

Schema Registry Authorization

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Contents

| | |
|--|----------|
| Schema Registry Authorization through Ranger Access Policies..... | 4 |
| Pre-defined Access Policies for Schema Registry..... | 4 |
| Add the user or group to a pre-defined access policy..... | 5 |
| Create a Custom Access Policy..... | 6 |

Schema Registry Authorization through Ranger Access Policies

User and group access to various Schema Registry functions is controlled through Apache Ranger.

Pre-defined access policies for Schema Registry allow the administrator to quickly add a user or user group to specify:

- Who can add/evolve schemas to a schema metadata.
- Who can view and edit schemas within a schema metadata.
- Who can upload the ser/des jar files.

If a higher level of granularity is necessary, the administrator can create an access policy and add the user or user-group to this custom policy.

Related Information

[Pre-defined Access Policies for Schema Registry](#)

[Add the user or group to a pre-defined access policy](#)

[Create a Custom Access Policy](#)

Pre-defined Access Policies for Schema Registry

Based on a user's responsibilities, you can add users or a user group to one or more of the following pre-defined access policies for Schema Registry and you can specify the type of permission such as Create, Read, Update, and Delete.

The following image shows the pre-defined access policies for Schema Registry:

| Policy ID | Policy Name | Policy Labels | Status | Audit Logging | Roles | Groups | Users | Action |
|-----------|--|---------------|---------|---------------|-------|--------|------------------------------------|------------------------|
| 3 | all - serde | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Eye] [Pencil] [Trash] |
| 5 | all - schema-group, schema-metadata | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Eye] [Pencil] [Trash] |
| 6 | all - schema-group, schema-metadata, schema-branch | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Eye] [Pencil] [Trash] |
| 7 | all - registry-service | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Eye] [Pencil] [Trash] |
| 8 | all - schema-group, schema-metadata, schema-branch, schema-version | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Eye] [Pencil] [Trash] |

The following table describes the pre-defined access policies for Schema Registry:

| Access Policy | Description |
|--|---|
| all - serde | Allows users to store metadata for the format of how data should be read and how it should be written. Users can store JAR files for serializers and deserializers and then map the serdes to the schema. |
| all - schema-group, schema-metadata | Allows users to access the schema groups and schema metadata. |
| all - schema-group, schema-metadata, schema-branch | Allows users to access the schema groups, schema metadata, and schema branch. |
| all - registry-service | Allows users to access the schema registry service. If a user is added to this policy, the user can access all Schema Registry entities. |
| all - schema-group, schema-metadata, schema-branch, schema-version | Allows users to access the schema groups, schema metadata, schema branch, and schema version. |

Related Information

[Schema Registry Authorization through Ranger Access Policies](#)

[Add the user or group to a pre-defined access policy](#)

[Create a Custom Access Policy](#)

Add the user or group to a pre-defined access policy

When an authenticated user attempts to view, create, edit, or delete a Schema Registry entity, the system checks whether the user has privileges to perform that action. These privileges are determined by the Ranger access policies that a user is associated with.

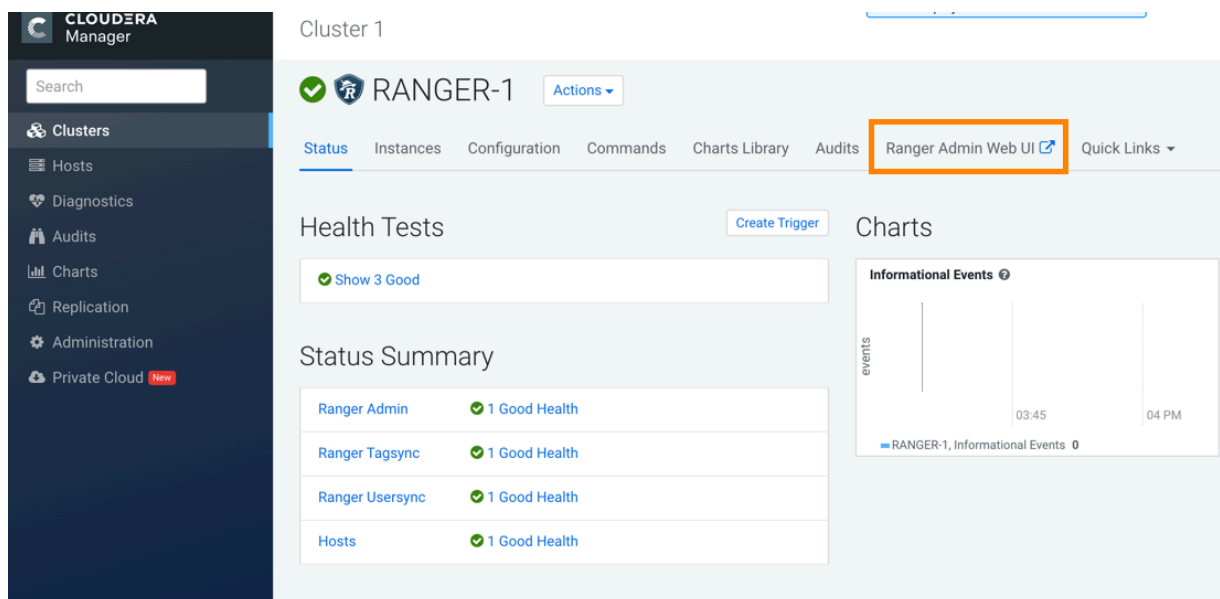
About this task

Determine the permissions required by a user or user group and accordingly add the user or group to the appropriate pre-defined access policy.

Each pre-defined access policy controls access to one or more Schema Registry entities.

Procedure

1. From the Cloudera Manager home page, click the Ranger link.
The **Ranger** management page appears.
2. Click the Ranger Admin Web UI link.



The **Ranger Log In** page appears.

3. Enter your user name and password to log in.
The **Ranger Service Manager** page appears.

The page is organized by service. Each cluster is listed under its respective service. For example, the Schema Registry clusters in the environment are listed under Schema Registry.

- Select a cluster from the Schema Registry section.

The **List of Policies** page appears.

| Policy ID | Policy Name | Policy Labels | Status | Audit Logging | Roles | Groups | Users | Action |
|-----------|---|---------------|---------|---------------|-------|--------|----------------------------------|------------------------|
| 3 | all - serde | -- | Enabled | Enabled | -- | -- | streamsmgmr kafka schemaregistry | [View] [Edit] [Delete] |
| 5 | all - schema-group, schema-metadata | -- | Enabled | Enabled | -- | -- | streamsmgmr kafka schemaregistry | [View] [Edit] [Delete] |
| 6 | all - schema-group, schema-metadata, schema-... | -- | Enabled | Enabled | -- | -- | streamsmgmr kafka schemaregistry | [View] [Edit] [Delete] |
| 7 | all - registry-service | -- | Enabled | Enabled | -- | -- | streamsmgmr kafka schemaregistry | [View] [Edit] [Delete] |
| 8 | all - schema-group, schema-metadata, schema-... | -- | Enabled | Enabled | -- | -- | streamsmgmr kafka schemaregistry | [View] [Edit] [Delete] |

- Click the ID for a policy.

The **Edit Policy** page appears.

- In the Allow Conditions section, add the user or group to the respective Select User or Select Group field.

Allow Conditions :

| Select Role | Select Group | Select User | Policy Conditions | Permissions | Delegate Admin |
|--------------|---------------|---|--|---|--|
| Select Roles | Select Groups | <input type="checkbox"/> streamsmgmr <input type="checkbox"/> kafka <input type="checkbox"/> schemaregistry | Add Conditions <input type="button" value="+"/> | <input type="button" value="Create"/> <input type="button" value="Read"/> <input type="button" value="Update"/> <input type="button" value="Delete"/> | <input checked="" type="checkbox"/> <input type="button" value="X"/> |

- From the Policy Conditions field, enter the appropriate IP address.

- From the Permissions field, select the appropriate permission.

- Click Save.

Results

The user now has the rights according to the policy and the permission you assigned to the user. These rights apply to all objects in the entities unless you specified otherwise in the Policy Conditions field.

Related Information

[Schema Registry Authorization through Ranger Access Policies](#)

[Pre-defined Access Policies for Schema Registry](#)

[Create a Custom Access Policy](#)

Create a Custom Access Policy

You can create a custom access policy for a specific Schema Registry entity, specify an access type, and add a user or user-group to the policy.

Before you begin

Determine the following information:

- The schema registry entity that the user needs access to.
- Whether the user requires all objects in the entity or specific objects.
- Whether the user needs read, view, edit, or delete permissions to the entity.
- If there are any IP addresses to include or exclude from the user's access.

About this task

With a custom policy you can specify the Schema Registry entity and the type of access the user requires.

Procedure

1. Go to the **Ranger List of Policies** page.
2. Click Add New Policy.

The screenshot shows the Ranger web interface. At the top, there's a navigation bar with 'Ranger', 'Access Manager', 'Audit', 'Security Zone', and 'Settings'. Below this, a breadcrumb trail shows 'Service Manager' > 'cm_schema_registry Policies'. The main heading is 'List of Policies : cm_schema_registry'. Below the heading is a search bar and an 'Add New Policy' button (highlighted with a red box). The table below lists several policies, all with 'Enabled' status and 'Enabled' audit logging. The 'Users' column for each policy lists 'streamsmgmr' and 'kafka'.

| Policy ID | Policy Name | Policy Labels | Status | Audit Logging | Roles | Groups | Users | Action |
|-----------|---|---------------|---------|---------------|-------|--------|------------------------------------|---------|
| 3 | all - serde | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Icons] |
| 5 | all - schema-group, schema-metadata | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Icons] |
| 6 | all - schema-group, schema-metadata,... | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Icons] |
| 7 | all - registry-service | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Icons] |
| 8 | all - schema-group, schema-metadata,... | -- | Enabled | Enabled | -- | -- | streamsmgmr, kafka, schemaregistry | [Icons] |

The **Create Policy** page appears.

3. Enter a unique name for the policy.
4. Optionally, enter a keyword in the Policy Label field to aid in searching for a policy.
5. Select a Schema Registry entity. You can choose the Schema Registry service, schema group, or serde. Then, do one of the following tasks:
 - If you want the user to access all the objects in the entity, enter *.
 - If you want to specify the objects in the entity that a user can access, enter the name of the object in the text field.
6. Optionally, enter a description.
7. In the Allow Conditions section, add the user or group to the respective Select User or Select Group field.

The screenshot shows the 'Create Policy' page. The 'Allow Conditions' section is expanded. It contains three main sections: 'Select Role' (with a 'Select Roles' input), 'Select Group' (with a 'Select Groups' input), and 'Select User' (with a list of users including 'streamsmgmr' and 'kafka'). To the right of these is the 'Policy Conditions' field with an 'Add Conditions' button and a plus sign. Next is the 'Permissions' field with buttons for 'Create', 'Read', 'Update', and 'Delete'. Finally, the 'Delegate Admin' field has a checked checkbox and a red 'X' button.

8. Optionally, from the Policy Conditions field, enter the appropriate IP address.
9. From the Permissions field, select the appropriate permission.
10. Click Save.

Results

The user now has the rights according to the policy and the permission you assigned to the user.

Related Information

[Schema Registry Authorization through Ranger Access Policies](#)

[Pre-defined Access Policies for Schema Registry](#)

[Add the user or group to a pre-defined access policy](#)