

# Using vCloud Connector

vCloud Connector 2.0.0

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# Using vCloud Connector

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*Using vCloud Connector* provides information on using VMware vCloud<sup>®</sup> Connector<sup>™</sup> to connect and oversee multiple clouds and to move cloud content from one cloud to another.

## Intended Audience

This information is intended for anyone who wants to use vCloud Connector to connect and oversee multiple clouds in a single user interface. The information is written for cloud system administrators who are familiar with vSphere and vCloud Director and basic cloud concepts.

You should also be familiar with VMware vCloud<sup>®</sup> Networking and Security<sup>™</sup> and with networking concepts to use advanced vCloud Connector features.



# Working with Clouds

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You can use vCloud Connector to connect and oversee multiple clouds and to move cloud content from one cloud to another.

You can accomplish many basic cloud tasks using vCloud Connector.

- [Access vCloud Connector](#) on page 8  
You can access vCloud Connector through the vSphere Client to which it is registered.
- [Add a Cloud to vCloud Connector](#) on page 9  
To use vCloud Connector to oversee a cloud, you must first add the cloud to the vCloud Connector UI.
- [Update a Cloud in vCloud Connector](#) on page 9  
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- [Reload a Cloud in vCloud Connector](#) on page 10  
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- [Get Information About a Cloud](#) on page 10  
You can get information about a cloud that has been added to vCloud Connector. You can view its URL, type, user, public or private classification, and the time it was last updated.
- [Browse a Cloud Hierarchy](#) on page 10  
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- [Power On, Power Off, Suspend, Resume, or Reset a Virtual Machine or vApp](#) on page 12  
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- [Search for a Template, Virtual Machine, or vApp](#) on page 13  
You can search for virtual machines, vApps, or templates across all the clouds that have been added to vCloud Connector. Search results are displayed by category. The location of each instance is also displayed.
- [Access a Virtual Machine Console](#) on page 13  
You can open the console of a virtual machine in a cloud that has been added to vCloud Connector.

- [Monitor the Status of a Task](#) on page 14  
You monitor the status of tasks using the Tasks panel. You can view this information at two levels. Basic information about tasks (a list of tasks and their status: completed, failed, or in-progress) is displayed in the Tasks panel at the right of the screen. Detailed information is displayed in the center Tasks panel.
- [Get Detailed Information About Tasks](#) on page 14  
You can get detailed information about tasks in vCloud Connector. Information about tasks is visible in the UI for 48 hours.
- [Copy Virtual Machines, vApps, and Templates Between Clouds](#) on page 14  
You can use vCloud Connector to copy virtual machines, vApps, and templates between clouds that have been added to your vCloud Connector instance.
- [Deploy a Template as a Virtual Machine in a vSphere Cloud](#) on page 20  
From vCloud Connector, you can deploy a running instance of a virtual machine from a template that is on a vSphere cloud.
- [Deploy a Template as a vApp in a vCloud Director Cloud](#) on page 21  
From vCloud Connector, you can deploy a running instance of a vApp from a vApp template that is on a vCloud Director cloud.
- [Delete a Template, Virtual Machine, or vApp](#) on page 21  
You can use vCloud Connector to delete a template, virtual machine, or vApp from a cloud you have added.
- [Open the vCloud Director Management Console from vCloud Connector](#) on page 22  
You can open the vCloud Director management console for any vCloud Director cloud that you have added to your vCloud Connector instance.
- [Using vCloud Connector with Self-Signed Certificates](#) on page 22  
You can use vCloud Connector with self-signed certificates, although you should replace the certificates with valid certificates for production use. vCloud Connector Server and vCloud Connector Nodes include self-signed certificates.

## Access vCloud Connector

You can access vCloud Connector through the vSphere Client to which it is registered.

### Access vCloud Connector by Using the vSphere Client

When your vCloud Connector instance is registered with a vCenter Server, vCloud Connector acts as a client plug-in in vSphere Client.

#### Procedure

- 1 Log on to the vSphere Client.
- 2 Click **Home**.
- 3 On the home page, click the **vCloud Connector** icon in the Solutions and Applications area.
- 4 If you have not upgraded your SSL certificate and you receive a warning, accept the link.

## Add a Cloud to vCloud Connector

To use vCloud Connector to oversee a cloud, you must first add the cloud to the vCloud Connector UI.

When you add a cloud, you need to enter a user name and password for the cloud. The privileges or rights that are associated with the type of account you use to add the cloud determine the operations you can perform with vCloud Connector. For example, if you add a vCloud Director cloud with a vApp User role, you will not be able to copy from that cloud because you don't have the required rights to download a vApp template.

For access to complete functionality, use an Organization Administrator or System Administrator role, or a modified role that has equivalent rights, for a vCloud Director cloud. Similarly, for a vSphere cloud, use an Administrator account or an equivalent role.

### Prerequisites

A vCloud Connector Node is installed in the cloud you wish to add to your vCloud Connector UI and that Node is registered with the vCloud Connector Server.

### Procedure

- 1 Open vCloud Connector in the vSphere Client. For more information, see [“Access vCloud Connector,”](#) on page 8.
- 2 In the Browser panel on the left, click on **Clouds**.
- 3 In the Clouds panel, click the **Add** icon.  
The Add Cloud dialog box appears.
- 4 Select the cloud to add from the **Name** drop-down list.  
Only clouds whose Nodes are registered with the vCloud Connector Server are displayed.
- 5 Type the user name and password for an administrator account for that cloud.
- 6 Click **Add**.

The cloud appears in the **Clouds** tree in the Browser panel. Click on the cloud to view its inventory of templates, vApps, and virtual machines.

## Update a Cloud in vCloud Connector

You can update a cloud's credentials after you have added it to vCloud Connector.

The privileges or rights that are associated with the type of account you use to add the cloud determine the operations you can perform with vCloud Connector. For example, if you add a vCloud Director cloud with a vApp User role, you will not be able to copy from that cloud because you don't have the required rights to download a vApp template.

For access to complete functionality, use an Organization Administrator or System Administrator role, or a modified role that has equivalent rights, for a vCloud Director cloud. Similarly, for a vSphere cloud, use an Administrator account or an equivalent role.

### Prerequisites

The cloud has been added to your vCloud Connector instance and vCloud Connector is open.

### Procedure

- 1 In the Browser panel on the left, click **Clouds**.
- 2 In the Clouds panel, select a cloud, then click the **Edit** icon at the top of the panel.  
You can also right-click a cloud in the Browser panel and select **Edit**.

- 3 Update the user name and password in the Update Cloud dialog box, then click **Update**.

## Reload a Cloud in vCloud Connector

You can reload a cloud in vCloud Connector to view the latest content in the cloud.

Clouds with large workloads might take some time to reload.

### Prerequisites

The cloud has been added to vCloud Connector and vCloud Connector is open.

### Procedure

- 1 In the Browser panel on the left, click **Clouds**.
- 2 In the Clouds panel, select the cloud you want to reload, then click the **Reload** icon at the top of the panel.

You can also right-click the cloud in the Browser panel and select **Reload**.

## Get Information About a Cloud

You can get information about a cloud that has been added to vCloud Connector. You can view its URL, type, user, public or private classification, and the time it was last updated.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, click **Clouds**.

The Clouds panel in the center displays a table listing all the clouds that are added to vCloud Connector.

- 2 Select a cloud.

The Details panel below the table displays information about the cloud.

Property	Description
<b>Name</b>	The name used to register the cloud with the vCloud Connector Server during installation
<b>Type</b>	The type of the cloud: VMware vCenter Server cloud (a vSphere cloud) or VMware vCloud Director cloud. Also specifies the version of the cloud.
<b>URL</b>	The cloud URL
<b>User</b>	The user name with which the cloud was added to the vCloud Connector UI
<b>Classification</b>	The public or private status of the cloud

You can view the time the cloud was last updated in the Last Updated column of the table.

## Browse a Cloud Hierarchy

You can browse the hierarchy of clouds that you have added to vCloud Connector.

### Prerequisites

vCloud Connector is open.

**Procedure**

- ◆ In the Browser panel, expand the **Clouds** tree and browse the hierarchy of the cloud that you want to see. The Inventory panel displays the contents for each level of the hierarchy, based on the current selection in the Browser panel.

## View the Contents of a Cloud

You can view the contents of a cloud that you have added to vCloud Connector.

**Prerequisites**

vCloud Connector is open.

**Procedure**

- 1 In the Browser panel, click on **Clouds**.
- 2 To view all the templates, vApps, and virtual machines in the cloud, click on the cloud name. The Inventory panel displays the contents of the cloud.
- 3 To view the contents of a specific virtual datacenter, organization, folder, or catalog, expand the cloud hierarchy in the Browser panel and select the appropriate item. The Inventory panel displays only the contents of the item you selected.
- 4 To view details about a template, vApp, or virtual machine, select it in the Inventory panel. Information about the item is displayed below the table.

## Delete a Cloud in vCloud Connector

You can delete a cloud that you have added to vCloud Connector.

**Prerequisites**

vCloud Connector is open.

**Procedure**

- 1 In the Browser panel on the left, click **Clouds**.
- 2 In the Clouds panel, select a cloud and click the **Delete** icon at the top of the panel. You can also right-click a cloud in the Browser panel and select **Delete**.

## Get Information about a Template, Virtual Machine, or vApp

You can view information about a template, virtual machine or vApp in vCloud Connector.

**Prerequisites**

vCloud Connector is open.

**Procedure**

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud that contains the virtual machine, vApp or template that you want to view. You can expand the hierarchy further and select a virtual datacenter, organization, folder, or catalog to view only its contents.

- 2 In the Inventory panel, click the **Templates, vApps, or Virtual Machines** tab, depending on what you want to view.

The Inventory panel displays the contents. You can sort the items in the table by the headers: **Name, Location, or Status**.

- 3 Click on an item in the table.

The Details panel appears below the table and displays information about the item you selected.

- For a template, you can view the CPU count, memory capacity, storage capacity and guest OS. (For templates in vCloud Director clouds, the guest OS is not displayed.)
- For a virtual machine, you can view the guest OS, memory capacity, and storage capacity, as well as the current CPU, memory, and storage usage. You can also view the parent vApp name, if applicable.
- For a vApp, you can see all the virtual machines that the vApp contains and view information about each of them.

In the table, you can also see the status of the item (stopped, suspended, or started), and the virtual datacenter to which it belongs.

## Power On, Power Off, Suspend, Resume, or Reset a Virtual Machine or vApp

You can use vCloud Connector to power on, power off, suspend, resume or reset a virtual machine or vApp in a cloud that has been added to vCloud Connector.

Any action on a vApp applies to all its virtual machines.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud that contains the virtual machine or vApp.

The Inventory panel displays all virtual machines, vApps, and templates in the cloud. You can narrow the results by using **Search** or by expanding the hierarchy further in the Browser panel and selecting a virtual datacenter, organization, or folder to view only its contents.

- 2 In the Inventory panel, click the **Virtual Machines** or **vApps** tab.

A list of virtual machines or vApps is displayed. You can view the current state of the virtual machine or vApp in the **Status** column.

- 3 Select a virtual machine or vApp.
- 4 Select the action to perform by clicking on an icon at the top of the Inventory panel or selecting it from the **Actions** drop-down list.

## Search for a Template, Virtual Machine, or vApp

You can search for virtual machines, vApps, or templates across all the clouds that have been added to vCloud Connector. Search results are displayed by category. The location of each instance is also displayed.

You can click on an item in the search results to view it in the Inventory panel. From there, you can perform any of the actions that are available for that virtual machine, template, or vApp. Details of the item are also displayed below the Inventory panel.

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**NOTE** A cloud must be loaded for its contents to be included in the search results. After you add a cloud, it is loaded only when you select it in the Browser panel. You can reload a cloud subsequently by right-clicking it and selecting **Reload**.

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### Procedure

- 1 In the Browser panel, click **Search**.
- 2 In the **Search** field, type the full or partial name (any string) of the item you want to find, then click **Search**.  
  
Search results are displayed by category in three tabs: **Templates**, **vApps**, and **Virtual Machines**. The tab title also displays the number of results in each category.
- 3 Select a tab to view the results in that category.  
  
The location of each item is also displayed.
- 4 Click on an item to view it in the Inventory panel.  
  
Actions available for the item you selected are displayed at the top of the panel. Details of the item are displayed in the Details area below the Inventory panel.
- 5 To return to your search results, click **Search** again in the Browser panel.

## Access a Virtual Machine Console

You can open the console of a virtual machine in a cloud that has been added to vCloud Connector.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud that contains the virtual machine.
- 2 Click the **Virtual Machines** tab.
- 3 Locate the virtual machine whose console you want to access.  
  
You can narrow the results by using **Search** or by expanding the cloud hierarchy in the Browser panel and selecting a sub-folder.
- 4 If the virtual machine is powered off or suspended, select it and click the **Power On** or **Resume** icon to start it.
- 5 Select the virtual machine, then double-click the console thumbnail that appears in the Details panel below the table.

If the thumbnail next to the virtual machine information is not clickable, the virtual machine is powered off or suspended. You need to power it on to access its console.

If the VMware Remote Console plug-in is not installed, you are prompted to install it.

The console opens in a new browser window.

## Monitor the Status of a Task

You monitor the status of tasks using the Tasks panel. You can view this information at two levels. Basic information about tasks (a list of tasks and their status: completed, failed, or in-progress) is displayed in the Tasks panel at the right of the screen. Detailed information is displayed in the center Tasks panel.

Tasks are visible in the UI for 48 hours.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 If the Tasks panel on the right of the screen is minimized, click the pin icon to display it fully.
- 2 Select the tab for the type of status you want to see: **All**, **Running**, or **Failed** tasks.
- 3 To view detailed information about a specific task, click on the task.

The center panel changes to a Tasks panel and displays details about the task.

See also [“Get Detailed Information About Tasks,”](#) on page 14.

## Get Detailed Information About Tasks

You can get detailed information about tasks in vCloud Connector. Information about tasks is visible in the UI for 48 hours.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 Open the Tasks panel by doing one of the following:
  - In the Browser panel, click **Tasks**.
  - In the Tasks panel, click **All Tasks** or double-click a task.

The center panel changes to a Tasks panel and displays a table of all the tasks that you performed in the last 48 hours. You can view the type of task, its status, and relevant information such as the source and destination cloud for a copy task.

- 2 To see more details about a task, select it in the table.

Detailed information appears below the table: the time it took to complete the task; the different phases of the task, if applicable; the user name of the person who initiated the task; and other relevant information.

This helps you monitor and troubleshoot tasks that you perform with vCloud Connector.

## Copy Virtual Machines, vApps, and Templates Between Clouds

You can use vCloud Connector to copy virtual machines, vApps, and templates between clouds that have been added to your vCloud Connector instance.

## How Objects are Copied

You can use vCloud Connector to copy virtual machines, vApps, and templates between clouds that have been added to your vCloud Connector instance.

You can copy objects between two vSphere clouds, between two vCloud Director clouds, and between vSphere and vCloud Director clouds.

### Copying From a vSphere Cloud

The following table illustrates how virtual machines, vApps, and templates are copied from a vSphere cloud to different destinations.

**Table 1-1.** Copying From vSphere

Type of Object	Destination: vSphere	Destination: vCloud Director
Virtual machine	Virtual machine	vApp template
vApp	vApp	vApp template
VM template	VM template	vApp template

### Copying From a vCloud Director Cloud

The following table illustrates how objects are copied from a vCloud Director cloud to different destinations.

**Table 1-2.** Copying From vCloud Director

Type of Object	Destination: vSphere	Destination: vCloud Director
vApp containing one VM	VM	vApp template
vApp containing multiple VMs	vApp	vApp template
vApp template containing one VM	VM	vApp template
vApp template containing multiple VMs	vApp	vApp template

### Concurrent Copies

You can start multiple copy tasks at the same time. The copy tasks are executed in parallel. By default, vCloud Connector executes a maximum of 10 concurrent tasks per cloud (that is, per vCloud Connector Node). If you specify more than 10 tasks, the first 10 tasks are executed concurrently. When a task finishes, the next one in the queue is executed.

As copy tasks involve both a source cloud and a destination cloud, the concurrent tasks limit applies to both the source and destination clouds for copy tasks.

You can choose to increase the maximum number of concurrent tasks for a vCloud Connector Node. If you increase the limit, you must increase the Node storage as well. The amount of extra storage you need depends upon the size of your copy tasks. Approximately 50 GB is recommended per added task. Note that you should do this on both the source and destination clouds.

See [Increase Maximum Concurrent Tasks](#) in *Installing and Configuring vCloud Connector* for more information.

## Copy a Template to a vSphere Cloud

You can copy templates from one cloud to another. You can choose to automatically deploy a template after copying it.

You can start multiple copies at the same time. The copies are executed in parallel. By default, vCloud Connector executes a maximum of 10 concurrent tasks per cloud.

See [“How Objects are Copied,”](#) on page 15 for more information about the Copy command.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud that contains the template you want to copy.  
The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.
- 2 In the Inventory panel, click the **Templates** tab, then select the template you want to copy.
- 3 Click the **Copy** icon at the top of the panel or select **Copy** from the **Actions** drop-down menu.
- 4 Select the destination cloud to which to move the template.
- 5 Type a name for the template. If you do not specify a name, the default name is the name of the source template with the prefix Copy of.

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**NOTE** You cannot use the following characters in the name: % . # & < >

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- 6 Select the destination folder for the template, then click **Next**.
- 7 Select the cluster, host, vApp, or resource pool in which to store the template, then click **Next**.
- 8 Select a virtual disk format and a datastore, then click **Next**.
- 9 If you want to deploy the template after copying it, specify your selections in the Deployment Options page.
  - ◆ If you are copying a template from a vCloud Director cloud, you can select **Power on vApp after deployment**.
  - ◆ If you are copying a template from a vSphere cloud, select the appropriate options.

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Option	Description
<b>Deploy VM after copy</b>	Deploys a VM from the template after copying the template to the destination cloud.
<b>Power on VM after deployment</b>	Powers on the deployed VM.
<b>Remove template from destination folder</b>	Removes the template from the destination folder after deploying the VM.

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- 10 In the Ready to Complete page, review your selections, then click **Finish**.

To monitor the progress of your copy, see the Tasks panel on the right. A copy task appears. To view detailed information about the task, click on it.

The template is copied, and deployed if you selected the deploy option. You might need to reload the destination folder to see the results.

## Copy a Template to a vCloud Director Cloud

You can copy templates from one cloud to another. You can choose to automatically deploy a template after copying it.

You can start multiple copies at the same time. The copies are executed in parallel. By default, vCloud Connector executes a maximum of 10 concurrent tasks per cloud.

See [“How Objects are Copied,”](#) on page 15 for more information about the Copy command.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud that contains the template you want to copy.  
The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.
- 2 In the Inventory panel, click the **Templates** tab, then click on the template you want to copy.
- 3 Click the **Copy** icon at the top of the panel or select **Copy** from the **Actions** drop-down menu.
- 4 Select the destination cloud to which to move the template.
- 5 Type a name and description for the vApp template in the destination cloud. If you do not specify a name, the default name is the name of the source template with the prefix **Copy of**.

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**NOTE** You cannot use the following characters in the name: % . # & < >

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- 6 Select a catalog in which to store the template, then click **Next**.
- 7 Select a virtual datacenter, then click **Next**.
- 8 If you want to deploy the vApp template after copying it, select the appropriate options in the Deployment Options page.

Option	Description
<b>Deploy vApp after copy</b>	Deploys a vApp from the template after copying the template to the destination cloud. If you select this option, a <b>Select network configuration</b> option appears. You need to select a network for the vApp in the vCloud Director cloud.
<b>Power on vApp after deployment</b>	Powers on the deployed vApp.
<b>Remove temporary vApp template in destination vCloud catalog</b>	Removes the vApp template from the catalog in the destination cloud after deploying the vApp.

- 9 In the Ready to Complete page, review your selections, then click **Finish**.

To monitor the progress of your copy, see the Tasks panel on the right. A copy task appears. To view detailed information about the task, click on it.

The template is copied, and deployed if you selected the deploy option. You might need to reload the destination catalog to see the vApp template.

## Copy a Virtual Machine or a vApp to a vSphere Cloud

You can copy a virtual machine or vApp from one cloud to another. You must power down the virtual machine or vApp before you copy it.

You can start multiple copies at the same time. The copies are executed in parallel. By default, vCloud Connector executes a maximum of 10 concurrent tasks per cloud.

See [“How Objects are Copied,”](#) on page 15 for more information about the Copy command.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel on the left, expand the **Clouds** tree and select the cloud that contains the virtual machine or vApp that you want to copy.  
  
The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.
- 2 In the Inventory panel, click the **vApps** or **Virtual Machines** tab and select the item you want to copy.
- 3 If the virtual machine or vApp is powered on, click the **Power Off** icon at the top of the panel to power it off.

- 4 Click the **Copy** icon at the top of the panel.

The Copy wizard appears.

- 5 If you are copying from a vCloud Director cloud, in the **Select a catalog** page, select a catalog in which to store a temporary vApp template, then click **Next**.

The temporary vApp template will be deleted after the vApp is copied.

The **Select a catalog** page does not appear if you are copying from a vSphere cloud.

- 6 Select the destination cloud for the virtual machine or vApp.
- 7 Type a name for the virtual machine or vApp. If you do not specify a name, the default name is the name of the source virtual machine or vApp with the prefix **Copy of**.

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**NOTE** You cannot use the following characters in the name: % . # & < >

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- 8 Select the destination folder, then click **Next**.
- 9 Select a cluster, host, vApp, or resource pool in which to store the item, then click **Next**.
- 10 Select a virtual disk format and a datastore, then click **Next**.
- 11 If you want to power on the virtual machine or vApp after you deploy it, select the **Power on VM/vApp after deployment** option.
- 12 In the Ready to complete page, review your selections, then click **Finish**.

To monitor the progress of your copy, see the Tasks panel on the right. A copy task appears. To view detailed information about the task, click on it.

The virtual machine or vApp is copied. You might need to reload the destination cloud to see the copied virtual machine or vApp.

## Copy a Virtual Machine or a vApp to a vCloud Director Cloud

You can copy a virtual machine or vApp from one cloud to another. You must power down the virtual machine or vApp before you copy it.

When you copy to a vCloud Director cloud, the virtual machine or vApp is copied as a vApp template.

You can use the deployment options to automatically deploy a vApp from the vApp template after it is copied.

You can start multiple copies at the same time. The copies are executed in parallel. By default, vCloud Connector executes a maximum of 10 concurrent tasks per cloud.

See [“How Objects are Copied,”](#) on page 15 for more information about the Copy command.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel on the left, expand the **Clouds** tree and select the cloud that contains the virtual machine or vApp that you want to copy.  
  
The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.
- 2 In the Inventory panel, click the **vApps** or **Virtual Machines** tab and select the item you want to copy.
- 3 If the virtual machine or vApp is powered on, click the **Power Off** icon at the top of the panel to power it off.
- 4 Click the **Copy** icon at the top of the panel.
- 5 If you are copying from a vCloud Director cloud, in the **Select a catalog** page, select a catalog in which to store a temporary vApp template, then click **Next**.

This is a vCloud Director requirement. The temporary vApp template will be deleted after the vApp is copied.

The **Select a catalog** page does not appear if you are copying from a vSphere cloud.

- 6 Click **Next**.
- 7 Select the destination cloud for the virtual machine or vApp.
- 8 Type a name and description for the virtual machine or vApp. If you do not specify a name, the default name is the name of the source item with the prefix Copy of.

---

**NOTE** You cannot use the following characters in the name: % . # & < >

---

- 9 Select a catalog in which to store the virtual machine or vApp, then click **Next**.
- 10 Select a virtual datacenter, then click **Next**.

- If you want to deploy the virtual machine or vApp after copying it, select the appropriate options in the Deployment Options page.

Option	Description
<b>Deploy vApp after copy</b>	Deploys a vApp after copying the virtual machine or vApp as a vApp template. If you select this option, a <b>Select network configuration</b> option appears. You need to select a network for the vApp in the vCloud Director cloud.
<b>Power on vApp after deployment</b>	Powers on the vApp after deploying it.
<b>Remove temporary vApp template in destination vCloud catalog</b>	After deploying the vApp, removes the vApp template from the destination catalog.

- In the Ready to Complete page, review your selections, then click **Finish**.

To monitor the progress of your copy, see the Tasks panel on the right. A copy task appears. To view detailed information about the task, click on it.

The virtual machine or vApp is copied as a vApp template. You might need to reload the destination cloud to see the vApp template or deployed vApp.

## Deploy a Template as a Virtual Machine in a vSphere Cloud

From vCloud Connector, you can deploy a running instance of a virtual machine from a template that is on a vSphere cloud.

### Prerequisites

vCloud Connector is open.

### Procedure

- In the Browser panel on the left, expand the **Clouds** tree and select the cloud that contains the template you want to deploy.

The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.

- Click the **Templates** tab in the Inventory panel.
- Select the template that you want to deploy, then click the **Deploy** icon at the top of the panel.
- In the Deploy Wizard, type a name for the virtual machine, then click **Next**.

---

**NOTE** You cannot use the following characters in the name: % . # & < >

---

- Select a folder for the virtual machine.
- Select a cluster, host, vApp, or resource pool in which to store the virtual machine, then click **Next**.
- Select a disk format and a datastore for the virtual machine, then click **Next**.
- If you want to power on the virtual machine after deploying it, select **Power on deployed entity**, then click **Next**.
- In the Ready to complete page, review your selections, then click **Finish**.

To monitor the progress of your deployment, see the **Tasks** panel on the right. You may need to refresh your screen to see the deployed instance.

---

**NOTE** All EULAs are accepted automatically by vCloud Connector during the deployment process.

---

## Deploy a Template as a vApp in a vCloud Director Cloud

From vCloud Connector, you can deploy a running instance of a vApp from a vApp template that is on a vCloud Director cloud.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel on the left, expand the **Clouds** tree and select the cloud that contains the template you want to deploy.  
The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.
- 2 Click the **Templates** tab in the Inventory panel.
- 3 Select the template that you want to deploy, then click the **Deploy** icon at the top of the panel.
- 4 In the Deploy Wizard, type a name and description for the vApp, then click **Next**.

---

**NOTE** Use only ASCII characters in the name. Names with non-ASCII characters do not display correctly. Also, the following characters are not allowed in the name: % . # & < >

---

- 5 Select a virtual datacenter in which to store the vApp.
- 6 Select a network for the vApp, then click **Next**.
- 7 Select the **Power on deployed entity** check box to automatically power on the vApp after it is deployed.
- 8 In the Ready to complete page, review your selections, then click **Finish**.

To monitor the progress of your deployment, see the Tasks panel on the right. You may need to refresh your screen to see the deployed vApp.

---

**NOTE** All EULAs are accepted automatically by vCloud Connector during the deployment process.

---

## Delete a Template, Virtual Machine, or vApp

You can use vCloud Connector to delete a template, virtual machine, or vApp from a cloud you have added.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud that contains the item that you want to delete.  
The Inventory panel displays all the contents of the cloud. You can narrow the results by using **Search** or by expanding the cloud hierarchy further in the Browser panel and selecting a sub-folder.
- 2 Click the **Templates**, **vApps**, or **Virtual Machines** tab, then select the item you want to delete.  
If a task is in progress for that item or if it is running, you cannot delete it.  
However, you can delete a template that has a task running; the template will be deleted after the task is completed.
- 3 If the item is currently running, click the **Power Off** icon at the top of the panel.

- 4 Click the **Delete** icon, then click **Delete** in the confirmation dialog box.

The item is deleted.

## Open the vCloud Director Management Console from vCloud Connector

You can open the vCloud Director management console for any vCloud Director cloud that you have added to your vCloud Connector instance.

### Prerequisites

vCloud Connector is open.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree to view all the clouds that have been added to your vCloud Connector instance.
- 2 Click on a vCloud Director cloud to expand its hierarchy.
- 3 Right click on an organization name, then select **Launch vCD UI** from the pop-up menu.

The log-in page for the vCloud Director console appears in a new browser window.

## Using vCloud Connector with Self-Signed Certificates

You can use vCloud Connector with self-signed certificates, although you should replace the certificates with valid certificates for production use. vCloud Connector Server and vCloud Connector Nodes include self-signed certificates.

If you get a certificate warning while logging on to the Admin Web consoles, accept the certificate. To avoid getting the warning upon each log in, import the certificate into your browser.

### Procedure

- ◆ To accept and import certificates

**Table 1-3.** Accepting and Importing Certificates

Browser	Action
Firefox	<ol style="list-style-type: none"> <li>1 Click <b>Add Exception</b> to accept the certificate.</li> <li>2 When you accept the certificate, select <b>Permanently store this exception</b> to import the certificate.</li> </ol>
Internet Explorer	<ol style="list-style-type: none"> <li>1 Click <b>Continue to this website</b> to accept the certificate.</li> <li>2 To import the certificate, select <b>Tools &gt; Internet Options</b>.</li> <li>3 Click the <b>Contents</b> tab and click on <b>Certificates</b>, then import the certificate.</li> </ol>
Chrome	<ol style="list-style-type: none"> <li>1 Click <b>Proceed anyway</b> to accept the certificate.</li> <li>2 To import the certificate, click the Chrome menu button, then select <b>Settings</b> and click <b>Show advanced settings</b>.</li> <li>3 In the <b>HTTPS/SSL</b> section, click <b>Manage certificates</b>, then import the certificate.</li> </ol>

# Using Advanced Features in vCloud Connector

---

# 2

Advanced features are available in the vCloud Connector 2.0 Advanced edition. To enable these features, you need a valid vCloud Suite 5.1 license key.

This chapter includes the following topics:

- [“Using Content Sync,”](#) on page 23
- [“Using Stretch Deploy \(Datacenter Extension\),”](#) on page 30

## Using Content Sync

Content Sync is only available in the vCloud Connector 2.0 Advanced edition. It is enabled when you enter a valid vCloud Suite 5.1 license key.

If you did not enter a license key while installing vCloud Connector, you must do so before you can use Content Sync. See [Entering the License Key for vCloud Connector Advanced Edition](#) in *Installing and Configuring vCloud Connector*.

## Content Sync Overview

The vCloud Connector Content Sync feature enables you to synchronize content across hybrid clouds. It allows you to have a master library of templates and to keep the templates synchronized among users across multiple clouds.

Users subscribe to content that is published to the master library, known as the Content Library. Any changes to subscribed items in the Content Library are automatically reflected in the users' local repositories. For example, if a template is added to a folder or catalog that is published to the Content Library, it is added to the user's repository as well at a pre-set interval.

With Content Sync, you can

- Distribute virtual machine templates or vApp templates across your organization.
- Ensure that all users across your organization, even if they are on different clouds (vSphere clouds, private vCloud Director clouds, or public vClouds) are using the same templates.

## About the Content Library

The vCloud Connector Content Library is a library of published folders or catalogs of templates to which users can subscribe. These templates can be virtual machine templates from vSphere clouds or vApp templates from vCloud Director clouds or public vClouds.

Any user of a vCloud Connector instance can publish a folder or catalog of templates to the Content Library and any user can subscribe to a published folder or catalog.

When a user subscribes to a folder or catalog, vCloud Connector copies the templates from the published folder to the user's subscription folder. Templates are copied as follows:

- Virtual machine templates from a published vSphere folder are copied as virtual machine templates to a subscription folder on vSphere and as vApp templates to a subscription catalog on vCloud Director.
- vApp templates from a published vCloud Director catalog are copied as vApp templates to a subscription catalog on vCloud Director. If the vApp template is a single-VM vApp template, it is copied as a VM to a subscription folder on vSphere; if the vApp template is a multi-VM vApp template, it is copied as a vApp to a subscription folder on vCloud Director.

Subsequently, any changes in the published folder are reflected automatically in the subscription folders as follows:

- If a template is added to the published folder or catalog, it is added to the subscription folders and catalogs.

---

**NOTE** In subscription catalogs on vCloud Director 1.5, the template is added with a timestamp appended to its name: mm-dd-yy:hh-mm.

---

- If a template is modified in the published folder or catalog, the modified template replaces the template in the subscription folders and catalogs. (The modified template is copied over with a timestamp appended to its name, then the original template is deleted and the modified template is renamed to the original name.)

---

**NOTE** In subscription catalogs on vCloud Director 1.5, the modified template does not replace the template in the subscription catalog. Instead, the modified template is always added with a timestamp appended to the template name: mm-dd-yy:hh-mm.

---

- If a template is deleted in the published folder or catalog, it is not deleted in the subscription folders and catalogs. If you wish to delete the template, you must do so manually.

vCloud Connector synchronizes subscription folders with published folders at 6-hour intervals.

The following terms are used in the context of a Content Library:

- **Published Folder:** A vSphere folder or vCloud Director catalog containing templates that has been published to the Content Library. Any user can publish a folder or catalog. A Published icon (  ) identifies published folders in the Browser panel.
- **Subscription Folder:** The destination folder or catalog that you specify when you subscribe to a Published Folder. Templates from the published folder are copied to the subscription folder. A Subscribed icon (  ) identifies subscription folders in the Browser panel.
- **Polling Interval:** The frequency at which your subscription folder is synchronized with the published folder. The default polling interval is 6 hours.

## Guidelines for Publishing and Subscribing

Use these guidelines while publishing or subscribing to content in the Content Library.

- Subscription (destination) folders or catalogs should not contain any content that Content Sync did not create. Specify an empty folder on a vSphere cloud or an empty catalog on a vCloud Director cloud when you set up your subscription and do not add any other content to it after you subscribe.

vCloud Connector assumes that subscription folders and catalogs are under its management. If a subscription folder or catalog contains other content, vCloud Connector might overwrite or delete it if naming conflicts occur.

- Do not use the same subscription folder or catalog for multiple subscriptions. For each published folder or catalog to which you subscribe, have a corresponding subscription folder or catalog.

If you use the same subscription folder or catalog for multiple subscriptions, vCloud Connector might overwrite or delete templates if naming conflicts occur.

- Nested folders and catalogs are ignored. vCloud Connector does not support publishing or subscribing to a hierarchy of templates. Only the templates at the top level of a folder or catalog are published to the Content Library.
- Content in a published folder that is not a template is ignored. For example, if the folder you publish contains both templates and virtual machines, only the templates are published to the Content Library.
- A folder or catalog can only be published once. Multiple users should not publish the same folder or catalog to the Content Library.
- Do not publish a subscription folder or catalog (that is, the destination folder or catalog for a subscription) to the Content Library.
- Do not use a published folder or catalog as a subscription folder.

## View the Content Library

You can view the Content Library to see all the published folders and catalogs to which you can subscribe, the folders or catalogs that you have published, and the folders and catalogs to which you are currently subscribed.

### Prerequisites

Verify that you entered a license key in the vCloud Connector Server Admin Web console. See [Entering the License Key for vCloud Connector Advanced Edition](#) in *Installing and Configuring vCloud Connector*.

### Procedure

- 1 In the Browser panel on the left, click **Content Library**.

The Inventory panel displays the Catalogs table that lists all published folders and catalogs. You can subscribe to any of these.

If the Catalogs table is empty, no folders or catalogs have been published to the Content Library.

- 2 To view the templates in a folder or catalog, select it in the table.

A Templates table appears below the Catalogs table. The Templates table lists all the templates in the selected folder or catalog, the size of each template, and the time it was last updated.

For each published folder or catalog, you can view the following information:

<b>Name</b>	The name of the folder or catalog
<b>Location</b>	The cloud that contains the published folder or catalog
<b>Publisher</b>	The user name of the person who published the folder or catalog to the Content Library
<b>Subscriber #</b>	The number of users that have subscribed to the folder or catalog
<b>Subscribed</b>	A check mark indicates that you are currently subscribed to this folder or catalog
<b>Last Updated</b>	When subscription folders and catalogs were last synchronized with the published folder

## Publish a Folder or Catalog of Templates

You can publish a folder or catalog of templates to the vCloud Connector Content Library. The folder or catalog is then available for users to subscribe to.

Only the templates at the top level of the folder or catalog are published. Templates in subfolders are ignored. Also, content other than templates, such as virtual machines, in the folder or catalog that you publish is ignored.

---

**NOTE** The names of templates that you publish should only contain ASCII characters. Template names with non-ASCII characters display as garbled text in subscription vCloud Director catalogs in both vCloud Connector and vCloud Director.

---

### Prerequisites

Verify that you entered a license key in the vCloud Connector Server Admin Web console.

### Procedure

- 1 In the Browser panel, expand the **Clouds** tree and find the folder or catalog of templates that you want to publish.
- 2 Right-click the folder and select **Publish to Content Library**.

If **Publish to Content Library** is disabled, check that you are right-clicking a folder or catalog. The option is disabled for other objects, such as a datacenter or an organization.

If the option is still disabled, check that you have a valid license and that the license key was entered in the vCloud Connector Server Admin Web console. See [Entering the License Key for vCloud Connector Advanced Edition](#) in *Installing and Configuring vCloud Connector*.

- 3 Click **Publish** in the confirmation dialog box.
- 4 In the Browser panel, select **Content Library**.

The Catalogs table appears in the Inventory panel. The table lists the catalog or folder that you published, along with details such as its location, publisher, and the time that it was last updated. Click on the folder name to view the templates it contains.

Users can now subscribe to the published folder.

## Monitor Subscriptions to a Published Folder

You can monitor subscriptions to published folders or catalogs in the Content Library.

### Procedure

- ◆ In the Browser panel, click **Content Library**.

The Inventory panel displays a Catalogs table that lists all published folders and catalogs.

You can view the number of current subscribers to a folder or catalog in the Subscriber # column.

You can view when a subscription folder or catalog was last synchronized with the published folder or catalog in the Last Updated column.

You can also see whether any subscription tasks failed or are in progress in the Tasks panel. For more information about a specific task, click on it.

---

**NOTE** You might need to click the Refresh button to see updated task information.

---

## Unpublish a Published Folder or Catalog

You can unpublish a folder or catalog that you published to the Content Library. When you unpublish a folder or catalog, all subscriptions to it end. Before you unpublish, check if the folder or catalog has any subscribers and notify them.

### Prerequisites

Only the user that published a folder or catalog can unpublish it.

### Procedure

- 1 In the Browser panel, select **Content Library**.  
The Inventory panel displays all published folders and catalogs. You can see the items you published by finding your user name in the Publisher column.
- 2 In the Catalogs table, select the folder or catalog to unpublish.  
You can view the templates that the folder or catalog contains in the Templates table. You can view information about the subscribers in the Catalogs table.
- 3 Click the **Unpublish** icon (  ) at the top of the Inventory panel.
- 4 Click **Unpublish** in the confirmation dialog box.

The folder or catalog is removed from the Catalogs table in the Content Library. Users cannot subscribe to it any more.

The subscription folders (destination folders) of any subscribers will no longer be updated. However, existing content in the subscription folders is not deleted. If subscribers wish to delete the templates, they must do so manually.

The folder or catalog name no longer has the Published icon (  ) in the **Clouds** tree in the Browser panel.

## Subscribe to a Published Folder or Catalog

You can subscribe to a folder or catalog of templates that is available in the Content Library. Once you subscribe, vCloud Connector keeps your templates synchronized with the source templates. Any changes made to the source folder or catalog will automatically be reflected in your subscription folder or catalog.

Specifically,

- If a template is added to the source folder or catalog, it is added to the subscription folders and catalogs.

---

**NOTE** In subscription catalogs on vCloud Director 1.5, the template is added with a timestamp appended to its name: mm-dd-yy:hh-mm.

---

- If a template is modified in the source folder or catalog, the modified template replaces the template in the subscription folders and catalogs. (The modified template is copied over with a timestamp appended to its name, then the original template is deleted and the modified template is renamed to the original name.)

---

**NOTE** In subscription catalogs on vCloud Director 1.5, the modified template does not replace the template in the subscription catalog. Instead, the modified template is always added with a timestamp appended to the template name: mm-dd-yy:hh-mm.

---

- If a template is deleted in the source folder or catalog, it is not deleted in the subscription folders and catalogs. If you wish to delete the template, you must do so manually.

Do not specify a folder or catalog that has pre-existing content in it as the destination folder or catalog for your subscription. This will avoid conflicts if any of the templates in the folder to which you are subscribing have the same name as pre-existing data in your subscription folder. Also, do not add other content to a subscription folder later. vCloud Connector assumes the subscription folder is solely under its management and might replace or delete content in it.

### Prerequisites

The vSphere folders or vCloud Director catalogs to which you want to subscribe must have been published to the Content Library.

### Procedure

- 1 In the Browser panel, select **Content Library**.

The Inventory panel displays a Catalogs table which lists all published catalogs and folders.

- 2 To view the templates contained in a folder or catalog, select it in the Catalogs table.

The Templates table that appears below the Catalogs table displays the contents of the selected folder or catalog.

- 3 In the Catalogs table, select the catalog or folder to which you want to subscribe.

- 4 Click the **Subscribe** icon (  ) at the top of the Inventory panel.

- 5 In the Subscribe Wizard, select the cloud to which you want to copy the templates.

- 6 If your destination cloud is a vSphere cloud

- a Select the folder to which you want to copy the templates, then click **Next**.

Specify an empty folder and do not add other content to it after you subscribe. vCloud Connector assumes that the folder is under its management and might replace or delete content in it.

- b Select a cluster, host or resource pool, then click **Next**.

- c Select the virtual disk format and a datastore.

- d In the Ready to complete page, review your selections and click **Finish**.

- 7 If your destination cloud is a vCloud

- a Select the catalog to which you want to copy the templates, then click **Next**.

Specify an empty catalog and do not add other content to it after you subscribe. vCloud Connector assumes that the catalog is under its management and might replace or delete content in it.

- b Select a virtual datacenter, then click **Next**.

- c In the Ready to complete page, review your selections, then click **Finish**.

The templates are copied to the subscription folder or catalog. You can monitor the progress of the copy task in the Tasks panel. To view details of a task, click it.

---

**NOTE** Tasks only appear in the publisher's view; they are not visible to subscribers unless the subscriber credentials are the same as the publisher credentials.

---

Note that it may take a while for the templates to be copied, depending on the number of the templates being copied and their size. vCloud Connector allows 10 concurrent tasks per cloud by default. You can choose to increase the maximum number of concurrent tasks. See [Increase Maximum Concurrent Tasks](#) in *Installing and Configuring vCloud Connector*.

In the Content Library, a checkmark appears in the **Subscribed** column for the folder or catalog, indicating that you have subscribed to it. The **Subscriber #** is also incremented.

In the Browser panel, the subscription folder or catalog displays a Subscribed icon (  ), which indicates that it is a subscription folder. (The icon only appears in vCloud Connector UI, it does not appear on the folder when you log on to the cloud directly.)

Your subscription folder or catalog will be synchronized with the source folder or catalog at 6-hour intervals.

### What to do next

You need to reload your subscription folder in the Browser panel to see the templates in it.

## View Your Subscriptions

You view your subscriptions in the Browser panel.

You can also view all the Published folders and catalogs to which you are subscribed in the Content Library. A check mark in the **Subscribed** column indicates that you are subscribed to that catalog or folder.

### Prerequisites

Reload your subscription folder or catalog.

### Procedure

- 1 If you have not reloaded the cloud that contains your subscription folder after you subscribed,
  - a In the Browser panel, expand the **Clouds** tree.
  - b Right-click the cloud that contains your subscription folder and select **Reload**.
- 2 In the Browser panel, expand the **Clouds** tree to browse the folders or catalogs in your cloud.

You can identify your subscription folders or catalogs by the Subscribed icon (  ).

- 3 Click a folder or catalog to view its templates.

## Unsubscribe From a Published Folder or Catalog

If you no longer want to synchronize your templates with a published folder or catalog in the Content Library, you can unsubscribe from it.

### Prerequisites

Only the user that has subscribed to a catalog or folder can unsubscribe from it.

### Procedure

- 1 In the Browser panel, select **Content Library**.
 

The Inventory panel displays all published catalogs and folders. Folders or catalogs to which you are subscribed have a check mark in the **Subscribed** column.
- 2 In the **Catalogs** table, select the folder or catalog from which you would like to unsubscribe.
- 3 Click the **Unsubscribe** icon (  ) at the top of the panel.
- 4 In the Confirm Unsubscribe dialog box, select your subscription folder, then click **Unsubscribe**.
 

If you have set up multiple subscriptions to the published folder or catalog, the **Subscribed item** list displays all your subscription folders. You need to unsubscribe each folder individually.

You are no longer subscribed to the published folder or catalog. Any changes made subsequently to the published folder or catalog will not be reflected in your subscription folder or catalog.

Existing templates in your subscription folder or catalog are not deleted. If you would like to delete them after unsubscribing, you can do so by selecting the parent cloud in the Browser panel, then selecting the template from the **Templates** tab in the Inventory panel and clicking the **Delete** icon.

The subscription folder or catalog name no longer has the Subscribed icon (  ) in the **Clouds** tree in the Browser panel.

## Using Stretch Deploy (Datacenter Extension)

The vCloud Connector Datacenter Extension feature enables you to extend your private datacenter to a public vCloud. You can move workloads (virtual machines and vApps) from your private datacenter to a public vCloud, retain their original network settings, and continue to use them as if they were still in your private datacenter.

While moving a workload, vCloud Connector stretches its private network boundary to the public vCloud, so that it continues to get all its networking properties from the private network. For example:

- The virtual machines will continue to have the same IP address and MAC address in the public vCloud.
- The virtual machines will adhere to the same NAT and firewall rules that were applied to them in the private network.

You use the Datacenter Extension feature through the **Stretch Deploy** command.

### How Stretch Deploy Works

When you move (stretch deploy) a virtual machine or a vApp to a public cloud from your private datacenter, vCloud Connector stretches the private network of the VM or vApp to the public cloud by creating a Layer 2 SSL VPN tunnel between the private network's vShield Edge and the public network's vShield Edge.

Specifically,

- 1 vCloud Connector verifies that the network of the VM or vApp on the private datacenter can be extended.
- 2 Creates a new Routed vApp network in your Organization VDC in the public vCloud.
- 3 Creates NAT and firewall rules in the public network, if required.
- 4 Creates NAT and firewall rules in the private network, if required.
- 5 Creates an SSL VPN tunnel from the vShield Edge of the private network to the vShield Edge of the new Routed vApp network in the public vCloud.
- 6 Copies and deploys the VM or vApp into the new Routed vApp in the public vCloud.

---

**NOTE** When you stretch deploy from a vSphere datacenter, vCloud Connector creates a temporary vApp in your Organization VDC in the public vCloud. The temporary vApp is deleted when the Stretch Deploy command is completed.

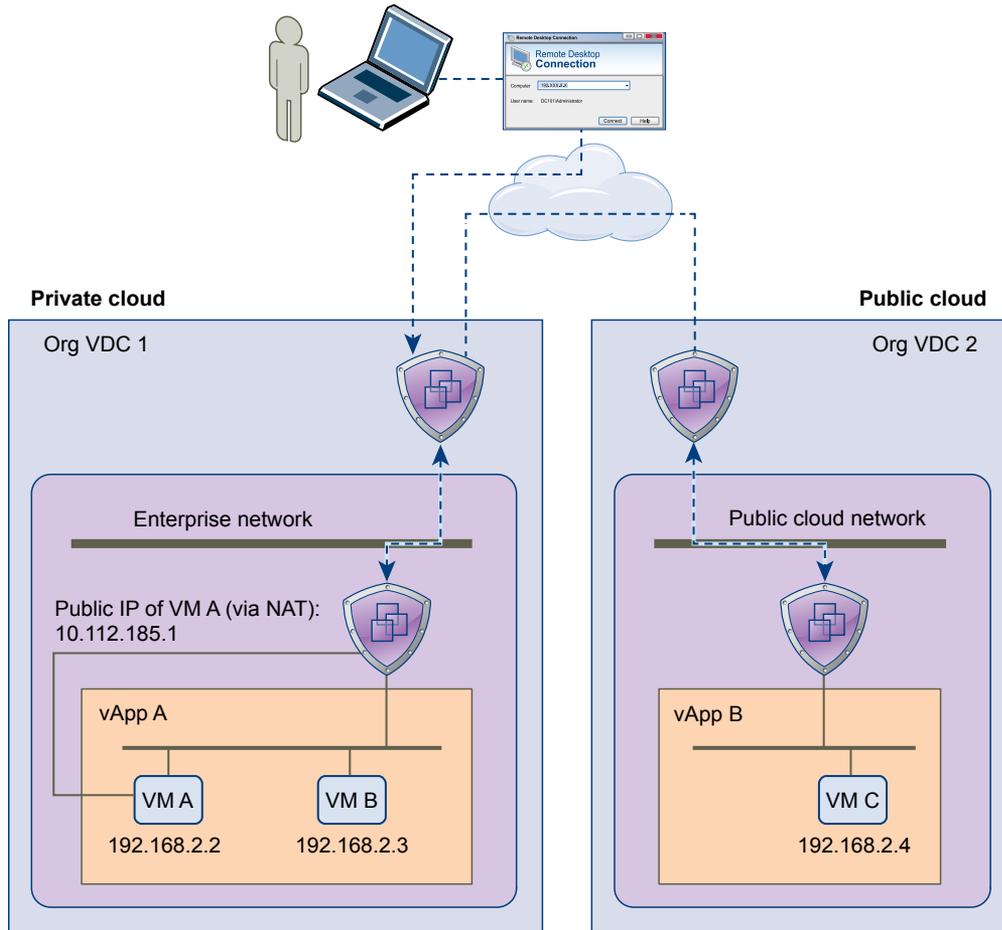
When you stretch deploy from a vCloud Director datacenter, vCloud Connector creates a temporary vApp in both the source vCloud Director cloud and in the public vCloud. The temporary vApps are deleted when the Stretch Deploy command is completed.

---

A network can only be stretched to a single Routed vApp network in a public vCloud. This implies that once you stretch deploy a VM or vApp from a private cloud to a public vCloud and vCloud Connector creates a Routed vApp network for it in the public vCloud, if you want to stretch deploy any other VMs or vApps from the same private network, they must be moved to the same Routed vApp network on the public vCloud.

## Traffic Flow in an Extended Datacenter

**Figure 2-1.** Datacenter Extension Traffic Flow



In the figure above, if an Apache Tomcat server is running on VM A at port 8000,

- A user accesses it through VM A's public IP address (via NAT): 10.112.185.1:8000.
- VM B accesses it through VM A's private IP address: 192.168.2.2:8000.

When VM A is in the Enterprise network,

- When a user accesses the Tomcat server in VM A through its public IP address (10.112.185.1), the service request reaches the Routed Organization network's vShield Edge, which routes it to the Routed vApp network's vShield Edge, which routes the traffic to VM A.
- When VM B accesses the Tomcat server in VM A through its private IP address (192.168.2.2), the service request reaches VM A directly because both VMs are in the same L2 network.

VM A is then moved to the public cloud with the Stretch Deploy command. vCloud Connector creates a Routed vApp network in the public cloud and then creates an SSL VPN tunnel between the Enterprise network's Routed vApp vShield Edge and the vShield Edge of the new Routed vApp network in the public cloud.

When VM A is in the public cloud network,

- When a user accesses the Tomcat server in VM A through its public IP address (10.112.185.1), the service request reaches the Routed Organization Network vShield Edge in the Enterprise network and is routed to the Routed vApp vShield Edge in the Enterprise network, which is where the L2 tunnel is present. The request is then sent over the SSL VPN tunnel to the Routed Organization Network vShield Edge in the public cloud, which routes the traffic to the Routed vApp Network vShield Edge in the public cloud, which then routes it to VM A.
- When VM B accesses the Tomcat server in VM A through its private IP address (192.168.2.2), the service request reaches the Routed vApp vShield Edge in the Enterprise network, where the L2 tunnel is present, so the request is sent to the public cloud's Routed Organization Network vShield Edge over the SSL VPN tunnel, which routes the traffic to the public cloud's Routed vApp vShield Edge, which then routes it to VM A.
- When VM C accesses the Tomcat server in VM A through its private IP address (192.168.2.2), the service request reaches VM A directly because they are in the same L2 network and on the same side of the L2 tunnel.

## Prerequisites for Stretch Deploy

To use the vCloud Connector Stretch Deploy command, you must meet the prerequisites mentioned in this section.

You must also be familiar with VMware vCloud<sup>®</sup> Networking and Security<sup>™</sup> 5.1.2 and with networking concepts. See the documentation for vCloud Networking and Security 5.1.2, vCloud Director 5.1, and vSphere 5.1 at <https://www.vmware.com/support/pubs>.

### Licensing Requirements for Stretch Deploy

Stretch Deploy is only available in the vCloud Connector 2.0 Advanced edition, which requires a vCloud Suite 5.1 license key.

You must enter the license key in the vCloud Connector Server Admin Web console. See [Entering the License Key for Advanced Features in vCloud Connector](#) in *Installing and Configuring vCloud Connector*. If you do not enter a license key, the Stretch Deploy command is disabled.

### System Requirements for Stretch Deploy

vCloud Connector's Stretch Deploy feature has the following special system requirements.

#### Product Requirements

You must install the following VMware products:

**Table 2-1.** Required Product Versions

Product	Minimum Version	Notes
vSphere	5.1 or higher	For source vSphere cloud
ESXi Server	5.1 or higher	For source vSphere clouds or vClouds, and public destination vCloud
vCloud Director	5.1 or higher	For source vCloud and public destination vCloud
vSphere on which vCloud is based	5.1 or higher	For source vCloud and public destination vCloud

**Table 2-1.** Required Product Versions (Continued)

Product	Minimum Version	Notes
vShield Manager	5.1.2 or higher	Must be deployed in source vSphere cloud
vSphere Distributed Switch (VDS)	5.1 or higher	The source network that you want to stretch must be connected to a 5.1 or higher version of VDS. The destination network that you select in the public cloud must also be connected to a 5.1 or higher version of VDS.

See the documentation for these products at <https://www.vmware.com/support/pubs>.

### Storage Requirements

Storage requirements depend upon the size of the virtual machine or vApp that you are stretch-deploying to the public vCloud and upon the type of source cloud.

When you stretch deploy from a vSphere cloud, you need storage in the destination VDC that is double the size of the virtual machine or vApp that you are stretch-deploying. Because vCloud Connector creates a temporary vApp in the destination VDC during the Stretch Deploy command, it needs the extra storage for temporary use. The temporary vApp is deleted when the Stretch Deploy command is completed.

When you stretch deploy from a vCloud Director cloud, you need storage in both the source VDC and the destination VDC that is double the size of the virtual machine that you are stretch-deploying. Because vCloud Connector creates a temporary vApp in both the source and destination VDCs during the stretch deploy command, it needs the extra storage for temporary use. The temporary vApps are deleted when the Stretch Deploy command is completed.

### Network Requirements for Source vSphere Cloud

Only certain types of networks on a vSphere cloud can be extended to a public vCloud. The virtual machines or vApps that you want to move with the Stretch Deploy command must belong to a supported network on the private vSphere cloud.

### Network Configuration

The network must be deployed in a way that

- The vShield Edge is configured to reach the Internet.  
If your private cloud uses an HTTPS proxy server that is configured with a fully qualified domain name (FQDN) to reach the Internet, then the corresponding DNS server must be set in the vShield Edge. Specify the DNS server settings in the vShield Manager that is associated with the cloud. See [“How to Configure a DNS Server in vShield Manager,”](#) on page 35.
- The vShield Edge is connected to only one external network.
- The vShield Edge has an internal interface configured.
- The vShield Edge's internal interface is not connected to a regular switch. Its internal interface can be connected to a vSphere Distributed Switch (version 5.1 only).
- The vShield Edge Appliance size can be Compact, Large, or X-Large.
- The vShield Edge's IP allocation type should be set to either DHCP or Manual Static. A Dynamic DHCP Binding is not supported.

Additionally,

- The virtual machine's network connection cannot be empty. It must be connected to a port group. The port group can be VLAN or VXLAN based.

- The virtual machine's network must be connected to a vSphere Distributed Switch (version 5.1 only). It cannot be connected to a regular switch.
- The virtual machine cannot be connected to multiple networks.
- If you are moving a vApp, its VMs cannot be connected to different networks.

### Supported Networks

- A flat vSphere network with vShield Edge configured to reach the Internet.

### Unsupported Networks

The following network configurations on a vSphere cloud are not supported for Stretch Deploy.

- Cascaded networks, that is networks within networks, are not supported.
- If the vSphere network has a vShield Edge with multiple NICs connected to multiple internal networks, only the flat networks are supported. Any networks connected to the vShield Edge that are not flat are not supported.

## Network Requirements for Source vCloud Director Clouds

Only certain types of networks on a vCloud Director cloud can be extended to a public vCloud. The virtual machines that you want to move with the Stretch Deploy command must belong to a supported network on the private vCloud Director cloud.

### Network Configurations

Stretch Deploy is only supported for VMs deployed in a Routed vApp. The Routed vApp can be connected to a Direct Org VDC or a Routed Org VDC network.

The Routed vApp must be deployed in the following way:

- A vApp network must be created in the Routed vApp.
- All the VMs in the vApp must be connected to this vApp network.
- The external network in the vCloud Director cloud must be associated with a port group created in a 5.1 vSphere Distributed Switch (VDS).
- The IP allocation type in the vApp network must be set to either DHCP or Manual Static. A Static Pool IP allocation type is not supported.
- If the vApp network is connected to a Routed Org VDC network, external IP addresses must be configured in the Edge gateway sub-allocation pool for the Org VDC. See [“How to Configure External IP Addresses in the Edge Gateway in vCloud Director,”](#) on page 35.
- The vApp network cannot be connected to an Isolated Organization network.
- If your private cloud uses an HTTPS proxy server that is configured with a fully qualified domain name (FQDN) to reach the Internet, then the corresponding DNS server must be specified in the vShield Edge of the vApp network that you want to stretch. Specify the DNS server settings in the vShield Manager that is associated with the cloud. See [“How to Configure a DNS Server in vShield Manager,”](#) on page 35.

### Supported Networks

The only network that is currently supported for Stretch Deploy on a private vCloud is a Routed vApp Network.

The Routed vApp can be connected to a

- Direct Org VDC network
- Routed Org VDC network

## Unsupported Networks

Stretch Deploy is not supported for VMs deployed in a

- Direct vApp
- Fenced vApp
- Isolated vApp

Stretch Deploy is not supported for VMs deployed in a Routed vApp that is associated with an Isolated Org VDC Network.

Stretch Deploy is not supported for an entire vApp.

## How to Configure External IP Addresses in the Edge Gateway in vCloud Director

In the public vCloud and in any source vCloud Director clouds, if the vApp network is connected to a Routed Org VDC network, you need to configure external IP addresses in the Edge gateway sub-allocation pools if they have not been configured. vCloud Connector requires this to get a list of unused external IP addresses while stretch deploying a VM or vApp.

### Prerequisites

You are logged on to the public vCloud or the source vCloud Director cloud.

### Procedure

- 1 Click **Manage and Monitor**, then click **Organization vDCs** in the left pane.
- 2 Double-click your organization VDC name to open it.
- 3 Click the **Edge Gateways** tab, right-click the Edge gateway name, and select **Properties**.
- 4 Click the **Sub-Allocate IP Pools** tab.
- 5 Select an external network in the **External Networks** box.

The **IP Pool** box displays the range of IP addresses for the network.

- 6 In the **Sub-Allocate this selected pool into other static IP pools** box, type a single IP address or a range of IP addresses that is within the external network's IP range, then click **Add**.
- 7 Click **OK**.

## How to Configure a DNS Server in vShield Manager

If your private cloud uses an HTTPS proxy server that is configured with a fully qualified domain name (FQDN) to reach the Internet, you must set the corresponding DNS server in the vShield Edge.

### Procedure

- 1 Log on to the vShield Manager associated with your vSphere with administrator credentials.
- 2 Select your datacenter in the left pane.
- 3 Click the **Network Virtualization** tab, then the **Edges** tab.
- 4 Double-click the vShield Edge for which you want to set a DNS server.
- 5 Click the **Settings** tab.
- 6 In the **DNS Configuration** section on the right, click **Change** and specify the DNS server details.

## Network Requirements for Destination Public vCloud

The public vCloud to which you want to move VMs or vApps with the Stretch Deploy command must meet certain network requirements.

vCloud Connector requires the following:

- Your Organization Virtual Datacenter (VDC) in the public vCloud must have one of the following networks:
  - Routed Org VDC network
  - Direct Org VDC network
- The external network in the public vCloud must be associated with a port group created in a 5.1 vSphere Distributed Switch (VDS).
- If you use a Routed Org VDC network in the public vCloud, external IP addresses must be configured in the Edge gateway sub-allocation pool for the Org VDC. See [“How to Configure External IP Addresses in the Edge Gateway in vCloud Director,”](#) on page 35.
- You must have a designated public IP address in the public vCloud that can be reached by the source network that you want to stretch. vCloud Connector needs this to establish the SSL VPN tunnel.

This public IP address must not be used by any other service using port 443.

---

**NOTE** Typically, the external IP addresses configured in the Edge gateway sub-allocation pool (for Routed Org VDC networks) or in the External Network IP pool (for Direct Org VDC networks) are public IP addresses and can be used for this requirement. However, if they are not, then you need to provide a public IP address while stretch deploying a VM or vApp.

---

## Set Up Your vCloud Connector Environment for Stretch Deploy

Before you can use the Stretch Deploy command, you need to specify Stretch Deploy settings in your vCloud Connector Server Admin Web console.

### Register vShield Manager with the vCloud Connector Server (for vSphere Clouds only)

For every vSphere cloud that you want to use with the Stretch Deploy command, you must register the vShield Manager that is associated with vSphere in the vCloud Connector Server Admin Web console. This enables vCloud Connector to get networking information about the vSphere cloud.

#### Prerequisites

You have installed vCloud Connector (Server and Nodes). A vCloud Connector Node is installed and configured in the vSphere cloud. That Node is registered with the vCloud Connector Server. The vSphere cloud is version 5.1 and is associated with vShield Manager 5.1.2.

#### Procedure

- 1 Go to the vCloud Connector Server Admin Web console at [https://<vCC\\_Server\\_IPaddress>:5480](https://<vCC_Server_IPaddress>:5480).
- 2 Log on as **admin**. The default password is **vmware**.
- 3 Click the **Nodes** tab.

All vCloud Connector Nodes registered with the vCloud Connector Server are displayed.

- 4 Locate the appropriate Node (the Node that is installed on the vSphere cloud you want to use with the Stretch Deploy command), then click the gears icon next to that entry, and select **Stretch Deploy Settings**.

- 5 Specify the following:

Option	Description
<b>vShield Manager URL</b>	The vShield Manager URL, in the following format: <b>https://vShieldManager_IPaddress</b>
<b>User Name and Password</b>	The credentials for the vShield Manager
<b>Use Proxy</b>	Select if the vCloud Connector Server needs to use a proxy to reach the vSphere cloud
<b>Ignore SSL Certificate</b>	Select if the vSphere cloud does not have a valid certificate

- 6 Repeat for all the vSphere clouds that you want to use with the Stretch Deploy command.

### Specify Cloud Credentials in the vCloud Connector Server Admin Web Console (for vClouds only)

For any vCloud that you use with the Stretch Deploy command (your private vCloud as well as the public vCloud), you must specify Organization Administrator-level credentials for the cloud in the vCloud Connector Server Admin Web console. You do this after you install vCloud Connector.

---

**NOTE** You must enter Organization Administrator-level credentials for Stretch Deploy even if you registered the vCloud Connector Node for the cloud with the same credentials.

---

Organization Administrator-level credentials are required so that vCloud Connector can

- Configure the Edge gateway for NAT or firewall changes, if required
- Create the routed vApp in the public vCloud
- Configure the vApp network to establish the SSL VPN tunnel
- Create a temporary vApp in the public vCloud
- Deploy the VM or vApp in the public vCloud

After you have stretch deployed your VMs or vApps, you can unregister the settings. See [“Unregister Stretch Deploy Settings,”](#) on page 47 for more information.

### Prerequisites

You have installed vCloud Connector (Server and Nodes). A vCloud Connector Node is installed and configured in the vCloud. That Node is registered with the vCloud Connector Server. The vCloud is version 5.1 or higher.

### Procedure

- 1 Go to the vCloud Connector Server Admin Web console at [https://<vCC\\_Server\\_IPaddress>:5480](https://<vCC_Server_IPaddress>:5480).
- 2 Log on as **admin**. The default password is **vmware**.
- 3 Click the **Nodes** tab.  
All Nodes registered with the vCloud Connector Server are displayed.
- 4 Locate the appropriate Node, then click the gears icon next to that entry, and select **Stretch Deploy Settings**.
- 5 Specify an Organization Administrator-level user name and password for the cloud.
- 6 Repeat for all vClouds that you want to use with Stretch Deploy.

### What to do next

If you had already loaded the clouds in vCloud Connector before you specified the Stretch Deploy settings described here, you need to reload the clouds for the changes to take effect. See [“Reload a Cloud in vCloud Connector,”](#) on page 10 for more information.

## Stretch Deploy a VM or vApp from a Private vSphere Cloud to a Public vCloud

When you move a VM or a vApp from a private datacenter to a public vCloud with the Stretch Deploy command, vCloud Connector stretches its network to the public vCloud, then copies and deploys it.

From a vSphere cloud, you can stretch deploy

- A single VM
- A VM that is contained in a vApp
- An entire vApp

The destination location must be a public vCloud.

In addition to the prerequisites listed, the VM or vApp that you stretch deploy must meet the following requirements:

- The VM or vApp that you want to stretch deploy must be powered off.
- You cannot stretch deploy an empty vApp.
- If the VM or vApp has already been stretch deployed, you cannot stretch deploy it again.
- If the VM or vApp is currently being stretch deployed, you cannot stretch deploy it again.
- You cannot stretch deploy a vShield Edge VM.

### Prerequisites

You must meet the following pre-requisites:

- [“Licensing Requirements for Stretch Deploy,”](#) on page 32
- [“System Requirements for Stretch Deploy,”](#) on page 32
- [“Network Requirements for Source vSphere Cloud,”](#) on page 33
- [“Network Requirements for Destination Public vCloud,”](#) on page 36
- [“Register vShield Manager with the vCloud Connector Server \(for vSphere Clouds only\),”](#) on page 36

### Procedure

- 1 In the Browser panel on the left, expand the **Clouds** tree and select a vSphere cloud.
- 2 In the Inventory panel, click the **Virtual Machines** tab or the **vApps** tab.
- 3 Select the virtual machine or vApp that you want to stretch deploy to the public vCloud.  
Available action buttons appear at the top of the panel.
- 4 If the VM or vApp is powered on or suspended, click the **Power Off** icon at the top of the panel to power it off.

---

**NOTE** The VM or vApp that you want to move must be powered off.

---

- 5 Click the **Stretch Deploy** icon.

If the **Stretch Deploy** icon is disabled, hover over the icon to view tooltip information on why the action is unavailable. For more information, see the Prerequisites listed above.

The Stretch Deploy wizard appears.

- 6 Select the public vCloud to which you want to move the VM or vApp.

---

**NOTE** You can only move a VM or vApp to a public vCloud; you cannot move it to a vSphere cloud.

---

- 7 Specify a name for the stretched vApp in the public vCloud. vCloud Connector adds a `Stretched_` prefix to the name.
- 8 Select a catalog in which to store the vApp template for the VM or vApp you are moving. All the catalogs available to your organization are listed.

vCloud Connector will upload the VM or vApp to the public vCloud as a vApp template; this is a vCloud Director requirement.

- 9 Click **Next**.
- 10 In the Select VDC page, select a virtual datacenter in which to store the VM or vApp. All the VDCs in your organization are listed.
- 11 Select an Org VDC network from the list of Routed Org VDC or Direct Org VDC networks that belong to the Organization VDC that you selected.

vCloud Connector will create a Routed vApp network for the VM or vApp in your Organization VDC in the public vCloud and will connect it to the Org VDC network that you select here.

- 12 If you selected a Routed Org VDC network, you must also select an External IP address. All available and valid IP addresses configured in the Edge gateway are listed.

vCloud Connector uses this IP address to create a DNAT entry and a Firewall rule in the Edge gateway of the Routed Org VDC network that you selected. This is required to create the SSL VPN tunnel.

---

**NOTE** The DNAT entry is created for port 443. Select an IP address that is not already being used for port 443.

---

If no IP addresses are displayed, check if you have configured external IP addresses in the Edge gateway sub-allocation pool for your Organization VDC. See [“How to Configure External IP Addresses in the Edge Gateway in vCloud Director,”](#) on page 35.

- 13 The **Public IP** field is required when the IP addresses configured in the External Network in the public vCloud are not public IPs. vCloud Connector needs a designated public IP address in the public vCloud that can be reached from the source network that you want to stretch, to establish the SSL tunnel.

This public IP address must not be used by any other service using port 443.

Set this field regardless of the Org VDC network that you selected.

For example, if you have selected a Direct Org VDC network and the gateway IP of that network is not a public IP (that is, it cannot be reached from the source network that you want to stretch), then enter a public IP address in this field. Also ensure that the gateway IP of the Direct Org VDC network can be reached from the public IP that you enter in this field.

If you have selected a Routed Org VDC network, then ensure that the public IP that you enter in this field can be reached by the External IP that you selected for DNAT and Firewall configuration in the previous step.

- 14 Click **Next**.

- 15 If the network that you want to stretch goes through an HTTPS proxy server to reach the Internet, select **Use a proxy server** and specify the HTTPS proxy server information in the Proxy page.

Option	Description
<b>HTTPS Proxy Server (FQDN or IP address)</b>	The IP address or fully qualified domain name (FQDN) of the proxy server. <b>NOTE</b> If you specify an FQDN, ensure that the corresponding DNS server is configured in the vShield Edge of your source network. You do this in vShield Manager. <a href="#">“How to Configure a DNS Server in vShield Manager,”</a> on page 35.
<b>Proxy Port</b>	The port that the proxy server uses
<b>Proxy Username</b>	(Optional) The username for the proxy server
<b>Proxy Password</b>	(Optional) The password for the proxy server

- 16 Click **Next**.
- 17 If you want to power on the VM or vApp after moving it to the public vCloud, select **Power on deployed entity**.
- 18 Click **Next**, review your selections, then click **Finish**.
- 19 If the VM that you stretch deployed has a Manual Static IP mode, then, after the **Stretch Deploy** command finishes
- Log on to the public vCloud.
  - Locate and double-click the stretched vApp.
  - Right-click the VM that had the Manual Static IP mode and power it off.
  - Right-click the VM again and select **Properties**, then select the **Hardware** tab.
  - Change the **IP mode** of the VM from DHCP to Manual Static, then click **OK**.
  - Power on the VM.

vCloud Connector creates a routed vApp network in your organization in the public vCloud, creates a Layer 2 SSL VPN tunnel between the private network and the routed vApp network in the public cloud, and copies and deploys the VM or vApp in the new vApp in the public cloud.

The VM continues to be part of the private network. Its IP address and MAC address remain the same. You can continue to use it as if it were still in your private datacenter.

### What to do next

You can track the progress of the Stretch Deploy command in the **Tasks** panel. See [“Track the Progress of the Stretch Deploy Command,”](#) on page 46 for more information.

---

**NOTE** If the source VM's IP allocation mode was Manual Static, after the Stretch Deploy command is successfully completed, you must delete a NAT entry that was created for the VM in the public vCloud. Log on to the public cloud and double-click on the stretched vApp. If the VM in the stretched vApp has a Manual Static IP mode, then go to the vApp network and delete the NAT entry created for the VM manually.

---

**NOTE** After you move a VM or vApp to a public vCloud with the Stretch Deploy command, do not power on or delete the VM or vApp in its original location.

---

**NOTE** In the public vCloud, do not modify the routed vApp network created by vCloud Connector. Specifically, do not change any network configuration settings (such as DHCP, NAT, or firewall settings) on the vShield Edge of the routed vApp network.

---

## Stretch Deploy Another VM or vApp from a Stretched vSphere Network

If you want to move a VM or vApp that is part of a network that has already been stretched, you can only move it to the same destination.

That is, if you already stretch-deployed a VM from a private cloud to a public vCloud and vCloud Connector created a routed vApp network for it in the public vCloud, when you move any other VMs from the same private network, they are moved to the same routed vApp network on the public vCloud.

### Prerequisites

All the prerequisites and restrictions listed in [“Stretch Deploy a VM or vApp from a Private vSphere Cloud to a Public vCloud,”](#) on page 38 apply.

### Procedure

- 1 In the Browser panel on the left, expand the **Clouds** tree and select a vSphere cloud.
- 2 In the Inventory panel, click the **Virtual Machines** tab or the **vApps** tab.
- 3 Select the virtual machine or vApp that you want to move to the public vCloud.  
Available action buttons appear at the top of the panel.
- 4 If the VM or vApp is powered on or suspended, click the **Power Off** icon at the top of the panel to power it off.
- 5 Click the **Stretch Deploy** icon.  
If the **Stretch Deploy** icon is disabled, hover over the icon to view tooltip information on why the action is unavailable. For more information, see the Prerequisites listed above.  
The Stretch Deploy wizard appears.
- 6 In the Select a target page, the destination cloud is already selected and you cannot change it because the network of the VM or vApp is already extended to the selected cloud and it cannot be extended to another cloud.  
The name of the routed vApp deployed in the public vCloud is also specified and you cannot change it.
- 7 Select a catalog in which to store the vApp template for the VM or vApp you are moving. All the catalogs available to your organization are listed.  
vCloud Connector uploads the VM or vApp to the public vCloud as a vApp template; this is a vCloud Director requirement.
- 8 Click **Next**.
- 9 In the Select resources page, the virtual datacenter and network configuration is already selected and you cannot change it because the network of the VM or vApp has already been extended to this location in the public vCloud.
- 10 Click **Next**.
- 11 In the Proxy page, click **Next**.  
The fields on the Proxy page are disabled when you are moving a VM or vApp from a network that has already been extended.
- 12 If you want to power on the VM or vApp after moving it to the public vCloud, select **Power on deployed entity**.
- 13 Click **Next**, review your selections, then click **Finish**.

- 14 If the VM that you stretch deployed has a Manual Static IP mode, then, after the Stretch Deploy command finishes
  - a Log on to the public vCloud.
  - b Locate and double-click the stretched vApp.
  - c Right-click the VM that had the Manual Static IP mode and power it off.
  - d Right-click the VM again and select **Properties**, then select the **Hardware** tab.
  - e Change the **IP mode** of the VM from DHCP to Manual Static, then click **OK**.
  - f Power on the VM.

vCloud Connector uses the SSL VPN tunnel it created when the network was first stretched to copy and deploy the VM or vApp into the routed vApp network in the public vCloud.

### What to do next

You can track the progress of the Stretch Deploy command in the **Tasks** panel. See [“Track the Progress of the Stretch Deploy Command,”](#) on page 46 for more information.

---

**NOTE** After you move a VM or vApp to a public vCloud with the Stretch Deploy command, do not power on or delete the VM or vApp in its original location.

---



---

**NOTE** In the public vCloud, do not modify the Routed vApp network created by vCloud Connector. Specifically, do not change any network configuration settings (such as DHCP, NAT, or firewall settings) on the vShield Edge of the Routed vApp network.

---

## Stretch Deploy a VM from a Private vCloud Director Cloud to a Public vCloud

When you move a VM from a private datacenter to a public vCloud with the Stretch Deploy command, vCloud Connector stretches its network to the public vCloud, then copies and deploys it.

From a private vCloud Director cloud, you can only move a VM that is contained in a vApp. You cannot move an entire vApp.

The destination location must be a public vCloud.

In addition to the prerequisites listed, the VM that you stretch deploy must meet the following requirements:

- The VM must be powered off.
- The VM's parent vApp must be powered on.
- If the VM has already been moved, you cannot stretch deploy it again.
- If the VM is currently being moved, you cannot stretch deploy it again.
- You cannot stretch deploy a vShield Edge VM.

### Prerequisites

See

- [“Licensing Requirements for Stretch Deploy,”](#) on page 32
- [“System Requirements for Stretch Deploy,”](#) on page 32
- [“Network Requirements for Source vCloud Director Clouds,”](#) on page 34
- [“Network Requirements for Destination Public vCloud,”](#) on page 36
- [“Specify Cloud Credentials in the vCloud Connector Server Admin Web Console \(for vClouds only\),”](#) on page 37

## Procedure

1 In the Browser panel on the left, expand the **Clouds** tree and select a private vCloud.

2 In the Inventory panel, click the **Virtual Machines** tab.

3 Select the VM that you want to move to the public vCloud.

Available action buttons appear at the top of the panel.

4 If the VM is powered on or suspended, click the **Power Off** icon at the top of the panel to power it off.

---

**NOTE** The VM that you want to move must be powered off but its parent vApp must be powered on.

---

5 Click the **Stretch Deploy** icon.

If the **Stretch Deploy** icon is disabled, hover over the icon to view tooltip information on why the action is unavailable. For more information, see the Prerequisites listed above.

The Stretch Deploy wizard appears.

6 Select a catalog in the source cloud for vCloud Connector to store a temporary vApp template.

vCloud Connector needs to create a temporary vApp template while moving a VM to a vCloud; this is a vCloud Director requirement. The temporary vApp template will be deleted after the VM is deployed in the public vCloud.

7 Select an external IP address in the source cloud for vCloud Connector to create SNAT or Firewall rules, if required.

This field only appears if the routed vApp that contains the VM is connected to a Routed Org VDC network. It does not appear if the Routed vApp is connected to a Direct Org VDC network.

If no IP addresses are displayed, check if you have configured external IP addresses in the Edge gateway sub-allocation pool for your Organization VDC. See [“How to Configure External IP Addresses in the Edge Gateway in vCloud Director,”](#) on page 35.

8 Click **Next**.

9 Select the public vCloud to which you want to move the VM.

---

**NOTE** You can only move a VM to a public vCloud; you cannot move it to a vSphere cloud.

---

10 Specify a name for the stretched vApp in the public vCloud. vCloud Connector adds a `Stretched_` prefix to the name.

11 Select a catalog in the public vCloud in which to store the vApp template for the VM. All the catalogs available to your organization are listed.

vCloud Connector will upload the VM to the public vCloud as a vApp template; this is a vCloud Director requirement. It will then create a vApp for the VM.

12 Click **Next**.

13 In the Select Resources page, select a virtual datacenter in which to store the VM. All the Virtual Datacenters in your organization are listed.

14 Select an Org VDC network from the list of Routed Org VDC networks and Direct Org VDC networks that belong to the Organization VDC you selected.

vCloud Connector will create a routed vApp network for the VM in your Organization VDC in the public vCloud and will connect it to the Org VDC network that you select here.

- 15 If you selected a Routed Org VDC network, you must also select an External IP address. All available and valid IP addresses configured in the Edge gateway are listed.

vCloud Connector uses this IP address to create a DNAT entry and a Firewall rule in the Edge gateway of the Routed Org VDC network that you selected. This is required to create the SSL VPN tunnel.

---

**NOTE** The DNAT entry is created for port 443. Select an IP address that is not used for port 443.

---

If no IP addresses are displayed, check if you have configured external IP addresses in the Edge gateway sub-allocation pool for your Organization virtual datacenter. See [“How to Configure External IP Addresses in the Edge Gateway in vCloud Director,”](#) on page 35.

- 16 The **Public IP** field is required when the IP addresses configured in the External Network in the public vCloud are not public IPs. vCloud Connector needs a designated public IP address in the public vCloud that can be reached from the source network that you want to stretch, to establish the SSL tunnel.

This public IP address must not be used by any other service using port 443.

Set this field regardless of the Org VDC network that you selected.

For example, if you have selected a Direct Org VDC network and the gateway IP of that network is not a public IP (that is, it cannot be reached from the source network that you want to stretch), then enter a public IP address in this field. Also ensure that the gateway IP of the Direct Org VDC network can be reached from the public IP that you enter in this field.

If you have selected a Routed Org VDC network, then ensure that the public IP that you enter in this field can be reached by the External IP that you selected for DNAT and Firewall configuration in the previous step.

- 17 Click **Next**.
- 18 If the network that you want to stretch goes through an HTTPS proxy server to reach the Internet, select **Use a proxy server** and specify the HTTPS proxy server information in the Proxy page.

Option	Description
<b>HTTPS Proxy Server (FQDN or IP address)</b>	The IP address or fully qualified domain name (FQDN) of the proxy server. <b>NOTE</b> If you specify an FQDN, ensure that the corresponding DNS server is configured in the vShield edge of your source network. You do this in vShield Manager. See <a href="#">“How to Configure a DNS Server in vShield Manager,”</a> on page 35.
<b>Proxy Port</b>	The port that the proxy server uses
<b>Proxy Username</b>	(Optional) The username for the proxy server
<b>Proxy Password</b>	(Optional) The password for the proxy server

- 19 Click **Next**.
- 20 If you want to power on the VM after moving it to the public vCloud, select **Power on deployed entity**.
- 21 Click **Next**, review your selections, then click **Finish**.

vCloud Connector creates a routed vApp network in your organization in the public vCloud, creates a Layer 2 SSL VPN tunnel between the private network and the routed vApp network in the public cloud, and copies and deploys the VM in the new vApp in the public cloud.

The VM continues to be part of the private network. Its IP address and MAC address remain the same. You can continue to use it as if it were still in your private datacenter.

## What to do next

You can track the progress of the Stretch Deploy command in the **Tasks** panel. See [“Track the Progress of the Stretch Deploy Command,”](#) on page 46 for more information.

---

**NOTE** If the source VM's IP allocation mode was Manual Static, after the Stretch Deploy command is successfully completed, you must delete a NAT entry that was created for the VM in the public vCloud. Log on to the public cloud and double-click on the stretched vApp. If the VM in the stretched vApp has a Manual Static IP mode, go to the vApp network and delete the NAT entry created for the VM manually.

---

**NOTE** After you move a VM to a public vCloud with the Stretch Deploy command, do not power on or delete the VM in its original location.

---

**NOTE** In the public vCloud, do not modify the vApp network created by vCloud Connector. Specifically, do not change any network configuration settings (such as DHCP, NAT, or firewall settings) on the vShield Edge of the vApp network.

---

## Stretch Deploy Another VM from a Stretched vCloud Network

If you want to stretch deploy a VM that is part of a network that has already been stretched, you can only move it to the same destination.

That is, if you already stretch deployed a VM from a private cloud to a public vCloud and vCloud Connector created a routed vApp network for it in the public vCloud, when you move any other VMs from the same private network, they are moved to the same routed vApp network on the public vCloud.

### Prerequisites

All the prerequisites and restrictions listed in [“Stretch Deploy a VM from a Private vCloud Director Cloud to a Public vCloud,”](#) on page 42 apply.

### Procedure

- 1 In the Browser panel on the left, expand the **Clouds** tree, and select a private vCloud.
- 2 In the Inventory panel, click the **Virtual Machines** tab.
- 3 Select the VM that you want to stretch deploy to the public vCloud.

Available action buttons appear at the top of the panel.

- 4 If the VM is powered on or suspended, click the **Power Off** icon at the top of the panel to power it off.

---

**NOTE** The VM that you want to stretch deploy must be powered off but its parent vApp must be powered on.

---

- 5 Click the **Stretch Deploy** icon.

If the **Stretch Deploy** icon is disabled, hover over the icon to view tooltip information on why the action is unavailable. For more information, see the Prerequisites listed above.

The Stretch Deploy wizard appears.

- 6 Select a catalog in the source cloud for vCloud Connector to store a temporary vApp template.

vCloud Connector needs to create a temporary vApp template while moving a VM to a vCloud; this is a vCloud Director requirement. The temporary vApp template will be deleted after the VM is deployed in the public vCloud.

- 7 Click **Next**.

- 8 In the Select a target page, the **Cloud** field and the **Stretched vApp Name** field are already selected. These indicate the Organization VDC and the vApp in which the VM will be deployed in the public vCloud. You cannot change these fields.
- 9 Select a catalog in the public vCloud in which to store the vApp template for the VM. All the catalogs available to your organization are listed.
- 10 Click **Next**.
- 11 In the Select Resources page, the Organization VDC, network configuration, and external IP are already selected. Click **Next**.
- 12 In the Proxy page, click **Next**.  
The fields on the Proxy page are disabled when you are moving a VM from a network that has already been stretched.
- 13 If you want to power on the VM after moving it to the public vCloud, select **Power on deployed entity**.
- 14 Click **Next**, review your selections, then click **Finish**.

vCloud Connector uses the SSL VPN tunnel it created when the network was first stretched to copy and deploy the VM into the routed vApp network in the public vCloud.

#### What to do next

You can track the progress of the Stretch Deploy command in the **Tasks** panel. See [“Track the Progress of the Stretch Deploy Command,”](#) on page 46 for more information.

---

**NOTE** After you move a VM to a public vCloud with the Stretch Deploy command, do not power on or delete the VM in its original location.

---

**NOTE** In the public vCloud, do not modify the Routed vApp network created by vCloud Connector. Specifically, do not change any network configuration settings (such as DHCP, NAT, or firewall settings) on the vShield Edge of the Routed vApp network.

---

## Track the Progress of the Stretch Deploy Command

After you use the Stretch Deploy command for a VM or vApp, you can track its progress in the **Tasks** panel.

When you start the Stretch Deploy command, a main task named Stretch Deploy appears in the **Tasks** panel. The Stretch Deploy command has three phases and there is a corresponding sub-task for each phase:

- Infrastructure task
- Copy task
- Deploy task

These tasks appear in the **Tasks** panel as the Stretch Deploy command progresses through each phase.

The progress bar on the main Stretch Deploy task displays the cumulative progress of all the sub-tasks.

#### Procedure

- 1 In vCloud Connector, view the **Tasks** panel on the right.  
You can select the **All**, **Running**, or **Failed** tab to view tasks in each category.
- 2 Click on the main Stretch Deploy task or one of its sub-tasks (Infrastructure, Copy, or Deploy) to view details about the task.

The center panel changes to a **Tasks** panel and displays a table of all tasks.

- 3 Click on a task.

Details about the task appear below the table. This helps you determine the cause of failed tasks.

See “[Stretch Deploy Phases](#),” on page 48 for details about each phase of the Stretch Deploy command.

## Cancel the Stretch Deploy Command

You can cancel the Stretch Deploy command from the **Tasks** panel.

You can only cancel the main Stretch Deploy task; you cannot cancel its sub-tasks (Infrastructure, Copy, and Deploy). When you cancel the main task, all the sub-tasks that have not yet been started are cancelled.

### Procedure

- 1 In the **Tasks** panel on the right, click the **Cancel** icon next to the main Stretch Deploy task.
- 2 Click **OK** in the confirmation dialog box.

- If you cancel the main Stretch Deploy task while the Infrastructure sub-task is in progress, the Infrastructure sub-task is not cancelled. The Copy and Deploy sub-tasks are cancelled.

You need to manually delete the objects created during the Infrastructure phase of the Stretch Deploy command.

- If you cancel the main Stretch Deploy task while the Copy sub-task is in progress, the Copy sub-task is cancelled and the Deploy sub-task is cancelled.

Since the Infrastructure task was completed, you need to manually delete the objects created during the Infrastructure phase of the Stretch Deploy command.

- If you cancel the main Stretch Deploy task while the Deploy sub-task is in progress, the Deploy sub-task is not cancelled.

Since all sub-tasks were completed, you need to manually delete all the objects created for all three phases of the Stretch Deploy command.

See “[Stretch Deploy Phases](#),” on page 48 for details about each phase of the Stretch Deploy command.

## Unregister Stretch Deploy Settings

After you stretch deploy your VMs or vApps, you can choose to unregister the Stretch Deploy settings that you set on the source and destination clouds. Unregistering these settings will not affect the functioning of the stretched VMs or vApps.

Note that you must enter these settings again if you want to use the Stretch Deploy command again.

### Procedure

- 1 Go to the vCloud Connector Server Admin Web console at [https://<vCC\\_Server\\_IPaddress>:5480](https://<vCC_Server_IPaddress>:5480).
- 2 Log on as **admin**. The default password is **vmware**.
- 3 Click the **Nodes** tab.

All vCloud Connector Nodes registered with the vCloud Connector Server are displayed.

- 4 Locate the appropriate Node, then click the gears icon next to that entry, and select **Unregister Stretch Deploy Settings**.
- 5 Click **OK** in the confirmation dialog box.
- 6 Repeat for all the Nodes for which you had specified Stretch Deploy settings.

## Bring Back a Stretched VM or vApp from the Public vCloud to Your Private Datacenter

You can bring back stretched VMs or vApps from the public vCloud to your private datacenter with a script that is provided with vCloud Connector.

You can bring back one VM at a time, in which case the SSL VPN tunnel between the private datacenter and the public cloud is not deleted unless the VM is the last VM in the stretched vApp in the public cloud. You can also choose to bring back the entire stretched vApp.

### Procedure

- 1 Log on to the console of the vCloud Connector Node VM that is installed in the source cloud (that is, the private datacenter) as **admin**.

The default password is **vmware**.

- 2 Go to the following location: `cd /opt/vmware/hcagent/scripts`

- 3 Untar the `reverseStretchDeploy.tar` file in the directory with the following command: `sudo tar -xvf reverseStretchDeploy.tar`

The password is `vmware`.

The script is extracted to the `./bin` directory and a `Readme.txt` file appears in the current directory.

- 4 Change the permissions on the `scripts` directory:

```
sudo chmod -R 777 ../scripts
```

The password is `vmware`.

- 5 Read the instructions in the `Readme.txt` file before you use the script.

- 6 To run the script, go to the `bin` directory: `cd bin`

- 7 Run the script: `./reverseStretchDeploy.sh`

## Troubleshooting Stretch Deploy

Use this information to troubleshoot problems with the Stretch Deploy command.

### Stretch Deploy Phases

This section provides details about each phase of the Stretch Deploy command. You can use this information to troubleshoot errors and to remove the infrastructure created by vCloud Connector for Stretch Deploy if the command fails.

The Stretch Deploy command has the following phases:

- Infrastructure
- Copy
- Deploy

#### Infrastructure Phase

When you stretch deploy from a vSphere cloud to a public vCloud, vCloud Connector does the following:

- 1 Creates an empty routed vApp in the public vCloud.
- 2 Starts the empty routed vApp.

- 3 Creates DNAT and Firewall rules, if required, in the Edge gateway of the Organization VDC that you selected in the public vCloud.
- 4 Creates the SSL VPN object in the vShield Edge of the routed vApp in the public vCloud.
- 5 Creates the SSL VPN object in the vShield Edge of the source network in the vSphere cloud.

When you stretch deploy from a private vCloud Director cloud to a public vCloud, vCloud Connector does the following:

- 1 Creates an empty routed vApp in the public vCloud.
- 2 Starts the empty routed vApp.
- 3 Creates DNAT and Firewall rules in the Edge gateway of the Organization VDC that you selected in the public cloud, if required.
- 4 Creates SNAT and Firewall rules in the Edge gateway of the Organization VDC in the source vCloud, if required.
- 5 Creates the SSL VPN object in the vShield Edge of the routed vApp in the public vCloud.
- 6 Creates the SSL VPN object in the vShield Edge of the routed vApp in the source vCloud Director cloud.

### Copy Phase

When you stretch deploy from a vSphere cloud to a public vCloud, vCloud Connector does the following:

- 1 Exports the selected virtual machine or vApp from the source vSphere cloud.
- 2 Copies the OVF file to the public vCloud.
- 3 Imports the OVF file as a vApp template into the catalog that you selected in the public vCloud.

When you stretch deploy from a private vCloud Director cloud to a public vCloud, vCloud Connector does the following:

- 1 Creates a temporary vApp with the name `<sourceVMname>_<randomNumber>` in the source cloud.
- 2 Moves the selected virtual machine from its vApp to this temporary vApp.
- 3 Adds the temporary vApp as a vApp template to the source catalog that you selected.
- 4 Copies the vApp template to the public vCloud.
- 5 Imports the OVF file as a vApp template into the catalog that you selected in the public vCloud.

### Deploy Phase

When you stretch deploy from a vSphere cloud to a public vCloud, vCloud Connector does the following:

- 1 Creates a temporary vApp (with the name `tempVapp-xyz-<randomNumber>`) in the public vCloud from the vApp template that was created during the Copy phase.
- 2 Moves the virtual machine from this temporary vApp to the empty routed vApp that was created during the Infrastructure phase.
- 3 Deletes the temporary vApp.
- 4 Deletes the vApp template from the catalog.
- 5 Powers on the virtual machine (if you selected this option).
- 6 Sets the metadata on the routed vApp in the public vCloud.

The following entries are set:

Entry	Value
DatacenterExtensionRole	Destination
DatacenterExtendedEntityId	System-generated value of the entity that is stretch deployed

- 7 Sets the metadata on the VM or vApp that is being stretch-deployed, in the source cloud.

The following entries are set:

Entry	Value
DatacenterExtensionRole	Source
DatacenterExtendedEntityId	System-generated value of the entity that is stretch deployed

When you stretch deploy from a private vCloud Director cloud to a public vCloud, vCloud Connector does the following:

- 1 Creates a temporary vApp (with the name `tempVapp-xyz-<randomNumber>`) in the public vCloud from the vApp template that was created during the Copy phase.
- 2 Moves the virtual machine from this temporary vApp to the empty routed vApp that was created during the Infrastructure phase.
- 3 Deletes the temporary vApp.
- 4 Deletes the vApp template from the catalog.
- 5 Powers on the virtual machine (if you selected this option).
- 6 Sets the metadata on the routed vApp in the destination vCloud.

The following entries are set:

Entry	Value
DatacenterExtensionRole	Destination
DatacenterExtendedEntityId	System-generated value of the entity that is stretch-deployed

- 7 Sets the metadata on the virtual machine in the source vCloud Director cloud.

The following entries are set:

Entry	Value
DatacenterExtensionRole	Source
DatacenterExtendedEntityId	System-generated value of the entity that is stretch deployed

---

**NOTE** The metadata is set only if the Stretch Deploy command is completed successfully. It is not set if the command fails or is cancelled.

---

## Stretch Deploy Failed

The Stretch Deploy command failed.

### Problem

The Stretch Deploy command did not succeed. The Tasks panel indicates the phase during which the command failed.

### Cause

Determine the cause of the problem by clicking on the task in the Tasks panel, then selecting the task in the Tasks table and viewing its details.

## Solution

Delete the infrastructure that was created in the source and destination clouds up to the point that the command failed. Then try the Stretch Deploy command again.

- 1 Log on to the source vSphere cloud or vCloud Director cloud.
- 2 See [“Stretch Deploy Phases,”](#) on page 48 to see details of the infrastructure created in each phase of the Stretch Deploy command, then remove the objects created up to the point the command failed.
- 3 Delete the VPN object in the source vSphere cloud (if your source cloud is vSphere).
  - a Log on to the vShield Manager with which the vSphere cloud is registered.
  - b Select your datacenter in the left panel.
  - c Click the **Network Virtualization** tab, then double-click the vShield Edge of the private network that you were trying to stretch.
  - d Click the **VPN** tab.
  - e Select the VPN object and delete it.
- 4 Delete the VPN object in the source vCloud Director cloud (if your source cloud is vCloud Director).
  - a Access the vApp network that you were trying to stretch through the REST API.
  - b Delete the VPN object through the REST API.
- 5 Delete the VPN object in the destination public vCloud.
  - a Log on to the public vCloud.
  - b Click **My Cloud**.
  - c In the My Cloud panel, select **vApps**.
  - d Power off the Routed vApp that was created by vCloud Connector as part of the Stretch Deploy command.
  - e Delete the vApp.

## SSL VPN Tunnel Connectivity Issues

VMs that are stretch deployed to the public vCloud are unable to communicate with the source network or the source network cannot connect to the Internet.

### Problem

After the Stretch Deploy command is completed, the VMs in the public vCloud are unable to communicate with the source network or the source network cannot connect to the Internet.

### Cause

This problem occurs because of SSL VPN tunnel connectivity issues. The SSL VPN tunnel may be disconnected in the following scenarios:

- Losing network connectivity between the source network and the stretched network in the public vCloud
- Powering off the source vShield Edge where the SSL VPN tunnel originates
- Redeploying the source vShield Edge where the SSL VPN tunnel originates
- Powering off or suspending the source routed vApp where the SSL VPN tunnel originates
- Resetting the routed vApp network where the SSL VPN tunnel originates

- Omitting to configure or incorrectly configuring the DNS server setting in the vShield Edge of the source network (this setting is required if you specify a fully qualified domain name (FQDN) for the HTTPS proxy server during the Stretch Deploy command)
- The host or the cluster in which the source vShield Edge is deployed fails.
- Powering off or suspending the stretched routed vApp in the public vCloud where the SSL VPN tunnel terminates
- Resetting the stretched routed vApp network where the SSL VPN tunnel terminates
- The host or the cluster in which the stretched routed vApp is deployed fails.
- Manually disabling the SSL VPN tunnel at the source or destination from vShield Manager

For any of the above scenarios, after you fix the problem, vCloud Connector will automatically reconnect the SSL VPN tunnel in approximately 2 minutes. If the tunnel is not reconnected, follow the instructions below to manually reset the tunnel.

---

**NOTE** In the following scenarios, the SSL VPN tunnel can never be reconnected:

- Changing the description of the SSL VPN tunnel object at the source or destination manually from vShield Manager
  - Deleting the SSL VPN tunnel object at the source or destination manually from vShield Manager
  - Creating another SSL VPN tunnel object at the source or destination manually from vShield Manager
  - Disconnecting the interface of the vShield Edge where the SSL VPN tunnel originates or terminates manually from vShield Manager
- 

### Solution

- 1 Log on to the vShield Manager that is associated with your private datacenter using administrator credentials.
- 2 Select your datacenter in the left panel.
- 3 Click the **Network Virtualization** tab, then the **Edges** tab.
- 4 Double-click the vShield Edge where the SSL VPN tunnel is originating, then click the **VPN** tab.
- 5 Click **Disable**, then click **Publish Changes**.
- 6 Click **Enable**, then click **Publish Changes**.
- 7 Refresh the SSL VPN tunnel object table and verify that the **Channel Status** column displays a green check mark.
- 8 Log out of vShield Manager.

# Troubleshooting vCloud Connector for Users

---

# 3

Use this information to troubleshoot problems with using vCloud Connector.

- [No Files to Upload Error During Copy](#) on page 53  
If the target location of your copy operation does not have enough space to store the template you are moving, you receive a No files to upload error.
- [UnknownHostException During Copy Operation](#) on page 53  
Attempting to copy to a vCloud Director cloud fails with an UnknownHostException.

## No Files to Upload Error During Copy

If the target location of your copy operation does not have enough space to store the template you are moving, you receive a No files to upload error.

### Problem

You attempt to copy a template to a target location, but you receive a No files to upload error.

### Cause

Though this error can be caused by any failure to parse the template OVF file, usually it appears when there is not enough storage space at your target location to store the template you are trying to copy.

### Solution

Make sure you have enough storage space at your target location before you attempt a copy operation.

## UnknownHostException During Copy Operation

Attempting to copy to a vCloud Director cloud fails with an UnknownHostException.

### Problem

You cannot copy content to a vCloud Director cloud.

### Cause

If the vCloud Connector Node on a vCloud Director cloud is set up with a fixed IP address, the Preferred and Alternate DNS IP addresses must be set up manually. Failure to do so produces an UnknownHostException.

### Solution

Contact the vCloud Connector administrator about the issue.



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