <LogServerPath>/start_logserver.sh	sh <LogServerPath>/stop_logserver.sh
Talend ESB	tesb:start-all	tesb:stop-all
Event Logging	tesb:start-el-default	tesb:stop-el-default
Talend Runtime Container	<TalendESBPath>/container/bin/trun	Ctrl+C
Apache ActiveMQ	In Talend Runtime Container: feature:install activemq	Ctrl+C
Service Locator	tesb:start-locator	tesb:stop-locator
Service Activity Monitoring	tesb:start-sam	tesb:stop-sam
Security Token Service	tesb:start-sts	tesb:stop-sts

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 information contained in the following table is applicable for the 6.5.1 version of your Talend product at the time of its release. For updated information on the latest supported software or databases, see the online version of this page on [Talend Help Center](#).

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

1. The test information is not available yet.
2. When working with Java 8, only the General collation mode is supported.
3. For information about the security options supported by the Kafka components, see [Talend Help Center](#).
4. No new feature introduced by MS SQL Server 2014/2016 is supported.

Systems/Databases	Versions	OS	Available with...
Alfresco	2.1	N/A ¹	All Talend products
Amazon Redshift	Initial release of Amazon Redshift	N/A ¹	All Talend products
AS/400	V5R2 to V5R4 V5R3 to V6R1 V6R1 to V7R2	N/A ¹	All Talend products
Access ²	2003 2007	Windows	Talend products with Data Integration (DI), Master Data Management (MDM), Enterprise Service Bus (ESB) or Big Data
Bonita	5.2.3 5.3.1 5.6.1 5.10.1 6.5.2 7.2.4	N/A ¹	All Talend products

Systems/Databases	Versions	OS	Available with...
Cassandra	2.0.0 3.0/3.1/3.2/3.3/3.4 (Deprecated versions: 1.1.2/1.2.2)	Windows + Linux	Talend products with Big Data
CouchBase	4.X 5.X	Windows	Talend products with Big Data
CouchDB	1.0.2	Windows	Talend products with Big Data
DB Generic	ODBC	Windows	All Talend products
DB2	10.5 10.1	Windows + Linux	Talend components with all products. Talend products with MDM or ESB.
DynamoDB	No specified version	N/A ¹	Talend products with Big Data
EXASolution	6.0 and earlier	Windows	Talend products with DI, MDM, ESB or Big Data
Elasticsearch	Until 2.3.X	N/A ¹	Talend products with Big Data
FireBird	2.1	Windows + Linux	Talend products with DI, MDM, ESB or Big Data
Greenplum	4.2.1.0	Windows (client only) + Linux	Talend products with DI, MDM, ESB or Big Data
HSQldb	1.8.0	N/A ¹	Talend products with DI, MDM, ESB or Big Data
Informix	11.50	Windows + Linux	All Talend products
Ingres	9.2	Windows + Linux	All Talend products
Interbase	7 and above	N/A ¹	Talend products with DI, MDM, ESB or Big Data

Systems/Databases	Versions	OS	Available with...
JavaDB	6	Windows + Linux	Talend products with DI, MDM, ESB or Big Data
Kafka	0.8.2.0 0.9.0.1 ³ 0.10.0.1 ³	Windows + Linux	Talend products with Big Data
LDAP	No version limitation	Windows + Linux	All Talend products
Microsoft AX	Dynamics AX 4.0 Dynamics AX 2012	N/A ¹	All Talend products
Microsoft CRM	4.0 2011 2013 2015 2016	N/A ¹	All Talend products
MS SQL Server	2000 2003 2005 2008 2012 2014 ⁴ 2016 ⁴	Windows + Linux	All Talend products
MarkLogic	V9	N/A ¹	Talend products with Big Data
MaxDB	7.6	N/A ¹	Talend products with DI, MDM, ESB or Big Data
MongoDB	2.6.X 3.0.X 3.2.X 3.5.X (Deprecated version: 2.5.X)	Windows + Linux	Talend products with Big Data

Systems/Databases	Versions	OS	Available with...
MySQL	Mysql4 Mysql5 MariaDB	Windows + Linux	All Talend products
Netezza	7.2	Windows + Linux	All Talend products
NetSuite	2014 2016	Windows + Linux	All Talend products
Neo4j	1.X.X 2.X.X/2.2.X/2.3 3.2.X	Linux	Talend products with Big Data
OleDb	2000 2003 2005 2007 2010	N/A ¹	All Talend products
Oracle	Oracle 8i/9i/10g/11g/11g (11.6)/12c	Windows + Linux	All Talend products
ParAccel	3.1 3.5	N/A ¹	Talend products with DI, MDM, ESB or Big Data
PostgreSQL	9.X	Windows + Linux	All Talend products
PostgresPlus	9.X	Windows + Linux	Talend products with DI, MDM, ESB or Big Data
Red Hat BRMS	6.1	Windows + Linux	Talend products with DI, MDM, ESB or Big Data
Salesforce	V39 and earlier	Windows + Linux	All Talend products
SAP	ECC 6.0 EhP6	Windows	All Talend products
SAP BW	7.3 7.4 7.5	Windows	All Talend products

Systems/Databases	Versions	OS	Available with...
SAP Hana	1.0	Windows	All Talend products
SAS	9.1 9.2	Windows + Linux	Talend products with DI, MDM, ESB or Big Data
SQLite	3.6.7	Windows + Linux	All Talend products
Sybase	12.5 12.7 15.2 15.5 15.7 16.0	Windows + Linux	All Talend products
SybaseIQ	12.5 12.7 15.2 16.0	Windows + Linux	All Talend products
Teradata	12 13 14 15	Windows + Linux	All Talend products
VectorWise	2	Windows + Linux	Talend products with DI, MDM, ESB or Big Data
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	Talend products with DI, MDM, ESB or Big Data
VtigerCRM	Vtiger 5.0 Vtiger 5.1	N/A ¹	All Talend products