

Installation 1.1.0

## Installing Streams Messaging Manager

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# Installation Overview

## Streams Messaging Manager installation steps

You are encouraged to review this overview of Streams Messaging Manager (SMM) installation steps to get a thorough understanding of the requirements before you begin the installation process.

### Procedure

1. Get your software.
  - Set up a local repository.
  - Create the repository configuration file.
2. Installing SMM Application on DPS.
  - a. Set up DPS.
    - Install or upgrade to DPS 1.2.0.
    - Configure DPS.
  - b. Install the SMM application.
3. Prepare your cluster for use with SMM.
  - a. Install or upgrade Ambari.
  - b. Install or upgrade HDF or HDP.
  - c. Set up security on your cluster.
    - (Required) Set up Ambari with AD authentication.
    - (Required) Configure Knox SSO topology.
    - (Recommended) Install Ranger and set up permissions.
    - (Recommended) Set up Kerberos for your cluster.
  - d. Install the SMM REST Agent.
    - Install a database for SMM.
    - Get the DPS Knox Cert key.
    - Download and install the SMM management pack.
    - Update base URLs.
    - Add the REST Server as an Ambari Service.
    - Configure TLS for SMM.
4. Integrate your cluster and DPS.
  - a. Assign SMM users the Kafka DevOps role.
  - b. Generate and upload your TLS public key.
  - c. Set up Knox SSO for DPS.
  - d. Add the HDP or HDF cluster and register it with DPS.
  - e. Enable SMM Service for your target cluster.

## Requirements for clusters used with SMM REST Server

The HDF or HDP cluster on which the SMM REST Server is installed has the following requirements. See the *Hortonworks Support Matrix* for information on the requirements for DP Platform and the SMM application.

Item	Versions
OS Versions	<ul style="list-style-type: none"> <li>• RHEL/Centos 7</li> <li>• Amazon Linux 2</li> <li>• Debian 9</li> <li>• SLES 12</li> <li>• Ubuntu 12</li> <li>• Ubuntu 14</li> <li>• Ubuntu 16</li> </ul>
HDP Versions	3.0.0, 3.0.1
HDF Versions	3.2
Ambari Versions	2.7.0, 2.7.1
Database	<ul style="list-style-type: none"> <li>• Postgres 9.5 or later</li> <li>• MySQL 5.5 or later</li> <li>• MariaDB 10</li> <li>• Oracle 12 and 11g Release 2</li> </ul>
JDK	JDK 8 (Open JDK & Oracle JDK)

### Related Information

[Hortonworks Support Matrix](#)

## HDF / HDP target cluster service requirements

These are the component services required for your SMM REST Server Agent target cluster.

Component	Purpose	Comment
SMM Rest Server Agent	Provides REST endpoints that power the SMM DP Platform Application to manage and monitor.	Installed using a separate Ambari Management Pack.
Apache Kafka	The Kafka cluster that you are managing with SMM.	Installed using HDF or HDP.
Apache ZooKeeper	ZooKeeper contains information about Kafka metadata.	
Knox	Provides SSO services from the DP Platform Application in DP Platform, to the SMM REST Server on the HDP/HDF cluster. The logged in user in DP Platform using Knox SSO connects to SMM REST Services.	Installed using HDP or HDF.
AMS	Ambari Metrics Server is a time Series and Graph database built on top of HBase. It houses all the time series Kafka Metrics that power SMM.	Installed using HDP or HDF.
AD/LDAP	Identity Provider Store that houses user and group information for users that access the system. DataPlane and HDP/HDF must use the same LDAP instance.	

## Obtaining necessary SMM software

## SMM installation artifacts

Prior to starting installation, you must download the Streams Messaging Manager (SMM) software artifacts from the Cloudera Archive. Access instructions are provided as part of the subscription fulfillment process.

### Before you begin

Make sure that you have an active subscription agreement and have your license key file ready along with the required authentication credentials (username and password).

### Procedure

1. If you only have your license key, you need to obtain authentication credentials (username and password) by using the Generate Credentials function on the [CDP Private Cloud Base download page](#).

Skip this step if you have your username and password ready.

2. Go to the *SMM download locations* page and identify the download artifacts for your target system.
3. Use your authentication credentials to download the artifacts.

### Related Information

[SMM download locations](#)

## Set Up a Local Repository

Setting up a local repository involves moving the tarball to the selected mirror server and extracting the tarball to create the repository. You can use the same local repository for DPS, the SMM application, and the SMM REST Server, or you can create unique local repositories for each.

### Before you begin

Ensure that you have downloaded the required tarballs from the customer portal, following the instructions provided as part of the product procurement process.

### Procedure

1. Copy the SMM Application and SMM REST Server (Cluster Agent) tarballs to the web server directory and expand (uncompress) the archive file:

- a) Navigate to the web server directory you previously created.

```
cd /var/www/html/
```

All content in this directory is served by the web server.

- b) Move the tarballs to the current directory and expand each of the repository tarballs that you downloaded.

Replace *<file-name>* with the actual name of the RPM tarball that you are expanding.

```
tar zxvf <file-name>.tar.gz
```

During expansion of the tarball, subdirectories are created in */var/www/html/*, such as *DSS/centos7SMM/centos7*. These directories contain the repositories.

Expanding the app tarball takes several seconds.

2. Confirm that you can browse to the newly created local repositories by using the base URLs:

`http://<webserver-host-name>/<repo-name>/<OS>/<service-version-X>`

- <webserver-host-name>

This is the FQDN of the web server host.

- <repo-name>

This is composed of the abbreviated name of the repository.

For the SMM, the repository name is SMM-APP.

- <OS>

This is the operating system version.

- <service-version-X>

This is the version number of the downloaded repository with an appended unique number.

Base URL Examples

Base URL:

```
http://webserver.com:port/DSS/centos7/1.1.0.0-X
```

Base URL for the SMM Application:

```
http://webserver.com:port/SMM-APP/centos7/1.1.0.0-11
```

Base URL for the SMM REST Server (Cluster Agent):

```
http://webserver.com/SMM/centos7/1.1.0.0-19/
```

Be sure to record these Base URLs, because you need them when installing the application on the host, and installing the associated agent on the clusters.

Be sure to record these Base URLs, because you need them when installing the application on the host.

3. If you have multiple repositories configured in your environment, deploy the following plugin on all the nodes in your cluster.

```
yum install yum-plugin-priorities
```

4. Edit the `/etc/yum/pluginconf.d/priorities.conf` file to add the following values:

```
[main]
enabled=1
gpgcheck=0
```

## Results

The repositories are now prepared for installation.

## What to do next

Create the configuration file for the repository.

## Create the Repository Configuration File

A repository configuration file must be created for the Streams Messaging Manager Service on the DPS host. The file is required to identify the path to the repository data, establish whether a GPG signature check should be performed

on the repository packages, etc. A unique repository configuration file is required for DPS and the SMM application. No configuration files is required for the SMM Rest Server.

### Procedure

1. Navigate to the repository directory.

```
cd /etc/yum.repos.d/
```

2. Create a repository file.

```
vi dss-app.repo
```

```
vi smm-app.repo
```

Alternatively, you can copy an existing repository file to edit.

3. Add the following content in the repository file:

```
#VERSION_NUMBER=<downloaded-version#> [<service-name-abbreviation>]
```

This is composed of the service name abbreviation and version number (includes the build number). Example:  
DSS-APP-1.0.0.0-59

```
name=<service-name-abbreviation> Version - <service-name-abbreviation>
```

```
baseurl=http://<webserver-host-name>/<directory-containing-repo>
```

<webserver-host-name> is the FQDN of the web server host that contains the repository. This is the same base URL that you used in the task to prepare the repositories.

<directory-containing-repo> is the path expanded from the tarball.

```
gpgcheck=1
```

```
gpgkey=http://<webserver-host-name>/<directory-containing-repo>/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
```

```
enabled=1
```

```
priority=1
```

### Example

#### Example Repository File

```
#VERSION_NUMBER=1.0.0.0-59
[DSS-APP-1.0.0.0-59]
name=DSS-APP Version - DSS-APP-1.0.0.0-59
baseurl=http://<your_webserver>:port/DSS-APP/centos7/1.0.0.0
gpgcheck=1
gpgkey=http://<your_webserver>:port/DSS-APP/centos7/1.0.0.0/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
enabled=1
priority=1
```

```
#VERSION_NUMBER=1.1.0.0-11
[SMM-APP-1.1.0.0-11]
name=SMM-APP Version - SMM-APP-1.1.0.0-11
baseurl=http://<your_webserver>:port/SMM-APP/centos7/1.1.0.0
gpgcheck=1
gpgkey=http://<your_webserver>:port/SMM-APP/centos7/1.1.0.0/RPM-GPG-KEY/RPM-GPG-KEY-Jenkins
```

```
enabled=1
priority=1
```

## Installing Your SMM Application on DP Platform

### Set up DP Platform

To get started installing SMM, you must first install or upgrade to DP Platform 1.2.0, and configure it according to the instructions provided in the DP Platform installation documentation.

#### Procedure

1. Install or upgrade to DP Platform 1.2.0.
2. Configure DP Platform.

#### Related Information

[Installing DP Platform](#)

[Managing Clusters in DP Platform](#)

[Managing Users and Groups](#)

### Install the Streams Messaging Manager Application

Follow the instructions to install the SMM application.

#### Before you begin

You have successfully installed DP Platform and DP Platform is running.

#### Procedure

1. Log in as root to the host on which you set up the DPS repositories.

```
sudo su
```

2. Install the RPMs for the service application.

```
yum install dss-app
```

```
yum install smm-app
```

A folder is created that contains the Docker image tarball files and a configuration script.

If the yum command fails, then the local repository was not set up correctly. Check the repository file `/etc/yum.repos.d/dss-app.repo` `/etc/yum.repos.d/smm-app.repo` on the host.

3. Navigate to the directory containing the installation scripts for the service, for example:

```
cd /usr/dss-app/current/apps/dss/bin
```

```
cd /usr/smm-app/current/streams-messaging-manager/bin
```

4. Load the Docker images and initialize the environment.

```
./dssdeploy.sh init
```

```
./smmdeploy.sh init
```

Loading the images might take a while.

**Note:**

If you run into errors while deploying, you must destroy the deployment using `./dssdeploy.sh destroy`.  
./smmdeploy.sh destroy command and re-install the app. To check the logs of the container, you can use the  
command `./dssdeploy.sh logs`.  
./smmdeploy.sh logs.

5. Verify that the container you installed is running.

```
./dssdeploy.sh ps
```

```
./smmdeploy.sh ps
```

Make sure that the container is running.

## Prepare Your Cluster for Use with SMM

### Install or Upgrade Ambari, HDF, and HDP

Get started with the SMM installation by preparing your target cluster. Your cluster must be managed by Ambari 2.7.0, and it can be an HDF 3.2 cluster, an HDP 3.0 cluster, or an HDP 3.0 cluster with HDF 3.2 services installed.

**Procedure**

1. Install or upgrade to Ambari 2.7.0.0.
2. Install or upgrade your HDF 3.2.0 or HDP 3.0.0 cluster. You can also install HDF services on an HDP cluster.  
Review the *Target cluster service requirements* information to understand which services are required for SMM 1.0.0.

**Related Information**

[Installing Ambari](#)

[Upgrading Ambari](#)

[Installing HDP](#)

[Upgrading HDP](#)

[Installing HDF](#)

[Upgrading HDF](#)

## Security Setup

### Mandatory security configuration

**Procedure**

1. Set up Ambari with AD authentication.
2. Configure Knox SSO topology for Ambari.

**Related Information**

[Configuring Ambari Authentication with LDAP/AD](#)

[Configuring Knox SSO between DP Platform and Your Cluster](#)

### Recommended security configuration

### Procedure

1. Set up Kerberos for your cluster.
2. Install Ranger and set up permissions.
3. Set up TLS.

### Related Information

[Configuring Authentication with Kerberos](#)

[Installing Apache Ranger](#)

[Providing Authorization with Apache Ranger](#)

## Install the SMM REST admin server

### Configure your SMM database

#### About this task

You can use the following databases with SMM:

- Postgres
- MySQL
- Oracle
- MariaDB

#### Procedure

1. To configure a MySQL database:

```
create database streamsmgmr;  
CREATE USER 'streamsmgmr'@'localhost' IDENTIFIED BY 'streamsmgmr';  
GRANT ALL PRIVILEGES ON streamsmgmr.* TO 'streamsmgmr'@'localhost' WITH  
GRANT OPTION;  
CREATE USER 'streamsmgmr'@'%' IDENTIFIED BY 'streamsmgmr';  
GRANT ALL PRIVILEGES ON streamsmgmr.* TO 'streamsmgmr'@'%' WITH GRANT  
OPTION;
```

2. To configure a Postgres database:

```
# Log in database  
sudo su postgres  
psql  
  
# Setup databases and users  
create database streamsmgmr;  
CREATE USER streamsmgmr WITH PASSWORD streamsmgmr;  
GRANT ALL PRIVILEGES ON DATABASE "streamsmgmr" to streamsmgmr;
```

### Configure Knox for SMM integration

#### Procedure

1. From the Ambari UI Advanced streams-messaging-manager-sso-config, verify that Authentication.provider.url is accurate.

2. Generate your public.key.pem.
  - a. From Knox | Configs | Advanced knoxsso-topology, add the following:

```
<name>main.ldapRealm.userDnTemplate</name>
<value>CN=admin1,CN=Users,DC=HWQE,DC=HORTONWORKS,DC=COM</value>

<name>main.ldapRealm.contextFactory.url</name>
<value>ldap://ad-nano.qe.hortonworks.com:389</value>
<name>knoxsso.redirect.whitelist.regex</name>
<value>.*;^/.*$;https?://localhost*$$^http.*$</value>
```

- b. Save this change and restart Knox.
  - c. From the command line, generate your pem key, using the default keystore password admin when prompted:

```
/usr/jdk64/jdk1.8.0_112/bin/keytool
-export
-alias gateway-identity
-rfc
-file /root/knox-sso-cert.pem -keystore /usr/hdf/current/knox-server/data/security/keystores/gateway.jks
```

3. Open knox-sso-cert.pem from /root and remove any new line characters or special characters.
4. From the Ambari UI Advanced streams-messaging-manager-sso-config, upload the Public.key.pem.

## Install the SMM management pack

A management pack (mpack) bundles service definitions, stack definitions, and stack add-on service definitions so they do not need to be included with the Ambari core functionality and can be updated in between major releases.

### Before you begin

You have obtained the management pack and public repository locations from the Hortonworks . Customer Portal following the instructions provided as part of the subscription fulfillment process.

### Procedure

1. Back up your Ambari resources folder:

```
cp -r /var/lib/ambari-server/resources /var/lib/ambari-server/resources.backup
```

2. Copy the bundle to /tmp on the node where you installed Ambari.
3. Install the SMM management pack.

```
ambari-server install-mpack
--mpack=tmp/smm-ambari-mpack-1.1.0.0-<version>.tar.gz
--verbose
```

4. Restart the Ambari Server:

```
ambari-server restart
```

5. Once Ambari server is restarted, update public repo URL, Go to Stack and Versions Section on Ambari, click Versions -> Manage Versions, Click HDP or HDF version link. Update SMM link with its public repo link.

## Update the SMM Base URL

Adding the base URL tells Ambari where to look for the SMM repository. The base URL will be included in the customer support portal, where you get the repository. This step is necessary because you are using an existing Ambari instance that is already managing an HDP or HDF cluster.

### About this task

Update the base URL with the base URL you created for the SMM REST Server (Cluster Agent) management pack when you created the local repo. For example:

```
http://webserver.com/SMM/centos7/1.1.0.0-19/
```

### Procedure

1. From the Ambari menu, click the admin drop-down on the top right of your Ambari Dashboard. Then select Manage Ambari.
2. From the Clusters view on the left, click Versions. Then select the HDP versions or HDF versions link, depending on your cluster.
3. Add the SMM Base URL appropriate for your operating system.
4. Click Save.

## Add the SMM REST Server as a Service

Once you have installed the SMM management pack and updated the Base URL in Ambari, you are ready to add the SMM Rest Server as a service in your Ambari-managed HDF or HDP cluster.

### Procedure

1. From the Ambari UI, launch the Add Service Wizard.
2. In Step 1, Choose Services, select Streams Messaging Manager.
3. In Step 2, Assign Masters, add the host on which you want to install the SMM REST Server.
4. In Step 4, Customize Services, select the Streams Messaging Manager tab and add the configuration information for the SMM REST Server.
5. Click through the rest of the Add Service Wizard and click OK.

### Results

You can verify the SMM installation by launching the following:

- `http://{your hostname}:8585/swagger`
- `http://{your hostname}:8585/api/v1/admin/brokers`

In both cases the default user name is admin and the default password is Horton!#works.

## Integrating Your Cluster with DP Platform

### Assign users the Kafka DevOps role

Users must be assigned the Kafka DevOps role before they can access SMM from the DP Platform UI.

### Procedure

1. From the DataPlane left navigation pane, go to Users.
2. Identify the user to which you want to give SMM access, and select Edit from the Actions icon on the right-hand side.
3. Add Kafka DevOps to the roles for the user and click Save.

## Results

That use is now able to access SMM from the DataPlane UI.

## Upload your TLS public key

If the SMM REST endpoint on your HDF or HDP cluster is TLS enabled, you must upload the TLS public key to DPS.

### Procedure

1. From the command line, enter:

```
openssl s_client -showcerts -connect <cluster-name:cluster-port>
```

2. Copy the certificate, including the begin and end lines, and save to a file named SMM.pem.
3. From the DataPlane left navigation pane, click Settings.
4. Click Upload to upload your SMM.pem file

## Enable SMM Service for Target Cluster Registered in DP Platform

### Procedure

1. From the DataPlane UI left navigation pane, go to Services and click the SMM application.
2. Click Enable for each cluster you want to use with SMM.

## Updating Ranger Users

Before you can launch SMM, you must manually add a user to Ranger, add the user to Ranger Policies for the Kafka service, and add the SMM user to the Ranger Policy for Kafka. Additionally, if the SSL is enabled for Ranger, you must add the Ranger plugin SSL CLName configuration value.

### Procedure

1. Add a User to Ranger.
  - a. From the Ranger UI, go to Settings, then Users/Groups, and ensure that the Users tab is selected.
  - b. Click Add New User.
  - c. Provide the user name. This user name is derived from the `streams_messaging_manger_principal_name` you set during the Ambari Kerberos configuration. For example: `streamsmgmgr-cluster-smm`.
  - d. For the Role, select User. For the Group, select `hadoop`, `streamsmgmgr`, and `ranger`.
  - e. Click Save.
2. Add user to Ranger Policy for Kafka Service.
  - a. From Ranger UI, Service Manager, in the Kafka service pane, click the hyperlink (`cluster-name_kafka`).
  - b. Add the SMM user to both policies. Select the edit policies icon, and from Allow Conditions, add the SMM user to the Select User field. Also add `streamsmgmgr` user, if it does not already exist.
3. Add SMM user to Ranger Policy for Kafka.
  - a. From the Ranger UI, Services Manager, and select the Edit icon for the Kafka service.
  - b. Add the `streamsmgmgr-cluster-smm` user name to the following two configuration values:
    - `policy.download.auth.users`
    - `tag.download.auth.users`

4. (If SSL is enabled for Ranger) Update the Ranger plugin SSL CLName. Go to Config Properties | Ranger plugin SSL CLName. For example: Kafka Client. The CLName is the value you set up when generating your Ranger Admin SSL certificate.