



Create a workflow

OnCommand Workflow Automation

NetApp

October 09, 2025

Table of Contents

- Create a workflow 1
 - After you finish 5
 - Create workflow help content 5

Create a workflow

You can use Workflow Automation (WFA) to create workflows for tasks such as provisioning, migrating, and decommissioning storage for databases or file systems. You should create workflows when the predefined WFA workflows do not match your requirements.




What you'll need

- You must have understood the concepts for WFA building blocks.
- You must have understood capabilities such as repeat row, approval points, and resource selection that are required for your workflow.
- You must have completed the planning required for your workflow, including the workflow requirement checklist.
- You should have created the help content, which provides information about the workflow to storage operators.


About this task

The construction of each workflow might vary based on the goal and requirement of the workflow. This task does not provide instructions for a specific workflow, but provides general instructions for creating a workflow.


Steps

1. Click **Workflow Design > Workflows**.
2. Click  on the toolbar.
3. In the **Workflow** tab, perform the following steps:
 - a. Expand the required schema, and then double-click the required  (command) or  (workflow) from the **Available Steps** list.

You can repeat this step as required. You can drag-and-drop steps to rearrange the steps in the workflow editor.

- b. **Optional:** Click  to add the required number of rows, which are used to specify details for execution of steps.

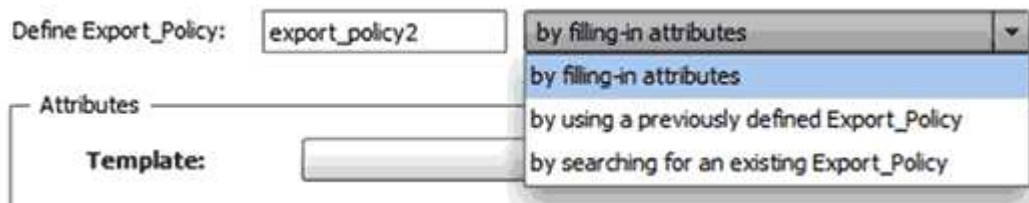
Each step is executed based on the specified step details at the specified row and column. The steps are executed from left to right and in the top to bottom order.

- c. Position your cursor below the step you have added and click  to add step details for the step execution, at the required row.


For this step...	Do this...
Workflow	Enter the required user inputs in the Workflow tab and the required condition in the Advanced tab.

For this step...	Do this...
Command	In the Parameters for <command> tab, click each object tab, select the required option to define the object attributes, and then enter the required details in the Advanced tab and the Other Parameter tab.
Search or define	Select the dictionary entry object that should be searched for or defined.

The following illustration shows the available options for defining the object attributes:



Choose the appropriate action:

For...	Do this...
by filling-in attributes	<p>Enter the value for attributes using the following options:</p> <ul style="list-style-type: none"> • Expressions • Variables • User inputs • Resource selection • Incremental naming <p>You must position your cursor over the attribute fields and click  to use the resource selection or incremental naming capabilities.</p>
by using a previously defined <i>object</i>	Select the previously defined <i>object</i> in the box before the option list.

For...	Do this...
by searching for an existing <i>object</i>	<ol style="list-style-type: none"> i. Click Enter search criteria to search for the object using the resource selection capability. ii. Select one of the required options for execution if the required object is not found: <ul style="list-style-type: none"> ◦ Abort workflow <p>This option aborts the workflow execution if the specific object is not found.</p> ◦ Disable this command <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>This option disables only the current step and executes the workflow.</p> </div> ◦ Fill-in attributes for object and execute the command <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>This option enables you to enter the required attributes and execute the workflow.</p> </div>

4. If you want to insert an approval point, click  and enter the required comment for the approval point.

Approval point comments can include MVEL expressions.

5. Click  that is next to the row numbers to perform the following:

- Insert a row.
- Copy the row.
- Repeat the row.

You can use one of the following options to specify repetition of the command parameters:

- Number of times

You can use this option to repeat the command execution for the number of repetitions you specify. For example, you can specify that the “Create qtree” command should be repeated three times to create three qtrees.

You can also use this option for a dynamic number of command executions. For example, you can create a user input variable for the number of LUNs to be created and use the number specified by the storage operator when the workflow is executed or scheduled.

- For every resource in a group

You can use this option and then specify a search criteria for an object. The command is repeated as many times as the object is returned by the search criteria. For example, you can search for the nodes in a cluster and repeat the “Create iSCSI Logical Interface” command for each node.

- Add a condition for execution of the row.
- Remove the row.

6. In the **Details** tab, perform the following steps:

- a. Specify the required information in the **Workflow name** and **Workflow Description** fields.

The workflow name and description must be unique for each workflow.

- b. **Optional:** Specify the entity version.
- c. **Optional:** Clear the **Consider Reserved Elements** check box if you do not want to use the reservation capability.
- d. **Optional:** Clear the **Enable element existence validation** check box if you do not want to enable validation for elements that exist with the same name.

7. If you want to edit the user inputs, perform the following steps:

- a. Click the **User Inputs** tab.
- b. Double-click the user input you want to edit.
- c. In the **Edit Variable: <user input>** dialog box, edit the user input.

8. If you want to add constants, perform the following steps

- a. Click the **Constants** tab, and then add the required constants for your workflow by using the **Add** button.

You can define constants when you are using a common value for defining the parameters for multiple commands. For example, see the AGGREGATE_OVERCOMMITMENT_THRESHOLD constant used in the “Create, map and protect LUNs with SnapVault” workflow.

- b. Enter the name, description, and value for each constant.

9. Click the **Return Parameters** tab, and then add the required parameters for your workflow by using the **Add** button.

You can use return parameters when the workflow planning and execution must return some calculated or selected values during planning. You can view the calculated or selected values in the Return Parameters tab of the monitoring window in the workflow preview or after the workflow execution is complete.

Aggregate: You can specify aggregate as a return parameter to see which aggregate was selected using the resource selection logic.

If you have included a child workflow in your workflow and if the child workflow return parameter names contain a space, dollar sign (\$), or a function, you should specify the return parameter name within square brackets in the parent workflow to view the child workflow return parameter value in your parent workflow.

If the parameter name is...	Specify as...
ChildWorkflow1.abc\$value	ChildWorkflow1["abc\$"+"value"]
ChildWorkflow1.\$value	ChildWorkflow1["\$"+"value"]

If the parameter name is...	Specify as...
<code>ChildWorkflow1.value\$</code>	<code>ChildWorkflow1.value\$</code>
<code>ChildWorkflow1.P N</code>	<code>ChildWorkflow1["P N"]</code>
<code>ChildWorkflow1.return_string("HW")</code>	<code>ChildWorkflow1["return_string(\"HW\")"]</code>

10. **Optional:** Click the **Help Content** tab to add the help content file you have created for the workflow.
11. Click **Preview** and ensure that the planning of the workflow is completed successfully.
12. Click **OK** to close the preview window.
13. Click **Save**.

After you finish

Test the workflow in your test environment, and then mark the workflow as ready for production in **WorkflowName > Details**.

Create workflow help content

OnCommand Workflow Automation (WFA) admins and architects who design workflows can create help content for the workflows and include it in the workflow.

What you'll need

You must be aware of how to create web pages using HTML.

About this task

The help should provide information about the workflow and the user inputs for the workflow to the storage operator who executes the workflow.

Steps

1. Create a folder with the following name: workflow-help.
2. Author the help content using an HTML editor or a text editor and save it as an `index.htm` file in the workflow-help folder.

You must not include JavaScript files as part of the help content. The following are the supported file extensions:

- .jpg
- .jpeg
- .gif
- .png
- .xml
- .thmx

- .htm
- .html
- .css

You can also include the `Thumbs.db` file, which is created by Windows.

3. Verify that the `index.htm` file and other files associated with the help content, such as images, are available in the `workflow-help` folder.
4. Create a `.zip` file of the folder and ensure that the size of the `.zip` file is not more than 2 MB.

Create an NFS `volume-help.zip`

5. Edit the workflow for which you have created the help content, and then click **Setup > Help Content > Browse** to upload the `.zip` file.

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