

Apache NiFi Registry User Guide

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Introduction

Apache NiFi Registry-a subproject of Apache NiFi-is a complementary application that provides a central location for storage and management of shared resources across one or more instances of NiFi and/or MiNiFi.

The first implementation of the Registry supports versioned flows. Process group level dataflows created in NiFi can be placed under version control and stored in a registry. The registry organizes where flows are stored and manages the permissions to access, create, modify or delete them.

See the [System Administrator's Guide](#) for information about Registry system requirements, installation, and configuration. Once NiFi Registry is installed, use a supported web browser to view the UI.

Browser Support

Browser	Version
Chrome	Current and Current - 1
FireFox	Current and Current - 1
Safari	Current and Current - 1

Current and Current - 1 indicates that the UI is supported in the current stable release of that browser and the preceding one. For instance, if the current stable release is 62.X then the officially supported versions will be 62.X and 61.X.

For Safari, which releases major versions much less frequently, Current and Current - 1 simply represent the two latest releases.

The supported browser versions are driven by the capabilities the UI employs and the dependencies it uses. UI features will be developed and tested against the supported browsers. Any problem using a supported browser should be reported to Apache NiFi.

Unsupported Browsers

While the UI may run successfully in unsupported browsers, it is not actively tested against them. Additionally, the UI is designed as a desktop experience and is not currently supported in mobile browsers.

Viewing the UI in Variably Sized Browsers

In most environments, all of the UI is visible in your browser. However, the UI has a responsive design that allows you to scroll through screens as needed, in smaller sized browsers or tablet environments.



Note: The minimum recommended screen size is 1080px X 445px.

Terminology

Flow: A process group level NiFi dataflow that has been placed under version control and saved to the Registry.

Bundle: A binary artifact containing one or more extensions that can be run in NiFi or MiNiFi.

Bucket: A container that stores and organizes versioned items, such as flows and bundles.

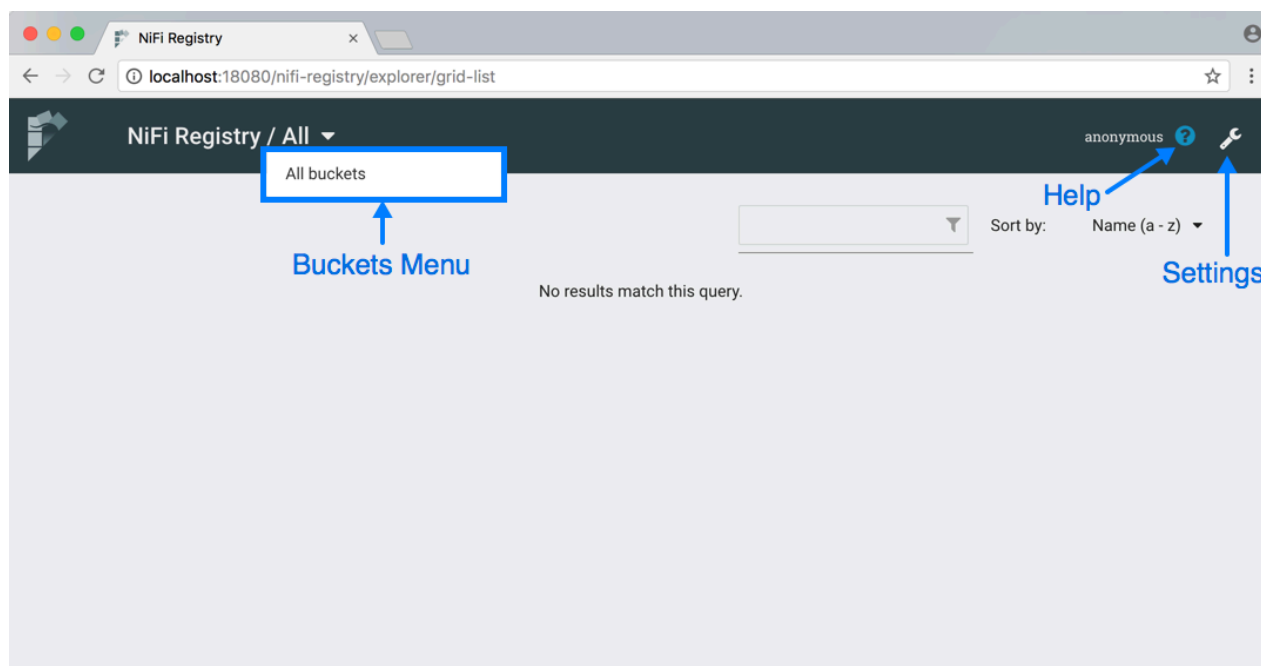
Policy: Defines a user or group's ability to perform a given action.



NiFi Registry User Interface

The NiFi Registry UI displays the shared resources available and provides mechanisms for creating and administering users/groups, buckets and policies.

When the application is started, the user is able to navigate to the UI by going to the default address of `http://<host name>:18080/nifi-registry` in a web browser. There are no permissions configured by default, so anyone is able to view and modify the flows and buckets. For information on securing the system, see the [System Administrator's Guide](#).

When an administrator navigates to the UI for the first time, the registry is empty as there are no flow resources available to share yet:

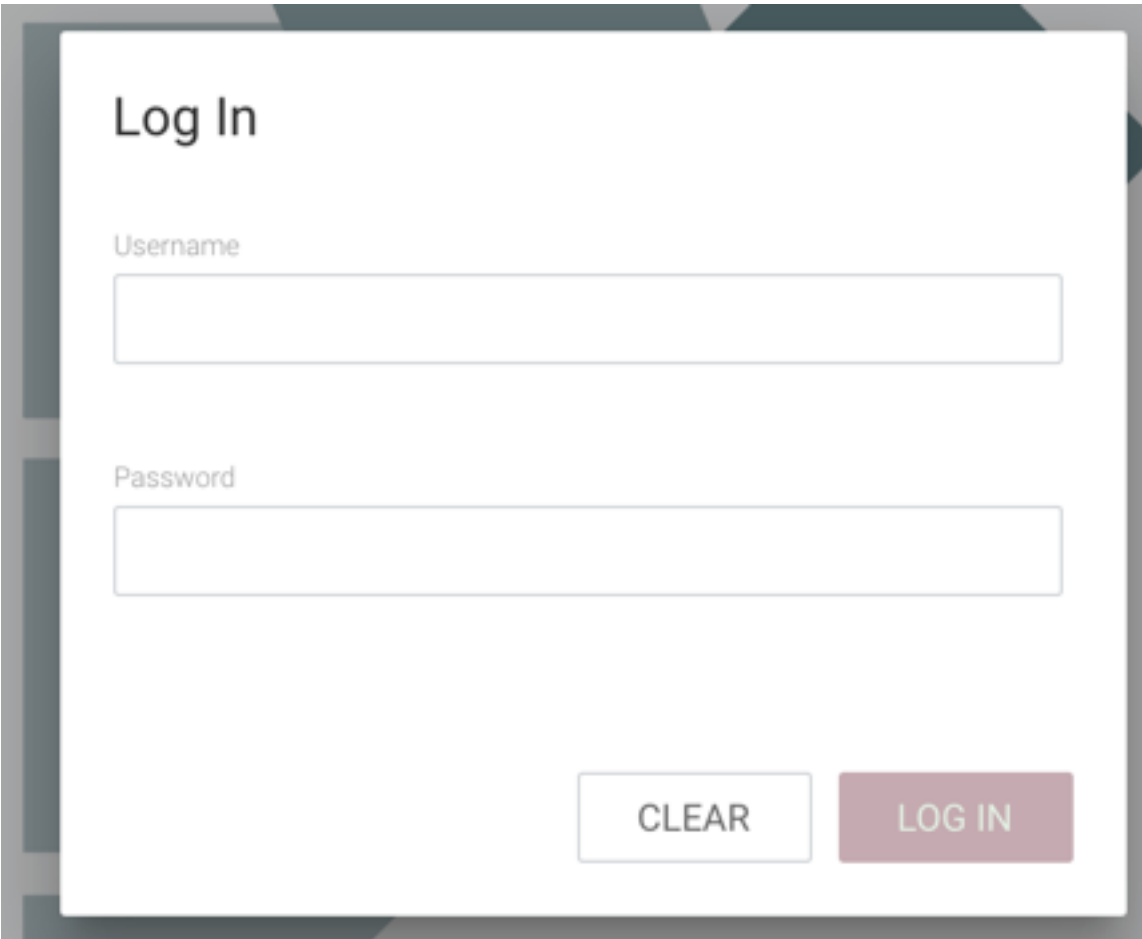


The Buckets menu is available at the top left of the screen. It allows the user to display flows based on which bucket they are contained in. On the top right of the screen is the Settings button () which accesses functionality for managing users, groups, buckets and policies. Next to the Settings button is the Help button () which accesses the NiFi Registry Documentation.

Logging In

If NiFi Registry is configured to run securely, users will have to be granted permissions to buckets by an administrator. For information on configuring NiFi Registry to run securely, see the [System Administrator's Guide](#).

If the user is logging in with their username/password they will be presented with a screen to do so.

A screenshot of a 'Log In' form. The form is white with a thin grey border and is set against a dark grey background with a geometric pattern. At the top left of the form is the title 'Log In' in a large, dark grey font. Below the title are two input fields: the first is labeled 'Username' and the second is labeled 'Password', both in a smaller, grey font. At the bottom right of the form are two buttons: a light grey button labeled 'CLEAR' and a maroon button labeled 'LOG IN' in white capital letters.

Log In

Username

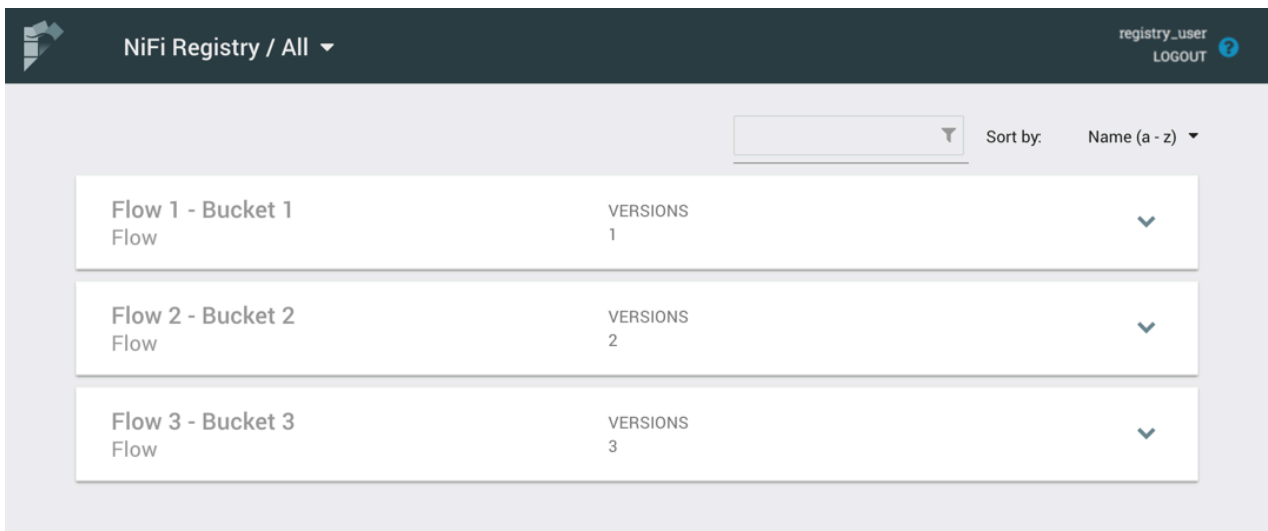
Password

CLEAR LOG IN

Manage Flows

View a Flow

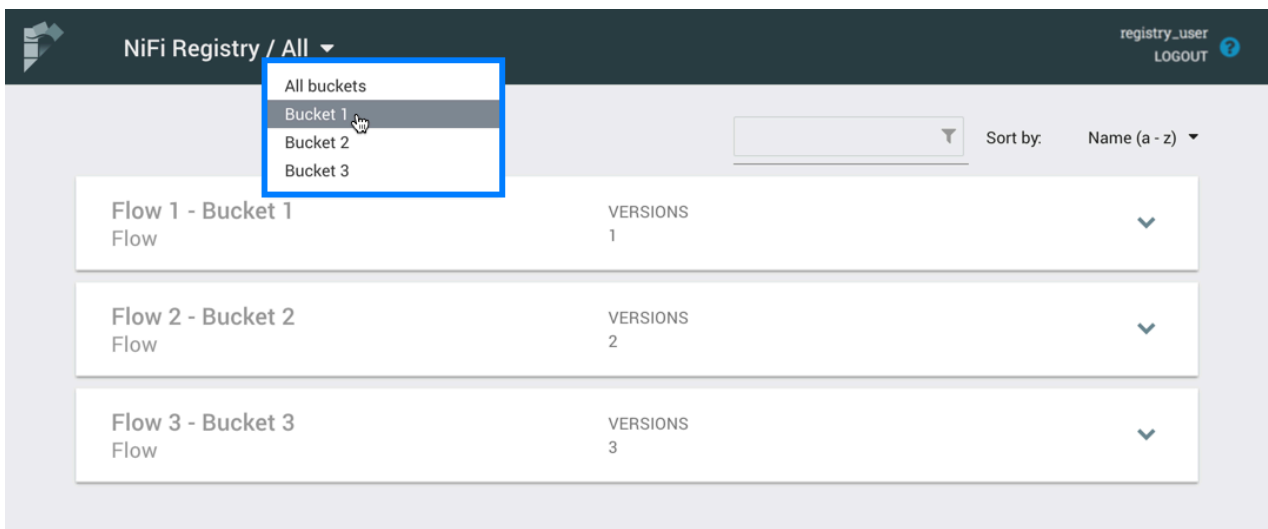
Flows in all buckets are listed in the main window of the UI by default. If the registry is secured, only the flows in the buckets that the user has access to are listed.



The screenshot shows the NiFi Registry interface with the 'All' bucket selected. The header bar includes the NiFi logo, 'NiFi Registry / All', and user information 'registry_user' with a 'LOGOUT' link. Below the header, there is a search bar and a 'Sort by: Name (a - z)' dropdown. The main content area displays a list of three flows:

Flow Name	VERSIONS	Action
Flow 1 - Bucket 1 Flow	1	▼
Flow 2 - Bucket 2 Flow	2	▼
Flow 3 - Bucket 3 Flow	3	▼

To see the flows in a particular bucket, select that bucket from the drop-down menu at the top left of the UI.



This screenshot shows the same NiFi Registry interface, but with the bucket selection dropdown menu open. The menu lists 'All buckets', 'Bucket 1', 'Bucket 2', and 'Bucket 3'. 'Bucket 1' is currently selected and highlighted. The flow list below remains the same as in the previous screenshot.

Click on a flow to see its Description and Change Log:

The screenshot shows the NiFi Registry interface. At the top, there's a header with the NiFi logo, 'NiFi Registry / All', and a user profile 'registry_user' with a 'LOGOUT' button. Below the header, there's a search bar and a 'Sort by: Name (a - z)' dropdown. The main content area displays a list of flows:

Flow Name	VERSIONS
Flow 1 - Bucket 1	1
Flow 2 - Bucket 2	2
Flow 3 - Bucket 3	3

Below the list, the details for 'Flow 2 - Bucket 2' are expanded. It shows a 'DESCRIPTION' section with 'Description 2' and a 'CHANGE LOG' section. The change log lists two versions:

- Version 2 - 40 minutes ago** by registry_user: Add processors, Dec-26-2017 at 11:23 PM
- Version 1 - 41 minutes ago** by registry_user

An 'ACTIONS' button is visible in the top right of the details panel.

The Change Log includes all versions that were saved for a flow. Clicking on the version reveals details about when the version was saved, which user committed the save, and any comments entered by the user.

Sorting & Filtering Flows

Flows can be sorted alphabetically by Name (ascending or descending) or by Update (newest or oldest) using the drop-down at the top right of the UI.

This screenshot shows the same NiFi Registry interface, but with the 'Sort by' dropdown menu open. The menu options are:

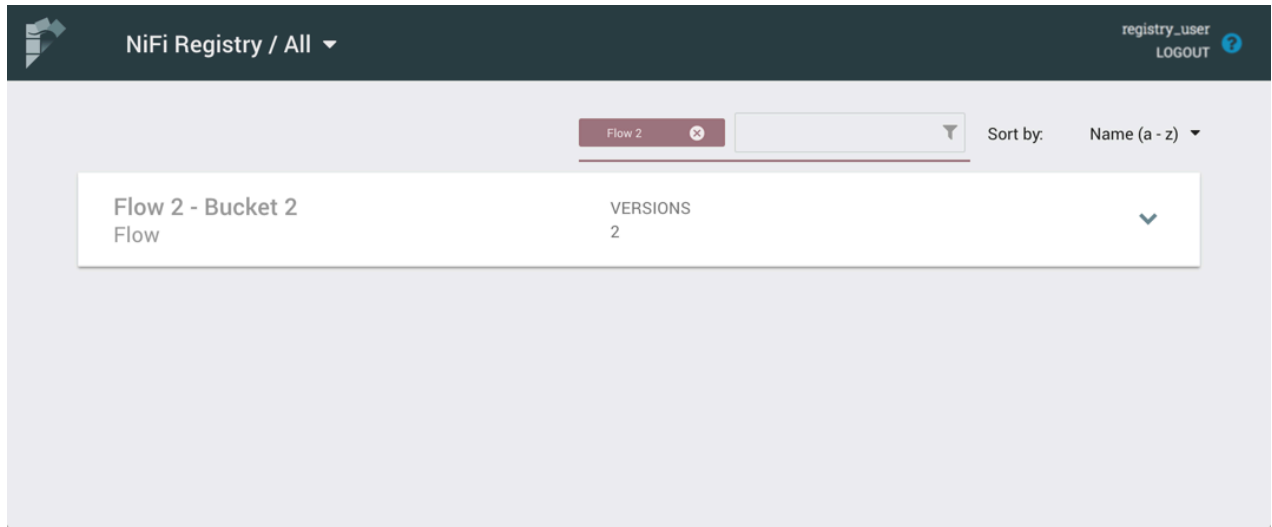
- Name (z - a)
- Oldest (update)

The 'Sort by' dropdown is currently set to 'Name (a - z)'. The flow list below shows three flows: 'Flow 1 - Bucket 1' (1 version), 'Flow 2 - Bucket 2' (2 versions), and 'Flow 3 - Bucket 3' (3 versions).

The flow list can be filtered by:

- flow name
- flow description
- flow ID
- bucket name
- bucket ID

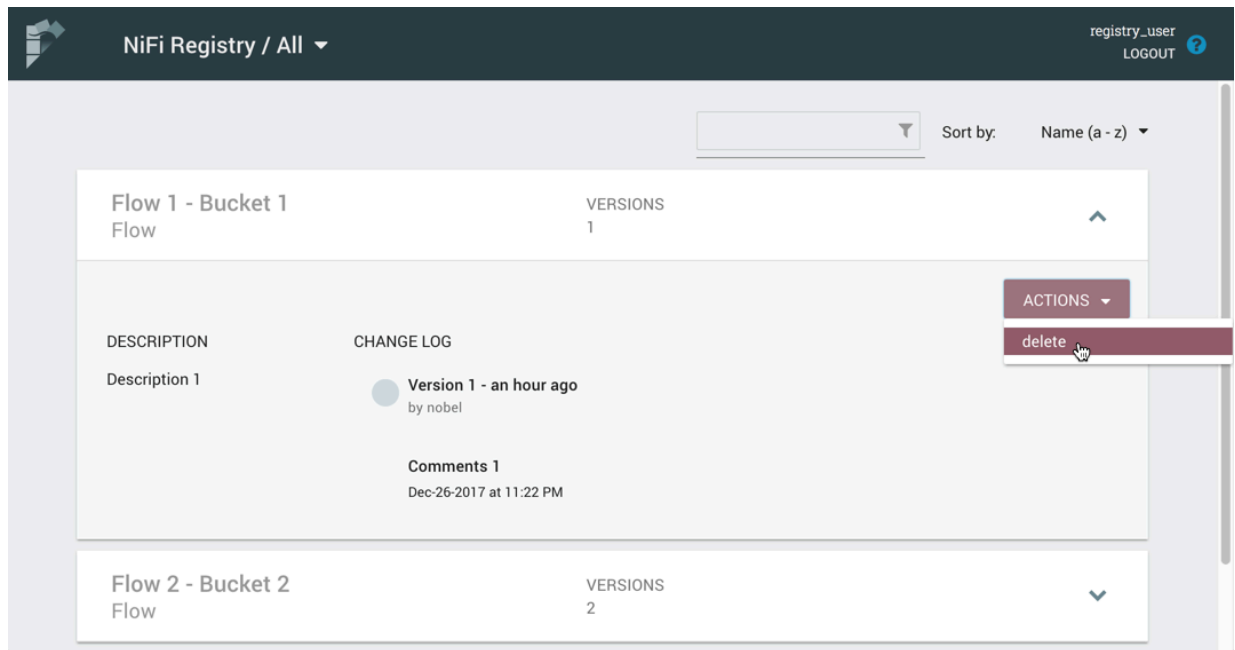
Here is an example filtering by flow name:



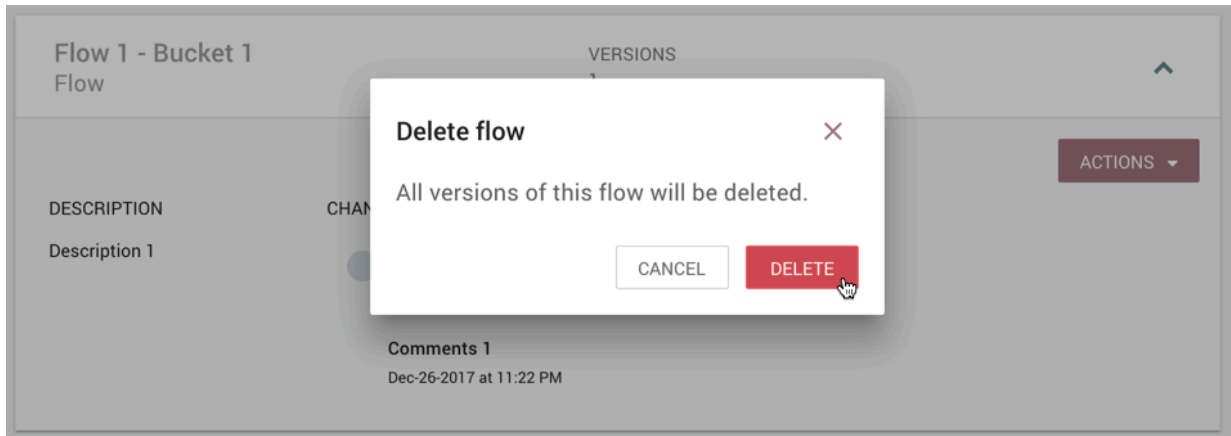
Delete a Flow

To delete a flow from the registry:

1. Click on the flow to see its details.
2. Select the "Actions" drop-down and click the "Delete" menu option.




3. Select "Delete" to confirm.



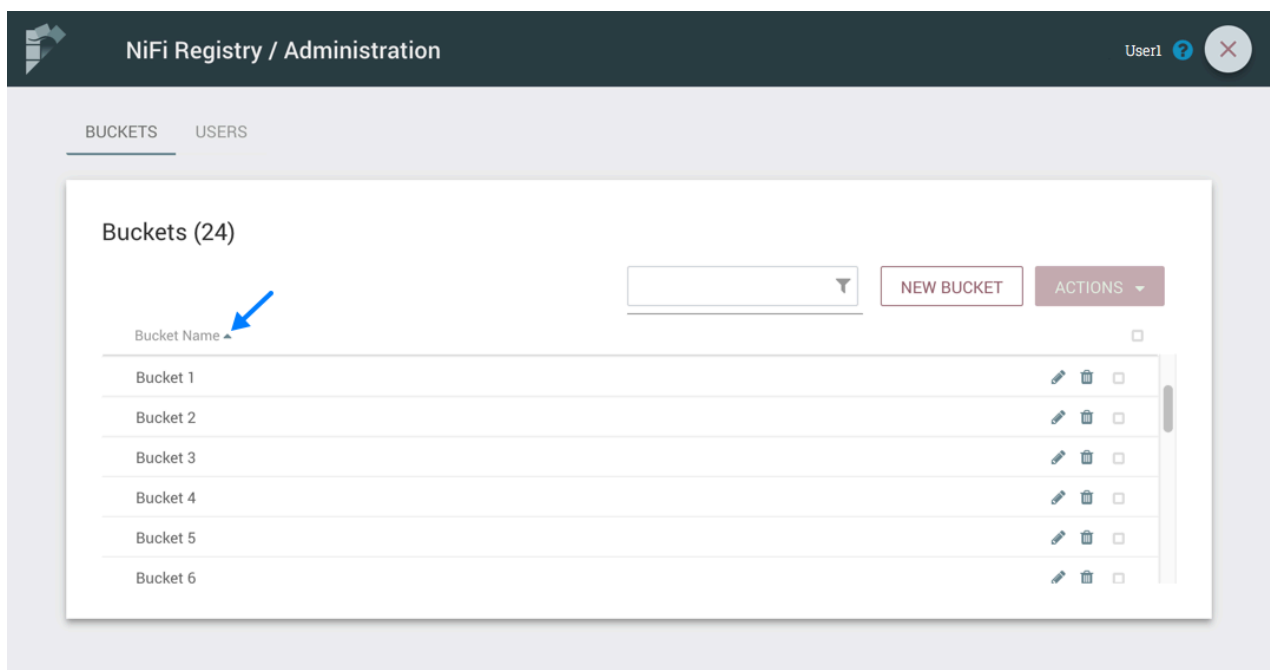
Note: It is possible to delete a flow that is actively being used in NiFi.

Manage Buckets

To manage buckets, enter the Administration section of the Registry by clicking the Settings button () on the top right of the UI. The Buckets window appears by default.

Sorting & Filtering Buckets

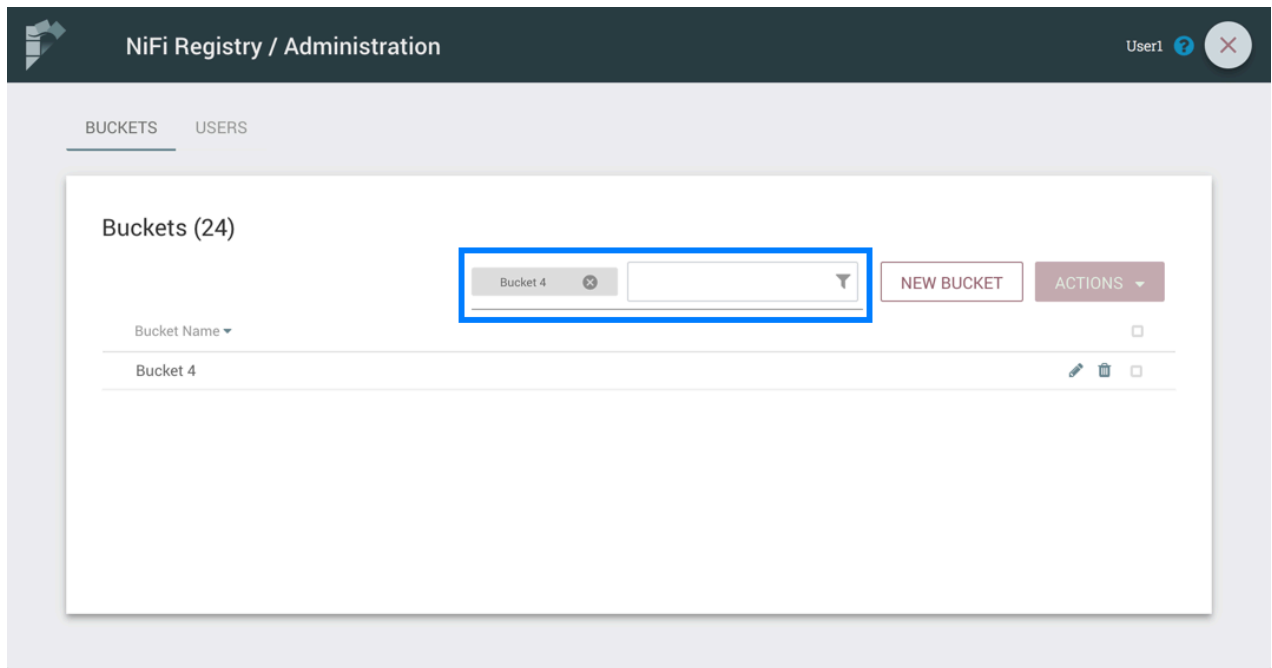
Buckets can be sorted alphabetically by Name (ascending or descending) using the up/down arrows.



The buckets listed can be filtered by:

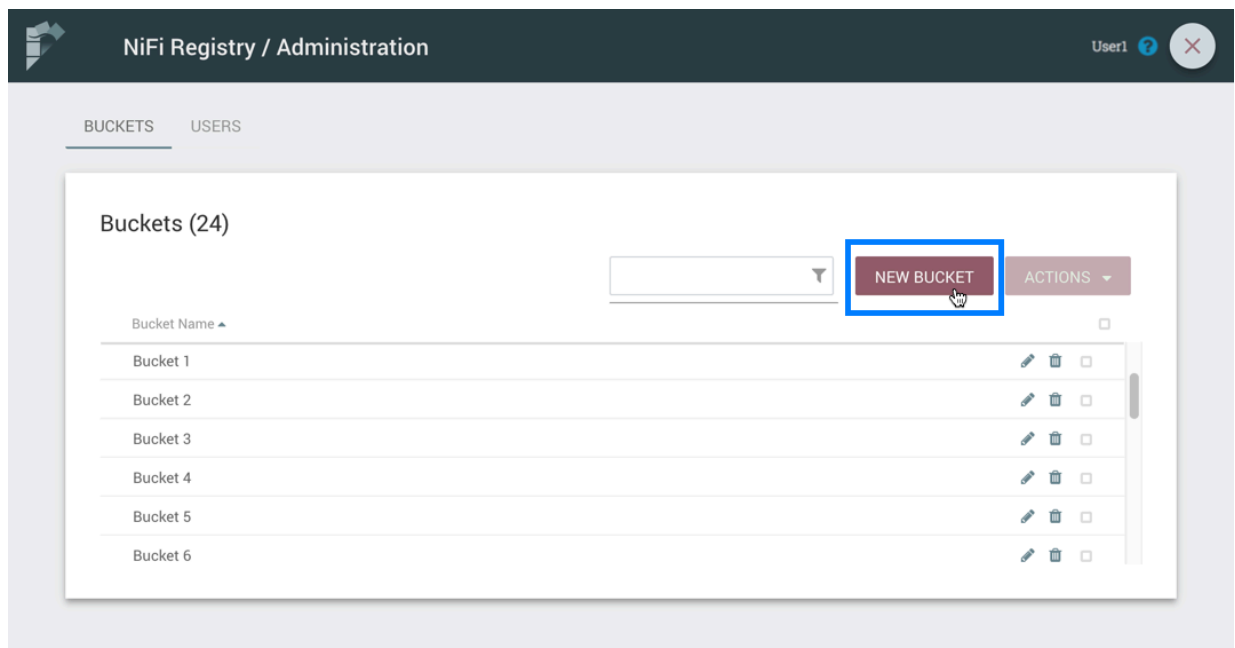
- bucket name
- bucket description
- bucket ID

Here is an example filtering by bucket name:

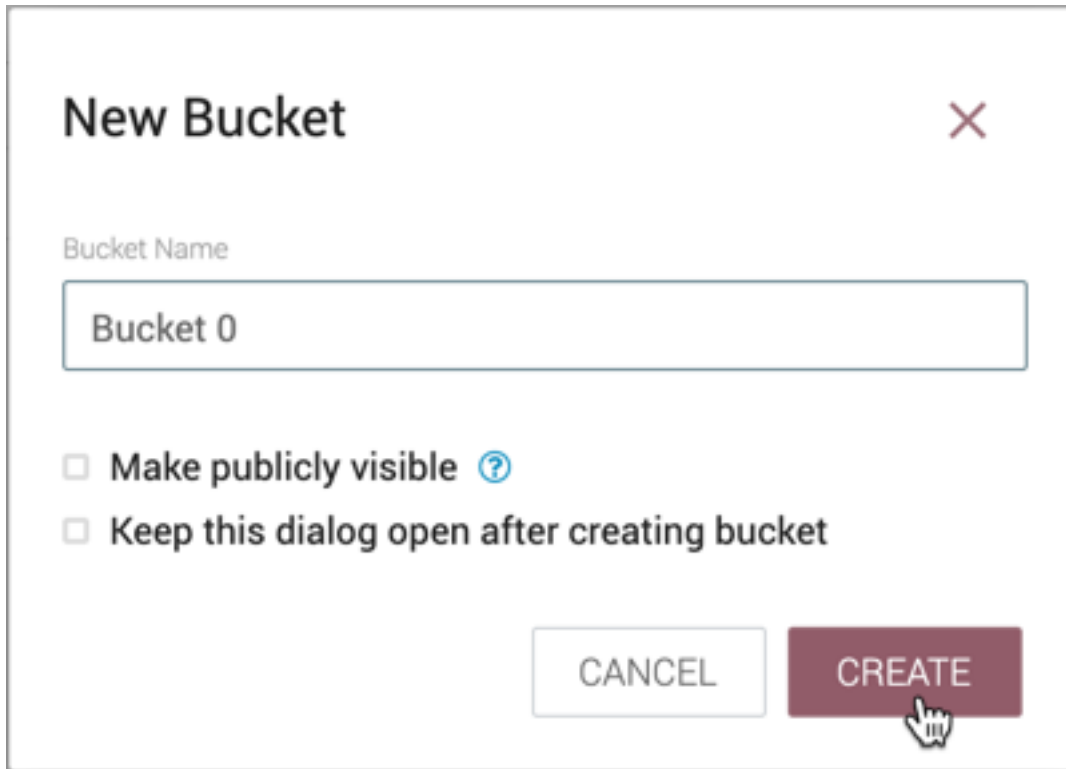


Create a Bucket

1. Select the "New Bucket" button.



2. Enter the desired bucket name and select the "Create" button.

A screenshot of a "New Bucket" dialog box. The title "New Bucket" is at the top left, and a red "X" close button is at the top right. Below the title is a text input field labeled "Bucket Name" containing the text "Bucket 0". Underneath the input field are two checkboxes: "Make publicly visible" with a blue question mark icon, and "Keep this dialog open after creating bucket". At the bottom right are two buttons: a light gray "CANCEL" button and a dark red "CREATE" button. A mouse cursor is pointing at the "CREATE" button.

Note: Check "Make publicly available" to allow read access to items in the bucket by unauthenticated users. This will override any specific [bucket policies](#) granting read access.

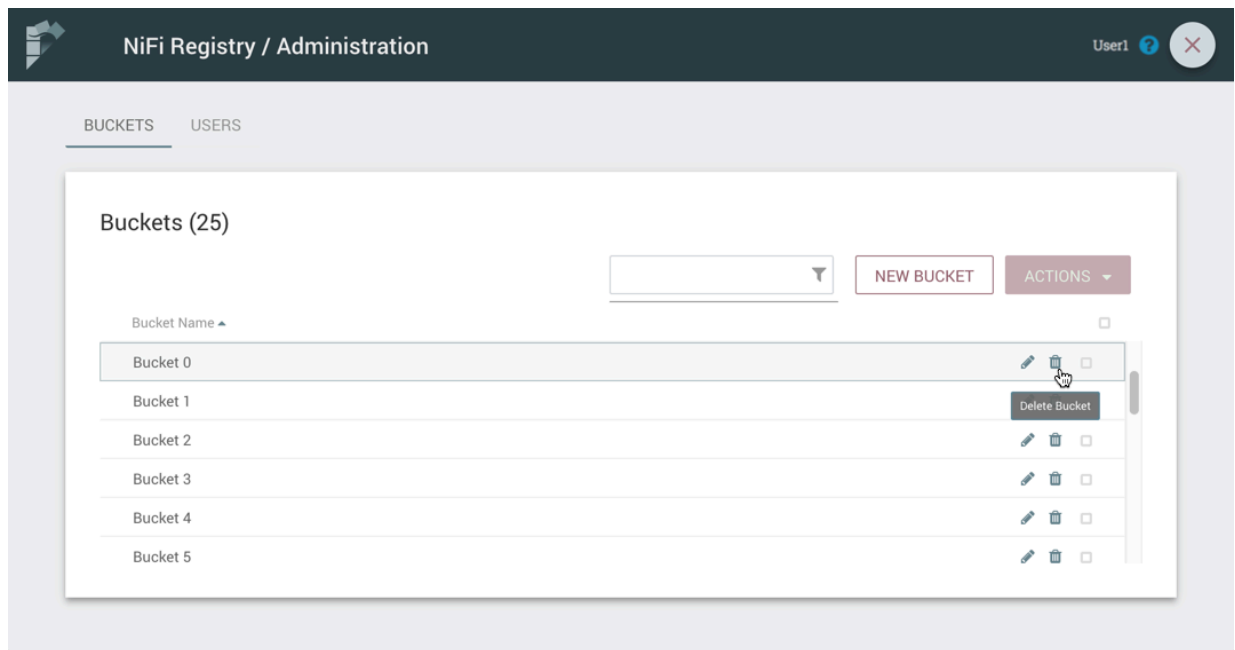


Note: To quickly create multiple buckets, check "Keep this dialog open after creating bucket".

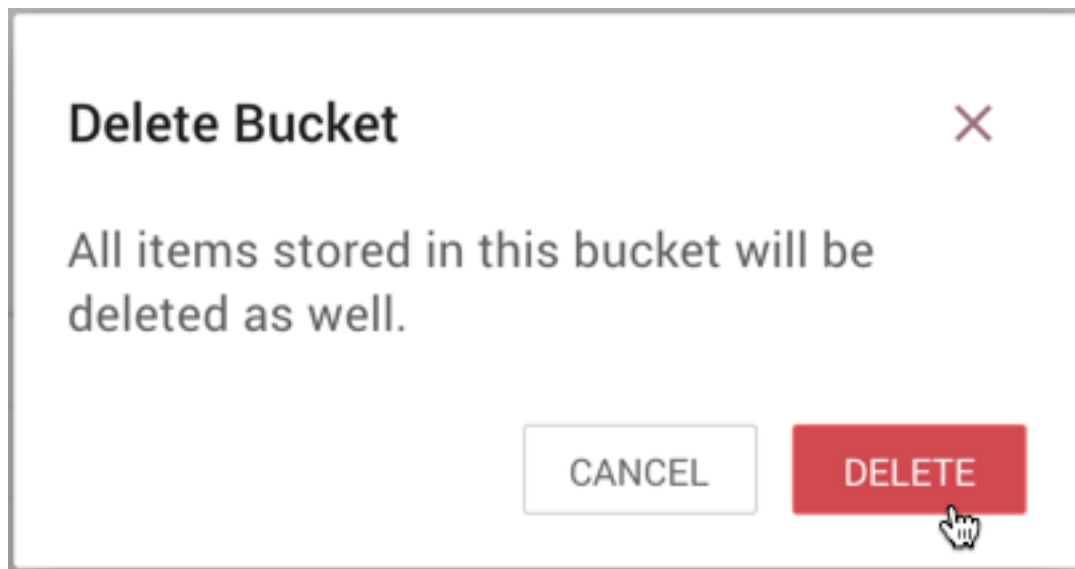
Delete a Bucket

1.

Select the Delete button () in the row of the bucket.

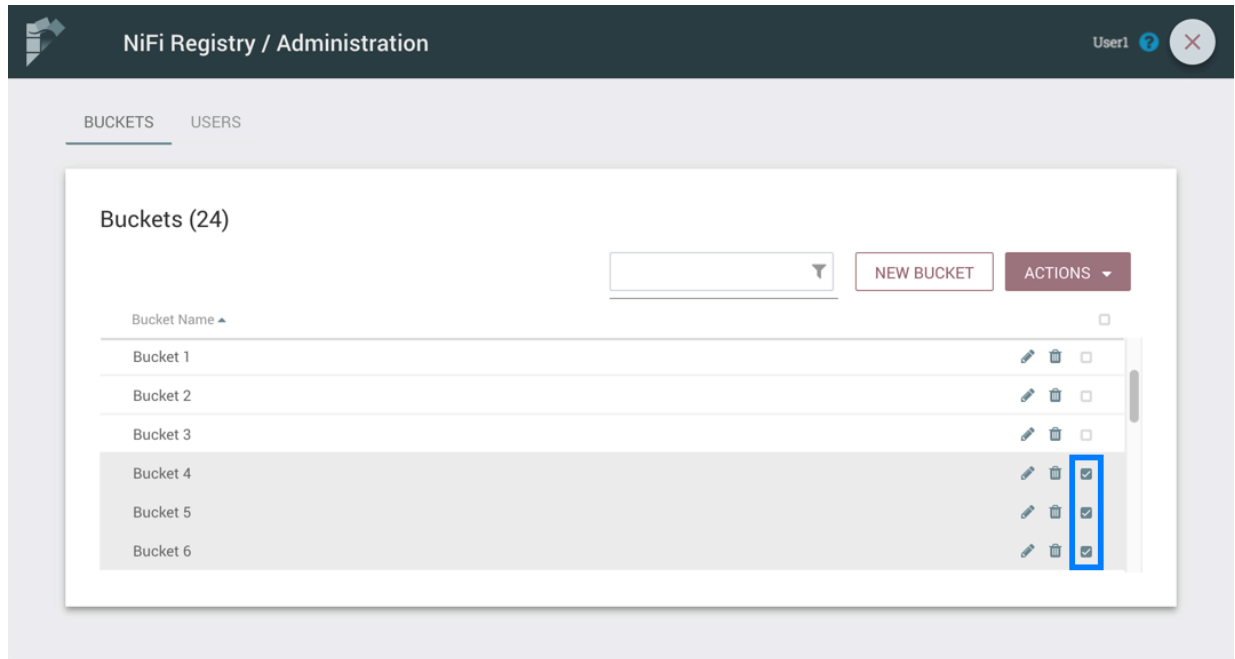


2. From the Delete Bucket dialog, select "Delete".

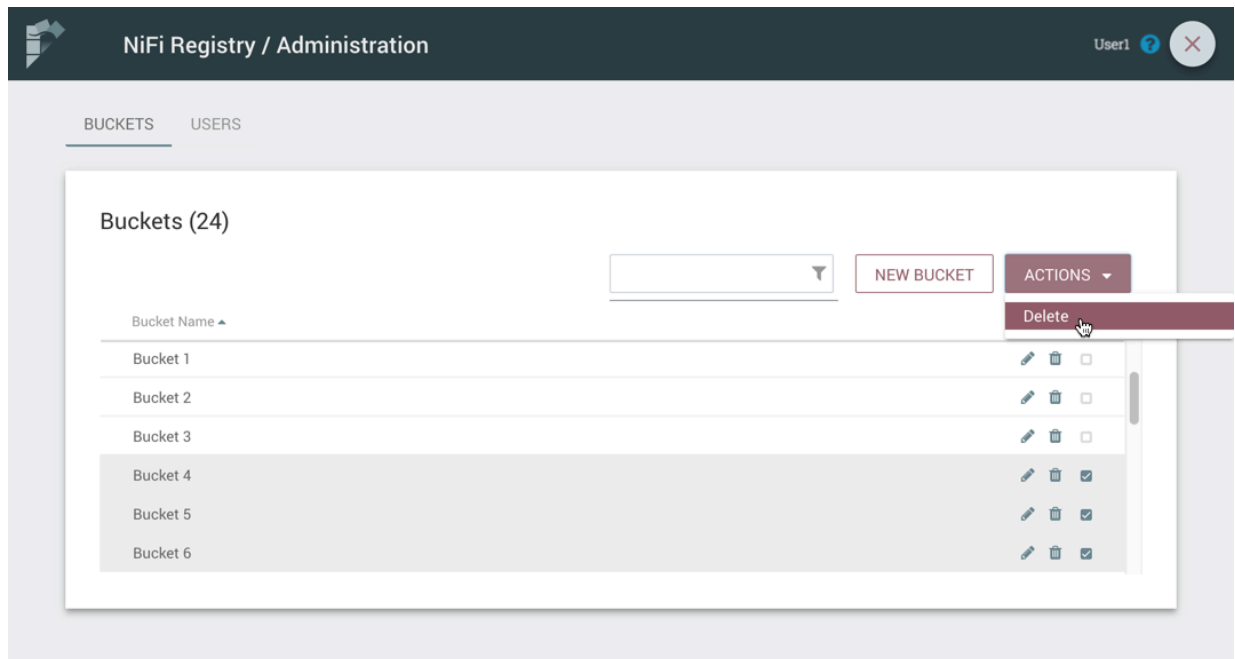


Delete Multiple Buckets

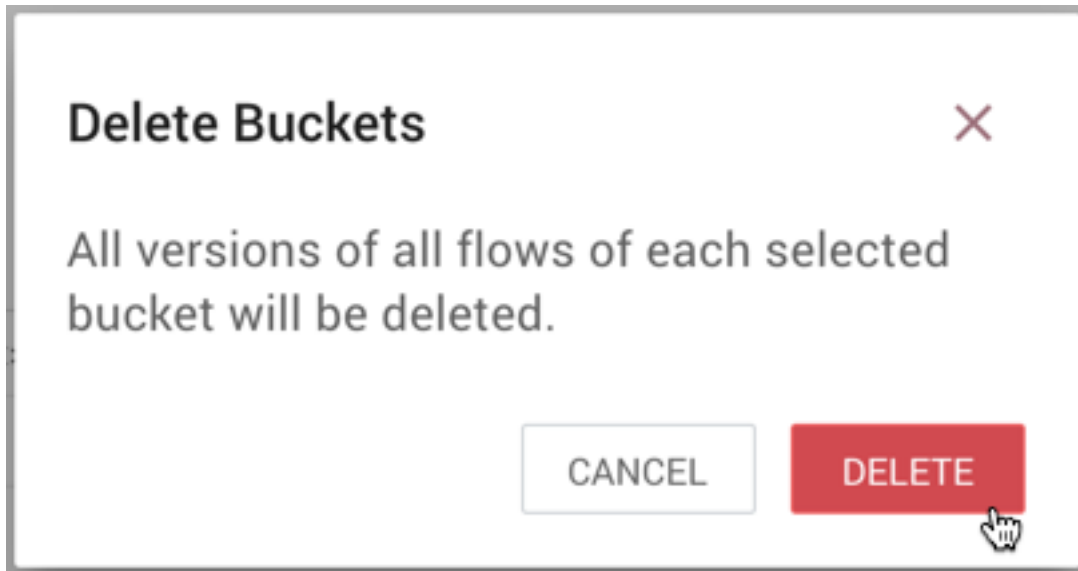
1. Select the checkboxes in the rows of the desired buckets to delete.



2. Select the "Actions" drop-down and click the "Delete" option.

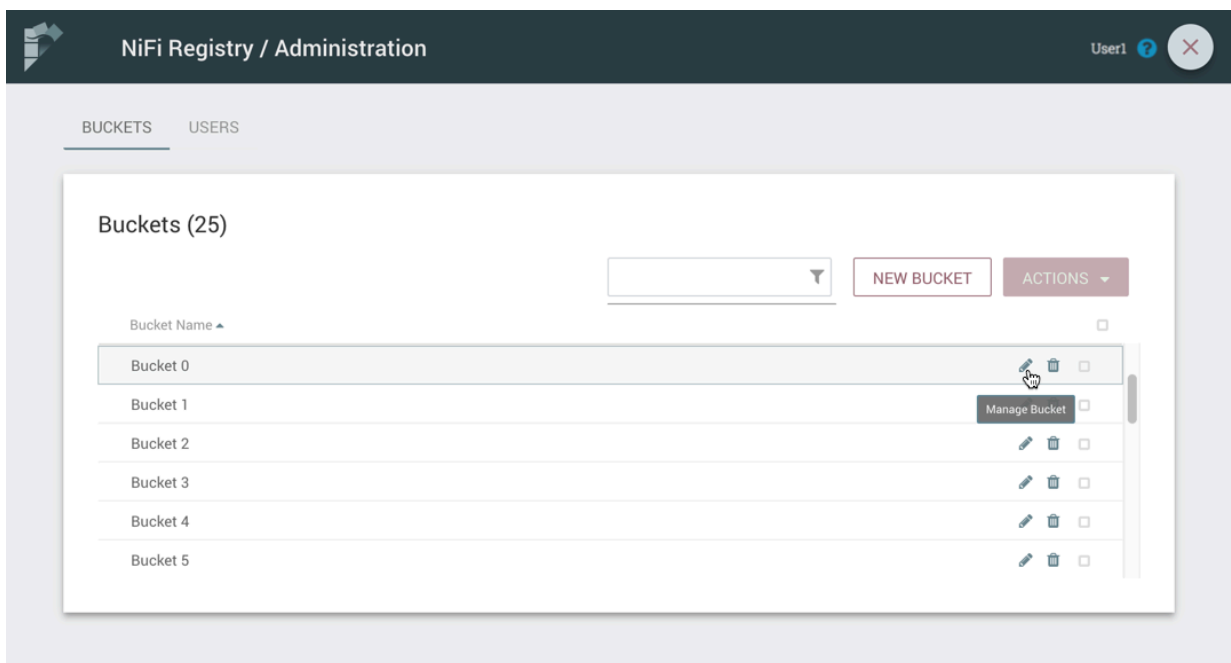


3. From the Delete Buckets dialog, select "Delete".



Edit a Bucket Name

1. Select the Manage button () in the row of the bucket.



2. Enter a new name for the bucket and select the "Save" button.

NiFi Registry / Administration

BUCKETS USERS

Buckets (9)

Bucket Name ▲

Bucket 0

Bucket 1

Bucket 2

Bucket 3

Bucket 4

Bucket 0

Identity/Bucket Name

Bucket 1234

SAVE

☐ Make publicly visible ?

Bundle Settings

☐ Allow bundle overwrite ?

Policies (0)

NEW POLICY

Display Name ▲ Permissions

No results to display.

CLOSE

Make a Bucket Publicly Visible

To allow read access to items in a bucket by unauthenticated users, select the "Make publicly visible" checkbox.

NiFi Registry / Administration

BUCKETS USERS

Buckets (10)

Bucket Name ▲

Bucket 0

Bucket 1

Bucket 2

Bucket 3

Bucket 4

Bucket 0

Identity/Bucket Name

Bucket 0

SAVE

☒ Make publicly visible ?

Bundle Settings

☐ Allow bundle overwrite ?

Policies (0)

NEW POLICY

Display Name ▲ Permissions

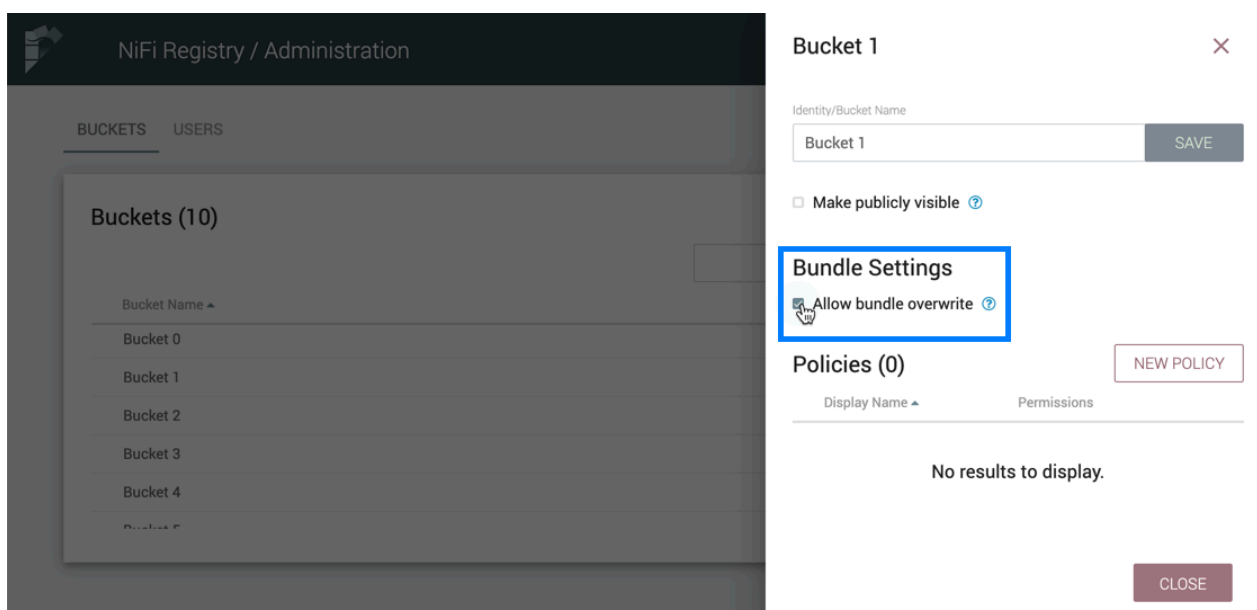
No results to display.

CLOSE

This setting will override any specific policies granting read access to the bucket.

Allow Bundles in a Bucket to be Overwritten

To allow released bundles in a bucket to be overwritten, select the "Allow bundle overwrite" checkbox.



Currently, the only supported bundle type is a [NiFi Archive \(NAR\)](#). By default, buckets do not allow the re-release of released NARs. This setting explicitly allows the same version of a NAR to be uploaded to a bucket.

For more information on bundles, see the [Manage Bundles](#) section.

Bucket Policies

Bucket policies define user privileges on buckets/flows in the Registry and in NiFi. The available permissions are:

- All - In the Registry, the assigned user is able to view and delete flows in the bucket. In NiFi, the selected user is able to import flows from the bucket and commit changes to flows in the bucket.
- Read - In the Registry, the assigned user is able to view flows in the bucket. In NiFi, the selected user is able to import flows from the bucket.
- Write - In NiFi, the assigned user is able to commit changes to flows in the bucket.
- Delete - In the Registry, the assigned user is able to delete flows in the bucket.



Note: Users would typically have Read permissions at a minimum. A user with Write permission would not commit changes to a flow if they were not able to import it initially. A user with Delete permission would not delete a flow if they could not view it.



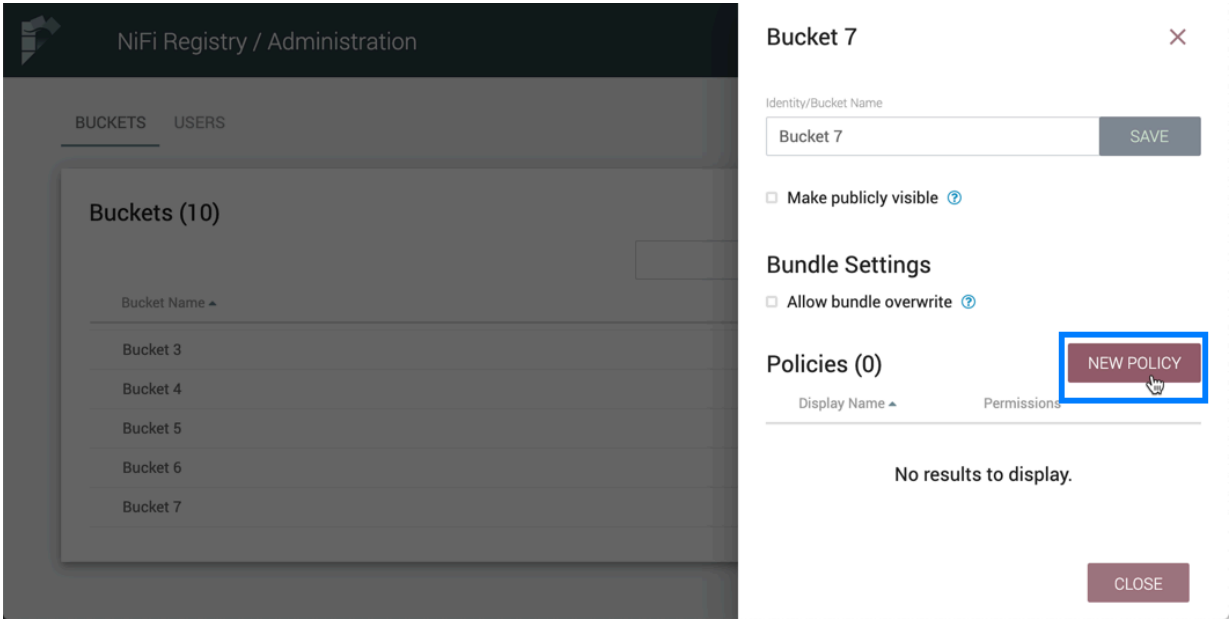
Note: If a user has a bucket policy and the group that the user is in also has a policy, all policies are used to determine access. For example, assume User1 is in Group1, User1 has READ privileges on Bucket1 and Group1 has READ privileges on Bucket2. In this scenario, User1 will have READ privileges on both Bucket1 and Bucket2.

Create a Bucket Policy

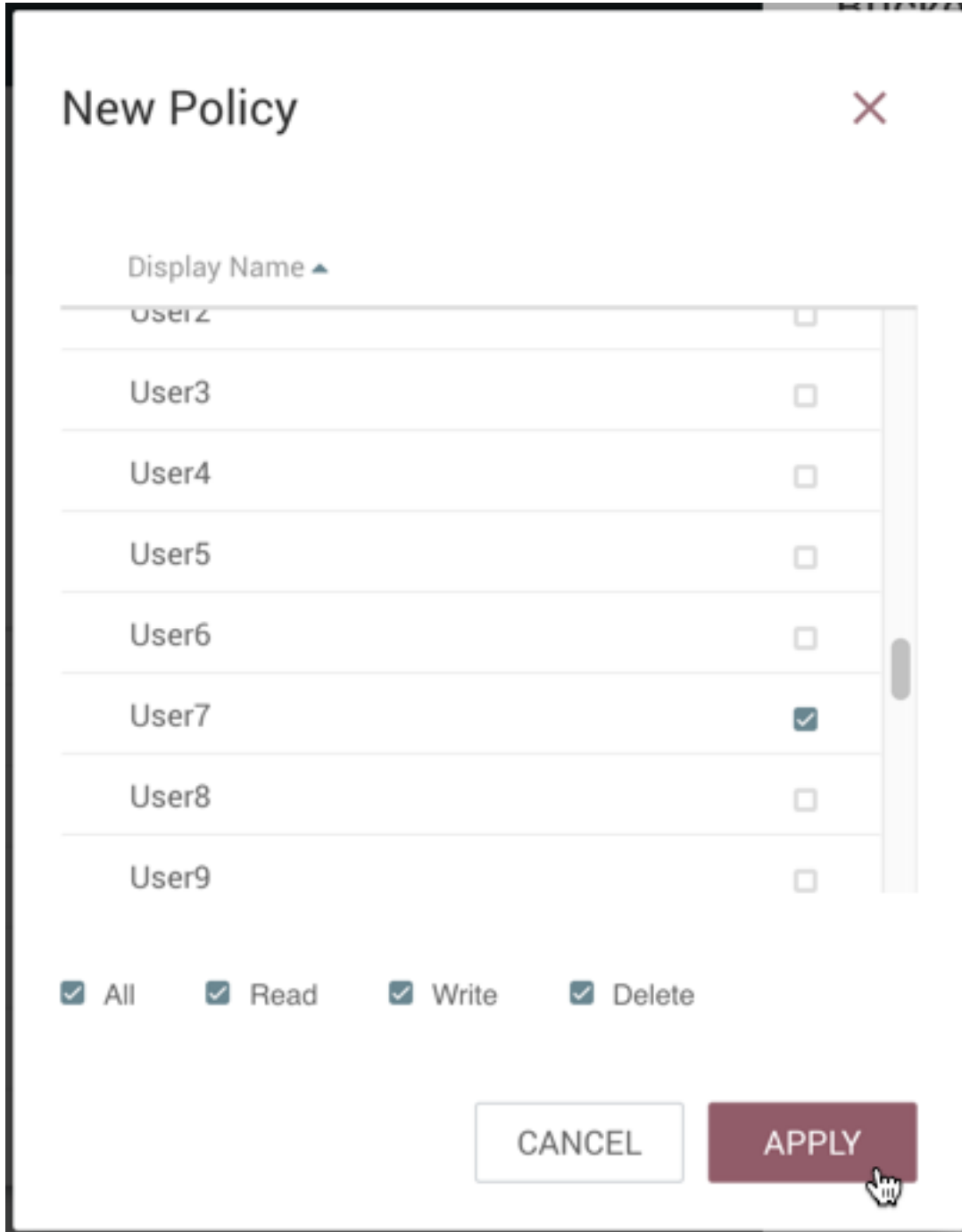
1.

Select the Manage button () in the row of the bucket.

2. Select the "New Policy" button.



3. Select a user, check the desired permissions and select the "Apply" button:



The image shows a "New Policy" dialog box with a close button (X) in the top right corner. Below the title, there is a "Display Name" label with a dropdown arrow. A list of users is displayed, each with a checkbox to its right. The users are User2, User3, User4, User5, User6, User7, User8, and User9. User7's checkbox is checked. Below the list, there are four permission checkboxes: All, Read, Write, and Delete, all of which are checked. At the bottom, there are two buttons: "CANCEL" and "APPLY". A mouse cursor is pointing at the "APPLY" button.

Display Name	Selected
User2	<input type="checkbox"/>
User3	<input type="checkbox"/>
User4	<input type="checkbox"/>
User5	<input type="checkbox"/>
User6	<input type="checkbox"/>
User7	<input checked="" type="checkbox"/>
User8	<input type="checkbox"/>
User9	<input type="checkbox"/>

☒ All ☒ Read ☒ Write ☒ Delete

4. The policy is added to the bucket:

NiFi Registry / Administration

BUCKETS

USERS

Buckets (10)

Bucket Name ▾

Bucket 3

Bucket 4

Bucket 5

Bucket 6

Bucket 7

public_bucket

Bucket 7

Identity/Bucket Name

Bucket 7

SAVE

☐ Make publicly visible

Bundle Settings

☐ Allow bundle overwrite

Policies (1)

NEW POLICY

Display Name ▾

Permissions

User7

read, write, delete



About

BUCKET IDENTIFIER

a9698907-bb61-4dc9-8f0e-9329353b5d1c

CLOSE

Delete a Bucket Policy

1.
- Select the Manage button () in the row of the bucket.
2.
- Select the Delete button () in the row of the policy.

NiFi Registry / Administration

BUCKETS

USERS

Buckets (10)

Bucket Name ▾

Bucket 2

Bucket 3

Bucket 4

Bucket 5

Bucket 6

Bucket 7

public_bucket

Bucket 7

Identity/Bucket Name

Bucket 7

SAVE

☐ Make publicly visible

Bundle Settings

☐ Allow bundle overwrite

Policies (2)

NEW POLICY

Display Name ▾

Permissions

User7

read, write, delete

User8

read, write

About

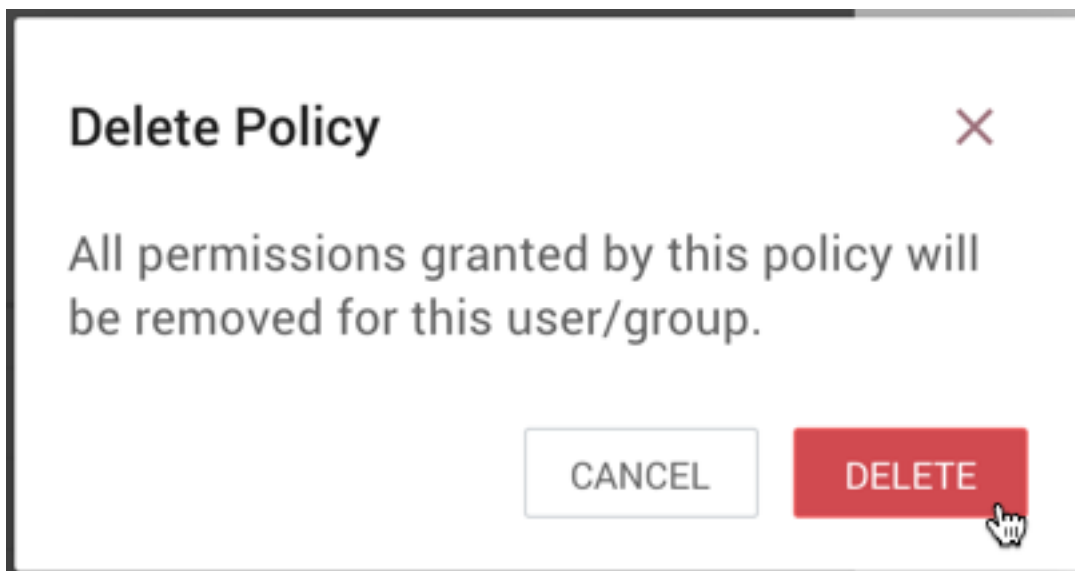
BUCKET IDENTIFIER

a9698907-bb61-4dc9-8f0e-9329353b5d1c


Remove user policies from this bucket

CLOSE

3. From the Delete Policy dialog, select "Delete".

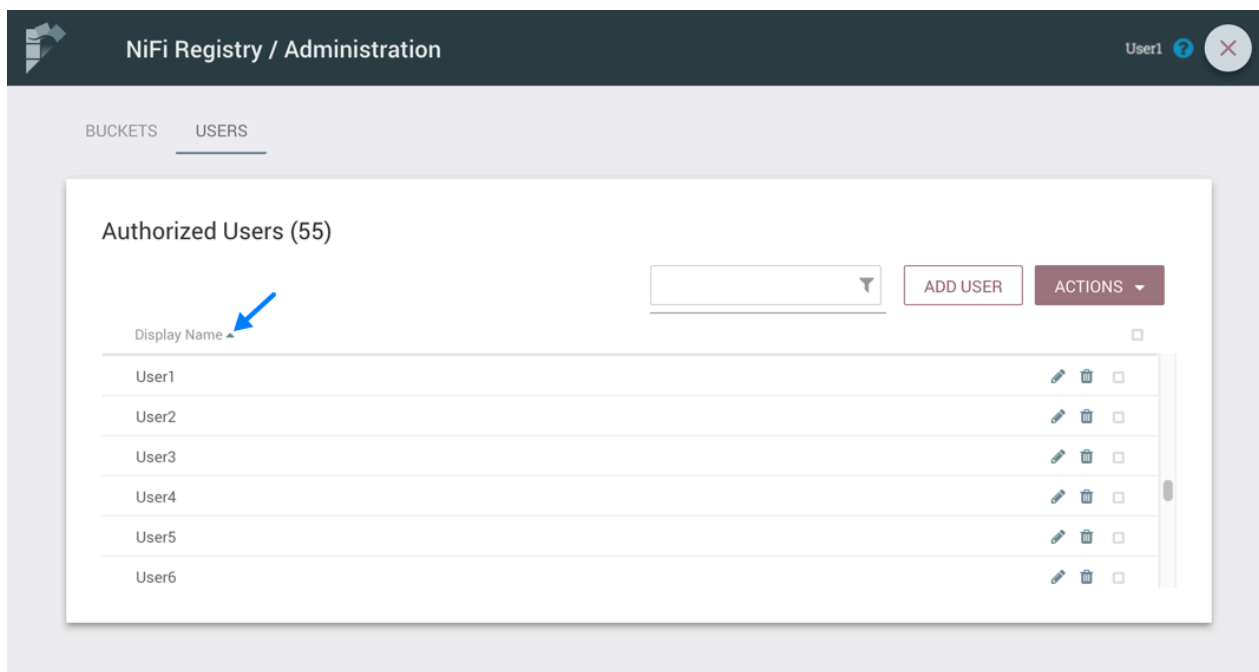


Manage Users & Groups

To manage users/groups, enter the Administration section of the Registry by clicking the Settings button () on the top right of the UI. Select Users from the top menu to open the Users window.

Sorting & Filtering Users/Groups

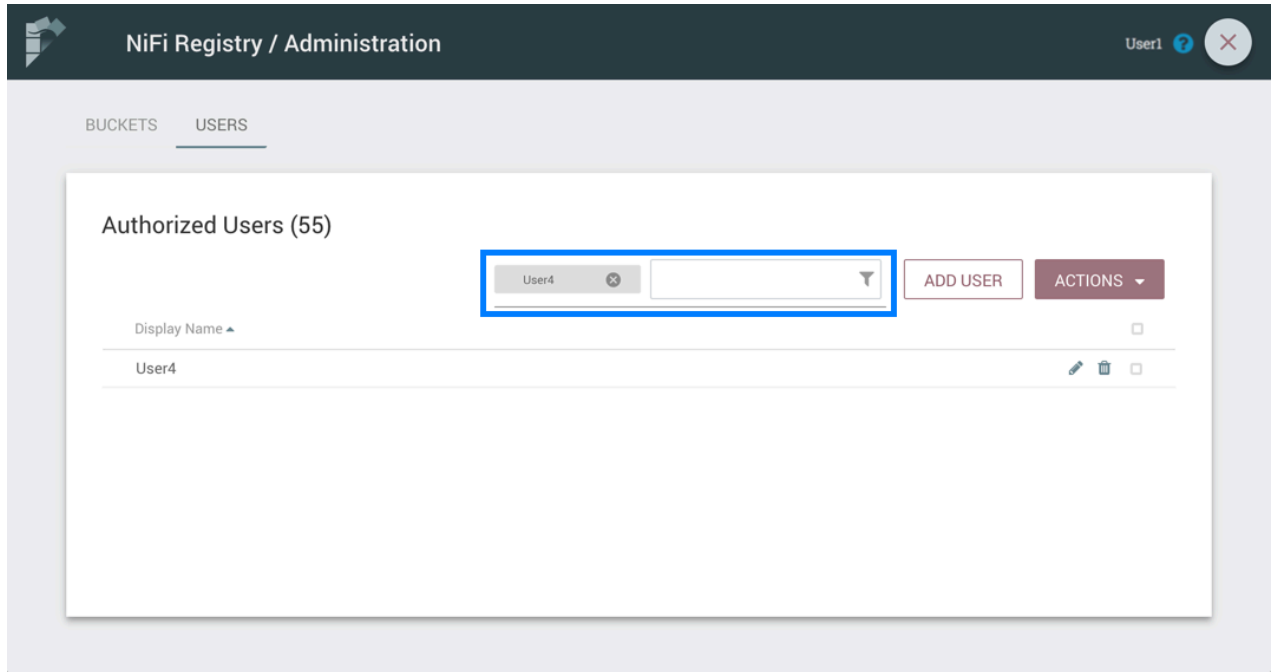
Users/groups can be sorted alphabetically by Name (ascending or descending) using the up/down arrows.



The Users/groups listed can be filtered by:

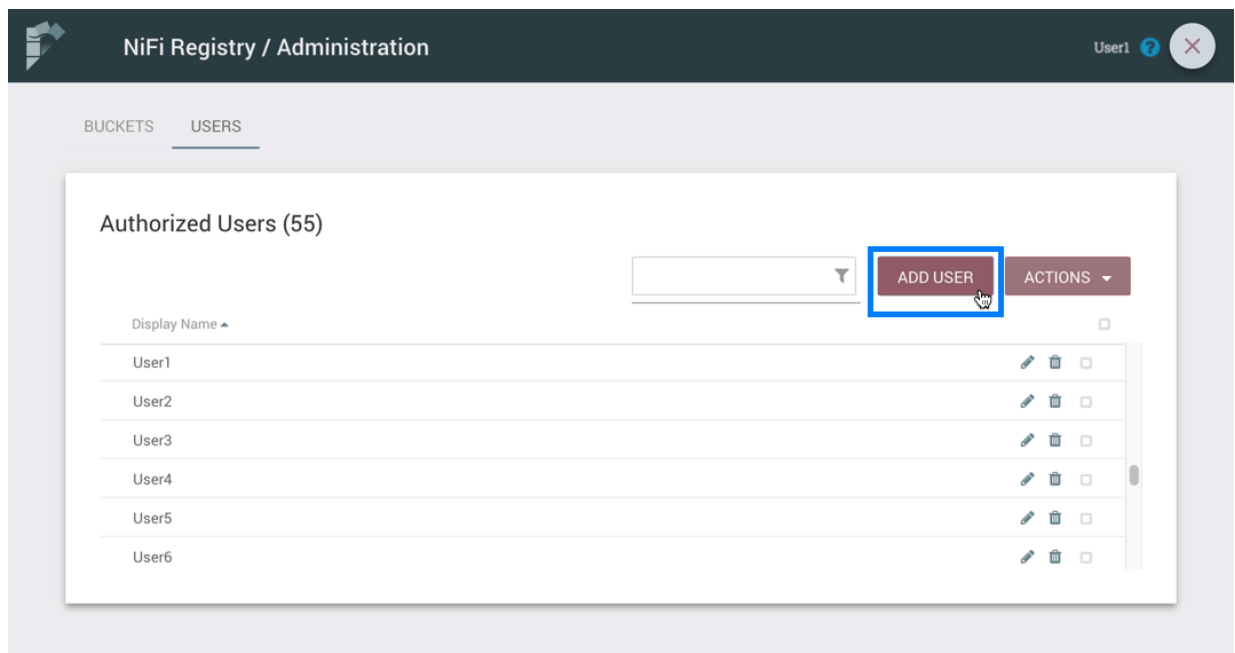
- user name
- user ID
- group name
- group ID

Here is an example of filtering by user name:

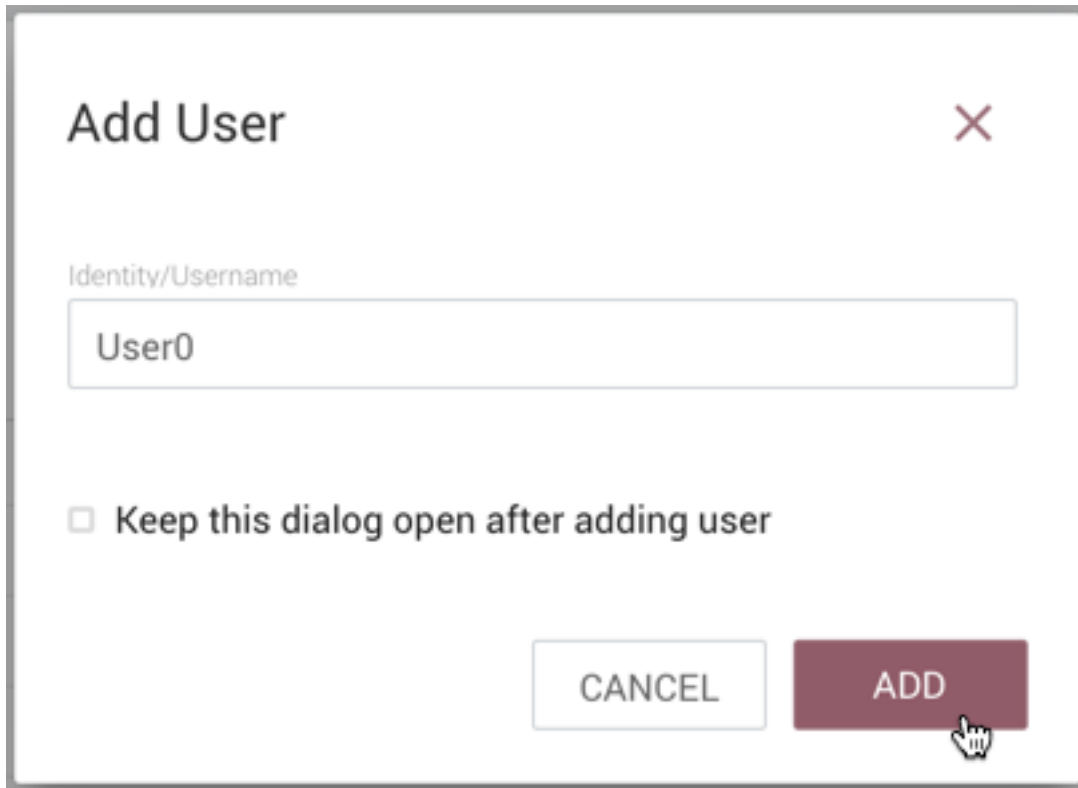


Add a User

1. Select the "Add User" button.



2. Enter the desired username or appropriate Identity information. Select the "Add" button.

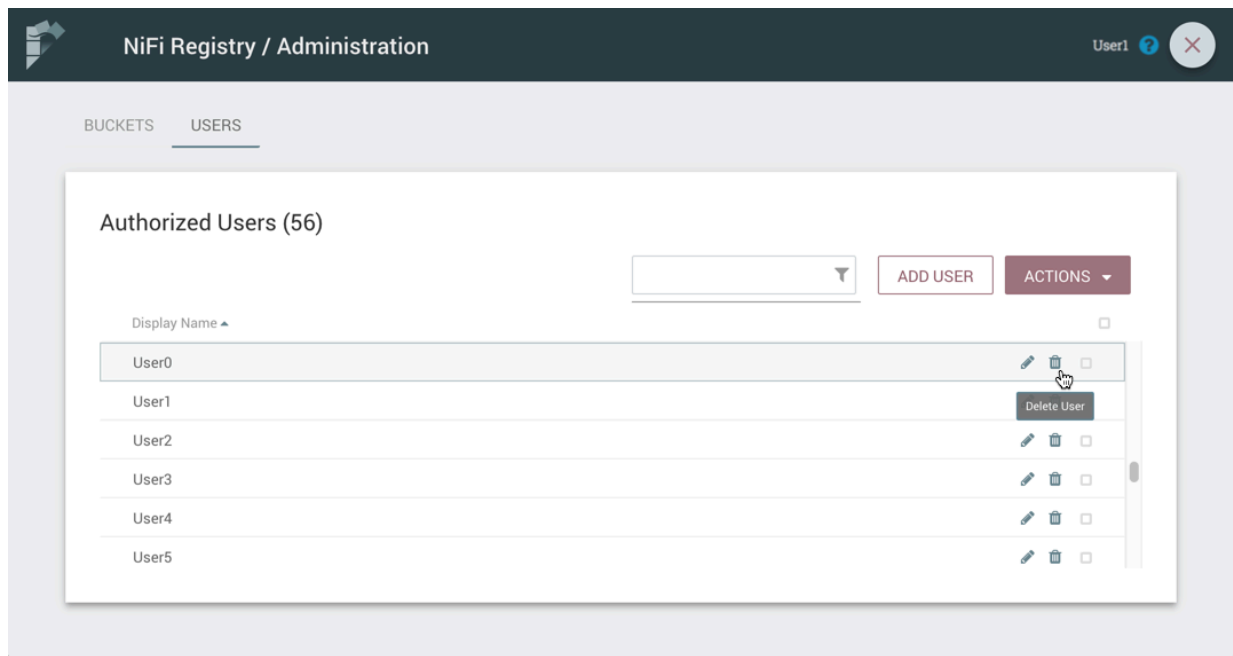
A screenshot of a web-based dialog box titled "Add User". The dialog has a close button (X) in the top right corner. Below the title is a text input field labeled "Identity/Username" containing the text "User0". Below the input field is a checkbox labeled "Keep this dialog open after adding user", which is currently unchecked. At the bottom right of the dialog are two buttons: a light gray "CANCEL" button and a dark red "ADD" button. A mouse cursor is pointing at the "ADD" button.

Note: To quickly create multiple users, check "Keep this dialog open after adding user".

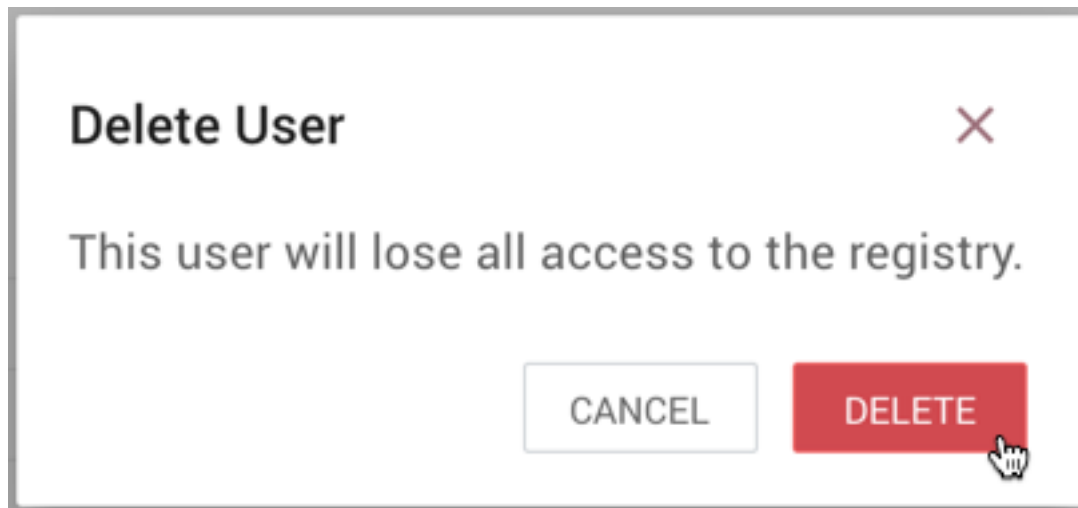
Delete a User

1.

Select the Delete button () in the row of the user.

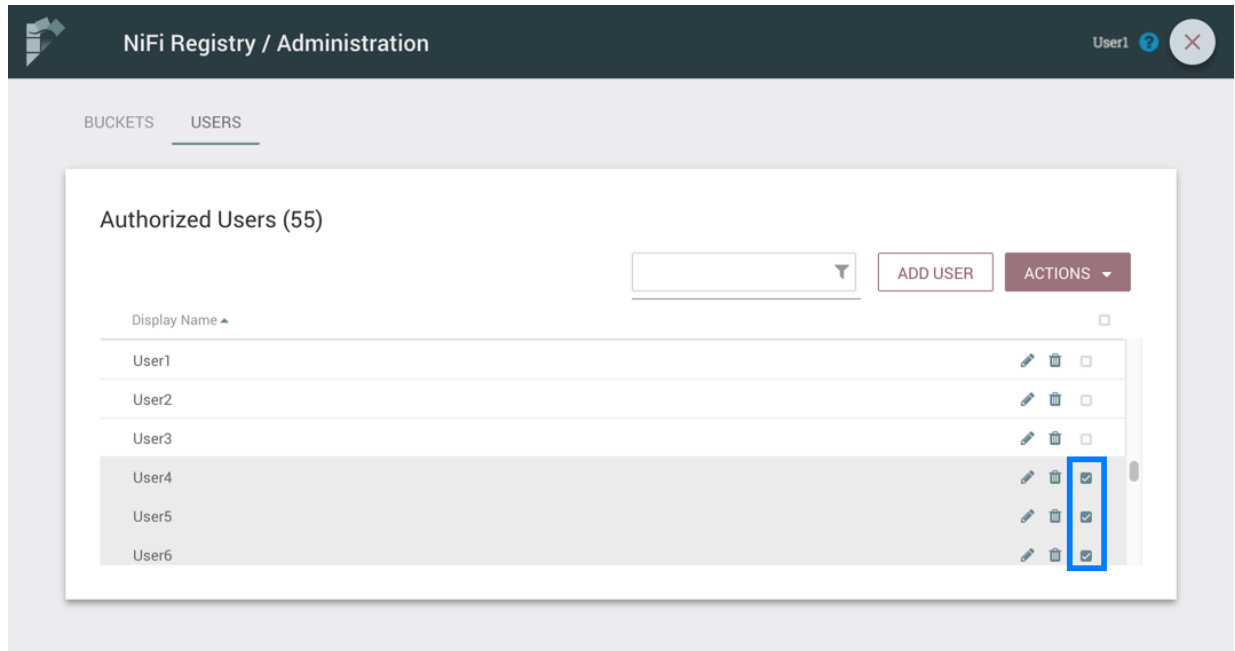


2. From the Delete User dialog, select "Delete".

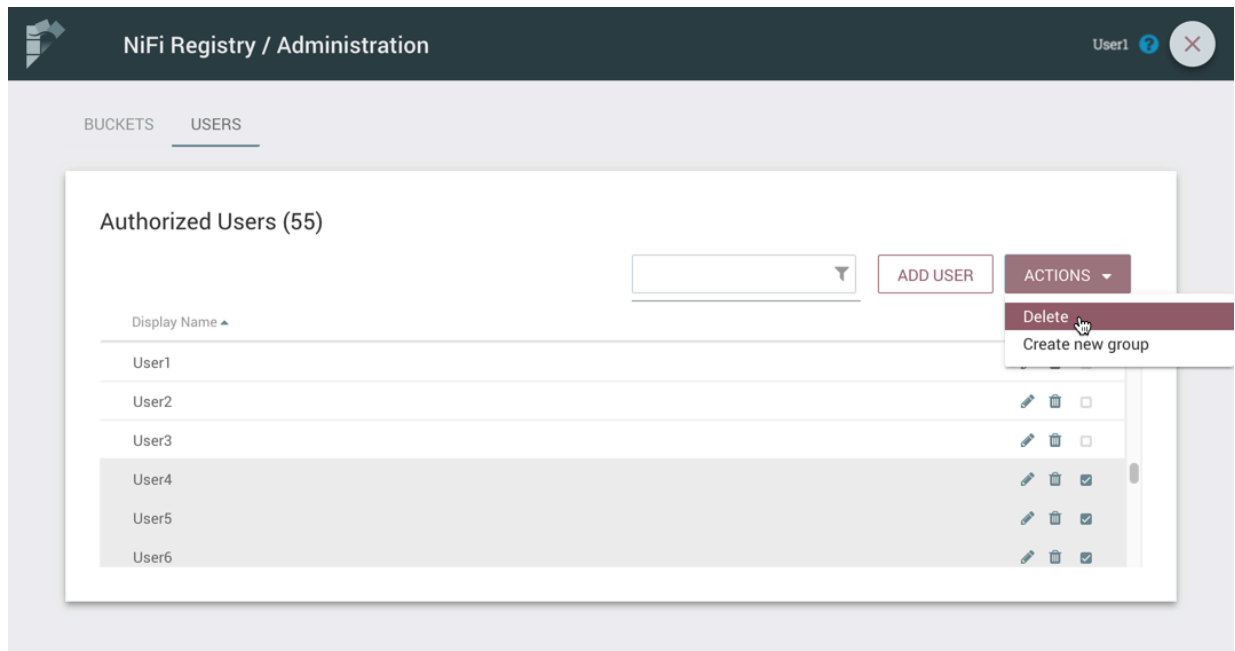


Delete Multiple Users

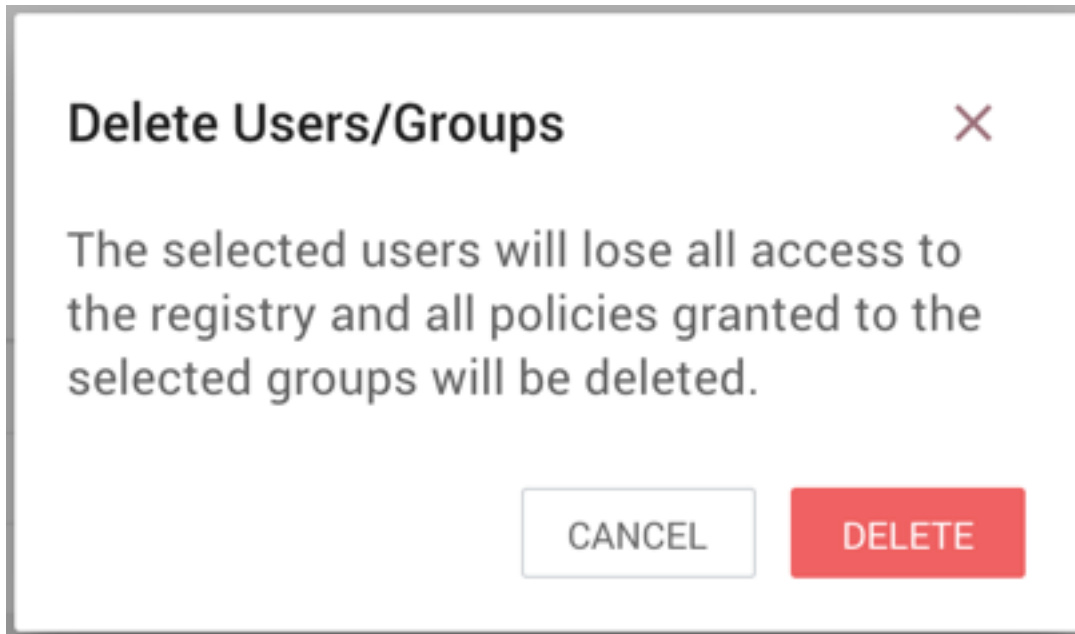
1. Select the checkboxes in the rows of the desired users to delete.



2. Select the "Actions" drop-down and click the "Delete" option.

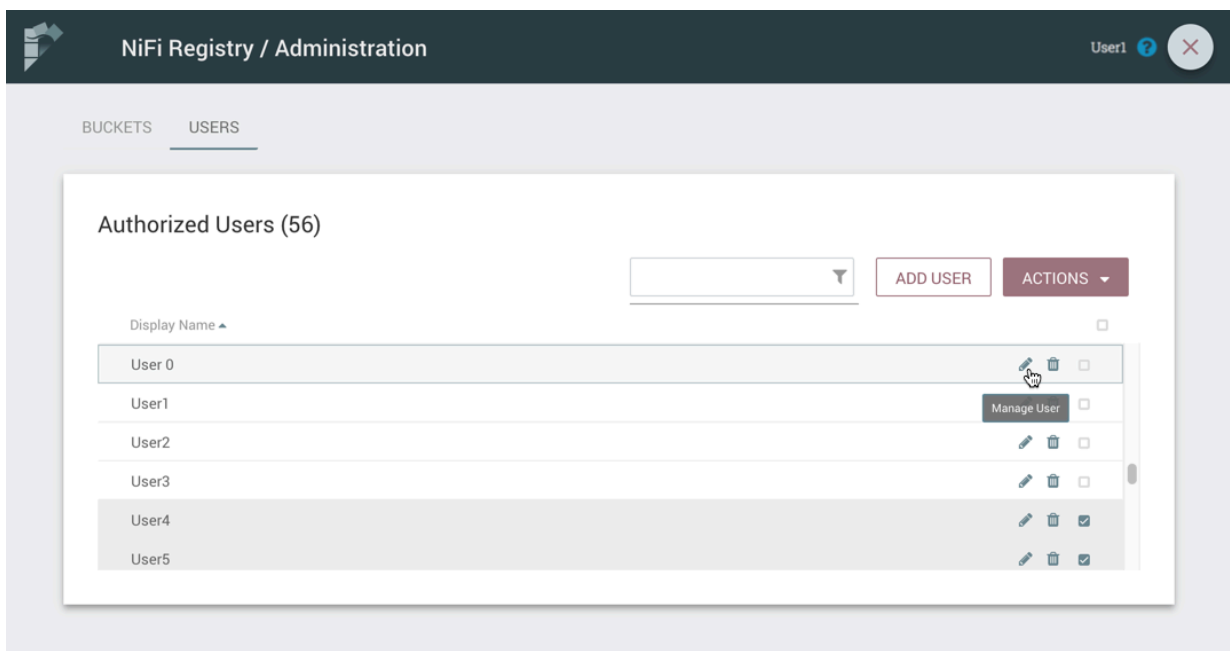


3. From the Delete Users dialog, select "Delete".



Edit a User Name

1. Select the Manage button () in the row of the user.



2. Enter a new user name and select the "Save" button.

NiFi Registry / Administration

BUCKETS USERS

Authorized Users (13)

Display Name ▲

User0
User1
User2
User3
User4
User5

User4

Identity/User Name

User1234

SAVE

Special Privileges ?

☐ Can manage buckets ?

☐ Read ☐ Write ☐ Delete

☐ Can manage users ?

☐ Read ☐ Write ☐ Delete

☐ Can manage policies ?

☐ Read ☐ Write ☐ Delete

☐ Can proxy user requests ?

☐ Read ☐ Write ☐ Delete

MEMBERSHIP

Membership (0)

ADD TO GROUP

CLOSE



Note: Some users cannot have their names edited. For example, those defined by LDAP. These users will be specially highlighted in the list.

Authorized Users (56)

Display Name ▲

test

training

ADD USER

ACTIONS

Special Privileges

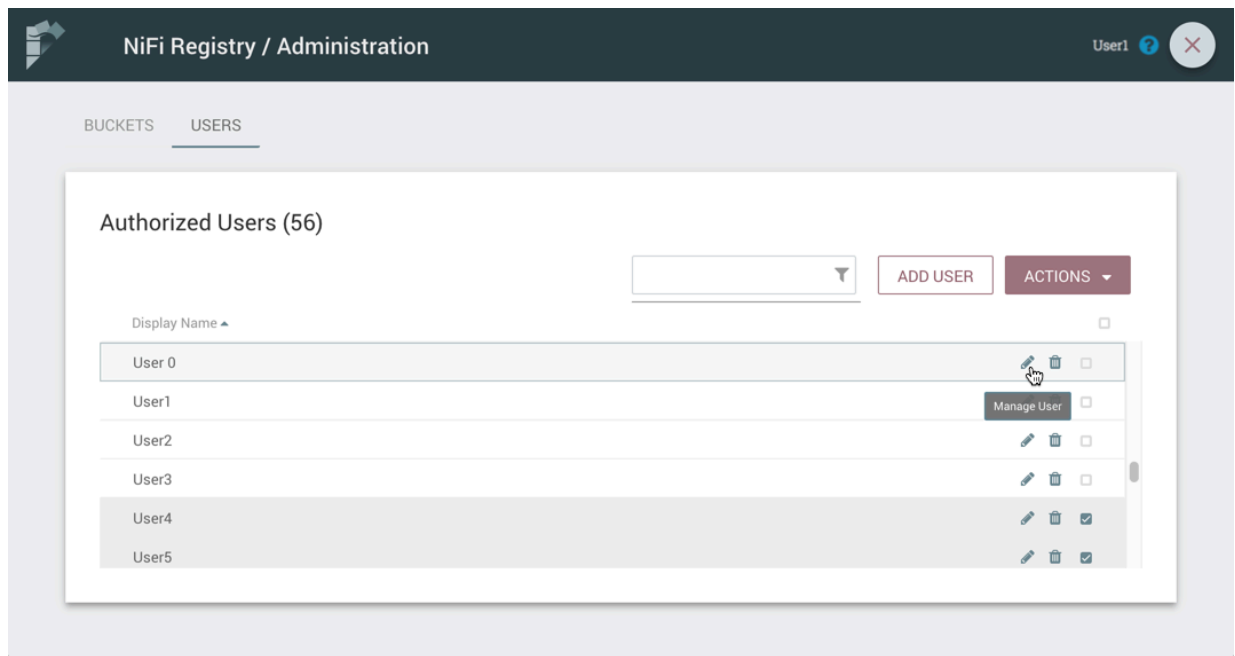
Special privileges are additional permissions that allow a user to manage or access certain aspects of the Registry. The special privileges are:

- Can manage buckets - Allow a user to manage all buckets in the registry, as well as provide the user access to all buckets from a connected system (e.g., NiFi).
- Can manage users - Allow a user to manage all registry users and groups.
- Can manage policies - Allow a user to grant all registry users read, write, and delete permission to a bucket.
- Can proxy user requests - Allow a connected system (e.g., NiFi) to process requests of authorized users of that system. For example, if dev and prod NiFi clusters are connected to the same NiFi Registry instance, privileges can be set to allow the dev NiFi cluster to only update versioned flows while limiting the prod NiFi to only download flows.

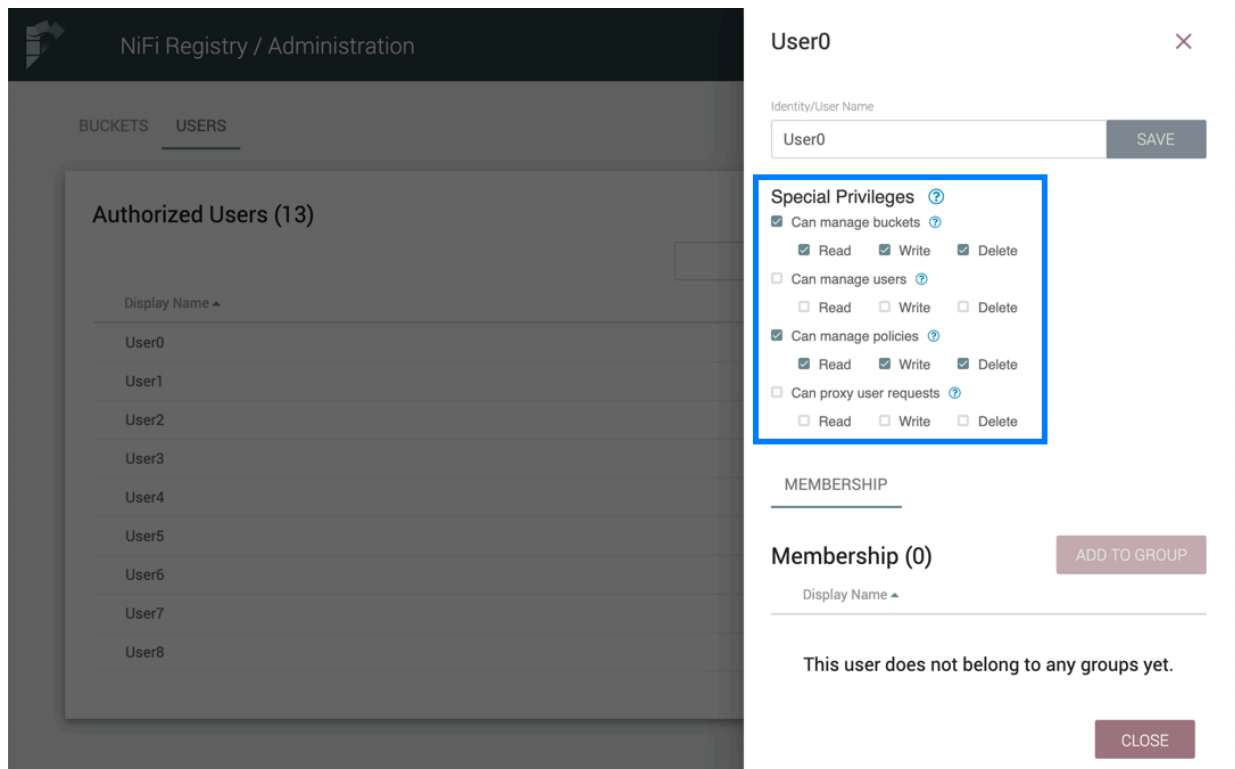
Grant Special Privileges to a User

1.

Select the Manage button () in the row of the user.



2. Check the desired privileges:

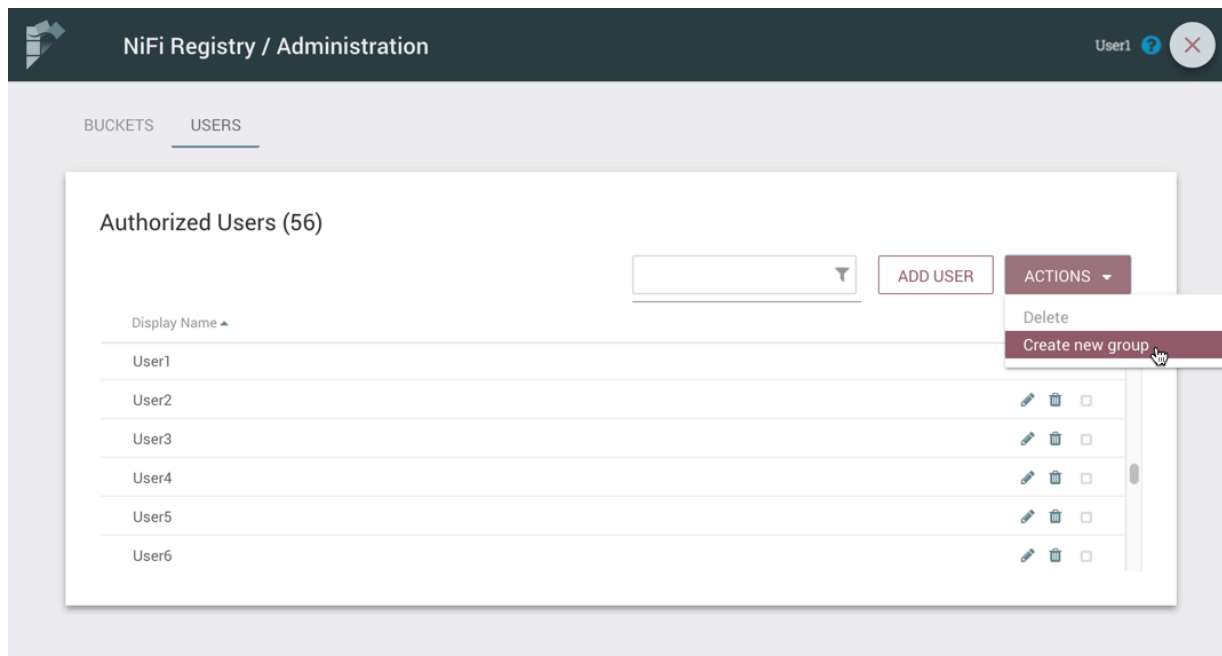


3. Changes made to special privileges are automatically saved.

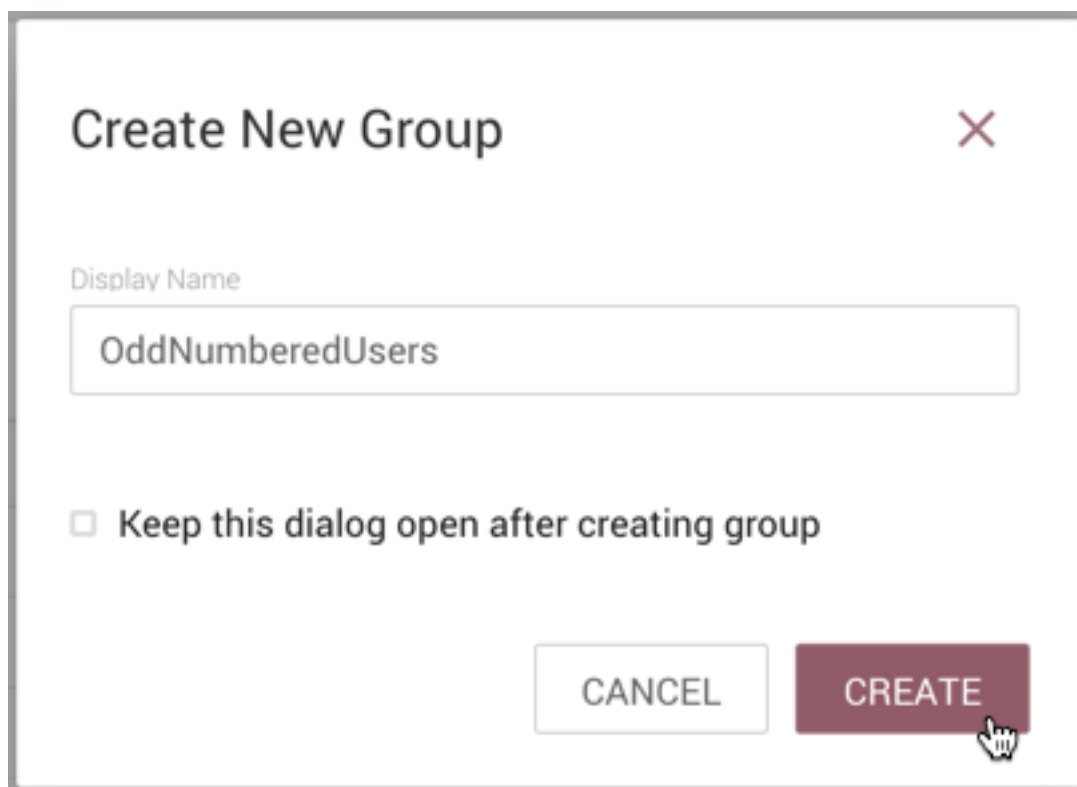
Manage Groups

Add an Empty Group

1. With no users checked, select the "Actions" drop-down and click the "Create new group" option.




2. Enter a name for the Group and select the "Create" button.



Note: To quickly create multiple empty groups, check "Keep this dialog open after creating group".

Add User to a Group

1.
- Select the Manage button () in the row of the user.
2.
- Select the "Add To Group" button.

NiFi Registry / Administration

BUCKETS

USERS

Authorized Users (14)

Display Name ▲

User0

User1

User2

User3

User4

User5

User6

User7

User8

User7

✕

Identity/User Name

User7

SAVE

Special Privileges ?

☐ Can manage buckets ?

☐ Read ☐ Write ☐ Delete

☐ Can manage users ?

☐ Read ☐ Write ☐ Delete

☐ Can manage policies ?

☐ Read ☐ Write ☐ Delete

☐ Can proxy user requests ?

☐ Read ☐ Write ☐ Delete

MEMBERSHIP

Membership (0)

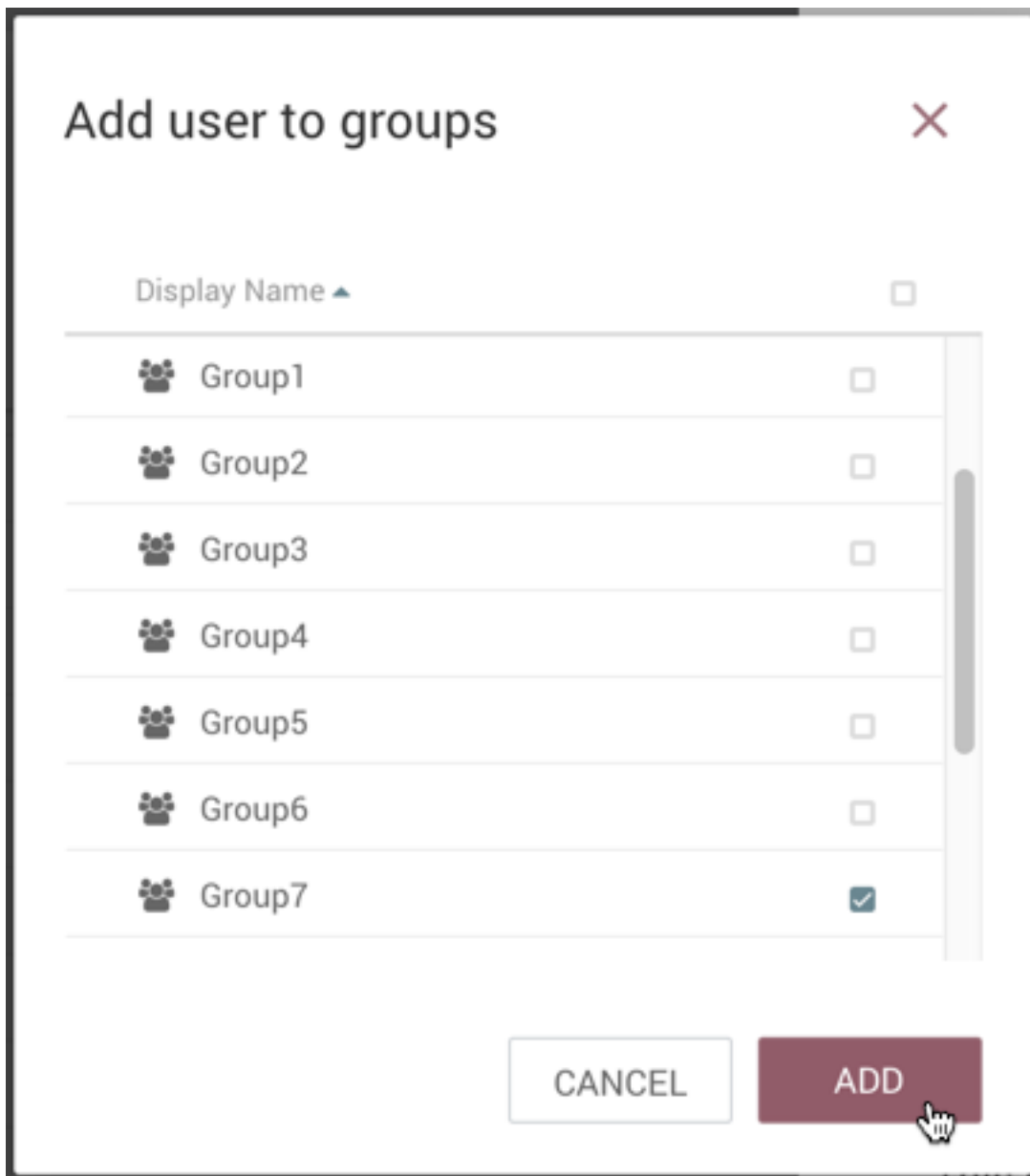
Display Name ▲

This user does not belong to any groups yet.

ADD TO GROUP

CLOSE

3. In the "Add User to Groups" dialog, select the group(s) to add the user to. Select the "Add" button when all desired groups have been selected.



4. The user is added to the group:

NiFi Registry / Administration

BUCKETSUSERS

Authorized Users (14)

Display Name ▾

User0

User1

User2

User3

User4

User5

User6

User7

User8

User7

Identity/User Name

User7

SAVE

Special Privileges ?

☐ Can manage buckets ?

☐ Read

☐ Write

☐ Delete

☐ Can manage users ?

☐ Read

☐ Write

☐ Delete

☐ Can manage policies ?

☐ Read

☐ Write

☐ Delete

☐ Can proxy user requests ?

☐ Read

☐ Write

☐ Delete

MEMBERSHIP

Membership (1)

ADD TO GROUP

Display Name ▾

Group7

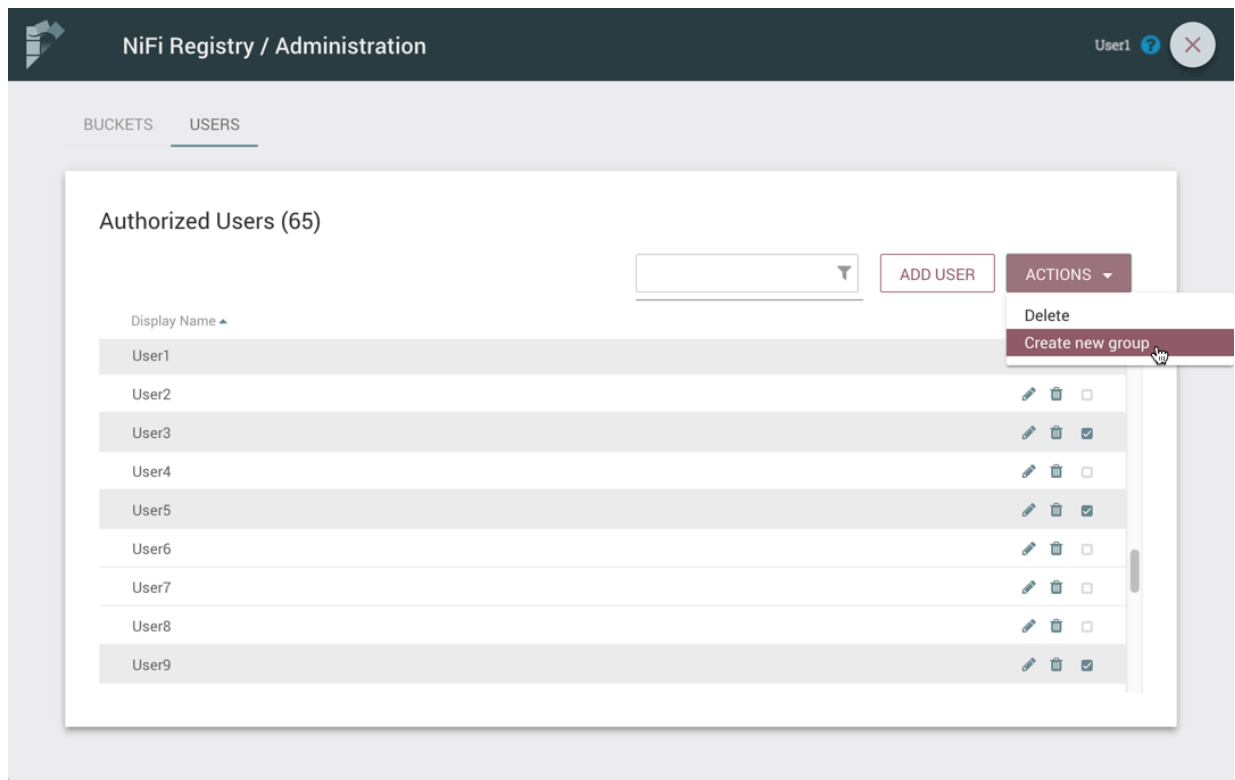
CLOSE



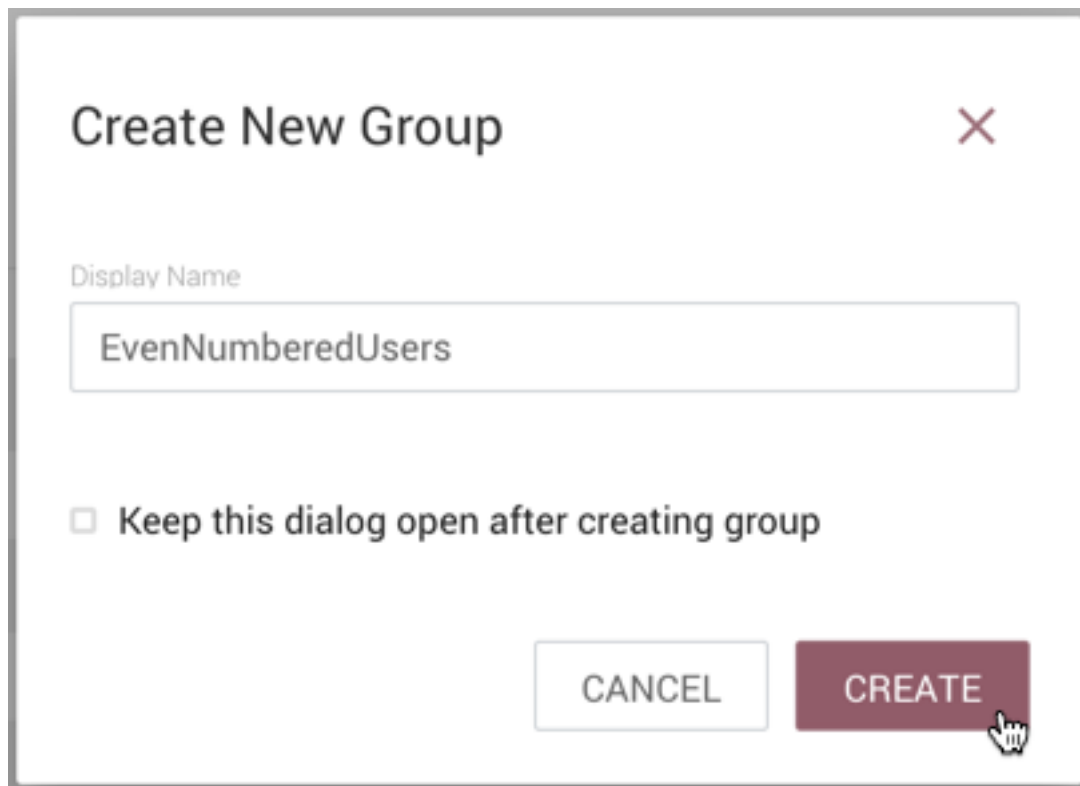
Note: Groups cannot contain other groups.

Create a New Group with Selected Users

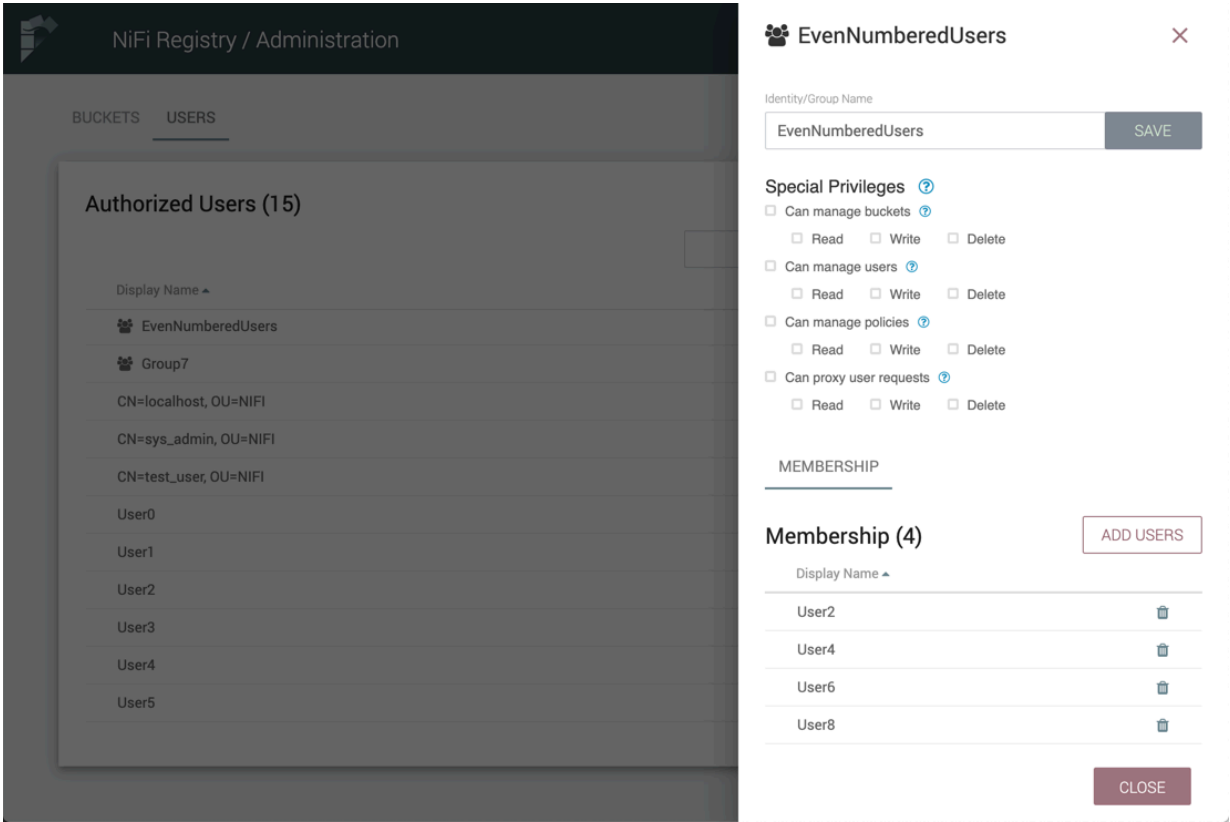
1. Select the checkboxes in the rows of the desired users. From the "Actions" drop-down, click the "Create new group" option.



2. Enter a name for the Group and select the "Create" button.



3. The new group is created with the selected users as members:




Remove a User from a Group

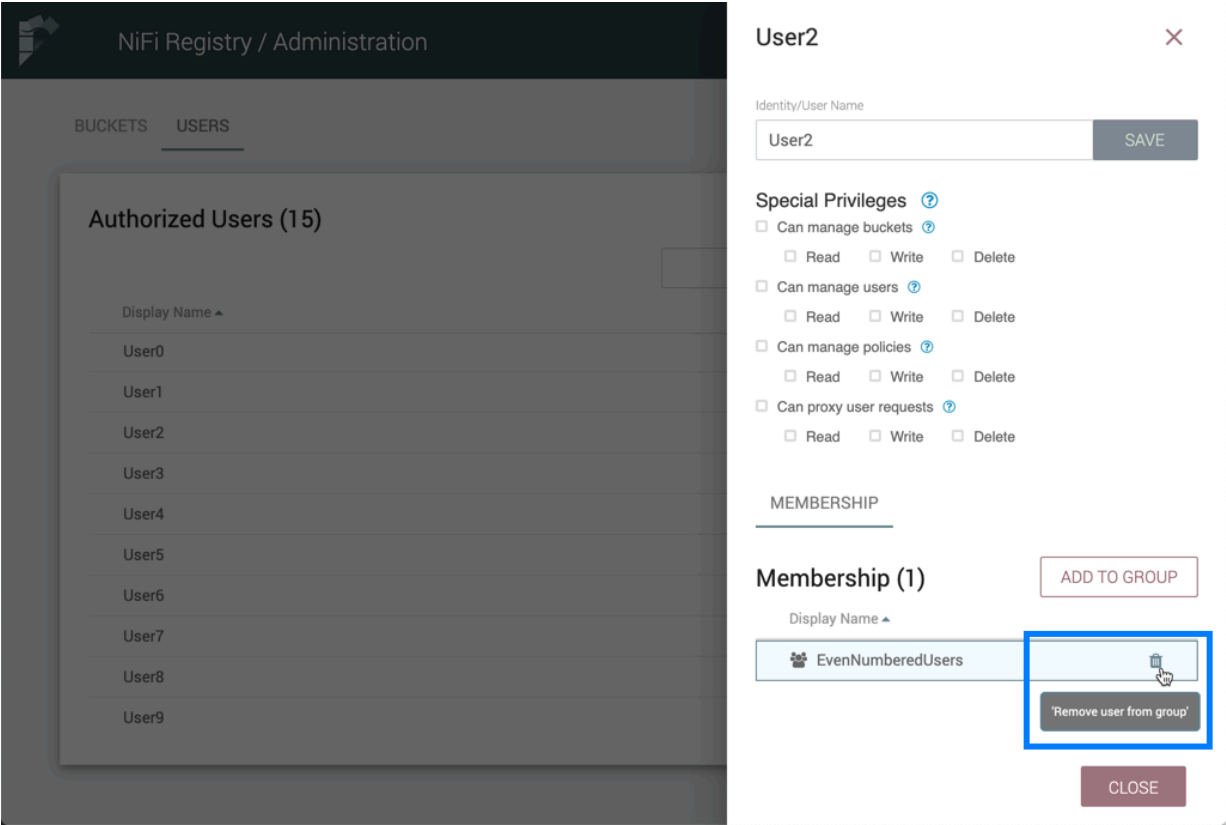
There are two ways to remove a user from a group.

User Window

- 1. Select the Manage button () in the row of the user.


2.

In the Membership section of the window, select the Remove button () in the row of the group.




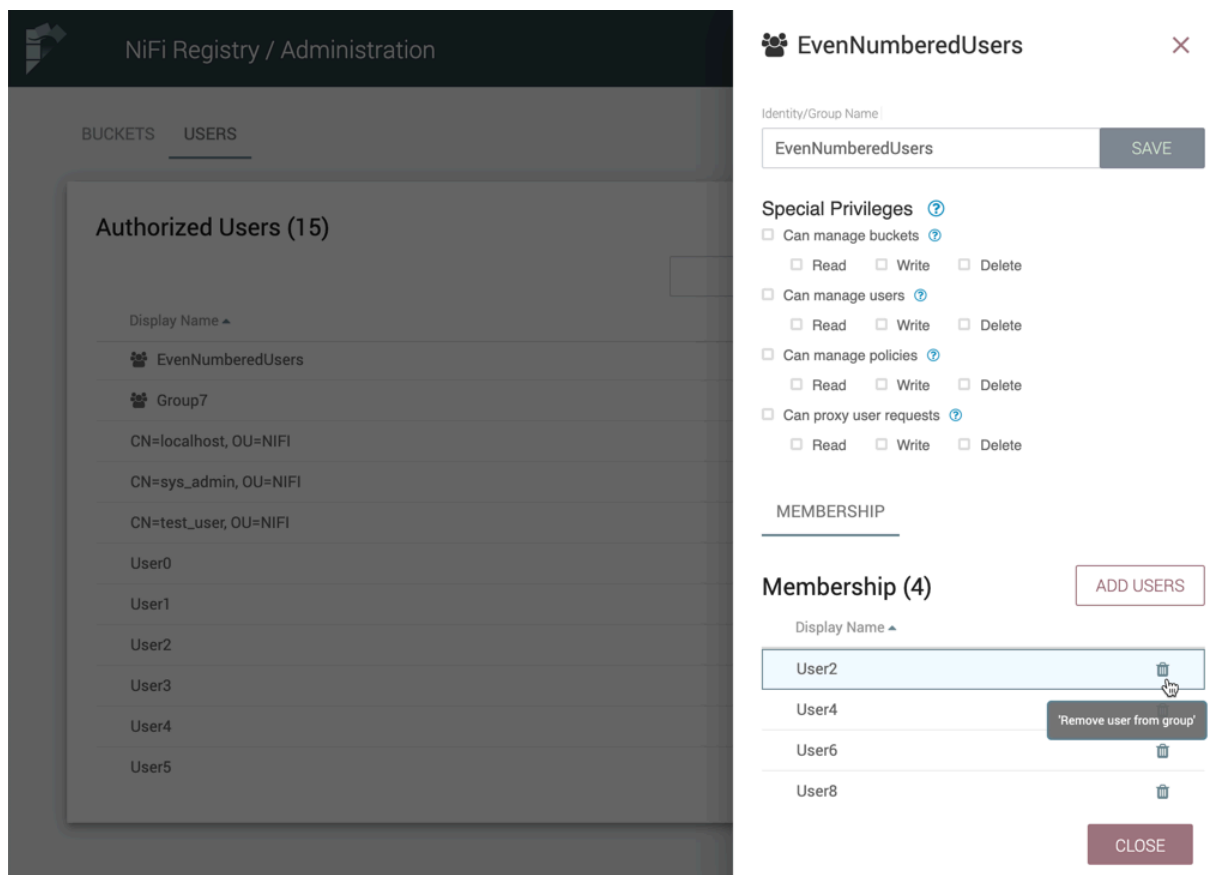
Group Window

1.

Select the Manage button () in the row of the group. The Members tab is selected by default.

2.

In the Membership section of the window, select the Remove button () in the row of the user.



The screenshot shows the NiFi Registry Administration interface. The main panel displays the 'EvenNumberedUsers' group configuration. The 'MEMBERSHIP' section is active, showing a list of users (User2, User4, User6, User8) with a trash icon next to each. A tooltip 'Remove user from group' is visible over the trash icon for User2. The 'Special Privileges' section is also visible, showing checkboxes for various permissions.

Other Group Level Actions

Editing group names, deleting groups, adding policies to/deleting policies from groups and granting special privileges to groups follow similar procedures described earlier for corresponding user level actions.

Manage Bundles

Bundles can be managed through the REST API.

Upload Bundle

A bundle can be uploaded to a bucket by making a POST request to the following REST end-point:

```
/nifi-registry-api/buckets/<bucketId>/bundles/<bundleType>
```

Replace `bucketId` with the id of the bucket where the bundle is being uploaded to and `bundleType` with the type of bundle being uploaded. Currently, the only supported bundle type is a [NiFi Archive \(NAR\)](#) which can be specified as `nifi-nar`.

The Content-Type of the request is expected to be multipart/form-data. An example of using curl to upload my-processors-1.0.0.nar would be the following:

```
curl -v -F file=@/path/to/my-processors-1.0.0.nar http://localhost:18080/nifi-registry-api/buckets/de8e08c9-592d-4e10-affe-b3752698f1d9/bundles/nifi-nar
```



Note: In order to upload a NAR to NiFi Registry, it must contain the file META-INF/docs/extension-manifest.xml which is produced by the NAR Maven plugin, starting with version 1.3.0.

Download Bundle

There are two ways to download a bundle.

Bundle Coordinates

A bundle can be downloaded by using the combination of the bucket name and bundle coordinates, where bundle coordinates are the group, artifact, and version of the bundle.

To download a bundle by its coordinates, a GET request can be made to the following end-point:

```
/nifi-registry-api/extension-repository/{bucketName}/{groupId}/{artifactId}/{version}/content
```

The Content-Type of the response is application/octet-stream.

An example of using curl to download my-processors-1.0.0.nar from the Test bucket would be the following:

```
curl http://localhost:18080/nifi-registry-api/extension-repository/Test/com.test/my-processors/1.0.0/content > my-processors-1.0.0.nar
```

Bundle Id

A bundle can be downloaded by using the combination of its unique id and version. The unique id is an id assigned to the bundle when the first version of the bundle is uploaded to NiFi Registry. This id is returned in the response of a successful upload.

To download a bundle by its id and version, a GET request can be made to the following end-point:

```
/nifi-registry-api/bundles/{bundleId}/versions/{version}/content
```

The Content-Type of the response is application/octet-stream.

An example of using curl to download my-processors-1.0.0.nar by id and version would be the following:

```
curl http://localhost:18080/nifi-registry-api/bundles/3db78035-e3ba-4cbf-820e-022f292bd68c/versions/1.0.0/content > my-processors-1.0.0.nar
```

Additional Actions

For additional actions that can be performed related to bundles, please consult the [REST API documentation](#).