

Getting Started with Apache NiFi Registry

Date published:

Date modified:

CLOUDBERA

Legal Notice

© Cloudera Inc. 2024. All rights reserved.

The documentation is and contains Cloudera proprietary information protected by copyright and other intellectual property rights. No license under copyright or any other intellectual property right is granted herein.

Unless otherwise noted, scripts and sample code are licensed under the Apache License, Version 2.0.

Copyright information for Cloudera software may be found within the documentation accompanying each component in a particular release.

Cloudera software includes software from various open source or other third party projects, and may be released under the Apache Software License 2.0 (“ASLv2”), the Affero General Public License version 3 (AGPLv3), or other license terms. Other software included may be released under the terms of alternative open source licenses. Please review the license and notice files accompanying the software for additional licensing information.

Please visit the Cloudera software product page for more information on Cloudera software. For more information on Cloudera support services, please visit either the Support or Sales page. Feel free to contact us directly to discuss your specific needs.

Cloudera reserves the right to change any products at any time, and without notice. Cloudera assumes no responsibility nor liability arising from the use of products, except as expressly agreed to in writing by Cloudera.

Cloudera, Cloudera Altus, HUE, Impala, Cloudera Impala, and other Cloudera marks are registered or unregistered trademarks in the United States and other countries. All other trademarks are the property of their respective owners.

Disclaimer: EXCEPT AS EXPRESSLY PROVIDED IN A WRITTEN AGREEMENT WITH CLOUDERA, CLOUDERA DOES NOT MAKE NOR GIVE ANY REPRESENTATION, WARRANTY, NOR COVENANT OF ANY KIND, WHETHER EXPRESS OR IMPLIED, IN CONNECTION WITH CLOUDERA TECHNOLOGY OR RELATED SUPPORT PROVIDED IN CONNECTION THEREWITH. CLOUDERA DOES NOT WARRANT THAT CLOUDERA PRODUCTS NOR SOFTWARE WILL OPERATE UNINTERRUPTED NOR THAT IT WILL BE FREE FROM DEFECTS NOR ERRORS, THAT IT WILL PROTECT YOUR DATA FROM LOSS, CORRUPTION NOR UNAVAILABILITY, NOR THAT IT WILL MEET ALL OF CUSTOMER’S BUSINESS REQUIREMENTS. WITHOUT LIMITING THE FOREGOING, AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, CLOUDERA EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, QUALITY, NON-INFRINGEMENT, TITLE, AND FITNESS FOR A PARTICULAR PURPOSE AND ANY REPRESENTATION, WARRANTY, OR COVENANT BASED ON COURSE OF DEALING OR USAGE IN TRADE.

Contents

Who is This Guide For?.....	4
Terminology Used in This Guide.....	4
Downloading and Installing NiFi Registry.....	4
Starting NiFi Registry.....	4
For Linux/Unix/Mac OS X users.....	4
Installing as a Service.....	4
I Started NiFi Registry. Now What?.....	5
Create a Bucket.....	6
Connect NiFi to the Registry.....	11
Start Version Control on a Process Group.....	14
Save Changes to a Versioned Flow.....	22
Import a Versioned Flow.....	30
Where To Go For More Information.....	38

Who is This Guide For?

This guide is written for users who have basic experience with NiFi but have little familiarity with the NiFi Registry. This guide is not intended to be an exhaustive instruction manual or a reference guide. The [NiFi Registry User Guide](#) and [NiFi User Guide](#) provide a great deal more information about using the Registry and integrating it with NiFi. This guide, in comparison, is intended to provide users with just the information needed in order to understand how to configure NiFi Registry, connect with NiFi and start using versioned NiFi dataflows.

Terminology Used in This Guide

In order to talk about NiFi Registry, there are a few key terms that readers should be familiar with:

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

Bucket: A container that stores and organizes flows.

Downloading and Installing NiFi Registry

You can download NiFi and NiFi Registry from the CFM repository. Review *Download from the CFM Repository* to identify the download link suitable for your operating system and operational objectives.

Starting NiFi Registry

Once NiFi Registry has been downloaded and installed as described above, it can be started by using the mechanism appropriate for your operating system.

For Linux/Unix/Mac OS X users

Use a Terminal window to navigate to the directory where NiFi Registry was installed. To run NiFi Registry in the foreground, run `bin/nifi-registry.sh run`. This will leave the application running until the user presses Ctrl-C. At that time, it will initiate shutdown of the application.

To run NiFi Registry in the background, instead run `bin/nifi-registry.sh start`. This will initiate the application to begin running. To check the status and see if NiFi Registry is currently running, execute the command `bin/nifi-registry.sh status`. NiFi Registry can be shutdown by executing the command `bin/nifi-registry.sh stop`.

Installing as a Service

To install the application as a service, navigate to the installation directory in a Terminal window and execute the command `bin/nifi-registry.sh install` to install the service with the default name `nifi-registry`. To specify a custom name for the service, execute the command with an optional second argument that is the name of the service. For example, to install NiFi Registry as a service with the name `flow-registry`, use the command `bin/nifi-registry.sh install flow-registry`.

Once installed, the service can be started and stopped using the appropriate commands, such as `sudo service nifi-registry start` and `sudo service nifi-registry stop`. Additionally, the running status can be checked via `sudo service nifi-registry status`.

I Started NiFi Registry. Now What?

Now that NiFi Registry has been started, we can bring up the User Interface (UI). To get started, open a web browser and navigate to <http://localhost:18080/nifi-registry>. The port can be changed by editing the `nifi-registry.properties` file in the NiFi Registry conf directory, but the default port is 18080.

This will bring up the Registry UI, which at this point is empty as there are no flow resources available to share yet:



NiFi Registry / All ▼

No results r

Create a Bucket

A bucket is needed in our registry to store and organize NiFi dataflows. To create one, select the Settings icon



() in the top right corner of the screen. In the Buckets window, select the "New Bucket" button.



NiFi Registry / Administration

BUCKETS

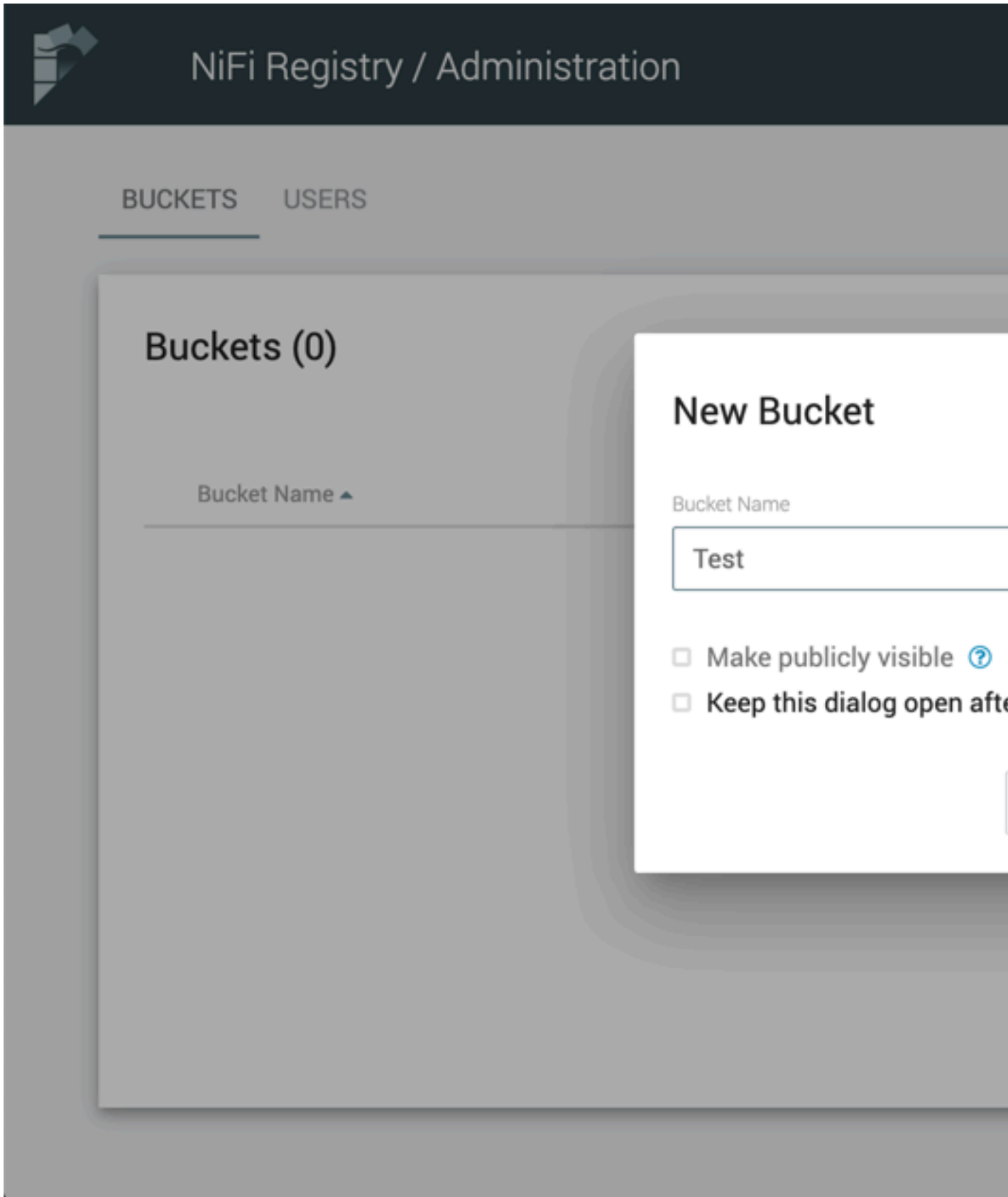
USERS

Buckets (0)

Bucket Name ▼

No results

Enter the bucket name "Test" and select the "Create" button.



The "Test" bucket is created:



NiFi Registry / Administration

BUCKETS

USERS

Buckets (1)

Bucket Name ▲

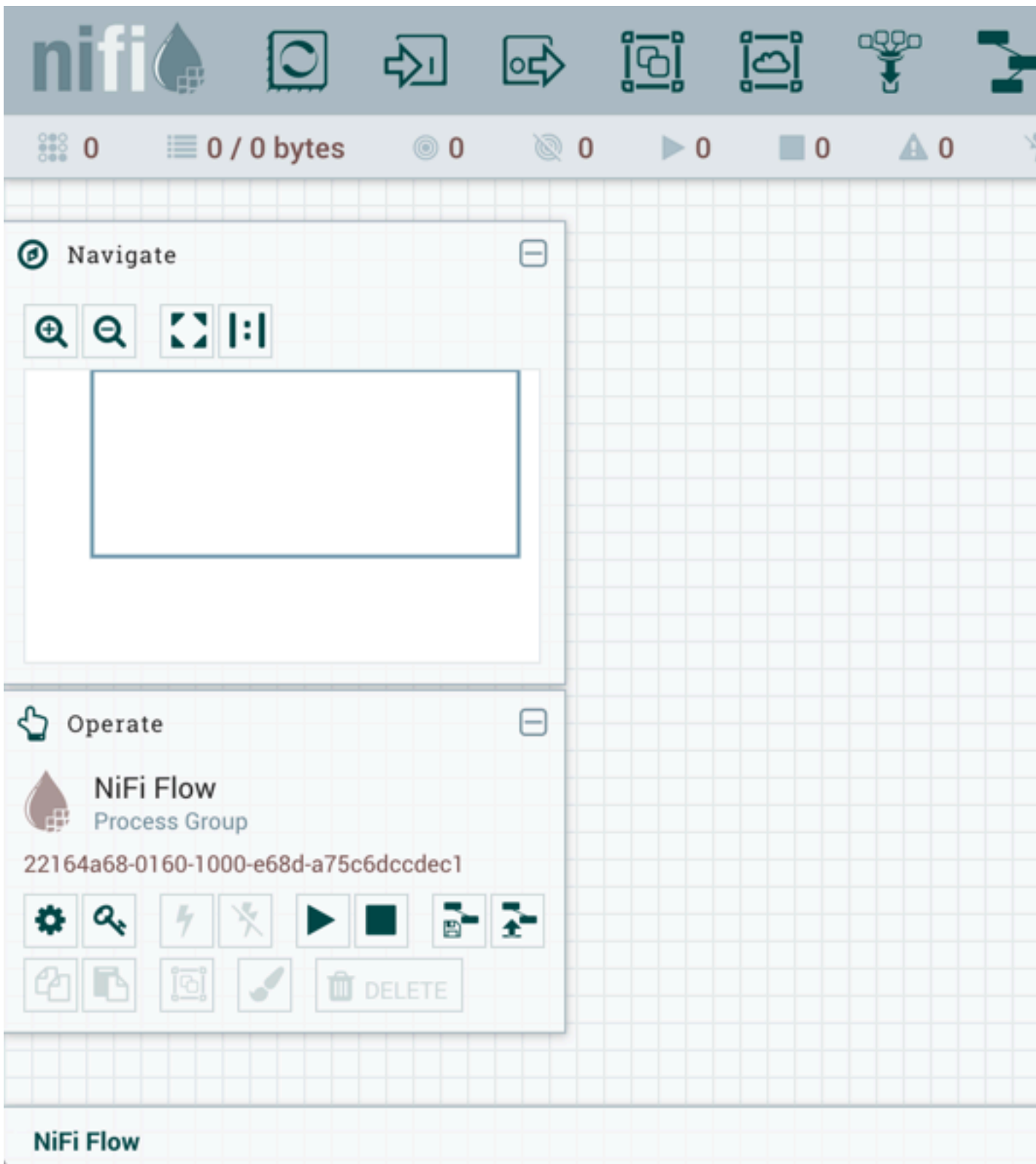
Test

There are no permissions configured by default, so anyone is able to view, create and modify buckets in this instance. For information on securing the system, see the [System Administrator's Guide](#).

Connect NiFi to the Registry

Now it is time to tell NiFi about the local registry instance.

Start a NiFi instance if one isn't already running and bring up the UI. Go to controller settings from the top-right menu:




Select the Registry Clients tab and add a new Registry Client giving it a name and the URL of <http://localhost:18080>:

NiFi Settings

GENERAL REPORTING TASK CONTROLLER SERVICES REPORTING TASKS REGISTER

Name ▲	Location
Local Registry	http://localhost:18080

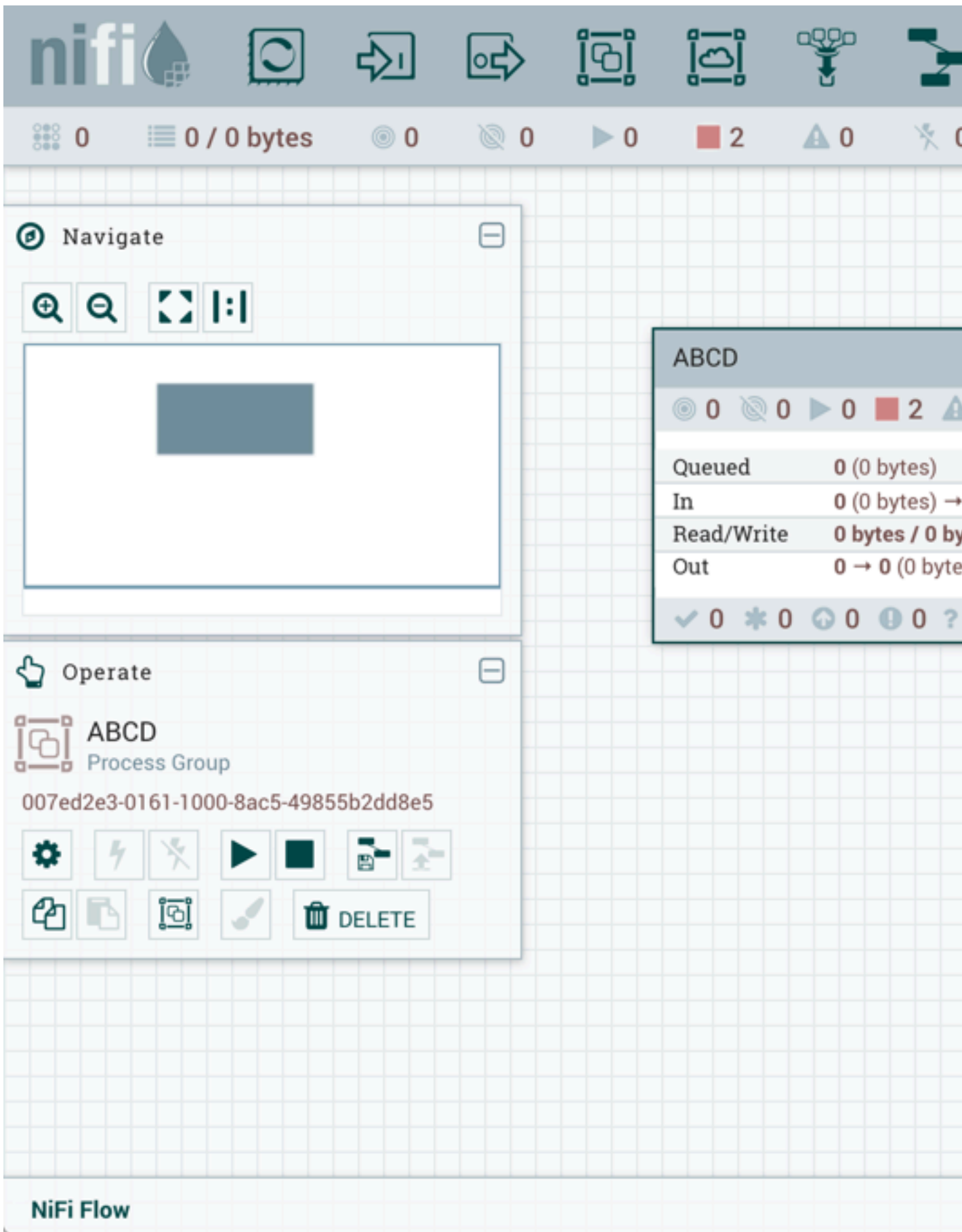
 Last updated: 13:30:48 EST

NiFi Flow

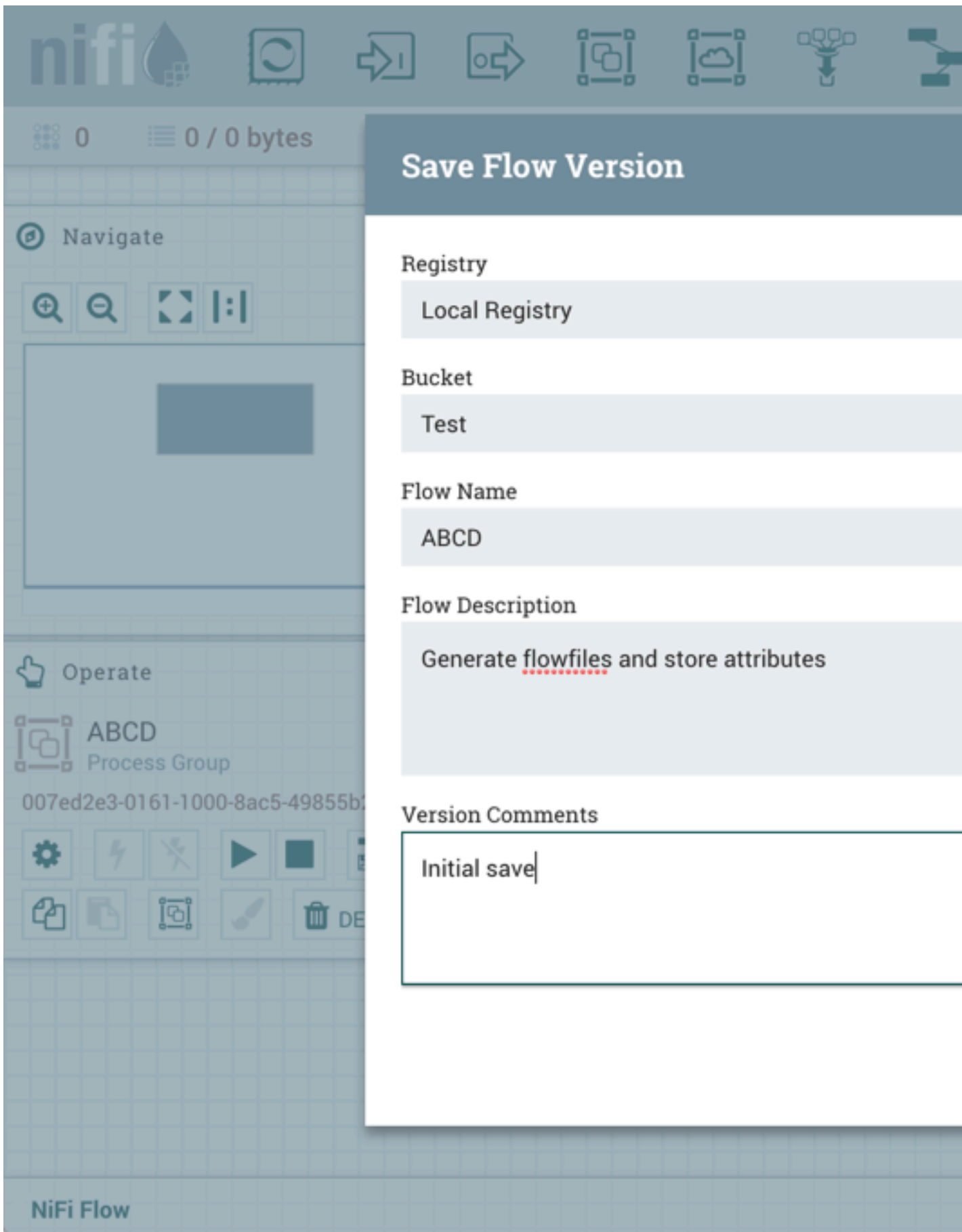
Start Version Control on a Process Group

With NiFi connected to a NiFi Registry, dataflows can be version controlled on the process group level.


Right-click on a process group and select "Version#Start version control" from the context menu:

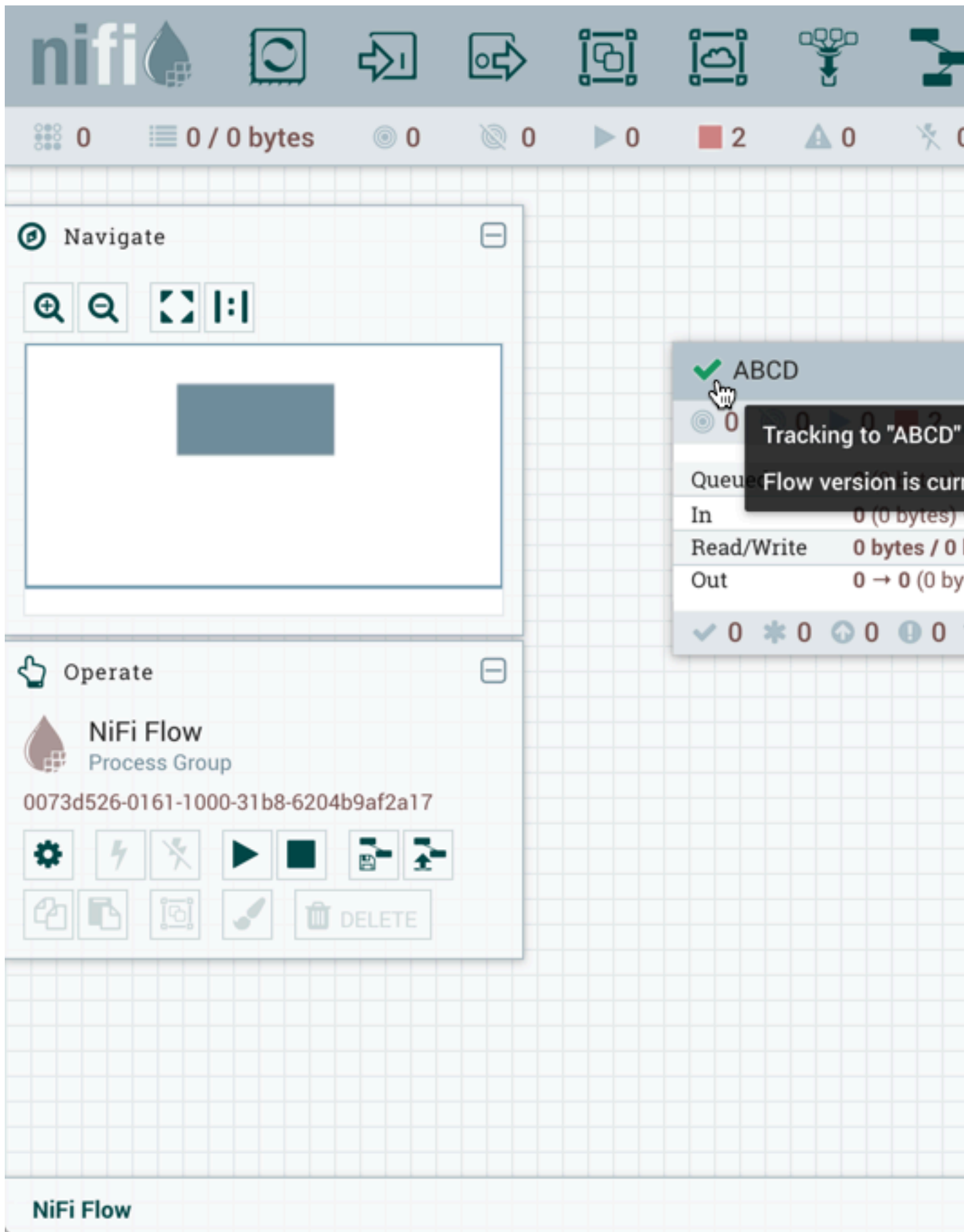


The local registry instance and "Test" bucket are chosen by default to store your flow since they are the only registry connected and bucket available. Enter a flow name, flow description, comments and select "Save":





As indicated by the Version State icon () in the top left corner of the component, the process group is now saved as a versioned flow in the registry.



Go back to the Registry UI and return to the main page to see the versioned flow you just saved (a refresh may be required):



NiFi Registry / All ▼

ABCD - Test Flow

DESCRIPTION

Generate flowfiles and store attributes

CHANGE LOG




Version 1 - 5 minutes ago
by anonymous

Initial save

Jan-16-2018 at 2:48 PM

Save Changes to a Versioned Flow

Changes made to the versioned process group can be reviewed, reverted or saved.

For example, if changes are made to the ABCD flow, the Version State changes to "Locally modified" (). The right-click menu will now show the options "Commit local changes", "Show local changes" or "Revert local changes":

The screenshot displays the Apache NiFi web interface. At the top, the 'nifi' logo is visible alongside several navigation icons. Below the logo, a status bar shows various metrics: a grid icon with '0', a list icon with '0 / 0 bytes', a target icon with '0', a muted speaker icon with '0', a play icon with '0', a red square icon with '2', a warning triangle icon with '0', and a lightning bolt icon with '0'. The main workspace is a grid where a process group named 'ABCD' is visible. A 'Navigate' panel is open on the left, showing zoom and pan controls. A 'Generate' component is highlighted, with a tooltip showing its name and a red square icon. Below the 'ABCD' process group, a 'Operate' panel is open, displaying the process group's name, ID '007ed2e3-0161-1000-8ac5-49855b2dd8e5', and various action icons. A context menu is open over the 'ABCD' process group, listing actions such as 'Refresh', 'Leave group', 'Configure Variables', 'Version', 'Start', 'Stop', 'Upload template', and 'Create template'. At the bottom left, the breadcrumb 'NiFi Flow » * ABCD' is shown, with the 'ABCD' part highlighted in a blue box.

Select "Show local changes" to see the details of the changes made:

The screenshot shows the Apache NiFi Registry web interface. A modal window titled "Show Local Changes" is open, displaying a list of changes for a process group named "ABCD". The modal includes a filter input field and a table with two columns: "Component Name" and "Change Type".

The background interface shows the NiFi logo, navigation icons, and a sidebar with a "Navigate" section containing search and zoom controls, and an "Operate" section for the "ABCD" process group. The bottom status bar indicates "NiFi Flow » * ABCD".

Show Local Changes

The following changes have been made to ABCD (Version 1)

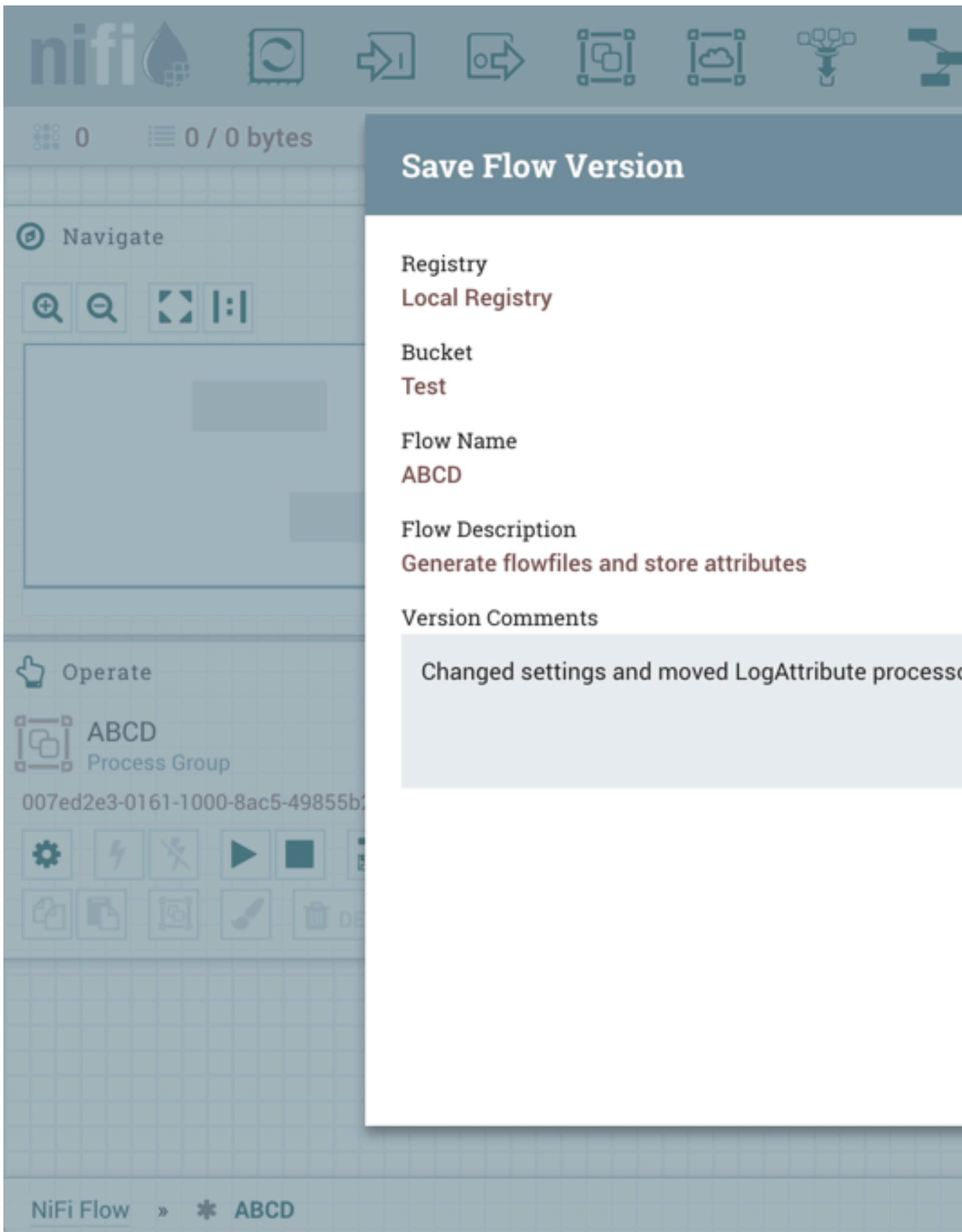
Displaying 3 of 3

Filter

Component Name ▲	Change Type
GenerateFlowFile	Run Schedule Changed
LogAttribute	Position Changed
	Backpressure Data Size Threshold Changed

NiFi Flow » * ABCD

Select "Commit local changes", enter comments and select "Save" to save the changes:



Version 2 of the flow is saved:

The screenshot displays the Apache NiFi web interface. At the top, the 'nifi' logo is visible alongside several navigation icons. Below the logo, a status bar shows various metrics: a grid icon with '0', a list icon with '0 / 0 bytes', a target icon with '0', a muted speaker icon with '0', a play icon with '0', a red square icon with '2', a warning triangle icon with '0', and a lightning bolt icon with '0'.

Two main panels are open on the left side of the grid:

- Navigate Panel:** Contains search and navigation icons (magnifying glass, zoom in, zoom out, pan, and refresh) above a large empty rectangular area.
- Operate Panel:** Titled 'Operate', it shows the 'NiFi Flow' process group with ID '0073d526-0161-1000-31b8-6204b9af2a17'. Below the ID are several icons for settings, refresh, stop, play, and other actions, along with a 'DELETE' button.

On the right side, a context menu is open over a flow version entry:

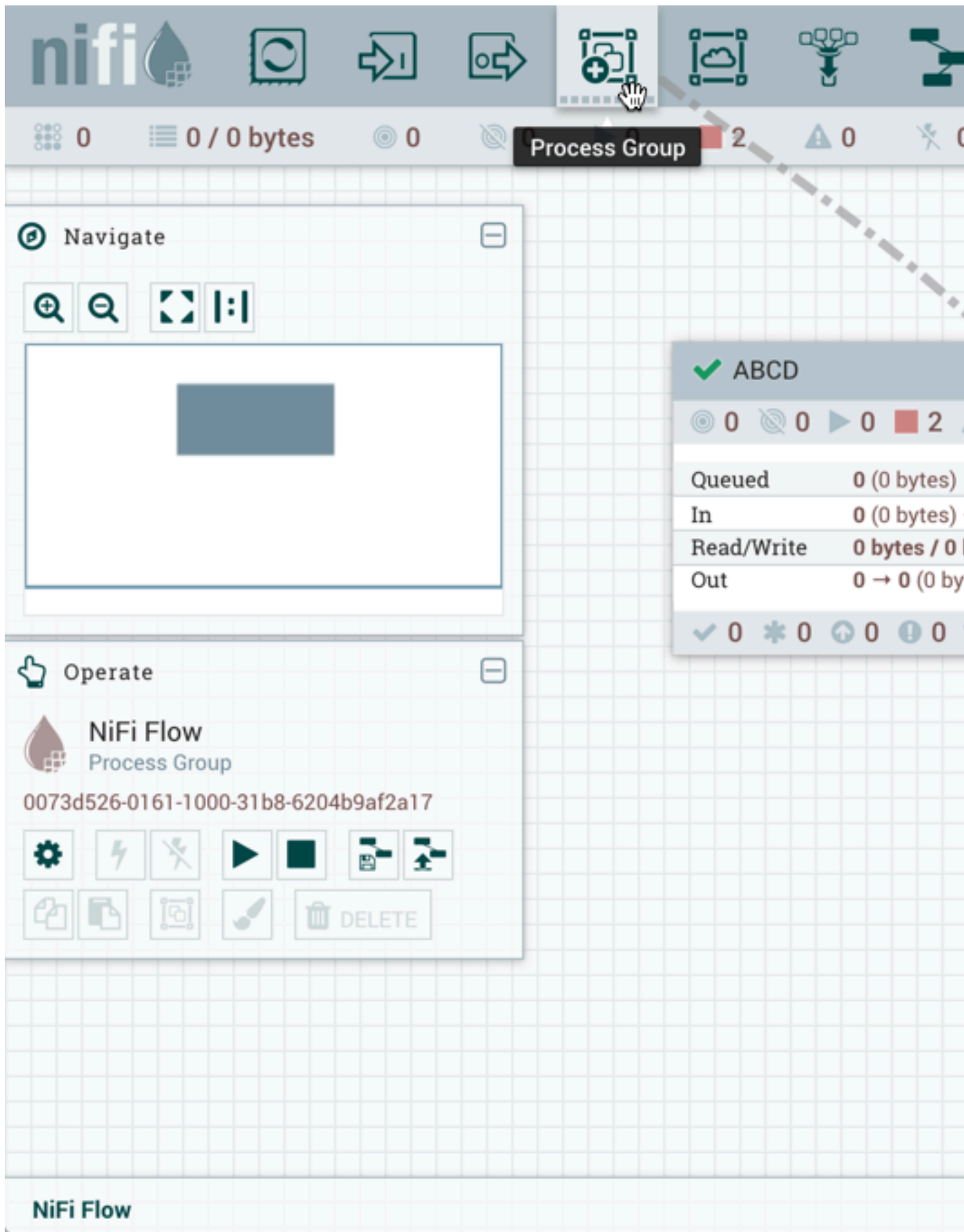
- Top item: A green checkmark icon followed by the text 'ABCD'. A mouse cursor is hovering over this item.
- Second item: A target icon followed by '0' and a tooltip that reads 'Tracking to "ABCD"'. Below this, it says 'Queue Flow version is current'.
- Bottom row: A row of icons including a checkmark with '0', a star with '0', an up arrow with '0', and a warning triangle with '0'.

At the bottom left of the interface, the text 'NiFi Flow' is displayed.

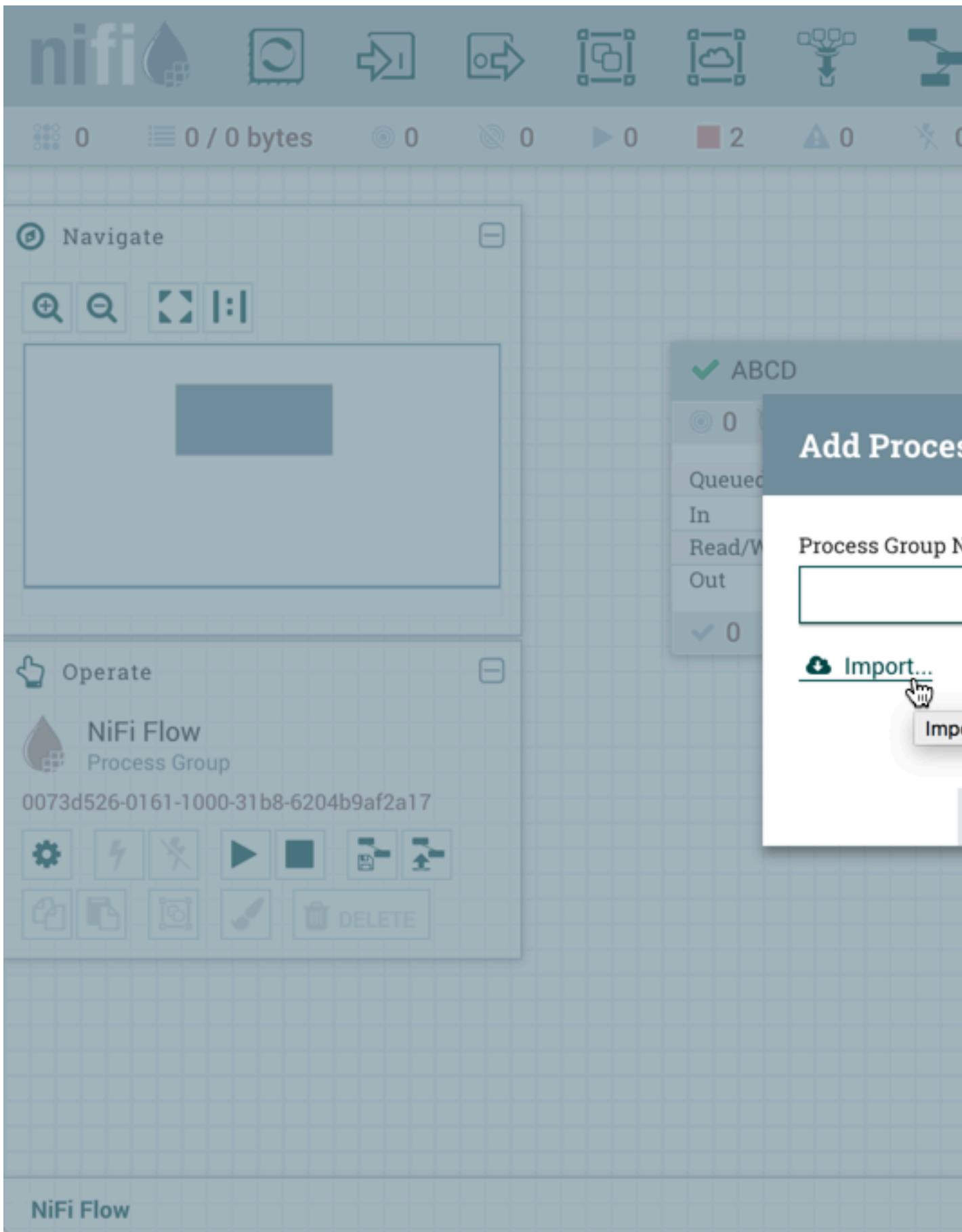
Import a Versioned Flow

With a flow existing in the registry, we can use it to illustrate how to import a versioned process group.

In NiFi, select Process Group from the Components toolbar and drag it onto the canvas:



Instead of entering a name, click the Import link:



Choose the version of the flow you want imported and select "Import":

Import Version

Registry
Local Registry

Bucket
Test

Name
ABCD

Version ▾	Created	Comments
2	01/16/2018 16:20:19.309	Changed
1	01/16/2018 14:48:21.899	Initial sav

NiFi Flow

A second identical PG is now added:

The screenshot displays the Apache NiFi web interface. At the top, the 'nifi' logo is visible alongside several navigation icons. Below the logo, a status bar shows various metrics: a grid icon with '0', a list icon with '0 / 0 bytes', a target icon with '0', a muted icon with '0', a play icon with '0', a red square icon with '2', a warning triangle icon with '0', and a lightning bolt icon with '0'.

The main workspace is a grid. On the left, there are two panels:

- Navigate**: Contains search (+/-), zoom (square with arrows), and refresh (vertical bars) icons. Below the icons is a large empty rectangular area.
- Operate**: Contains a hand icon, the text 'NiFi Flow Process Group', and a long alphanumeric ID: '0073d526-0161-1000-31b8-6204b9af2a17'. Below this are two rows of icons: a gear, a lightning bolt, a crossed-out lightning bolt, a play button, a square, a document with a lightning bolt, and a document with a lightning bolt. The second row includes a document icon, a document with a lightning bolt, a document with a lightning bolt, a paintbrush, and a 'DELETE' button with a trash can icon.

On the right side, a floating status panel for a flow controller is shown:

- Header: A green checkmark followed by 'ABCD'.
- Metrics: Target icon '0', muted icon '0', play icon '0', red square icon '2'.
- Table:

Queued	0 (0 bytes)
In	0 (0 bytes)
Read/Write	0 bytes / 0
Out	0 → 0 (0 by
- Footer: Checkmark '0', asterisk '0', play '0', warning '0'.

At the bottom left of the interface, the text 'NiFi Flow' is displayed.

Where To Go For More Information

In addition to this Getting Started Guide, more information about NiFi Registry and related features in NiFi can be found in the following guides:

- [Apache NiFi Registry User Guide](#) - This guide provides information on how to navigate the Registry UI and explains in detail how to manage flows/policies/special privileges and configure users/groups when the Registry is secured.
- [Apache NiFi Registry System Administrator's Guide](#) - A guide for setting up and administering Apache NiFi Registry. Topics covered include: system requirements, security configuration, user authentication, authorization, proxy configuration and details about the different system-level settings.
- [Apache NiFi User Guide](#) - A fairly extensive guide that is often used more as a Reference Guide, as it provides information on each of the different components available in NiFi and explains how to use the different features provided by the application. It includes the section [Versioning a Dataflow](#) which covers the integration of NiFi with NiFi Registry. Topics covered include: connecting to a registry, version states, importing a versioned flow and managing local changes.
- [Contributor's Guide](#) - A guide for explaining how to contribute work back to the Apache NiFi community so that others can make use of it.

In addition to the guides provided here, you can browse the different [NiFi Mailing Lists](#) or send an e-mail to one of the mailing lists at users@nifi.apache.org or dev@nifi.apache.org.

Many of the members of the NiFi community are also available on Twitter and actively monitor for tweets that mention [@apachenifi](#).