Managing a Virtual Infrastructure

This chapter contains the following sections:

About Managing VMware

Cisco UCS Director supports VMware through vCenter (ESX 3.5, ESX/ESXi 4.x and 5.x). Cisco UCS Director automatically discovers all existing virtual machines (VMs) and images in the newly added cloud account. Typically, the discovery process takes about 5 minutes. You can add VMware clouds and PowerShell agents.

Note The term "cloud" refers to one vCenter installation.

Cisco UCS Director supports inventory collection and VM provisioning using multiple datacenters and clusters. When creating a VMware cloud, you can choose the option to discover and select multiple datacenters and clusters. Once you add a discovered datacenter and cluster to a cloud, you cannot de-select them from the cloud by editing it. However, you can edit the cloud to add extra datacenters and clusters.

Note Cisco UCS Director does not support the creation of clouds that use the same vCenter account. If there are duplicate accounts, you cannot create a VMware Cloud. In addition, if there are duplicate accounts, VM provisioning fails and an error appears in the status for the virtual account. The **Test Connectivity** function also fails with the error message. This error also occurs if the same server with the same combination of clusters is used in different clouds.

To disable this functionality, you can manually modify the `vmware.properties` file in the `cd /opt/infra/inframgr` directory to allow duplicate account IDs by setting the `allowDuplicateClouds` field to true. By default the field is set to false.

When upgrading from a previous release, all duplicate accounts display a failed connection status. Though an error message displays, all the actions can still be executed on the VMs.

Creating a Cloud

When creating a cloud, you can specify a datacenter and clusters in one of the following ways:

- Within the credential policy
- In the **VMware Datacenter** and **VMware Cluster** fields
- From the **Discover Datacenters / Clusters** check box

Note Either a datacenter within the credential policy or the VMware datacenter and VMware cluster can be selected. Specifying the datacenter in the **Add Cloud** dialog box and in the credential policy form results in an error.

Step 1 On the menu bar, choose **Administration** > **Virtual Accounts**.

Step 2 Choose the **Virtual Accounts** tab.

Step 3 Click **Add (+)**.

Step 4 In the **Add Cloud** dialog box, complete the following fields:

Name	Description
Cloud Type drop-down list	Displays the available cloud types. Choose VMware. **Note** The following fields are displayed when VMware is chosen. Other cloud types display fields that are specific to that cloud type.
Cloud Name field	The cloud name. The name cannot include single quotes. **Note** Each cloud requires a unique name in Cisco UCS Director. Once a cloud has been added, all reports refer to the cloud using the Cloud Name.
Server Address field	The vCenter server address
Use Credential Policy check box	Check this check box if you want to use a credential policy for this account rather than enter the information manually.
Server User ID field	The vCenter server username.
Server Password field	The vCenter server password.
Server Access Port field	The server port number.
VMware Datacenter field	The data center name on the vCenter account.

Name	Description
VMware Cluster field	The name of the VMware cluster in the vCenter account. This name allows you to discover, monitor, and manage the specified pod's resources. Leave the field blank if the entire vCenter account is managed by Cisco UCS Director.
Discover Datacenters / Clusters check box	Check this check box to discover and use any VMware datacenters and associated VMware clusters.
Select Datacenters / Clusters field	Check the associated datacenters and clusters you want to use. **Note** This field is visible only when you check the **Discover Datacenters / Clusters** check box.
Enable SRM check box	Check this check box to enable Site Recovery Manager (SRM) for the account.
Primary SRM Server Address field	The IP address of the primary SRM server. **Note** This field is visible only when you check the **Enable SRM** check box.
Primary SRM Server User ID field	The user ID for the primary SRM server. **Note** This field is visible only when you check the **Enable SRM** check box.
Primary SRM Server Password field	The password of the user for the primary SRM server. **Note** This field is visible only when you check the **Enable SRM** check box.
Primary SRM Server Access Port field	The port number for the primary SRM server. For SRM version 6.0, enter 9086 as the port number. **Note** This field is visible only when you check the **Enable SRM** check box.
Remote SRM Server User ID field	The user ID for the remote SRM server. **Note** This field is visible only when you check the **Enable SRM** check box.
Remote SRM Server Password field	The password of the user ID for the remote SRM server. **Note** This field is visible only when you check the **Enable SRM** check box.
Use SSO check box	Check this check box to use Single Sign-On (SSO) for authentication. The SSO option is only available for Virtual SAN (VSAN). SSO credentials are required for VM provisioning using storage profiles on the Virtual SAN cluster.

Name	Description
SSO Server Address field	The IP address of the Single-Sign On server. **Note** This field is visible only when you check the **Use SSO** check box.
SSO Server User ID field	The user ID for the SSO server. **Note** This field is visible only when you check the **Use SSO** check box.
SSO Server Password field	The password of the user ID for the SSO server. **Note** This field is visible only when you check the **Use SSO** check box.
SSO Server Access URL field	The URL for SSO server access. **Note** This field is visible only when you check the **Use SSO** check box.
SSO Server Access Port field	The port number. For vCenter version 5.x, enter 7444 as the port number. **Note** This field is visible only when you check the **Use SSO** check box.
Server Access URL field	The URL for server access.
Description field	The description of the cloud.
Contact Email field	The contact email address for the cloud.
Location field	The location.
Pod drop-down list	Choose the converged infrastructure pod. When you choose a pod name, the VMware cloud account is made available in the converged infrastructure stack. **Note** You cannot add more than one virtual account to a virtual SAN pod.
Service Provider field	The service provider's name.

Step 5 Click **Add**.

Downloading the PowerShell Agent Installer

The PowerShell Agent is installed on Windows Server 2008 R2 or Windows Server 2012 64-bit virtual machines.

Step 1 On the menu bar, choose **Administration** > **Virtual Accounts**.

Step 2 Choose the **PowerShell Agents** tab.

Step 3 Click **Download Installer**.

Step 4 In the **Download Agent Installer** dialog box, check if your system meets the listed installation requirements.

Step 5 If the requirements are met, click **Submit**.
The **Opening PSASetup. exe** dialog box prompts you to save the executable file.

Step 6 Click **Save File**.
The file is saved to your system's download location.

Step 7 Install the **PSASetup. exe file** on your Windows Server 2008 R2 or Windows Server 2012 64-bit virtual machine (VM).

Creating a PowerShell Agent

Step 1 On the menu bar, choose **Administration** > **Virtual Accounts**.

Step 2 Choose the **PowerShell Agents** tab.

Step 3 Click **Add (+)**.

Step 4 In the **Add Agent** dialog box, complete the following fields:

Name	Description
Agent Name field	The agent name.
Agent Address field	The agent address.
Agent Access Port field	The agent access port number.
Access Key field	The access key.
Description field	The description of the agent.

Verifying Cloud Discovery and Connectivity

Testing the Connection

SUMMARY STEPS

1. On the menu bar, choose **Administration** > **Virtual Accounts**.
2. Choose the **Virtual Accounts** tab.
3. Choose the VMware account that you want to test.
4. Click **Test Connectivity**.
5. On the menu bar, choose **Virtual** > **Compute.**
6. Choose the **Summary** tab.
7. Choose the cloud name to view its status details.

DETAILED STEPS

Step 1 On the menu bar, choose **Administration** > **Virtual Accounts**.

Step 2 Choose the **Virtual Accounts** tab.

Step 3 Choose the VMware account that you want to test.

Step 4 Click **Test Connectivity**.
There is no progress bar that displays the results of the connectivity test. Use the **Summary** tab to verify that the cloud account is added and its data is collected.

Step 5 On the menu bar, choose **Virtual** > **Compute.**

Step 6 Choose the **Summary** tab.
It can take a few minutes to complete autodiscovery and populate the data.

Step 7 Choose the cloud name to view its status details.

Viewing vCenter Plug-ins

Step 1 On the menu bar, choose **Administration** > **Virtual Accounts**.

Step 2 Choose the **Plugins** tab.
This tab lists all the vCenter plug-ins that are added to Cisco UCS Director.

Provisioning Virtual Machines in Cisco UCS Director

Provisioning virtual machines in Cisco UCS Director is a multi-step process. It involves steps such as creating a virtual account, creating policies, and creating catalogs and service requests. Prior to starting this task, as an administrator, determine the following:

- The cluster in which the VM must be deployed
- The datastores within the cluster that are available for VM provisioning
- The available network within the cluster in which the VM must be deployed

Attention In the absence of this information, if you select invalid datastores or an incorrect network for a cluster, VM provisioning in Cisco UCS Director fails.

The process of provisioning a VM in Cisco UCS Director can be summarized as:

1. Create a user group.

   For more information, see Creating a User Group.

2. Create a virtual account.

   A VM is provisioned within a virtual account in Cisco UCS Director. For more information, see Creating a Cloud, on page 2.

3. Create a VMware system policy.

   This policy defines the system-specific information for the VM. You must specify the VM naming template to use, the OS to be configured, and the domain in which the VM must be provisioned. For more information, see Configuring a System Policy.

4. Create a VMware computing policy.

   Computing policies determine the compute resources that can be used during provisioning to satisfy group or workload requirements. The cluster that you specify in this policy determines the choices you make in subsequent policies. For more information, see Creating a Computing Policy.

5. Create a storage policy.

   A storage policy defines resources such as the datastore scope, type of storage to use, minimum conditions for capacity, latency, and so on. For more information, see Adding and Configuring a Storage Policy.

6. Create a network policy.

   The network policy defines resources such as network settings, DHCP or static IP, and the option to add multiple vNICs for provisioning VMs. For more information, see Configuring a Network Provisioning Policy.

7. Create a virtual data center.

   A Virtual Data Center (VDC) is an environment that combines virtual resources, operational details, rules, and policies. While creating a VDC, select the user group that you created for VM provisioning, and select the cloud that you specified while creating the policies. Based on the cloud account that you select, all the subsequent policy-related fields are populated. For more information, see Adding a Virtual Data Center.

8. Create a catalog to select a template.

You can self-provision virtual machines (VMs) using predefined catalog items. A catalog defines parameters such as the cloud name and the group name to which the VM is bound. For more information, see Publishing a Catalog.

9 Create and submit a service request.

You can use the self-service provisioning feature to create a service request to provision virtual machines (VMs), services, or applications. The service request process produces a provisioning workflow for VM creation. For more information, see Creating a Service Request with Catalog Type—Standard.

After you submit a service request, a workflow is triggered, and the VM is provisioned.

The following image illustrates the workflow to provision a VM in Cisco UCS Director.

Figure 1: Workflow for Provisioning a Virtual Machine in Cisco UCS Director