

Offline Data Transfer to VMWare vCloud Hybrid Service

vCloud Connector 2.5.0

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Offline Data Transfer to VMware vCloud Hybrid Service

The *Offline Data Transfer to VMware vCloud Hybrid Service* document provides information about using VMware vCloud[®] Connector[™] to migrate data to the VMware vCloud[®] Hybrid Service[™].

To use this feature, you must have a vCloud Hybrid Service account. See the vCloud Hybrid Service documentation for information on how to obtain an account.

Intended Audience

This information is intended for users who want to migrate data from their private, enterprise datacenter to the vCloud Hybrid Service using vCloud Connector. This information is written for cloud administrators who are familiar with VMware virtualization products and technology, including VMware[®] vCenter Server[™], VMware vSphere[®] Client[™], and VMware vCloud Director[®].

Transferring Data from Your Private Datacenter to the vCloud Hybrid Service

1

You can use the VMware vCloud[®] Connector[™] Offline Data Transfer feature to migrate large amounts of data from your private vSphere or vCloud Director-based datacenter to the VMware vCloud[®] Hybrid Service[™].

To use this feature, you must have a vCloud Hybrid Service account. See the vCloud Hybrid Service documentation for information on how to obtain an account.

This chapter includes the following topics:

- [“Overview,”](#) on page 7
- [“Offline Data Transfer Process,”](#) on page 8
- [“Prepare for Offline Data Transfer,”](#) on page 9
- [“Register ODT Node Deployed in vCloud Hybrid Service with Your vCloud Connector Server,”](#) on page 9
- [“Mount External Storage Device to vCloud Connector Node,”](#) on page 11
- [“Export Data to External Storage Device,”](#) on page 12
- [“Unmount the Storage Device,”](#) on page 16

Overview

The vCloud Connector Offline Data Transfer feature enables you to migrate large numbers of virtual machines, vApps, and templates securely from your private datacenter to the VMware vCloud Hybrid Service. You can transfer data from a vSphere or vCloud Director-based datacenter.

From vCloud Connector, you export your data to an external storage device provided by a vCloud Hybrid Service operator and ship it back to the operator. The operator imports the data into the vCloud Hybrid Service. vCloud Connector encrypts the data before writing it to the device, ensuring a secure transfer.

During export, you can select the networks for your virtual machines and vApps in the vCloud Hybrid Service from a list of available networks. As all virtual machines and vApps are first copied to vCloud Director-based clouds as vApp templates, you can choose whether to deploy virtual machines and vApps from the templates and whether to retain the templates in the destination catalog after they are deployed. You can also specify whether to power on the virtual machines and vApps after they are deployed. You can set these options individually or apply them to all items being exported.

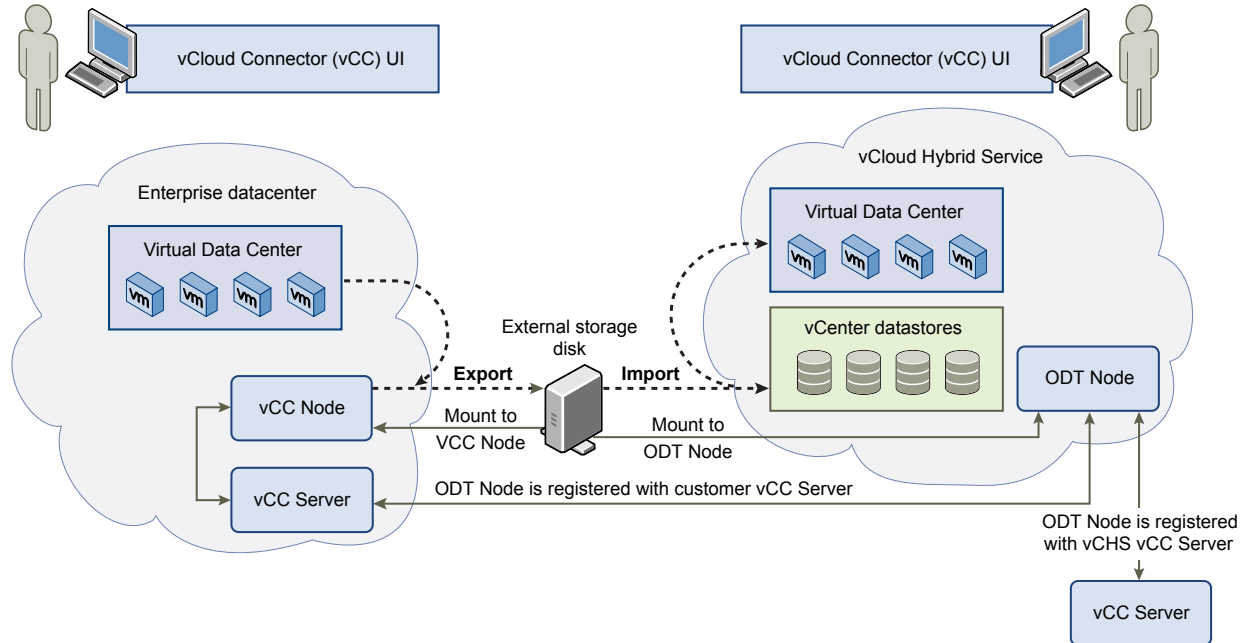
The vCloud Hybrid Service operator also uses vCloud Connector to import the data to a vCenter Server datastore associated with the vCloud Hybrid Service. vCloud Connector uploads the data, decrypts it, and moves it into your vCloud Hybrid Service datacenter. vCloud Connector then applies the network, power, and deployment settings that you specified during export.

This data transfer process is enabled through the common use of an Offline Data Transfer (ODT) node that is deployed in the vCloud Hybrid Service and used both by you during export and the vCloud Hybrid Service operator during import. The vCloud Hybrid Service operator deploys the ODT node and sends you the node URL. Both you and the vCloud Hybrid Service operator register the ODT node with your own vCloud Connector servers using different organizations and credentials.

Your vCloud Connector instance accesses the ODT node during export and stores encrypted information on it that will be used during import.

Offline Data Transfer Process

Figure 1-1. Exporting Data to the vCloud Hybrid Service



- 1 You initiate a data transfer request from your vCloud Hybrid Service account.
- 2 A vCloud Hybrid Service operator deploys an Offline Data Transfer (ODT) node in the vCloud Hybrid Service environment for your data transfer.
- 3 The vCloud Hybrid Service operator sends you the ODT node URL.
- 4 The vCloud Hybrid Service operator ships an external storage device to you.
- 5 You register the ODT node deployed in the vCloud Hybrid Service with your own vCloud Connector server that is in your private datacenter.
- 6 You mount the storage device to the vCloud Connector node associated with your private datacenter.
 - vCloud Connector transfers data from the datacenter to the storage device. Data is encrypted to ensure secure transfer.
 - vCloud Connector communicates with the ODT node deployed in the vCloud Hybrid Service to store information that will be used later for import.
- 7 You export data using the vCloud Connector UI.
- 8 You ship the storage device back to the vCloud Hybrid Service operator.
- 9 The vCloud Hybrid Service operator mounts the storage device to the ODT node deployed in the vCloud Hybrid Service.

- 10 The vCloud Hybrid Service operator imports data using the vCloud Connector UI.
- 11 vCloud Connector transfers data from the storage device to a vCenter Server datastore associated with the vCloud Hybrid Service, decrypts it, and uploads it to your datacenter.
- 12 The vCloud Hybrid Service operator notifies you when the import process is completed.
- 13 You log in to your vCloud Hybrid Service account and verify that your data has been transferred as expected.
- 14 You unregister the ODT node deployed in the vCloud Hybrid Service from your vCloud Connector server.

Prepare for Offline Data Transfer

To transfer data from your private vSphere or vCloud Director-based datacenter to the vCloud Hybrid Service, you must install vCloud Connector in your datacenter, if you have not installed it already. You must also request the offline data transfer from your vCloud Hybrid Service account.

Procedure

- 1 Install a vCloud Connector server and a vCloud Connector node in your private datacenter, if they are not already installed.

This enables you to export data from the datacenter.

If you want to export data from more than one vSphere or vCloud Director cloud, install a vCloud Connector node for each cloud.

See [Installing and Configuring vCloud Connector](#) for information on the installation process.

- 2 Log in to the vCloud Connector UI from vSphere Client and add the clouds from which you want to export data to the UI.

See [Add a Cloud to vCloud Connector](#) in *Using vCloud Connector* for information.

- 3 Initiate an offline data transfer request from your vCloud Hybrid Service account.

See the vCloud Hybrid Service documentation for information on how to obtain an account and request an offline data transfer.

- 4 Add a catalog in your vCloud Hybrid Service cloud.

See [Add a Catalog in the vCloud Hybrid Service](#) in *Installing and Configuring vCloud Connector* for information.

The vCloud Hybrid Service operator will prepare the vCloud Hybrid Service environment for your data transfer and send you a storage device and an Offline Data Transfer (ODT) node URL.

What to do next

Wait until you receive the storage device and ODT node URL from the vCloud Hybrid Service operator, then register the ODT node with your vCloud Connector server.

Register ODT Node Deployed in vCloud Hybrid Service with Your vCloud Connector Server

Before you can export data, you must register the Offline Data Transfer (ODT) node deployed in the vCloud Hybrid Service with the vCloud Connector server in your private datacenter.

Use the ODT node URL you received from the vCloud Hybrid Service operator to register the ODT node. If the URL includes a port number, ensure that you specify the port number.

Prerequisites

- You have received the URL of the ODT node deployed in the vCloud Hybrid Service.
- You have installed vCloud Connector.


Procedure

- 1 Go to the vCloud Connector server Admin Web console at https://vCCServer_IPAddress:5480.
- 2 Log in as **admin**.
The default password is **vmware**.
- 3 Click the **Nodes** tab, then click **Register Node**.
- 4 Register the ODT node using the URL you received from the vCloud Hybrid Service operator and your own vCloud Hybrid Service credentials.

Node Info Option	Description
Name	A name for the ODT node. The node will appear by this name in the Manage Nodes page in the server Admin Web console.
Description	(optional) A description of the ODT node.
URL	<p>The URL of the ODT node, obtained from the vCloud Hybrid Service operator. The URL contains either the IP address of the node or its fully qualified domain name (FQDN).</p> <ul style="list-style-type: none"> ■ https://vCCNodeIPAddress For example: https://10.10.100.10 ■ https://vCCNodeFQDN For example: https://node1.company.com <p>NOTE If the ODT node URL that you receive from the vCloud Hybrid Service operator includes a port number, ensure that you specify the port number.</p>
Public	Select this option.
Use Proxy	<p>Select this option if your vCloud Connector server needs to use a proxy to reach the ODT node in the vCloud Hybrid Service.</p> <p>If you are using a proxy, you must also specify the proxy settings in the Network - Proxy tab.</p>
Ignore SSL Certificate	<p>The ODT node in the vCloud Hybrid Service has SSL enabled and a certificate from DigiCert installed. To use the certificate, you must add a DigiCert High Assurance CA-3 intermediate certificate to your vCloud Connector server trusted keystore. See "Add CA Root Certificate to Trusted Keystore" in <i>Installing and Configuring vCloud Connector</i> for information.</p> <p>If you have added the intermediate certificate to your vCloud Connector server trusted keystore, deselect this option. If you have not added the certificate, select this option.</p>

Cloud Info Option	Description
Cloud Type	Select vCloud Director .
vCD Org Name	Specify the name of your virtual datacenter in the vCloud Hybrid Service.
Username	Your vCloud Hybrid Service user name.
Password	Your vCloud Hybrid Service password.

- 5 Click **Register**.

The ODT node is registered with your vCloud Connector server. The **Export** icon () is enabled in the vCloud Connector UI, which allows you to export data.

NOTE You cannot use the ODT node to add the cloud to your vCloud Connector UI. The ODT node is intended exclusively for offline data transfer.

What to do next

Mount the external storage device to the vCloud Connector node associated with your private datacenter.

Mount External Storage Device to vCloud Connector Node

Connect and mount the NAS storage device that you received from the vCloud Hybrid Service operator to the vCloud Connector node in your private datacenter.

Connect Storage Device to Switch

Connect the NAS storage device to a port in the network switch providing connectivity to your vSphere environment.

Follow these guidelines.

- Use only the power supply cable provided with the device.
- Do not use the device near water. Do not spill liquid on the device.
- Do not place the device on an unstable surface.
- Do not place the device near or on a radiator or heat register.
- Ensure the device has ample ventilation, at least 6 inches, at the front and back.
- Do not place anything on the power cord.

Procedure

- 1 Connect the provided Ethernet cable to Ethernet port 1 at the back of the device and to a port in the network switch providing connectivity to your vSphere environment.
- 2 Connect the provided power supply cable to the device and to a power outlet.



What to do next

Mount the storage device to the vCloud Connector node associated with your private datacenter.

Mount Storage Device to vCloud Connector Node

Mount the storage device to the vCloud Connector node associated with the cloud from which you want to export data.

Prerequisites

Read the IP address from the front of the NAS storage device.

Procedure

- 1 Use SSH to log in to the vCloud Connector node.
Log in as **admin**. The default password is **vmware**.
- 2 Change to root.
su
The default password is **vmware**.
- 3 Create a directory to mount the device, for example, */data/ODT*.
mkdir /data/ODT
- 4 Mount the device.
mount -t nfs NASdeviceIP:/nfs/ODT directoryPath
For example:
mount -t nfs NASdeviceIP:/nfs/ODT /data/ODT
- 5 Confirm that the device was mounted.
df -h

Export Data to External Storage Device

Export virtual machines, vApps, and templates from your private datacenter to the external storage device. Your data is encrypted before it is written to the device, ensuring a secure transfer.

You can export data from either a vSphere or vCloud Director cloud.

During export, specify the deployment, network, and power settings for the virtual machines and vApps in the destination vCloud Hybrid Service cloud. You can specify these settings for individual objects or for all the objects that you are exporting.

vCloud Connector appends a unique number to the name of each exported object to avoid naming conflicts. The objects appear by these unique names when they are imported into the vCloud Hybrid Service. For example, when you export **myVM**, it appears as **myVM_123456** in the vCloud Hybrid Service. You can choose to rename the objects in the vCloud Hybrid Service.

Use these guidelines to export data.

- All objects that you select for export must be powered off.
- From a vCloud Director cloud, you can only export vApps. You cannot export individual virtual machines.
- You can only select data of one type to export: virtual machines, vApps, or templates. For example, you cannot export both virtual machines and vApps at the same time. To export data of different types, export data of one type, then use the Export wizard again to export data of another type.

- All virtual machines, vApps, and templates are transferred to the vCloud Hybrid Service as vApp templates. During export, you can select the Deploy option to deploy the objects after they are exported. If you choose to deploy an object, its template is deleted after it is deployed. If you do not want the template to be deleted, select the Keep Catalog option during export.
- If you export a vApp without selecting the Deploy option for it, the virtual machines in the vApp appear as separate vApp templates in the vCloud Hybrid Service. They are named *SourceVAppName_1*, *SourceVAppName_2*, and so on.
- When you export a vApp from a vCloud Director cloud, the vApp is always deployed in the destination cloud in fenced mode with a direct connection to the organization network. This also applies to vApp templates exported with the deploy option.
- Check the network pool quota of your virtual datacenter in the vCloud Hybrid Service and choose the number of objects to deploy accordingly. As exported vApps are deployed in fenced mode, each vApp consumes one network pool. Ensure that you have the appropriate quota or do not select the Deploy option while exporting.
- Re-exporting an object to the disk creates a duplicate object. The previously-exported object is not overwritten.
- You can export data from more than one source cloud. See [Chapter 2, “Exporting Data from Multiple Clouds,”](#) on page 17 for information.


Prerequisites

- You have mounted the external storage device you received from the vCloud Hybrid Service operator to the vCloud Connector node associated with your private datacenter.
- You have registered the Offline Data Transfer (ODT) node deployed on the vCloud Hybrid Service with your vCloud Connector server, using the node URL you received from the vCloud Hybrid Service operator.
- You have started vCloud Connector from the vSphere Client.

Procedure

- 1 In the Browser panel, expand the **Clouds** tree and select the cloud from which you want to transfer data.
- 2 Click the **Templates, vApps, or Virtual Machines** tab based on the type of data that you want to transfer.
- 3 Power off each virtual machine or vApp that you want to export by selecting it and clicking the **Power Off** icon.
- 4 Select the virtual machines, vApps, or templates that you want to export.

To select multiple objects, keep the **CTRL** key on a PC or the **CMD** key on a Mac pressed while selecting objects.

The **Export** icon () is enabled only if all the selected objects are powered off.

The **Export** icon is disabled if you select a virtual machine on a vCloud Director cloud. You can only export vApps from a vCloud Director cloud.

The objects you select must be of the same type, that is, they must all be virtual machines or vApps or templates. To export data of different types, export data of one type first, then use the **Export** wizard again to export data of another type.

- 5 Click the **Export** icon () at the top of the Inventory panel.

- 6 In the Export Wizard, type the mount path of the external storage device, then click **Next**.
You must specify a valid path that has write permissions.
- 7 If you are exporting vApps from a vCloud Director cloud, specify a catalog in the source cloud in which to store temporary vApp templates.

vCloud Connector needs to create temporary vApp templates while exporting vApps from vCloud Director. It deletes the templates after exporting the data.

NOTE The **Select a catalog** page does not appear for the source cloud if you are exporting data from vSphere or if you are exporting templates from a vCloud Director catalog.

- 8 In the Cloud Details page, specify information about the vCloud Hybrid Service to which you are transferring data.

Option	Description
Cloud URL	The URL of the vCloud Director instance underlying your vCloud Hybrid Service cloud. To get the URL, do the following. <ol style="list-style-type: none"> a Log in to the vCloud Hybrid Service portal. b Click the virtual datacenter to which you want to transfer data. c Under Related Links, click vCloud Director URL. d Copy and paste the URL into this field.
VDC Org Name	The name of your virtual datacenter in the vCloud Hybrid Service.
Cloud user name	Your vCloud Hybrid Service user name.
Cloud password	Your vCloud Hybrid Service password.
Node URL	The ODT node URL that you received from the vCloud Hybrid Service operator.

- 9 Click **Next**.
If the cloud details are not valid, you get an error.
- 10 Select the virtual datacenter to which you want to transfer data.
All virtual datacenters in the vCloud Hybrid Service are listed.
- 11 Select the catalog in which to store the data.
All the catalogs in the virtual datacenter you selected are listed.

NOTE Virtual machines, vApps, and templates are always copied to the vCloud Hybrid Service as vApp templates.

- 12 Click **Next**.
- 13 Specify deployment options for the virtual machines, vApps, or templates in the destination cloud.
 - To specify deployment options for individual objects, select them in the table.

<input type="checkbox"/>	Name	Keep Catalog	Deploy	Power state after deploy	Network
<input type="checkbox"/>	vmA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Power Off ▾	Select target network ▾
<input type="checkbox"/>	vmB	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Power Off ▾	Select target network ▾

- a For each object, make your selections in the **Keep Catalog**, **Deploy**, **Power state after deploy**, and **Network** columns.

NOTE You must select **Deploy** first for the other options to be enabled.

- To specify deployment options for multiple objects, select them in the fields above the table.

- a Select all or multiple rows in the table.
- b In the set of fields above the table, select **Deploy**.
- c In the **Power state after deploy** field, select the power state for all selected objects.
- d In the **Network** field, select a network for all selected objects.
- e Click **Apply to selected row(s)**.

Your selections are applied to the selected rows. You can change any of the settings individually in the table.

Option	Description
Deploy	Select this option if you want to deploy the virtual machine or vApp from the vApp template in the destination cloud.
Power state after deploy	Select Power On to power on the virtual machine or vApp after it is deployed in the destination cloud, Power Off otherwise.
Keep catalog	Select this option if you want to retain the vApp template in the catalog after the virtual machine or vApp has been deployed. If you do not select this option, the template will be deleted after the object is deployed. NOTE Virtual machines, vApps, and templates are always copied to destination vCloud Director-based clouds as vApp templates. These vApp templates are uploaded to the catalog you selected in the previous page.
Network	Select the network to which you want to connect the object in the destination cloud. All networks available in the destination cloud are listed.

- 14 Click **Next**.
- 15 In the Ready to Complete page, review your settings, then click **Finish**.
- 16 Monitor the progress of the export in the Tasks panel.

There is a task for each item that is exported. You can click on a task to view its details.

vCloud Connector copies the virtual machines, vApps, or templates to the external storage device at the mount path you specified. The data is encrypted before it is written to the device and a unique encryption key is generated.

During the export process, vCloud Connector also communicates with the ODT node in the vCloud Hybrid Service and stores information in the ODT node, which will be used to decrypt and import the data into the vCloud Hybrid Service.

What to do next

After you have successfully exported your data to the storage device, unmount the device from the vCloud Connector node and ship it back to the vCloud Hybrid Service operator.

Unmount the Storage Device

After you export data to the storage device, unmount the device from the vCloud Connector node.

Procedure

- 1 Log in to the vCloud Connector node as **admin**.

The default password is **vmware**.

- 2 Unmount the storage device.

umount *mountPath*

For example, **umount /data/odt**.

- 3 Power off the storage device and disconnect it.

What to do next

Ship the device back to the vCloud Hybrid Service operator, using the return shipping label provided.

Exporting Data from Multiple Clouds

You can export data from multiple clouds to the storage device for offline data transfer. Each cloud from which you want to export data must have a vCloud Connector node associated with it.

Procedure

- 1 Plug in the storage device and mount it to the vCloud Connector node associated with the first cloud from which you want to export data.

See [“Mount External Storage Device to vCloud Connector Node,”](#) on page 11 for information.
- 2 Select the virtual machines, vApps, or templates you want to export from the cloud and use the Export wizard to export the data to the storage device.

See [“Export Data to External Storage Device,”](#) on page 12 for information.
- 3 Unmount the device from the vCloud Connector node, then detach it.
- 4 Plug in and mount the device to the vCloud Connector node associated with the next cloud from which you want to export data, select the virtual machines, vApps, or templates to export, and use the Export wizard to export the data to the storage device.
- 5 When you have exported data from all the clouds, send the storage device back to the vCloud Hybrid Service operator.

Verify Imported Data and Unregister ODT Node

3

After you receive notification from the vCloud Hybrid Service operator that your data has been imported into the vCloud Hybrid Service, log in to the vCloud Hybrid Service portal and verify that your data has been imported successfully.

All imported objects appear with a unique number appended to their name. You can rename the objects.

Any vApps that were exported without the Deploy option selected appear as multiple vApp templates, one for each virtual machine that was part of the vApp. These are named *sourcevAppName_1*, *sourcevAppName_2*, and so on.

Procedure

- 1 Log in to the vCloud Hybrid Service portal.
- 2 Verify that the data you exported has been imported into the vCloud Hybrid Service as expected.
- 3 Inform the vCloud Hybrid Service operator that the data transfer is complete.
- 4 Unregister the Offline Data Transfer (ODT) node deployed on the vCloud Hybrid Service from your vCloud Connector server.
 - a Go to the vCloud Connector server Admin Web console at <https://vCCServerIPAddress:5480>.
 - b Log in as **admin**.
The default password is **vmware**.
 - c Click the **Nodes** tab.
 - d Click the gears icon next to the ODT node, then select **Unregister** from the pop-up menu.
The ODT node is unregistered from the server.
 - e Log out of the server Admin Web console.
- 5 Inform the vCloud Hybrid Service operator that you have unregistered the ODT node.

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