



Orchestration Workflow Operations

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Automation with Orchestration

Cisco UCS Director includes orchestration features that allow you to automate the configuration and management of tasks performed by SCVMM through a set of simple, predefined workflows. The same workflow can include Hyper-V VM, Hyper-V host, network, and storage tasks.

For more information about orchestration in Cisco UCS Director, see the [Cisco UCS Director Orchestration Guide](#).

Tasks

A task is a single action or operation with inputs and outputs (except in rare cases where the task operation does not require inputs or outputs). A task cannot be decomposed into smaller operations.

Cisco UCS Director has a task library containing hundreds of predefined tasks that cover most of the actions an administrator must perform using Orchestration. In cases where there is no suitable predefined task, you can create custom tasks.

Workflows for SCVMM

A workflow is a series of tasks arranged to automate a complex operation. The simplest possible workflow contains a single task, but workflows can contain any number of tasks.

Workflows are the heart of the Cisco UCS Director Orchestrator. They enable you to automate processes of any level of complexity on your physical and virtual infrastructure.

You build workflows using the Workflow Designer that has a drag-and-drop interface. In the Workflow Designer, you arrange tasks in sequence and define inputs and outputs to those tasks. Outputs from earlier tasks are available to use as inputs to any subsequent task.

Location of Orchestration Tasks

A complete list of the orchestration tasks is available in Workflow Designer, in the Task Library, and the **Virtualization** folder. The Task Library, which includes a description of the orchestration tasks, can be accessed from the following locations in Cisco UCS Director:

- **Orchestration > Workflows**

- `http://IP_address/app/cloudmgr/online/docs/cloupiaTaskLib.html` where *IP_address* is the IP address of Cisco UCS Director.

Types of Orchestration Tasks

The Hyper-V orchestration tasks include tasks to configure and manage the following:

- VM
- Host
- Virtual network
- Logical network
- Logical network definition
- Host network adapter
- Virtual network adapter
- PNIC
- Storage
- Logical unit network (LUN)
- Logical switch
- Standard switch
- Uplink port profile
- Storage classification
- File share
- Storage logical unit
- Storage provider

Accessing Task Documentation

- Step 1** Choose **Orchestration**.
- Step 2** On the **Orchestration** page, click **Workflows**.
- Step 3** From the **More Actions** drop-down list, select **Task Library**.
- Step 4** On the **Task Library** screen, check the **Regenerate document** check box to view a list of all new tasks and those by open automation.
- Step 5** Click **Submit**.
The orchestration task library appears. Click an entry to see more information about specific inputs and outputs that are available.
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Navigating to a Predefined Orchestration Workflow

You build workflows using the Workflow Designer that has a drag-and-drop interface. In the Workflow Designer, you arrange tasks in sequence and define inputs and outputs to those tasks. Outputs from earlier tasks are available to use as inputs to any subsequent task.

Follow the steps listed to access Workflow Designer and create workflows from individual tasks.

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- Step 1** Choose **Orchestration**.
- Step 2** On the **Orchestration** page, click **Workflows**.
- Step 3** On the **WorkFlows** screen, expand the workflow folder to see the available workflows.
- Step 4** Select the workflow you want to execute and from the **More Actions** drop-down list, click **Execute Now**.
- Step 5** To edit a workflow, follow the steps listed:
- Select the workflow you want to edit and from the **More Actions** drop-down list, click **Workflow Designer**.
 - On the Workflow Designer page, expand the **Virtualization Tasks > HyperV Tasks** folder.
 - Choose a required task and drag-and-drop the selected task in the **Workflow Designer** pane to add the task to the workflow.
Provide the basic information, user input mapping, input, and user output mapping of the workflow task.
If you want to modify a predefined workflow, we recommend that you first create a copy of that workflow.
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Validating and Executing an Orchestration Workflow

Cisco UCS Director Orchestrator provides a mechanism for validating the flow of data from one task to the next in a workflow. Workflow validation checks the data bindings and connections between tasks. Orchestrator

supplies a wizard-based issue resolver. When you validate a workflow, the wizard presents a list of issues along with suggestions for fixing those issues. Some issues require additional information or input from you. Other issues are quick fixes that are resolved for you.

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- Step 1** Choose **Orchestration**.
- Step 2** On the **Orchestration** page, click **Workflows**.
- Step 3** Click the workflow you want to validate.
- Step 4** From the **More Actions** drop-down list, select **Validate**.
The Workflow Validation screen shows "This workflow is valid" message.
If there are any errors a description of the error, task details, and the required resolution is provided. Select the row for the error you want to resolve, click edit, and complete the remaining screens in the **Problem Detected** wizard.
- Step 5** After validating the workflow, from the **More Actions** drop-down list, select **Execute Now** to activate the orchestration workflow.
- Step 6** On the **Executing Workflow** screen, complete the fields and click **Submit**.
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Adding a Trigger

Triggers are used to execute workflows based on specified conditions. Once those conditions are met, a workflow is automatically executed.

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- Step 1** Choose **Orchestration**.
- Step 2** On the **Orchestration** page, click **Triggers**.
- Step 3** Click **Add**.
- Step 4** On the **Add Trigger** screen, complete the following field:

Name	Description
Trigger Name field	The name of the trigger.
Is Enabled check box	Check this check box to enable the trigger.
Description field	The description of trigger.
Frequency drop-down list	Choose the frequency at which the trigger rule is verified.
Trigger Type drop-down list	Choose one of the following as the trigger type: <ul style="list-style-type: none"> • Stateful—Executes the action only when there is a change in the state of the trigger. • Stateless—Executes the trigger condition at a frequency provided in the frequency field irrespective of the trigger state.

Step 5 Click **Next**.

Step 6 On the **Specify Conditions** screen, complete the following fields:

Name	Description
Conditions field	<p>Click the + icon to add a condition.</p> <p>In the Add Entry To Conditions dialog box, complete the following fields:</p> <ul style="list-style-type: none"> • Types of Objects to Monitor drop-down list—Choose Hyper V Host as the type of object to be monitored. • Object drop-down list—Choose a Hyper-V host to monitor. • Parameter drop-down list—Choose one of the following parameters: <ul style="list-style-type: none"> • CPU Usage % (Last Day Avg) • CPU Usage % (Last Hour Avg) • Memory Usage % (Last Day Avg) • Memory Usage % (Last Hour Avg) • Power Status • Operation drop-down list—Choose an operator from the list of operators that appear according to the selected parameter. • Value drop-down list—Choose a value from the list of values that appear according to the selected parameter.
Trigger When drop-down list	<p>Choose one of the following conditions: Any Condition(s) Satisfied or trigger type:</p> <ul style="list-style-type: none"> • All Condition(s) Satisfied—To trigger the workflow only when all set conditions are met. • Any Condition(s) Satisfied—To trigger the workflow if any one of the set conditions is met.

Step 7 Click **Next**.

Step 8 On the **Specify Workflow** screen, complete the following fields:

Name	Description
Maximum Invocations field	The number of times that the trigger is invoked.
(When Trigger State Becomes Active) Select Workflow drop-down list	Choose the workflow to be executed when the trigger is activated.
(When Trigger State Become Clear) Select Workflow drop-down list	This field is optional. Choose the workflow to be executed when the trigger is cleared.

Step 9 Click **Next**.

Step 10 On the **Specify Workflow Inputs** screen, provide the input for the selected workflows.

Step 11 Click **Submit**.
