



TIBCO® Messaging - Schema Repository for Apache Kafka

Installation

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About this Product

TIBCO is proud to announce the latest release of TIBCO® Messaging - Schema Repository for Apache Kafka.

This release is the latest in a long history of TIBCO products that use the power of Information Bus® technology to enable truly event-driven IT environments. To find out more about how TIBCO® Messaging software and other TIBCO products are powered by TIBCO technology, please visit us at www.tibco.com.

TIBCO Messaging - Schema Repository for Apache Kafka is part of the TIBCO Messaging software.

Product Editions

TIBCO Messaging - Schema Repository for Apache Kafka software is available in a Community Edition and an Enterprise Edition.

TIBCO Messaging - Community Edition is ideal for getting started with TIBCO Messaging, for implementing application projects (including proof of concept efforts), for testing, and for deploying applications in a production environment. Although the community license limits the number of production processes, you can upgrade to the Enterprise Edition as your use of TIBCO Messaging expands.

The Community Edition is available free of charge, with the following limitations and exclusions:

- Users may run up to 100 application instances or 1000 web/mobile instances in a production environment.
- Users do not have access to TIBCO Support, but you can use [TIBCO Community](#) as a resource.

TIBCO Messaging - Enterprise Edition is ideal for all application development projects, and for deploying and managing applications in an enterprise production environment. It includes all features presented in this documentation set, as well as access to TIBCO Support.

Preparing for Installation

Complete these steps before you begin to install TIBCO Messaging - Schema Repository for Apache Kafka.

Procedure

1. Verify that the product supports your platforms.
You can find the Readme file on the product distribution in the same directory as the installation files or at the product documentation page [Readme](#).
2. Read the TIBCO Software Inc. License Agreement included with the product.
3. Read the sections in this book that pertain to your operating system platforms.
4. Verify that the host computer satisfies the installation requirements and the prerequisite software is installed. For more information, see [Requirements](#).

Requirements

Before you run the installers, ensure that the environment meets all the hardware and software requirements and that you have appropriate privileges to run the installers.

Required Software

Ensure that TIBCO FTL® 6.4 or later is already installed.

Ensure that Apache Kafka 2.5 or later is already installed.

Java Runtime Environment (JRE), version 1.8 or later, 64-bit, is required to run Java application programs.

Java Developer Kit (JDK), version 1.8 or later, 64-bit, is required to develop Java application programs.

Installer Account

Platform	Account Privileges
Linux	For system-based installers, you need <code>sudo</code> privileges for installation. However, for extracting tar files, you do not need special privileges as long as you have write permission in the directory you are extracting the files into.
macOS	Administrator privileges are required for installation.

Installation

You can install this product on any operating system using platform-native installers.

For the latest changes, see the Readme file on the product distribution in the same directory as the installation files or at the product documentation page, [Readme](#).

Installing on Linux

TIBCO Messaging - Schema Repository for Apache Kafka is available for 64-bit Linux operating systems (Intel x86_64) and includes the RPM, DEB, and tar packages.

To install this product, you must have sudo privileges.

Before you begin

On SUSE Linux, ensure that the `libjvm` library is already installed.

Procedure

1. Download the installation package for *either* the Community Edition or the Enterprise Edition:

Community Edition

- Go to the [downloads](#) page.
- Download this file: `TIB_msg-akd-repo-ce_1.6.0_linux_x86_64.zip`.

Enterprise Edition

- Go to [TIBCO eDelivery](#) and search for **Schema Repository**.
- Download this file: `TIB_msg-akd-repo_1.6.0_linux_x86_64.zip`.

2. Extract the TIBCO Messaging - Schema Repository for Apache Kafka installation files.

You get a directory `TIB_msg-akd-repo_1.6.0`. The installation RPM, DEB, and tar archives are available in this directory.

3. Install using one of the following commands, depending on the Linux platform variant.

Linux Variant	Command
Red Hat, CentOS	<pre>yum install -y rpm/*.rpm</pre>
Debian, Ubuntu, Fedora	<pre>dpkg -i deb/*.deb</pre>
SUSE	<pre>zypper install rpm/*.rpm</pre> Note: If you encounter issues with dependencies, you can safely ignore those dependencies and proceed with the installation.
Other Linux variants	If your Linux variant does not include yum, dpkg, or zypper, you can use tar. <pre>for f in tar/*; do tar xvf \$f; done</pre>

The installation utilities yum, dpkg, or zypper install the TIBCO Messaging - Schema Repository for Apache Kafka software under `/opt/tibco/akd/repo`.

Refer to the main page for details about the rpm or dpkg commands.

Installing on Linux in Silent Mode

You can perform a silent install so that no dialogs display and no options are presented.

Before you begin

On SUSE Linux, ensure that the `libjvm` library is already installed.

Procedure

1. Download the installation package for *either* the Community Edition or the Enterprise Edition:

Community Edition

- Go to the [downloads](#) page.
- Download this file: TIB_msg-akd-repo-ce_1.6.0_linux_x86_64.zip.

Enterprise Edition

- Go to [TIBCO eDelivery](#) and search for **Schema Repository**.
 - Download this file: TIB_msg-akd-repo_1.6.0_linux_x86_64.zip.
2. Extract the TIBCO Messaging - Schema Repository for Apache Kafka installation files. This creates a directory, TIB_msg-akd-repo_1.6.0, and places installation RPM, DEB, and tar archives in that directory.
 3. Install using one of the following commands, depending on the Linux platform variant.

Linux Variant	Command
Red Hat, Centos	<pre>yum install -q -y rpm/*.rpm > /dev/null 2>&1</pre>
Debian, Ubuntu, Fedora	<pre>dpkg -i deb/*.deb > /dev/null 2>&1</pre>
SUSE	<pre>zypper install rpm/*.rpm > /dev/null 2>&1</pre>

The installation utilities yum, dpkg, or zypper install the TIBCO Messaging - Schema Repository for Apache Kafka software under /opt/tibco/akd/repo.

Refer to the man page for details about the rpm or dpkg commands.

Installing on macOS

 **Note:** Ensure that the TIBCO installer is allowed. Click the Apple at the top left then select **System Preferences** then select **Security & Privacy**. On the **General** tab in the **Allow apps downloaded from:** section, allow the installer.

To install this product, you must have administrator privileges.

TIBCO Messaging - Schema Repository for Apache Kafka is available for the 64-bit macOS operating system (Intel x86_64).

To install TIBCO Messaging - Schema Repository for Apache Kafka on macOS, complete these steps.

Procedure

1. Download the installation package for *either* the Community Edition or the Enterprise Edition.
 - **Community Edition**
 - Go to the [downloads](#) page.
 - Download this file: TIB_msg-akd-repo-ce_1.6.0_macos_x86_64.pkg
 - **Enterprise Edition**
 - Go to [TIBCO eDelivery](#) and search for Schema Repository.
 - Download this file: TIB_msg-akd-repo_1.6.0_macos_x86_64.pkg
2. Run the installer.
 - a. Double-click the installation package icon.
 - b. Follow the installation prompts to complete the process. Provide your password if requested.

Result

TIBCO Messaging - Schema Repository for Apache Kafka is installed in the following location:

/opt/tibco/akd/repo

Installing on macOS in Silent Mode

i Note: Ensure that the TIBCO installer is allowed. Click the Apple at the top left then select **System Preferences** then select **Security & Privacy**. On the **General** tab in the **Allow apps downloaded from:** section, allow the installer.

To install TIBCO Messaging - Schema Repository for Apache Kafka silently on macOS platforms, complete this task.

Procedure

1. Download the installation package. See [Installing on macOS](#).
2. Run the installer silently.

```
sudo installer -pkg package_name -target /
```

Result

TIBCO Messaging - Schema Repository for Apache Kafka is installed in the following location:

/opt/tibco/akd/repo

Taking a Test Drive

Before beginning, you need Java JDK 11, TIBCO FTL®, TIBCO® Messaging Castle - Powered by Apache Kafka®, and TIBCO Messaging - Schema Repository for Apache Kafka. Follow these topics to configure and start the required components and to successfully send and receive your first Avro message.

Configure and Start the TIBCO FTL Server

Save the following configuration file as "ftl-server-example.yaml":

```
globals:
  core.servers:
    srv1: localhost:8585
services:
  realm:
  persistence:
    logfile: ftl-server-example/p-log
    data: ftl-server-example/p-data
    savedir: ftl-server-example/p-dump
servers:
  srv1:
    - realm:
        data: ftl-server-example/srv1
    - persistence:
        name: schema1
        logfile: ftl-server-example/srv1/p-log
        data: ftl-server-example/srv1/p-data
        savedir: ftl-server-example/srv1/p-dump
```

In the same directory where you saved "ftl-server-example.yaml", create all of the directories referenced by it. For Linux and macOS platforms, this can be done by running the following command:

```
mkdir -p ftl-server-example/{,srv1}/{p-log,p-data,p-dump}
```

Now initialize FTL security, which generates a TLS certificate for the FTL Server:

```
/opt/tibco/ftl/current-version/bin/tibftlserver -n srv1 -c ftl-server-example.yaml --init-auth-only
```

You should see output as:

```
TIBCO FTL Server Version 6.10.0 V4
Copyright 2009-2023 Cloud Software Group, Inc.
All Rights Reserved.
Initializing FTL server authentication, without encryption.
Generating unsecured keystore 'ftl-tport.p12' and trust file 'ftl-trust.pem'.
These files must be distributed to the data directories of all FTL servers.
Files will be written to: ftl-server-example/srv1
realm      2023-10-20 00:31:46.901 info  ftl: Initializing FTLServer security related files...
realm      2023-10-20 00:31:46.932 info  ftl: Initialized FTLServer security related files. Exiting...
controller 2023-10-20 00:31:46.937 info  svc: FTLServer finished executing
```

Initializing FTL security only needs to be done once; for subsequent runs, it can be skipped.



Caution: This topic does not use TLS to secure communications between the FTL server and the Schema Repository or between the Schema Repository and its clients. For production instances, use of TLS to secure communications is strongly encouraged. For more information, see "Securing FTL Servers" in the *TIBCO FTL® Administration*.

Next, start the TIBCO FTL server:

```
/opt/tibco/ftl/current-version/bin/tibftlserver -n srv1 -c ftl-server-example.yaml
```

You should see output as:

```
TIBCO FTL Server Version 6.10.0 V4
Copyright 2009-2023 Cloud Software Group, Inc.
All Rights Reserved.
Starting server 'srv1' at localhost:8585.
Core servers:
```

```
* srv1@localhost:8585
Authentication enabled
Client contact info:
FTL clients:      http://localhost:8585
Realm REST API/UI: http://localhost:8585
This server will run:
realm
ftl
persistence
persistence
controller      2023-10-20 00:32:44.332 info   svc: FTLServer listener
started
```

followed by a warning similar to this that appears once per second:

```
realm      2023-10-20 00:09:20.844 warn   ftl: Client(Persistence
Server schema1) Unable to return application _Server_schema1 [cid=
1234]: persistence server 'schema1' not found
```

Do not worry about this warning for now; it stops when the persistence cluster is initialized for TIBCO Messaging - Schema Repository for Apache Kafka.

Configure and Start TIBCO Messaging - Schema Repository for Apache Kafka

In a new shell, set your library path to include TIBCO FTL shared library directory, which the TIBCO Messaging - Schema Repository for Apache Kafka requires to run. On Linux, this is done by:

```
export LD_LIBRARY_PATH=/opt/tibco/ftl/current-version/lib:$LD_LIBRARY_
PATH
```

and on macOS, this is done by:

```
export DYLD_LIBRARY_PATH=/opt/tibco/ftl/current-version/lib:$DYLD_
LIBRARY_PATH
```

Now initialize the TIBCO Messaging - Schema Repository for Apache Kafka FTL persistence cluster. This is where the TIBCO Messaging - Schema Repository for Apache Kafka stores schema data:

```
/opt/tibco/akd/repo/bin/tibscemad -ftl http://localhost:8585 -u admin -p pass:admin-pw -init-cluster 1
```

i Note: In this example, a cluster size of 1 is used for simplicity. In production, a cluster size of 3 or 5 FTL persistence servers can be used for high availability and redundancy.

You should see output similar to:

```
TIBCO® Messaging - Schema Repository for Apache Kafka version 1.6.0 V0
Copyright 2018-2023 Cloud Software Group Inc.
All Rights Reserved. Confidential & Proprietary.
tibscemad: UTC 2023/10/20 05:34:23.613548 info: Using realm server
http://localhost:8585
tibscemad: UTC 2023/10/20 05:34:23.947782 info: Created new 1-server
persistence cluster. Please ensure your
FTL server is configured to start a persistence server named "schema1"
and then start tibscemad again without the -init-cluster option.
```

The Unable to return application _Server_schema1 warnings from the TIBCO FTL server stop now.

Finally, start the TIBCO Messaging - Schema Repository for Apache Kafka:

```
/opt/tibco/akd/repo/bin/tibscemad -listen localhost:13131 -ftl
http://localhost:8585 -u admin -p pass:admin-pw
```

You should see output similar to:

```
TIBCO® Messaging - Schema Repository for Apache Kafka version 1.6.0 V0
Copyright 2018-2023 Cloud Software Group Inc.
All Rights Reserved. Confidential & Proprietary.
tibscemad: UTC 2023/10/20 05:35:14.899346 info: Using realm server
http://localhost:8585
tibscemad: UTC 2023/10/20 05:35:14.986197 info: tibscemad listening
at http://localhost:13131/
tibscemad: UTC 2023/10/20 05:35:16.999516 info: Registered with realm
```

```
server http://localhost:8585, redirecting to  
http://localhost:13131/schema/v1
```

Start Apache Zookeeper and Apache Kafka Broker

In a new shell, start Apache Zookeeper:

```
/opt/tibco/akd/core/bin/zookeeper-server-start.sh  
/opt/tibco/akd/core/config/zookeeper.properties
```

In a new shell, start Apache Kafka:

```
/opt/tibco/akd/core/bin/kafka-server-start.sh  
/opt/tibco/akd/core/config/server.properties
```

Send and Receive an Avro Message

In a new shell, start up the AvroConsumer sample application:

```
cd /opt/tibco/akd/repo/samples  
./gradlew AvroConsumer
```

And finally, in a new shell, start the AvroProducer sample application:

```
cd /opt/tibco/akd/repo/samples  
./gradlew AvroProducer
```

The output from AvroProducer and AvroConsumer looks like the following:

```
Sent a message: {"My_String": "Hello world!", "My_Long": 0}  
Sent a message: {"My_String": "Hello world!", "My_Long": 1}  
Sent a message: {"My_String": "Hello world!", "My_Long": 2}  
Sent a message: {"My_String": "Hello world!", "My_Long": 3}
```

and

```
Received a message: {"My_String": "Hello world!", "My_Long": 0}  
Received a message: {"My_String": "Hello world!", "My_Long": 1}  
Received a message: {"My_String": "Hello world!", "My_Long": 2}  
Received a message: {"My_String": "Hello world!", "My_Long": 3}
```

You have successfully registered your first Avro schema with TIBCO Messaging - Schema Repository for Apache Kafka and used it to send and receive an Avro-serialized message.

Uninstallation

You can uninstall this product by using the following steps, which are specific to the operating system.

Uninstalling on Linux

Uninstall the RPM, DEB, and tar packages.

Depending on the applicable Linux variant, use the command shown in the following table.

List the package to uninstall.

Linux Variant	Command
Red Hat	<pre>yum list installed grep "tib_msg-akd-repo"</pre>
Debian	<pre>dpkg-query -l grep tib_msg-akd-repo</pre>
SUSE	<pre>zypper se grep "tib_msg-akd-repo"</pre>
Other Linux variants	If your Linux variant does not include yum, dpkg, or zypper, use this command. <pre>ls -R \$TIBCO_HOME/akd/repo</pre>

Use the appropriate command to uninstall.

Linux Variant	Command
Red Hat	<pre>yum remove -y tib_msg-akd-repo*</pre>
Debian	<pre>apt-get remove -y tib_msg-akd-repo*</pre>
SUSE	<pre>zypper rm tib_msg-akd-repo*</pre>
Other Linux variants	If your Linux variant does not include yum, dpkg, or zypper, use this command. <pre>rm -rf <i>TIBCO_HOME</i>/akd/repo</pre>

Uninstalling on macOS

Delete the following version-specific directory:

`/opt/tibco/akd/repo`

TIBCO Documentation and Support Services

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the [Product Documentation website](#), mainly in HTML and PDF formats.

The [Product Documentation website](#) is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The following documentation for this product is available on the [TIBCO® Messaging - Schema Repository for Apache Kafka Product Documentation](#) page:

- *TIBCO® Messaging - Schema Repository for Apache Kafka Release Notes*
- *TIBCO® Messaging - Schema Repository for Apache Kafka Installation*
- *TIBCO® Messaging - Schema Repository for Apache Kafka User Guide*

Other TIBCO Product Documentation

When working with TIBCO® Messaging - Schema Repository for Apache Kafka, you may find it useful to read the documentation of the following TIBCO product:

- [TIBCO FTL® - Enterprise Edition](#): TIBCO's FTL server provides back-end Schema Repository storage.

How to Access Related Third-Party Documentation

When working with TIBCO® Messaging - Schema Repository for Apache Kafka, you may find it useful to read the documentation of the following third-party products:

- [Apache Kafka documentation](#)
- [Apache Avro documentation](#)

How to Contact Support for TIBCO Products

You can contact the Support team in the following ways:

- To access the Support Knowledge Base and getting personalized content about products you are interested in, visit our [product Support website](#).
- To create a Support case, you must have a valid maintenance or support contract with a Cloud Software Group entity. You also need a username and password to log in to the [product Support website](#). If you do not have a username, you can request one by clicking **Register** on the website.

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the [TIBCO Ideas Portal](#). For a free registration, go to [TIBCO Community](#).

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