

# Exporting/importing data flows with NiFi Toolkit CLI

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## Overview

NiFi CLI is a command line utility included in the NiFi Toolkit. You can use it to interact with NiFi and NiFi Registry instances to deploy versioned flows or manage process groups. You can also use it to export flows from or import flows to the NiFi Registry.

In this use case, you can see how to connect the NiFi CLI to a NiFi Registry running in a Flow Management Data Hub cluster using basic authentication, how to use the NiFi CLI to export a versioned flow from this Registry instance, and on how to import it into a different one.

## Connecting to NiFi Registry with NiFi Toolkit CLI

In Cloudera on cloud, access from outside the cluster should go through the cluster's Knox gateway. Knox provides basic authentication to its API topologies, allowing you to authenticate with your Cloudera workload username and password.

### About this task

Knox has two ports that can be accessed, 443 and 8443. This procedure shows you how to connect to the 8443 port of the Knox Gateway Server from outside the Flow Management Data Hub cluster (for example, from a local machine). This port is secured by Cloudera Manager AutoTLS. If you want to use the 443 port, you can use this procedure as a template and modify it for your production certs.

### Before you begin

- You have a Flow Management Data Hub cluster in your Cloudera on cloud environment.
- You have the necessary permissions to create a NiFi Registry CLI properties file.

### Procedure

1. Confirm or set your Cloudera workload username and password.

To use non-SSO interfaces, each user and machine user must set a workload password. You can manage your workload password from your user profile page under User Management in the Cloudera Management Console. For instructions, see *Setting the workload password*.

You will need to reference your workload username and password in the basic authentication parameters (basicAuthUsername, basicAuthPassword) in *Step 4*.

2. Identify the Knox Gateway Server in your Flow Management Data Hub cluster.

You can find the hostname of the Knox Gateway Server in Cloudera Manager by checking the hostname in Clusters Knox Instances .

Example hostname: flow-management-azure-management0.dataflow.xcu2-8y8x.dev.cldr.work



**Note:** You can also find the Knox Gateway Server hostname on the Hardware tab of the Flow Management cluster overview page. It is the FQDN of the Management node.

3. Transfer the truststore JKS file (cm-auto-global\_truststore.jks) from one of your Cloudera Data Hub nodes to your local machine.
  - a) Connect to one of your NiFi nodes.
  - b) Locate the truststore file.

You can find it in the following directory:

```
/var/run/cloudera-scm-agent/process/XYZ-nifi-NIFI_NODE/
```

- c) Get the truststore password with `grep PASSWORD proc.json`.
  - d) Copy the cm-auto-global\_truststore.jks file to your local machine.
4. Create a NiFi Registry CLI properties file referring to:
    - Knox Gateway Server (specifically pointing to port 8443)
    - Truststore JKS file
    - User and workload password using Basic Authentication

You can use this properties file to store all your settings/default values for the Registry related CLI commands, so you do not need to specify the baseUrl and other arguments for every command.

Example properties file datahub-registry-8443.properties:

```
baseUrl=https://flow-management-azure-management0.dataflow.xcu2-8y8x.dev.cldr.work/flow-management-azure/cdp-proxy/nifi-registry-app
truststore=/Users/john.doe/Downloads/nifi-toolkit-1.13.2/bin/cm-auto-global_truststore.jks
truststoreType=jks
truststorePasswd=password
basicAuthUsername=jdoe156
basicAuthPassword=password1
```



**Note:** If you want to use the 443 port, you can use this procedure as a template and modify it for your production certs.

5. Check that the 8443 port is open.

If the port is not open, configure the security policy in your given cloud provider to allow external traffic to reach port 8443.

6. Set your CLI session to refer to the NiFi Registry CLI properties file you created.

```
john.doe@john bin % ./cli.sh session set nifi.reg.props datahub-registry-8443.properties
```

7. List the Registry buckets as a quick test for your connection.

You get the list of available buckets in the NiFi Registry.

In this example, the Registry has two buckets, TestProject and OtherProject:

```
john.doe@john bin % ./cli.sh registry list-buckets
```

#	Name	Id	Description
1	TestProject	2a5566b5-7380-46b8-9598-328e092e8899	(empty)
2	OtherProject	175fb557-43a2-4abb-871f-81a354f47bc2	(empty)

### Related Information

[Setting the workload password](#)

## Exporting a flow from NiFi Registry

This procedure shows you how to use the NiFi Toolkit CLI to export a versioned flow from a Registry instance.

### Before you begin

- You have established a connection to the 8443 port of the Knox Gateway Server from outside the Flow Management Data Hub cluster.
- You have a flow in the Registry that you want to export.

### Procedure

1. List the flows in the bucket that you want to explore.

You get the list of the flows in the chosen bucket.

In this example, the flows of the TestProject bucket are listed:

```
john.doe@john bin % ./cli.sh registry list-flows -bucketIdentifier 2a556
6b5-7380-46b8-9598-328e092e8899
# Name      Id                                     Description
- - - - -
1 BaseFlow  06acb207-d2f1-447f-85ed-9b8672fe6d30  First flow.
2 TestFlow  ce2fdaf9-bf81-43fa-846f-f38f6891be95  Second flow.
```

2. Export a flow from the Registry to a defined location using the flow ID.

In this example, you export TestFlow as a JSON file called mytestflow.json to the tmp folder:

```
john.doe@john bin % ./cli.sh registry export-flow-version -f
ce2fdaf9-bf81-43fa-846f-f38f6891be95 -o /tmp/mytestflow.json -
ot json
```

where `-f` specifies the flow ID, `-o` specifies the name of the output file, and `-ot` specifies the output type.



**Note:** The output types supported are `json` and `simple`. NiFi and NiFi Registry support flow definitions in JSON format.

### Results

The flow is exported as a JSON file, so you have a NiFi flow definition on your local machine that you can import and deploy, for example in a different NiFi instance.

## Importing a new flow into NiFi Registry

This procedure shows you how to import a brand new flow or a new version of a flow into a Registry instance.

### Procedure

1. Create a new one or update the NiFi Registry CLI properties file that refers to the Registry of interest. Set your CLI session to refer to this NiFi Registry CLI properties file.

For instructions, see [Steps 4-6](#) in *Connecting to NiFi Registry with NiFi Toolkit CLI*.

2. Create a new flow.

```
john.doe@john bin % ./cli.sh registry create-flow -b 699ac53c-7be7-4082-
8711-f9fff823826c -fd "This is the flow description" -fn "This is the flow
name"
```

```
b748827f-565f-4a69-8ce0-7218fcab35f4
```

where `-b` specifies the bucket ID in the Registry where you want to add the new flow, `-fd` specifies the description of the flow, and `-fn` specifies the name of the flow.

This generates a flow ID for an empty flow with an initial version of 0.

### 3. Import a flow definition to the Registry as version 1.

```
john.doe@john bin % ./cli.sh registry import-flow-version -f b748827f-565f-4a69-8ce0-7218fcab35f4 -i dh_export_test.json 1
```

where `-f` specifies the flow ID and `-i` specifies the name of the input file.



**Note:** If a flow already exists in the Registry, and you want to import a new version of the flow into Registry, you just need to reference the existing flow ID in the import command and the Registry will increment it as the next version.

For example:

```
john.doe@john bin % ./cli.sh registry import-flow-version -f 7ce2fdaf9-bf81-43fa-846f-f38f6891be95 -i mytestflow.json 2
```

### Related Information

[Connecting to NiFi Registry with NiFi Toolkit CLI](#)