NOKIA

NSP
Network Services Platform

Release 19.6

Workflow Manager Application Help

3HE-15179-AAAB-TQZZA

Issue 1

June 2019

Legal notice

Nokia is a registered trademark of Nokia Corporation. Other products and company names mentioned herein may be trademarks or tradenames of their respective owners.

The information presented is subject to change without notice. No responsibility is assumed for inaccuracies contained herein.

© 2019 Nokia.

Contents

1 Workflow Manager **5**
1.1 What is Workflow Manager? **5**
1.2 What is a workflow? **5**
1.3 How do I add a workflow? **6**
1.4 How do I import a workflow from my computer? **6**
1.5 How do I import a workflow from GitHub? **7**
1.6 How do I clone and update a workflow? **7**
1.7 How do I modify or delete a workflow? **8**
1.8 How do I change the status of a workflow? **10**
1.9 How do I execute a workflow? **10**
1.10 What is a workflow execution? **10**
1.11 What are actions and action executions? **11**
1.12 What is a schedule? **12**
1.13 How do I schedule a workflow? **12**
1.14 What is a Kafka trigger? **13**
1.15 Frequently asked questions **13**

2 Workflow Manager use cases **15**
2.1 Importing and executing a workflow in Workflow Manager **15**

1 Workflow Manager

1.1 What is Workflow Manager?

1.1.1

The WFM allows you to create and execute workflows in NSP. You can create automated procedures and closed loop automation using Nokia NSP or 3rd party APIs.

Some example use cases for the WFM:

- Node software upgrades
- Service activation tests
- Service fulfillment invoking pre and post deployment workflows
- Customizable policy logic for other applications
- Mass migration of services from one tunnel type to another
- One place scheduling for all NSP REST APIs and node CLI
- Centralized orchestration for Nokia NSP and 3rd party vendor APIs

The WFM uses Mistral DSL v2 which is based on YAML. YAML defines expressions in workflow and action definitions. The formatting of the YAML must comply with Mistral DSL v2 specifications. For more information about Mistral DSL v2, the workflow hierarchy and associated attributes, refer to the Mistral DSL v2 specification online.

1.1.2 Workflow Manager Application Help scope

The application help discusses importing and working with existing objects in the Workflow Manager application.

For detailed information about the following topics, see the tutorial information on the Nokia Developer Portal (https://nsp.developer.nokia.com/learn/)

- Using the WFM APIs
- Creating workflows
- Working with ad-hoc actions
- Working with Kafka triggers
- Workflow signatures

1.2 What is a workflow?

A workflow represents a process that does a job. Each workflow consists of at least one task that describes the steps.

The Workflows view shows the global list of workflows created in or imported to the WFM. If the status field shows Published, the workflow is ready to run.

Double click on a workflow to open an information page, which provides the YAML description of the workflow, a readme (if available), the status of any executions, lists of schedules and Kafka triggers that will execute the workflow, and a flow diagram.

1.3 How do I add a workflow?

You have several options for adding workflows to WFM:

- Import a workflow from your computer
  Each workflow to be imported must be saved in a separate .yaml file.
- Import a workflow from GitHub
- Clone and update a workflow
- Write the workflow in WFM: see the tutorial information on the Nokia Developer Portal (https://nsp.developer.nokia.com/learn/)

Note: Here are some things you should know when setting up workflows:

- A workflow must pass validation before it can be saved in the WFM. If you import a workflow that is not valid or clone a workflow and make changes that don't pass validation, you will need to update it to fix the errors before you can add it to the application.
- Workflows are imported in the Draft state. The state must be changed to Published before the workflow is available to all users.

1.4 How do I import a workflow from my computer?

1

Choose **Workflows** from the drop-down at the top left of the screen.

2

In the Workflows view, click **Import Workflow from File System**.

3

In the Browse window that opens, navigate to the file you want and click Open.

4

WFM opens the .yaml file in an Update Workflow window. Click **Validate & Update Flow**.

5

If needed, enter the author of the workflow in the **Provided By** field.

6

When the validation succeeds, click **Save Draft** to add the workflow to the application in the Draft state, or click **Publish** to add the workflow in the Published state.

END OF STEPS

1.5 How do I import a workflow from GitHub?

1

Choose **Workflows** from the drop-down at the top left of the screen.

2

In the Workflows view, click **Import Workflow from GitHub**.

3

From the list that appears, double click on the workflow you want to import.

The workflow is imported in Draft status.

4

From the list of workflows, double click on the workflow you imported. Review and update the readme information as needed.

5

Click Modify State at the top of the screen.

6

In the dialog box that opens, select Published and click **Update**.

END OF STEPS

1.6 How do I clone and update a workflow?

1

Choose **Workflows** from the drop-down at the top left of the screen.

2

In the Workflows view, choose a workflow and choose Clone from the More menu. The WFM copies the workflow and adds it to the list.

3

Double click on the new clone.

a. To add or change form input, go to "Add or change form input" (p. 8).

b. To update the YAML definition of the workflow, go to "Update YAML definition" (p. 8).

Add or change form input

4

To add or change form input:

1. Choose **Input Form** from the drop-down menu at the top left of the screen.
2. From the Input Form page, click **Update Workflow** at the top right of the screen.
3. Enter JSON details in the JSON editor and click **Update**.

The input form is added to the workflow.

5

To publish the workflow:

1. Choose **Info** from the drop-down menu at the top left of the screen.
2. From the Info page, click **Update Workflow** at the top right of the screen.
3. Click **Publish** to publish the edited workflow.

Update YAML definition

6

To update the YAML definition of the workflow:

1. Click **Update Workflow** at the top right of the screen.
2. In the Yaml editor, make changes as needed.

   You can click **Published** at any time to see the previous published version.
3. Click Validate & Update Flow.
4. Click **Publish** to publish the edited workflow, or **Save Draft** to keep it in Draft status.

END OF STEPS

1.7 How do I modify or delete a workflow?

To modify the YAML definition of a workflow, the workflow must be in Draft status. See 1.8 “How do I change the status of a workflow?” (p. 10).

You can add or change the form input of a workflow in either Draft or Published status.

1

Choose **Workflows** from the drop-down at the top left of the screen.

Modify a workflow

2

In the Workflows view, double click on a workflow.

3

In the page that displays, click **Update Workflow** at the top of the screen.

4

In the Yaml panel, make changes as needed.

You can click on the **Published** panel at any time to see the previous published YAML description.

5

Click Validate & Update Flow.

6

When the validation succeeds, click **Publish** to publish the edited workflow, or **Save Draft** to keep it in Draft status.

7

To add or change form input:

1. Choose **Input Form** from the drop-down menu at the top left of the screen.
2. From the Input Form page, click **Update Workflow** at the top right of the screen.
3. Enter JSON details in the JSON editor and click **Update**.

The input form is added to the workflow.

Delete a workflow

8

In the Workflows view, click on a workflow.

9

Click **Delete**.

10

In the confirmation dialog box, click **Delete**.

END OF STEPS

1.8 How do I change the status of a workflow?

1

Choose **Workflows** from the drop-down at the top left of the screen.

2

In the Workflows view, click on a workflow and choose **Modify Status** from the More menu.

3

In the dialog box that opens, click the radio button for the new state.

4

Click **Update** to change the status.

If you click **Delete Draft**, the workflow will be published and can't be changed back to Draft status.

End of steps

1.9 How do I execute a workflow?

Executing a workflow creates a workflow execution.

1

Choose **Workflows** from the drop-down at the top left of the screen.

2

In the Workflows view, position your cursor over a workflow and click **Execute**.

3

In the Create Execution dialog box that opens, enter a description if necessary.

The description will appear on the Workflow Executions page.

4

Configure the input parameters as needed.

5

Click **Create** to create the workflow execution.

End of steps

1.10 What is a workflow execution?

A workflow execution is an instance of an executed workflow.

Choose **Workflow Executions** from the drop-down at the top left of the screen to open the Workflow Executions page.

The Workflow Executions view shows the global list of workflow executions in the WFM. The list can show you the status of scheduled and running workflows, and serve as a record of succeeded and failed executions.

Double click on an execution to open an information page, showing the input entered, tasks that succeeded, any error messages that were produced, and a flow diagram showing the tasks that executed.

1.10.1 What can I do with workflow executions?

On the Workflow Executions page, you can:

- See the list of executions that have been run since the last cleanup, including the inputs provided, their status (Running, Success, Error, or Cancelled), their runtime, and how they were triggered

  The list shows the 1000 most recent executions by default. Statistics showing the status of workflows are based on the 4000 most recent executions.
- Click Update and modify the description of a workflow execution, for example, to provide notes on reasons a workflow failed
- Click Rerun and run a workflow execution again.

  If you rerun an execution, you will execute the workflow again with the same inputs. This can be useful on an occasional basis. If you want to run a workflow repeatedly with the same inputs, create a schedule.

1.11 What are actions and action executions?

1.11.1 What is an action?

An action is the smallest unit of instruction in a workflow. System actions are included with Mistral, and ad-hoc actions are customized by the user.

For example, std.http is a system action: it sends an HTTP request. If this action is incorporated into a workflow, the user must specify the URL as part of executing the workflow. An ad-hoc action can be created that sends an HTTP request to a specific URL. A workflow that incorporated this ad-hoc action would not require the URL as part of the user input.

The Actions view shows the actions saved to the WFM application. Both system actions and ad-hoc actions are listed. You can create, edit, or delete an ad-hoc action. System actions are read-only.

1.11.2 What is an action execution?

A action execution is an instance of an executed action. The Action Executions view shows the global list of actions that were executed by workflows, the names of the tasks that initiated them, and their status.

1.11.3 What can I do with actions or action executions?

Viewing the lists of actions and action executions can be useful to developers for troubleshooting and evaluating whether and how workflows might need to be modified.

See the tutorial information on the Nokia Developer Portal (https://nsp.developer.nokia.com/learn/)

1.12 What is a schedule?

A schedule allows you to configure a workflow to execute in the future, either once or repeatedly.

When you create a schedule you will specify the input and parameters. If you want the input to change from one execution to another, you will need multiple schedules. For example, if you would like a cleanup workflow to clean up failed workflow executions once a week and all workflow executions once a month, create a weekly schedule and a monthly schedule.

1.13 How do I schedule a workflow?

1

Open the **Create Schedule** window:

a. Choose **Workflows** from the drop-down at the top left of the screen to open the Workflows view.

From the Workflows view, place your cursor on a workflow and click **Schedule**. The Create Schedule window opens for the workflow.

b. Choose **Schedules** from the drop-down at the top left of the screen to open the Schedules view.

From the Schedules view, click **Create Schedule**. The Create Schedule window opens with no workflow specified.

2

In the Configuration panel:

1. Select a workflow if needed.
2. Enter a schedule name.
3. Update the information in the Input area.

   When the schedule runs, it will execute the workflow with the input you enter here.
4. For WFM to notify Kafka when the schedule runs the workflow, select Kafka Notfication.

3

In the Schedule panel, configure the number of executions and the scheduling details.

4

Click **Schedule** to save your schedule.

5

In the dialog box that appears, verify the details, check the **I understand** check box, and click **Confirm**.

END OF STEPS

1.14 What is a Kafka trigger?

A Kafka trigger is a method of automation. When a Kafka trigger is configured, a workflow is executed in response to a specified Kafka event notification. For example, if a Kafka notification is received indicating that a port is down, a workflow execution can be triggered to bring up another port and move the services from the down port to the new port.

See the tutorial information on the Nokia Developer Portal (https://nsp.developer.nokia.com/learn/) for details about working with Kafka triggers.

1.15 Frequently asked questions

- **What are tags for?**

  Tags are used to filter and group workflows. A workflow can have zero or multiple tags.

  If a workflow is compliant with a set of format requirements, such as Service Fulfillment or Kafka triggers, a tag must be used to indicate what the workflow is configured for. For example, for a Kafka trigger to launch a workflow, the workflow must have a KafkaTrigger tag.

  You can add tags to group and filter workflows according to your needs, for example, add a vendor tag to easily find workflows for the vendor's NEs.

- **What do Draft and Published states mean?**

  If a workflow is in Draft state, it's been locked for editing by a user. Other users can't modify the workflow, or see the changes being made. When the workflow is Published, it's available for any user.

- **What happens if I edit a workflow that someone else is running?**

  When you put a workflow into Draft state to edit it, any running schedules or executions of the workflow will be completed according to the last published version of the workflow. That is, the execution is not affected and your changes are not picked up.

  When you complete your edits and publish the workflow, check to see if any schedules or Kafka triggers could be affected by your changes. For example, if you added a parameter, any schedules that run the workflow should be updated to provide input for the new parameter.

- **Why can't I modify this workflow?**

  There are several possible reasons why a workflow can't be modified:

  - Workflows that are imported from GitHub and signed workflows cannot be edited.

    You can clone these workflows and make changes but the cloned version will not be signed.
  - If a workflow was published by clicking Delete Draft, it can no longer be modified.

- **Can I download a workflow or its Flow diagram?**

  Yes:

  - Double click on a workflow to open its Info page. Click **Export** to download the .yaml file to your computer.
  - From the Info page, choose Flow from the drop-down menu. Click **Screenshot Flow** to download the flow diagram as a .png file.

- **What's the difference between the Flow diagrams of a workflow and a workflow execution?**

  The Flow diagram of a workflow shows all the tasks that could be run by the workflow and their dependencies. For example: on success of Task 1, perform Task 2; on failure of Task 1, perform Task 3.

  The Flow diagram of a workflow execution shows the tasks that ran for the chosen execution. For the previous example, if Task 1 failed the Flow diagram of the workflow execution would show Task 1 with a failed status and Task 3.

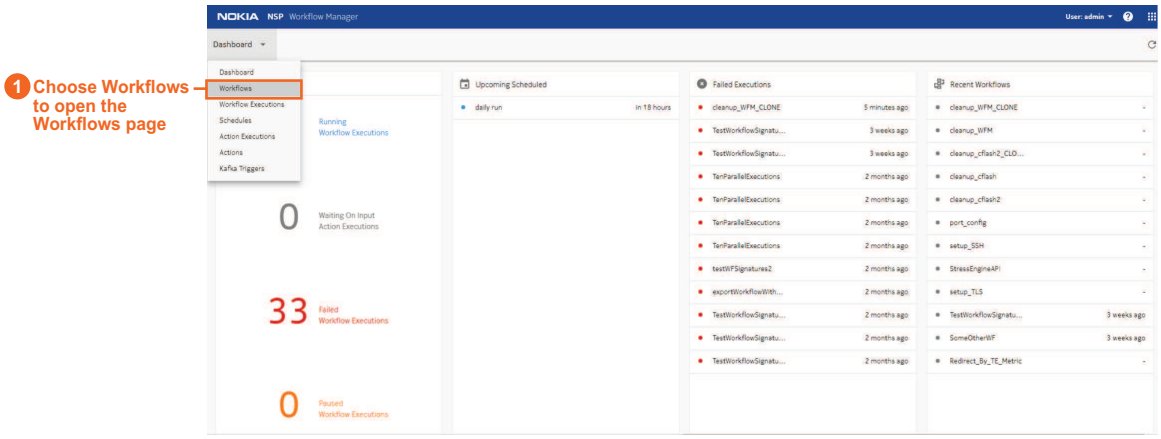
2 Workflow Manager use cases

2.1 Importing and executing a workflow in Workflow Manager

This article shows how to use the Workflow Manager application to import a workflow from GitHub, publish and execute the workflow.

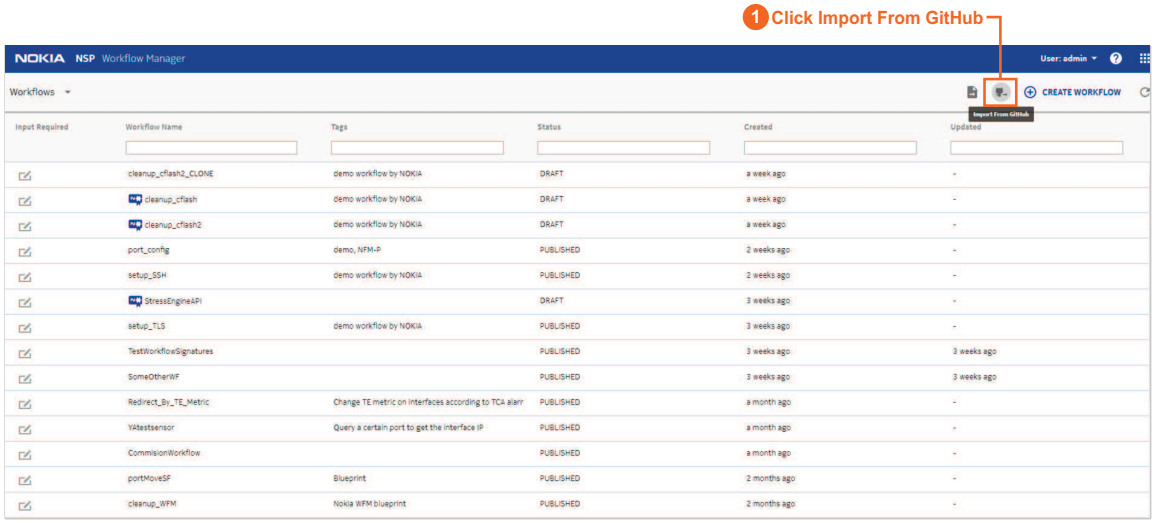
2.1.1 Let's go

From the Dashboard, we'll open the Workflows view:



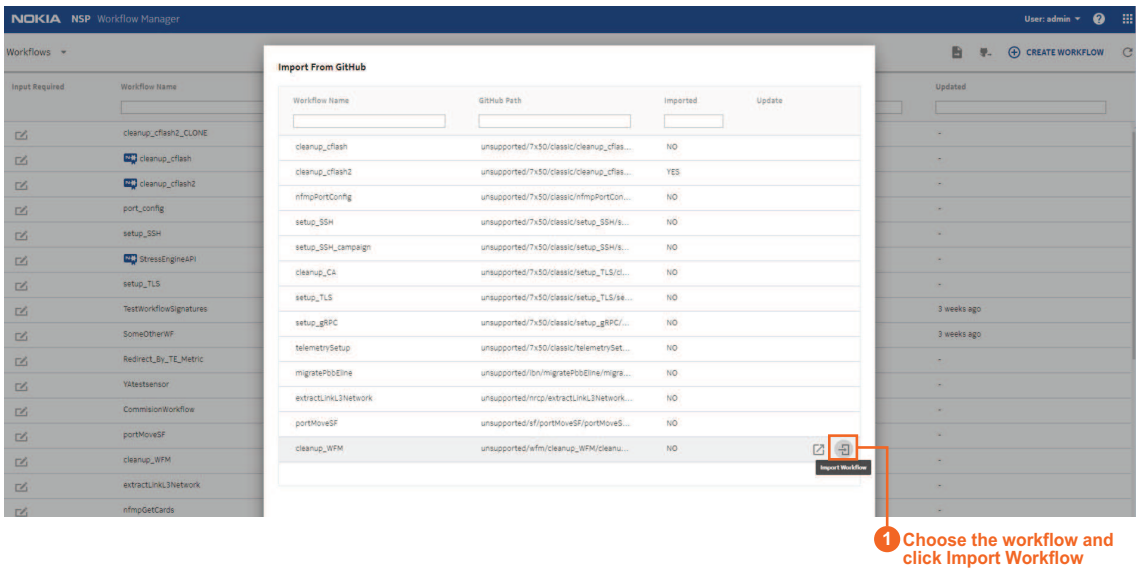
29422

The Workflows view shows all the workflows that are currently saved to the application. Let's import cleanup_WFM from GitHub.

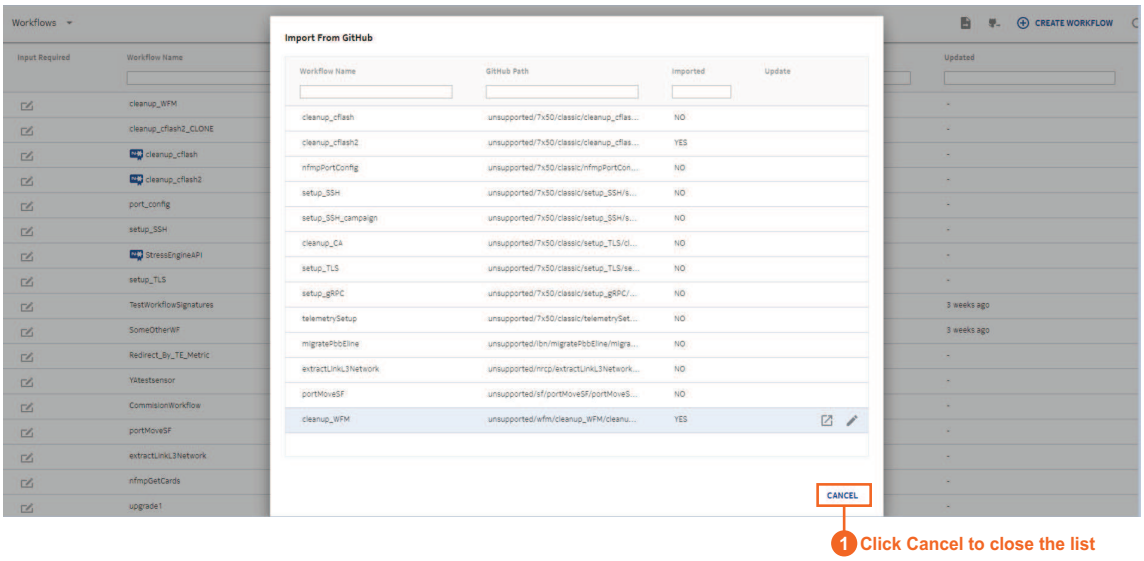


29424

The Import from GitHub window shows the list of available workflows in the Nokia NSP folder on GitHub. We'll import cleanup_WFM.

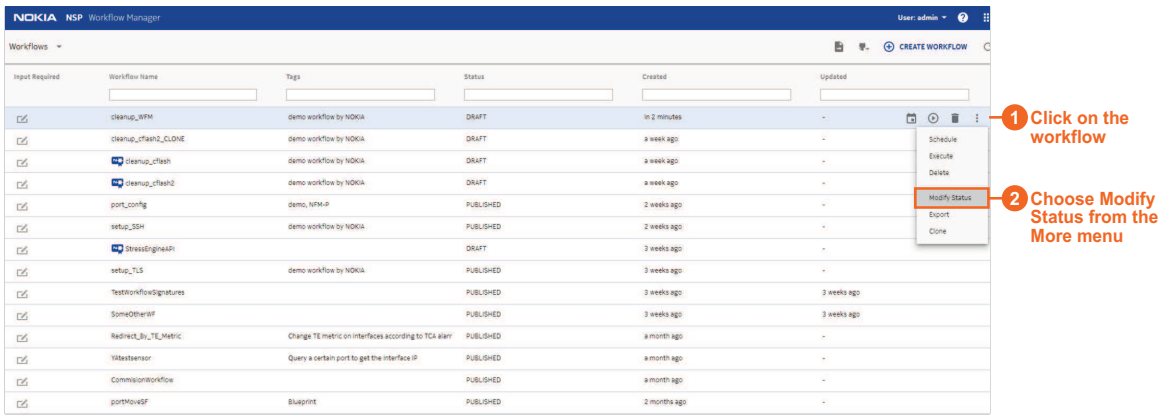


29426

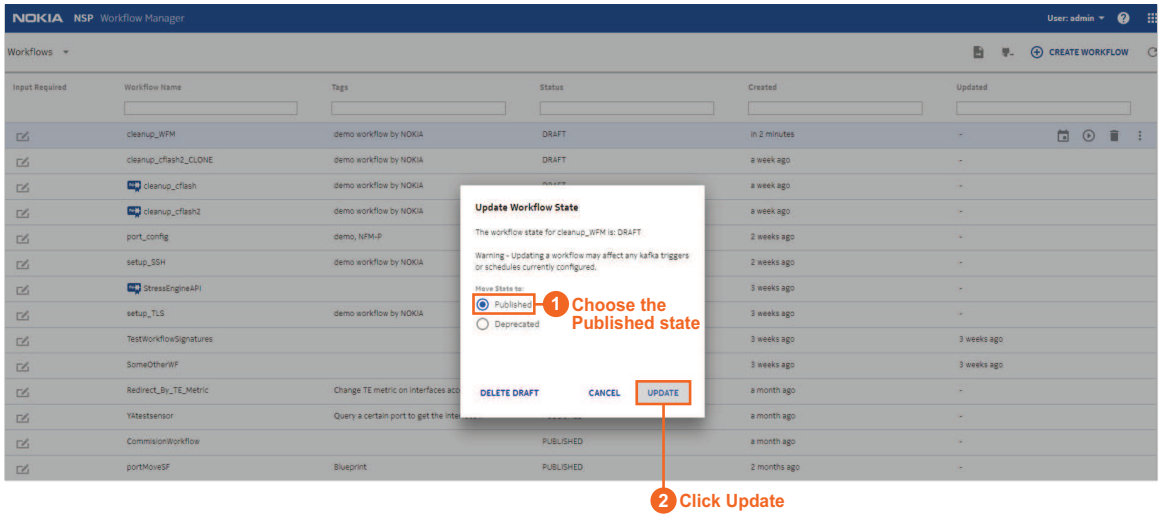


29425

The imported workflow appears in the Workflows page, with a status of Draft. To execute the workflow, we'll need to change the status to Published.

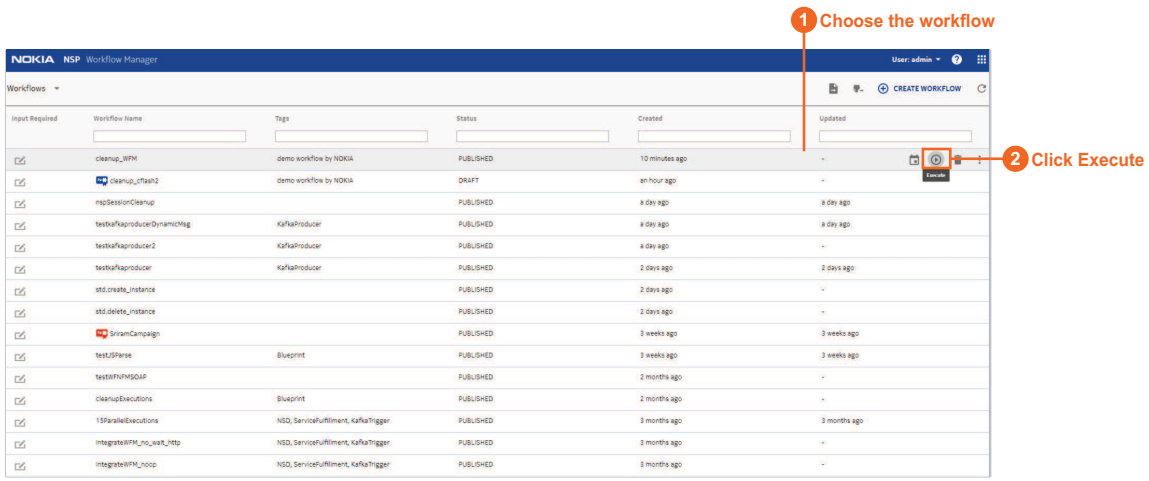


29427

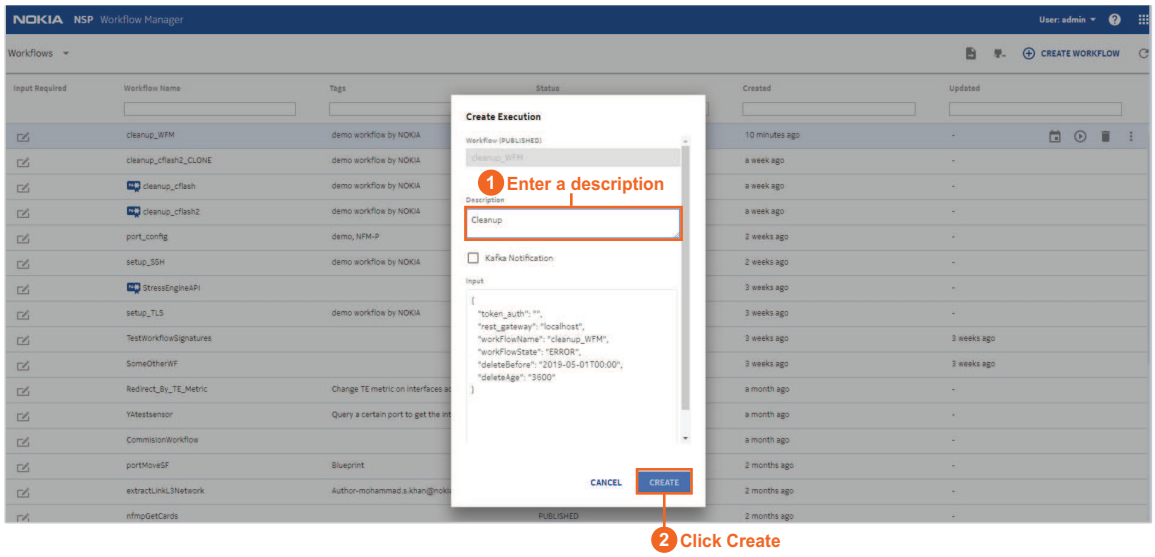


29428

Now we can execute the workflow:



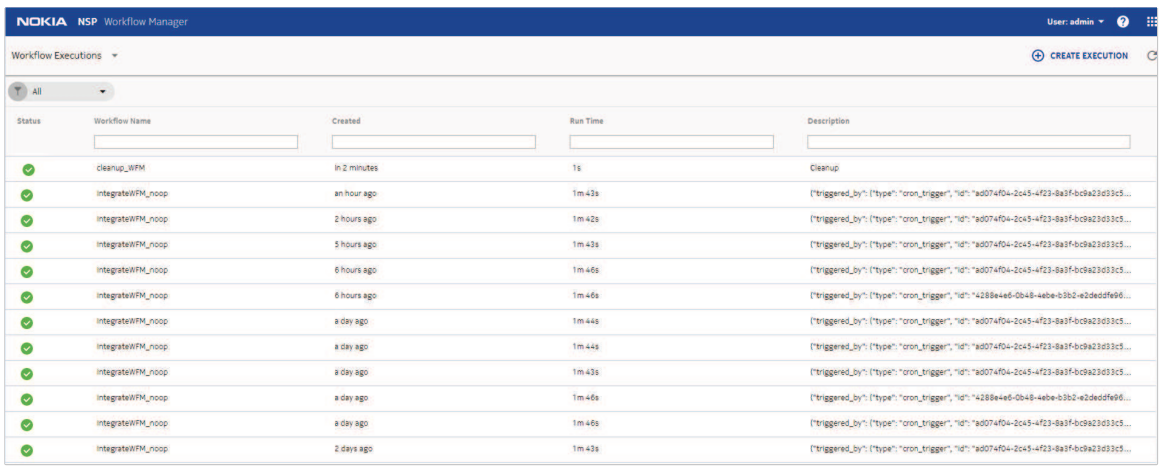
29430



29431

2.1.2 We're done

Let's switch to the Workflow Executions page to view the status. The workflow has executed successfully.



29432