Using the vCenter Orchestrator Plug-In for Cisco UCS Manager

vCenter Orchestrator 4.1

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VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

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Using the vCenter Orchestrator Plug-In for Cisco UCS Manager

Using the vCenter Orchestrator Plug-In for Cisco UCS Manager, provides information and instructions about configuring and using the VMware® vCenter Orchestrator plug-in for Cisco UCS Manager.

Intended Audience

This information is intended for anyone who is installing and configuring the plug-in, using the API of the plug-in, and using the workflow library. *Using the vCenter Orchestrator Plug-In for Cisco UCS Manager* is written for experienced users who are familiar with virtual machine technology, with Orchestrator workflow development, and with Cisco UCS Manager.

For more information about Orchestrator, see http://www.vmware.com/support/pubs/orchestrator_pubs.html.

For more information about Cisco UCS Manager, see http://www.cisco.com/en/US/products/ps10281/tsd_products_support_series_home.html and http://developer.cisco.com/web/unifiedcomputing/home.

Introduction to the VMware vCenter Orchestrator Plug-In for Cisco UCS Manager

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The UCS Manager plug-in (VMware vCenter Orchestrator plug-in for Cisco UCS Manager) allows interaction between vCenter Orchestrator and Cisco UCS Manager.

You can use the plug-in to run Orchestrator workflows that automate Cisco UCS Manager processes. The plug-in contains a set of standard workflows. You can also create custom workflows that implement the plug-in API to automate tasks in your Cisco UCS environment.

This chapter includes the following topics:

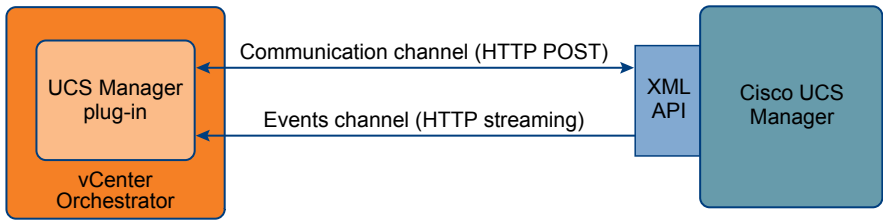
- "UCS Manager Plug-In Components," on page 7
- "Installing and Configuring the UCS Manager Plug-In," on page 8

UCS Manager Plug-In Components

The UCS Manager plug-in relies on a number of components to function properly.

vCenter Orchestrator and Cisco UCS Manager provide the platform for the plug-in, and the plug-in provides interaction between those products.

Figure 1-1. Component Relations



The plug-in communicates with the XML API of Cisco UCS Manager by using the POST request method. The plug-in receives information about events through HTTP streaming.

Role of vCenter Orchestrator with the UCS Manager Plug-In

You must use the Orchestrator configuration interface to install and configure the UCS Manager plug-in. You use the Orchestrator client to run and create workflows and access the plug-in API.

The UCS Manager plug-in is powered by vCenter Orchestrator. Orchestrator is a development and process-automation platform that provides a library of extensible workflows to manage the VMware vCenter infrastructure and other technologies.

Orchestrator allows integration with management and administration solutions through its open plug-in architecture. Cisco UCS Manager is one example of an administration solution that you can integrate with Orchestrator by using plug-ins.

Plug-In Interaction with Cisco UCS Manager

You use the plug-in to run Orchestrator workflows that interact with Cisco UCS Manager to perform automated tasks in the UCS infrastructure.

Cisco UCS Manager is the management service for all components in a Cisco UCS instance. Cisco UCS Manager runs within the fabric interconnect. You can use any of the interfaces available with this management service to access, configure, administer, and monitor the network and server resources for all chassis connected to the fabric interconnect.

Installing and Configuring the UCS Manager Plug-In

You must use the Orchestrator configuration interface to install and configure the UCS Manager plug-in.

UCS Manager Plug-In Functional Prerequisites

To be able to install and use the UCS Manager plug-in, your system must meet the following product prerequisites.

vCenter Orchestrator

Verify that you have a running instance of Orchestrator. You can log in to the Orchestrator configuration interface at http://*orchestrator_server*:8282. Version 1.0 of the plug-in works with vCenter Orchestrator 4.1.

For information about setting up Orchestrator, see the *vCenter Orchestrator Installation and Configuration Guide*.

Cisco UCS Manager

Verify that you have access to a Cisco UCS Manager instance. You can test your user credentials at http://*cisco_ucs_manager_server*. Version 1.0 of the plug-in works with Cisco UCS Manager 1.3.

For information about setting up Cisco UCS Manager, see the *Cisco UCS Manager GUI Configuration Guide*.

Install the UCS Manager Plug-In

To be able to use the UCS Manager plug-in, you must download the `.vmoapp` file containing the plug-in and install it using the Orchestrator configuration interface.

Prerequisites

- Verify that you are logged in to the Orchestrator configuration interface at http://*orchestrator_server*:8282.
- Verify that you have downloaded the `.vmoapp` file from http://www.vmware.com/products/datacenter-virtualization/vcenter-orchestrator/plugins.html.

Procedure

1 On the **General** tab, click **Install Application**.

2 Upload the UCS Manager plug-in.

   a Click the magnifying glass icon.

   b Select the `.vmoapp` file to install.

   c Click **Open**.

   d Click **Install**.

   The UCS Manager plug-in tab appears in the Orchestrator configuration interface.

3 On the **Startup Options** tab, click **Restart service** to complete the plug-in installation.

Configure the UCS Manager Plug-In

To be able to connect to Cisco UCS Manager instances by using the UCS Manager plug-in, you must configure the connection parameters for each Cisco UCS Manager instance.

Prerequisites

Verify that you are logged in to the Orchestrator configuration interface at http://*orchestrator_server*:8282.

Procedure

1 Click **UCS Manager**.

2 Click **New UCS Manager Host**.

3 In the **Host** text box, type the IP address or the DNS name of the Cisco UCS Manger instance.

4 Type the credentials for the Cisco UCS Manager instance.

5 Click **Apply changes**.

6 Repeat Step 2 through Step 5 for each Cisco UCS Manager instance.

UCS Manager Plug-In Scripting API 2

The UCS Manager plug-in scripting API contains classes, with their respective attributes and methods, that allow interaction between vCenter Orchestrator and Cisco UCS Manager. You can use the API to develop custom workflows that interact with Cisco UCS Manager.

This chapter includes the following topics:

- "Access the UCS Manager Plug-In API," on page 11
- "UCS Manager Plug-In API Classes," on page 11

Access the UCS Manager Plug-In API

Orchestrator provides an API Explorer to allow you to search the UCS Manager plug-in API and see the documentation for JavaScript objects that you can use in scripted elements.

Procedure

1 Log in to the Orchestrator client as an administrator.

2 Access the API Explorer from either the Orchestrator client or from the **Scripting** tabs of the workflow, policy, and action editors.

- To access the API Explorer from the Orchestrator client, click **Tools > API Explorer** in the Orchestrator client toolbar.
- To access the API Explorer from the **Scripting** tabs of the workflow, policy, and action editors, click **Search API** on the left.

3 To expand the hierarchical list of UCS Manager plug-in API objects, double-click the **UCSM** module in the left pane.

What to do next

You can copy code from API elements and paste it into scripting boxes. For more information about API scripting, see the *vCenter Orchestrator Developer's Guide*.

UCS Manager Plug-In API Classes

The UCS Manager plug-in exposes JavaScript API classes that map to the functionality of the UCS XML API.

The UCS Manager plug-in API contains the following classes.

Class Name	Description
UCSMEpUser	Defines an endpoint user.
UCSMIpPoolBlock	Defines a block of addresses populated into a pool. This class is used for configuring pool members.
UCSMMacPool	Defines a pool of shared MAC addresses used for logical resource identity assignments.
UCSMSANCloud	Defines a set of Fibre Channel uplink ports, VSANs, SAN pin groups, and threshold policies.
UCSMSolPolicySpeedType	Defines the serial over LAN policy speed type.
UCSMSystem	Provides general information about a UCS host system, such as the name, IP address, and current system time.
UCSMUuidBlock	Defines a block of identities populated into a pool. This class is used for configuring pool members.
UCSMUuidPool	Defines a pool of shared UUID addresses used for logical resource identity assignments.
UCSMVHba	Defines a virtual host bus adapter.
UCSMVLan	Defines a virtual local area network.
UCSMVNicFclf	Defines a Fibre Channel interface.
UCSMVSan	Defines a virtual storage area network.
UCSMVhbaTemplate	Defines a virtual host bus adapter template.
UCSMVnicEtherlf	Defines an ethernet interface that represents a VLAN associated with a vNIC.
UCSMVnicTemplate	Defines a virtual network interface card template.
UCSMWwnBlock	Defines a WWN address block that can be used as part of a WWNN or WWPN pool.
UCSMWwnnPool	Defines a WWN pool that contains only WW node names. If you include a pool of WWNNs in a service profile, the associated server is assigned a WWNN from that pool.
UCSMWwpnPool	Defines a WWN pool that contains only WW port names. If you include a pool of WWPNs in a service profile, the port on each vHBA of the associated server is assigned a WWPN from that pool.
UcsmAdaptorEthCompQueueProfile	Defines a completion queue profile for ethernet adapter policies.
UcsmAdaptorEthInterruptProfile	Defines an interrupt profile for ethernet adapter policies.
UcsmAdaptorEthRecvQueueProfile	Defines a receive queue profile for ethernet adapter policies.
UcsmAdaptorEthworkQueueProfile	Defines a transmit queue profile for ethernet adapter policies.
UcsmAuthProfile	Defines an IPMI access profile. This policy allows you to determine whether IPMI commands can be sent directly to the server.
UcsmBlade	Defines a physical compute blade.
UcsmBootPolicy	Defines a boot configuration policy. The boot policy determines the following: ■ Configuration of the boot device ■ Location from which the server boots ■ Order in which boot devices are invoked You must include this policy in a service profile, and that service profile must be associated with a server for the policy to take effect. If you do not include a boot policy in a service profile, the server uses the default settings in the BIOS to determine the boot order.
UcsmChasis	Defines a chassis.
UcsmEpUserRoleType	Defines a user's role. The role can be read-only or admin.

Class Name	Description
UcsmEthernetAdapterPolicy	Defines an ethernet adapter policy.
UcsmFabricLan	Defines an abstraction of external LAN fabric. Represents an instance of generic external LAN fabric domain.
UcsmFabricSan	Defines an abstraction of external SAN fabric. Represents an instance of generic external SAN fabric domain.
UcsmFibreChannelAdapterPolicy	Defines a Fibre Channel adapter policy.
UcsmIpPoolPooled	Defines an IP address that is a member of a pool. The class also provides a pool membership relationship between containing pool and the poolable address. A given IP address can be a member of multiple pools, but can only be assigned to a specific virtual entity.
UcsmLanPinGroup	Defines a LAN pin group.
UcsmLanPinTarget	Defines a LAN pin target.
UcsmLanPort	Defines a LAN port.
UcsmLanPortChannel	Defines a LAN port channel.
UcsmLocalDiskConfigurationPolicy	Defines a local disk configuration policy.
UcsmMacAddressCalculator	Defines a MAC address calculator. This is a utility class.
UcsmMacpoolBlock	Defines a MAC pool block.
UcsmObjectManager	Defines the object manager class that contains common helper methods. This is a utility class.
UcsmOrganization	Defines an organization as management unit.
UcsmOrganizationHierarchy	Defines an organization hierarchy used for grouping objects in the inventory. This is a utility class.
UcsmPlacementProfile	Defines a placement profile for a vNIC and vHBA.
UcsmSanPinGroup	Defines a SAN pin group.
UcsmServiceProfile	Defines a service profile. Service profiles are the central concept of Cisco UCS. Each service profile ensures that the associated server hardware has the configuration required to support the applications that the server hosts. The service profile maintains configuration information about the server hardware, interfaces, fabric connectivity, and network identity.
UcsmServiceProfileTemplate	Defines a service profile template. With a service profile template, you can quickly create several service profiles with the same basic parameters such as the number of vNICs and vHBAs, and with identity information drawn from the same pools.
UcsmSolPolicy	Defines an abstraction of a serial over LAN configuration definition. Specifies configuration of a serial over LAN interface on a given compute resource. Serial over LAN is specified per organization as a policy, in which case it is referenced by a logical server profile definition by name and is applied to the corresponding blade in the form of a specific SoL interface.
UcsmThresholdClass	Defines a threshold class.
UcsmThresholdDefinition	Defines a threshold definition.
UcsmThresholdDefinitionValue	Defines a threshold definition value to be used within a threshold definition.
UcsmThresholdPolicy	Defines a statistics threshold policy. A statistics threshold policy monitors statistics about certain aspects of the system and generates an event if the threshold is crossed.
UcsmVNic	Defines a virtual network interface card.
UcsmVirtualSlot	Defines a virtual slot to be used within a placement profile.

Class Name	Description
UcsmVirtualizationHost	Defines an ESX host.
UcsmVnicDynamicConPolicy	Defines a specialization of a dynamic connectivity requirement. The class also defines the number of vNICs preallocated for dynamic use. The class is contained by organizations and is name referenced from the logical server profile.

Using the UCS Manager Plug-In Workflow Library 3

The UCS Manager plug-in workflow library contains workflows that allow you to run automated processes related to the management of Cisco UCS Manager instances.

The workflows are grouped into categories depending on their functional area. You can integrate standard workflows from the workflow library in custom workflows.

This chapter includes the following topics:

- "Using the UCS Manager Plug-In Inventory," on page 15
- "Access the UCS Manager Plug-In Workflow Library," on page 15
- "UCS Manager Plug-In Standard Workflows," on page 16
- "Creating Custom UCS Manager Plug-In Workflows," on page 20

Using the UCS Manager Plug-In Inventory

The UCS Manager plug-in exposes all objects in the connected Cisco UCS Manager instances in the **Inventory** view. You can use the **Inventory** view to add authorization elements or to run workflows on Cisco UCS Manager objects.

You can enable the **Use contextual menu in inventory** option to display the workflows that are available for an inventory object. When the option is enabled and you right-click an object in the Orchestrator inventory, all available workflows for the object are displayed.

Access the UCS Manager Plug-In Workflow Library

You must use the Orchestrator client to access the elements from the UCS Manager plug-in workflow library.

Procedure

1 Log in to the Orchestrator client as an administrator.

2 Click the **Workflows** view in the Orchestrator client.

3 In the hierarchical list, select **Library > UCS Manager** and expand the selection.

UCS Manager Plug-In Standard Workflows

The UCS Manager workflow category contains a set of standard workflows that cover the most common UCS functional areas. You can use the workflows as building blocks for creating complex custom solutions. By combining standard workflows, you can automate multistep processes in the UCS enironment.

Administration Workflows

The Administration workflow category contains workflows related to UCS Manager administration.

You can access these workflows from **Library > UCS Manager > Administration**.

Workflow Name	Description
Create a block of IP addresses	Creates a block of IP addresses and adds it to the IP pool.

Blade Workflows

The Blades workflow category contains workflows related to blade management.

You can access these workflows from **Library > UCS Manager > Blades**.

Workflow Name	Description
Blade LED	Turns a blade's LED on or off.
Power on a blade	Powers on a blade server.
Put a blade in maintenance mode	Puts a blade in maintenance mode.
Recover a blade	Recovers the configuration of a blade server.
Reset a blade	Restarts a blade server.
Shut down a blade	Shuts down a blade server.
Wait for a power event on a blade	Waits for a power event to occur on a blade. The workflow exits when a success state or error state is reached, or after a specified timeout.

Common Workflows

The Common workflow category contains workflows related to common distinguished name UCS Manager tasks.

You can access these workflows from **Library > UCS Manager > Common**.

Workflow Name	Description
Delete an object by distinguished name	Deletes an object with a multi UCS Manager distinguished name.
Wait for an event by DN	Waits for a specific event to occur.
Wait for any event by DN	Waits for any event to occur.

LAN Workflows

The LAN workflow category contains workflows related to LAN management.

You can access these workflows from **Library > UCS Manager > LAN**.

Workflow Name	Description
Create a LAN pin group	Creates a LAN pin group.

Workflow Name	Description
Create a VLAN	Creates a VLAN.
Create a vNIC	Creates a vNIC.
Create a vNIC from a template	Creates a vNIC from a template.
Create a vNIC template	Creates a vNIC template.
Update a LAN pin group	Updates a LAN pin group.
Update a vNIC	Updates a vNIC.

Organization Workflows

The Organizations workflow category contains workflows related to organization management.

You can access these workflows from **Library > UCS Manager > Organizations**.

Workflow Name	Description
Add a MAC block to a pool	Adds a block of MAC addresses to a MAC pool.
Create an empty MAC pool	Creates an empty MAC pool with a name, description, size, and starting MAC address.
Create an organization	Creates an organization.
Update an organization	Edits an existing organization.

Policy Workflows

The Policies workflow category contains workflows related to policy management.

You can access these workflows from **Library > UCS Manager > Policies**.

Workflow Name	Description
Create a boot policy	Creates a boot policy.
Create a Fibre Channel adapter policy	Creates a Fibre Channel adapter policy.
Create a local disk configuration policy	Creates a local disk configuration policy.
Create a placement profile	Creates a placement profile.
Create a serial over LAN policy	Creates a serial over LAN policy.
Update a boot policy	Updates a boot policy.
Update a Fibre Channel adapter policy	Updates a Fibre Channel adapter policy.
Update a local disk configuration policy	Updates an existing local disk configuration policy.
Update a serial over LAN policy	Updates an existing serial over LAN policy.

Pool Workflows

The Pools workflow category contains workflows related to pool management.

You can access these workflows from **Library > UCS Manager > Pools**.

Workflow Name	Description
Create a UUID suffix pool	Creates a UUID suffix pool, which consists of UUID suffix blocks.
Create a block of UUID suffixes	Creates a block of UUID suffixes.
Update a UUID suffix pool	Updates an existing UUID suffix pool.

Profile Workflows

The Profiles workflow category contains workflows related to service profile and service profile template management.

You can access these workflows from **Library > UCS Manager > Profiles**.

Workflow Name	Description
Create a user in an IPMI profile	Creates a user in an IPMI profile.
Create an IPMI profile	Creates a new IPMI profile.
Update a user in an IPMI profile	Updates the details of a user in an IPMI profile.
Update an IPMI profile	Updates an existing IPMI profile.

Profile Template Workflows

The Profile Templates workflow category contains workflows related to service profile template management.

You can access these workflows from **Library > UCS Manager > Profiles > Profile Templates**.

Workflow Name	Description
Assign a VSAN to a service profile template	Assigns a VSAN to a service profile template.
Associate a local disk configuration policy to a service profile template	Associates a local disk configuration policy to a service profile template.
Associate a serial over LAN policy to a service profile template	Associates a serial over LAN policy to a service profile template.
Associate an IPMI profile policy to a service profile template	Associates an IPMI profile policy to a service profile template.
Attach a boot policy to a service profile template	Associates a boot policy to a service profile template.
Change the UUID pool of a service profile template	Changes the UUID pool of a service profile template.
Change the WWNN assignment of a service profile template	Changes the WWNN assignment of a service profile template.
Create a basic service profile template	Creates a basic service profile template, taking only name, type, and description as parameters.
Create or update vNIC and vHBA placement (template)	Creates or updates vNIC and vHBA placement.
Deassign a VSAN from a service profile template	Deassigns a VSAN from a service profile template.
Disassociate a local disk configuration policy from a service profile template	Disassociates the local disk configuration policy from a selected service profile template.
Disassociate a serial over LAN policy from a service profile template	Disassociates the serial over LAN policy from a selected service profile template.
Disassociate an IPMI profile policy from a service profile template	Disassociates the IPMI profile policy from a selected service profile template.

Service Profile Workflows

The Service Profiles workflow category contains workflows related to service profile management.

You can access these workflows from **Library > UCS Manager > Profiles > Service Profiles**.

Workflow Name	Description
Assign a service profile to a blade	Attaches a service profile to a blade.
Assign a VSAN to a service profile	Assigns a VSAN to a service profile.

Workflow Name	Description
Associate a local disk configuration policy to a service profile	Associates a local disk configuration policy to a service profile.
Associate a serial over LAN policy to a service profile	Associates a serial over LAN policy to a service profile.
Associate an IPMI profile policy to a service profile	Associates an IPMI profile policy to a service profile.
Attach a boot policy to a service profile	Associates a boot policy to a service profile.
Change the UUID pool of a service profile	Creates an address block inside a WWPN pool.
Change the WWNN assignment of a service profile	Changes the WWNN assignment of a service profile.
Create a basic service profile	Creates a basic service profile, taking only name and description as parameters.
Create a service profile from a template and assign it to a blade	Creates a new service profile from a template and associates it with a blade.
Create or update vNIC and vHBA placement	Creates or updates vNIC and vHBA placement.
Create service profiles from a template	Creates new service profiles from an existing service profile template.
Deassign a VSAN from a service profile	Deassigns a VSAN from a selected service profile.
Deassign a service profile from a blade	Deassigns a selected service profile from the blade to which it is attached.
Detach boot policy from a service profile	Detaches the boot policy from a selected service profile.
Disassociate a local disk configuration policy from a service profile	Disassociates the local disk configuration policy from a selected service profile.
Disassociate a serial over LAN policy from a service profile	Disassociates the serial over LAN policy from a selected service profile.
Disassociate an IPMI profile policy from a service profile	Disassociates the IPMI profile policy from a selected service profile.
Export a service profile to XML	Exports a service profile as an XML file and stores it on the Orchestrator server.
Import a service profile from XML	Imports a service profile from an XML file on the Orchestrator server.
Wait for an event on a service profile	Waits for an event to occur on a service profile.

Storage Workflows

The Storage workflow category contains workflows related to storage management.

You can access these workflows from **Library > UCS Manager > Storage**.

Workflow Name	Description
Create a vHBA	Creates a vHBA and assigns it to a service profile.
Create a vHBA template	Creates a vHBA template.
Update a vHBA	Updates a vHBA.
Update a vHBA template	Updates a vHBA template.

Storage Pool Workflows

The pools workflow category contains workflows related to storage pool management.

You can access these workflows from **Library > UCS Manager > Storage > Pools**.

Workflow Name	Description
Remove a WWN address block	Removes a WWN address block from a WWNN or WWPN pool.

WWNN Pool Workflows

The WWNN workflow category contains workflows related to WWNN pool management.

You can access these workflows from **Library > UCS Manager > Storage > Pools > WWNN**.

Workflow Name	Description
Create a WWNN address block	Creates an address block inside a WWNN pool.
Create a basic WWNN pool	Creates a WWNN pool only with a name and description.

WWPN Pool Workflows

The WWPN workflow category contains workflows related to WWPN pool management.

You can access these workflows from **Library > UCS Manager > Storage > Pools > WWPN**.

Workflow Name	Description
Create a WWPN address block	Creates an address block inside a WWPN pool.
Create a basic WWPN pool	Creates a WWPN pool only with a name and description.

VSAN Workflows

The VSAN workflow category contains workflows related to VSAN management.

You can access these workflows from **Library > UCS Manager > VSAN**.

Workflow Name	Description
Create a VSAN	Creates a VSAN.
Update a VSAN	Updates a VSAN.

Creating Custom UCS Manager Plug-In Workflows

You can use the Orchestrator client to create custom workflows for the UCS Manager plug-in.

In the workflows you create, you can combine standard workflows from the workflow library of the plug-in and add custom elements. For more information about workflow development, see the *vCenter Orchestrator Developer's Guide*.

Create a Custom Workflow

You can create a custom UCS Manager plug-in workflow that creates and configures a service profile and attaches it to a blade.

The tasks performed in this use case scenario are standard workflows from the UCS Manager plug-in workflow library. This is an example of multistep process automation.

Prerequisites

- Review the information about developing workflows. See the *vCenter Orchestrator Developer's Guide*.
- Review the example workflow schema. See "Example Workflow Schema," on page 22.
- Verify that you are logged in to the Orchestrator client as an administrator.

Procedure

1 Create a new workflow.

   For example, you can name the workflow Install a new service profile.

2 Use the **Schema** tab in the workflow editor to build the workflow.

3 Add the Create a basic service profile workflow to the schema.

   a Link the starting point of the custom workflow to the Create a basic service profile workflow.

   b Add a Throw exception element.

   c Create an exception binding.

4 Add workflows that edit the service profile.

   a Add the Create a vHBA workflow to the schema.

   b Link the Create a basic service profile workflow to the Create a vHBA workflow.

   c Add the Create a vNIC workflow to the schema.

   d Link the Create a vHBA workflow to the Create a vNIC workflow.

   e Add the Attach a boot policy to a service profile workflow to the schema.

   f Link the Create a vNIC workflow to the Attach a boot policy to a service profile workflow.

   g Add a Throw exception element.

   h Create exception bindings from the three workflows to the Throw exception element.

5 Add the Assign a service profile to a blade workflow to the schema.

   a Link the Attach a boot policy to a service profile workflow to the Assign a service profile to a blade workflow.

   b Add a Throw exception element.

   c Create an exception binding.

6 Add the Wait for an event on a service profile workflow to the schema.

   a Link the Assign a service profile to a blade workflow to the Wait for an event on a service profile workflow.

   b Add a Throw exception element.

   c Create an exception binding.

7 Add custom tasks that depend on the result of the workflow run.

   a Add a Decision element.

   b Link the Wait for an event on a service profile workflow to the Decision element..

   c Add a Scriptable task element for a successful scenario.

   d With a Success path, link the Decision element to the Scriptable task element for a successful scenario.

   e Add a Scriptable task element for an unsuccessful scenario.

   f With a Failiure path, link the Decision element to the Scriptable task element for an unsuccessful scenario.

8 Add end points for the possible outcomes of the workflow.

   a Add a Throw exception element.

   b Link the unsuccessful scenario Scriptable task element to the Throw exception element.

c Add an End workflow element.

d Link the successful scenario Scriptable task element to the End workflow element.

9 Edit the workflow elements.

a From the **General** tab, edit the workflow description and attributes.

b From the **Inputs** tab, edit the input parameters.

c From the **Outputs** tab, edit the output parameters .

d From the **Presentation** tab, edit the presentation.

10 From the **Schema** tab, validate the workflow.

11 Save the workflow.

What to do next

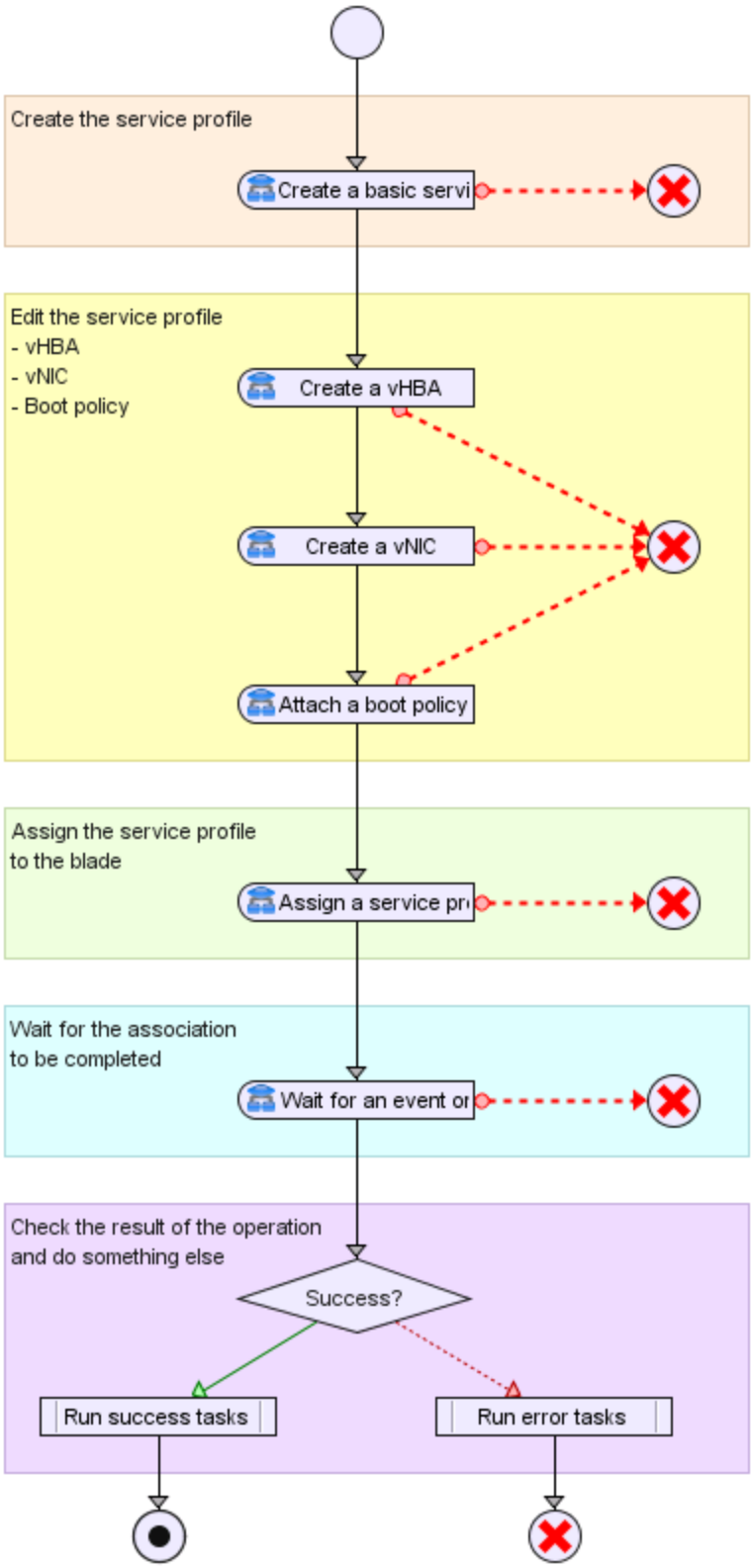
You can run the custom workflow, and verify that the elements are created and configured correctly in the UCS Manager plug-in inventory and in the Cisco UCS Manager console.

Example Workflow Schema

You can use the example schema as a guideline for creating a custom use case scenario workflow that installs a new service profile in the UCS environment.

Figure 3-1 shows an example schema that you can recreate when you build the custom workflow.

Figure 3-1. Install a New Service Profile Workflow Example Schema



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