



Cisco UCS Director HyperFlex Systems Management Guide, Release 6.5

First Published: 2017-07-11

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <http://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

© 2017 Cisco Systems, Inc. All rights reserved.



CONTENTS

Preface

Preface v

Audience v

Conventions v

Related Documentation vii

Documentation Feedback vii

Obtaining Documentation and Submitting a Service Request vii

CHAPTER 1

New and Changed Information for this Release 1

New and Changed Information for this Release 1

CHAPTER 2

Overview 3

Integration between Cisco UCS Director and Cisco HyperFlex System 3

Cisco UCS Director 3

Cisco HyperFlex HX-Series Systems 5

Cisco HyperFlex HX-Series System Documentation 5

CHAPTER 3

Setting Up a HyperFlex Pod 7

Prerequisites 7

Cisco HyperFlex System Prerequisites 7

Cisco UCS Director Prerequisites 8

HyperFlex Pod Configuration 8

Creating a HyperFlex Pod in Cisco UCS Director 9

Manual Configuration of HyperFlex Pod in Cisco UCS Director 10

Adding a Pod 11

Creating a VMware Cloud 13

Adding a Cisco UCS Manager Account 16

Adding a HyperFlex Account 18

CHAPTER 4**Provisioning VMs 21**

- VM Provisioning on HyperFlex Pods 21
- Virtual Data Centers on HyperFlex Pods 21
- ReadyClone VMs on HyperFlex Pods 21
 - Guidelines for VM Provisioning with ReadyClone VMs 22
 - Provisioning VMs with ReadyClone VMs 22

CHAPTER 5**Managing HyperFlex Pods 25**

- Reports for HyperFlex Pods 25
 - Summary Reports 25
 - Tabular Reports 26
 - Stack Views for VMs 26
 - Inventory Collection 27
- HyperFlex Clusters 28
 - Creating a Port Group 29
 - Deleting a Port Group 30
 - Creating a Dv Port Group 30
 - Deleting a Dv Port Group 32
- ESXi Hosts 32
 - Managing ESXi Hosts on a HyperFlex Pod 32
 - Moving ESXi Hosts into and out of ESXi Maintenance Mode 33
- Managing HX Servers 33
- Managing Datastores 34
- Managing VMs 34

CHAPTER 6**Automating HyperFlex Provisioning and Management 37**

- Automation with Orchestration Workflows 37
- Predefined Workflows for HyperFlex 37
- Viewing Predefined Workflows in the Workflow Designer 39
- Predefined Workflow Tasks for HyperFlex 39
- Opening the Task Library 40



Preface

- [Audience, page v](#)
- [Conventions, page v](#)
- [Related Documentation, page vii](#)
- [Documentation Feedback, page vii](#)
- [Obtaining Documentation and Submitting a Service Request, page vii](#)

Audience

This guide is intended primarily for data center administrators who use Cisco UCS Director and who have responsibilities and expertise in one or more of the following:

- Server administration
- Storage administration
- Network administration
- Network security
- Virtualization and virtual machines

Conventions

Text Type	Indication
GUI elements	GUI elements such as tab titles, area names, and field labels appear in this font . Main titles such as window, dialog box, and wizard titles appear in this font .
Document titles	Document titles appear in <i>this font</i> .
TUI elements	In a Text-based User Interface, text the system displays appears in <i>this font</i> .

Text Type	Indication
System output	Terminal sessions and information that the system displays appear in <i>this font</i> .
CLI commands	CLI command keywords appear in this font . Variables in a CLI command appear in <i>this font</i> .
[]	Elements in square brackets are optional.
{x y z}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
<>	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

**Note**

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the document.

**Caution**

Means *reader be careful*. In this situation, you might perform an action that could result in equipment damage or loss of data.

**Tip**

Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

**Timesaver**

Means *the described action saves time*. You can save time by performing the action described in the paragraph.

**Warning****IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Related Documentation

Cisco UCS Director Documentation Roadmap

For a complete list of Cisco UCS Director documentation, see the *Cisco UCS Director Documentation Roadmap* available at the following URL: http://www.cisco.com/en/US/docs/unified_computing/ucs/ucs-director/doc-roadmap/b_UCSDirectorDocRoadmap.html.

Cisco UCS Documentation Roadmaps

For a complete list of all B-Series documentation, see the *Cisco UCS B-Series Servers Documentation Roadmap* available at the following URL: <http://www.cisco.com/go/unifiedcomputing/b-series-doc>.

For a complete list of all C-Series documentation, see the *Cisco UCS C-Series Servers Documentation Roadmap* available at the following URL: <http://www.cisco.com/go/unifiedcomputing/c-series-doc>.

**Note**

The *Cisco UCS B-Series Servers Documentation Roadmap* includes links to documentation for Cisco UCS Manager and Cisco UCS Central. The *Cisco UCS C-Series Servers Documentation Roadmap* includes links to documentation for Cisco Integrated Management Controller.

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to ucs-director-docfeedback@cisco.com. We appreciate your feedback.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the [What's New in Cisco Product Documentation RSS feed](#). RSS feeds are a free service.



New and Changed Information for this Release

- [New and Changed Information for this Release, page 1](#)

New and Changed Information for this Release

The following table provides an overview of the significant changes to this guide for this current release. The table does not provide an exhaustive list of all changes made to this guide or of all new features in this release.

Feature	Description	Where Documented
New All Pods summary reports	Three summary reports available for all-pod comparison.	Summary Reports, on page 25
Service Requests information availability	Access to service requests is now available from the high-level pod page.	Tabular Reports, on page 26
New Cluster reports	Several additional reports available for HyperFlex cluster details.	HyperFlex Clusters, on page 28
Report locations updated	Changes to the location of these reports: <ul style="list-style-type: none"> • Controller Nodes moved to Cluster Details • ESXi Hosts moved to the high-level pod page • VM Templates moved to the high-level pod page • Disk Details moved to Cluster Details > HX Servers 	

Feature	Description	Where Documented
VM port group management	Ability to create, edit, and delete VM port groups.	Creating a Port Group, on page 29 Deleting a Port Group, on page 30



CHAPTER 2

Overview

- [Integration between Cisco UCS Director and Cisco HyperFlex System, page 3](#)
- [Cisco UCS Director, page 3](#)
- [Cisco HyperFlex HX-Series Systems, page 5](#)

Integration between Cisco UCS Director and Cisco HyperFlex System

The integration between Cisco UCS Director and Cisco HyperFlex System begins after you create the Cisco HX Data Platform clusters. After you configure the integration, Cisco UCS Director can communicate with the components of a supported Cisco HyperFlex System, including the following:

- VMware vCenter
- Supported Cisco UCS servers that are managed by Cisco UCS Manager
- Cisco HX Data Platform

You can use Cisco UCS Director to manage the following for a supported and integrated Cisco HyperFlex System:

- Inventory collection
- Discovery of clusters, disks, datastores, and controller VMs
- Datastore provisioning and management
- Automation and orchestration of VM provisioning
- Status reporting

Cisco UCS Director

Cisco UCS Director is a complete, highly secure, end-to-end management, orchestration, and automation solution for a wide array of Cisco and non-Cisco data infrastructure components, and for the industry's leading

converged infrastructure solutions based on the Cisco UCS and Cisco Nexus platforms. For a complete list of supported infrastructure components and solutions, see the [Cisco UCS Director Compatibility Matrix](#).

Cisco UCS Director is a 64-bit appliance that uses the following standard templates:

- Open Virtualization Format (OVF) for VMware vSphere
- Virtual Hard Disk (VHD) for Microsoft Hyper-V

Management through Cisco UCS Director

Cisco UCS Director extends the unification of computing and networking layers through Cisco UCS to provide you with comprehensive visibility and management of your data center infrastructure components. You can use Cisco UCS Director to configure, administer, and monitor supported Cisco and non-Cisco components. The tasks you can perform include the following:

- Create, clone, and deploy service profiles and templates for all Cisco UCS servers and compute applications.
- Monitor organizational usage, trends, and capacity across a converged infrastructure on a continuous basis. For example, you can view heat maps that show virtual machine (VM) utilization across all your data centers.
- Deploy and add capacity to converged infrastructures in a consistent, repeatable manner.
- Manage, monitor, and report on data center components, such as Cisco UCS domains or Cisco Nexus network devices.
- Extend virtual service catalogs to include services for your physical infrastructure.
- Manage secure multi-tenant environments to accommodate virtualized workloads that run with non-virtualized workloads.

Automation and Orchestration with Cisco UCS Director

Cisco UCS Director enables you to build workflows that provide automation services, and to publish the workflows and extend their services to your users on demand. You can collaborate with other experts in your company to quickly and easily create policies. You can build Cisco UCS Director workflows to automate simple or complex provisioning and configuration processes.

Once built and validated, these workflows perform the same way every time, no matter who runs the workflows. An experienced data center administrator can run them, or you can implement role-based access control to enable your users and customers to run the workflows on a self-service basis, as needed.

With Cisco UCS Director, you can automate a wide array of tasks and use cases across a wide variety of supported Cisco and non-Cisco hardware and software data center components. A few examples of the use cases that you can automate include, but are not limited to:

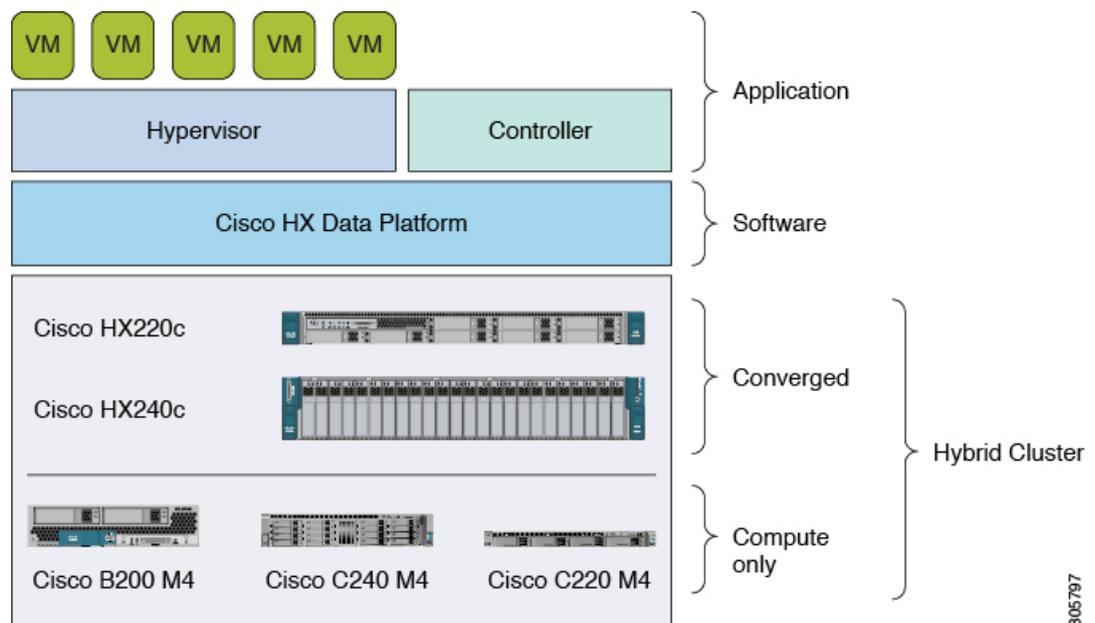
- VM provisioning and lifecycle management
- Network resource configuration and lifecycle management
- Storage resource configuration and lifecycle management
- Tenant onboarding and infrastructure configuration
- Application infrastructure provisioning
- Self-service catalogs and VM provisioning

- Bare metal server provisioning, including installation of an operating system

Cisco HyperFlex HX-Series Systems

Cisco HyperFlex HX-Series System provides a fully contained virtual server platform, that combines all three layers of compute, storage, and network with the powerful Cisco HX Data Platform software tool resulting in a single point of connectivity for simplified management. The Cisco HyperFlex HX-Series Systems are modular systems designed to scale out by adding HX nodes under a single UCS management domain. The hyperconverged system provides a unified pool of resources based on your workload needs.

Figure 1: Overview of the Cisco HyperFlex System



305797

Cisco HyperFlex HX-Series System Documentation

See the listed Cisco HyperFlex HX-Series System document for the associated tasks.

You can access links to all Cisco HyperFlex HX-Series System documentation on the [Cisco HyperFlex Systems Documentation Roadmap](#).

To perform the following	See the document
Review a list of new features, known issues, and workarounds.	Release Notes for Cisco HX Data Platform
Install and complete initial setup of your HX Data Platform.	HyperFlex Node Hardware Installation Guides Cisco HyperFlex Systems Getting Started Guide

To perform the following	See the document
Administer, manage, and monitor your HX Storage Cluster using the HX Data Platform plug-in on your VMware vSphere Web Client.	Cisco HyperFlex Systems Administration Guide
Administer, manage, and monitor your HX Storage Cluster using the HX Data Platform command line interface on an HX controller VM.	Cisco HX Data Platform Command Line Interface Reference Guide



Setting Up a HyperFlex Pod

- [Prerequisites, page 7](#)
- [HyperFlex Pod Configuration, page 8](#)
- [Creating a HyperFlex Pod in Cisco UCS Director, page 9](#)
- [Manual Configuration of HyperFlex Pod in Cisco UCS Director, page 10](#)

Prerequisites

Before you configure this integration, you must complete the prerequisites in Cisco HyperFlex System and Cisco UCS Director.

Cisco HyperFlex System Prerequisites

The following prerequisites must be completed in your Cisco HyperFlex System before you integrate it with Cisco UCS Director:

Prerequisite	Link to Documentation
Install the Cisco HyperFlex HX-Series node.	Cisco HyperFlex HX-Series Install and Upgrade Guides
Install and configure the Cisco HyperFlex System software.	Cisco HyperFlex Systems Getting Started Guide
Create the Cisco HX Data Platform clusters in VMware vCenter.	Cisco HyperFlex Systems Getting Started Guide

Cisco UCS Director Prerequisites

The following prerequisites must be completed in Cisco UCS Director before you integrate your Cisco HyperFlex System:

Prerequisite	Link to Documentation
Install Cisco UCS Director.	Cisco UCS Director Installation Guides
(Optional) Install Cisco UCS Director Bare Metal Agent.	Cisco UCS Director Installation Guides
Install the Cisco UCS Director licenses.	Cisco UCS Director Installation Guides
Create the required groups and users.	Cisco UCS Director Administration Guide

HyperFlex Pod Configuration

When you log in to Cisco UCS Director, the Converged screen is displayed. This screen displays the currently configured pods in your environment. From this screen, you can add a new pod, or you can select a pre-existing pod and view the resource details within the pod.

You can create pods manually or by using a guided setup wizard.

Add All Servers with the HyperFlex Pod Configuration Wizard

The **HyperFlex Pod Configuration** wizard guides you through the creation of a pod in Cisco UCS Director for your Cisco HyperFlex System. It automatically adds all servers in a Cisco UCS Manager account. If you use this wizard, there is no option to add only certain servers to the pod. For configuring HyperFlex pod using guided setup wizard, see [Creating a HyperFlex Pod in Cisco UCS Director](#), on page 9

Add Either Selected Servers or All Servers with a Manual Setup

A manual setup enables you to add either selected servers or all servers in a Cisco UCS Manager account based on the number of physical server licenses purchased. For manual configuration of HyperFlex pod, see [Manual Configuration of HyperFlex Pod in Cisco UCS Director](#), on page 10

After you complete the pod configuration, your Cisco HyperFlex System is available for datastore management and for VM provisioning.

Creating a HyperFlex Pod in Cisco UCS Director

Before You Begin

You must complete all prerequisites in [Prerequisites](#), on page 7.

Step 1 Choose **Administration** > **Guided Setup**.

Step 2 Double-click **HyperFlex Pod Setup** to launch the wizard.

If the **Guided Setup** screen launches when you open Cisco UCS Director, check the box for the **HyperFlex Pod Configuration** wizard and click **Submit** twice. You can then move to Step 4.

Step 3 On the **Overview** screen, review the content and click **Next**.

Step 4 On the **Pod** screen, do one of the following and then click **Next**.

- From the **Pod** drop-down list, choose an existing HyperFlex pod.
- Click **Add POD Form** to complete the fields to create a new HyperFlex pod and then click **Add**.

Step 5 On the **VMware** screen, do the following:

a) From the **Accounts** drop-down list, choose one of the following:

- An existing VMware cloud account
- **Select** to create a new VMware cloud account

b) If you chose **Select**, complete the fields in the **Create New Account** area.

To create a new account, you need the following:

- Cloud name
- vCenter or host address
- Credential policy or the user ID and password for a valid vCenter account with administrative or root privileges
- Port used to access the vCenter address
- Access URL

The remaining fields on the screen are optional.

c) Click **Next**.

Step 6 On the **Cisco UCS Manager** screen, do the following:

a) From the **Accounts** drop-down list, choose one of the following:

- An existing Cisco UCS Manager account
- **Select** to create a new Cisco UCS Manager account

b) If you chose **Select**, complete the fields in the **Create New Account** area.

To create a new account, you need the following:

- Account name

- Server address
- Credential policy or the user ID and password for a valid Cisco UCS Manager account with administrative privileges
- Transport type
- Port used to access that address

Note This process automatically adds all the servers to the pod. If the number of licenses are less than the number of servers, you receive an error message. To resolve this issue, cancel the guided setup wizard, and instead configure the HyperFlex Pod manually. See [Manual Configuration of HyperFlex Pod in Cisco UCS Director, on page 10](#).

c) Click **Next**.

Step 7 On the **Cisco HyperFlex** screen, do the following:

a) From the **Accounts** drop-down list, choose one of the following:

- An existing Cisco HyperFlex account
- **Select** to create a new Cisco HyperFlex account

b) If you chose **Select**, complete the fields in the **Create New Account** area. To create a new account, you enter the following:

- Account name
- Cluster management IP address
- Check **Use Credential Policy** check box if you want to use an existing credential policy and select a Credential policy from the drop-down list
- User ID and password for a valid Cisco HX Data Platform account with administrative privileges if you do not use a credential policy
- HTTPS port and SSH port that use the same HyperFlex credentials

c) Click **Next**.

Step 8 On the **Summary** screen, review the status of each item that you configured in the wizard.

Step 9 Click **Close** if all items on the **Summary** screen are acceptable. To update your configuration, click **Back**.

Manual Configuration of HyperFlex Pod in Cisco UCS Director

Before You Begin

Complete all prerequisites in [Prerequisites, on page 7](#).

Verify that base licenses and server licenses to add Cisco UCS Manager and VMware accounts are available.

-
- Step 1** Create (or select a pre-existing) a HyperFlex pod. See [Adding a Pod, on page 11](#).
When selecting pod **Type**, choose **HyperFlex** pod from the drop-down list.
- Step 2** Add (or select a pre-existing) a VMware account. See [Creating a VMware Cloud, on page 13](#).
- Step 3** Add (or select a pre-existing) a Cisco UCS Manager account. See [Adding a Cisco UCS Manager Account, on page 16](#).
When selecting **Server Management**, choose **Selected Servers** from the drop-down list to add specific servers to the HyperFlex pod.
- Step 4** Add (or select a pre-existing) a HyperFlex account. See [Adding a HyperFlex Account, on page 18](#)
-

Adding a Pod

-
- Step 1** Choose **Administration > Physical Accounts**.
- Step 2** On the **Physical Accounts** page, click **Pods**.
- Step 3** Click **Add**.
- Step 4** On the **Add Pod** screen, complete the following fields:

Name	Description
Name field	A descriptive name for the pod.

Name	Description
Type drop-down list	<p>Choose the type of pod that you want to add. This can be one of the following:</p> <ul style="list-style-type: none"> • Flexpod • VersaStack • Generic • ExpressPod Medium • VSPEX • ExpressPod Small • Vblock • HyperFlex • Virtual SAN Pod <p>The nongeneric pod types accommodate only specific physical and virtual components. A generic pod does not require a specific pod license. You can add any type of physical or virtual component to a generic pod. For more information about bundled pod licenses (FlexPod, Vblock, and VSPEX), which include the necessary individual device licenses to run a pod, see the Cisco UCS Director Installation and Upgrade Guides.</p> <p>Note Only VersaStack and Generic pods are supported in the IBM accounts in Cisco UCS Director.</p>
Site drop-down list	Choose the site where you want to add the pod. If your environment does not include sites, you can omit this step.
Description field	(Optional) A description of the pod.
Address field	The physical location of the pod. For example, this field could include the city or other internal identification used for the pod.
Hide Pod check box	<p>Check to hide the pod if you do not want it to show in the Converged Check View. You can continue to add or delete accounts from the pod.</p> <p>For example, you can use this check box to ensure that a pod that does not have any physical or virtual elements is not displayed in the Converged View.</p>

Step 5 Click **Add**.**What to Do Next**

Add one or more accounts to the pod.

Creating a VMware Cloud

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

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



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

Step 1 Choose **Administration > Virtual Accounts**.

Step 2 On the **Virtual Accounts** page, click **Virtual Accounts**.

Step 3 Click **Add**.

Step 4 On the **Add Cloud** screen, complete the required fields, including the following:

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

Name	Description
Server Access Port field	The server port number.
Server Access URL field	The server access URL.
VMware Datacenter field	The data center name on the vCenter account.
Discover Datacenters / Clusters check box	Check this check box to discover and use any VMware datacenters and associated VMware clusters.
VMware Cluster field	The name of the VMware cluster in the vCenter account. This name allows you to discover, monitor, and manage the specified pod's resources. Leave the field blank if the entire vCenter account is managed by Cisco UCS Director.
Select Datacenters / Clusters field	Check the associated datacenters and clusters you want to use. Note This field is visible only when you check the Discover Datacenters / Clusters check box.
Enable SRM check box	Check this check box to enable Site Recovery Manager (SRM) for the account.
Primary SRM Server Address field	The IP address of the primary SRM server. Note This field is visible only when you check the Enable SRM check box.
Primary SRM Server User ID field	The user ID for the primary SRM server. Note This field is visible only when you check the Enable SRM check box.
Primary SRM Server Password field	The password of the user for the primary SRM server. Note This field is visible only when you check the Enable SRM check box.
Primary SRM Server Access Port field	The port number for the primary SRM server. For SRM version 6.0, enter 9086 as the port number. Note This field is visible only when you check the Enable SRM check box.
Remote SRM Server User ID field	The user ID for the remote SRM server. Note This field is visible only when you check the Enable SRM check box.
Remote SRM Server Password field	The password of the user ID for the remote SRM server. Note This field is visible only when you check the Enable SRM check box.

Name	Description
Use SSO check box	<p>Check this check box to use Single Sign-On (SSO) for authentication.</p> <p>The SSO option is only available for Virtual SAN (VSAN). SSO credentials are required for VM provisioning using storage profiles on the Virtual SAN cluster.</p>
SSO Server Address field	<p>The IP address of the Single-Sign On server.</p> <p>Note This field is visible only when you check the Use SSO check box.</p>
SSO Server User ID field	<p>The user ID for the SSO server.</p> <p>Note This field is visible only when you check the Use SSO check box.</p>
SSO Server Password field	<p>The password of the user ID for the SSO server.</p> <p>Note This field is visible only when you check the Use SSO check box.</p>
SSO Server Access URL field	<p>The URL for SSO server access.</p> <p>Note This field is visible only when you check the Use SSO check box.</p>
SSO Server Access Port field	<p>The port number. For vCenter version 5.x, enter 7444 as the port number.</p> <p>Note This field is visible only when you check the Use SSO check box.</p>
Server Access URL field	<p>The URL for server access.</p>
Description field	<p>The description of the cloud.</p>
Contact Email field	<p>The contact email address for the cloud.</p>
Location field	<p>The location.</p>
Pod drop-down list	<p>Choose the converged infrastructure pod.</p> <p>When you choose a pod name, the VMware cloud account is made available in the converged infrastructure stack.</p> <p>Note You cannot add more than one virtual account to a virtual SAN pod.</p>
Service Provider field	<p>The service provider's name.</p>

Step 5 Click Add.

Adding a Cisco UCS Manager Account

Before You Begin

Add the pod to which this Cisco UCS Manager account belongs.

Step 1 Choose **Administration > Physical Accounts**.

Step 2 Click **Physical Accounts**.

Step 3 Click **Add**.

Step 4 On **Add Account** screen, do the following:

- a) From the **Pod** drop-down list, choose the pod to which this account belongs.
- b) From the **Category Type** drop-down list, choose **Computing**.
- c) From the **Account Type** drop-down list, choose **UCSM**.
- d) Click **Submit**.

Step 5 On the **Add Account** screen, complete the following fields:

Name	Description
Authentication Type drop-down list	Choose the type of authentication to be used for this account. This can be one of the following: <ul style="list-style-type: none"> • Locally Authenticated—A locally authenticated user account is authenticated directly through the fabric interconnect and can be enabled or disabled by anyone with admin or AAA privileges. • Remotely Authenticated—A remotely authenticated user account is any user account that is authenticated through LDAP, RADIUS, or TACACS+.
Server Management drop-down list	Choose how you want to have the servers in this account managed. This can be one of the following: <ul style="list-style-type: none"> • All Servers—All servers are managed. This option is the default. If you choose this option, all servers are added in the Managed state. • Selected Servers—Only selected servers are managed. You can add and remove servers from the managed server list as needed. If you choose this option, all servers are added in the Unmanaged state.
Account Name field	A unique name that you assign to this account.
Server Address field	The IP address of Cisco UCS Manager. For a cluster configuration, this is the virtual IP address.

Name	Description
Use Credential Policy check box	Check this check box if you want to use a credential policy for this account rather than enter the information manually.
Credential Policy drop-down list	If you checked the Use Credential Policy check box, choose the credential policy that you want to use from this drop-down list. This field is only displayed if you choose to use a credential policy.
User ID field	The username that this account will use to access Cisco UCS Manager. This username must be a valid account in Cisco UCS Manager. This field is not displayed if you choose to use a credential policy.
Password field	The password associated with the username. This field is not displayed if you choose to use a credential policy.
UCS Authentication Domain field	The authentication domain for the remotely authenticated account. This field is not displayed if you are using a locally authenticated account or if you choose to use a credential policy.
Transport Type drop-down list	Choose the transport type that you want to use for this account. This can be one of the following: <ul style="list-style-type: none"> • http • https This field is not displayed if you choose to use a credential policy.
Port field	The port used to access Cisco UCS Manager. This field is not displayed if you choose to use a credential policy.
Description field	(Optional) A description of this account.
Contact Email field	The email address that you can use to contact the administrator or other person responsible for this account.
Location field	The location of this account.
Service Provider field	(Optional) The name of the service provider associated with this account, if any.

Step 6 Click Add.

Cisco UCS Director tests the connection to Cisco UCS Manager. If that test is successful, it adds the Cisco UCS Manager account and discovers all infrastructure elements in Cisco UCS Manager that are associated

with that account, including chassis, servers, fabric interconnects, service profiles, and pools. This discovery process and inventory collection cycle takes approximately five minutes to complete.

The polling interval configured on the **Administration > System > System Tasks** tab specifies the frequency of inventory collection.

Adding a HyperFlex Account

Step 1 Choose **Administration > Physical Accounts**.

Step 2 On the **Physical Accounts** page, click **Physical Accounts**.

Step 3 Click **Add**.

Step 4 On the **Add Account** screen, complete the following fields:

Name	Description
Pod drop-down list	Choose the HyperFlex pod to which this physical account belongs.
Category drop-down list	Choose Storage.
Account Type drop-down list	Choose HyperFlex .

Step 5 Click **Submit**.

Step 6 On the **Add Account** screen, complete the following fields:

Name	Description
Account Name field	A unique name for the physical account that you want to add.
Description field	A description of the account.
Cluster Management IP Address field	The HyperFlex cluster management IP address.
Use Credential Policy check box	Check this box if you want to use a credential policy for this account rather than enter the information manually.
Credential Policy drop-down list	If you checked Use Credential Policy , choose the credential policy that you want to use from this drop-down list. This field is only displayed if you choose to use a credential policy.
Username field	The username for accessing this account. This field is not displayed if you choose to use a credential policy.

Name	Description
Password field	The password associated with the username. This field is not displayed if you choose to use a credential policy.
HTTPs Port field	Enter server port number that you want to use for the account. This field is not displayed if you choose to use a credential policy.
SSH Port field	Enter SSH port number to execute CLI commands. This field is not displayed if you choose to use a credential policy.
Contact field	The contact email address for the account.
Location field	The location.

Step 7 Click **Submit**.

Cisco UCS Director tests the connection to Cisco HyperFlex. If that test is successful, it adds the account and discovers all infrastructure elements that are associated with that account. This discovery process and inventory collection cycle takes approximately five minutes to complete.

The polling interval configured on the **Administration > System > System Tasks** tab specifies the frequency of inventory collection.



Provisioning VMs

- [VM Provisioning on HyperFlex Pods, page 21](#)
- [Virtual Data Centers on HyperFlex Pods, page 21](#)
- [ReadyClone VMs on HyperFlex Pods, page 21](#)

VM Provisioning on HyperFlex Pods

You have two options for provisioning VMs on a HyperFlex pod. The option you choose depends upon how many VMs you want to provision at one time and whether you want to enable your end users to provision VMs on a HyperFlex pod.

- VDC-based VMs enable a user with administrative permissions or your end users to provision one VM at a time.
- ReadyClone VMs enable a user with administrative permissions to provision multiple VMs at a time. ReadyClone VMs perform rapid cloning of many VMs through HyperFlex technology. All of these VMs must be based on the same VM template. See the [Cisco HyperFlex Data Platform Management Guide](#) for more information about ReadyClone VMs on Cisco HX Data Platform.

Virtual Data Centers on HyperFlex Pods

You can use a Virtual Data Center (VDC) to provision a VM on a HyperFlex pod through the standard Cisco UCS Director VM provisioning process. If you provision VMs with VDCs, you must ensure that all HyperFlex VDCs have the recommended configuration.

See the [Cisco UCS Director Administration Guide](#) for more information about VDCs and how to provision VMs.

ReadyClone VMs on HyperFlex Pods

ReadyClone VMs enable you to rapidly create and customize multiple cloned VMs from the same VM template. When the cloning operation is complete, the ReadyClone VM is a separate guest VM with its own operating system.

Changes made to a ReadyClone VM do not affect the VM template. A ReadyClone VM's MAC address and UUID are different from those of the VM template.

For more information about the features, benefits, best practices, and guidelines for ReadyClone VMs, see the [Cisco HyperFlex Data Platform Management Guide](#).

Guidelines for VM Provisioning with ReadyClone VMs

Review the following guidelines before you provision the VMs using ReadyClone.

Required User Permissions

You must have Cisco UCS Director administrative privileges to provision ReadyClone VMs in the Cisco UCS Director Admin Portal.

VM Template Must Meet HyperFlex Guidelines

The VM template that you use to create ReadyClone VMs must meet the guidelines provided in the [Cisco HyperFlex Data Platform Management Guide](#).

Maximum Number of VMs to Be Provisioned at One Time

You can simultaneously provision between 1 and 256 ReadyClone VMs from a single VM template.

Guest Operating System Restrictions

All VMs provisioned with ReadyClone must use the same customization specification in VMware vCenter for the guest operating system (OS) settings. The guest OS can be either Linux or Windows.

ReadyClone Check box Availability

To provision a VM through ReadyClone:

- Check the ReadyClone check box during Storage Policy configuration.
- Check the ReadyClone check box during Catalog creation.
- When using a Standard Catalog for provisioning, verify that the selected image is on an HX datastore, and the VM does not have multiple disks and VMware snapshots.

If this condition is not met, you will receive an error message when you use ReadyClone option to provision a VM.

Provisioning VMs with ReadyClone VMs

Before You Begin

- Create the desired VM templates in VMware vCenter.
- (Optional) Create a customization specification in VMware vCenter to specify the guest OS settings for all VMs.
- Make sure that the datastore with the VM template is mounted on all of the hosts in the HX cluster.

- The space required for the number of VMs being provisioned must be less than the free space available on the datastore to avoid provisioning failure.

-
- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **VM Templates**.
- Step 4** Click the row with the VM template on which you want to base the ReadyClone VMs and then click **Create ReadyClone VMs**.
- Step 5** On the **Create HyperFlex ReadyClone VMs** screen, complete the required fields, including the following:
- a) In the **Number of Clones** field, enter the number of VMs that you want to provision from this template. You can provision a minimum of one VM and a maximum of 256 VMs.
 - b) (Optional) From the **Customization Spec Name** drop-down list, choose the name of the customization specification that you want to use for the cloned VMs. The customization specification can include either Linux or Windows guest OS settings. See the [Cisco HyperFlex Data Platform Management Guide](#).
 - c) (Optional) Expand the **Resource Pool Name** field, click the row with the resource pool that you want to use for the VMs and then click **Select**.
 - d) In the **VM Name Prefix** field, enter the prefix that you want to use for the VM names.
 - e) In the **Guest Name Prefix** field, enter the prefix that you want to use for the guest host VM names.
 - f) In the **Start clone number** field, enter the number that you want to use for the first VM created. The system appends this number to the name prefix of the first VM clone. For example, if you choose **clone** for the VM name prefix and **1** for the start clone number, the first VM is named **clone1**.
 - g) In the **Increment clone number** field, enter the number by which you want to increment all subsequent clones. For example, if the first VM is named **clone1** and you enter **1** for the increment clone number, all subsequent VM names are incremented by 1, such as **clone2**, **clone3**, and so on.
 - h) Check **Power ON after deploy** if you want the guest VMs to automatically turn on after the cloning process is complete.
- Step 6** Click **Submit**.
- Note** You can also provision VMs through ReadyClones by:
- Running the **HyperFlex ReadyClone Workflow** task. See [Automation with Orchestration Workflows](#), on page 37
 - Using **Clone VM**. See [Cloning a VM chapter in Cisco UCS Director Administration Guide](#).
-

What to Do Next

You can view the following:

- Status of the service request for the VM provisioning. On the **HyperFlex** page, choose the pod and then click **Service Requests**.
- Provisioned VMs. On the **HyperFlex** page, choose the pod and then click **VMs**.



Managing HyperFlex Pods

- [Reports for HyperFlex Pods, page 25](#)
- [HyperFlex Clusters, page 28](#)
- [ESXi Hosts, page 32](#)
- [Managing HX Servers, page 33](#)
- [Managing Datastores, page 34](#)
- [Managing VMs, page 34](#)

Reports for HyperFlex Pods

Cisco UCS Director provides several different kinds of reports that you can use to view the current status of a pod and its components or to see how the pod or its component have performed over time. All of these reports can be manually refreshed for real-time data and exported to PDF, CSV, or XLS format for you to share with others.

The available reports include:

- Summary reports for comparison data and other information about the pod or its components. These reports display in bar, pie, and tabular chart widgets on **Summary** pages.
- Tabular reports for detailed information about specific components.
- Trend graphs for information about the performance of pod resources over time.
- Stack views for a graphical bar view of the infrastructure in a VM.
- More reports include Top 5 reports and other reports for detailed information about high-performing pod resources. You can customize some of these reports.

Summary Reports

Summary reports enable you to view the status of your HyperFlex pods and to manage inventory lifecycle actions for the pods and their components. Each report displays as a widget on a **Summary** page at the pod level and the cluster level.

You can customize your **Summary** pages to hide one or more reports. You can export the content of these reports in PDF, CSV, or XLS format. You can also add some or all of these reports to your Cisco UCS Director dashboard for quick access.

The summary reports for All Pods comparison include the following in graphical and tabular formats:

- Active VM Distribution by Pod
- Total Storage Capacity by Pod (in GB)
- Overview

The summary reports for each HyperFlex pod include the following in graphical and tabular formats:

- Storage Capacity of the Pod (in GB)
- Cluster Nodes in Active vs Maintenance/Failed
- Active VMs vs Inactive VMs
- Summary of the pod components, including software versions and cluster status
- Storage Capacity Summary
- ESXi Host Versions

For more information about summary reports and reporting in Cisco UCS Director, see the [Cisco UCS Director Administration Guide](#).

Tabular Reports

Tabular reports provide the status of the components in a HyperFlex pod. You can export the data from any tabular report in PDF, CSV, or XLS format. If you have scheduled inventory collection, the status is updated regularly. Otherwise, you can click **Refresh** on the tabular report to get real-time status.

You can access tabular reports from any page after you choose the HyperFlex pod. Reports are available for the following components:

- Clusters
- ESXi Hosts
- Datastores
- VM Templates
- VMs
- Service Requests

For some components, you can click a row in the tabular report and access more detailed information through **View Details**.

Stack Views for VMs

Stack views provide information about a HyperFlex VM in a graphical format, including the compute, network, and storage configuration and resources available to that VM.

The stack view data includes:

	Compute	Network	Storage
OS	OS installed on the VM	OS installed on the VM	OS installed on the VM
VM	VM name	VM name	VM name
		Network adapter and port	Virtual disk
Hypervisor	Hypervisor version, IP address, and cluster	Hypervisor version, IP address, and cluster	Hypervisor version, IP address, and cluster
		Port group and VLAN	Datastore
		VSwitch	
Infrastructure	Server where the VM is located		HX Storage Cluster where the VM is located

To access the stack view, choose **VMs**, choose a VM, and then click **Stack View**.

Inventory Collection

When you add a HyperFlex pod, Cisco UCS Director discovers and collects the inventory of that pod. You can view the collected inventory and the status of the HyperFlex pod and its components in the summary reports and on the report pages. This status can be updated on a regular schedule through system tasks and manually by component.

Scheduled Refresh of Inventory Collection Through System Tasks

The HyperFlex system tasks enable you to schedule inventory collection for each HyperFlex pod. Depending on your business needs, you can set the same schedule for all HyperFlex pods or you can set a different schedule for some pods. You can specify the number of hours or minutes to automatically run the inventory collection and update the status of the HyperFlex pod.

For more information about scheduling system tasks, see the [Cisco UCS Director Administration Guide](#).

Manual Refresh of Inventory Collection

Even if you have scheduled inventory collection with system tasks, you can manually perform an inventory collection for a HyperFlex pod or its components. For example, you can manually refresh the inventory and status in the following ways:

- **Refresh**—Updates the data in summary reports and tabular reports. This action is available for a HyperFlex pod and its components, such as clusters, controller nodes, datastores, disks, and VMs.
- **Inventory Collection**—Performs an inventory collection for a component of a pod. This action is available for individual components, such as a VM, an ESXi host, or an HX Server.

HyperFlex Clusters

A HyperFlex (HX) cluster is a group of Cisco HX-Series Servers. Each Cisco HX-Series Server in the cluster is referred to as a node or host, and must be configured identically to ensure failover works correctly. You can use Cisco UCS Director to view and manage the following components of your HX Cluster:

- Cluster Summary
- Controller Nodes
- vSwitches

The **HX Cluster Consistent** column provides information regarding whether the vSwitch configuration is consistent across HX Cluster Nodes. The cluster is consistent if the vSwitch exists on each node, the vSwitch has the same number of uplinks and the uplinks have the same configuration, and the vSwitch has the same security configuration.

- DvSwitches

The **HX Cluster Consistent** column provides information regarding whether the DvSwitch configuration exists across HX Cluster Nodes.

- HX Servers
 - Disk Details
- Port Groups
 - VMs
- Dv Port Groups
 - VMs
- Physical NICs
 - VMs
- vmkNICs
- VLANs

The **Delete VLAN** unassociates the selected VLAN from the respective vNICs and then deletes the VLAN associated to the service profile or service profile templates.

Creating a Port Group

The **Create a Port Group** task creates a new port group for the VM on the selected vSwitch. It also provides an option to create a VLAN on Cisco UCS and updates all of the vNICs of HyperFlex cluster nodes.

Step 1 Choose **Hyper Converged > HyperFlex**.

Step 2 On the **HyperFlex** page, choose the pod.

Step 3 On the **HyperFlex** page, click **Clusters**.

Step 4 Click the row with the cluster that you want to manage and click **View Details**.

Step 5 Click **Port Groups**.

Step 6 Click **Create**.

Step 7 On the **Create Port Group** screen, complete the required fields, including the following:

- a) Expand **Select vSwitch** and check the box for the vSwitch on which you want to create the VM port group.

Note Port groups are created on all hosts in the HX Cluster for the selected vSwitch even though you can select only one vSwitch at a time.

If you receive an error message "vSwitch is not consistent across all hosts", verify that the selected vSwitch exists on all hosts in the HX Cluster by checking **HX Cluster Consistent** column for the vSwitch on which you are trying to create the VM Port Group.

If the vSwitch is not consistent across all the hosts in the HX Cluster, go to VMware vCenter and configure the vSwitch on the remaining hosts. Verify that the selected vSwitch is consistent across all hosts in the HX Cluster and create the VM port group.

- b) **Connection Types** drop-down list is set to VM port group by default.
 c) In the **Port Group Name** field, enter a unique name for the VM port group.
 d) In the **VLAN ID** field, specify a numeric value between [1-3967] or [4048-4093] for a VLAN ID to associate it with the port group.

- A value of zero creates the port group but does not update the associated vNICs.
- To use an existing VLAN, enter that VLAN ID and check **Use Existing VLAN on UCS**. Click **Submit**.

If the value entered for the VLAN ID does not exist on the Cisco UCS, you receive an error message. Go to next step to create a VLAN.

- e) Check **Create VLAN on UCS** to create a new VLAN on Cisco UCS and complete the following fields:

- **VLAN Name**
- **Fabric ID:**
 - **Common/Global**—A common/global VLAN is created on Cisco UCS.
 - **Fabric A**—A VLAN is created under Fabric A on Cisco UCS.
 - **Fabric B**—A VLAN is created under Fabric B on Cisco UCS.

Step 8 Click **Submit**.

Deleting a Port Group

-
- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **Clusters**.
- Step 4** Click the row with the cluster that you want to manage and click **View Details**.
- Step 5** Click **Port Groups**.
- Step 6** Click the row with the port group with a VLAN ID that you want to delete and from the **More Actions** drop-down list, choose **Delete**.
- Step 7** On the **Delete Port Group** screen, complete the fields to delete the port group:
- From the **UCS VLAN Name** drop-down list, choose the Cisco UCS VLAN that you want to delete. Choose a value of **None**, if you do not want to delete the Cisco UCS VLAN.
 - Check **Delete even if VM Mappings exist** box if you have VMs associated with the port group. The VMs must be in power-off state. If the box is left unchecked, you can only delete the port groups that do not have VMs associated with it otherwise you receive an error message.
- Step 8** Click **Delete** to delete the selected Port group.
-

Creating a Dv Port Group

This task creates a new Dv port group on the selected vSwitch. It also provides an option to create a VLAN on Cisco UCS and updates all of the vNICS of HyperFlex cluster nodes.

-
- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **Clusters**.
- Step 4** Click the row with the cluster that you want to manage and click **View Details**.
- Step 5** Click **Dv Port Groups**.
- Step 6** Click **Create**.
- Step 7** On the **Create Dv Port Group** screen, complete the required fields, including the following:
- Expand **DvSwitch Name** and check the DvSwitch for which you want to create the Dv port group.
 - In the **Dv Port Group Name** field, enter a unique name for the Dv port group.
 - From the **Port Binding** drop-down list, choose from the following options to determine when ports are assigned to virtual machines connected to this distributed port group:
 - **Static Binding**—Assigns a port immediately and reserves it for the VM, guaranteeing connectivity. The port is disconnected when the VM is removed from the port group. This is the default binding type.

Note This option automatically sets the port allocation type as elastic. The default number of ports is eight. When all ports are assigned, a new set of eight ports is created.

It is recommend that you choose static port binding option for better performance. See VMware documentation for best practices.

- **Dynamic Binding**—Assigns a port to a VM when the virtual machine is powered on and its NIC is in a connected state. The port is disconnected when the VM is powered off or the NIC of the virtual machine is disconnected.
- **Ephemeral - No Binding**—Creates a port and assigns it to a VM when the virtual machine is powered on and its NIC is in a connected state. When the VM powers off or the NIC of the virtual machine is disconnected, the port is deleted. This option gives you the flexibility to manage VM connections even when vCenter is down.

- d) In the **Number of Ports** field, enter a numeric value between [0-8192] for the number of ports that can be created within the Dv port group.
If you chose **Static Binding**, the default value is 8. If you chose **Dynamic Binding**, the default value is 128. If you chose **Ephemeral**, this field is not displayed.

However, you can edit the number of ports as per your environment.

- e) In the **VLAN ID** field, enter a numeric value between [1-3967] or [4048-4093] for a VLAN ID to associate it with the Dv port group.

- A value of zero specifies that the VLAN is not associated with the port group being created. This is the default value.
- To use an existing VLAN, enter that VLAN ID and check **Use Existing VLAN on UCS**. Click **Submit**.

Note If the value entered for the VLAN ID does not exist on the Cisco UCS, you receive an error message. Go to next step to create a new VLAN.

- f) Check **Create VLAN on UCS** to create a new VLAN on Cisco UCS and complete the following fields:

- **VLAN Name**
- **Fabric ID**—Choose from the following options:
 - **Common/Global**—A common/global VLAN is created on Cisco UCS.
 - **Fabric A**—A VLAN is created under Fabric A on Cisco UCS.
 - **Fabric B**—A VLAN is created under Fabric B on Cisco UCS.

Step 8 Click **Submit**.

Deleting a Dv Port Group

- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **Clusters**.
- Step 4** Click the row with the cluster that you want to manage and click **View Details**.
- Step 5** Click **Dv Port Groups**.
- Step 6** Click the row with the port group with a VLAN ID that you want to delete and from the **More Actions** drop-down list, choose **Delete**.
- Step 7** On the **Delete Dv Port Group** screen, complete the fields to delete the port group:
- From the **UCS VLAN Name** drop-down list, choose the Cisco UCS VLAN that you want to delete. Choose a value of **None**, if you do not want to delete the Cisco UCS VLAN.
 - Check **Delete even if VM Mappings exist** box if you have VMs associated with the port group. The VMs must be in power-off state. If the box is left unchecked, you can only delete the port groups that do not have VMs associated with it otherwise you receive an error message.
- Step 8** Click **Delete** to delete the selected Port group.
-

ESXi Hosts

Cisco UCS Director supports all ESXi host operations on HyperFlex as it does for converged infrastructure. In addition, it supports the following ESXi host operations only for HyperFlex:

- ESXi HX Maintenance mode
- Reboot Host
- Collect Inventory

Managing ESXi Hosts on a HyperFlex Pod

- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **ESXi Hosts**.
- Step 4** Choose an ESXi host and click one of the following:
- **ESXi HX Maintenance mode**

- **Reboot Host**
 - **Collect Inventory**
-

Moving ESXi Hosts into and out of ESXi Maintenance Mode

See the [Cisco HyperFlex Data Platform Management Guide](#) for information about ESXi maintenance mode for ESXi hosts on HyperFlex.



Note Cisco UCS Director supports only ESXi maintenance mode for ESXi hosts on HyperFlex. Cisco UCS Director does not support Cisco HX maintenance mode. To use Cisco HX maintenance, right-click on the ESXi host in VMware vCenter and follow the prompts.

-
- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **ESXi Hosts**.
- Step 4** Choose the ESXi host that you want to move into or out of maintenance mode and click **ESXi HX Maintenance mode**.
- Step 5** On the **ESXi HX Maintenance mode** screen in **ESXi Action**, choose one of the following:
- **enter**
 - **exit**
- Step 6** Click **Submit**.
-

Managing HX Servers

-
- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **Clusters**.
- Step 4** Choose the cluster where the HX Servers are located and click **View Details**.
- Step 5** On the cluster details page, click **HX Servers**.
- Step 6** Choose the HX Server that you want to manage and click one of the following:
- **Power ON**

- Power OFF
 - Reset
 - Launch KVM Console
 - KVM Direct Access
 - Request Inventory Collection
 - View Details
-

Managing Datastores

- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **Datastores**.
- Step 4** Click the row with the datastore that you want to manage and click one of the following:
- Create
 - Delete
 - Edit
 - Mount
 - Unmount

You can also click **View Details** on the datastore to access additional information and service request details for that datastore.

Managing VMs

- Step 1** Choose **Hyper Converged > HyperFlex**.
- Step 2** On the **HyperFlex** page, choose the pod.
- Step 3** On the **HyperFlex** page, click **VMs**.
- Step 4** Click the row with the VM that you want to manage and click one of the following options:
Some of these options are available only from the **More Actions** drop-down list.

Note These options are not available on storage controller VMs.

- **Access VM Credentials**
- **Launch VM Client**
- **Launch VNC Console**
- **VMRC Console (HTML5)**
- **Assign VM**
- **Configure Lease Time**
- **Resize VM**
- **Power ON**
- **Power OFF**
- **Suspend**
- **Shutdown Guest**
- **Standby**
- **Reset**
- **Reboot**
- **Create Snapshot**
- **Mount ISO Image As CD/DVD Drive**
- **Revert Snapshot**
- **Mark Golden Snapshot**
- **Delete Snapshot**
- **Delete All Snapshots**
- **VM Disk Resize**
- **Inventory Collection Request for VM**
- **Create VM Disk**
- **Delete VM Disk**
- **Add vNICs**
- **Delete vNICs**
- **Configure VNC**
- **Unconfigure VNC**
- **Test VNC**
- **Clone**
- **VM Resync**

- **Move VM to VDC**
- **Migrate VM**
- **Clone VM as Image**
- **Convert VM as Image**
- **Enable/Disable VMRC Console**
- **Assign VMs to VDC**

You can also click **Stack View**, and **View Details** to access trend reports and details about service requests, VM action requests, events, VM snapshots, vNICs, disks, CD ROMs, VM access data, and linked clone VMs. These details are specific to features and actions related to VMware vCenter.

For detailed information about these features and actions, see the [Cisco UCS Director VMware vSphere Management Guide](#).

Note The **Linked Clone VMs** report does not provide any information about VMs that are provisioned through Readyclones. This report is populated only for VMs that are provisioned through Linked Clone.



Automating HyperFlex Provisioning and Management

- [Automation with Orchestration Workflows, page 37](#)
- [Predefined Workflows for HyperFlex, page 37](#)
- [Viewing Predefined Workflows in the Workflow Designer, page 39](#)
- [Predefined Workflow Tasks for HyperFlex, page 39](#)
- [Opening the Task Library, page 40](#)

Automation with Orchestration Workflows

Cisco UCS Director includes orchestration workflows and tasks that enable you to automate common VM provisioning and HyperFlex management tasks in one or more workflows. You can create a workflow that combines HyperFlex tasks with VMware host tasks and Cisco UCS tasks for Cisco UCS Manager.

Depending on the permissions required to perform a task, you can create workflows to be executed in Cisco UCS Director by an administrator or in the End User Portal by a user. For example, a workflow to provision ReadyClone VMs requires administrator permissions and cannot be executed by an end user.

See the [Cisco UCS Director Orchestration Guide](#) for details about orchestration workflows, tasks, and other orchestration and automation concepts.

Predefined Workflows for HyperFlex

Cisco UCS Director provides a set of simple, predefined workflows for HyperFlex. These workflows are designed to perform a single task, such as creating ReadyClone VMs or creating a datastore.

If you want to automate more complex provisioning or management tasks, you can make a copy of a predefined workflow and add tasks to the copy of that workflow. You can also create your own custom workflows that include HyperFlex tasks.

**Note**

If you want to modify a predefined workflow, we recommend that you create a new version of that workflow before making the changes. If you modify a default predefined workflow, you can impact what happens in Cisco UCS Director when you click an action button. Actions that you take in Cisco UCS Director for a HyperFlex System, such as creating or mounting a datastore, use the default predefined workflows.

For example, when you click the **Mount** button for a datastore, Cisco UCS Director runs the Mount HyperFlex Datastore workflow and creates a service request for the action.

Location of Predefined HyperFlex Workflows

To access all predefined HyperFlex workflows, go to **Orchestration**, click **Workflows**, and then click **HyperFlex**.

List of Predefined HyperFlex Workflows

The predefined HyperFlex workflows include the following:

- Create HyperFlex Datastore—Creates a datastore with the specified name and size in TB, GB, or MB.
- Create HyperFlex ReadyClones—Creates the specified number of ReadyClones from a given VM template.
- Create HyperFlex VM DV Port Group—TBD
- Create HyperFlex VM Port Group—Creates a VM Port group on a given host and vSwitch.
- Create HyperFlex VMKernel Port Group—TBD
- Delete HyperFlexDatastore—Deletes the specified datastore.
- Delete HyperFlex VM Port Group—Deletes a VM Port group on a given host and vSwitch.
- Edit HyperFlex Datastore—Changes the size of the specified datastore.
- HyperFlex Esxi Host Action—Sets the host standby, reboot, and shutdown power actions.
- HyperFlex Esxi Host Maintenance Mode—Enters or Exits ESXi maintenance mode.
- Modify HyperFlex Port Group—TBD
- Modify HyperFlex VM Port Group—TBD
- Modify HyperFlex VMKernel Port Group—TBD
- Mount HyperFlex Datastore—Mounts the specified datastore.
- Unmount HyperFlex Datastore—Unmounts the specified datastore.

Viewing Predefined Workflows in the Workflow Designer

-
- Step 1** Choose **Orchestration**.
- Step 2** On the **Orchestration** page, click **Workflows**.
- Step 3** Expand the **HyperFlex** folder.
- Step 4** Double-click one of the workflows to open it in the Workflow Designer.
- Step 5** Double-click a workflow task to view the properties of that task.
You can drag and drop additional tasks into the workflow. You can also execute or validate the workflow.
-

Predefined Workflow Tasks for HyperFlex

Cisco UCS Director provides a set of predefined workflow tasks that you can use to create workflows to provision VMs and manage datastores. These tasks are configured with a set of inputs and outputs that mirror the settings you must configure if you perform the tasks manually.

The Cisco UCS Director task library provides a list of the available HyperFlex tasks. The task library includes a description of each task's function and its inputs and outputs.

Location of the Predefined HyperFlex Tasks

All predefined HyperFlex tasks are available in the left pane of the Workflow Designer when you have a workflow open. The tasks are in the following location: **Physical Storage Tasks > HyperFlex Tasks**.

List of Predefined HyperFlex Tasks

The predefined HyperFlex tasks include the following:

- Create HyperFlex Datastore—Creates a datastore with the specified name and size in TB, GB, or MB.
- Edit HyperFlex Datastore—Changes the amount of storage allocated to the specified datastore.
- Mount HyperFlex Datastore—Mounts the specified datastore.
- Unmount HyperFlex Datastore—Unmounts the specified datastore.
- Delete HyperFlex Datastore—Deletes the specified datastore.



Note A datastore must be unmounted before it can be deleted.

- Create HyperFlex ReadyClones of a VM—Creates the specified number of ReadyClones from a given VM template.
- HX Esxi Host Maintenance Mode—TBD
- Validate create port group inputs—TBD

- Validate modify port group inputs—TBD
- Update vNICs—TBD
- Delete Port Group—Deletes a port group from a vSwitch. After deletion, all the VMs associated with that port group are associated with the default port group and vSwitch of that host.
- Validate create VMKernel port group inputs—TBD
- Validate create DV port group inputs—TBD

If these tasks do not include the functionality you need, you can customize your tasks with advanced scripting capabilities. You can also create your own custom tasks.

Opening the Task Library

-
- Step 1** Choose **Orchestration**.
- Step 2** On the **Orchestration** page, click **Workflows**.
- Step 3** Click **Task Library**.
- Step 4** Check **Regenerate Document** to update the task library with any new tasks, including custom and open automation tasks.
- Step 5** Click **Submit**.
- Step 6** Scroll down to the **HyperFlex Tasks** section and click one of the hyperlinked tasks to view its details.
-