



Talend Open Studio for ESB

Installation and Upgrade Guide for
Linux

6.4.1

Adapted for v6.4.1. Supersedes previous releases.

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Preface

1. General information

1.1. Purpose

This Installation Guide explains how to install configure and upgrade the *Talend* modules and related applications. For detailed explanation on how to use and fine-tune the *Talend* applications, please refer to the appropriate Administrator or User Guides of the *Talend* solutions.

Information presented in this document applies to *Talend* products **6.4.1**.

1.2. Audience



This guide is for administrators and users of the *Talend* products.



The layout of GUI screens provided in this document may vary slightly from your actual GUI.

1.3. Typographical conventions

This guide uses the following typographical conventions:

- text in **bold**: window and dialog box buttons and fields, keyboard keys, menus, and menu options,
- text in **[bold]**: window, wizard, and dialog box titles,
- text in *courier*: system parameters typed in by the user,
- text in *italics*: file, schema, column, row, and variable names,
- The  icon indicates an item that provides additional information about an important point. It is also used to add comments related to a table or a figure,
- The  icon indicates a message that gives information about the execution requirements or recommendation type. It is also used to refer to situations or information the end-user needs to be aware of or pay special attention to.
- Any command is highlighted with a grey background or code typeface.

2. Feedback and Support

Your feedback is valuable. Do not hesitate to give your input, make suggestions or requests regarding this documentation or product and find support from the **Talend** team, on **Talend Community** at:

<https://community.talend.com/>



Chapter 1. Before installing your Talend product

These pages present and list everything you need to know before installing your *Talend* product:

- *Preparing your installation*
- *Hardware requirements*
- *Software requirements*

1.1. Preparing your installation

These pages provide information about:

- [Files to download](#)
- [Community and Support](#)

1.1.1. Files to download

Here are the files you need to download to install your *Talend* product:

- the software packages. For more information, see [Software package](#).

1.1.1.1. Software package

This page details the software package 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.

Table 1.1. Manual installation software package

Zip/jar file name	Description
Talend-Studio-YYYYMMDD_HHmm-VA.B.C.zip	Studio IDE (GUI)
Talend-Runtime-VA.B.C-YYYYMMDDHHmm.zip	Talend Runtime: OSGi Container including JobServer. Talend Runtime is a standalone equivalent to the Talend ESB OSGi Container (<i>container</i> folder) of <i>Talend ESB</i> .
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 <i>container</i> folder) and provides additional parts like examples, standalone, Tomcat deployment relevant parts and other additional parts primarily used by Java Developers.

To download it, go to [this page](#).

1.1.2. 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.

1.2. Hardware requirements

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

Memory 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.

Table 1.2. Memory usage

Product	Client/Server	Recommended alloc. memory
<i>Studio</i>	Client	3 GB minimum, 4 GB recommended
<i>Talend Runtime</i>	Server	2 GB minimum, 4 GB recommended ¹

1. Memory requirements depend on the executed processes.

The same requirements also apply for disk usage. It also depends on your projects but can be summarized as:

Table 1.3. Disk usage

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

1.3. Software requirements

These pages contain the exhaustive list of the databases and third party software that are compatible and supported with the 6.4.1 version of your *Talend* product.

- [Compatible Operating Systems](#)
- [Java](#)
- [Compatible Apache software and JMS Brokers for Talend Open Studio for ESB](#)
- [Compatible web application servers and containers](#)
- [Compatible Databases](#)
- [Port information](#)
- [Installing the XULRunner package](#)

1.3.1. Compatible Operating Systems



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 6.4.1 version of your Talend product at the time of its release. For updated information on the latest supported versions of the third-party systems, see the online version of this page on [Talend Help Center](#).

These tables provide a summary of the supported Operating Systems.

Table 1.4. 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 8.1
		Microsoft Windows Server 2016 RTM
		Microsoft Windows Server 2012 RTM
	Mac	OS X 10.12 Sierra
		OS X 10.11 El Capitan
OS X 10.10 Yosemite		

Table 1.5. Talend server modules

Support type	Operating System		Processor
Recommended	Linux	Red Hat Enterprise Linux Server 7.2	64-bit
	Windows	Microsoft Windows Server 2012 R2	64-bit
Supported	Linux	Ubuntu 17.04	64-bit
		Ubuntu 16.04 LTS	64-bit
		Ubuntu 14.04 LTS	64-bit
		Red Hat Enterprise Linux Server/CentOS 7.3	64-bit
		Red Hat Enterprise Linux Server/CentOS 7.1	64-bit
		Red Hat Enterprise Linux Server/CentOS 6.9	64-bit
		Red Hat Enterprise Linux Server/CentOS 6.8	64-bit
		SUSE SLES 12	64-bit
		SUSE SLES 11	64-bit
	Unix	Solaris (SunOs) 11	x86/64-bit ¹
		Solaris (SunOs) 11	Sparc/64-bit ²
		Solaris (SunOs) 10 ³	x86/64-bit ¹
		Solaris (SunOs) 10 ³	Sparc/64-bit ²
Windows	Microsoft Windows Server 2016	64-bit	

Support type	Operating System		Processor
		Microsoft Windows Server 2012	64-bit
Deprecated	Unix	AIX 7.1	64-bit (IBM Java 8 only) ⁴

1. Only supported for Talend Administration Center, CommandLine, JobServer, Talend ESB and Talend Runtime.

2. Only supported for Talend ESB and Talend Runtime.

3. At least patch level 9 should be installed.

4. Only supported for CommandLine, JobServer, Talend ESB and Talend Runtime.

The server modules include Talend Open Studio for ESB, Talend Runtime.

1.3.1.1. Statement regarding Virtualization and Docker deployments

In general, *Talend* supports deployment on virtual machines. For Virtualization Systems, *Talend* relies on the vendors' operating-system compatibility statements.

Talend does not deliver prepackaged Docker Images for the *Talend* Servers, and cannot maintain a standard setup for customer-based Docker environments, so standard Service Level Agreements do not apply.

For any customer issue which also can be reproduced in a non-Docker environment on a supported platform, Support Service Level can be applied as usual. For any issue which only occurs in a customer-composed Docker environment, *Talend* will only provide best effort to address any issues that arise.

1.3.2. Java

In order to use your *Talend* product, Java must be installed on your machine. If you install your *Talend Studio* using the *Talend Studio Installer*, you do not need to set up a Java Environment as it is embedded in the Installer.

These pages list:

- [Compatible Java environments](#)
- [Setting up JAVA_HOME](#)

1.3.2.1. Compatible Java environments






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 6.4.1 version of your Talend product at the time of its release. For updated information on the latest supported versions of the third-party systems, see the online version of this page on [Talend Help Center](#).

These tables provide a summary of the supported Java Runtime environments.

In this table:

-  **(R)** means that this combination is recommended;
-  means that this combination is supported;
-  means that this combination is not supported.

Note that only the 64-bit versions of the compatible Java Runtime environments are supported.

















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

Table 1.6. Studio Java environments

Support Type	JRE Version	Studio JDK Compiler Compliance Level	Notes
Recommended	Oracle 8	1.8 (default)	
Supported	Oracle 8	1.7	Needs to be switched to manually. Only supported for Big Data Distributions requiring it. Routes are not supported with JDK Compiler Compliance level 1.7.

Depending on the license you have, the available Execution Servers may differ.

Table 1.7. Server Java environments

JRE Version	JobServer	MDM Server	ESB/Talend Runtime	ESB/ Microservices	Big Data Distributions	Talend Server Applications ¹	Comment/ Limitation
Oracle 7 (running alongside Oracle 8)					Compatible with Java 1.7 only		Compatible with Studio JDK Compiler Compliance Level 1.7 only
Oracle 8 (recommended)	 (R)	 (R)	 (R)	 (R)	Compatible with Java 1.8	 (R)	Compatible with Studio JDK Compiler Compliance Level 1.7 (default/recommended) or 1.8
IBM 8 (deprecated)							Only for AIX and SUSE SLES

1: Talend server applications include .

For example, the recommended combination is:

- Oracle 8 installed on the machine running the Studio;
- The **Compiler Compliance Level** set to 1.7 in the project settings of the Studio;
- Oracle 8 installed on the machine(s) running the Execution Server(s) and the Talend Server Application(s);

- Big Data Distributions compatible with Java 1.8 used.

For more information on Java specificities (version, Operating Systems compatibility), see [Talend Help Center](#) and [Talend Community](#).

1.3.2.2. 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.

To do so, proceed as follows:

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.

1.3.3. Compatible Apache software and JMS Brokers for Talend Open Studio for ESB

The information contained in the following table is applicable for the 6.4.1 version of your Talend product at the time of its release. For updated information on the latest supported versions of the third-party systems, see the online version of this page on [Talend Help Center](#).

Some of the ESB tools use Apache software components. Talend Open Studio for ESB contains the following Apache Project versions:

Table 1.8. Supported Apache software

Software	Notes	More information
Apache Karaf 4.1.1	Service release upgrade.	Release notes: https://issues.apache.org/jira/secure/ReleaseNote.jspa?projectId=12311140&version=12339244
Apache CXF 3.1.11	Service release upgrade.	Release notes and Migration Guide: http://cxf.apache.org/cxf-3111-release-notes.html
Apache Camel 2.17.6	Minor release upgrade.	Release notes: http://camel.apache.org/camel-2176-release.html
Apache ActiveMQ 5.14.5	Minor release upgrade.	Release notes: http://activemq.apache.org/activemq-5145-release.html

Talend Open Studio for ESB supports the following JMS Brokers.

Note that ESB Java Consumer & Provider using SOAP/JMS-based messaging are supported for the following (JMS) Message-Brokers.

Table 1.9. Supported Messaging Brokers for SOAP/JMS

Software	More information
Apache ActiveMQ 5.14.5	Release notes: http://activemq.apache.org/activemq-5145-release.html

Table 1.10. Supported Containers

Software	Product
Jetty 9.3.14	ESB Runtime - OSGi Container
Apache Tomcat 8.0.44	ESB Microservices

1.3.4. Compatible web application servers and containers



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 6.4.1 version of your Talend product at the time of its release. For updated information on the latest supported versions of the third-party systems, see the online version of this page on [Talend Help Center](#).

Please refer to the following grid for a summary of supported web application servers and runtime containers.

Table 1.11. Talend Open Studio for ESB

Support type	Runtime Containers
Recommended	Talend Runtime (Apache Karaf) 6.4
	Apache Tomcat 8.0 ²⁵
Supported with limitations	Apache Tomcat 7 and 8.0 ³⁵
Deprecated	JBoss EAP 6.4 ⁴
	Weblogic 12c ⁴
	IBM Websphere 8.5 ⁴

2. Only for Talend Identity Management

3. Only for CXF Services, Camel Routes, Service Activity Monitoring, Talend Identity Management and Security Token Service.

4. Only for CXF Services and Camel Routes.

5. TLS 1.2 is supported. For more information, see <https://tomcat.apache.org/tomcat-8.0-doc/ssl-howto.html>.

1.3.5. Compatible Databases



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 6.4.1 version of your Talend product at the time of its release. For updated information on the latest supported versions of the third-party systems, see the online version of this page on [Talend Help Center](#).

Please refer to the following grid for a summary of supported databases.

Table 1.12. Service Activity Monitoring (SAM)

Support type	Databases
Recommended	MySQL 5.7 ¹
	Oracle 12c ¹
Supported	Derby DB > 10.8
	IBM DB2 10.1
	MS SQL Server 2016 ¹
	MS SQL Server 2014
	MS SQL Server 2012 (SP2)
	MySQL 5.6
	Oracle 11g
	PostgreSQL 9.6 ¹²
	PostgreSQL 9.4 and 9.5 ³

1. The corresponding Amazon Relational Database Service (Amazon RDS) version is supported.

2. The corresponding Google Cloud SQL version is supported.

3. PostgreSQL JDBC driver 9.4 is used.

1.3.6. Port information

This section describes the most important TCP/IP ports the *Talend* products use. Make sure that your firewall configuration is compatible with these ports or change the default ports where needed.

Additionally, add the web site <http://talendforge.org/> and the port 80 to the whitelist. To be able to download patches or external libraries, also add the web site <http://talend-update.talend.com> and the port 443 to the whitelist.

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.

Table 1.13. Talend Studio Ports

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

Table 1.14. Talend Open Studio for ESB including Talend Runtime Ports

Port	Direction	Usage	Config (.etc/)	Remark
8040	IN	Standard HTTP port	<i>org.ops4j.pax.web.cfg</i>	See the <i>Talend ESB Container Administration Guide</i> for config scripts and also the <i>admin:</i> command which allows you to set ports to different values.
9001	IN	Standard HTTPS port	<i>org.ops4j.pax.web.cfg</i>	
1099	IN	JMX - RMI Registry Port	<i>org.apache.karaf.management.cfg</i>	
44444	IN	JMX - RMI Registry Port	<i>org.apache.karaf.management.cfg</i>	
8101	IN	Apache Karaf - SSH Port	<i>org.apache.karaf.shell.cfg</i>	
8000	IN	Talend JobServer - Command Port	<i>org.talend.remote.jobserver.server.cfg</i>	
8001	IN	Talend JobServer - File Transfer Port	<i>org.talend.remote.jobserver.server.cfg</i>	
8888	IN	Talend JobServer - Monitoring Port	<i>org.talend.remote.jobserver.server.cfg</i>	
61616	IN	Messaging - ActiveMQ Broker Port	system.properties	
2181	IN OUT	ESB Locator - Apache Zookeeper Port	Server: <i>org.talend.esb.locator.server.cfg</i> Client: <i>org.talend.esb.locator.cfg</i>	
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 - Artifact Repository access	<i>org.ops4j.pax.url.mvn.cfg</i>	
(*)	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.

1.3.7. Installing the XULRunner package

On Linux, the XULRunner package is required to run the Studio.

The XULRunner package version that is recommended is XULRunner v1.9.2.28.

The supported versions are v1.8.x - 1.9.x and v3.6.x.

1. Download XULRunner v1.9.2.28 from [this location](#).
2. Unpack the archive file in the same directory where you unpacked the studio archive, but do not unpack it within the Studio folder.
3. Add the following line at the end of the Studio *.ini* file that corresponds to your Linux architecture:

```
-Dorg.eclipse.swt.browser.XULRunnerPath=</usr/lib/xulrunner>
```

where `</usr/lib/xulrunner>` is the *xulrunner* installation path.

For example, if you have unpacked the Studio in a directory under your user home directory `/home/<user>/Talend/`, you need to add the following to the *.ini* file:

```
-Dorg.eclipse.swt.browser.XULRunnerPath=/home/<user>/Talend/xulrunner/
```



Chapter 2. Installing Talend Open Studio for ESB for the first time

We strongly encourage you to read the [Before installing your Talend product](#) before starting this chapter.

This chapter details the procedures required to install Talend Open Studio for ESB.

2.1. Downloading and installing Talend Open Studio for ESB

Download

1. Download the product on [this page](#).

Note that the *.zip* file contains binaries for ALL platforms (Linux/Unix, Windows and MacOS).

2. Once the download is complete, extract the archive file on your hard drive.



It is recommended to avoid spaces and long names in the target installation directory path.

For **Talend Open Studio for ESB**, both Talend Studio and *Talend Runtime* are bundled together.

There is one compressed file, of the format: *TOS_ESB-YYYYYYYYY_YYYY-VA.B.C.zip*

When you extract it to a directory of your choice, you get two folders:

- *Runtime_ESBSE* that contains *Talend Runtime* and examples.
- *Studio* that contains the Talend Studio.

Configure the memory settings

- If you want to tune the memory allocation for your JVM, you only need to edit the *TOS_ESB-linux-gtk-x86_64.ini* file.

The default values are:

```
-vmargs -Xms40m -Xmx500m -XX:MaxMetaspaceSize=128m
```

If you only have 512MB of memory on your computer, you can specify the memory allocation as following, for example:

```
-vmargs -Xms40m -Xmx256m -XX:MaxMetaspaceSize=64m
```

Learn more on <http://www.oracle.com/technetwork/java/hotspotfaq-138619.html>

2.2. Launching your Talend Open Studio for ESB

The following procedures describe how to launch the Studio and its related modules, how to log in the Studio and how to create your first project.

2.2.1. Launching your Studio

Launch the Studio

1. If you want to use the *.sh* script file to launch your **Talend Open Studio for ESB**, add the execution rights to that file using the following command:

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

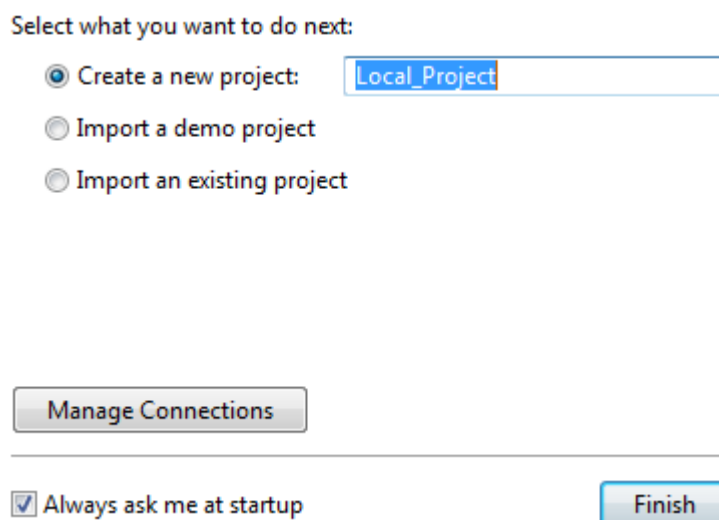
2. Double-click the *TOS_ESB-linux-gtk-x86_64* executable file to launch your *Talend Studio* or use the *TOS_ESB-linux-gtk-x86_64.sh* file.

Public license

- First screen is a license screen. In the **[License]** window that appears, read and accept the terms of the license agreement to proceed to the next step.

Login and first project

1. As first time user, you need to set up a new project or you can also import a Demo project which gathers numerous job samples.



2. To import a demo project, select **Import a demo project** and click **Finish**. In the dialog box that opens, select the project you want to import.

To create a new project, select **Create a new project** and enter the name of your project in the corresponding field.

3. Click **Finish** when complete, to open a welcome window and launch the Studio.

2.2.2. Launching Talend Runtime

The Talend Runtime package includes:

- Talend ESB Container (Talend Runtime container), which is a ready to be used OSGi container allowing you to deploy all your features, as well as the following infrastructure services:
 - Service Locator, a ready-to-be-used failover and load balancer tool (based on Apache Zookeeper) allowing you to dynamically register your endpoints;
 - Service Activity Monitoring, a monitoring tool facilitating the capture of analysis of service activity;
 - Security Token Service, a framework allowing clients and services to securely and transparently authenticate during connections.

- Apache ActiveMQ, which is a message broker enabling to support different messaging options.

Run Talend Runtime Container

1. Go to subdirectory `<TalendRuntimePath>\container\bin` of Talend Runtime installation directory.
2. Run the `trun.sh` file.

When the container starts up, you will see a short introduction (similar to the one below) followed by the Talend Runtime container console command prompt.

```
Hit '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
Hit '<ctrl-d>' or 'osgi:shutdown' to shutdown the TRUN.
karaf@trun>
```

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 the Service Locator, Service Activity Monitoring server and the Security Token Service.

Run Apache ActiveMQ

1. Go to subdirectory `<TalendRuntimePath>\activemq\bin` of Talend Runtime installation directory.
2. Type in the following command:

```
./activemq console
```

Run Service Locator

- To run **Service Locator** inside Talend Runtime, type in the container console window:

```
tesb:start-locator
```

To run **Service Locator** independently:

1. Go to subdirectory `<TalendRuntimePath>\zookeeper\bin` of Talend Runtime installation directory.
2. Run the following command:

```
zkServer.sh start
```

Run Service Activity Monitoring

- To run the **Service Activity Monitoring** server within the Talend Runtime container, type the following in your console:

```
tesb:start-sam
```

This will also automatically start an Apache Derby database.



The Service Activity Monitoring within Talend Runtime can only be used with Apache Derby. If you would like to use one of the other supported databases, use the Tomcat deployment of the Service Activity Monitoring server.

Run Security Token Service

- To install the **Security Token Service** server within the Talend Runtime container, type the following in your console:

```
tesb:start-sts
```

2.3. 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 drivers, known as external modules, can 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 certain external modules within *Talend Studio*.

2.3.1. Identify required external modules

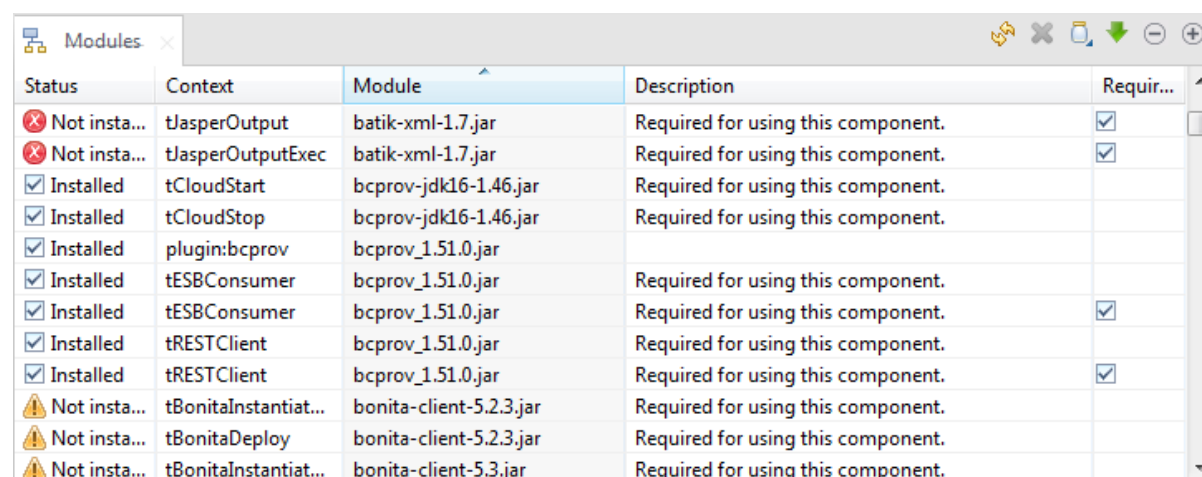
When you launch *Talend Studio* or select **Help > Install Additional Packages** in the *Talend Studio* menu, if any external modules are found missing for any features, the **[Additional Talend packages]** wizard opens, showing the **Optional** and **Required third-party libraries** check boxes. Make 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 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 the 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.	
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-5.3.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 <i>Talend Studio</i>.</p>

Column	Description
	 This column lists any external libraries added to the routines you create and save in the Studio library folder. For more information, see the <i>Talend Studio User Guide</i> .
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, the 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 the 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 the 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 the 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 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, or
- click the  button in the **Modules** view.



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

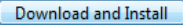


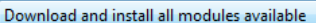

Jar	Module	Required by component	Required	License	More information	Action
a-j-interop.jar	Description for a-j-i...	tMSAXInput tMSAXOutput	<input type="checkbox"/>	LGPL-3.0		Download and Install
activation-1.1.jar	Description for activ...	tSalesforceOutput tSalesf...	<input checked="" type="checkbox"/>	Oracle-Binary		Download and Install
activation.jar	Description for activ...	tSugarCRMInput tWebSe...	<input checked="" type="checkbox"/>	Oracle-Binary		Download and Install
amazon-s3.jar	Description for ama...	plugin:org.talend.libraries...	<input type="checkbox"/>	Apache-2.0	https://github.com/aws/aws-sdk-java/	Download and Install
asm-1.5.3.jar	Java bytecode mani...	plugin:org.talend.libraries...	<input type="checkbox"/>	BSD-3-Clause	http://forge.ow2.org/projects/asm/	Download and Install
asm-2.2.jar	Java bytecode mani...	plugin:org.talend.libraries...	<input checked="" type="checkbox"/>	BSD-3-Clause	http://forge.ow2.org/projects/asm/	Download and Install
asm-3.2.jar	Java bytecode mani...	plugin:org.talend.libraries...	<input checked="" type="checkbox"/>	BSD-3-Clause	http://forge.ow2.org/projects/asm/	Download and Install
asm-3.3.1.jar	Java bytecode mani...	plugin:org.talend.libraries...	<input checked="" type="checkbox"/>	BSD-3-Clause	http://forge.ow2.org/projects/asm/	Download and Install
asm-3.3.jar	Java bytecode mani...	plugin:org.talend.libraries...	<input checked="" type="checkbox"/>	BSD-3-Clause	http://forge.ow2.org/projects/asm/	Download and Install

[Click here to obtain more informations about external modules](#)

Download and install all modules available

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.
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.

Item	Description
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>Open in browser : 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 studio;</p> <p>: You need to find and download the module yourself and click the jar button to import it into the your 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 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.



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

2.3.2. Install external modules

To download and install modules in the Studio

To download and install external modules automatically, do the following:



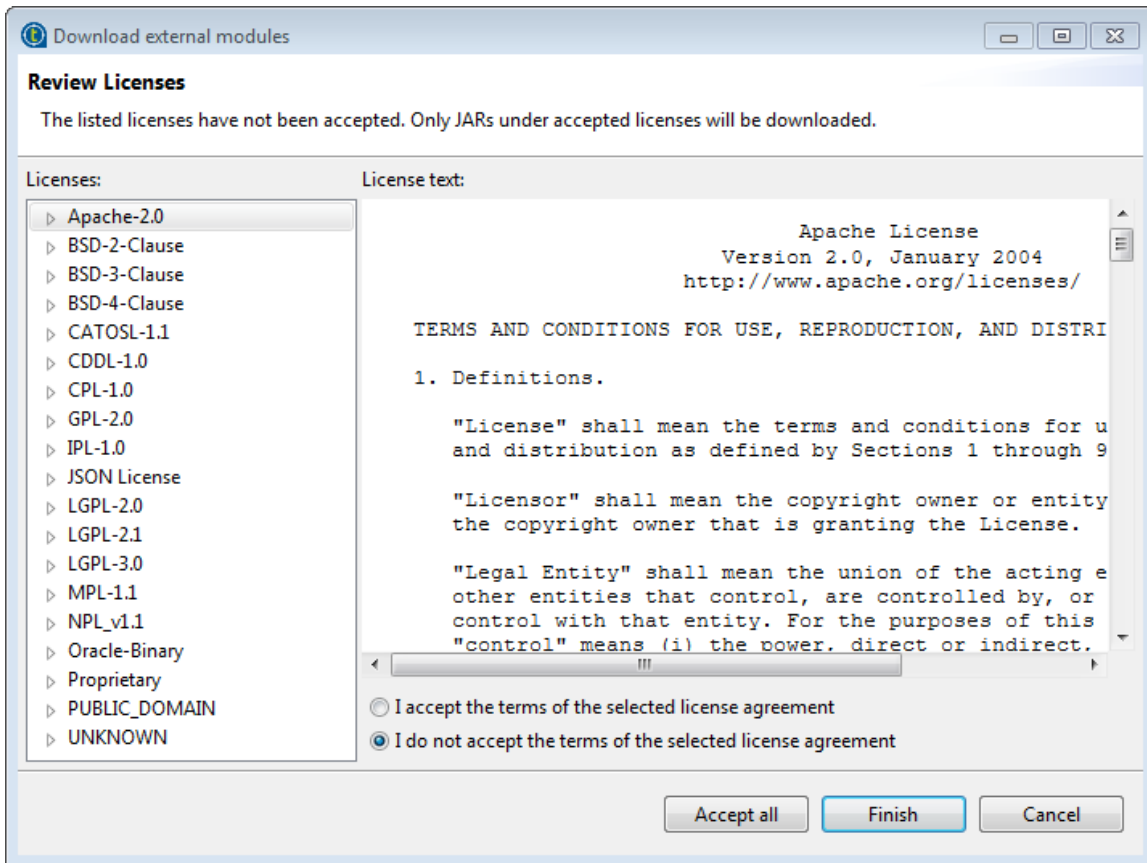
*If you are working behind a network proxy, make sure you have correctly set up your proxy before you can download and install external modules in your Studio. To access the proxy settings, select **Window > Preferences** from the menu to open the **[Preferences]** window, then expand the **General** node and click **Network Connections**.*

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

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 and Required third-party libraries check boxes are selected and click **Finish**. The **[Download external modules]** dialog box opens.



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 the 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:

1. 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.

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.

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

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

To install modules downloaded from external websites

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 the studio, the downloaded modules must be placed in the following folder:
<StudioPath>/configuration/.m2





Chapter 3. Upgrading your Talend products

This chapter describes the various operations required to migrate version of the *Talend* solutions.

We assume that you have installed and configured these solutions as described in the [Installing Talend Open Studio for ESB for the first time](#).

The migration and upgrade process includes the following mandatory steps:



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

1. Backing up the environment, see the [Backing up the environment](#).
2. Upgrading the Talend projects in the Studio, see the [Upgrading the Talend projects in the Studio](#).

3.1. 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:



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

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

Saving the local projects

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

3.2. Upgrading the Talend projects in the Studio

Importing your local projects

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

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



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



Appendix A. Appendices

The following appendices contain complementary information to go further with your *Talend* product:

- *Installing Talend servers as Linux services*
- *Supported Third-Party System/Database/Business Application Versions*

A.1. Installing Talend servers as Linux services

The following pages contain procedures on how to install *Talend* servers as Linux services.

- [Installing Talend Runtime as a service](#)
- [Installing Talend Log Server as a service](#)

A.1.1. Installing Talend Runtime as a service

The Talend Runtime container is based on Apache Karaf. Karaf Wrapper (for service wrapper) makes it possible to install the Talend Runtime container as a service.

To install Talend Runtime as a service, you first have to install the wrapper, which is an optional feature:

Installing the wrapper

1. Browse to the *bin* folder of the Talend Runtime installation directory, then launch the container by executing the *trun* file as root.
2. To install the wrapper feature, type:

```
karaf@trun> feature:install wrapper
```

Once installed, wrapper feature will provide `wrapper:install` new command in the *trun*, which allows you to install Talend Runtime as a service.

3. To install the service, type in the following command:

```
karaf@trun> wrapper:install
```

Alternatively, to register the container as a service in automatic start mode, simply type:

```
karaf@trun> wrapper:install -s AUTO_START -n TALEND-CONTAINER -d Talend-Container -D "Talend Container Service"
```

where `TALEND-CONTAINER` is the name of the service, `Talend-Container` is the display name of the service and `"Talend Container Service"` is the description of the service.

Here is an example of `wrapper:install` command executing on Linux:

```
karaf@trun(>) feature:install wrapper
karaf@trun(>) wrapper:install -s AUTO_START -n TALEND-CONTAINER \
-d Talend-Container -D "Talend Container Service"
Creating file: <TalendRuntimePath>/bin/TALEND-CONTAINER-wrapper
Creating file: <TalendRuntimePath>/bin/TALEND-CONTAINER-service
Creating file: <TalendRuntimePath>/etc/TALEND-CONTAINER-wrapper.conf
Creating file: <TalendRuntimePath>/lib/libwrapper.so
Creating file: <TalendRuntimePath>/lib/karaf-wrapper.jar
Creating file: <TalendRuntimePath>/lib/karaf-wrapper-main.jar
Setup complete. You may want to tweak the JVM properties in the wrapper
configuration file:
<TalendRuntimePath>/etc/TALEND-CONTAINER-wrapper.conf
before installing and starting the service.
```

The wrapper files are installed, you now have to install the Talend Runtime service.

In the following procedure, `TALEND-CONTAINER` is the name of the service and is only given as an example. Note also that `<TalendRuntimePath>` is the Talend Runtime installation directory.

Installing the service on RedHat/CentOS 7 Systems

All the following commands have to be executed with super-user privileges.

1. Create the service file with the following command:

```
touch /etc/systemd/system/Talend-Container.service
```

2. Assign the relevant rights to the file you created:

```
chmod 664 /etc/systemd/system/Talend-Container.service
```

3. Paste the following content in the file while adapting it to your configuration:

```
[Unit]
Description=Talend Runtime Service
After=network.target

[Service]
ExecStart=<TalendRuntimePath>/bin/trun
Type=simple

[Install]
WantedBy=default.target
```

4. Reload the service daemon:

```
systemctl daemon-reload
```

5. Start the service:

```
systemctl start Talend-Container.service
```

Installing the service on Redhat/CentOS 6 Systems

- To install the service:

```
$ ln -s /<TalendRuntimePath>/bin/TALEND-CONTAINER-service /etc/init.d/
```

```
$ chkconfig TALEND-CONTAINER-service --add
```

- To start the service when the machine is rebooted:

```
$ chkconfig TALEND-CONTAINER-service on
```

- To disable starting the service when the machine is rebooted:

```
$ chkconfig TALEND-CONTAINER-service off
```

- To start the service:

```
$ service TALEND-CONTAINER-service start
```

- To stop the service:

```
$ service TALEND-CONTAINER-service stop
```

- To uninstall the service:

```
$ chkconfig TALEND-CONTAINER-service --del
```

```
$ rm /etc/init.d/TALEND-CONTAINER-service
```

Installing the service on Linux Ubuntu distributions

- To install the service:

```
$ ln -s /<TalendRuntimePath>/bin/ TALEND-CONTAINER-service /etc/init.d/
```

- To start the service when the machine is rebooted:

```
$ update-rc.d TALEND-CONTAINER-service defaults
```

- To disable starting the service when the machine is rebooted:

```
$ update-rc.d -f TALEND-CONTAINER-service remove
```

- To start the service:

```
$ /etc/init.d/TALEND-CONTAINER-service start
```

- To stop the service:

```
$ /etc/init.d/TALEND-CONTAINER-service stop
```

- To uninstall the service:

```
$ rm /etc/init.d/TALEND-CONTAINER-service
```

A.1.2. Installing Talend Log Server as a service

To install Talend Log Server as a service, proceed as follows:

Installing Log Server as a service on RedHat/CentOS 7 Systems

All the following commands have to be executed with super-user privileges.

1. Create the service file with the following command:

```
touch /etc/systemd/system/Talend-LogServer.service
```

2. Assign the relevant rights to the file you created:

```
chmod 664 /etc/systemd/system/Talend-LogServer.service
```

3. Paste the following content in the file while adapting it to your configuration:

```
[Unit]
Description=Talend Log Server Service
After=network.target

[Service]
WorkingDirectory=<LogServerPath>
ExecStart=/bin/bash start_logserver.sh
ExecStop=/bin/bash stop_logserver.sh
Type=simple

[Install]
WantedBy=default.target
```

4. Reload the service daemon:

```
systemctl daemon-reload
```

5. Start the service:

```
systemctl start Talend-LogServer.service
```

Installing Log Server as a service on RedHat/CentOS 6 and Ubuntu Systems

1. Create a script from which Talend Log Server can be run in the directory `/etc/init.d/tlogserver`, like the following:

```
#!/bin/sh
#
# tlogserver: this script starts and stops the monolithic jar
#
# chkconfig: - 85 15
# description: logstash is an open source log management system.
# processname: tlogstash
# config: %%%LOGSERV_CONFIG%%
# binary: %%%LOGSERV_JAR%%
prog=tlogserver
PATH=%%INSTALLDIR%%/logserv:/sbin:/bin:/usr/sbin:/usr/bin
NAME=tlogserver

test -x $DAEMON || exit 0

set -e

start() {
    echo -n "Starting $prog: "
    %%%INSTALLDIR%%/logserv/start_logserver.sh
}

stop() {
    echo -n "Stopping $prog: "
    %%%INSTALLDIR%%/logserv/stop_logserver.sh
}

case "$1" in
    start)
        start
        ;;
    stop)
        stop
        ;;
    restart)
        stop
        start
        ;;
    *)
        N=/etc/init.d/$NAME
        echo "Usage: $N {start|stop|restart}" >&2
        exit 1
        ;;
esac

exit 0
```

2. Ensure that the file above is executable. To do this, you can execute the commands below in the `/etc/init.d/tlogserver` directory:

```
# chmod +x /etc/init.d/tlogserver
```

3. Execute the following command to activate the startup script:

```
# update-rc.d tlogserver defaults 60
```

A.2. 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.

A.2.1. Supported systems, databases and business applications by Talend components

The information contained in the following table is applicable for the 6.4.1 version of your Talend product at the time of its release. For updated information on the latest supported versions of the third-party systems, 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.

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
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	2.0	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

Systems/Databases	Versions	OS	Available with...
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
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
MaxDB	7.6	N/A ¹	Talend products with DI, MDM, ESB or Big Data
MongoDB	2.5.X 2.6.X 3.0.X 3.2.X	Windows + Linux	Talend products with Big Data
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	Linux	Talend products with Big Data

Systems/Databases	Versions	OS	Available with...
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
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	3 3.5	Windows + Linux	Talend products with DI, MDM, ESB or Big Data

Systems/Databases	Versions	OS	Available with...
	4 4.1 5.0 5.1 6.0 6.1.X 7.0.X 7.1.X		
VtigerCRM	Vtiger 5.0 Vtiger 5.1	N/A ¹	All Talend products

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.
