

# Cloudera Edge Management Installation

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# Contents

<b>Installing standalone Cloudera Edge Management.....</b>	<b>4</b>
Before you begin installing EFM.....	4
System requirements for EFM.....	4
Installing JDK.....	4
Installing EFM.....	5
Installing databases for EFM.....	5
Installing EFM server.....	10
Configuring the EFM server.....	11
Setting the encryption password for EFM.....	12
Open network ports for EFM.....	12
Starting the EFM server.....	12
 <b>Installing Cloudera Edge Management on CDP Private Cloud Base.....</b>	 <b>12</b>
Preparing your database and CDP Private Cloud Base cluster.....	13
Installing JDK.....	13
Installing and configuring a database for EFM.....	14
Installing Cloudera Manager and a CDP Private Cloud Base cluster.....	19
Installing CEM parcel and CSD files.....	19
Installing EFM on your Base cluster.....	21

# Installing standalone Cloudera Edge Management

Get started with Edge Flow Manager (EFM) by installing, configuring, and securing it. Learn about the system requirements, and how to obtain the EFM software package, install the application, configure its settings, and ensure that security measures are in place.

## Before you begin installing EFM

Before you start the Edge Flow Manager (EFM) installation, review the system requirements. Understand the supported operating systems, Java Development Kit (JDK) versions, and browser specifications, and learn how to install the required JDK to optimize EFM functionality.

## System requirements for EFM

### Operating system support

Operating System	Version
RHEL/CentOS	7.x, 8.x
Ubuntu	18.04, 20.04

### JDK support

JDK	Version
OpenJDK	JDK 17
Oracle JDK	JDK 17

### Supported databases

Database	Version
PostgreSQL	12.x, 13.x, 14.x, 15.x, 16.x
MySQL	8.0.x
MariaDB	10.4, 10.5, 10.6, 10.11
OracleDB	19c, 23c

### Browser support

Browser	Version
Chrome	>=76.0 (latest version 80.0 at time of release)
Firefox	>=68.0 (latest version 72.0 at time of release)

## Installing JDK

### About this task

To ensure that Edge Flow Management functions correctly, you need to install JDK on each machine where the EFM server will be installed.



**Note:** Only Java 17 is supported.

### Procedure

1. Download the JDK package from the appropriate website.
2. Run the following installation command.

For RHEL/CentOS:

```
yum install java-17-openjdk
```

### What to do next

After installing the JDK, ensure that you have the required database installed and properly configured for Edge Flow Management.

### Related Information

[OpenJDK Download](#)

[Oracle JDK Download](#)

[Installing MySQL](#)

[Installing PostgreSQL](#)

## Installing EFM

Learn how to install the Edge Flow Manager (EFM). You need to install a database first, and then install and configure the EFM server.

### Installing databases for EFM

Learn how to install a database and configure it to seamlessly integrate with your Edge Flow Manager (EFM) for efficient management, control, and monitoring of dataflows.

The EFM server requires a relational database. EFM comes with an embedded H2 database by default, which is best suited for development and testing. For production, it is better to use an external database solution like MySQL, PostgreSQL, MariaDB, or OracleDB.



#### Note:

You only need to install one of these databases. There is no need to install all four.

### Installing and configuring MySQL

Learn how to install and configure MySQL for Edge Flow Manager (EFM).

For supported database versions, see *System Requirements for EFM*.

If you want to use PostgreSQL, MariaDB, or OracleDB instead of MySQL, you may skip these steps. See the relevant installation instructions in the respective sections.

### Installing MySQL

1. Log in to the machine on which you want to install MySQL to use for the EFM server.
2. Install MySQL and the MySQL community server, and start the MySQL service. For installation instructions, check <https://dev.mysql.com/doc/refman/5.7/en/installing.html>.
3. Obtain the randomly generated MySQL root password.

```
grep 'A temporary password is generated for root@localhost' \
/var/log/mysqld.log |tail -1
```

4. Reset the MySQL root password. Enter the following command. You are prompted for the password you obtained in the previous step. MySQL then asks you to change the password.

```
/usr/bin/mysql_secure_installation
```

5. Download the MySQL JDBC Connector and place it in the EFM lib directory: /path/to/efm-1.4.0/lib/.



**Note:** The folder is created when EFM is being installed.

Download the MySQL database driver from <https://dev.mysql.com/downloads/connector/j/>.



**Note:** The above link redirects you to the latest version of the driver. You need to choose the right driver version that fits your DB setup.

It is recommended to select the Platform Independent offering, download one of the archives, extract, and then copy the connector JAR to the lib directory.

### Configuring MySQL for EFM

1. Launch the MySQL shell:

```
mysql -u root -p
```

2. Create the database for the EFM service to use:

```
CREATE DATABASE efm CHARACTER SET latin1;
```

3. Create the efm user account, replacing the final IDENTIFIED BY string with your password:

```
CREATE USER 'efm'@'%' IDENTIFIED BY 'efmPassword';
```

4. Assign privileges to the efm account:

```
GRANT ALL PRIVILEGES ON efm.* TO 'efm'@'%' ;
```

5. Commit the operation:

```
FLUSH PRIVILEGES;
```

### Configuring EFM database properties

Configure the database properties in the efm.properties file:

```
efm.db.url=jdbc:mysql://localhost:3306/efm
efm.db.driverClass=com.mysql.cj.jdbc.Driver
efm.db.username=efm
efm.db.password=efmPassword
```

The URL should match the host and port of the machine running MySQL. Username and password at the DB side and in the efm.properties file must match.

### Installing and configuring PostgreSQL

Learn how to install and configure PostgreSQL for Edge Flow Manager (EFM).

For supported database versions, see *System Requirements for EFM*.

If you want to use MySQL, MariaDB, or OracleDB instead of PostgreSQL, you may skip these steps. See the relevant installation instructions in the respective sections.

## Installing PostgreSQL

1. Install Red Hat Package Manager (RPM) according to the requirements of your operating system:

```
sudo yum install -y https://download.postgresql.org/pub/repos/yum/reporpms/EL-7-x86_64/pgdg-redhat-repo-latest.noarch.rpm
```

2. Install PostgreSQL version 9.6:

```
yum install postgresql96-server postgresql96-contrib postgresql96
```

3. Initialize the database:

For example, if you are using CentOS 7, use the following syntax:

```
/usr/pgsql-9.6/bin/postgresql96-setup initdb
```

4. Start PostgreSQL.

For example, if you are using CentOS 7, use the following syntax:

```
systemctl enable postgresql-9.6.service  
systemctl start postgresql-9.6.service
```

5. Verify that you can log in:

```
sudo su postgres  
psql
```

## Configuring PostgreSQL to allow remote connections

It is critical that you configure PostgreSQL to allow remote connections before you deploy EFM. If you do not perform these steps in advance of installing the EFM server, the installation fails.

1. Open `/var/lib/pgsql/9.6/data/pg_hba.conf` and update to the following:

```
# "local" is for Unix domain socket connections only  
local all all trust  
  
# IPv4 local connections:  
host all all 0.0.0.0/0 trust  
  
# IPv6 local connections:  
host all all ::/0 trust
```

2. Open `/var/lib/pgsql/9.6/data/postgresql.conf` and update to the following:

```
listen_addresses = '*'
```

3. Restart PostgreSQL.

```
systemctl stop postgresql-9.6.service  
systemctl start postgresql-9.6.service
```

## Configuring PostgreSQL for EFM

1. Log in to PostgreSQL:

```
sudo su postgres  
psql
```

2. Create a database for the EFM service to use:

```
create database efm;  
CREATE USER efm WITH PASSWORD 'efmPassword';  
GRANT ALL PRIVILEGES ON DATABASE "efm" to efm;
```

### Configuring EFM database properties

Configure the database properties in the `efm.properties` file:

```
efm.db.url=jdbc:postgresql://localhost:5432/efm  
efm.db.driverClass=org.postgresql.Driver  
efm.db.username=efm  
efm.db.password=efmPassword
```

The URL should match the host and port of the machine running PostgreSQL. The password should match the value that you set using the following command:

```
CREATE USER efm WITH PASSWORD 'efmPassword';
```

### Installing and configuring MariaDB

Learn how to install and configure MariaDB for Edge Flow Manager (EFM). MariaDB should act as a drop-in binary for MySQL so configuration is very similar.

For supported database versions, see *System Requirements for EFM*.

If you want to use MySQL, PostgreSQL, or OracleDB instead of MariaDB, you may skip these steps. See the relevant installation instructions in the respective sections.

### Installing MariaDB

1. Log in to the machine on which you want to install MariaDB to use for the EFM server.
2. Install MariaDB and the MariaDB server, and start the MariaDB service.

For install instructions, check <https://mariadb.com/kb/en/getting-installing-and-upgrading-mariadb/>.

3. Use the following command to reset the MariaDB root password:

```
/usr/bin/mysql_secure_installation
```

MariaDB then asks you to change the password.

4. Download the MariaDB JDBC connector and place it in the EFM lib directory:

```
/path/to/efm-1.4.0/lib/
```



**Note:** The folder is created when EFM is being installed.

5. Download the MariaDB database driver from <https://mariadb.com/kb/en/about-mariadb-connector-j/>.



**Note:** The above link redirects you to the latest version of the driver. You need to choose the right driver version that fits your DB setup.



**Note:** Cloudera recommends to select the platform independent offering, download one of the archives, extract, and then copy the connector JAR to the lib directory.

## Configuring MariaDB for EFM

1. Launch the MySQL shell:

```
mysql -u root -p
```

2. Create the database for the EFM service to use:

```
CREATE DATABASE efm CHARACTER SET latin1;
```

3. Create the efm user account, replacing the final IDENTIFIED BY string with your password:

```
CREATE USER 'efm'@'%' IDENTIFIED BY 'efmPassword';
```

4. Assign privileges to the efm account:

```
GRANT ALL PRIVILEGES ON efm.* TO 'efm'@'%' ;
```

5. Commit the operation:

```
FLUSH PRIVILEGES;
```

## Configuring EFM database properties

Configure the database properties in the efm.properties file:

```
efm.db.url=jdbc:mariadb://localhost:3306/efm?useMysqlMetadata=true
efm.db.driverClass=org.mariadb.jdbc.Driver
efm.db.username=efm
efm.db.password=efmPassword
```

The URL should match the host and port of the machine running MariaDB. The password should match the value that you set using the following command:

```
CREATE USER 'efm'@'%' IDENTIFIED BY 'efmPassword';
```

## Installing and configuring OracleDB

Learn how to install and configure OracleDB for Edge Flow Manager (EFM).

For supported database versions, see *System Requirements for EFM*.

If you want to use MySQL, PostgreSQL, or MariaDB instead of OracleDB, you may skip these steps. See the relevant installation instructions in the respective sections.

## Installing OracleDB

To install OracleDB, make sure you have a running Oracle database. If you do not have OracleDB installed yet, install it. See the [Oracle Get Started Guide](#) to get familiar with OracleDB. For step-by-step installation instructions, see the [Oracle Installation Guide](#).

## Configuring OracleDB for EFM

1. Open Oracle SQL\*Plus or SQLcl using OS-level authentication.

```
sqlplus / as sysdba
```

2. Create a user/schema for EFM.

```
CREATE USER efm IDENTIFIED BY efmPassword;
```

3. Grant the necessary privileges to the efm user.

```
GRANT CONNECT, RESOURCE, CREATE VIEW TO efm;  
COMMIT;
```

4. Use the following link to download the OracleDb JDBC Connector.

[https://download.oracle.com/otn-pub/otn\\_software/jdbc/233/ojdbc11.jar](https://download.oracle.com/otn-pub/otn_software/jdbc/233/ojdbc11.jar)

5. Once downloaded, move the downloaded file (ojdbc11.jar) to the EFM lib directory.

```
/path/to/efm/lib/
```

### Configuring EFM database properties

Configure the database properties in the efm.properties file:

```
efm.db.url=jdbc:oracle:thin:@localhost:33051/efm  
efm.db.driverClass=oracle.jdbc.OracleDriver  
efm.db.username=efm  
efm.db.password=efmPassword
```

The URL should match the host and port of the machine running OracleDB. The password should match the value that you set using the following command:

```
CREATE USER efm IDENTIFIED BY efmPassword;
```

## Installing EFM server

Learn how to install the Edge Flow Manager (EFM) server.

### Procedure

1. Move the efm-version-bin.tar.gz tarball to the desired host and installation directory.

For download locations, see *EFM download locations*.

2. Extract the EFM tarball in the desired installation directory:

```
tar -xzf efm-version-bin.tar.gz
```



**Important:** You should not install EFM server on HDF nodes, more precisely, where net.ipv4.tcp\_tw\_recycle=1 is set, as it is not compatible with NAT and Load Balancers.

### Related Information

[EFM download locations](#)

### Installing EFM as an operating system service

The Edge Flow Manager (EFM) executable supports installation as a service on most Linux distributions. This is an optional installation step that is not required if you prefer to start the EFM server from the efm.sh executable included in the EFM bin directory.

You can start the application as a service by using either init.d or systemd.

### Install EFM as an init.d service

To install EFM as an init.d service, symlink bin/efm.sh to init.d.

```
$ sudo ln -s /path/to/efm/bin/efm.sh /etc/init.d/efm
```

Once installed, you can start and stop the service as you would other OS services. For example:

```
$ service efm start
```

To configure EFM to start automatically on system boot, use `update-rc.d`. See `man update-rc.d` for information on using this utility.



**Note:** The EFM application runs as the user who owns the `efm.sh` launch script. It is recommended to never run as root. The recommended best practice is to create a specific user for running `efm`. Then use `chown` to make that user the owner of `efm.sh`. For example:

```
$ chown efm:efm /path/to/efm/bin/efm.sh
```

It is also recommended to use Unix or Linux filesystem permissions in order to secure the EFM installation. The rule of setting minimal access permissions applies. All files in the EFM installation should only be accessible to the EFM run-as user. Configuration files should be made read-only (for example, `chmod 400 <file>`). Executable files, such as those in the `bin` directory, should be made read and executable only (for example, `chmod 500 <file>`). Directories in the EFM install location should be readable and writable to the EFM user (for example, `chmod 600 <dir>`).

### Install EFM as a systemd service

Most modern Linux distributions now use `systemd` as the successor to `init.d` (System V). In many cases you can continue to use `init.d`, but it is also possible to launch EFM using `systemd` as a service configuration.

To install EFM as a `systemd` service, create a file named `efm.service` in the `/etc/systemd/system` directory. For example:

```
[Unit]
Description=efm
After=syslog.target

[Service]
User=efm
ExecStart=/path/to/efm/bin/efm.sh
SuccessExitStatus=143

[Install]
WantedBy=multi-user.target
```



**Note:** When using `systemd`, the run-as user, the PID file, and the console log file are managed by `systemd` and therefore must be configured by using appropriate fields in the service script. Consult the service unit configuration `man` page for more details.

To configure EFM to start automatically on system boot, use `systemctl`. See `man systemctl` for information on using this utility.

## Configuring the EFM server

Once the Edge Flow Manager (EFM) server is installed, you can configure it by editing the `efm.properties` file. At minimum, you should edit the EFM server address and configure the connection to your database.

### Procedure

1. Open the `efm.properties` file located in `$EFM_HOME/conf/efm.properties`.



**Note:** The EFM home directory is the root directory where you installed the EFM binary.

## 2. Configure the EFM server address.

Change `efm.server.address=localhost` to `efm.server.address={EFM_IP_OR_HOSTNAME}`, or use `0.0.0.0` to listen on all network interfaces.

## Setting the encryption password for EFM

You need to set the `efm.encryption.password` property which specifies a master password used for encrypting sensitive data saved to the Edge Flow Manager (EFM) server.

You can set it through the `efm.properties` file, a command line argument, or an OS environment variable.

By default, the EFM application uses AES encryption. The encryption key used is deterministically derived from an encryption password that the admin user must provide to the application at runtime. The property that is read for the encryption password is `efm.encryption.password`. You can set the value for this property in following ways:

- As a command line argument: `./bin/efm.sh --efm.encryption.password=myEfmPassword`
- As a Java System Property: `-Defm.encryption.password=myEfmPassword`
- As an OS environment variable: `export EFM_ENCRYPTION_PASSWORD=myEfmPassword`
- As a key/value pair in the `efm.properties` file: `efm.encryption.password=myEfmPassword`



**Note:** The master encryption password must be at least 12 characters long. It must be the same for all EFM instances.

The derived encryption key length is determined by your Java Runtime Environment encryption strength profiles.

- Unlimited Strength Encryption active: AES 256-bit key
- Unlimited Strength Encryption inactive: AES 128-bit key

It is strongly recommended that you enable Unlimited Strength Encryption in your Java Runtime Environment.

## Open network ports for EFM

You should ensure that the required ports are available for the Edge Flow Manager (EFM) server and its components.

Component	Port number
EFM Server HTTP	10090

## Starting the EFM server

Learn how you can start the EFM server after after you installed and configured it.

### Procedure

1. From the EFM server home directory, run the following command.

```
bin/efm.sh start
```

2. Access the UI at the following location.

```
http://{EFM_HOST_OR_IP}:10090/efm/
```

# Installing Cloudera Edge Management on CDP Private Cloud Base

Before you start installing Cloudera Edge Management (CEM) on a CDP Private Cloud cluster, it is helpful to understand the steps of the installation process.

The CEM installation workflow consists of preparing your CDP Private Cloud Base cluster and then installing Edge Flow Management (EFM) on the Base cluster.

Installing EFM on your Base cluster is a simplified deployment during which you create only one cluster. You can use this set-up if you are implementing trial deployments or in simple production scenarios.

**Important:**

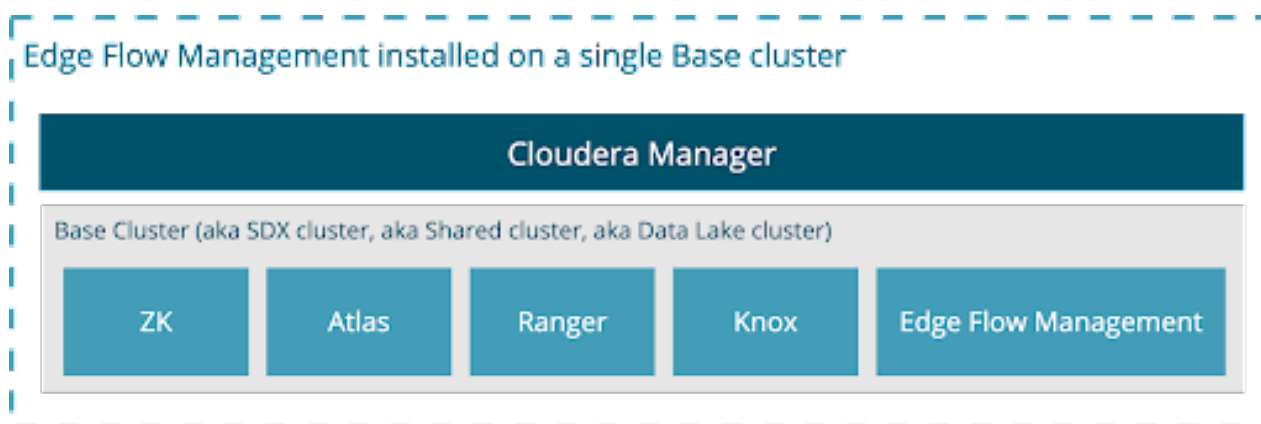
Running multiple Edge Flow Management instances on the same node is not recommended by Cloudera.

A Base cluster is a large cluster that contains SDX services like Ranger and Atlas, along with compute and storage services like Edge Flow Management, Impala, and Hive. It is sometimes called a Regular cluster in Cloudera Manager. Additional synonymous terms are SDX cluster, Shared cluster, or Data Lake cluster.

**Important:**

Cloudera recommends that you always install Edge Flow management on the Base cluster.

After a successful installation on your Base cluster, your Edge Flow Management cluster layout will look similar to the following:



## Preparing your database and CDP Private Cloud Base cluster

Before you start installing Edge Flow Manager (EFM), you need to prepare your CDP Private Cloud Base cluster and a database for the service.

### Installing JDK

**About this task**

To ensure that Edge Flow Management functions correctly, you need to install JDK on each machine where the EFM server will be installed.



**Note:** Only Java 17 is supported.

**Procedure**

1. Download the JDK package from the appropriate website.
2. Run the following installation command.

For RHEL/CentOS:

```
yum install java-17-openjdk
```

## What to do next

After installing the JDK, ensure that you have the required database installed and properly configured for Edge Flow Management.

## Related Information

[OpenJDK Download](#)

[Oracle JDK Download](#)

[Installing MySQL](#)

[Installing PostgreSQL](#)

## Installing and configuring a database for EFM

Learn how to install a database and configure it with your Edge Flow Manager (EFM) to manage, control, and monitor dataflows.

By default, Edge Flow Management is preconfigured with an embedded H2 database. But when setting up Edge Flow Management, you have the option to install and configure an external MySQL or PostgreSQL database to use with EFM.

The H2 database that is preconfigured in the default `efm.properties` file. The contents of the embedded H2 database are stored in a file on your local file system. The H2 database location is specified by the JDBC URL property: Edge Flow Management JDBC URL (`efm.db.url`) – `jdbc:h2:./database/efm`

If you plan to use the embedded H2 database, you can skip the steps for installing and configuring an external database. Alternatively, you can install an external MySQL or PostgreSQL database. To proceed with external database installation, review the following steps.

For a list of supported MySQL or PostgreSQL databases, see *System requirements for EFM*.

## Installing MySQL

Learn how to install a MySQL external database to support Edge Flow Management (EFM). If you have already installed a PostgreSQL or an Oracle database, you can skip these steps, as only one of the databases is required.

## Before you begin

Ensure that you have installed the JDK. For installation instructions, see *Installing the JDK*.

## Procedure

1. Log in to the node where you intend to install EFM.
2. Install MySQL and the MySQL community server, and start the MySQL service.

```
yum localinstall https://dev.mysql.com/get/mysql[***MYSQL_VERSION***]-community-release-el[***RHEL_VERSION***]-[***PACKAGE_VERSION***].noarch.rpm
yum install mysql-community-server
systemctl start mysqld.service
```

Replace the placeholders with the appropriate values for your specific use case:

- `[***MYSQL_VERSION***]`: Selected MySQL version
- `[***RHEL_VERSION***]`: Red Hat Enterprise Linux (RHEL) version you are using
- `[***PACKAGE_VERSION***]`: Specific package version

For a list of supported MySQL databases, see *Supported Edge Flow Management databases*.

For example, if you want to install the MySQL 8.0 Community Edition repository configuration package on a RHEL 8 system, you would use:

```
yum localinstall https://dev.mysql.com/get/mysql80-community-release-el8-8.noarch.rpm
```

3. Obtain the randomly generated MySQL root password.

```
grep 'A temporary password is generated for root@localhost' \
/var/log/mysqld.log |tail -1
```

4. Reset the MySQL root password.

```
/usr/bin/mysql_secure_installation
```

You are prompted for the password you obtained in the previous step. MySQL will request you to change the password.

### What to do next

Once you have completed the MySQL installation, configure it for use with Edge Flow Manager.

### Related Information

[System requirements for EFM](#)

[Installing JDK](#)

[Configuring MySQL](#)

### Configuring MySQL

MySQL offers the option to use an externally located database that supports high availability. Learn how to set up a MySQL database for use with the Edge Flow Manager.

### Before you begin

Ensure that you have installed a MySQL database. For instructions, see *Installing MySQL*.

### Procedure

1. Download the MySQL JDBC driver and save it in an accessible location for later use.

```
/path/to/drivers/mysql-connector-java-8.0.16.jar
```

2. Create a database in MySQL.

a) Access the MySQL shell using the following command: `mysql -u root -p`

b) Run the following command to create a database:

```
CREATE DATABASE efm CHARACTER SET latin1;
```

3. Create a database user and grant privileges.

For remote hosts, specify the appropriate IP address using `nifireg'@'<IP-ADDRESS>` or `nifireg'@'%'`

```
CREATE USER 'efm'@'%' IDENTIFIED BY 'efmPassword';
GRANT ALL PRIVILEGES ON efm.* TO 'efm'@'%' ;
FLUSH PRIVILEGES;
```

4. After the Edge Flow Management service is installed, copy the MySQL driver JAR file saved in Step 1 to `/opt/cloudera/parcels/CEM/EFM/lib`
5. Configure the following database properties in Cloudera Manager.
  - Edge Flow Management JDBC URL (efm.db.url) – `jdbc:mysql://<MYSQL-HOSTNAME>:<MYSQL-POR T>/efm`
  - Edge Flow Management JDBC Driver (efm.db.driverClass) – `com.mysql.cj.jdbc.Driver`
  - Edge Flow Management Database Username (efm.db.username) – `efm`
  - Edge Flow Management Password (efm.db.password) – `efmPassword`

## What to do next

When you have completed the Edge Flow Management database configuration, proceed to installing Cloudera Manager and your CDP Private Cloud Base cluster.

## Related Information

[Installing MySQL](#)

## Installing PostgreSQL

Learn how to install a PostgreSQL external database to support Edge Flow Management (EFM). If you have already installed a MySQL or an Oracle database, you can skip these steps. Only one of the databases is required.

## Before you begin

Ensure that you have installed the JDK. For installation instructions, see *Installing the JDK*.

## Procedure

1. Install Red Hat Package Manager (RPM) according to your operating system's requirements.

```
yum install https://yum.postgresql.org/[***POSTGRESQL_VERSION***]/redhat/rhel-[***RHEL_VERSION***]-x86_64/[***REPOSITORY_PACKAGE_NAME***]
```

Replace the placeholders with the appropriate values for your specific use case:

- [\*\*\*POSTGRESQL\_VERSION\*\*\*]: Desired PostgreSQL version
- [\*\*\*RHEL\_VERSION\*\*\*]: Red Hat Enterprise Linux (RHEL) version you are using
- [\*\*\*REPOSITORY\_PACKAGE\_NAME\*\*\*]: Name of the repository configuration package for the specified PostgreSQL version and RHEL version.

For a list of supported PostgreSQL databases, see *Supported Edge Flow Management databases*.

For example, to add the PostgreSQL 12 repository to a RHEL 8 system, you would use:

```
yum install https://yum.postgresql.org/12/redhat/rhel-8-x86_64/pgdg-redhat12-12-4.noarch.rpm
```

2. Install the PostgreSQL version of your choice.

```
yum install postgresql[***POSTGRESQL_VERSION***]-server postgresql[***POSTGRESQL_VERSION***]-contrib postgresql[***POSTGRESQL_VERSION***]
```

For example, if you wanted to add the PostgreSQL 12, you would use:

```
yum install postgresql12-server postgresql12-contrib postgresql12
```

3. Initialize the database.

For CentOS 7, use the following syntax:

```
[***POSTGRESQL_BIN_PATH***]/postgresql[***POSTGRESQL_VERSION***]-setup initdb
```

For example, to initialize PostgreSQL 12, you would use:

```
/usr/pgsql-12/bin/postgresql12-setup initdb
```

#### 4. Enable and start PostgreSQL.

```
systemctl enable postgresql-[***POSTGRESQL_VERSION***].service  
systemctl start postgresql-[***POSTGRESQL_VERSION***].service
```

For example, if you are using CentOS 7, use the following syntax:

```
systemctl enable postgresql-12.service  
systemctl start postgresql-12.service
```

#### 5. Verify that you can log in.

```
sudo su postgres  
psql
```

### What to do next

When PostgreSQL is installed, configure the database for use with Edge Flow Management.

#### Related Information

[System requirements for EFM](#)

[Installing JDK](#)

[Configuring PostgreSQL](#)

#### Configuring PostgreSQL

PostgreSQL offers the option to use an externally located database that supports high availability. Learn how to set up a MySQL database for use with the Edge Flow Manager.

### Before you begin

Ensure that you have installed a PostgreSQL database. For instructions, see *Installing PostgreSQL*.

### Procedure

1. Download the Postgres JDBC driver and save it in an accessible location for later use.

```
/path/to/drivers/postgresql-42.2.2.jar
```

2. Create a database in PostgreSQL using createdb efm.
3. Create a database user and grant privileges.

```
CREATE USER efm WITH PASSWORD 'efmPassword';  
GRANT ALL PRIVILEGES ON DATABASE "efm" to efm;
```

4. After Edge Flow Management service is installed, copy the PostgreSQL driver JAR file saved in Step 1 to /opt/cloudera/parcels/CEM/EFM/lib
5. Configure the following database properties in Cloudera Manager.
  - Edge Flow Management JDBC URL (efm.db.url) – jdbc:mysql://<POSTGRES-HOSTNAME>:<POSTGRES-PORT>/efm
  - Edge Flow Management JDBC Driver (efm.db.driverClass) – org.postgresql.Driver
  - Edge Flow Management Database Username (efm.db.username) – efm
  - Edge Flow Management Password (efm.db.password) – efmPassword

### What to do next

When you have completed the Edge Flow Management database configuration, proceed to installing Cloudera Manager and your CDP Private Cloud Base cluster.

## Related Information

[Installing PostgreSQL](#)

## Installing Oracle

Learn how to install an external Oracle database to support Edge Flow Management (EFM).

Follow the Oracle documentation to install the database. This step is required only if you do not have the Oracle database installed in your data center or environment. If you are using an existing Oracle database, you can skip this step. If you have already installed a PostgreSQL or a MySQL database, you can also skip these steps. Only one of the databases is required.

For a list of supported Oracle databases, see *Supported Edge Flow Management databases*.

## What to do next

Once you have installed Oracle, configure the database for use with Edge Flow Management.

## Configuring Oracle

Learn how to configure a Oracle database to integrate with Edge Flow Manager.

## About this task

Oracle provides the option to use an externally located database that supports high availability.

## Before you begin

You have installed an Oracle database. For details, see *Installing Oracle*.

## Procedure

1. Download the [Oracle JDBC connector](#) and save it somewhere accessible for later use.

```
/path/to/drivers/ojdbc11.jar
```

2. Open Oracle SQL\*Plus or SQLcl using OS-level authentication.

```
sqlplus / as sysdba
```

3. Create a database user and grant privileges.

```
CREATE USER efm IDENTIFIED BY efmPassword;  
GRANT CONNECT, RESOURCE, CREATE VIEW TO efm;  
COMMIT;
```

4. After the Edge Flow Management service is installed, copy the Oracle driver jar file saved in Step 1 to /opt/cloudera/parcels/CEM/EFM/lib.
5. Configure the database properties in Cloudera Manager.
  - Edge Flow Management JDBC Url (efm.db.url) – jdbc:oracle:thin://<ORACLE-HOSTNAME>:<ORACLE-PORT>/efm
  - Edge Flow Management JDBC Driver (efm.db.driverClass) – oracle.jdbc.OracleDriver
  - Edge Flow Management Database Username (efm.db.username) – efm
  - Edge Flow Management Password (efm.db.password) – efmPassword

## What to do next

When you have completed the Edge Flow Management database configuration, proceed to installing Cloudera Manager and your CDP Private Cloud Base cluster.

## Installing Cloudera Manager and a CDP Private Cloud Base cluster

Before installing Cloudera Edge Management, you need to set up CDP Private Cloud Base with Cloudera Manager.

### Before you begin

- Make sure you have installed a JDK.
- If you intend to use an external database, ensure you have installed and configured it.

### About this task

See the *CDP Private Cloud Base Installation Guide* for comprehensive instructions on installing Cloudera Manager and a CDP Private Cloud Base cluster. Ensure to perform the following minimum steps.

### Procedure

1. Install CDP Private Cloud Base.

See the *CDP Private Cloud Base Installation Guide* for more information.

2. Enable Auto-TLS and Kerberos.



**Important:** Unsecured Edge Flow Management is not supported.

For details on security options and recommendations, see the *CEM Security* documentation.



**Note:**

- Wildcard certificates are not supported.
- If Edge Flow Management operates behind Knox, do not use wildcard certificates for Knox.

For more information on certificate requirements, see *TLS certificate requirements and recommendations*.

As Edge Flow Management has no dependency on any other CDP Private Cloud Base service, you do not need to install additional services.

### What to do next

When the CDP Private Cloud Base cluster installation is ready, add the CEM parcel and CSD files.

### Related Information

[CEM security overview](#)

## Installing CEM parcel and CSD files

To set up Cloudera Edge Management (CEM) on a CDP Private Cloud Base cluster, you need to add the CEM parcel to your cluster using Cloudera Manager, making the Edge Flow Management service available for installation. Additionally, you also need to upload the Edge Flow Management Custom Service Descriptor (CSD) files to the default CSD directory. These files contain crucial configuration information required to describe and manage the new service effectively.

### Before you begin

- You have installed a JDK. For more information, see *Installing the JDK*.
- You have installed and configured a database for use with Edge Flow Management. For more information, see *Installing and configuring a database for Edge Flow Management*.
- You have installed a CDP Private Cloud Base cluster. For more information, see *Installing Cloudera Manager and a CDP Private Cloud Base cluster*.

## Procedure

1. Log into Cloudera Manager.
2. Navigate to the Parcels page by selecting Hosts Parcels .
3. Click Parcel Repository & Network Settings.
4. Add the Repository URL.
  - a) On the Parcel Repository & Network Settings page, click + to add an additional row in the Remote Parcel Repository URLs list.
  - b) Add the URL of the CEM parcel repository where the parcel file that you intend to install is hosted.

**Note:**

When providing the URL, make sure that the actual parcel file name is not included in the string you add. Cloudera Manager will search for any parcel files located within the specified directory.

RHEL/CentOS 7

```
https://archive.cloudera.com/p/CEM/redhat7/2.x/updates/2.1.2.0/tars/efm/parcel/
```

RHEL/CentOS 8

```
https://archive.cloudera.com/p/CEM/redhat8/2.x/updates/2.1.2.0/tars/efm/parcel/
```

RHEL/CentOS 8

```
https://archive.cloudera.com/p/CEM/redhat9/2.x/updates/2.1.2.0/tars/efm/parcel/
```

Ubuntu 20

```
https://archive.cloudera.com/p/CEM/ubuntu20/2.x/updates/2.1.2.0/tars/efm/parcel/
```

See *Download locations* for a complete list of parcel links.

5. Click Save & Verify Configuration.

The new CEM parcel is displayed on the Parcels page.
6. Click Download next to CEM to download the parcel to the local repository.
7. When the download is completed, click Distribute to distribute the parcel to all clusters.
8. Download the CSD files for Edge Flow Management from the CEM repository and place them in the default CSD directory: `/opt/cloudera/csd`

For more information, see *Download locations*.

**Note:**

Ensure that the CSD version you download is the same as the CEM version. Different CSD and CEM versions can cause problems when configuring and managing Edge Flow Management through Cloudera Manager.

9. Change the ownership of the CSD files.

In `/opt/cloudera/csd`, enter:

```
chown cloudera-scm:cloudera-scm /opt/cloudera/csd/*
chmod 644 /opt/cloudera/csd/*
```

10. Restart the Cloudera Manager Server.

```
sudo service cloudera-scm-server restart
```

11. Go back to Cloudera Manager, click **Clusters Cloudera Management Service** and click **Actions Restart** to restart the service .
12. Navigate to the **Parcels** page by selecting **Hosts Parcels** .
13. Click **Activate** next to CEM in the parcel list to activate the CEM parcel.
14. Click **OK** when confirmation is required.

### What to do next

You have completed your CDP Private Cloud Base installation. You can now proceed with installing, securing, and configuring CEM.

## Installing EFM on your Base cluster

Learn how to add and configure the Edge Flow Management (EFM) service on a CDP Private Cloud Base Base cluster.

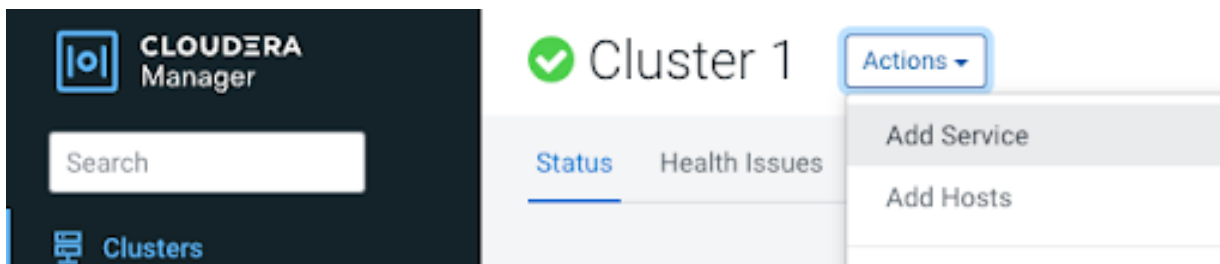
### Before you begin

Ensure that you have successfully installed a CDP Private Cloud Base cluster.

### Procedure

1. Navigate to the **Home Status** tab and click **Actions Add Service** .

Install one service at a time.



2. Select the Edge Flow Management service and click **Continue** to proceed to the Add Service wizard.
3. Configure the Edge Flow Management dependencies as needed and click **Continue**.  
Select **Knox** to establish a secure single entry point for accessing services.
4. Assign roles to your Edge Flow Management service by selecting the appropriate hosts where you want to install your new Edge Flow Management roles, and then click **Continue** to proceed.
5. Review the configuration changes and click **Continue** to start the service installation.
  - Provide a value for your Initial Admin Identity.
  - Fill in the database related properties as configured in *Installing and configuring a database for Edge Flow Management*.
  - Choose between LDAP and KNOX authentication methods according to your requirements. For more information, see the related section in *User authentication*.
  - Optionally, you can further customize your Edge Flow Management configuration here.
6. Click **Continue** and then **Finish** to complete the installation process.

## Results

You have completed your CEM installation. To access the Edge Flow Management UI, open a web browser and enter the following URL: `https://[***HOSTNAME***]:10090/efm/ui`

## What to do next

Verify that the new service is added properly by checking its health status. If the health status is good, the service has been added correctly.