



TRIFACTA

Install Guide

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Install

This section contains content related to the installation and configuration of Trifacta® products.

Install Overview

Contents:

- *Required Documents*
 - *Basic Install Workflow*
 - *Installation Scenarios*
 - *Install On-Premises*
 - *Install for AWS*
 - *Install for Azure*
 - *Install for Docker*
 - *Install Errata*
 - *Notation*
-

Required Documents

If you do not have access to online documentation, please verify that you have the following PDF documents, which are part of or are referenced during the installation process.

Tip: You should be able to install and configure the However, if you have additional requirements or require further explanation than what is provided in the Install Guide, these documents are important references.

NOTE: Marketplace should contain all documentation required to complete the installation.

Document		
Planning Guide PDF	<i>Install Planning</i>	
Databases Guide PDF	<i>Install Databases</i>	
Install Guide PDF	<i>Install Overview</i>	
Configuration Guide PDF	<i>Configure</i>	
Admin Guide PDF	<i>Admin</i>	

User Guide PDF	<i>Workflow Basics</i>	After installation and configuration is complete, this Guide can be helpful for references on how to use the product.
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Basic Install Workflow

1. Prepare the environment for your installation scenario.
2. Install the software.
3. Install the databases.
4. Start the platform and login.
5. Configure your installation.
6. Verify operations.

The install workflow is described in detailed in the page for your installation scenario.

Install Errata

Notation

In this guide, JSON settings may be provided in dot notation in either of the following forms.

For example, `webapp.selfRegistration` refers to a JSON block `selfRegistration` under `webapp`:

Form 1:

```
{
  ...
  "webapp": {
    "selfRegistration": true,
    ...
  }
  ...
}
```

Form 2:

```
"webapp.selfRegistration": true,
```

Install for High Availability

Contents:

- *Limitations*
 - *Overview*
 - *Job interruption*
 - *Installation Topography*
 - *Order of Installation*
 - *Configuration*
-

The Trifacta® platform can be installed across multiple nodes for high availability failover. This section describes the general process for installing the platform across multiple, highly available nodes.

NOTE: This section applies to deployments of the Trifacta platform within the enterprise infrastructure.

- **Amazon AWS:** For more information, see *Install for High Availability on AWS*.

The Trifacta platform can also integrate with a highly available Hadoop cluster. For more information, see *Enable Integration with Cluster High Availability* in the Configuration Guide.

Limitations

The following limitations apply to this feature:

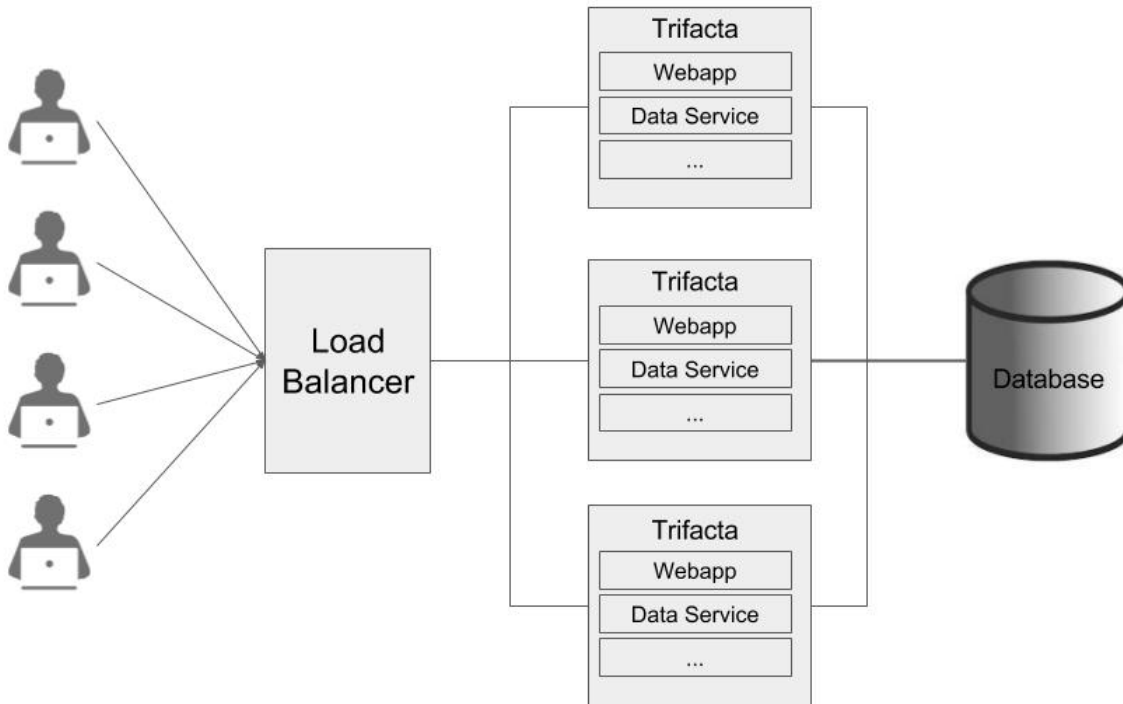
- This form of high availability is not supported for Marketplace installations.
- Job canceling does not work.
- When HA is enabled, the restart feature in the Admin Settings page does not work. You must restart using the command line.
- The platform must be installed on `/opt/trifacta` on every failover node.
- This feature does not apply to the following components:
 - Hadoop cluster (See previous link.)
 - webhdfs/httpfs
 - Sentry
 - Navigator
 - Atlas
 - any other application/infrastructure with which the Trifacta platform can integrate

For more information, see *Configure for High Availability* in the Configuration Guide.

Overview

The Trifacta platform supports an Active-Active HA deployment model, which works well at scale. The architecture features a single load balancer sitting in front of multiple nodes running the Trifacta platform. Each node:

- communicates with the same database
- shares the `/opt/trifacta/conf` and `/opt/trifacta/logs` directories through NFS.



- **Database:** PostgreSQL supports HA. The HA-enabled database runs outside of the cluster of platform nodes and appears to each node as a single database. No application code changes are required.
- **Load balancer:** HAProxy is used for its capabilities on health checking the other HA nodes. This load balancer periodically checks the health of the other nodes in the setup.
 - If the health for a given node fails, then the load balancer stops routing traffic to that node while continuing to poll its health.
 - If the node recovers, the load balancer resumes sending traffic to it.
 - Node health is described below.
- **Synchronized configuration:** All nodes share the `/opt/trifacta/conf` mount point, which allows the same configuration files to be visible and accessible on each node.

Job interruption

In case of a failover event, any in-progress job should be marked as failed.

Failover events/scenarios around jobs:

#	Job	Event	Resulting job state
1	In progress	The batch job runner is fine, but executor running the job fails.	Failed ✓
2	In progress	The batch job runner or the node dies.	In Progress ✗
3	Queued	The batch job runner or the node dies.	In Progress ¹ ✗
4	Pending	The batch job runner or the node dies.	In Progress ^{1 2} ✗

¹ It may not be "In Progress". However, the job has not truly failed.

² A nuance around #3. There is a feature flag that can be enabled and is enabled by default, which causes pending jobs to be marked as failed on (re)start of batch job runner. However, because this feature indiscriminately marks *all* pending jobs as failed, it cannot be safely enabled in an environment that has multiple running batch job runners.

Installation Topography

The Trifacta platform supports a single load balancer placed in front of multiple nodes, each of which runs the same version of Trifacta Self-Managed Enterprise Edition. Content between nodes is shared using an NFS resource mount.

- **master node:** This node is the default one used for hosting and serving the Trifacta platform. Example node information:

```
NFS Server Hostname: server.local
NFS Server IP Address: 192.168.1.101
```

- **client node(s):** These nodes are failover nodes in case the master node is unavailable. Example node information:

```
NFS Client Hostname: client.local
NFS Client IP Address: 192.168.1.102
```

- **load balancer:** This documentation references set up for HAProxy as an example. If you are using a different load balancer, please consult the documentation that came with your product.

Shared resources:

Each node shares the following resources:

- Trifacta databases
- Directories shared via NFS mount:

```
/opt/trifacta/logs
/opt/trifacta/conf
```

Order of Installation

Steps:

1. All nodes must meet the system requirements. See *System Requirements* in the Planning Guide.
2. All nodes must have the appropriate ports opened. See *System Ports* in the Planning Guide.
3. Install the databases.

NOTE: The databases must be installed in a location that is accessible to all nodes.

NOTE: When installing databases for high availability access, you should deploy standard access and replication techniques that are consistent with the policies of your enterprise.

See *Install Databases* in the Databases Guide.

4. Complete the installation process for the server node.

NOTE: After install, do not start the Trifacta node.

See *Install Software*.

5. Repeat the above process for each of the client nodes.
6. The software is installed on all nodes. No node is running the software.

Configuration

Additional configuration is required.

NOTE: Starting and stopping the platform in high availability mode requires additional steps.

For more information, see *Configure for High Availability* in the Configuration Guide.

Install On-Premises

Contents:

- *Scenario Description*
 - *Limitations*
 - *Deployment Limitations*
 - *Product Limitations*
 - *Pre-requisites*
 - *Preparation*
 - *Deploy the Cluster*
 - *Prepare the cluster*
 - *Deploy the Trifacta node*
 - *Install Workflow*
 - *Next Steps*
-

To install Trifacta® inside your enterprise infrastructure, please review and complete the following sections in the order listed below.

Scenario Description

- Installation of Trifacta on a server on-premises
- Installation of Trifacta databases on a server on-premises
- Integration with a supported Hadoop cluster on premises.
- Base storage layer of HDFS

Limitations

Deployment Limitations

None.

Product Limitations

For general limitations of Trifacta, see *Product Limitations* in the Planning Guide.

Pre-requisites

Please acquire the following assets:

- **Install Package:** Acquire the installation package for your operating system.
 - **License Key:** As part of the installation package, you should receive a license key file. See *License Key* for details.
 - For more information, contact *Trifacta Support*.
- **Offline system dependencies:** If you are completing the installation without Internet access, you must also acquire the offline versions of the system dependencies. See *Install Dependencies without Internet Access*.

Preparation

Before you install Trifacta, please complete the following steps.

1. **Deploy Hadoop cluster:** In this scenario, the Trifacta platform does not create a Hadoop cluster.

NOTE: Installation and maintenance of a working Hadoop cluster is the responsibility of the customer. Guidance is provided below on the requirements for integrating the platform with the cluster.

2. **Deploy Trifacta node:** Trifacta must be installed on an edge node of the cluster.

Details are below.

Deploy the Cluster

In your enterprise infrastructure, you must deploy a cluster using a supported version of Hadoop to manage the expected data volumes of your Trifacta jobs.

The Trifacta platform supports integration with the following cluster types. For more information on the supported versions, please see the listed sections below.

- See *Supported Deployment Scenarios for Cloudera*.
- See *Supported Deployment Scenarios for Hortonworks*.
- For more information on suggested sizing, see *Sizing Guidelines* in the Planning Guide.

NOTE: Cluster information including cluster configuration files must be accessible to the Trifacta node. These requirements are described in the following section.

Job execution:

- By default, smaller jobs are executed in the Photon running environment on the Trifacta node.
- Larger jobs are executed using Spark on the integrated Hadoop cluster. A supported version of Spark must be installed on the cluster. For more information, see *System Requirements* in the Planning Guide.

Prepare the cluster

Please verify or complete the following steps if you are integrating with a Hadoop cluster:

1. On the Hadoop cluster:
 - a. Create a user [`hadoop.user` (default=`trifacta`)] and a group for it [`hadoop.group` (default=`trifactausers`)].
 - b. Create the following directories:
 - i. `/trifacta`
 - ii. `/user/trifacta`
 - c. Change the ownership of `/trifacta` and `/user/trifacta` to `trifacta:trifacta` or the corresponding values for the Hadoop user in your environment.

NOTE: You must verify that the [`hadoop.user`] user has complete ownership and full access to Read, Write and Execute on these directories recursively.

2. Verify that WebHDFS is configured and running on the cluster.
3. Software installation is completed on a dedicated node in the cluster. The user installing the Trifacta software must have sudo access.
4. If you are installing on a server with an older instance of Postgres, you should remove the older version or change the default ports.

For more information, see *Prepare Hadoop for Integration with the Platform* in the Configuration Guide.

Additional users may be required. For more information, see *Required Users and Groups* in the Planning Guide.

Deploy the Trifacta node

An edge node of the cluster is required to host the Trifacta platform software. For more information on the requirements of this node, see *System Requirements* in the Planning Guide.

Install Workflow

The installation and configuration process requires the following steps. To continue, see Next Steps below.

1. **Install software:** Install the Trifacta platform software on the Trifacta node. See *Install Software*.
2. **Install databases:** The platform requires several databases for storage.

NOTE: The default configuration assumes that you are installing the databases on a PostgreSQL server on the same edge node as the software using the default ports. If you are changing the default configuration, additional configuration is required as part of this installation process.

For more information, see *Install Databases* in the Databases Guide.

3. **Start the platform:** For more information, see *Start and Stop the Platform*.
4. **Login to the application:** After software and databases are installed, you can login to the application to complete configuration:
 - a. See *Login*.
 - b. As soon as you login, you should change the password on the admin account. In the left nav bar, select **User menu > Admin console > Admin settings**. Scroll down to Manage Users. For more information, see *Change Admin Password* in the Configuration Guide.

Tip: At this point, you can access the online documentation through the application. In the left nav bar, select **Help menu > Documentation**. All of the following content, plus updates, is available online. See *Documentation* below.

5. **Install configuration:** After you are able to successfully login to the Trifacta application, you must configure the product to work with your backend storage layer and the running environment on the cluster. See *Install Configuration*.

Next Steps

To continue, please install the Trifacta software on the Trifacta node.

NOTE: Please complete the installation steps for the operating system version that is installed on the Trifacta node.

See *Install Software*.

Configure Server Access through Proxy

When you attempt to launch the application, you may receive an error message similar to the following:

```
No internet connection
Remote server timed out.
```

In some environments, your desktop machine may need to connect to the Internet through a proxy server to access the Trifacta® node.

Please complete the following configuration steps to access the Trifacta servers.

Steps:

1. In the No internet connection dialog, click **Configure Proxy Settings**.
2. Please provide the following configuration information for your proxy server:
 - a. **Proxy Host:** The URL of the proxy server. Please include the protocol identifier (e.g. `http://` or `https://`).
 - b. **Proxy Port:** The port number to use to connect to the proxy server. In a URL, this value appears after a colon (e.g. `http://myproxy.example.com:8080`).
 - c. **Username:** (optional) If your proxy requires a username to access, please enter it here.
 - d. **Password:** (optional) Password associated with the user name.
3. Click **Save Proxy Settings and Restart**.

When the application restarts, you should be able to connect to the login screen.

NOTE: If you continue to have difficulties connecting to the Internet, please contact your network administrator or Internet provider.

Install Software

To install Trifacta®, please review and complete the following sections in the order listed below.

Install Dependencies without Internet Access

Contents:

- *Install CentOS or RHEL dependencies without Internet access*
 - *Install software dependencies on CentOS or RHEL*
 - *Install database dependencies on CentOS or RHEL*
 - *Install database client on CentOS or RHEL*
- *Install Ubuntu dependencies without Internet access*
 - *Install software dependencies on Ubuntu*
 - *Install database dependencies on Ubuntu*
 - *Install database client on Ubuntu*

Offline dependencies should be included in the URL location that Trifacta® provided to you. Please use the `*dependencies*` file.

NOTE: If your installation server is connected to the Internet, the required dependencies are automatically downloaded and installed for you. You may skip this section.

Use the steps below to acquire and install dependencies required by the Trifacta platform. If you need further assistance, please contact *Trifacta Support*.

Install CentOS or RHEL dependencies without Internet access

Install software dependencies on CentOS or RHEL

1. In a CentOS or RHEL environment, the dependencies repository must be installed into the following directory:

```
/var/local/trifacta
```

2. The following commands configure Yum to point to the repository in `/var/local/trifacta`, which yum knows as `local`. Repo permissions are set appropriately. Commands:

```
tar xvzf <DEPENDENCIES_ARCHIVE>.tar.gz
mv local.repo /etc/yum.repos.d
mv trifacta /var/local
chown -R root:root /var/local/trifacta
chmod -R o-w+r /var/local/trifacta
```

3. The following command installs the RPM while disable all repos other than local, which prevents the installer from reaching out to the Internet for package updates:

NOTE: The disabling of repositories only applies to this command.

```
sudo yum --disablerepo=* --enablerepo=local install <INSTALLER>.rpm
```

4. If the above command fails and complains about a missing repo, you can add the missing repo to the `enablerepo` list. For example, if the `centos-base` repo is reported as missing, then the command would be the following:


```
sudo yum --disablerepo=* --enablerepo=local,centos-base install <INSTALLER>.rpm
```

5. If you do not have a supported version of a Java Developer Kit installed on the Trifacta node, you can use the following command to install OpenJDK, which is included in the offline dependencies:

```
sudo yum --disablerepo=* --enablerepo=local,centos-base install java-1.8.0-openjdk-1.8.0 java-1.8.0-openjdk-devel
```

6. **For CentOS 8.x:** If you are installing on CentOS 8.x, you must complete the following manual dependency install for NodeJS.

```
sudo yum --disablerepo=* --enablerepo=local nodejs-12.16.1-1nodesource.x86_64.rpm
```

Install database dependencies on CentOS or RHEL

If you are installing the databases on a CentOS node without Internet access, you can install the dependencies using the appropriate command:

NOTE: This step is only required if you are installing the databases on the same node where the software is installed.

For PostgreSQL 12.3:

```
sudo yum --disablerepo=* --enablerepo=local install postgresql12-server
```

For PostgreSQL 9.6:

```
sudo yum --disablerepo=* --enablerepo=local install postgresql96-server
```

For MySQL:

```
sudo yum --disablerepo=* --enablerepo=local install mysql-community-server
```

NOTE: You must also install the MySQL JARs on the Trifacta node. These instructions are provided later.

Databases are installed after the software is installed. For more information, see *Install Databases* in the Databases Guide.

Install database client on CentOS or RHEL

If you are installing the databases on a remote server from the Trifacta node, then you must install the database client for your database distribution on the Trifacta node.

NOTE: The server dependencies include both server and client. This step is only required if you are installing the database server on a remote node from the Trifacta node.

PostgreSQL DB client:

Please complete the following steps to install the database client. In the following, the PostgreSQL 9.6 client is installed. Please modify the commands for CentOS/RHEL 8 and PostgreSQL 12.3.

1. Login to the Trifacta node.
2. If you have not done so already, download and unzip the dependencies for your distribution.
3. Remove the client if it exists on the node. The following removes the PostgreSQL 9.6 client:

```
yum list installed | grep postgresql
sudo yum erase postgresql96.x86_64 postgresql96-libs.x86_64
```

4. Verify that `psql` and `pgdump` are not present:

```
which psql
which pg_dump
```

5. Install the client from the RPM. The following installs the updated PostgreSQL 9.6 client for CentOS/RHEL 7.x:

```
cd /opt/trifacta/rpms/el/7/
sudo yum --disablerepo=* --enablerepo=local install postgresql96-9.6.10-1PGDG.rhel7.x86_64.rpm
```

6. Verify that `psql` and `pgdump` are not present:

```
which psql
which pg_dump
```

7. Verify that `psql` is working and can connect to the remote DB server:

```
psql --host=<remote_db_hostname> --username=<username> --dbname=<database_name>
```

Above requires a password. For more information on default database names and usernames, see *Manual Database Install*.

MySQL 5.7 DB client:

You must license, download, and install the MySQL database client separately. For more information, see *Install Database Client for MySQL*.

Install Ubuntu dependencies without Internet access

Install software dependencies on Ubuntu

In an Ubuntu environment, you can use the following sequence of commands to install the dependencies without Internet access. The following example is for Release 7.6.0 and Ubuntu 16.04 (Xenial).

1. Login to the Trifacta node.
2. If you have not done so already, download and unzip the dependencies for your distribution.
3. Execute the following commands to unzip the TAR file and install the dependencies:

```
cd /opt
sudo mv trifacta-server-deps-7.6.0-ubuntu-16.04.tar.gz .
sudo gunzip trifacta-server-deps-7.6.0-ubuntu-16.04.tar.gz
sudo tar xvf trifacta-server-deps-7.6.0-ubuntu-16.04.tar
```

Install database dependencies on Ubuntu

If you are installing the databases on an Ubuntu node without Internet access, you can install the dependencies using the appropriate command:

NOTE: This step is only required if you are installing the databases on the same node where the software is installed.

1. Execute the following command on the TAR file to view the available PostgreSQL dependencies:

```
tar tvf trifacta-server-deps-7.6.0-ubuntu-16.04.tar.gz | grep -i pg | awk '{print $6}'
```

2. The available PostgreSQL dependencies are displayed:

```
trifacta-repo/postgresql-client-12_12.5-1.pgdg16.04+1_amd64.deb
trifacta-repo/postgresql-client-9.6_9.6.20-1.pgdg16.04+1_amd64.deb
trifacta-repo/postgresql-12_12.5-1.pgdg16.04+1_amd64.deb
trifacta-repo/postgresql-9.6_9.6.20-1.pgdg16.04+1_amd64.deb
```

For PostgreSQL 12.3:

```
sudo dpkg -i postgresql-12_12.5-1.pgdg16.04+1_amd64.deb
```

For PostgreSQL 9.6:

```
sudo dpkg -i postgresql-9.6_9.6.20-1.pgdg16.04+1_amd64.deb
```

For MySQL:

You must license, download, and install the MySQL database software separately.

NOTE: You must also install the MySQL JARs on the Trifacta node. These instructions are provided later.

Databases are installed after the software is installed. For more information, see *Install Databases* in the Databases Guide.

Install database client on Ubuntu

If you are installing the databases on a remote server from the Trifacta node, then you must install the database client for your database distribution on the Trifacta node.

NOTE: The server dependencies include both server and client. This step is only required if you are installing the database server on a remote node from the Trifacta node.

DB client for PostgreSQL 12.3:

```
sudo dpkg -i postgresql-client-12_12.5-1.pgdg16.04+1_amd64.deb
```

DB client for PostgreSQL 9.6:

```
sudo dpkg -i postgresql-client-9.6_9.6.20-1.pgdg16.04+1_amd64.deb
```

DB client for MySQL 5.7:

You must license, download, and install the MySQL database client separately. For more information, see *Install Database Client for MySQL*.

Install for Docker

Contents:

- *Deployment Scenario*
 - *Limitations*
 - *Requirements*
 - *Docker Daemon*
 - *Database client*
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 - *Acquire from FTP site*
 - *Build your own Docker image*
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 - *Start and Stop the Container*
 - *Stop container*
 - *Restart container*
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 - *Stop and destroy the container*
 - *Verify Deployment*
 - *Configuration*
-

This guide steps through the process of acquiring and deploying a Docker image of the Trifacta® platform in your Docker environment. Optionally, you can build the Docker image locally, which enables further configuration options.

Deployment Scenario

- Trifacta Self-Managed Enterprise Edition deployed into a customer-managed environment: On-premises, AWS, or Azure.
- PostgreSQL 12.3 or MySQL 5.7 installed either:
 - Locally
 - Remote server
- Connected to a supported Hadoop cluster.
- Kerberos integration is supported.

Limitations

NOTE: For Docker installs and upgrades, only the dependencies for the latest supported version of each supported major Hadoop distribution are available for use after upgrade. For more information on the supported versions, please see the `hadoop-deps` directory in the installer. Dependencies for versions other than those available on the installer are not supported.

- You cannot upgrade to a Docker image from a non-Docker deployment.
- You cannot switch an existing installation to a Docker image.

- Supported distributions of Cloudera or Hortonworks:
 - *Supported Deployment Scenarios for Cloudera*
 - *Supported Deployment Scenarios for Hortonworks*
- The base storage layer of the platform must be HDFS. Base storage of S3 is not supported.
- High availability for the Trifacta platform in Docker is not supported.
- SSO integration is not supported.

Requirements

Support for orchestration through Docker Compose only

- Docker version 17.12 or later. Docker version must be compatible with the following version(s) of Docker Compose.
- Docker-Compose 1.24.1. Version must be compatible with your version of Docker.

Docker Daemon

	Minimum	Recommended
CPU Cores	2 CPU	4 CPU
Available RAM	8 GB RAM	10+ GB RAM

Database client

Installation or upgrade of the product in a Dockerized environment requires installation of appropriate database client on the Trifacta node.

Database vendor	Description
PostgreSQL 12.3/9.6	The database client is included as part of the image and is automatically installed.
MySQL 5.7	The database client must be downloaded and installed by the customer. It is not available in the Docker image. The database client must be referenced through the Docker image file. <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>NOTE: Before you perform an upgrade of your deployment that connects to a MySQL database, please contact <i>Trifacta Customer Success Services</i>.</p> </div>

Preparation

1. Review the *Desktop Requirements* in the Planning Guide.

NOTE: Trifacta Self-Managed Enterprise Edition requires the installation of a supported browser on each desktop.

2. Acquire your *License Key*.

Acquire Image

You can acquire the latest Docker image using one of the following methods:

1. Acquire from FTP site.
2. Build your own Docker image.

Acquire from FTP site

Steps:

1. Download the following files from the FTP site:
 - a. `trifacta-docker-setup-bundle-x.y.z.tar`
 - b. `trifacta-docker-image-x.y.z.tar`

NOTE: `x.y.z` refers to the version number (e.g. `6.4.0`).

2. Untar the `setup-bundle` file:

```
tar xvf trifacta-docker-setup-bundle-x.y.z.tar
```

3. Files are extracted into a `docker` folder. Key files:

File	Description
<code>docker-compose-local-postgres.yaml</code>	Runtime configuration file for the Docker image when PostgreSQL is to be running on the same machine. More information is provided below.
<code>docker-compose-local-mysql.yaml</code>	Runtime configuration file for the Docker image when MySQL is to be running on the same machine. More information is provided below.
<code>docker-compose-remote-db.yaml</code>	Runtime configuration file for the Docker image when the database is deployed on a remote server. <p>NOTE: You must manage this instance of the database.</p> More information is provided below.
<code>README-running-trifacta-container.md</code>	Instructions for running the Trifacta container <p>NOTE: These instructions are referenced later in this workflow.</p>
<code>README-building-trifacta-container.md</code>	Instructions for building the Trifacta container <p>NOTE: This file does not apply if you are using the provided Docker image.</p>

4. Load the Docker image into your local Docker environment:

```
docker load < trifacta-docker-image-x.y.z.tar
```

5. Confirm that the image has been loaded. Execute the following command, which should list the Docker image:

```
docker images
```

6. You can now configure the Docker image. Please skip that section.

Build your own Docker image

As needed, you can build your own Docker image.

Requirements

- Docker version 17.12 or later. Docker version must be compatible with the following version(s) of Docker Compose.
- Docker Compose 1.24.1. It should be compatible with above version of Docker.

Build steps

1. Acquire the RPM file from the FTP site:

NOTE: You must acquire the el7 RPM file for this release.

2. In your Docker environment, copy the `trifacta-server*.rpm` file to the same level as the `Dockerfile`.
3. Verify that the `docker-files` folder and its contents are present.
4. Use the following command to build the image:

```
docker build -t trifacta/server-enterprise:latest .
```

5. This process could take about 10 minutes. When it is completed, you should see the build image in the Docker list of local images.

NOTE: To reduce the size of the Docker image, the Dockerfile installs the `trifacta-server` RPM file in one stage and then copies over the results to the final stage. The RPM is not actually installed in the final stage. All of the files are properly located.

6. You can now configure the Docker image.

Configure Docker Image

Before you start the Docker container, you should review the properties for the Docker image. In the provided image, please open the appropriate `docker-compose` file:

File	Description
<code>docker-compose-local-postgres.yaml</code>	Database properties in this file are pre-configured to work with the installed instance of PostgreSQL, although you may wish to change some of the properties for security reasons.
<code>docker-compose-local-mysql.yaml</code>	Database properties in this file are pre-configured to work with the installed instance of MySQL, although you may wish to change some of the properties for security reasons.
<code>docker-compose-remote-db.yaml</code>	The Trifacta databases are to be installed on a remote server that you manage. <p>NOTE: Additional configuration is required.</p>

NOTE: You may want to create a backup of this file first.

Key general properties:

NOTE: Avoid modifying properties that are not listed below.

Property	Description
image	This reference must match the name of the image that you have acquired.
container_name	Name of container in your Docker environment.
ports	Defines the listening port for the Trifacta application. Default is 3005. NOTE: If you must change the listening port, additional configuration is required after the image is deployed. See <i>Change Listening Port</i> .

Database properties:

These properties pertain to the database installation to which the Trifacta application connects.

Property	Description
DB_INIT	If set to <code>true</code> , database initialization steps are performed at startup. NOTE: This step applies only if you are starting the container for the first time, and the databases will be installed locally.
DB_TYPE	Set this value to <code>postgresql</code> or <code>mysql</code> .
DB_HOST_NAME	Hostname of the machine hosting the databases. Leave value as <code>localhost</code> for local installation.
DB_HOST_PORT	(Remote only) Port number to use to connect to the databases. Default is 5432. NOTE: If you are modifying, additional configuration is required after installation is complete. See <i>Change Database Port</i> in the Databases Guide.
DB_ADMIN_USERNAME	Admin username to be used to create DB roles/databases. Modify this value for remote installation. NOTE: If you are modifying this value, additional configuration is required. Please see the documentation for your database version.
DB_ADMIN_PASSWORD	Admin password to be used to create DB roles/databases. Modify this value for remote installation.

Kerberos properties:

If your Hadoop cluster is protected by Kerberos, please review the following properties.

Property	Description
----------	-------------

KERBEROS_KEYTAB_FILE	<p>Full path inside of the container where the Kerberos keytab file is located. Default value:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">/opt/trifacta/conf/trifacta.keytab</div> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>NOTE: The keytab file must be imported and mounted to this location. Configuration details are provided later.</p> </div>
KERBEROS_KRB5_CONF	<p>Full path inside of the container where the Kerberos <code>krb5.conf</code> file is located. Default:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">/opt/krb-config/krb5.conf</div>

Hadoop distribution client JARs:

Please enable the appropriate path to the client JAR files for your Hadoop distribution. In the following example, the Cloudera path has been enabled, and the Hortonworks path has been disabled:

```
# Mount folder from outside for necessary hadoop client jars
# For CDH
- /opt/cloudera:/opt/cloudera
# For HDP
#- /usr/hdp:/usr/hdp
```

Please modify these lines if you are using Hortonworks.

Volume properties:

These properties govern where volumes are mounted in the container.

NOTE: These values should not be modified unless necessary.

Property	Description
volumes.conf	<p>Full path in container to the Trifacta configuration directory. Default:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">/opt/trifacta/conf</div>
volumes.logs	<p>Full path in container to the Trifacta logs directory. Default:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">/opt/trifacta/logs</div>
volumes.license	<p>Full path in container to the Trifacta license directory. Default:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">/trifacta-license</div>

Start Server Container

After you have performed the above configuration, execute the following to initialize the Docker container:

```
docker-compose -f <docker-compose-filename>.yaml run trifacta initfiles
```

When the above is started for the first time, the following directories are created on the localhost:

Directory	Description
./trifacta-data	Used by the Trifacta container to expose the <code>conf</code> and <code>logs</code> directories.

Import Additional Configuration Files

After you have started the new container, additional configuration files must be imported.

Import license key file

The Trifacta license file must be staged for use by the platform. Stage the file in the following location in the container:

NOTE: If you are using a non-default path or filename, you must update the `<docker-compose-filename>.yaml` file.

```
trifacta-license/license.json
```

Import Hadoop distribution libraries

If the container you are creating is on the edge node of your Hadoop cluster, you must provide the Hadoop libraries.

1. You must mount the Hadoop distribution libraries into the container. For more information on the libraries, see the documentation for your Hadoop distribution.
2. The Docker Compose file must be made aware of these libraries. Details are below.

Import Hadoop cluster configuration files

Some core cluster configuration files from your Hadoop distribution must be provided to the container. These files must be copied into the following directory within the container:

```
./trifacta-data/conf/hadoop-site
```

For more information, see *Configure for Hadoop* in the Configuration Guide.

Install Kerberos client

If Kerberos is enabled, you must install the Kerberos client and keytab on the node container. Copy the keytab file to the following stage location:

```
/trifacta-data/conf/trifacta.keytab
```

See *Configure for Kerberos Integration* in the Configuration Guide.

Perform configuration changes as necessary

The primary configuration file for the platform is in the following location in the launched container:

```
/opt/trifacta/conf/trifacta-conf.json
```

NOTE: Unless you are comfortable working with this file, you should avoid direct edits to it. All subsequent configuration can be applied from within the application, which supports some forms of data validation. It is possible to corrupt the file using direct edits.

Configuration topics are covered later.

Start and Stop the Container

Stop container

Stops the container but does not destroy it.

NOTE: Application and local database data is not destroyed. As long as the `<docker-compose-filename>.yaml` properties point to the correct location of the `*-data` files, data should be preserved. You can start new containers to use this data, too. Do not change ownership on these directories.

```
docker-compose -f <docker-compose-filename>.yaml stop
```

Restart container

Restarts an existing container.

```
docker-compose -f <docker-compose-filename>.yaml start
```

Recreate container

Recreates a container using existing local data.

```
docker-compose -f <docker-compose-filename>.yaml up --force-recreate -d
```

Stop and destroy the container

Stops the container and destroys it.

The following also destroys all application configuration, logs, and database data. You may want to back up these directories first.

```
docker-compose -f <docker-compose-filename>.yaml down
```

Local PostgreSQL:

```
sudo rm -rf trifacta-data/ postgres-data/
```

Local MySQL or remote database:

```
sudo rm -rf trifacta-data/
```

Verify Deployment

1. Verify access to the server where the Trifacta platform is to be installed.
2. **Cluster Configuration:** Additional steps are required to integrate the Trifacta platform with the cluster. See *Prepare Hadoop for Integration with the Platform* in the Planning Guide.
3. Start the platform within the container. See *Start and Stop the Platform*.

Configuration

After installation is complete, additional configuration is required. You can complete this configuration from within the application.

Steps:

1. Login to the application. See *Login*.
2. The primary configuration interface is the Admin Settings page. From the left menu, select **User menu > Admin console > Admin settings**. For more information, see *Admin Settings Page* in the Admin Guide.
3. In the Admin Settings page, you should do the following:
 - a. Configure password criteria. See *Configure Password Criteria*.
 - b. Change the Admin password. See *Change Admin Password*.
4. Workspace-level configuration can also be applied. From the left menu, select **User menu > Admin console > Workspace settings**. For more information, see *Workspace Settings Page* in the Admin Guide.

The Trifacta platform requires additional configuration for a successful integration with the datastore. Please review and complete the necessary configuration steps. For more information, see *Configure* in the Configuration Guide.

Install on CentOS and RHEL

Contents:

- *Preparation*
 - *Required version of RPM for CentOS*
 - *Installation*
 - *Python setup tools*
 - *1. Install Dependencies*
 - *2. Install JDK*
 - *3. Install Trifacta package*
 - *4. Verify Install*
 - *5. Install License Key*
 - *6. Install Hadoop dependencies*
 - *7. Set File Ownership*
 - *8. Store install packages*
 - *Install Hadoop Dependencies*
 - *Included Dependencies*
 - *Acquire Other Dependencies*
 - *Install Dependencies*
 - *Next Steps*
 - *Install and configure Trifacta databases*
 - *Install configuration*
-

This guide takes you through the steps for installing Trifacta® software on CentOS or Red Hat.

For more information on supported operating system versions, see *Product Support Matrix* in the Planning Guide.

Preparation

Before you install software, please review and verify the following.

NOTE: Except for database installation and configuration, all install commands should be run as the root user or a user with similar privileges. For database installation, you will be asked to switch the database user account.

Steps:

1. Review key sections of the Planning Guide:
 - a. Review the *System Requirements* and verify that all required components have been installed.
 - b. Verify that all required *System Ports* are opened on the node.
 - c. Review the *System Dependencies* in the Planning Guide.
 - d. **Cluster Configuration:** Additional steps are required to integrate the Trifacta platform with the cluster. See *Prepare Hadoop for Integration with the Platform* in the Planning Guide.
2. Acquire your *License Key*.
3. Install and verify operations of the datastore, if used.

NOTE: Access to the Spark cluster is required.

4. Verify access to the server where the Trifacta platform is to be installed.

Required version of RPM for CentOS

The installer for the Trifacta platform on CentOS/RHEL requires RPM version 4.11.3-40. Please upgrade if necessary.

NOTE: On CentOS/RHEL 7.4 or earlier, the installer may fail to launch on earlier versions of RPM.

Installation

Python setup tools

The Python setup tools can be useful for debugging startup issues.

Tip: These tools are useful. They are not required.

To install:

CentOS/RHEL 8.x:

```
yum install python3-setuptools
```

CentOS/RHEL 7.x:

```
yum install python-setuptools
```

1. Install Dependencies

Without Internet access

If you have not done so already, you may download the dependency bundle with your release directly from Trifacta. For more information, see *Install Dependencies without Internet Access*.

With Internet access

Use the following to add the hosted package repository for CentOS/RHEL, which will automatically install the proper packages for your environment.

```
# If the client has curl installed ...
curl https://packagecloud.io/install/repositories/trifacta/dependencies/script.rpm.sh | sudo bash

# Otherwise, you can also use wget ...
wget -qO- https://packagecloud.io/install/repositories/trifacta/dependencies/script.rpm.sh | sudo bash
```

Additional dependencies for CentOS 8.x

If you are installing on CentOS 8.x, you must complete the following manual dependency installs.

NodeJS:

```
yum -y --disablerepo="*" --enablerepo="trifacta_dependencies" install nodejs
```

PostgreSQL:

NOTE: This step is required only if you are installing the Trifacta platform onto CentOS 8.x and are using PostgreSQL to host the Trifacta databases. Otherwise, you may skip this step.

```
yum -y --disablerepo="*" --enablerepo="trifacta_dependencies" install postgresql196-server
```

2. Install JDK

By default, the Trifacta node uses OpenJDK for accessing Java libraries and components. In some environments, basic setup of the node may include installation of a JDK. Please review your environment to verify that an appropriate JDK version has been installed on the node.

NOTE: Use of Java Development Kits other than OpenJDK is not currently supported. However, the platform may work with the Java Development Kit of your choice, as long as it is compatible with the supported version(s) of Java. For more information, see *System Requirements* in the Planning Guide.

Tip: OpenJDK is included in the offline dependencies, which can be used to install the platform without Internet access. For more information, see *Install Dependencies without Internet Access*.

The following commands can be used to install OpenJDK. These commands can be modified to install a separate compatible version of the JDK.

```
sudo yum install java-1.8.0-openjdk-1.8.0 java-1.8.0-openjdk-devel
```

NOTE: If `java-1.8.0-openjdk-devel` is not included, the batch job runner service, which is required, fails to start.

JAVA_HOME:

By default, the `JAVA_HOME` environment variable is configured to point to a default install location for the OpenJDK package.

NOTE: If you have installed a JDK other than the OpenJDK version provided with the software, you must set the `JAVA_HOME` environment variable on the Trifacta node to point to the correct install location.

The property value must be updated in the following locations:

1. Edit the following file: `/opt/trifacta/conf/env.sh`
2. Save changes.

3. Install Trifacta package

NOTE: If you are installing without Internet access, you must reference the local repository. The command to execute the installer is slightly different. See *Install Dependencies without Internet Access*.

NOTE: Installing the Trifacta platform in a directory other than the default one is not supported or recommended.

Install the package with yum, using root:

```
sudo yum install <rpm file>
```

4. Verify Install

The product is installed in the following directory:

```
/opt/trifacta
```

JAVA_HOME:

The platform must be made aware of the location of Java.

Steps:

1. Edit the following file:
`/opt/trifacta/conf/trifacta-conf.json`
2. Update the following parameter value:

```
"env": {  
  "JAVA_HOME": "/usr/lib/jvm/java-1.8.0-openjdk.x86_64"  
},
```

3. Save changes.

5. Install License Key

Please install the license key provided to you by Trifacta. See *License Key*.

6. Install Hadoop dependencies

If you are integrating with a supported Hadoop cluster, you must install the dependencies for the Hadoop cluster on the Trifacta node. See below.

7. Set File Ownership

All files in the Trifacta install directory and sub-directories must be owned by the same user that is used to run the Trifacta platform. Mismatches in ownership and execution permissions can cause services to fail to start.

Steps:

Before you upgrade, please complete the following:

1. Login to the Trifacta node as the root user.

2. Execute the following command. The user that is being granted ownership of the install directory is `trifacta`, which is the default user that runs the platform. If you are using a different user to run your Trifacta deployment, please substitute that name.

```
chown -R trifacta:trifacta /opt/trifacta
```

8. Store install packages

For safekeeping, you should retain all install packages that have been installed with this Trifacta deployment.

Install Hadoop Dependencies

If you are integrating Hadoop cluster, the associated Hadoop dependencies must be installed on the Trifacta® node.

Included Dependencies

The Hadoop dependencies for the latest supported version of each Hadoop distribution are included in the Trifacta software distribution.

Supported Versions:

- *Supported Deployment Scenarios for Cloudera*
- *Supported Deployment Scenarios for Hortonworks*
- *Configure for EMR in the Configuration Guide*

Not required for:

NOTE: If you are integrating with one of the following running environments, please skip installing Hadoop dependencies.

Azure running environments:

- HDI
- Azure Databricks

Acquire Other Dependencies

Hadoop dependencies for other versions of the Hadoop distribution can be acquired from the Trifacta FTP site using one of the following methods.

Via a web browser

1. Log in: <https://ftp.trifacta.com/login>
2. Browse to the following directory:

```
Releases/Trifacta_x.y/hadoop/
```

where: `x.y` corresponds to the release number that you are installing (e.g. Release 6.8).

3. Download the following file: `hadoop_deps.tar.gz`

Via WGET

Example is for Release 6.8:

```
wget --user CustomerUsername --ask-password ftps://ftp.trifacta.com/Releases/Trifacta_6.8/hadoop/hadoop-deps.tar.gz
```

Via SFTP

Example is for Release 6.8:

```
sftp CustomerUsername@ftp.trifacta.com:Releases/Trifacta_6.8/hadoop/hadoop-deps.tar.gz .
```

Via CURL

Example is for Release 6.8:

```
curl -O -C - -u CustomerUsername:CustomerPassword ftps://ftp.trifacta.com/Releases/Trifacta_6.8/hadoop/hadoop-deps.tar.gz
```

Via FTP/FTPS

1. Access the FTP server via your preferred FTP client.
2. Browse to the following directory:

```
Releases/Trifacta_x.y/hadoop/
```

where: `x.y` corresponds to the release number that you are installing (e.g. Release 6.8).

3. Download the following file: `hadoop_deps.tar.gz`

Install Dependencies

If needed, transfer the download to the Trifacta node.

Extract it to the following directory:

```
sudo tar -vxf hadoop-deps.tar --directory /opt/trifacta/
```

NOTE:

After you extract the files to the target directory, verify that the ownership of the new directory (`/opt/trifacta/hadoop-deps/`) and its subfolders match the ownership settings for the rest of the Trifacta installation in `/opt/trifacta`.

Next Steps

Install and configure Trifacta databases

The Trifacta platform requires installation of several databases. If you have not done so already, you must install and configure the databases used to store Trifacta metadata. See *Install Databases* in the Databases Guide.

Install configuration

After installation is complete, additional configuration is required to make the platform operational. See *Install Configuration*.

Install on Ubuntu

Contents:

- *Preparation*
 - *Installation*
 - *1. Install Dependencies*
 - *2. Install JDK*
 - *3. Install Trifacta package*
 - *4. Verify Install*
 - *5. Install License Key*
 - *6. Install Hadoop dependencies*
 - *7. Set File Ownership*
 - *8. Store install packages*
 - *Install Hadoop Dependencies*
 - *Included Dependencies*
 - *Acquire Other Dependencies*
 - *Install Dependencies*
 - *Next Steps*
 - *Install and configure Trifacta databases*
 - *Install configuration*
-

This guide takes you through the steps for installing Trifacta® software on Ubuntu.

For more information on supported operating system versions, see *Product Support Matrix* in the Planning Guide.

Preparation

Before you begin, please complete the following.

NOTE: Except for database installation and configuration, all install commands should be run as the root user or a user with similar privileges. For database installation, you will be asked to switch the database user account.

Steps:

1. Review key sections of the Planning Guide:
 - a. Review the *System Requirements* and verify that all required components have been installed.
 - b. Verify that all required *System Ports* are opened on the node.
 - c. Review the *System Dependencies* in the Planning Guide.
 - d. **Cluster configuration:** Additional steps are required to integrate the Trifacta platform with the cluster. See *Prepare Hadoop for Integration with the Platform* in the Planning Guide.
2. Acquire your *License Key*.
3. Install and verify operations of the datastore, if used.

NOTE: Access to the cluster may be required.

4. Verify access to the server where the Trifacta platform is to be installed.

Installation

Tip: The Python setup tools can be useful for debugging startup issues. To install:

1. Install Dependencies

Without Internet access

If you have not done so already, you may download the dependency bundle with your release directly from Trifacta . For more information, see *Install Dependencies without Internet Access*.

With Internet access

Use the following to add the hosted package repository for Ubuntu, which will automatically install the proper packages for your environment.

NOTE: Install curl if not present on your system.

Then, execute the following command:

NOTE: Run the following command as the root user. In proxied environments, the script may encounter issues with detecting proxy settings.

```
curl https://packagecloud.io/install/repositories/trifacta/dependencies/script.deb.sh | sudo bash
```

Special instructions for Ubuntu installs

These steps manually install the correct and supported version of the following:

- nodeJS
- nginx
- Supervisor

Due to a known issue resolving package dependencies on Ubuntu, please complete the following steps prior to installation of other dependencies or software.

1. Login to the Trifacta node as an administrator.
2. Execute the following command to install nodeJS, nginx, and Supervisor:

- a. Ubuntu 16.04 (Xenial):

```
sudo apt-get install supervisor=3.2.4 nginx=1.17.7-1~xenial nodejs=14.15.4-1nodesource1
```

- b. Ubuntu 18.04 (Bionic Beaver):

```
sudo apt-get install supervisor=3.2.4 nginx=1.17.7-1~bionic nodejs=14.15.4-1nodesource1
```

3. Continue with the installation process.

2. Install JDK

By default, the Trifacta node uses OpenJDK for accessing Java libraries and components. In some environments, basic setup of the node may include installation of a JDK. Please review your environment to verify that an appropriate JDK version has been installed on the node.

NOTE: Use of Java Development Kits other than OpenJDK is not currently supported. However, the platform may work with the Java Development Kit of your choice, as long as it is compatible with the supported version(s) of Java. For more information, see *System Requirements* in the Planning Guide.

Tip: OpenJDK is included in the offline dependencies, which can be used to install the platform without Internet access. For more information, see *Install Dependencies without Internet Access*.

The following commands can be used to install OpenJDK. These commands can be modified to install a separate compatible version of the JDK.

```
sudo apt-get install openjdk-8-jre-headless
```

JAVA_HOME:

By default, the `JAVA_HOME` environment variable is configured to point to a default install location for the OpenJDK package.

NOTE: If you have installed a JDK other than the OpenJDK version provided with the software, you must set the `JAVA_HOME` environment variable on the Trifacta node to point to the correct install location.

The property value must be updated in the following locations:

1. Edit the following file: `/opt/trifacta/conf/env.sh`
2. Save changes.

3. Install Trifacta package

NOTE: If you are installing without Internet access, you must reference the local repository. The command to execute the installer is slightly different. See *Install Dependencies without Internet Access*.

NOTE: Installing the Trifacta platform in a directory other than the default one is not supported or recommended.

Install the package with apt, using root:

NOTE: If you encounter errors running the following command, execute the next command anyway. If that command completes without error, the installation is ok.

```
sudo dpkg -i <deb file>
```

The previous line may return an error message, which you may ignore. Continue with the following command:

```
sudo apt-get -f -y install
```

4. Verify Install

The product is installed in the following directory:

```
/opt/trifacta
```

JAVA_HOME:

The platform must be made aware of the location of Java.

Steps:

1. Edit the following file:
`/opt/trifacta/conf/trifacta-conf.json`
2. Update the following parameter value:

```
"env": {  
  "JAVA_HOME": "/usr/lib/jvm/java-1.8.0-openjdk.x86_64"  
},
```

3. Save changes.

5. Install License Key

Please install the license key provided to you by Trifacta. See *License Key*.

6. Install Hadoop dependencies

If you are integrating with a supported Hadoop cluster, you must install the dependencies for the Hadoop cluster on the Trifacta node. See below.

7. Set File Ownership

All files in the Trifacta install directory and sub-directories must be owned by the same user that is used to run the Trifacta platform. Mismatches in ownership and execution permissions can cause services to fail to start.

Steps:

Before you upgrade, please complete the following:

1. Login to the Trifacta node as the root user.
2. Execute the following command. The user that is being granted ownership of the install directory is `trifacta`, which is the default user that runs the platform. If you are using a different user to run your Trifacta deployment, please substitute that name.

```
chown -R trifacta:trifacta /opt/trifacta
```


8. Store install packages

For safekeeping, you should retain all install packages that have been installed with this Trifacta deployment.

Install Hadoop Dependencies

If you are integrating Hadoop cluster, the associated Hadoop dependencies must be installed on the Trifacta® node.

Included Dependencies

The Hadoop dependencies for the latest supported version of each Hadoop distribution are included in the Trifacta software distribution.

Supported Versions:

- *Supported Deployment Scenarios for Cloudera*
- *Supported Deployment Scenarios for Hortonworks*
- *Configure for EMR in the Configuration Guide*

Not required for:

NOTE: If you are integrating with one of the following running environments, please skip installing Hadoop dependencies.

Azure running environments:

- HDI
- Azure Databricks

Acquire Other Dependencies

Hadoop dependencies for other versions of the Hadoop distribution can be acquired from the Trifacta FTP site using one of the following methods.

Via a web browser

1. Log in: <https://ftp.trifacta.com/login>
2. Browse to the following directory:

```
Releases/Trifacta_x.y/hadoop/
```

where: `x.y` corresponds to the release number that you are installing (e.g. Release 6.8).

3. Download the following file: `hadoop_deps.tar.gz`

Via WGET

Example is for Release 6.8:

```
wget --user CustomerUsername --ask-password ftps://ftp.trifacta.com/Releases/Trifacta_6.8/hadoop/hadoop-deps.tar.gz
```

Via SFTP

Example is for Release 6.8:

```
sftp CustomerUsername@ftp.trifacta.com:Releases/Trifacta_6.8/hadoop/hadoop-deps.tar.gz .
```

Via CURL

Example is for Release 6.8:

```
curl -O -C - -u CustomerUsername:CustomerPassword ftps://ftp.trifacta.com/Releases/Trifacta_6.8/hadoop/hadoop-deps.tar.gz
```

Via FTP/FTPS

1. Access the FTP server via your preferred FTP client.
2. Browse to the following directory:

```
Releases/Trifacta_x.y/hadoop/
```

where: `x.y` corresponds to the release number that you are installing (e.g. Release 6.8).

3. Download the following file: `hadoop_deps.tar.gz`

Install Dependencies

If needed, transfer the download to the Trifacta node.

Extract it to the following directory:

```
sudo tar -vxf hadoop-deps.tar --directory /opt/trifacta/
```

NOTE:

After you extract the files to the target directory, verify that the ownership of the new directory (`/opt/trifacta/hadoop-deps/`) and its subfolders match the ownership settings for the rest of the Trifacta installation in `/opt/trifacta`.

Next Steps

Install and configure Trifacta databases

The Trifacta platform requires installation of several databases. If you have not done so already, you must install and configure the databases used to store Trifacta metadata. See *Install Databases* in the Databases Guide.

Install configuration

After installation is complete, additional configuration is required to make the platform operational. See *Install Configuration*.

License Key

Contents:

- *License limits*
 - *Download license key file*
 - *Acquire license key*
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 - *Command Line*
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 - *Expired license*
 - *Invalid license key file*
-

Access to Trifacta is governed by a license key file that must be uploaded and installed on the Trifacta node.

License limits

Access to the product is determined by two factors:

- Number of users vs. number of users permitted by the license
- Expiration date of the license

How users are counted:

The number of users of the product is determined by:

- Number of active and disabled/suspended users
 - The default admin user account is counted as a valid user. Do not delete this account. For more information, see *Create Admin Account*.
- Deleted users may remain in the system for a period of time. These users are not counted against the license limit.

For more information, see "License key violations" below.

Download license key file

If you have not done so already, the license key file is available where you have acquired the installation package. Please download `license.json`.

Acquire license key

A valid license key (`license.json`) is provided to each customer prior to installation. Your license key file is a JSON file that contains important information on your license.

NOTE: If your license key has expired, please contact *Trifacta Support*.

Install your license key

If you are updating your license, you may want to save your previous license key to a new location before overwriting.

NOTE: Do not maintain multiple license key files in this directory.

Upload through the application

Steps:

1. Navigate to the URL for the Trifacta application.
2. Login as an administrator.
3. From the menu, select **User menu > Admin console > Admin Settings**.
4. Scroll down to the bottom of the page. Click **Upload License**.
5. Navigate your local environment to select your license key file. Click **Open**.

The license key file is updated.

Command Line

To apply your license key, copy the key file to the following location in the Trifacta® deployment:

```
/opt/trifacta/license
```

Update your license key

After you have installed your license key, you can update your license with a new one through the Admin Settings page. See *Admin Settings Page* in the Admin Guide.

Changing the license key location

By default, the license key file in use must be named: `license.json`.

If needed, you can change the path and filename of the license key. The property is the following:

```
"license.location"
```

See *Admin Settings Page* in the Admin Guide.

License key violations

Too many users

If you have created more users in the Trifacta application than are supported by your license key, a notification banner is displayed.

NOTE: Although you are permitted to continue to use the application, you must remove users from your user base to maintain compliance with your license key. For more information on adjusting your license key, please contact *Trifacta Support*.

NOTE: Usage of the APIs is not blocked when user count limits are violated.

License expiration date reached

If you attempt to use Trifacta or its APIs after your license key has expired, access is prevented.

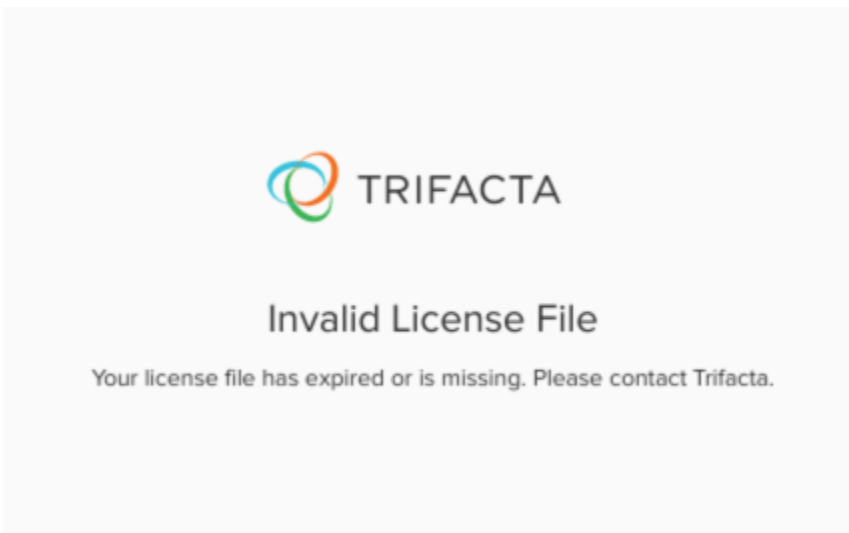
Please contact *Trifacta Support* to extend your license.

Expired license

NOTE: If your license expires, you cannot use the product until a new and valid license key file has been applied. When administrators attempt to login to the application, they are automatically redirected to a location from which they can upload a new license key file.

Invalid license key file

When you start the Trifacta platform, you may see the following:



Your license key is missing or has expired. Please contact *Trifacta Support*.

Start and Stop the Platform

Contents:

- *Command Line*
 - *Start*
 - *Restart*
 - *Stop*
- *Configure Platform Restart*
- *Troubleshooting*
 - *Error - "ImportError: No module named pkg_resources" error in supervisord*
 - *Error - SequelizeConnectionRefusedError: connect ECONNREFUSED*

Tip: The Restart Trifacta button in the Admin Settings page is the preferred method for restarting the platform.

NOTE: The restart button is not available when high availability is enabled for the Trifacta® node.

See *Admin Settings Page* in the Admin Guide.

Command Line

NOTE: In an Azure HDI environment, you must perform platform start and stop operations from `/opt/trifacta`. Running these commands from other directories, such as `/root`, can cause service issues.

Start

NOTE: These operations must be executed under the root user.

Command:

```
service trifacta start
```

Verify operations

Steps:

1. Check logs for errors:

```
/opt/trifacta/logs/*.log
```

- a. You can also access logs through the Trifacta® application for each service. See *System Services and Logs* in the Admin Guide.

2. Login to the Trifacta application. If available, perform a simple transformation operation. See *Login*.

3. Run a simple job. See *Verify Operations* in the Admin Guide.

Restart

Command:

```
service trifacta restart
```

When the login page is available, the system has been restarted. See *Login*.

Stop

Command:

```
service trifacta stop
```

Configure Platform Restart

By default, the Trifacta platform waits for a period of time for the Trifacta application to restart before re-activating the user interface. As needed, you can review and modify the following settings, which define the parameters of these restarts.

Steps:

1. You can apply this change through the *Admin Settings Page* (recommended) or `trifacta-conf.json`.
For more information, see *Platform Configuration Methods*.
2. Locate the following parameters, and adjust settings as needed:

```
"webapp.waitForRestart.initialWait": 45000,  
"webapp.waitForRestart.intervalWait": 5000,  
"webapp.waitForRestart.maxChecks": 60,
```

Setting	Description
webapp.waitForRestart.initialWait	Number of seconds to wait for the Trifacta application before checking it for a successful restart. Default is 45000 milliseconds (45 seconds).
webapp.waitForRestart.intervalWait	After the initial wait period has failed, this value is the number of seconds to wait before checking the Trifacta application for a successful restart. Default is 5000 milliseconds (5 seconds).
webapp.waitForRestart.maxChecks	Total number of checks for a successful restart before failing the Trifacta application.

3. Save your changes and restart the application.

Troubleshooting

You can verify operations of WebHDFS. Command:

```
curl -i "http://<hadoop_node>:<port_number>/webhdfs/v1/?op=LISTSTATUS&user.name=trifacta"
```

Error - "ImportError: No module named pkg_resources" error in supervisord

When you start the platform for the first time, you may receive the following error:

```
Traceback (most recent call last):
File "/usr/local/bin/supervisord", line 5, in <module>
from pkg_resources import load_entry_point
ImportError: No module named pkg_resources
```

This error occurs when the supervisord process is starting. The Trifacta platform fails to complete startup.

Solution:

This issue is caused by a missing package for supervisord. The simplest solution is to install the Python setup tools on the Trifacta node. Commands are listed below.

NOTE: These commands must be executed as root user.

CentOS/RHEL:

```
yum install python-setuptools
```

Ubuntu:

```
wget https://bootstrap.pypa.io/ez_setup.py -O - | python
```

After installation is complete, restart the platform.

Error - SequelizeConnectionRefusedError: connect ECONNREFUSED

If you have attempted to start the platform after an operating system reboot, you may receive the following error message, and the platform start fails to complete:

```
2016-10-04T14:03:17.883Z - error: [ENVIRONMENT] Environment Sanity Test Failed
2016-10-04T14:03:17.883Z - error: [ENVIRONMENT] Exception Type: Error
2016-10-04T14:03:17.883Z - error: [ENVIRONMENT] Exception Message: SequelizeConnectionRefusedError: connect
ECONNREFUSED
```

Solution:

NOTE: This solution applies to PostgreSQL 12 only. Please modify for your installed database version.

This error can occur when the operating system is restarted. Please execute the following commands to check the PostgreSQL configuration and restart the databases.

```
chkconfig postgresql-12 on
```

Then, restart the platform as normal.

```
service trifacta restart
```


Login

NOTE: Administrators of the platform should change the default password for the admin account. See *Change Admin Password* in the Admin Guide.

To login to the Trifacta® application, navigate to the following in your browser:

`http://<host_name>:<port_number>`

where:

- `<host_name>` is the host of the Trifacta application.
- `<port_number>` is the port number to use. Default is 3005.

If you do not have an account, click **Register**.

NOTE: If you enter a mismatched password and password confirmation, registration fails as expected. If you correct the mismatch and try to register again, registration may fail again. The workaround is to clear your browser cache and register again. This is a known issue.

- If self-registration is enabled, you may be able to immediately login after registering.
- If Kerberos or secure impersonation is enabled, an administrator must apply a Hadoop principal value to the account before you can login. Please contact your Trifacta administrator.
- System administrators can enable self-registration. See *Configure User Self-Registration* in the Configuration Guide.

After you login, you are placed in the Home page. See *Home Page* in the User Guide.

Tip: When you login for the first time, you can immediately import a dataset to begin transforming it.

- If you are using S3 as your base storage layer and per-user authentication has been enabled, you must provide the AWS credentials to connect to your storage. From the left navigation bar, select **User menu > Preferences > Storage** and then select the AWS option. See *Configure Your Access to S3* in the Configuration Guide.
- For a basic walkthrough of the Trifacta application, see *Workflow Basics* in the User Guide.

You cannot login to the application using an unsupported browser version. For more information on supported versions, see *Desktop Requirements*.

Product Documentation:

NOTE: After you log in the Trifacta application, you can access online documentation for your product. Select **Help menu > Documentation**.

To log out:

From the User menu, select **Log out**.

Install Reference

These appendices provide additional information during installation of Trifacta®.

Install SSL Certificate

Contents:

- *Pre-requisites*
 - *Configure nginx*
 - *Modify listening port for Trifacta platform*
 - *Add secure HTTP headers*
 - *Enable secure cookies*
 - *Disable default port*
 - *Update certificates*
 - *Troubleshooting*
-

You may optionally configure an SSL certificate to secure connections to the web application of the Trifacta® platform.

Pre-requisites

1. A valid SSL certificate for the FQDN where the Trifacta application is hosted
2. Root access to the Trifacta server
3. Trifacta platform is up and running

Configure nginx

There are two separate Nginx services on the server: one service for internal application use, and one service that functions as a proxy between users and the Trifacta application. To install the SSL certificate, all configuration are applied to the proxy process only.

NOTE: Do not apply these configuration changes to the nginx files in `/opt/trifacta/conf`. Those files apply to the internal nginx server, which is not covered by SSL.

Steps:

1. Log into the Trifacta server as the **centos** user. Switch to the **root** user:

```
sudo su
```

2. Enable the proxy nginx service so that it starts on boot:

```
systemctl enable nginx
```

3. Create a folder for the private key and limit access to it:

```
sudo mkdir /etc/ssl/private/ && sudo chmod 700 /etc/ssl/private
```

4. Copy the following files to the server. If you copy and paste the content, please ensure that you do not miss characters or insert unwanted characters.
 - a. The `.key` file should go into the `/etc/ssl/private/` directory.
 - b. The `.crt` file and the CA bundle/intermediate certificate bundle should go into the `/etc/ssl/certs/` directory.

NOTE: The delivery name and format of these files varies by provider. Please verify with your provider's documentation if this is unclear.

- c. Your certificate and the intermediate/authority certificate must be combined into one file for nginx. Here is an example of how to combine them together:

```
cat example_com.crt bundle.crt >> ssl-bundle.crt
```

5. Update the permissions on these files. Modify the following filenames as necessary:

```
sudo chmod 600 /etc/ssl/certs/ssl-bundle.crt
sudo chmod 600 /etc/ssl/private/your-private-cert.key
```

6. Use the following commands to deploy the example SSL configuration file provided on the server:

NOTE: Below, some values are too long for a single line. Single lines that overflow to additional lines are marked with a \. The backslash should not be included if the line is used as input.

```
cp /opt/trifacta/conf/ssl-nginx.conf.sample /etc/nginx/conf.d/trifacta.conf && \
rm /etc/nginx/conf.d/default.conf
```

7. Edit the following file:

```
/etc/nginx/conf.d/trifacta.conf
```

8. Please modify the following key directives at least:

Directive	Description
server_name	FQDN of the host, which must match the SSL certificate's Common Name
ssl_certificate	Path to the file of the certificate bundle that you created on the server. This value may not require modification.
ssl_certificate_key	Path to the .key file on the server.

Example file:

```

server {
    listen          443;
    ssl             on;
    server_name    EXAMPLE.CUSTOMER.COM;
    # Don't limit the size of client uploads.
    client_max_body_size 0;
    access_log     /var/log/nginx/ssl-access.log;
    error_log      /var/log/nginx/ssl-error.log;
    ssl_certificate /etc/ssl/certs/ssl-bundle.crt;
    ssl_certificate_key /etc/ssl/certs/EXAMPLE-NAME.key;
    ssl_protocols  SSLv3 TLSv1 TLSv1.1 TLSv1.2;
    ssl_ciphers    RC4:HIGH:!aNULL:!MD5;
    ssl_prefer_server_ciphers on;
    keepalive_timeout 60;
    ssl_session_cache shared:SSL:10m;
    ssl_session_timeout 10m;
    location / {
        proxy_pass http://localhost:3005;
        proxy_next_upstream error timeout invalid_header http_500 http_502 http_503 http_504;
        proxy_set_header    Accept-Encoding    "";
        proxy_set_header    Host              $host;
        proxy_set_header    X-Real-IP        $remote_addr;
        proxy_set_header    X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header    X-Forwarded-Proto $scheme;
        add_header          Front-End-Https  on;
        proxy_http_version  1.1;
        proxy_set_header    Upgrade          $http_upgrade;
        proxy_set_header    Connection      "upgrade";
        proxy_redirect      off;
    }
    proxy_connect_timeout    6000;
    proxy_send_timeout       6000;
    proxy_read_timeout       6000;
    send_timeout             6000;
}
server {
    listen          80;
    return 301 https://$host$request_uri;
}

```

9. Save the file.
10. To apply the new configuration, start or restart the nginx service:

```
service nginx restart
```

Modify listening port for Trifacta platform

If you have changed the listening port as part of the above configuration change, then the `proxy.port` setting in Trifacta platform configuration must be updated. See *Change Listening Port*.

Add secure HTTP headers

If you have enabled SSL on the platform, you can optionally insert the following additional headers to all requests to the Trifacta node:

Header	Protocol	Required Parameters
X-XSS-Protection	HTTP and HTTPS	<code>proxy.securityHeaders.enabled=true</code>
X-Frame-Options	HTTP and HTTPS	<code>proxy.securityHeaders.enabled=true</code>

Strict-Transport-Security	HTTPS	<code>proxy.securityHeaders.enabled=true</code> and <code>proxy.securityHeaders.httpsHeaders=true</code>
---------------------------	-------	---

NOTE: SSL must be enabled to apply these security headers.

Steps:

To add these headers to all requests, please apply the following change:

1. You can apply this change through the *Admin Settings Page* (recommended) or `trifacta-conf.json`.
For more information, see *Platform Configuration Methods*.
2. Locate the following setting and change its value to `true`:

```
"proxy.securityHeaders.httpsHeaders": false,
```

3. Save your changes and restart the platform.

Enable secure cookies

If you have enabled SSL on the platform, you can optionally enable the use of secure cookies.

NOTE: SSL must be enabled.

Steps:

1. You can apply this change through the *Admin Settings Page* (recommended) or `trifacta-conf.json`.
For more information, see *Platform Configuration Methods*.
2. Locate the following setting and change its value to `true`:

```
"webapp.session.cookieSecureFlag": false,
```

3. Save your changes and restart the platform.

Disable default port

If you wish to access through the default port (3005), you must do so external to the platform and through the node itself.

NOTE: The Trifacta platform requires access to the default port internally. You cannot disable external access to this port through the platform. You must disable through the operating system.

For more information, please see the documentation provided with your operating system distribution.

Update certificates

To replace a certificate with an updated one, please do the following.

Steps:

1. Copy in the new certificate to the Trifacta node.
2. Edit the nginx configuration file:

```
/etc/nginx/conf.d/trifacta.conf
```

3. In the configuration file, replace the values for the following settings to point to the new certificate:
 - a. `ssl_certificate`
 - b. `ssl_certificate_key`
 - c. For more information, see "Configure nginx" above.
4. Save the file, and restart the platform.

Troubleshooting

Problem - SELinux blocks proxy service from communicating with internal app service

If the Trifacta platform is installed on SELinux, the operating system blocks communications between the service that manages the proxy between users and the application and the service that manages internal application communications.

To determine if this problem is present, execute the following command:

```
sudo cat /var/log/audit/audit.log | grep nginx | grep denied
```

The problem is present if an error similar to the following is returned:

```
type=AVC msg=audit(1555533990.045:1826142): avc: denied { name_connect } for pid=25516 comm="nginx"  
dest=3005 scontext=system_u:system_r:httpd_t:s0
```

For more information on this issue, see <https://www.nginx.com/blog/using-nginx-plus-with-selinux>.

Solution:

The solution is to enable the following network connection through the operating system:

```
sudo setsebool -P httpd_can_network_connect 1
```

Restart the platform.

Change Listening Port

If you need to change the listening port for the Trifacta® platform, please complete the following instructions.

Tip: This change most typically applies if you are enabling use of SSL. For more information, see *Install SSL Certificate*.

NOTE: By default, the platform listens on port 3005. All client browsing devices must be configured to enable use of this port or any port number that you choose to use.

Steps:

1. Login to the Trifacta node as an admin.
2. Edit the following file:

```
/opt/trifacta/conf/nginx.conf
```

3. Edit the following setting:

```
server {  
    listen 3005;  
    ...  
}
```

4. Save the file.
5. You can apply this change through the *Admin Settings Page* (recommended) or `trifacta-conf.json`.
For more information, see *Platform Configuration Methods*.
6. Locate the following setting:

```
"proxy.port": 3005,
```

7. Set this value to the same value you applied in `nginx.conf`.
8. Save your changes and restart the platform.

Supported Deployment Scenarios for Cloudera

Contents:

- *Supported Cloudera Distributions*
- *Supported Deployments*
 - *Deployment System*
 - *Running Environment*
 - *Platform Security*
 - *High Availability*
 - *Metadata Publishing*
 - *Supported File Formats*
- *Connectivity*
 - *Hadoop Connectivity*
 - *External Connectivity*
- *Notes*

Supported Cloudera Distributions

NOTE: By default, Cloudera may be installed with Java JDK 1.7 or earlier. If so, you must upgrade each node in the cluster to Java JDK 1.8. For more information, see https://www.cloudera.com/documentation/enterprise/latest/topics/cdh_ig_jdk_installation.html.

For this release, the Trifacta® platform supports the following Cloudera versions.

NOTE: Cloudera 6.x and later requires use of native Hadoop libraries from the cluster.

- Cloudera 6.3.x (recommended)
- Cloudera 6.2.x
- Cloudera Data Platform 7.1

Notes:

- **Update Date:** June 15, 2021
- The Trifacta platform supports all variants of patch or point releases (X.Y.* and X.Y.*.* releases) through the Hadoop vendor's backwards compatibility policy.
- For individual versions of Hadoop components (such as HDFS, Spark, and Hive), the Trifacta platform supports the component version that is bundled with the vendor's package for the supported Hadoop distribution.
- For more information on how to set up your Hadoop distribution, please consult the documentation provided with your distribution or contact your distribution vendor.

Supported Deployments

NOTE: Unless otherwise noted, all items listed below are supported across all Hadoop distribution versions listed above. Unlisted items are not supported. Please contact *Trifacta Support* or your sales representative for items not listed here.

Deployment System

NOTE: The Trifacta platform software must be installed on a gateway node of the Cloudera cluster. For more information, see *System Requirements* in the Planning Guide.

Item	Description
Physical On Premise Machines	Supported.
VMWare / VXServer	Supported.

NOTE: Deployment to an Amazon EC2 is supported. See *Supported Deployment Scenarios for AWS*.

Running Environment

Item	Description
Spark	Supported.
Trifacta Photon	Supported.

Platform Security

Item	Description
HDFS File Permissions	Supported.
HDFS Privileges	Supported through Sentry.
Hive Privileges	Supported through Sentry.
Kerberos-Enabled Hadoop Cluster	Supported.
Secure User Impersonation	Supported.

High Availability

Item	Description
Name Node, Resource Manager, HttpFS	Supported.

Metadata Publishing

Item	Description
Cloudera Navigator	Not supported.
Hive Publishing	Supported.
Redshift Publishing	Supported.

Supported File Formats

See *Supported File Formats* in the User Guide.

Connectivity

Hadoop Connectivity

The Trifacta platform supports connectivity for execution to the following Hadoop environments for this vendor's distributions. Connectivity exceptions are listed below:

Running Environment	HDFS Reader	HDFS Writer	Hive Reader w/ HiveServer2
Spark	Supported.	Supported.	Supported.

Profiling Environment	HDFS Reader	HDFS Writer
Profiling on Spark	Supported.	Supported.

External Connectivity

Storage Platform	HDFS Reader	HDFS Writer
S3	Supported.	Supported.

Storage Platform	Amazon S3 Reader	Amazon S3 Writer
Spark Profiling	Supported.	Supported.

Notes

- none.

Supported Deployment Scenarios for Hortonworks

Contents:

- *Supported Hortonworks Distributions*
 - *Supported Deployments*
 - *Deployment System*
 - *Running Environment*
 - *Platform Security*
 - *High Availability*
 - *Metadata Publishing*
 - *File Formats*
 - *Connectivity*
 - *Hadoop Connectivity*
 - *External Connectivity*
 - *Notes*
-

Supported Hortonworks Distributions

For the following release, the Trifacta® platform supports the following Hortonworks versions.

NOTE: Hortonworks 3.0 and later requires use of native Hadoop libraries.

- Hortonworks 3.1.x

NOTE: Spark 2.4 is not supported on Hortonworks 3.1. Please use Spark 2.3.

- Hortonworks 3.0.x

NOTE: Spark 2.4 is not supported on Hortonworks 3.0. Please use Spark 2.3.

NOTE: For best results, please upgrade your Hadoop distribution.

Notes:

- **Update Date:** March 5, 2021
- The Trifacta platform supports all variants of patch or point releases (X.Y.* and X.Y.*.* releases) through the Hadoop vendor's backwards compatibility policy.
- For individual versions of Hadoop components (such as HDFS, Spark, and Hive), the Trifacta platform supports the component version that is bundled with the vendor's package for the supported Hadoop distribution.
- For more information on how to set up your Hadoop distribution, please consult the documentation provided with your distribution or contact your distribution vendor.

Supported Deployments

NOTE: The Trifacta platform software must be installed on a Ambari/Hadoop client of the Hortonworks cluster. For more information, see *System Requirements* in the Planning Guide.

NOTE: After the Trifacta software has been installed, additional configuration is required for integration with the Hortonworks Data Platform.

NOTE: Unless otherwise noted, all items listed below are supported across all versions listed above. Unlisted items are not supported. Please contact *Trifacta Support* or your sales representative for items not listed here.

Deployment System

Item	Description
Physical On Premise Machines	Supported.
VMWare / VXServer	Supported.

NOTE: Deployment to an Amazon EC2 is supported. See *Supported Deployment Scenarios for AWS*.

Running Environment

Item	Description
Spark	Supported.
Trifacta Photon	Supported.

Platform Security

Item	Description
HDFS File Permissions	Supported.
HDFS Privileges	Supported through Ranger.
Hive Privileges	Supported through Ranger.
Kerberos-Enabled Hadoop Cluster	Supported.
Secure User Impersonation	Supported.

High Availability

Item	Description
Name Node, Resource Manager, HttpFS	Supported.

Metadata Publishing

Item	Description
Hive Publishing	Supported.
Redshift Publishing	Supported.

File Formats

See *Supported File Formats* in the User Guide.

Connectivity

Hadoop Connectivity

The Trifacta platform supports connectivity for execution to the following Hadoop environments for this vendor's distributions.

Running Environment	HDFS Reader	HDFS Writer	Hive Reader w/ HiveServer2
Spark	Supported.	Supported.	Supported.

Profiling Environment	HDFS Reader	HDFS Writer
Profiling on Spark	Supported.	Supported.

External Connectivity

Storage Platform	HDFS Reader	HDFS Writer
S3	Supported.	Supported.

Storage Platform	Amazon S3 Reader	Amazon S3 Writer
Spark Profiling	Supported.	Supported.

Notes

- None.

Uninstall

To remove Trifacta®, execute as root user one of the following commands on the Trifacta node.

NOTE: All platform and cluster configuration files are preserved. User metadata is preserved in the Trifacta database.

CentOS/RHEL:

```
sudo rpm -e trifacta
```

Ubuntu:

```
sudo apt-get remove trifacta
```



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