# mod19_ex01: Installing Ranger

The purpose of this exercise is to install Ranger and the Ranger Plugins. Ranger provides fine-grained access control to many CDP components. This makes it a complex installation, which affects nearly every CDP component. The install steps are in five stages. First, you will install Ranger without the service starting. Second, you will start Ranger. Third, you will configure and start CDP-INFRA-SOLR. Fourth, you will configure the Ranger Plugins for all services. Fifth, you will run a cluster restart.

Reference Information

- TBD

1. Ranger Architecture.
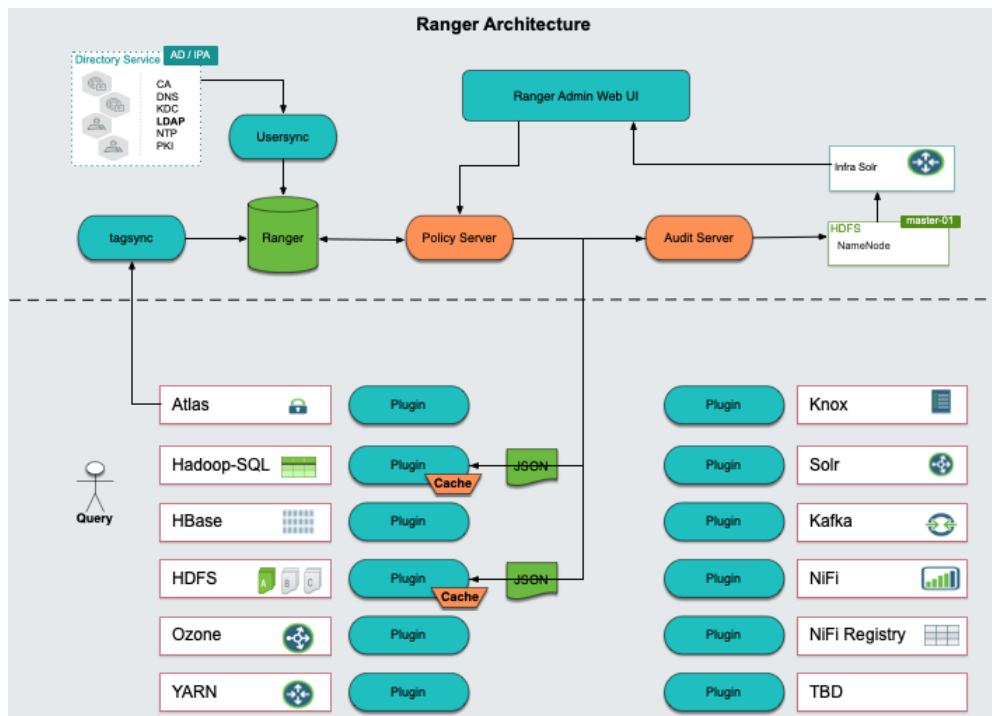
Ranger consists of two major parts. First, the Ranger daemons. There are three daemons. The Ranger admin daemon provides the Ranger Web UI, the Range policy service, the Ranger audit service, and the connection to the database. The database stores the policies and user records. Second, the Ranger plugins. The Ranger plugins become part of the master services they are assigned to support. The Ranger plugins filter transactions and test if a policies should be applied.

2. Login into Cloudera Manager as the administrative user, allan_admin.

2.1 Login into Cloudera Manager as the administrative user, allan_admin, with password <password>.

3. Install Ranger. Ranger requires the installation of Kerberos. It is CDP recommended practice to configure both TLS and Kerberos before installing Ranger.

3.1 On Cloudera Manager Home select Action. Select Add Service.
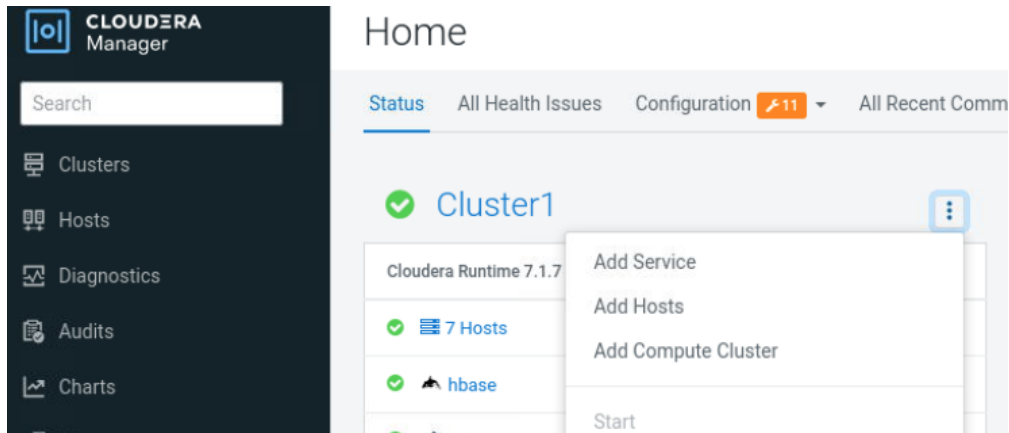
3.2 On Add Service scroll down. Select Ranger. Click Continue.
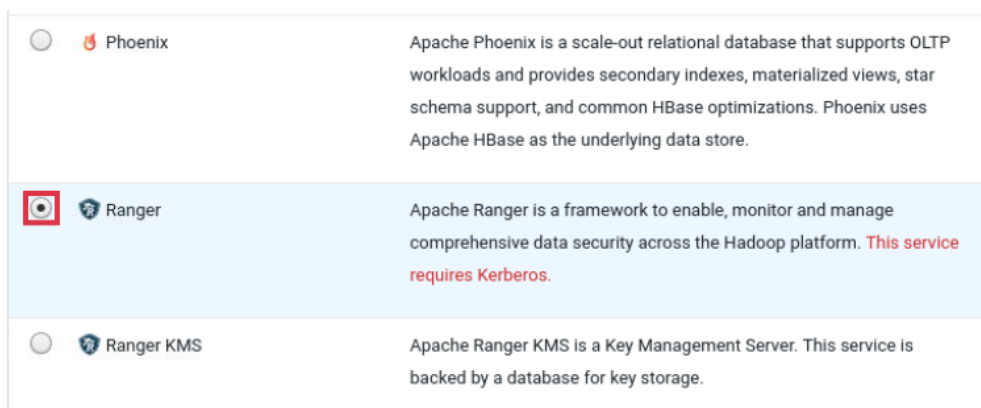
3.3 On Assign Roles click on Ranger Admin.

3.4 On Hosts Selected select the option for edge.example.com. Clear the checkmark for worker-3.example.com. Click OK.

Ranger may be duplexed for High Availability. In this exercise you will only install one instance of Ranger.

3.5 On Assign Roles assign edge.example.com to Usersync and to Tagsync.

The Usersync instance synchronizes user and groups from external sources. In this environment Usersync will synchronize with the LDAP server. The Tagsync instance synchronizes tag information between Ranger and Atlas.

3.6 Verify the hosts are set to edge.example.com. Click Continue.

Assign Roles

You can customize the role assignments for your new service here, but note that if assignments are made incorrectly, such as assigning too many roles to a single host, performance will suffer.

You can also view the role assignments by host. **View By Host**

Ranger Admin × 1 New | Usersync × 1 New | Ranger Tagsync × 1 New

edge.example.com ▾ | edge.example.com ▾ | edge.example.com ▾

3.7 On Setup Database configure the database. Use the information provided.

Setup Database

Configure and test database connections. If using custom databases, create the databases first according to the **Installing and Configuring an External Database** section of the Installation Guide ⬀.

Ranger

Type | Use JDBC URL Override | Database Hostname
MySQL ▾ | No ▾ | cmhost.example.com

Database Name | Username | Password
ranger | ranageradmin | ●●●●●●●●●●●●●

☐ Show Password

Test Connection

```
Type: MySQL
        Use JDBC URL Override: No
        Hostname: cmhost.example.com
        Database Name: ranger
        Username: rangeradmin
        Password: <password>
```

3.8 Test Database Connection. Click Continue.

Setup Database

Configure and test database connections. If using custom databases, create the databases first according to the **Installing and Configuring an External Database** section of the Installation Guide ⬀.

Ranger

✓ Successful

Type

MySQL ▾

Use JDBC URL Override

No ▾

Database Hostname

cmhost.example.com

Database Name

ranger

Username

rangeradmin

Password

••••••••••••

☐ Show Password

Test Connection

3.9 On Review Changes enter passwords for Ranger Admin, Ranger Usersync, Ranger Tagsync, and Ranger KMS. Use the password <password>. Click Continue.

Review Changes

Ranger Admin User Initial Password
rangeradmin_user_password
⚙ rangeradmin_user_password

Ranger (Service-Wide) ↺ Undo   ⓘ

••••••••••••

Ranger Usersync User Initial Password
rangerusersync_user_password
⚙ rangerusersync_user_password

Ranger (Service-Wide) ↺ Undo   ⓘ

••••••••••••

Ranger Tagsync User Initial Password
rangertagsync_user_password
⚙ rangertagsync_user_password

Ranger (Service-Wide) ↺ Undo   ⓘ

••••••••••••

Ranger KMS Keyadmin User Initial Password
keyadmin_user_password
⚙ keyadmin_user_password

Ranger (Service-Wide) ↺ Undo   ⓘ

••••••••••••

3.10 On Command Details monitor the install. When Finished click Continue.

Command Details

First Run Command

Status ✓ **Finished**   Context Ranger ⬀   📅 Sep 25, 3:27:02 PM   ⏱ 77.85s

Finished First Run of the following services successfully: Ranger.

⌄ **Completed 1 of 1 step(s).**

⦿ Show All Steps   ◯ Show Only Failed Steps   ◯ Show Only Running Steps

> ✓ Run a set of services for the first time.   Sep 25, 3:27:02 PM   77.85s

3.11 On Summary click Finish.

Summary

⊘ Your new service is installed and configured on your cluster.

ⓘ **Note:** You may still have to start your new service. It is recommended that you restart any dependency services with outdated configurations before doing so. You can perform these actions on the main page by clicking **Finish** below.

3.12 Before starting Ranger increase the UNIX Minimum. From Cloudera Manager Home select Ranger. Select Configuration. Search for 'UNIX Minimum'. Sets the minimum User ID priority to 999. This should be set to avoid syncing of UNIX system-level users in the Ranger Admin. In Red Hat Enterprise Linux the first available User ID is 1000. Click Save Changes.

Usersync UNIX Minimum User ID

ranger.usersync.unix.minUserId
⚙ ranger.usersync.unix.minUserId

Ranger Usersync Default Group ↻ Undo

999⏶⏷

Minimum User ID to start syncing. This should be set to avoid syncing of UNIX system-level users in the Ranger Admin.

3.13 Select Actions. Select Start. Click Start.

Start   ✕

Are you sure you want to run the **Start** command on the service **Ranger**?

Cancel   Start

3.14 When Finished click Close.

Start

Status ⊘ **Finished**   Context Ranger ⧉   📅 Feb 27, 3:23:30 PM   ⏱ 32.51s

Successfully started service.

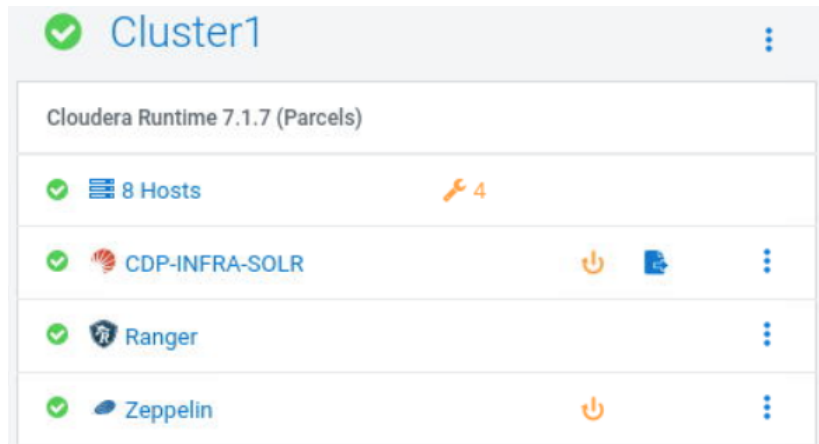⌄ **Completed 1 of 1 step(s).**

◉ Show All Steps   ○ Show Only Failed Steps   ○ Show Only Running Steps

❯ ⊘ Starting 3 roles on service   Feb 27, 3:23:30 PM
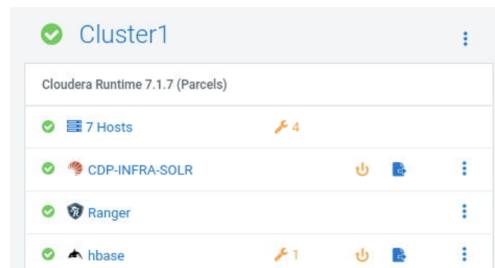
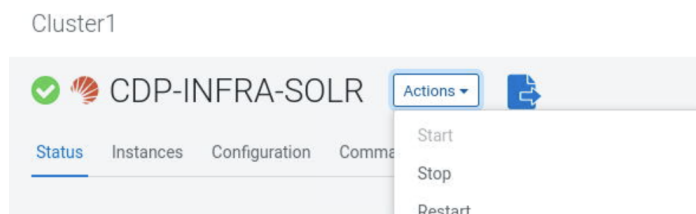3.15 Return to Cloudera Manager Home.

4. Configure CDP-INFRA-SOLR. Ranger uses CDP-INFRA-SOLR for indexing the audits. CDP-INFRA-SOLR requires two configuration changes.
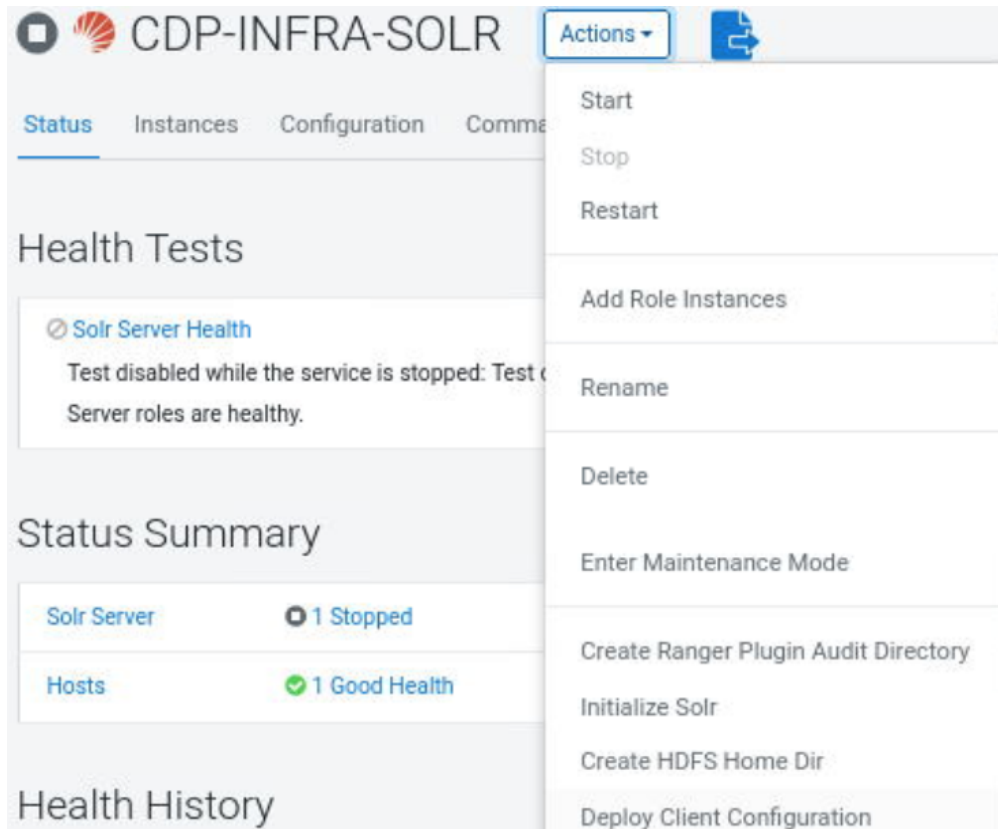
4.1 Select CDP-INFRA-SOLR.

4.2 Select Actions. Select Stop. Click Stop. When Finished click Close.
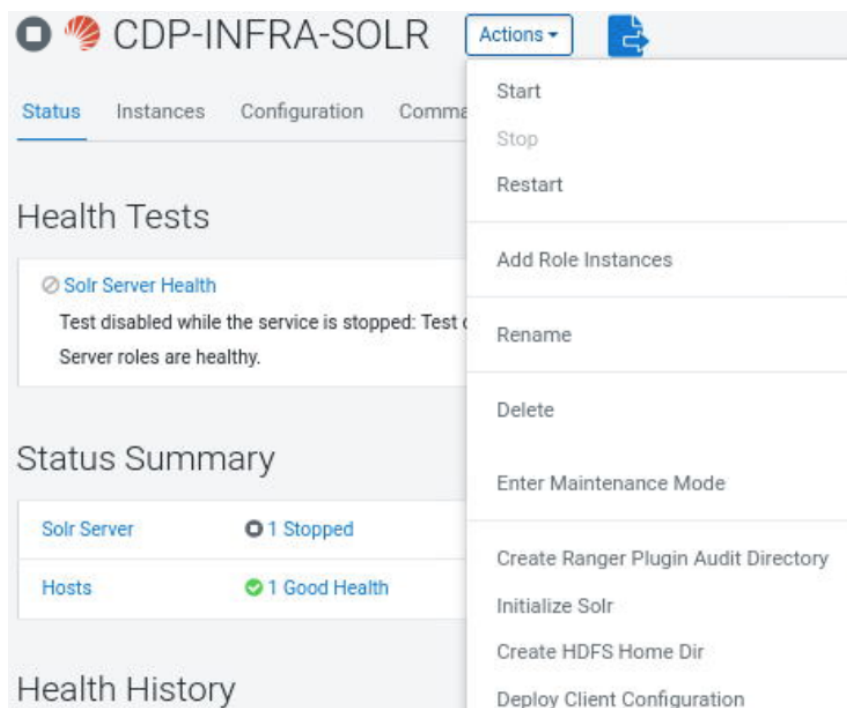
4.3 Select Actions. Select Initialize Solr. Click Initialize Solr. When Finished click Close.

Note: You may have to stop CDP-INFRA-SOLR first. This will require a force shutdown.

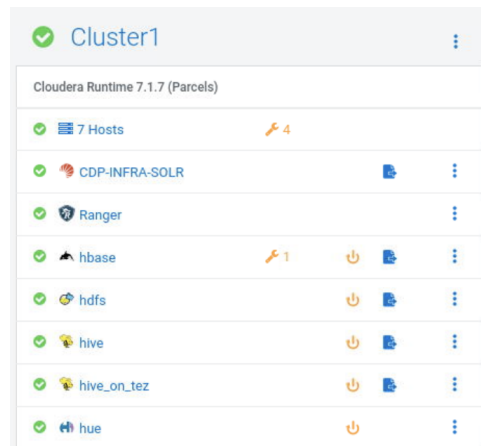4.4 Select Actions. Select Create HDFS Home Dir. Click Create HDFS Home Dir. When Finished click Close.

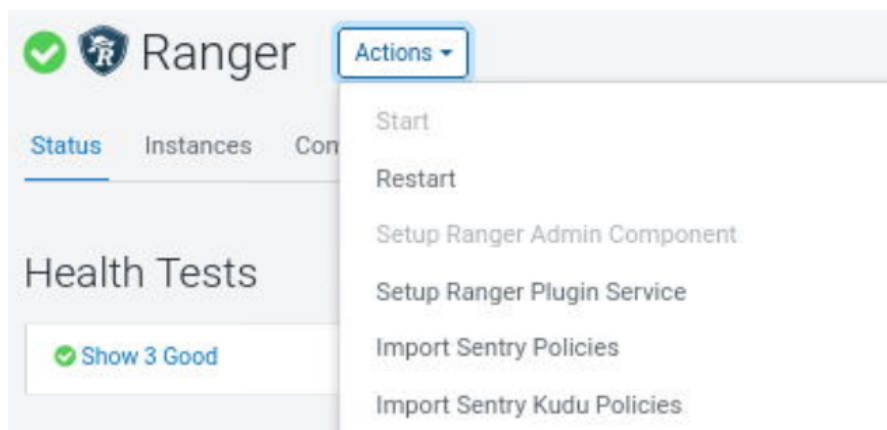4.5 Select Actions. Select Start. Click Start. When Finished click Close.
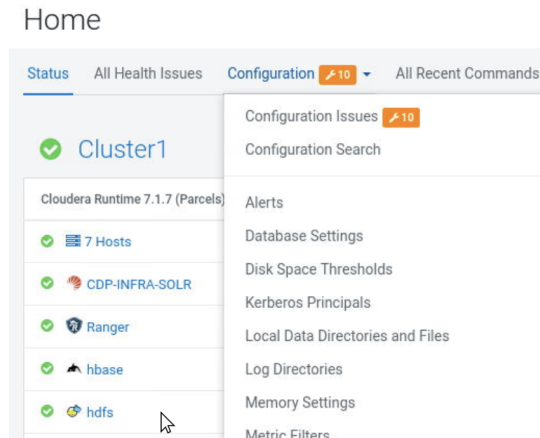

5. Configuring Ranger Plugins.

5.1 Return to Cloudera Manager Home. Ranger installs plugins and property changes into many CDP components.


5.2 Select Ranger. Select Actions. Select Setup Ranger Plugin Service. Click Setup Ranger Plugin Service. When Finished click Close.

5.3 Return to Cloudera Manager Home. Select Configuration. Select Configuration Search.

5.4 Search ranger_service. Click ..and 5 others. It will show hbase, hive, hive_on_tez, impala, and yarn. Click the option for Ranger. Select the option for Kafka Ranger. Click Save Changes.
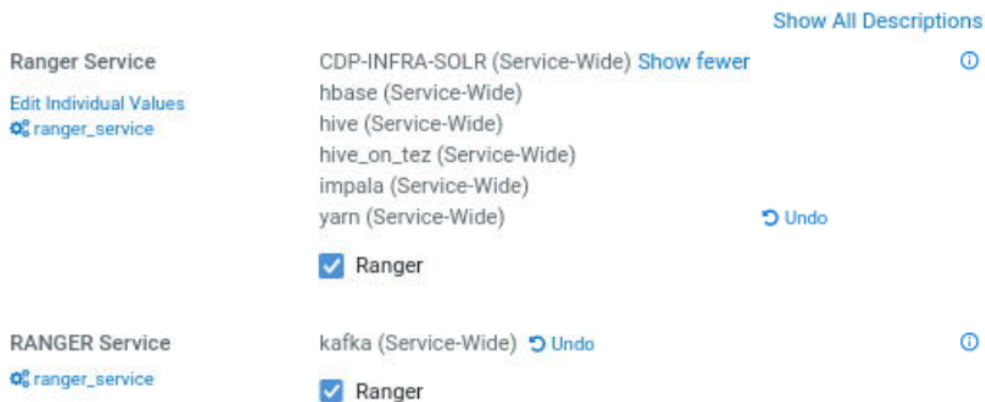
5.5 Cloudera Manager will automatically clear the checkbox for CDP-INFRA-SOLR Ranger Service. But the other five services will select the option.
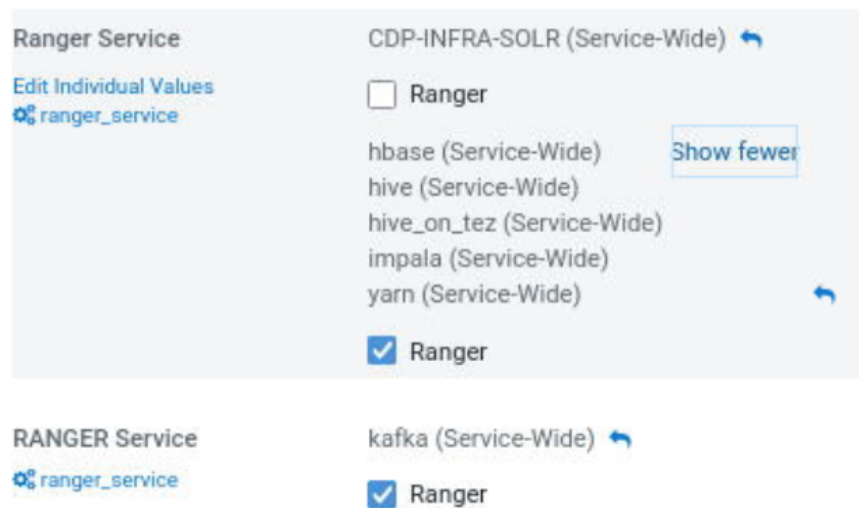

WARNING. Do not set the option Ranger Service for CDP-INFRA-SOLR. The Ranger Service option is used only enabling a second Solr instance. In this case you are enabling an instance being used in support of auditing for Ranger.

5.6 Search for enable_ranger_authorization. Select the option for hdfs and for CDP-INFRA-SOLR. Click Save Changes.
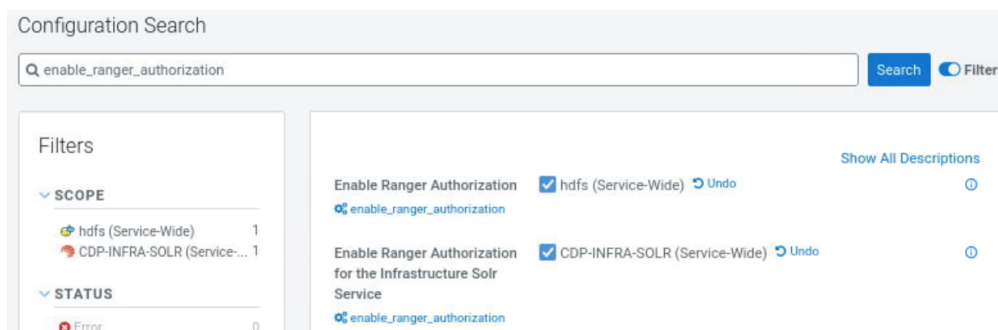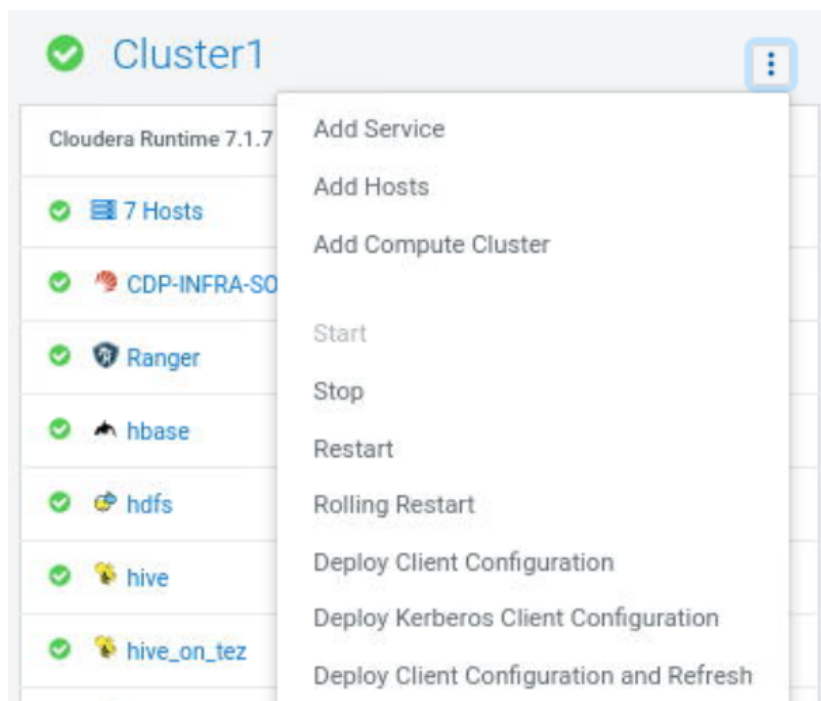

6. Restart the Cluster.

6.1 Return to Cloudera Manager Home. Select Actions. Select Restart. Click Restart. When Finish click Close. This will take up to 10 mins.
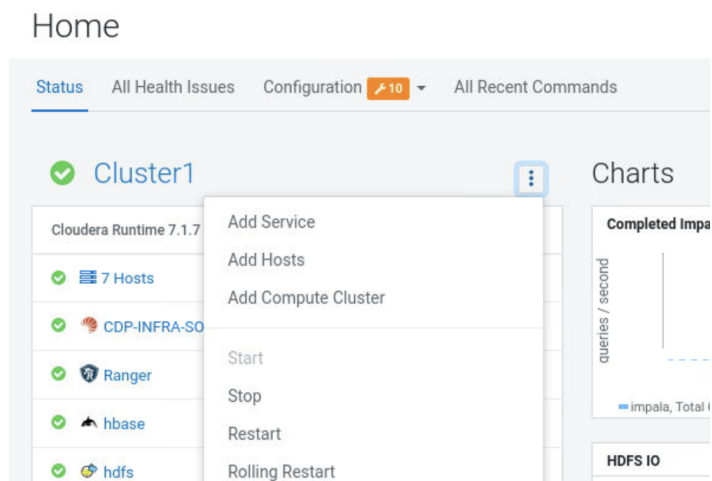
6.2 Select Cluster Actions. Select Deploy Client Configuration and Refresh. Click Deploy Client Configuration and Refresh. When Finished click Close.

7. Return to Cloudera Manager Home.