



Cisco HyperFlex Systems Administration Guide for Citrix Workspace Appliance, Release 4.5

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CHAPTER 1

Cisco HyperFlex Integration with Citrix Cloud and Citrix Workspace

- [Overview, on page 1](#)
- [Components in Citrix Cloud Management, on page 3](#)

Overview

The Cisco HyperFlex System supports the capability to connect to Citrix Workspaces and associated Citrix Cloud subscription services such as Citrix Virtual Apps and Desktops Services (formerly XenApp and XenDesktop services). You can register the Cisco HyperFlex environment as a Citrix resource location directly from the HyperFlex Connect GUI, and the automation built into Cisco HyperFlex management delivers hybrid-cloud flexibility without having to install, maintain, or upgrade the infrastructure.

The Citrix Ready HCI Workspace Appliance program enables a Cisco HyperFlex System deployed on Microsoft Hyper-V to connect to Citrix Cloud. In this application, the Cisco HyperFlex System operates as an integrated Citrix Workspace Appliance to automate the delivery of high-performance virtual applications and desktops to subscribers of Citrix Cloud services.

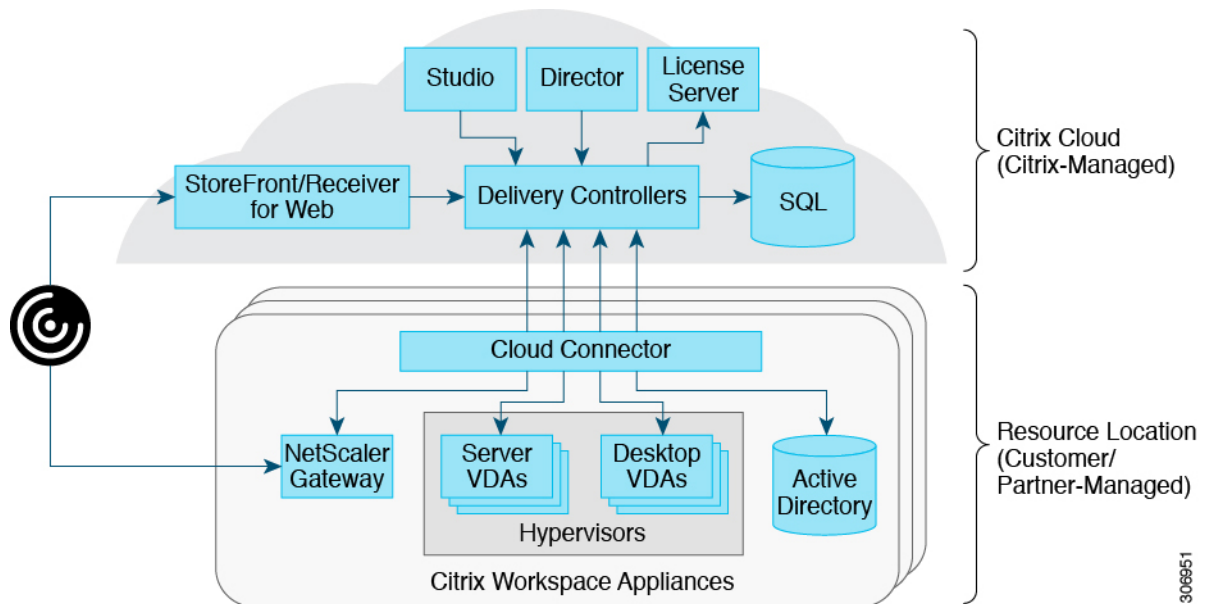
Citrix Virtual Apps and Desktops Services simplify the delivery of applications and desktops as a centrally managed cloud service by having the Citrix Cloud host these infrastructure components instead of those services being located on the on-premises data center. The Cisco HyperFlex System's ability to access the Citrix Cloud services enables subscribers to leverage Citrix Workspace subscription services while running their virtual application servers and virtual desktop workloads on-premises. This offloads management of the Virtual Desktop Infrastructure (VDI) process while maintaining control of where applications and data reside—on-premises and behind security layers.

The Citrix Ready HCI Workspace Appliance program requires two critical components to deliver high-performance virtual applications and desktops: the Citrix Cloud control plane and the on-premises Citrix Workspace Appliance. The Citrix Cloud Connector functions as a communications channel to connect the HyperFlex System and integrated Citrix Workspace Appliance as a resource location to the Citrix Cloud control plane. Installation of a Cloud Connector is mandatory at the on-premises side to act as a proxy and agent for communication between the Citrix Cloud control plane and the on-premises Citrix Workspace Appliance. Once the Cloud Connector is registered, the on-premises resource appears in the Citrix Cloud account as a registered resource location.

Based on the customer ID, client ID, and client secret obtained from a Citrix Cloud account, HyperFlex Connect initiates an installation sequence that automates the following Citrix Cloud Connector deployment sequence:

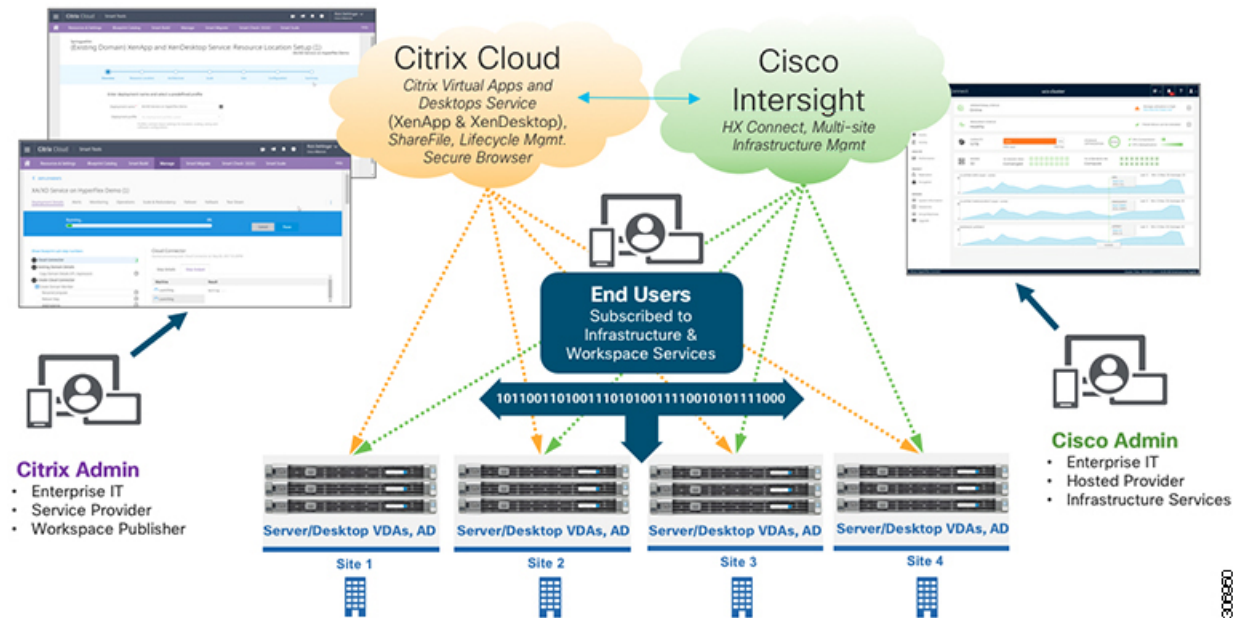
1. Exports the base VM by copying its contents.
2. Imports the copied base VM contents to create a new (cloned) connector VM. The connector agent is installed on the cloned connector VM.
3. Performs a series of networking configurations in the Microsoft Hyper-V cluster:
 - a. Attach the connector VM to a vSwitch in the HyperFlex System.
 - b. Join the connector VM to the Active Directory (AD) domain.
4. Registers the connector VM to the failover cluster.
5. Downloads the Citrix Cloud Connector.
6. Installs the Citrix Cloud Connector in the connector VM.

Figure 1: Overview of Citrix Cloud and Citrix Workspace Appliances Architecture



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Figure 2: HyperFlex System and Citrix Cloud Integration



Components in Citrix Cloud Management

The following is a summary of the core components in a Citrix Cloud service deployment. Citrix manages these core components in Citrix Cloud.

- **Citrix Cloud**—Platform that hosts and administers all Citrix services. Citrix Cloud connects subscribers to their resources through the Citrix Cloud Connector that is installed on any cloud or infrastructure (on-premises, public cloud, private cloud, or hybrid cloud). Citrix Cloud enables IT administrators to create, manage, and deploy workspaces with apps and data to their subscribers from a single console. For background information, see [Citrix Cloud](#).
- **Citrix Workspace**—Client software that provides seamless and secure access to everything a subscriber requires to get their work done. Each subscriber that is logged into Citrix Workspace can securely have instant access to all their applications, desktops, and data from any device, including smartphones, tablets, PCs, and Macs. Citrix Workspace Suite is a collection of Citrix products that deliver secure access to desktops, data, applications and services to subscribers on any device, and on any network. For background information, see [Citrix Workspace Platform](#).
- **Citrix Cloud Connector**—Citrix component that operates as a channel for communication between Citrix Cloud and each subscriber's on-premises resource locations. The Cloud Connector provides simplified cloud management without requiring complex networking or infrastructure configurations such as VPNs or IPsec tunnels. You download the Cloud Connector software from Citrix Cloud, and you install the Cloud Connector on the machine running Windows Server 2016. This machine must be joined to your domain and able to communicate with the resources that you want to manage from Citrix Cloud. Connections from the Cloud Connector to Citrix Cloud use the standard HTTPS port (443) and TCP protocol. For background information, see [Citrix Cloud Connector](#).
- **Resource Locations**—Contains machines and other resources that are required to deliver applications and desktops to subscribers. You manage these resources from Citrix Cloud. Resource locations contain

different resources depending on the Citrix Cloud services that are required by subscribers. Typical resources can include: Active Directory domains, Hypervisors or cloud services, Virtual Delivery Agents (VDAs), Citrix Gateway (formerly NetScaler Gateway), and Citrix StoreFront servers.

To communicate with Citrix Cloud, every resource location must contain a Citrix Cloud Connector and access to Microsoft Active Directory domains. In each resource location, you will need enough Cloud Connectors to support your required load, plus at least one more Cloud Connector to ensure high availability. Citrix recommends at least two Cloud Connectors in each resource location. For background information, see [Resource Locations](#).

- **Citrix Workspace Appliances**—Simplify the configuration challenges a subscriber can encounter when connecting to the Citrix Cloud to deliver virtual applications and desktops by providing access to a secure and unified Citrix workspace. Citrix Workplace Appliance provides a direct connection between the Citrix Cloud and the subscriber's resource location to automate the deployment and management of applications, desktops, data, and devices.
- **Citrix Virtual Apps and Desktops Service**—Virtualization solution available from Citrix Cloud that provides secure access to virtual applications and desktops from on-premises and cloud-based deployments. Subscribers can use applications and desktops independently of the device's operating system and interface. You connect your resources to the Citrix Virtual Apps and Desktops Service through the Citrix Cloud Connector. For background information, see [Citrix Virtual Apps and Desktops service](#).



CHAPTER 2

Accessing the Citrix Workspace Appliance Page in HyperFlex Connect

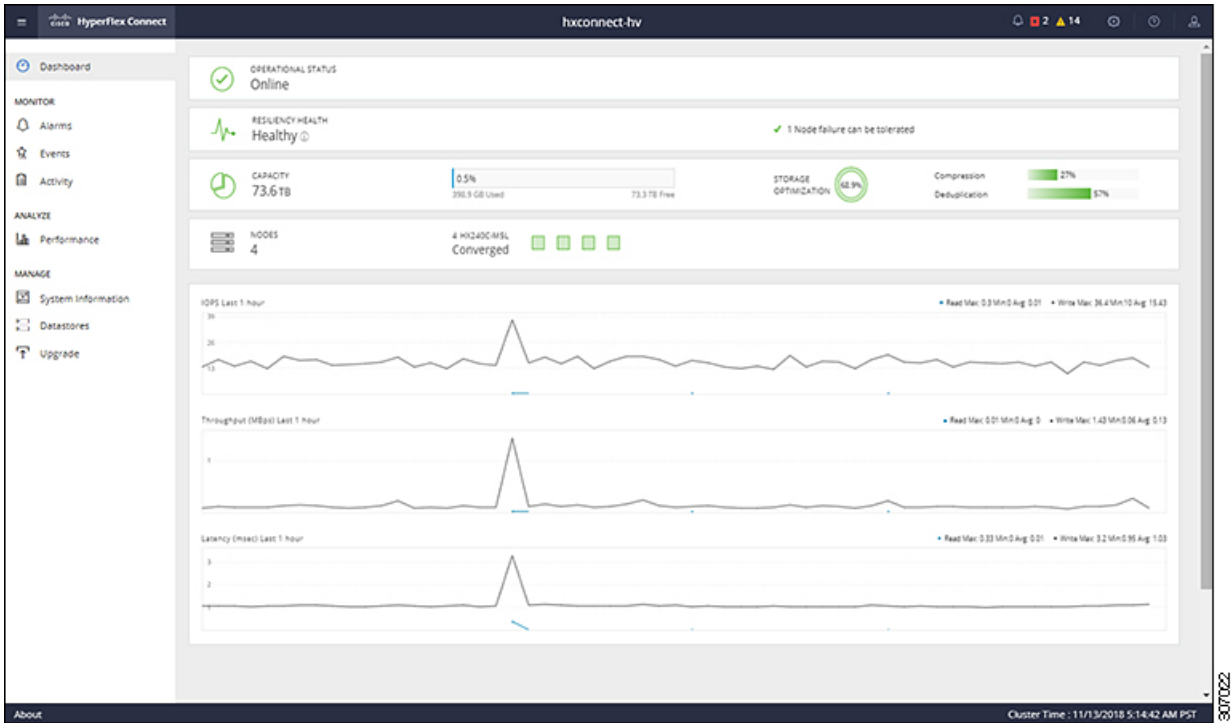
- [Accessing the Citrix Workspace Appliance Page in HyperFlex Connect, on page 5](#)

Accessing the Citrix Workspace Appliance Page in HyperFlex Connect

The following procedure details the steps that are required to access the Citrix Workspace Appliance page in the HyperFlex Connect GUI:

-
- Step 1** Navigate to `https://<hyperflex_cluster_mgmt_ip>` using a supported web browser.
 - Step 2** Log into HyperFlex Connect using an SSO account and password with administrative privileges (for example, `hxadmin@domain.local`).
 - Step 3** In the upper right corner of HyperFlex Connect, click the **Settings** menu icon (represented by a Gear icon).

Figure 3: HyperFlex Connect Settings Menu



Step 4 Under **Integrations**, click **Citrix**. The Citrix Workspace Appliance page appears.

Figure 4: Selecting Integrations > Citrix

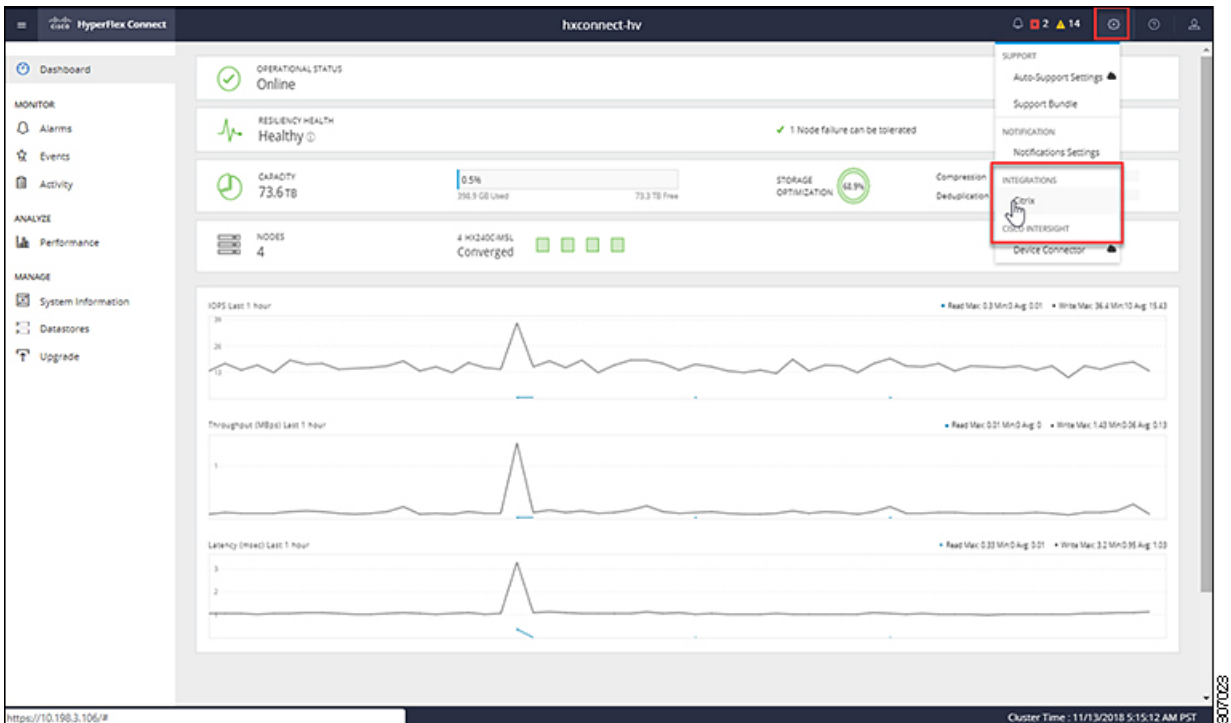
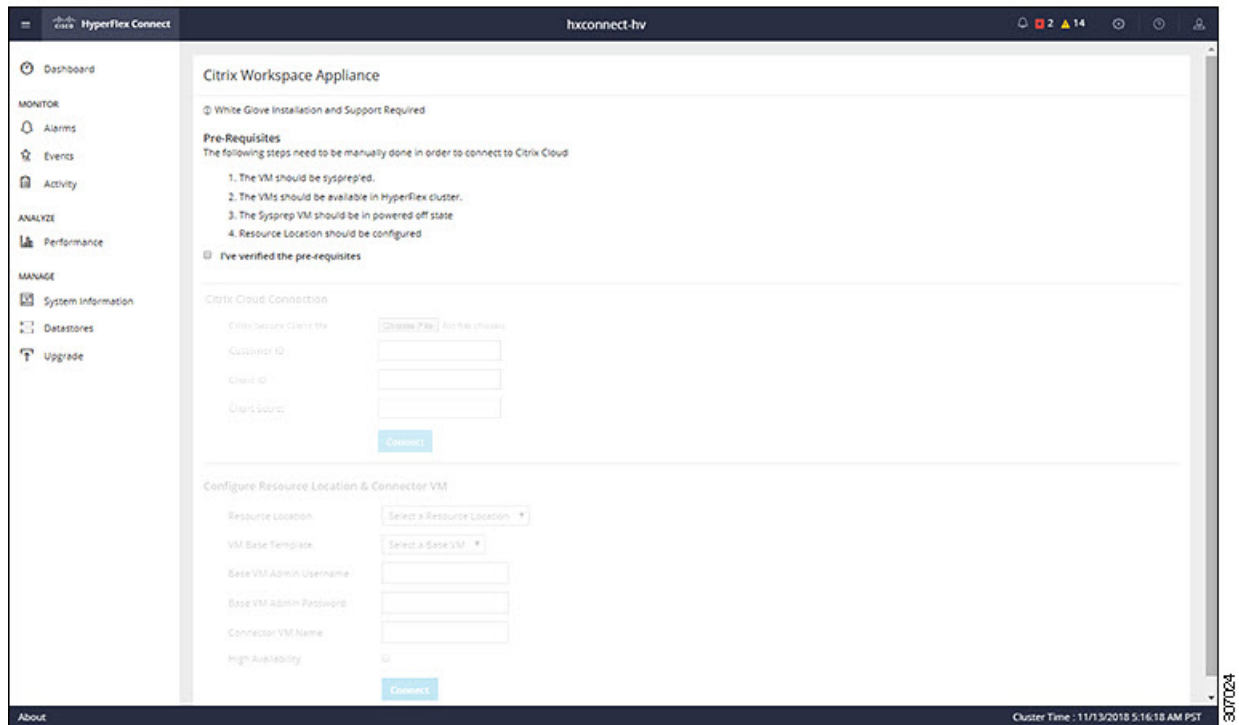


Figure 5: Citrix Workspace Appliance Page



Step 5 Review the prerequisites that are outlined on the Citrix Workspace Appliance page and then click the check box. See [Prerequisites, on page 9](#) for more details.



CHAPTER 3

Configuring Cisco HyperFlex as a Citrix Workspace Appliance

- [Prerequisites, on page 9](#)
- [Creating a Secure Client in Citrix Cloud, on page 10](#)
- [Specifying Customer and Client Identifier Information, on page 11](#)
- [Configuring Resource Location and Cloud Connector VM, on page 14](#)
- [Verifying the Cloud Connector VM, on page 15](#)

Prerequisites

The following prerequisites are required for Cisco HyperFlex to operate as a Citrix Workspace Appliance in a Citrix Cloud environment:

- Install and configure Cisco HyperFlex HX-Series nodes in a cluster with Microsoft Hyper-V Server 2016 running 3.5(2a) or later, see the [Cisco HyperFlex Systems Installation Guide for Microsoft Hyper-V](#).
- Ensure that the Microsoft System Center Virtual Machine Manager (VMM) Console is installed on your server. See [Microsoft System Center Virtual Machine Manager virtualization environments](#) for background details.
- Create and deploy a virtual machine (VM) as the base VM used for the connector VM. Once deployed, use the Microsoft System Preparation (Sysprep) tool to prepare the base VM. Ensure that the base VM is in a power-off state.



Note We recommend that you configure the Sysprep tool to boot Windows to Out-of-Box Experience (OOBE). OOBE utilizes an OOBE.xml file that includes a set of specific default values. See [OOBE.xml](#) for details.

- Create a datastore on the HX Data Platform (see the [Cisco HyperFlex Data Platform Administration Guide](#)), and then deploy the base VM on that datastore.
- Confirm that you have a:
 - Citrix Cloud account. For detailed instructions, see [Sign up for Citrix Cloud](#).

- Citrix Virtual Apps and Desktops Service subscription or trial on Citrix Cloud. For detailed instructions, see [Citrix Cloud services subscriptions](#) in the Citrix product documentation.
- Set up a resource location containing the resources that are required to deliver applications and desktops to subscribers. For detailed instructions, see [Set up resource locations](#) in the Citrix product documentation.



Note For an overview on system requirements for Citrix Virtual Apps and Desktop Service, see [System Requirements](#) in the Citrix product documentation.

Creating a Secure Client in Citrix Cloud

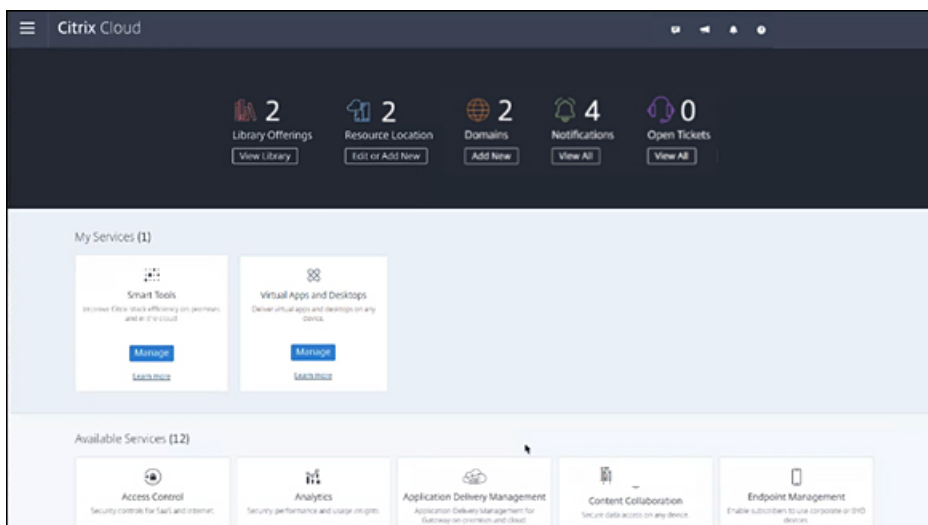
The following procedure outlines how to create a secure client secret key from Citrix Cloud using API access:

Step 1 Enter your Citrix credentials (Citrix.com, My Citrix, or Citrix Cloud) to securely log into your Citrix Cloud account. Be sure to sign in with the email address and password you provided when you signed up.

If your company allows you to sign-in to Citrix Cloud using their company credentials instead of a Citrix account, click **Sign in with my company credentials** and enter your company's sign in URL for your account.

Step 2 After signing into the Citrix Cloud GUI, verify that there is an active Citrix Virtual Apps and Desktops Service subscription or trial on Citrix Cloud.

Figure 6: Citrix Cloud

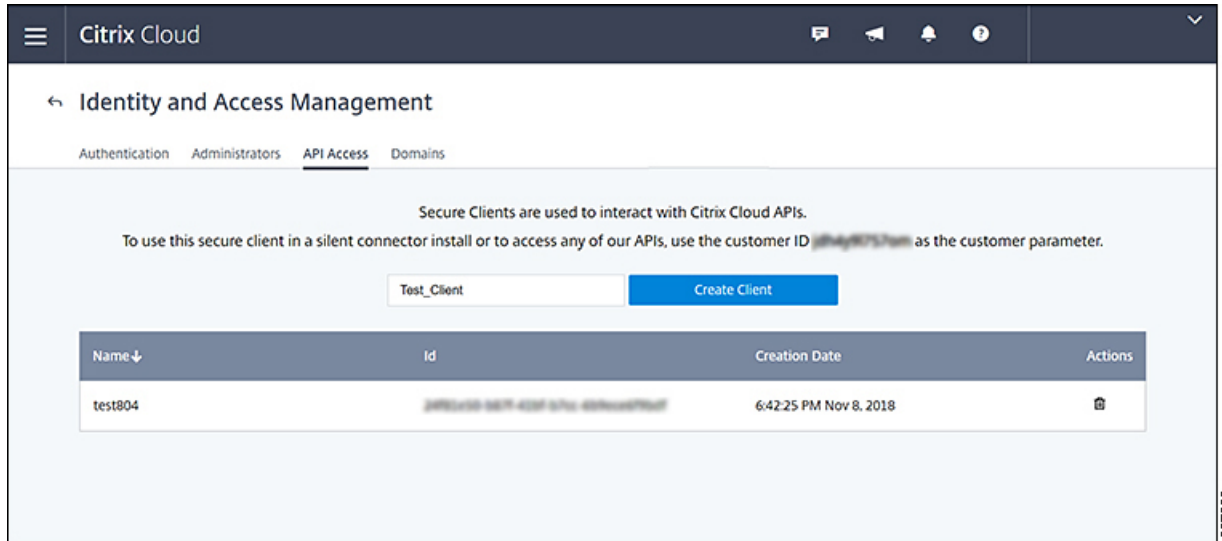


Step 3 Select **Identity and Access Management** from the menu in the Citrix Cloud GUI.

Step 4 On the Identity and Access Management page, click **API Access**. The API Access page appears.

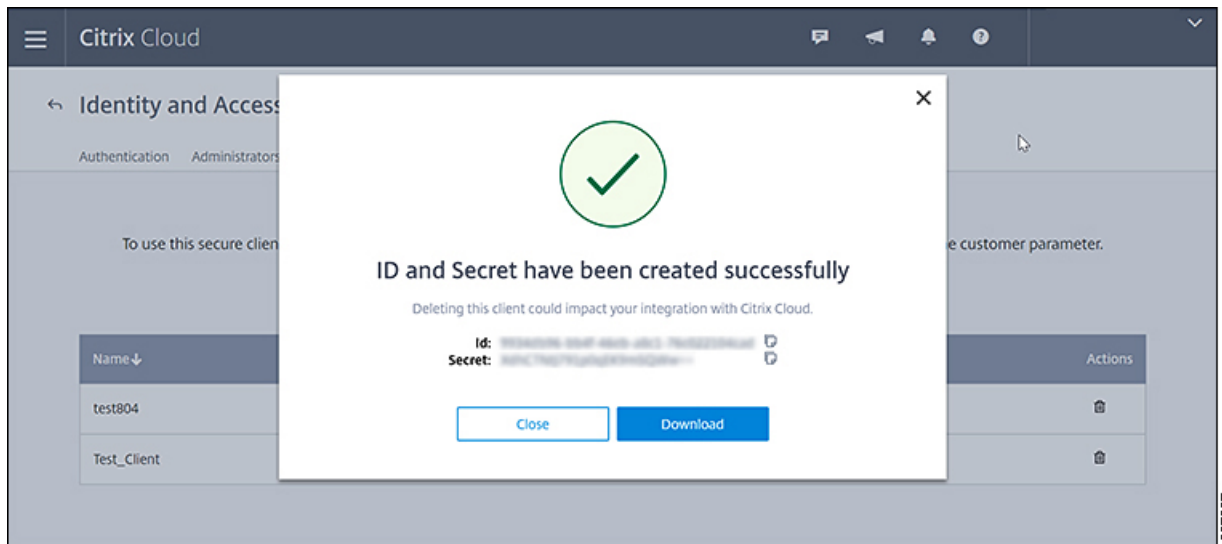
Step 5 Enter your secure client secret in the Name Your Secure Client text box, and then click **Create Client**.

Figure 7: Identity and Access Management Page > API Access



Step 6 Download the secure client CSV file containing the client ID and secret from the API Access page. It is named secureclient.csv.

Figure 8: Secure Client CSV File Creation Confirmation Screen

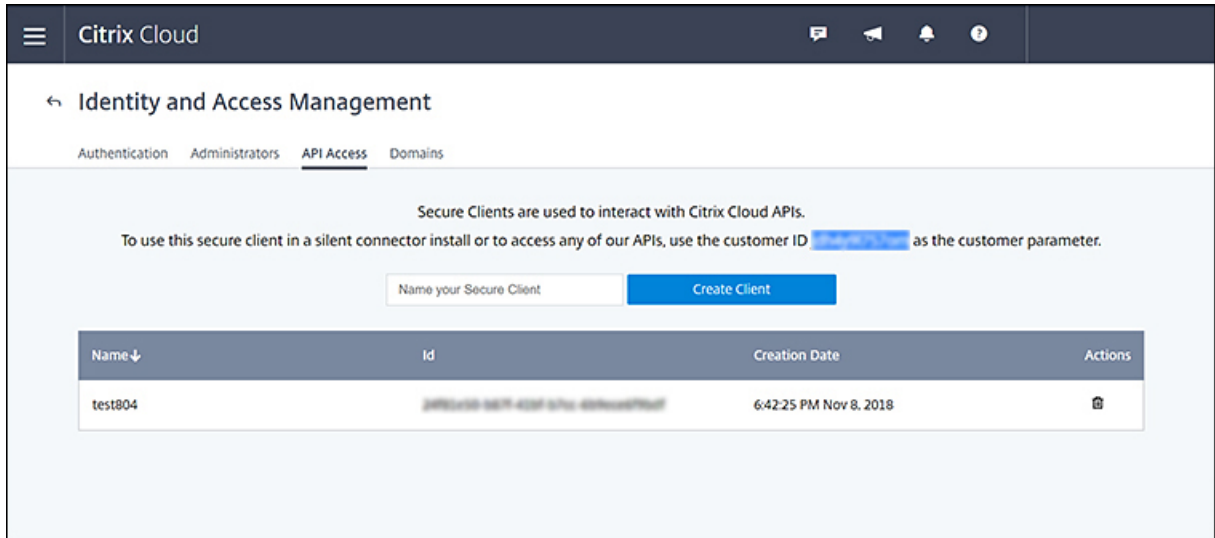


Specifying Customer and Client Identifier Information

The following procedure outlines how to locate a customer ID and client ID from Citrix Cloud and enter this information (including the client secret) on the HyperFlex Connect GUI:

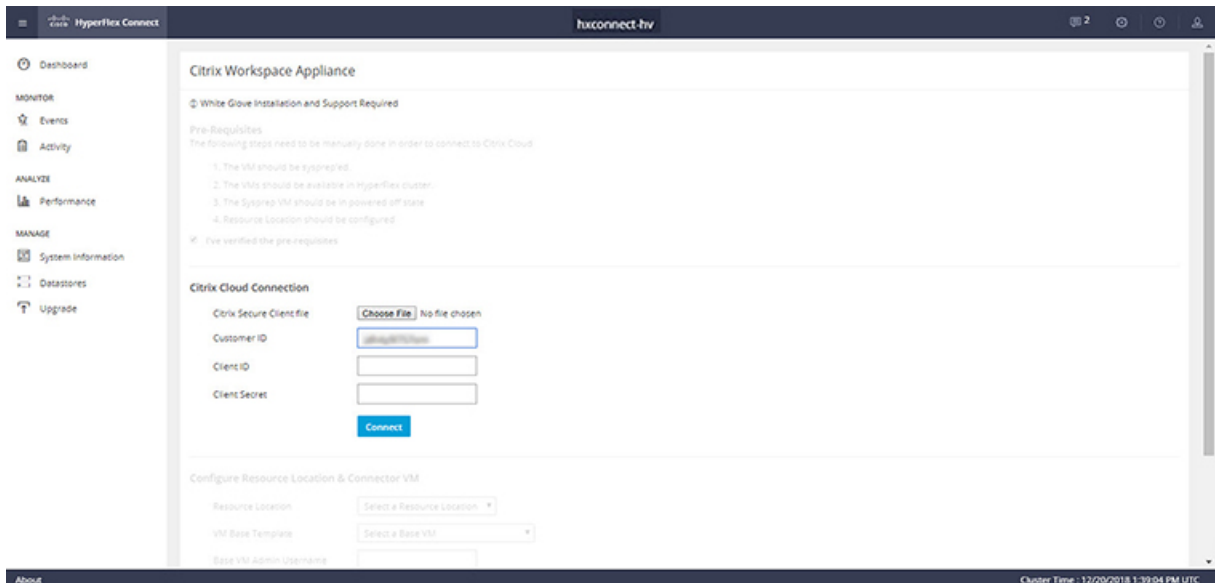
Step 1 In the Citrix Cloud GUI, on the API Access page of Identity and Access Management, copy the customer ID.

Figure 9: Copying the Customer ID from the API Access Page (Citrix Cloud)



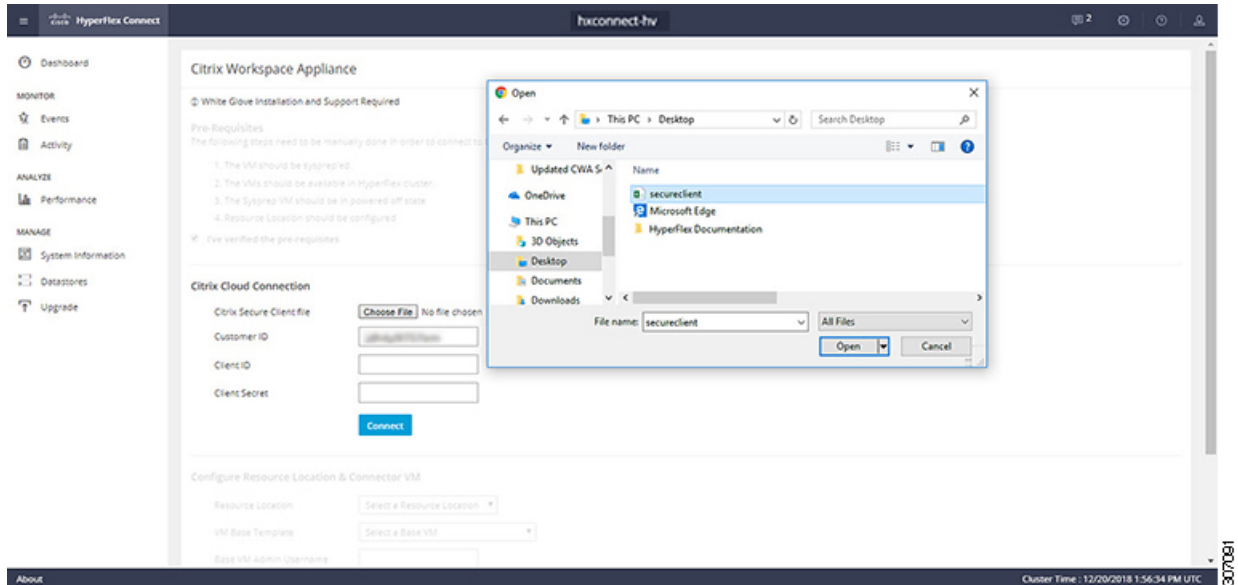
Step 2 2. In the Cisco HyperFlex Connect GUI, paste the customer ID in the Customer ID text box of the Citrix Workspace Appliance page.

Figure 10: Pasting the Customer ID on the Citrix Workspace Appliance Page (HyperFlex Connect)



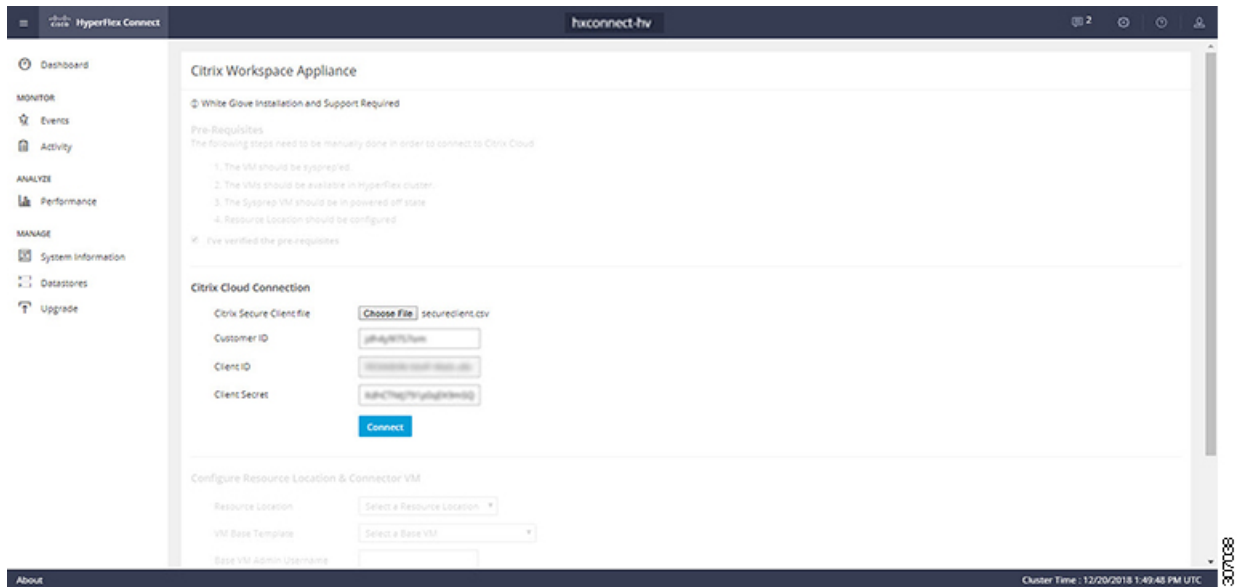
Step 3 Click **Choose File** and navigate to the secure client CSV file containing the client ID and secret created in the Citrix Cloud GUI (see [Creating a Secure Client in Citrix Cloud, on page 10](#)).

Figure 11: Navigating to the Secure Client CSV File



The Client ID and Client Secret fields are automatically populated with the client ID and secret from the secure client CSV file.

Figure 12: Client ID and Client Secret in the Citrix Workspace Appliance Page (HyperFlex Connect)



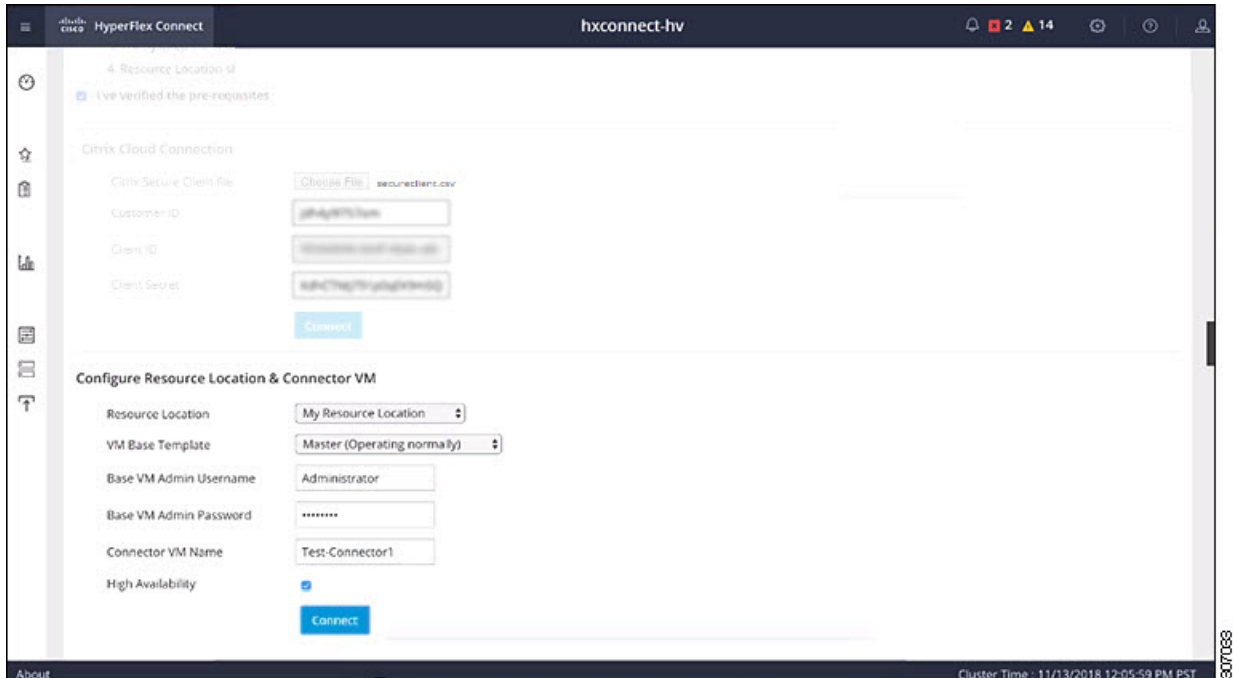
Step 4 Click **Connect** to establish the connection from HyperFlex Connect to Citrix Cloud.

Configuring Resource Location and Cloud Connector VM

The following procedure outlines how to specify information such as the resource location, VM base template, and Cloud Connector VM name in the HyperFlex Connect GUI:

- Step 1** On the Citrix Workspace Appliance page, under Configure Resource Location & Connector VM, specify the following information:
- **Resource Location**—For the previously created resource location for the Cloud Connector see [Prerequisites, on page 9](#) for more details. Existing resource locations that are created in Citrix Cloud appear in the drop-down list.
 - **VM Base Template**—The VM base image available on the Cisco HyperFlex cluster. This selection is the previously created Sysprep VM.
 - **Base VM Admin Username**—Administrative account username for logging into the base VM.
 - **Base VM Admin Password**—Administrative account password for logging into the base VM.
 - **Connector VM Name**—Name for the Citrix Connector VM to be created.
 - **High Availability (HA)**—(Optional) By default, the High Availability check box is enabled and two connector nodes are automatically created. Uncheck the High Availability check box if you want to disable high availability for the connector nodes.

Figure 13: Configure Resource Location & Connector VM of Citrix Workspace Appliance Page

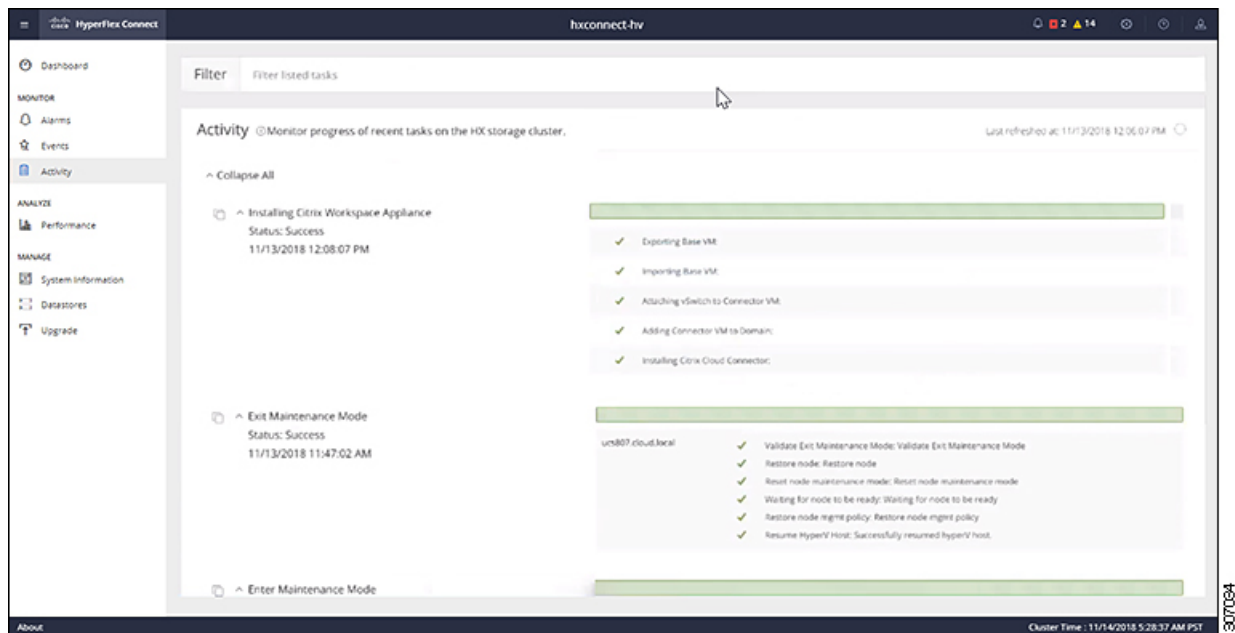


- Step 2** Click **Connect**. This action initiates the automatic installation sequence that comprises of the following workflow until the installation process successfully completes. The installation process can take approximately 2 to 3 minutes to complete. The steps in the installation process include:

- Export Base VM
- Import Base VM
- Attach vSwitch to Citrix Cloud Connector VM.
- Add Citrix Cloud Connector VM to Domain (Domain Join).
- Install Citrix Connector at the on-premises side (resource location).

Step 3 Click **Activity** to access the Activity page. You can view the installation sequence from the Activity page.

Figure 14: Activity Page—Cloud Connector Installation Sequence

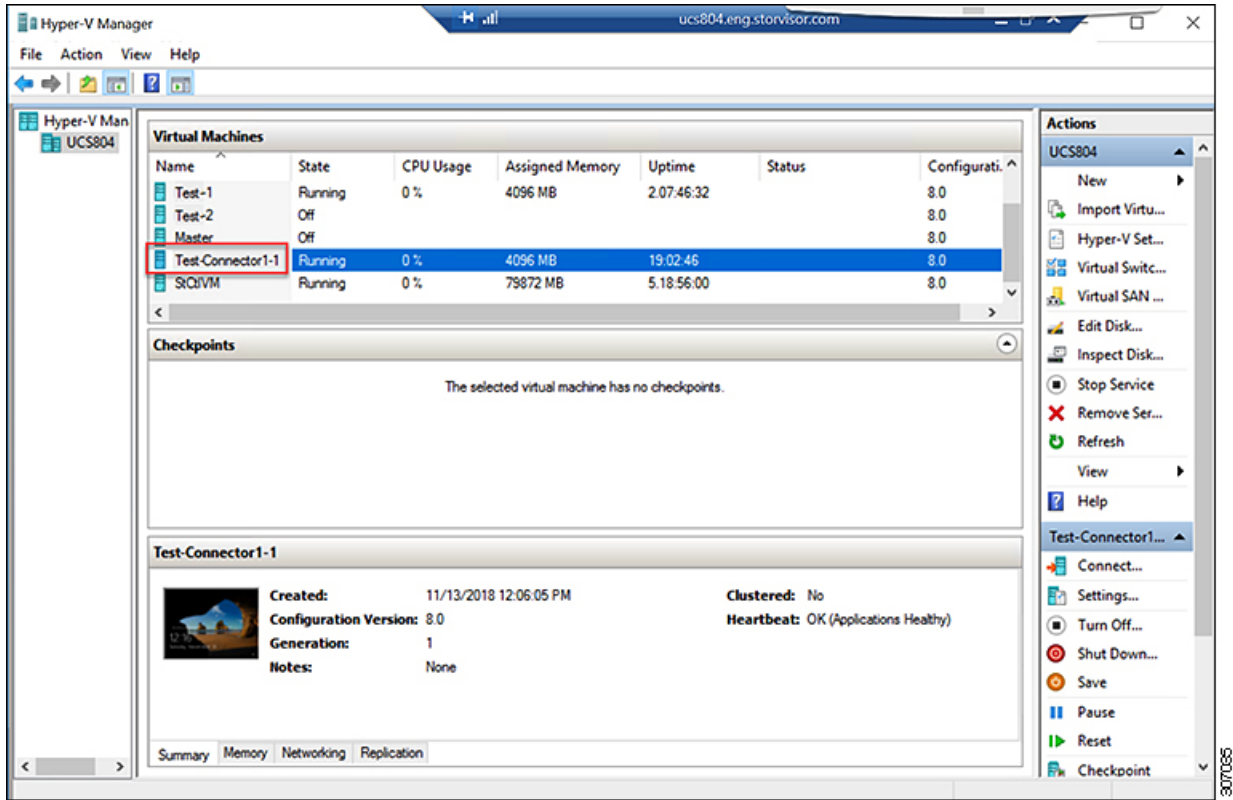


Verifying the Cloud Connector VM

The following procedure outlines how to connect to the new Citrix Cloud Connector VM using Hyper-V Manager and confirm that it has been properly installed. This procedure uses the Microsoft Remote Desktop Protocol (RDP) to establish a connection to the Hyper-V instance and launch Hyper-V Manager to perform the verification.

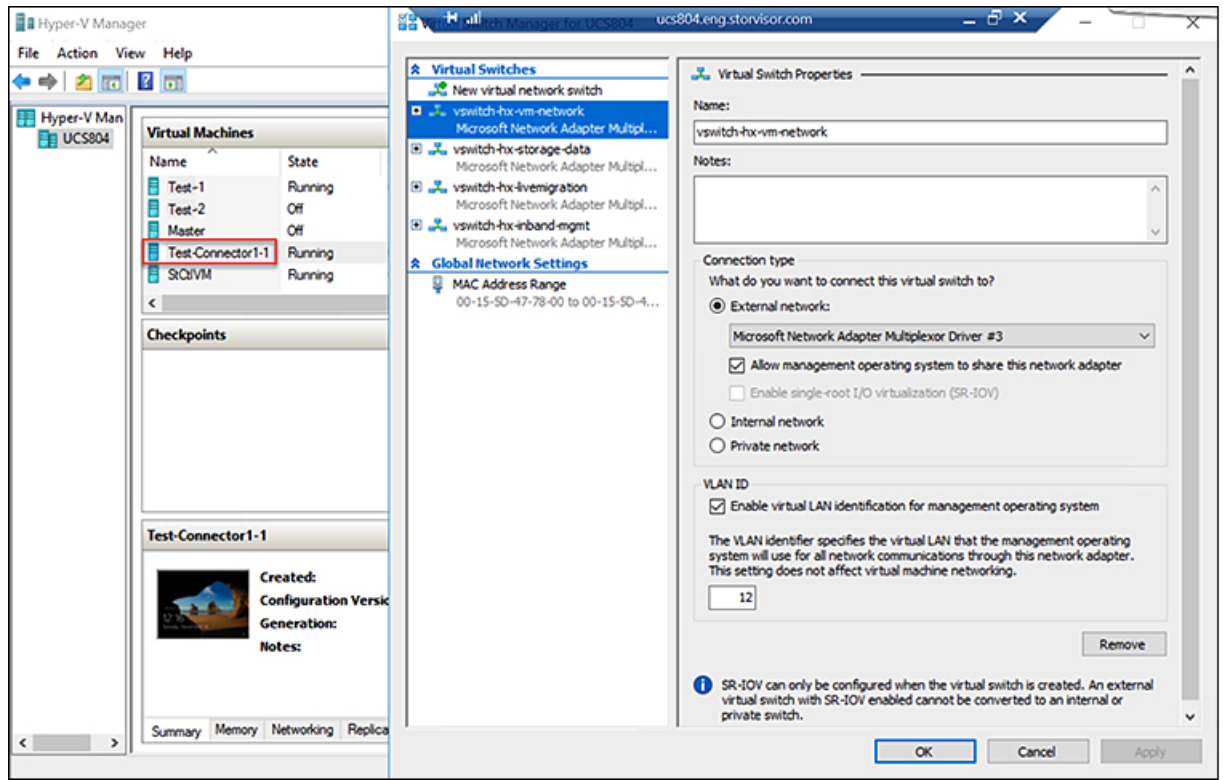
- Step 1** Log into the Hyper-V instance using a Remote Desktop connection.
- Step 2** Launch the Hyper-V Manager from the Microsoft Windows Server.
- Step 3** Verify that the installed Citrix Cloud Connector VM appears in the list of Virtual Machines in the HX cluster along with the original base VM.

Figure 15: Hyper-V Manager with Installed Citrix Cloud Connector VM



Step 4 If desired, you can verify the options of the newly created Citrix Cloud Connector VM.

Figure 16: Verifying Citrix Cloud Connector VM Settings in Hyper-V Manager—Example 1





CHAPTER 4

Connector VM Maintenance

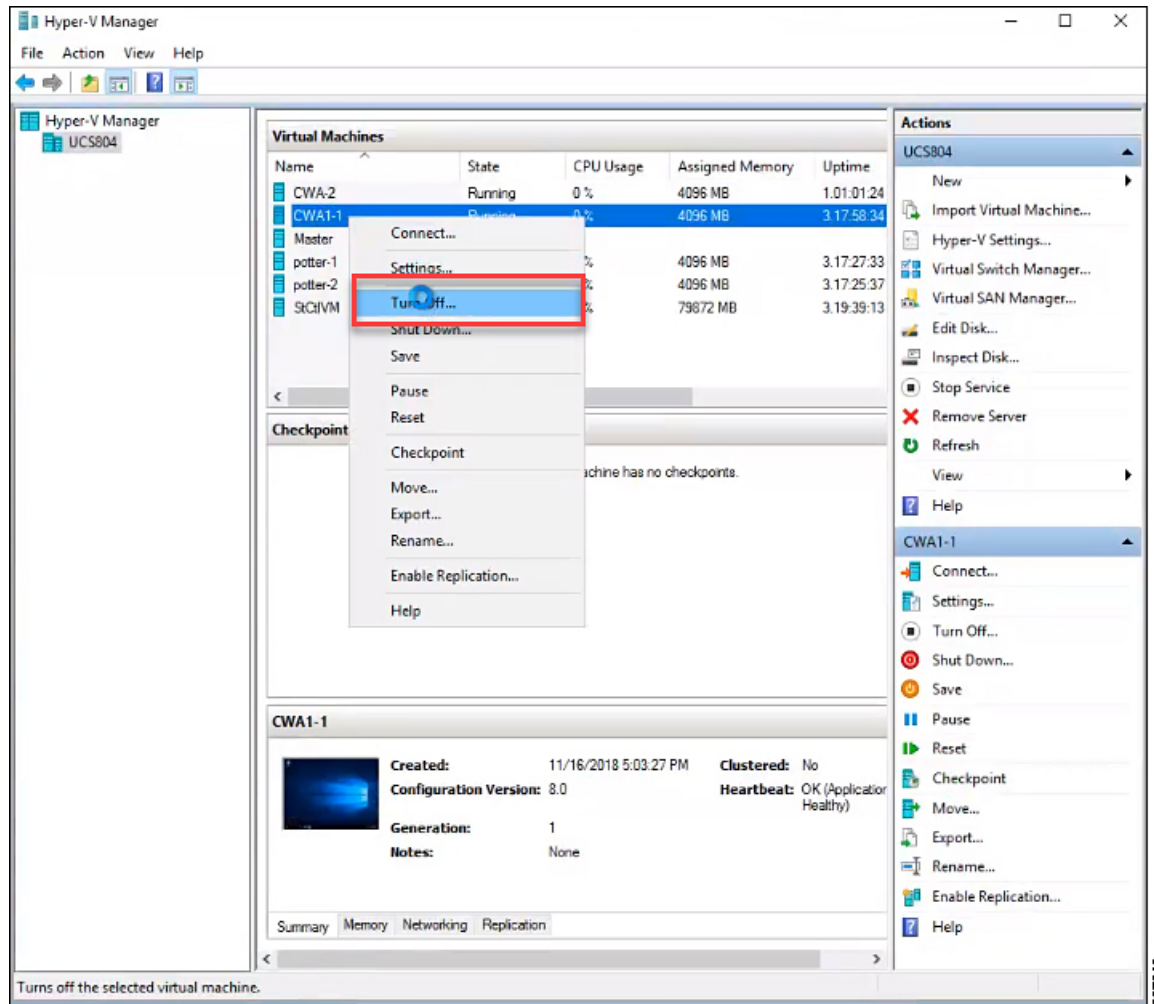
- [Deleting the Connector VM, on page 19](#)

Deleting the Connector VM

There may be instances where you need to delete the connector VM from Microsoft Hyper-V Server 2016. For example, you may need to change the resource location or you may wish to use a different base VM as the template for the connector VM. This procedure outlines how to delete the connector VM from the Hyper-V Manager, and how to perform a clean-up of entries from Hyper-V. This procedure also covers how to remove the Citrix Cloud Connector for the connector VM.

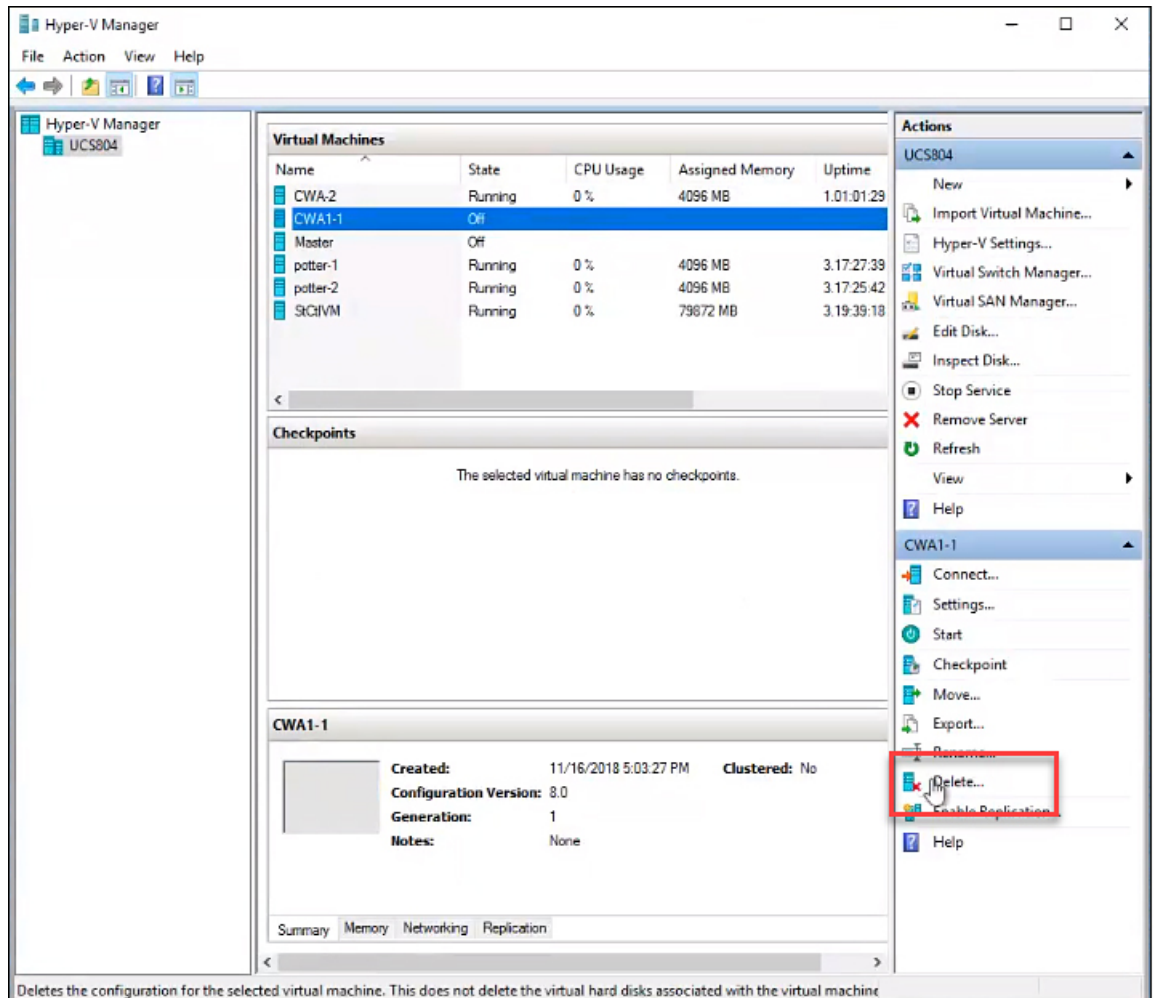
- Step 1** Log into the Hyper-V instance using a Remote Desktop connection and then launch the Hyper-V Manager from the Microsoft Windows Server.
- Step 2** From Hyper-V Manager, locate the installed Citrix Cloud Connector VM in the list of Virtual Machines in the HX cluster along with the original base VM.
- Step 3** Select the Citrix Cloud Connector VM, then right-click and select **Turn Off** from the menu. Confirm the action from the Turn Off Machine dialog box.

Figure 17: Turning Off the Citrix Cloud Connector VM

**Step 4**

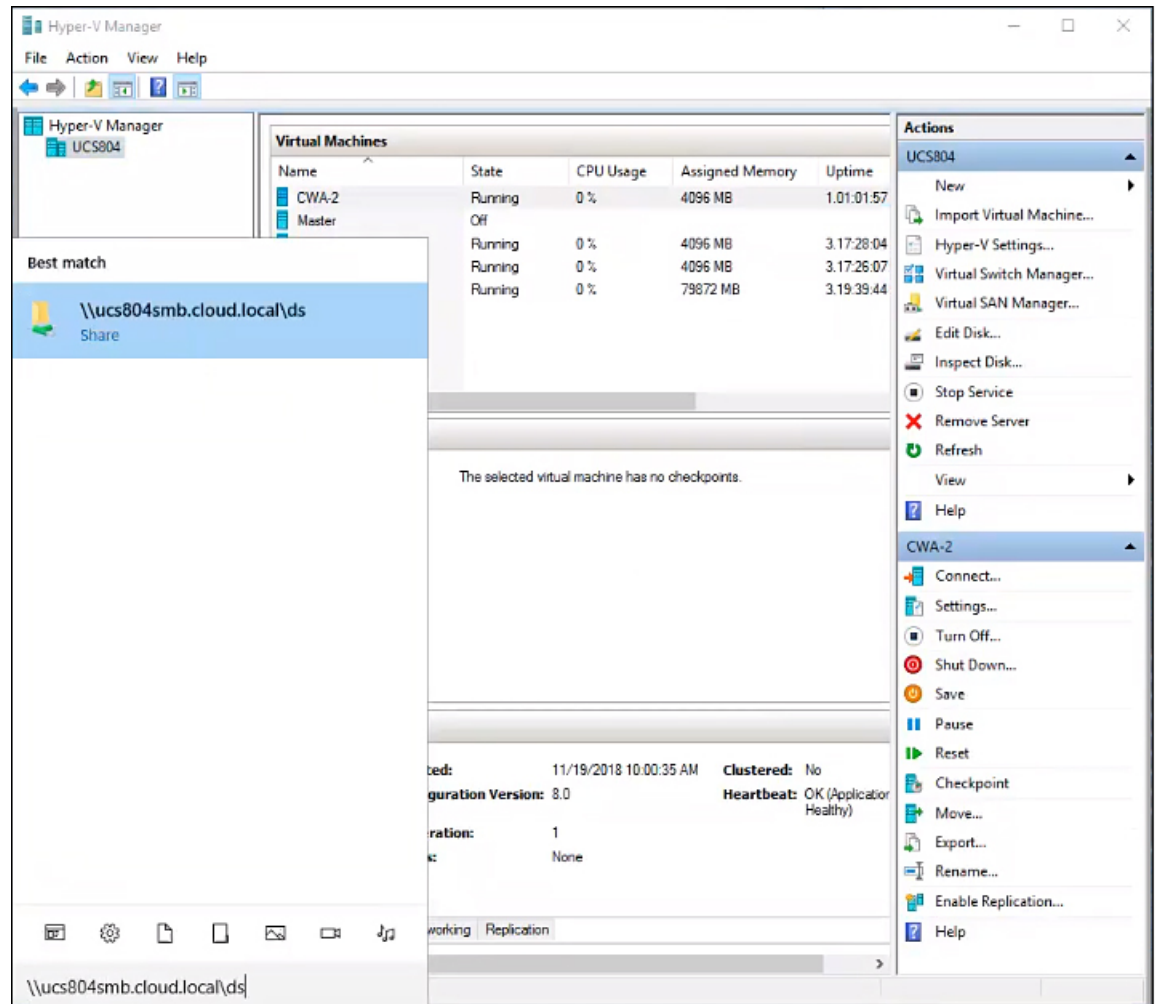
Select the VM, then select **Delete** from the list of actions. Confirm the deletion action from the Delete dialog box. The selected VM is deleted from the list of virtual machines in the HX cluster.

Figure 18: Deleting the Citrix Cloud Connector VM

**Step 5**

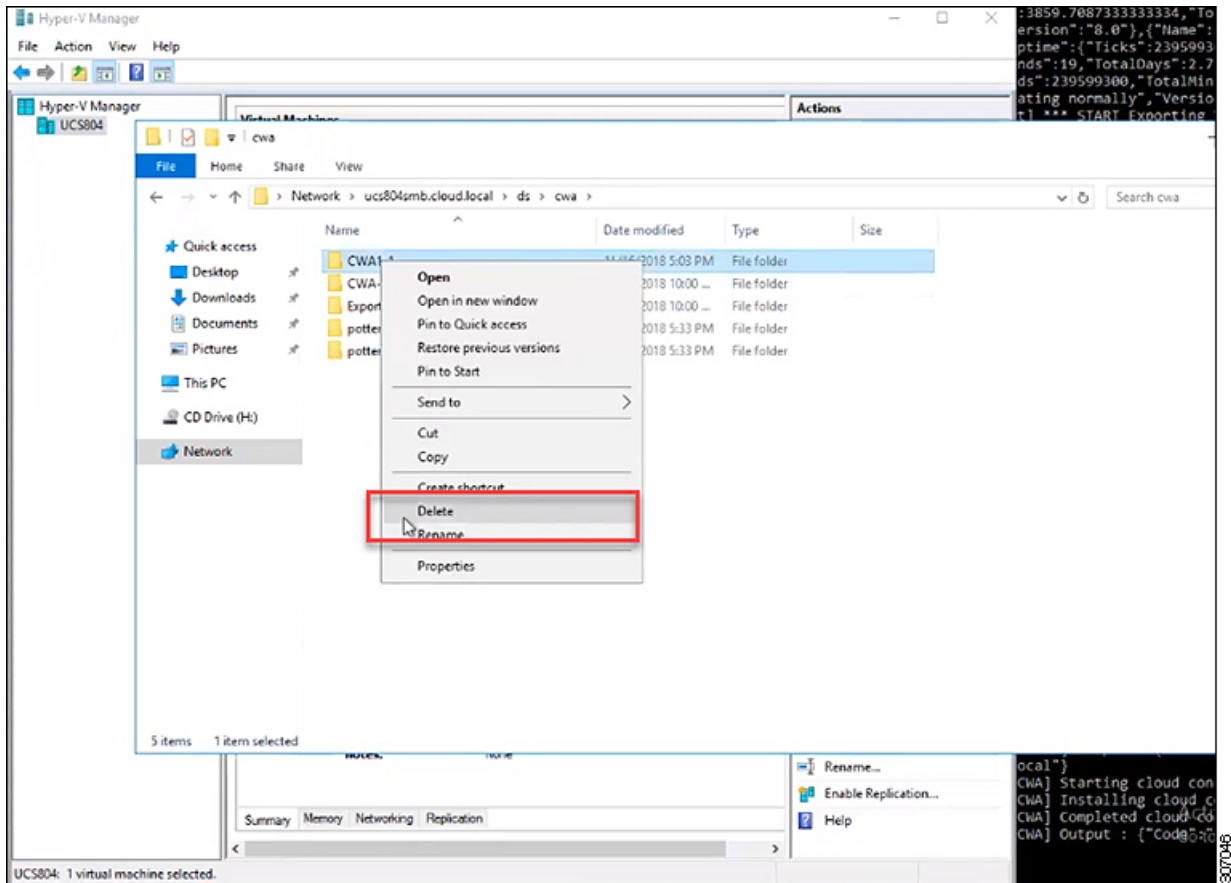
Open Windows Explorer and navigate to the location of the cluster SMB share and datastore folder in Hyper-V Manager on which the base VM is running (for example, \\ucs804smb.cloud.local\ds1).

Figure 19: Navigating to the SMB Folder



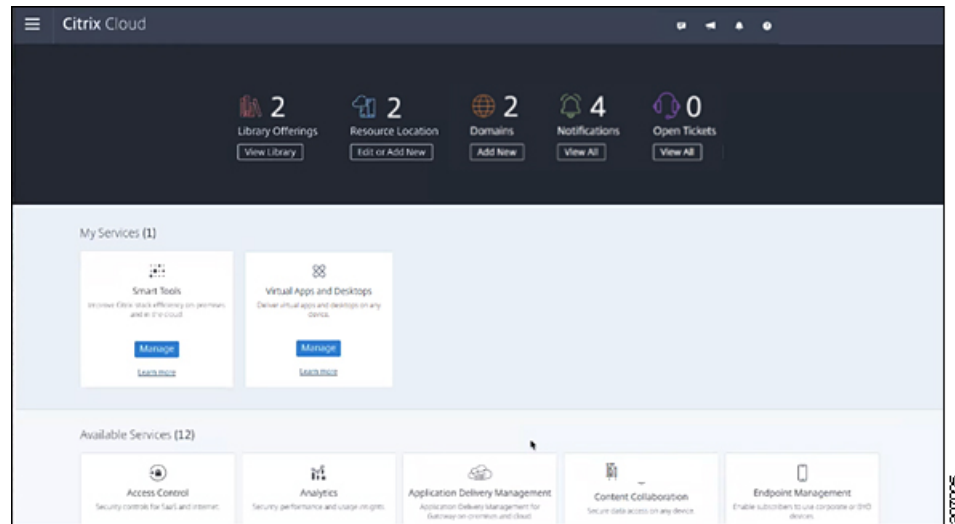
- Step 6** Locate the Citrix Cloud Connector VM folder. Right-click the folder and select **Delete** to remove the folder and all stale entries that are contained in the folder.

Figure 20: Deleting the Citrix Cloud Connector VM Folder



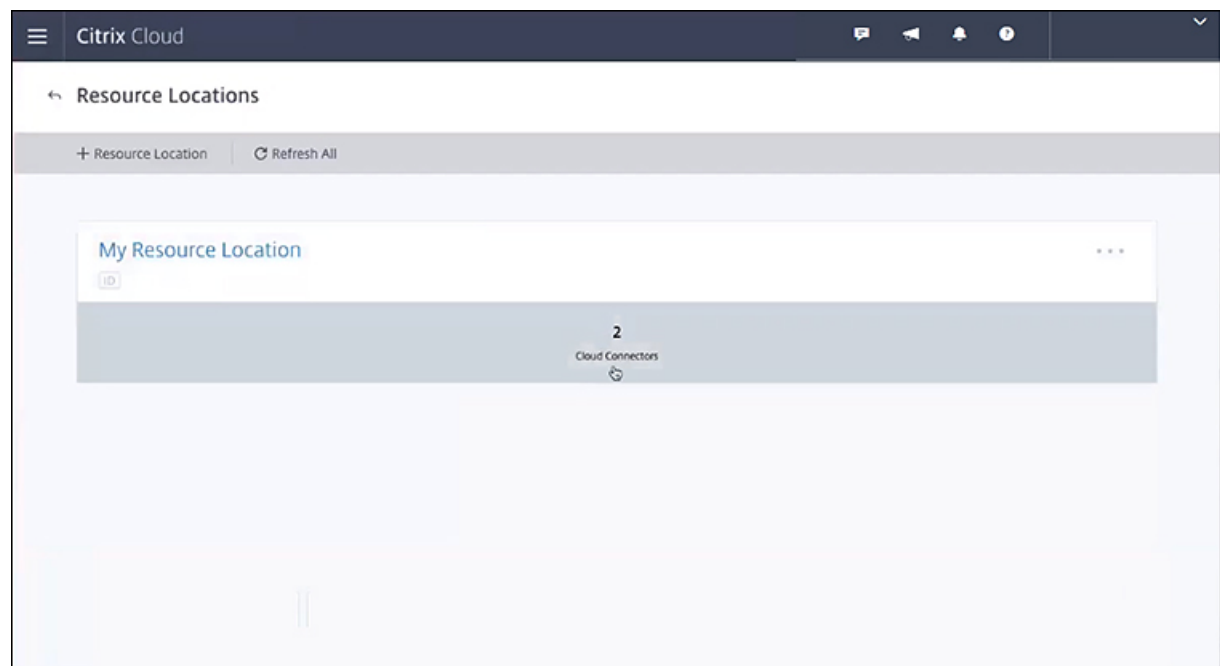
- Step 7** Enter your Citrix credentials (Citrix.com, My Citrix, or Citrix Cloud) to securely log in to your Citrix Cloud account. Be sure to sign in with the email address and password you provided when you signed up.
- If your company allows you to sign-in to Citrix Cloud using their company credentials instead of a Citrix account, click **Sign in with my company credentials** and enter your company's sign in URL for your account.
- Step 8** After signing into the Citrix Cloud GUI, click **Resource Location** to access the Resource Locations page.

Figure 21: Citrix Cloud



Step 9 From the Resource Locations page, click **Refresh All** to see the Citrix Cloud Connectors.

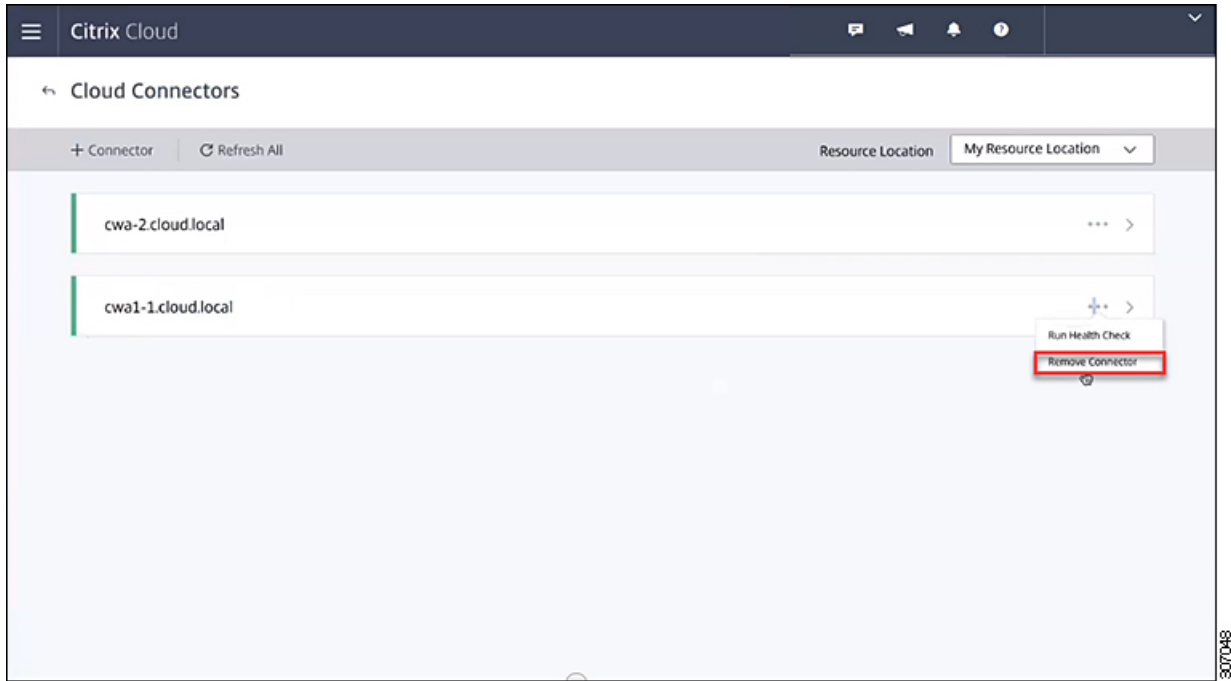
Figure 22: Resource Locations Page



Step 10 Click **Cloud Connection** to view the available Citrix Cloud Connectors for the resource location.

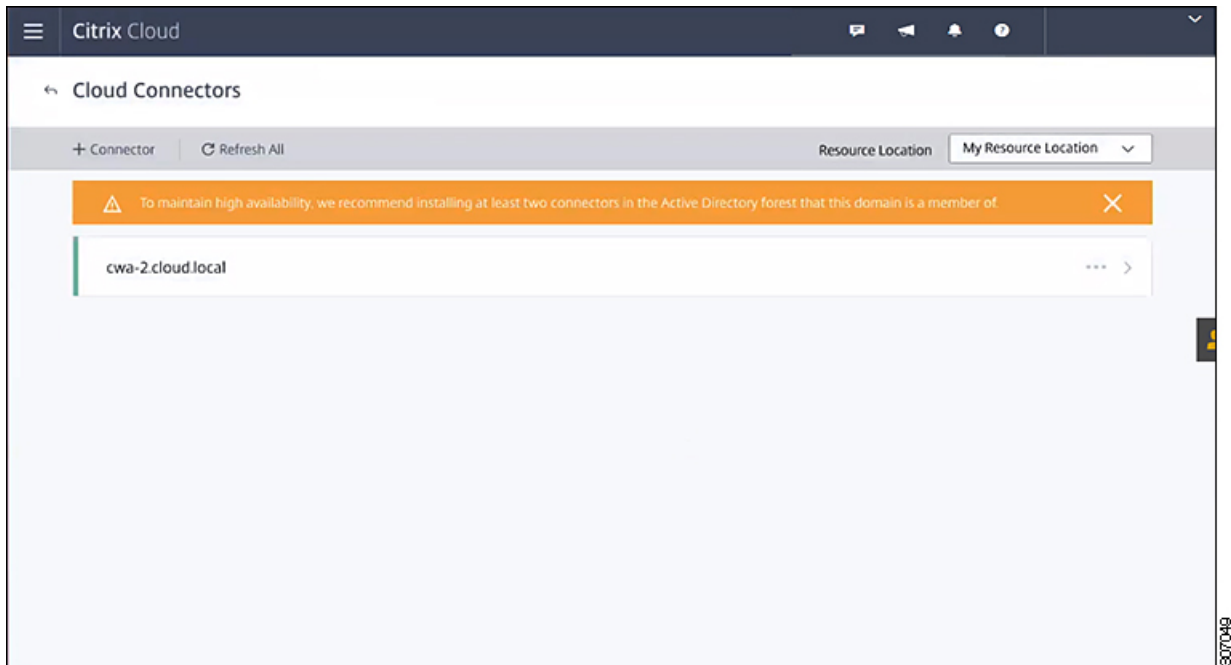
Step 11 Select the Citrix Cloud Connector that you want to delete from the Cloud Connections page, and then right-click and select **Remove Connector** from the menu.

Figure 23: Cloud Connections Page



The Citrix Cloud Connector is removed from the Cloud Connections page of Resource Locations.

Figure 24: Cloud Connections Page with Removed Citrix Cloud Connector



At this point, you can restart the sequence in configuring the Cisco HyperFlex system to connect to Citrix Cloud as outlined in this chapter.
