



## **Cisco UCS Performance Manager Installation Guide**

**First Published:** December 2015

Release 2.0.0

### **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 NONINFRINGEMENT 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.

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)

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

© 2014-2015 Cisco Systems, Inc. All rights reserved.

# Contents

About this book.....	5
<b>Chapter 1: Welcome to Cisco UCS Performance Manager.....</b>	<b>7</b>
Introduction to Control Center.....	7
Packaging considerations.....	8
Deployment considerations.....	8
<b>Chapter 2: Installing a Control Center master host.....</b>	<b>10</b>
Creating a virtual machine.....	10
Configuring the Control Center host mode.....	14
Edit a connection.....	15
Set system hostname.....	16
Enabling access to browser interfaces.....	18
Deploying Cisco UCS Performance Manager.....	19
<b>Chapter 3: Managing Cisco UCS Performance Manager with Control Center.....</b>	<b>21</b>
Starting Cisco UCS Performance Manager.....	21
Shutting down a Control Center master host.....	22
<b>Appendix A: Adding storage to a Control Center master host.....</b>	<b>23</b>
Creating and adding a virtual disk.....	23
Preparing a partition for backups.....	27
Preparing a partition for data collection storage.....	28
<b>Appendix B: Creating a multi-host Control Center cluster.....</b>	<b>29</b>
Creating a virtual machine.....	30
Configuring the virtual machine mode.....	33
Edit a connection.....	34
Set system hostname.....	36
Editing the /etc/hosts file.....	38
Configuring a ZooKeeper cluster.....	39
Enabling NTP on Microsoft Hyper-V guests.....	41
Configuring the master host.....	44
<b>Appendix C: Using the Appliance Administration menu.....</b>	<b>50</b>
Configure Network and DNS.....	50
Configure IPv6 Network CIDR.....	54
Change Root Password.....	54
Change ccuser Password.....	55
Root Shell.....	56
Change SSL settings.....	56
Reboot System.....	58

<b>Appendix D: Networking and security.....</b>	<b>59</b>
Networking requirements.....	59
Security considerations.....	60
 <b>Appendix E: Tuning considerations.....</b>	 <b>62</b>
Single-host deployment tuning options.....	62
Multi-host deployment tuning options.....	62

# About this book

*Cisco UCS Performance Manager Installation Guide* provides detailed instructions for installing Cisco UCS Performance Manager Express and Cisco UCS Performance Manager.

- Cisco UCS Performance Manager Express provides monitoring for Cisco UCS Central, Cisco UCS Domains, Linux and Microsoft Windows servers, hypervisor servers, and Control Center.
- Cisco UCS Performance Manager provides monitoring for Cisco UCS Central, Cisco UCS Domains, Linux and Microsoft Windows servers, hypervisor servers, network devices, storage devices, and Control Center.

For convenience, this document uses "Cisco UCS Performance Manager" generically, and notes explicitly any differences between the two platforms.

## Minimum system requirements

For deployments monitoring up to 500 servers, Cisco UCS Performance Manager requires one virtual machine with the following resources:

- 8 CPU cores
- 64GB RAM
- 600GB storage, supporting a minimum of 100 IOPS

---

**Note** If you plan to migrate data from a version 1.1.x system, the master host storage must support 400 IOPS.

---

For deployments monitoring more than 500 servers, Cisco UCS Performance Manager requires four virtual machines with the resources shown in the following table:

VM Count	Cores	Memory	Storage	IOPS
1	4	30GB	900GB	200
3	8	64GB	150GB	100

## Supported client and browser combinations

---

**Note** All browsers must have Adobe® Flash® Player 11 installed, or a more recent version.

---

Client OS	Supported Browsers
Windows 7 and 8.1	Internet Explorer 10 and above (compatibility mode is not supported)
	Firefox 30 and above
	Chrome 30 and above
Macintosh OS/X	Firefox 30 and above
	Chrome 30 and above
	Safari 7 and above
Linux/RHEL	Firefox 30 and above
	Chrome 30 and above

**Related publications**

Title	Description
<i>Cisco UCS Performance Manager Getting Started Guide</i>	Provides instructions for configuring Cisco UCS Performance Manager to monitor your environment, after installation.
<i>Cisco UCS Performance Manager Administration Guide</i>	Provides an overview of Cisco UCS Performance Manager architecture and features, as well as procedures and examples to help use the system.
<i>Cisco UCS Performance Manager User Guide</i>	Provides specific instructions for using Cisco UCS Performance Manager in the UCS environment.
<i>Cisco UCS Performance Manager Installation Guide</i>	Provides detailed information and procedures for installing and upgrading Cisco UCS Performance Manager.
<i>Cisco UCS Performance Manager Migration Guide</i>	Provides detailed information and procedures for migrating data from Cisco UCS Performance Manager version 1.1.x to version 2.0.
<i>Cisco UCS Performance Manager Release Notes</i>	Describes known issues, fixed issues, and late-breaking information not already provided in the published documentation set.

**Documentation feedback**

To provide technical feedback on this document, or to report an error or omission, please send your comments to [ucs-docfeedback@cisco.com](mailto:ucs-docfeedback@cisco.com). We appreciate your feedback.

# Welcome to Cisco UCS Performance Manager

---

# 1

Cisco UCS Performance Manager provides visibility from a single console into UCS components for performance monitoring and capacity planning. It provides data center assurance of integrated infrastructures and ties application performance to physical and virtual infrastructure performance. This allows you to optimize resources and deliver better service levels to your customers.

This release features an additional component, Control Center, which is an open-source, application service orchestrator based on [Docker](#). Control Center greatly simplifies the installation, deployment, and management of Cisco UCS Performance Manager.

This chapter provides a brief introduction to Control Center, and describes how it affects Cisco UCS Performance Manager deployments.

## Introduction to Control Center

---

Control Center is a platform-as-a-service framework that can manage Cisco UCS Performance Manager and any other Docker application, from a simple web application to a multi-tiered stateful application stack. Control Center is based on a service-oriented architecture, which enables applications to run as a set of distributed services spanning hosts, datacenters, and geographic regions.

Control Center includes the following, key features:

- Intuitive HTML5 interface for deploying and managing Cisco UCS Performance Manager
- Integrated backup and restore, and incremental snapshot and rollback support
- Centralized logging, through Logstash and Elasticsearch
- Support for database services and other persistent services
- Encrypted communications among all services and containers

## Docker fundamentals

---

**Note** This section is a summation of [the architecture description provided by Docker](#), customized for Cisco UCS Performance Manager. For additional information, refer to the Docker site.

---

Docker provides convenient tools that make use of the [cgroups feature of the Linux kernel](#) to develop, distribute, and run applications. Docker internals include images, registries, and containers.

### Docker images

Docker images are read-only templates that are used to create Docker containers. Images are easy to build, and image updates are change layers, not wholesale replacements.

**Docker registries**

Docker registries hold images. The Cisco UCS Performance Manager appliance includes a private Docker registry that holds the images of the Cisco UCS Performance Manager application.

**Docker containers**

Docker containers have everything needed to run an instance of an application, and are created from images. The Cisco UCS Performance Manager application includes many different containers, and each container is used to run one or more instances of a specific service.

**Control Center terms and concepts****application**

A collection of one or more software programs that have been converted into Docker containers. For example, Cisco UCS Performance Manager.

**resource pool**

A collection of one or more hypervisor guest systems, each with its own compute, network, and storage resources. The name of the default resource pool is `default`. All systems in a resource pool should be guests of the same hypervisor.

**agent host (resource pool host)**

A hypervisor guest system that runs application services scheduled for the resource pool to which it belongs. A system may be configured as agent and master, or just agent, or just master.

**master host**

The hypervisor guest system that runs the application services scheduler, the Docker registry, the distributed file system, and other internal services, including the server for the Control Center browser interface. A system may be configured as agent and master, or just agent, or just master. Only one system in a Control Center cluster may be the master.

**cluster**

One or more Control Center resource pools.

**Packaging considerations**

---

Cisco UCS Performance Manager is distributed as a preconfigured appliance in the following, self-contained packages:

- A self-installing ISO package for Microsoft Hyper-V systems
- A VMware OVA package for vSphere systems

The appliance includes the run-time environment (CentOS 7.1) with Control Center installed, and Cisco UCS Performance Manager loaded into the local Docker registry. Most customers will only need to deploy a single guest system.

Best practice for backups is to store them separately, so the appliance does not include a partition for backup data. Cisco strongly recommends adding storage to the guest system for backups. For more information, see [Adding storage to a Control Center master host](#) on page 23.

**Deployment considerations**

---

The features of Control Center in this release affect deployments of Cisco UCS Performance Manager in the following ways.

- All Control Center hosts in a resource pool should have identical hardware resources.
- All Cisco UCS Performance Manager data is stored on the Control Center master host. Agent hosts access the data through the distributed file system, which is based on NFS.



- Using hypervisor features alone to pause a guest is unsupported, because Control Center relies on timestamps and the system clock to keep services in sync. Use Control Center to shut down Cisco UCS Performance Manager cleanly before pausing or stopping a guest.
- vSphere hosts that run Control Center guest systems must be configured to synchronize their clocks with public or private NTP servers. Control Center guest systems synchronize their clocks with their vSphere hosts through an hourly invocation of VMware Tools. For more information about configuring a vSphere host for NTP, refer to your VMware documentation.
- The Control Center backup and restore features are the only supported method for archiving and restoring Cisco UCS Performance Manager data. Backups created with hypervisor features alone do not ensure that Docker image and device mapper snapshots are in sync.
- A single-host deployment has enough compute, memory, and storage resources to support up to 500 servers. However, multi-host deployments include important benefits beyond additional resources:
  - A multi-host deployment includes a ZooKeeper cluster, which enhances Control Center reliability.
  - A multi-host deployment can be configured for high availability.

## 2

## Installing a Control Center master host

---

This chapter describes how to install a Cisco UCS Performance Manager appliance package as a Control Center master host, using either VMware vSphere or Microsoft Hyper-V.

The procedures in this chapter configure a Control Center master host that functions as both master and agent. Perform the procedures in this chapter whether you are configuring a single-host or a multi-host deployment. (For more information about configuring a multi-host deployment, see [Creating a multi-host Control Center cluster](#) on page 29.)

---

**Note** If you plan to migrate data from a version 1.1.x system, please ensure that the version 1.1.x system and the version 2.0 system can use a common datastore or datastore cluster.

---

The procedures in this chapter do not include adding storage for backups created by Control Center. Hypervisor backups of a Cisco UCS Performance Manager host do not capture the information needed to restore a system successfully, and Cisco strongly recommends using the Control Center backup and restore features instead of hypervisor backups. For more information about adding storage for backups, see [Adding storage to a Control Center master host](#) on page 23. For more information about the Control Center backup and restore features, refer to the *Cisco UCS Performance Manager Administration Guide*.

### Creating a virtual machine

---

You may create a virtual machine for the Cisco UCS Performance Manager appliance with VMware vSphere or Microsoft Hyper-V. Choose one of the procedures in this section.

#### Creating a virtual machine with vSphere

To perform this task, you need:

- A VMware vSphere client
- Permission to download Cisco UCS Performance Manager software from the Cisco support site

This procedure installs the Cisco UCS Performance Manager OVA package as a virtual machine managed by vSphere Server version 5.0.0, using VMware vSphere Client 5.0.0. The procedure is slightly different with different versions of VMware vSphere Client.

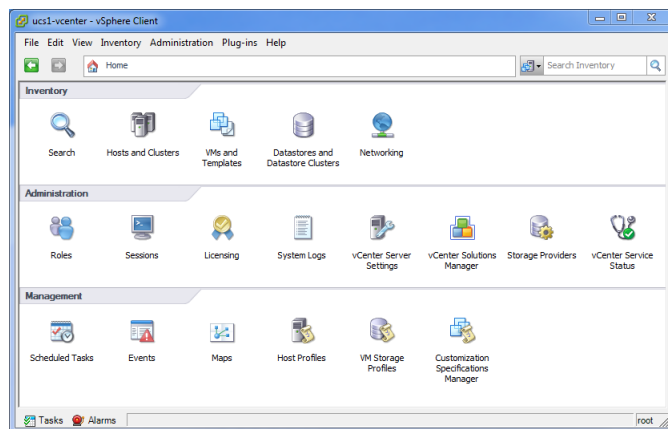
---

**Note** VMware vSphere Client 5.0.0 does not include a library that is needed to deploy compressed OVA files. You may uncompress the OVA package and then deploy it, or download and install [the missing library](#). Cisco recommends installing the library.

---

- 1 Download the Cisco UCS Performance Manager OVA file from the [Cisco UCS Performance Manager](#) site to your workstation.
- 2 Use the VMware vSphere Client to log in to vCenter as `root`, or as a user with superuser privileges, and then display the **Home** view.

**Figure 1: vSphere client Home view**



- 3 From the **File** menu, select **Deploy OVF Template....**
- 4 In the **Source** panel, specify the path of the Cisco UCS Performance Manager package, and then click **Next >**.
- 5 In the **OVF Template Details** panel, click **Next >**.
- 6 In the **Name and Location** panel, provide a name and a location for the server.
  - a In the **Name** field, enter a new name or use the default.
  - b In the **Inventory Location** area, select a data center for the virtual machine.
  - c Click **Next >**.
- 7 In the **Host / Cluster** panel, select a host system, and then click **Next >**.
- 8 In the **Storage** panel, select a storage system with sufficient space for your UCS system, and then click **Next >**.
- 9 In the **Disk Format** panel, select **Thin Provision**, and then click **Next >**.
- 10 In the **Ready to Complete** panel, review the deployment settings, and then click **Finish**.  
Please do not check the check box labeled **Power on after deployment**.
- 11 Navigate to the new virtual machine's **Getting Started** tab, and then click the **Edit virtual machine settings** link.
- 12 In the **Virtual Machine Properties** dialog, select **Memory** in the **Hardware** table.
- 13 In the **Memory Configuration** area, set the **Memory Size** field to 64GB, and then click the **OK** button.
- 14 On the new virtual machine's **Getting Started** tab, click the **Power on virtual machine** link.

## Creating a virtual machine with Hyper-V

To perform this task, you need:

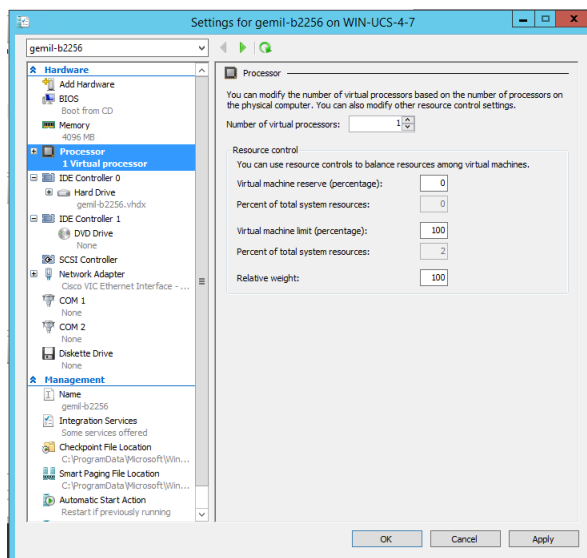
- A Microsoft Remote Desktop client
- Administrator privileges on a Microsoft Hyper-V server
- Permission to download Cisco UCS Performance Manager software from the Cisco support site

This procedure installs the Cisco UCS Performance Manager appliance as a virtual machine managed by Microsoft Hyper-V.

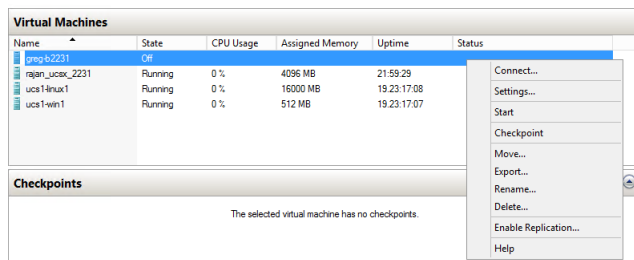
- 1 Use a Microsoft Remote Desktop client to log in to a Hyper-V host as Administrator, or as a user with Administrator privileges.
- 2 Download the Cisco UCS Performance Manager ISO file from the [Cisco UCS Performance Manager](#) site to the Hyper-V host.
- 3 Start **Hyper-V Manager**.

- 4 In the left column, select a server to host the virtual machine.
- 5 From the **Action** menu, select **New > Virtual Machine....**
- 6 In the **New Virtual Machine Wizard** dialog, display the **Specify Name and Location** panel.  
If the first panel displayed is the **Before You Begin** panel, click **Next >**.
- 7 In the **Specify Name and Location** panel, provide a name for the virtual machine, and then click **Next >**.
- 8 In the **Specify Generation** panel, select **Generation 1**, and then click **Next >**.
- 9 In the **Assign Memory** panel, enter 65536 (64GB) in the **Startup memory** field, and then click **Next >**.
- 10 In the **Configure Networking** panel, select **Cisco VIC Ethernet Interface - Virtual Switch**, and then click **Next >**.
- 11 In the **Connect Virtual Hard Disk** panel, select **Create a virtual hard disk**, enter 300 in the **Size** field, and then click **Next >**.
- 12 In the **Installation Options** panel, specify the Cisco UCS Performance Manager ISO package.
  - a Select **Install an operating system from a bootable CD/DVD-ROM**.
  - b Select **Image file (.iso)**, and then specify the location of the Cisco UCS Performance Manager ISO image file.
  - c Click **Next >**.
- 13 In the **Summary** panel, review the virtual machine specification, and then click **Finish**.  
Hyper-V Manager creates the new virtual machine, and then closes the **New Virtual Machine Wizard** dialog.
- 14 In the **Virtual Machines** area of Hyper-V Manager, select the new virtual machine, and then right-click to select **Settings....**
- 15 In the **Hardware** area of the **Settings** dialog, select **Processor**.

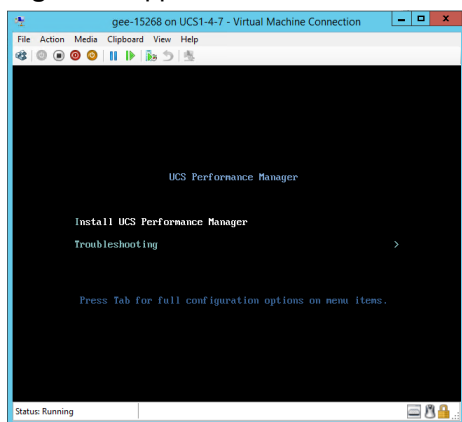
**Figure 2: Settings dialog, Processor selected**



- 16 In the **Processor** area, enter 8 in the **Number of virtual processors**, and then click **OK**.
- 17 In the **Virtual Machines** area of Hyper-V Manager, select the new virtual machine, and then right-click to select **Start**.

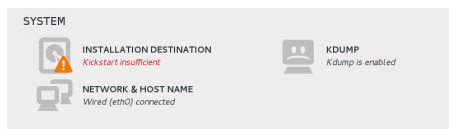
**Figure 3: Starting a virtual machine**

- 18 In the **Virtual Machines** area of Hyper-V Manager, select the new virtual machine, and then right-click to select **Connect**.
- 19 In the **Virtual Machine Connection** window, press the **Enter** key.

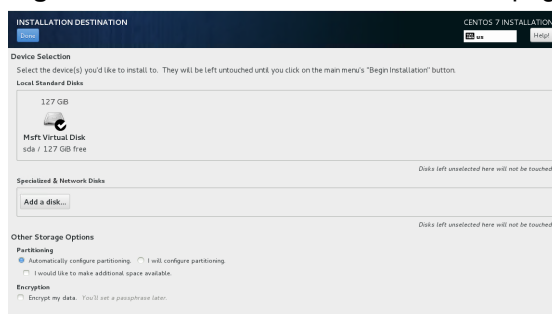
**Figure 4: Appliance installation start screen**

The appliance installation process takes about 15 minutes, and should complete with no additional input.

- 20 Optional: Select the installation destination, if necessary.  
Occasionally, installation is interrupted with the Kickstart `insufficient` message.

**Figure 5: Kickstart insufficient message**

- a In the **SYSTEM** area of the **INSTALLATION SUMMARY** page, click the **INSTALLATION DESTINATION** control.

**Figure 6: INSTALLATION DESTINATION page**

- b On the **INSTALLATION DESTINATION** page, click the **Done** button, located at the upper-left corner of the page.
- c On the **INSTALLATION SUMMARY** page, click the **Begin Installation** button, located at the bottom-right corner of the page.

## Configuring the Control Center host mode

Perform this procedure immediately after creating and starting a Control Center host. All Control Center deployments must include one system configured as the master host.

- 1 Gain access to the console interface of the Control Center host through your hypervisor console interface.

**Figure 7:** Initial hypervisor console login prompt

```
YOU HAVE NOT CHOSEN A ROLE FOR THIS APPLIANCE.
PLEASE LOGIN TO CHOOSE ROLE AND ACTIVATE UCS Performance Manager

Welcome to UCS Performance Manager

To access the Control Center UI, please browse to:

https://ucspm
(default username/password is ccuser/ucspm)

Ensure that ucspm is resolvable to 10.87.209.179, either through your
DNS system or through a HOSTS entry on the browser client. For more
information refer to the installation notes.

You can log in to this console to perform administrative tasks such
as setting up networking and safely rebooting this system. The
default root password is 'ucspm' and should be changed for
security reasons.

Linux Kernel 3.10.0-229.14.1.el7.x86_64 on an x86_64
ucspm login: _
```

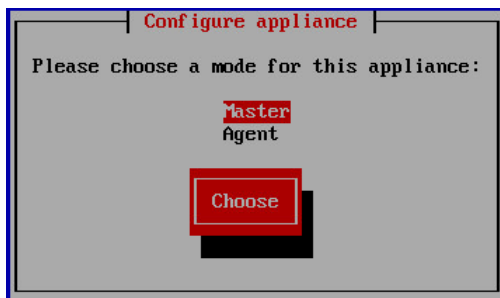
- 2 Log in as the **root** user.  
The initial password is **ucspm**.
- 3 The system prompts you to enter a new password for **root**.

---

**Note** Passwords must include a minimum of eight characters, with at least one character from three of the following character classes: uppercase letter, lowercase letter, digit, and special.

---

- 4 The system prompts you to enter a new password for **ccuser**.  
The **ccuser** account is the default account for gaining access to the Control Center browser interface.
- 5 Select the master role for the host.



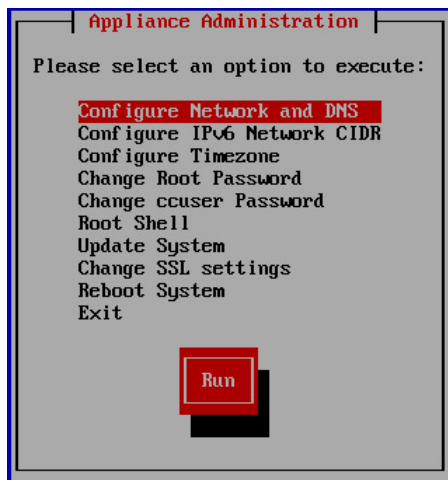
- a In the **Configure appliance** menu, press the **Tab** key to select the **Choose** button.
- b Press the **Enter** key.

The system reboots.

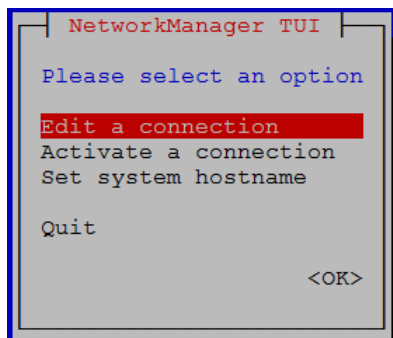
## Edit a connection

The default configuration for network connections is DHCP. To configure static IPv4 addressing, perform this procedure.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.

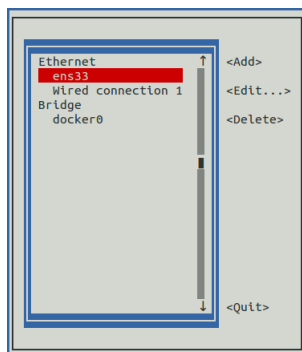


- 3 Select the **NetworkManager TUI** menu.
  - a In the **Appliance Administration** menu, select the **Configure Network and DNS** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.



- 4 On the **NetworkManager TUI** menu, select **Edit a connection**, and then press the **Return** key. The TUI displays the connections that are available on this host.

**Figure 8:** Example: Available connections



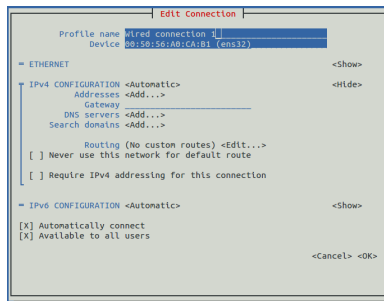
---

**Note** Do not modify the `docker0` connection.

---

- 5 Use the down-arrow key to select **Wired Connection 1**, and then press the **Return** key.

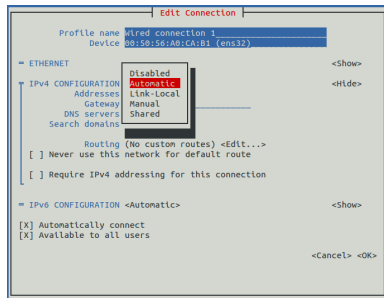
**Figure 9:** Example: Edit Connection screen



Use the **Tab** key and the arrow keys to navigate among options in the **Edit Connection** screen, and use the **Return** key to toggle an option or to display a menu of options.

- 6 Optional: If the **IPv4 CONFIGURATION** area is not visible, select its display option (**<Show>**), and then press the **Return** key.
- 7 In the **IPv4 CONFIGURATION** area, select **<Automatic>**, and then press the **Return** key.

**Figure 10:** Example: IPv4 Configuration options



- 8 Configure static IPv4 networking.
  - a Use the down arrow key to select **Manual**, and then press the **Return** key.
  - b Use the **Tab** key or the down arrow key to select the **<Add...>** option next to **Addresses**, and then press the **Return** key.
  - c In the **Addresses** field, enter an IPv4 address for the virtual machine, and then press the **Return** key.
  - d Repeat the preceding two steps for the **Gateway** and **DNS servers** fields.
- 9 Use the **Tab** key or the down arrow key to select the **<OK>** option at the bottom of the **Edit Connection** screen, and then press the **Return** key.
- 10 In the available connections screen, use the **Tab** key to select the **<Quit>** option, and then press the **Return** key.
- 11 Reboot the operating system.
  - a In the **Appliance Administration** menu, use the down-arrow key to select the **Reboot System** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.

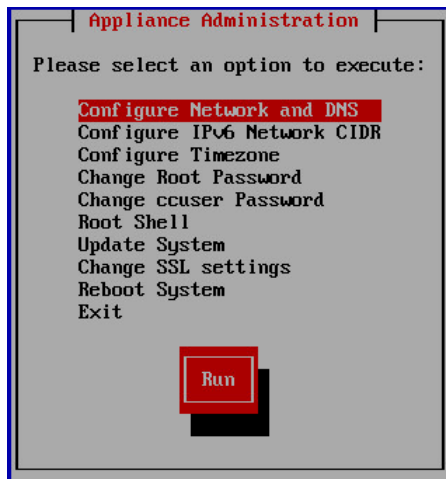
## Set system hostname

---

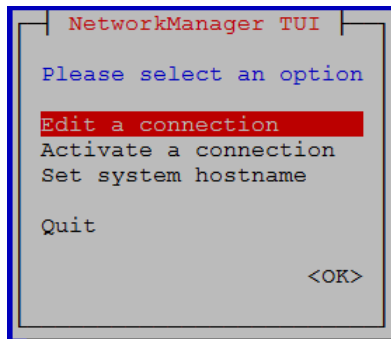
The default hostname of a Control Center host is `ucspm`. To change the hostname, perform this procedure.



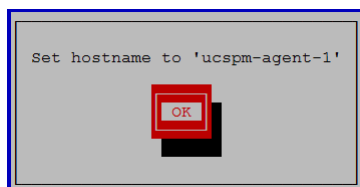
- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 Select the **NetworkManager TUI** menu.
  - a In the **Appliance Administration** menu, select the **Configure Network and DNS** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.



- 4 Display the hostname entry field.
  - a In the **NetworkManager TUI** menu, use the down-arrow key to select **Set system hostname**.
  - b Press the **Tab** key to select the **OK** button.
  - c Press the **Enter** key.
- 5 In the **Hostname** field, enter the new hostname.  
You may enter either a hostname or a fully-qualified domain name.
- 6 Press the **Tab** key twice to select the **OK** button, and then press the **Enter** key.



- 7 In the confirmation dialog, press the **Return** key.
- 8 Reboot the operating system.
  - a In the **Appliance Administration** menu, use the down-arrow key to select the **Reboot System** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.

## Enabling access to browser interfaces

Control Center and Cisco UCS Performance Manager have independent browser interfaces served by independent web servers.

- The Control Center web server listens at *HostnameOrIP*:443. So, for a Control Center master host named `cc-master.example.com`, the hostname-based URL to use is `https://cc-master`.
- The Cisco UCS Performance Manager web server listens at a virtual hostname, `ucspm.HostnameOrIP`:443. For a Control Center master host named `cc-master.example.com`, the hostname-based URL to use is `https://ucspm.cc-master`.

To enable access to the browser interfaces by hostname, add name resolution entries to the DNS servers in your environment, or to the hosts files of individual client systems.

- On Windows client systems, the file is `C:\Windows\System32\drivers\etc\hosts`.
- Linux and OS/X client systems, the file is `/etc/hosts`.

### Name resolution syntax

The following line shows the syntax of the entry to add to a name resolution file:

```
IP-Address FQDN Hostname ucspm.Hostname
```

For example, the following entry identifies a Control Center master host at IP address `192.0.2.12`, hostname `cc-master`, in the `example.com` domain.

```
192.0.2.12 cc-master.example.com cc-master ucspm.cc-master
```

### Configuring name resolution on a Windows 7 system

To perform this procedure, you need Windows Administrator privileges.

- 1 Log in to the Windows 7 system as a user with Administrator privileges.
- 2 From the **Start** menu, highlight **All Programs > Accessories > Notepad**.
- 3 Right click, and then select **Run as administrator**.
- 4 From the Notepad **File** menu, select **Open**.
- 5 In the **File name** field of the **Open** window, enter `C:\Windows\System32\drivers\etc\hosts`.
- 6 Add the name resolution entry for your Control Center master host to the end of the file.  
For more information, see [Name resolution syntax](#) on page 18.
- 7 Save the file, and then exit Notepad.

### Configuring name resolution on a Linux or OS/X system

To perform this procedure, you need superuser privileges on the client system.

- 1 Log in to the client system as `root` or as a user with `sudo` privileges.
- 2 Open the `/etc/hosts` file in a text editor.
- 3 Add the name resolution entry for your Control Center master host to the end of the file.  
For more information, see [Name resolution syntax](#) on page 18.
- 4 Save the file, and then close the editor.

## Deploying Cisco UCS Performance Manager

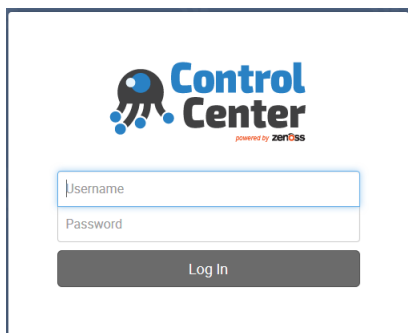
Perform this procedure on logging in to Control Center for the first time.

- 1 Display the login page of the Control Center browser interface.  
Replace *Hostname* with the name of the Cisco UCS Performance Manager virtual machine.

```
https://Hostname
```

**Note** The web server that listens for Control Center interface requests typically takes 1-2 minutes to start, after the the Control Center master host is powered on.

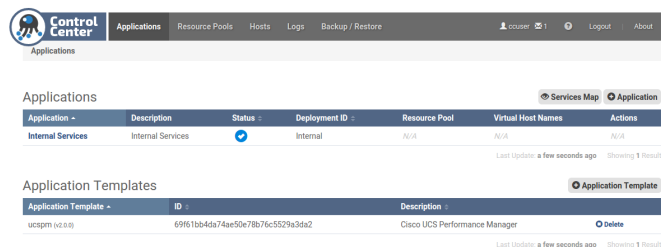
**Figure 11:** Control Center login page



The login page features the Control Center logo (powered by zenoss) at the top. Below the logo are two input fields: 'Username' and 'Password'. A 'Log In' button is positioned below the password field.

- 2 At the login page, enter `ccuser` and its password.

**Figure 12:** Landing page of initial login



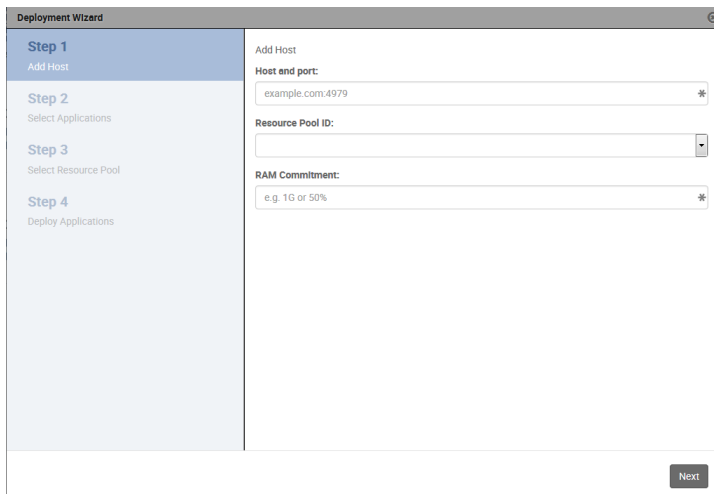
The landing page shows the Control Center interface with a navigation bar at the top. The main content area displays 'Applications' and 'Application Templates' sections. The 'Applications' section includes a table with columns: Application, Description, Status, Deployment ID, Resource Pool, Virtual Host Names, and Actions. The 'Application Templates' section includes a table with columns: Application Template, ID, Description, and Actions.

Application	Description	Status	Deployment ID	Resource Pool	Virtual Host Names	Actions
Internal Services	Internal Services	✓	Internal	N/A	N/A	N/A

Application Template	ID	Description	Actions
ucspm (v2.0.0)	699f10b4da74ae50e78b76c5529a3ba2	Cisco UCS Performance Manager	Delete

- 3 On the **Applications** page, click the **+ Application** button, located at the right side of the page.

**Figure 13:** Deployment Wizard



The Deployment Wizard is a multi-step process. The first step, 'Add Host', is currently active. It contains the following fields:

- Host and port:** A text input field with the value 'example.com:4979' and a search icon.
- Resource Pool ID:** A dropdown menu.
- RAM Commitment:** A text input field with the value 'e.g. 1G or 50%' and a search icon.

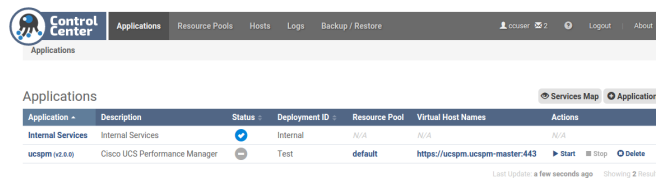
The wizard has four steps in total:

- Step 1: Add Host
- Step 2: Select Applications
- Step 3: Select Resource Pool
- Step 4: Deploy Applications

A 'Next' button is located at the bottom right of the wizard.

- 4 In the **Deployment Wizard**, add the master host to the default resource pool.  
The host to add is the Control Center master host.
  - a In the **Host and Port** field, enter the hostname or IP address of the Control Center master host, followed by a colon character (:), and then 4979.  
If you enter a hostname, all hosts in your Control Center cluster must be able to resolve the name, either through an entry in /etc/hosts, or through a nameserver on your network.
  - b In the **Resource Pool ID** field, select default from the list, and then click **Next**.
  - c In the **RAM Commitment** field, enter the percentage of master host RAM to devote to Control Center and Cisco UCS Performance Manager.  
The amount of RAM required for the operating system is not included in this value. Cisco recommends entering 100 in the field.
  - d At the bottom of the **Deployment Wizard**, click **Next**.
- 5 Select the application to deploy.
  - a Select ucspm.
  - b At the bottom of the **Deployment Wizard**, click **Next**.
- 6 Select the resource pool for the application.
  - a Select default.
  - b At the bottom of the **Deployment Wizard**, click **Next**.
- 7 Choose a deployment ID and deploy Cisco UCS Performance Manager.
  - a In the **Deployment ID** field, enter a name for this deployment of Cisco UCS Performance Manager.
  - b At the bottom of the **Deployment Wizard**, click **Deploy**.

**Figure 14:** Cisco UCS Performance Manager is deployed



- 8 At the top of the page, click **Logout**.  
The control is located at the right side of the page.
  - If you plan to migrate data from a Cisco UCS Performance Manager version 1.1.x system, do not perform any other tasks in this guide at this time. Instead, refer to the *Cisco UCS Performance Manager Migration Guide*.
  - If you are installing a multi-host Control Center cluster, see [Creating a multi-host Control Center cluster](#) on page 29.
  - If you are installing a single-host Control Center cluster, see [Managing Cisco UCS Performance Manager with Control Center](#) on page 21.

# Managing Cisco UCS Performance Manager with Control Center

## 3

This chapter describes how to use the Control Center browser interface to start and stop Cisco UCS Performance Manager. For more information about getting started with Cisco UCS Performance Manager, see the *Cisco UCS Performance Manager Getting Started Guide*.

**Note** If you completed migration, Cisco UCS Performance Manager is already started. You may proceed to the *Cisco UCS Performance Manager Getting Started Guide*.

## Starting Cisco UCS Performance Manager

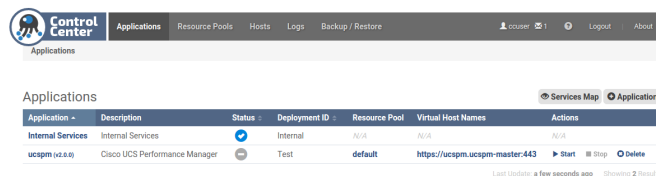
- 1 Display the login page of the Control Center browser interface.  
Replace *HostName* with the name of the Control Center master host.

```
https://HostName
```

**Note** The web server that listens for Control Center interface requests typically takes 1-2 minutes to start, after the the Control Center master host is powered on.

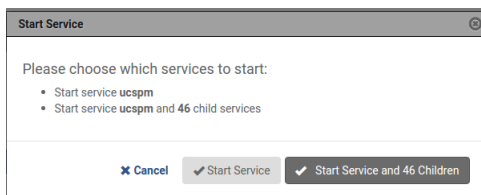
- 2 At the login page, enter `ccuser` and its password.

**Figure 15:** Landing page of initial login



- 3 In the **Actions** column of the **Applications** table, click the **Start** control of the **ucspm** row.

**Figure 16:** Start Service dialog



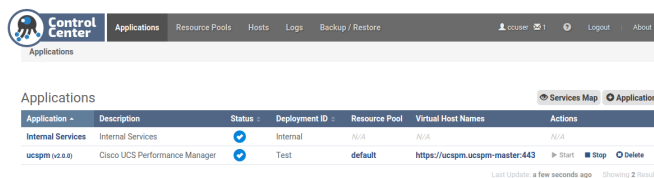
- 4 In the **Start Service** dialog, click **Start Service and 46 Children** button.

- 5 In the **Application** column of the **Applications** table, click **ucspm** in the **ucspm** row.
- 6 Scroll down to watch child services starting.  
Typically, child services take 4-5 minutes to start. When no child service shows a red exclamation point icon, Cisco UCS Performance Manager is running.
- 7 Optional: Log in to the Cisco UCS Performance Manager interface, if desired.
  - a Scroll to the **Virtual Host Names** table.
  - b In the **URL** column, click the link of the last entry, which starts with **ucspm**.

## Shutting down a Control Center master host

Control Center is a distributed system that relies on the system clock (and NTP) to coordinate Cisco UCS Performance Manager services. Consequently, pausing or stopping the Control Center master host can leave Control Center in an unknown state, which requires manual intervention to repair. Cisco strongly recommends following this procedure to stop Cisco UCS Performance Manager, before pausing or stopping the master host.

- 1 Log in to the Control Center browser interface as **ccuser**.



- 2 In the **Actions** column of the **Applications** table, click the **Stop** control of **ucspm**.
- 3 In the **Stop Service** dialog, click the **Stop Service and 46 Children** button.
- 4 Log out of the Control Center browser interface.
- 5 Use the normal hypervisor controls to shut down the Cisco UCS Performance Manager master host.

# Adding storage to a Control Center master host



This appendix describes how to add storage to a Control Center master host. All deployments need to add storage for backups, and multi-host deployments usually need to add storage for data collection.

To add either backups storage or data collection storage, first perform the procedures in [Creating and adding a virtual disk](#) on page 23. Then, perform one of the following procedures:

[Preparing a partition for backups](#) on page 27

[Preparing a partition for data collection storage](#) on page 28

The procedures in this appendix may be performed only after a Control Center master host is installed.

## Creating and adding a virtual disk

To perform this procedure, you need:

- Administrative privileges on your hypervisor system
- A client for your hypervisor system

This procedure creates, identifies, a partitions a virtual disk on a host.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as [PuTTY](#).
- 2 Start a command-line session as **root**.

**a** In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.

**b** Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~] #
```

- 3 Identify the block storage attached to the host.

```
lsblk -pdo NAME,HCTL,SIZE
```

Example output:

NAME	HCTL	SIZE
/dev/sda	2:0:0:0	293G
/dev/sr0	1:0:0:0	1024M

The example output shows two devices:

- One disk drive (/dev/sda)
  - One CD-ROM drive (/dev/sr0)
- 4 Create a virtual disk for the Control Center master host.  
Perform one of the following procedures:
    - [Creating a virtual disk with vSphere](#) on page 24
    - [Creating a virtual disk with Hyper-V](#) on page 25
 On completion, return to this procedure and perform the next step.
  - 5 Rescan all SCSI storage.

```
for h in $(ls /sys/class/scsi_host)
do
    echo "- - -" > /sys/class/scsi_host/${h}/scan
done
```

- 6 Identify the block storage attached to the host.

```
lsblk -pdo NAME,HCTL,SIZE
```

Example output:

NAME	HCTL	SIZE
/dev/sda	2:0:0:0	293G
/dev/sdb	2:0:1:0	300G
/dev/sr0	1:0:0:0	1024M

The example output shows a new drive, /dev/sdb.

- 7 Create a single primary partition on the new drive.  
For more information, see [Creating primary partitions on a disk](#) on page 25.
- On completion, proceed to one of the following procedures:

[Preparing a partition for backups](#) on page 27

[Preparing a partition for data collection storage](#) on page 28

## Creating a virtual disk with vSphere

To perform this task, you need a VMware vSphere client.

- 1 Use the VMware vSphere Client to log in to vCenter as `root`, or as a user with superuser privileges, and then display the **Home > Inventory > Inventory** view.
- 2 In the left column, right-click on the Control Center master host virtual machine, and then select **Edit Settings...**
- 3 On the **Hardware** tab, click the **Add...** button.
- 4 In the **Add Hardware** dialog, select **Hard Disk**, and then click the **Next >** button.
- 5 In the **Select a Disk** pane, click the **Create a new virtual disk** radio button, and then click the **Next >** button.
- 6 In the **Create a Disk** pane, configure the virtual disk.
  - a In the **Capacity** area, set the disk size.  
For backup storage, Cisco recommends 300GB. For data collection storage, Cisco recommends 150GB.
  - b In the **Disk Provisioning** area, choose the option you prefer.
  - c In the **Location** area, choose the option you prefer.



- d Click the **Next >** button.
- 7 In the **Advanced Options** pane, configure the mode.
  - a In the **Mode** area, check the **Independent** check box.
  - b Click the **Persistent** radio button.
  - c Click the **Next >** button.
- 8 In the **Ready to Complete** pane, confirm the virtual disk configuration, and then click the **Finish** button.
- 9 At the bottom of the **Virtual Machine Properties** dialog, click the **OK** button.

## Creating a virtual disk with Hyper-V

To perform this task, you need:

- A Microsoft Remote Desktop client
  - Administrator privileges on a Microsoft Hyper-V server
- 1 Use a Microsoft Remote Desktop client to log in to a Hyper-V host as Administrator, or as a user with Administrator privileges.
  - 2 Start **Hyper-V Manager**.
  - 3 In the left column, select the server that is hosting the Control Center master host, and then right-click to select **New > Hard Disk...**
  - 4 In the **New Virtual Hard Disk Wizard** dialog, navigate to the **Choose Disk Format** panel.
  - 5 Click the **VHDX** radio button, and then click the **Next >** button.
  - 6 In the **Choose Disk Type** panel, click the **Dynamically expanding** radio button, and then click the **Next >** button.
  - 7 In the **Specify Name and Location** panel, enter a name for the disk in the **Name** field, and then click the **Next >** button.
  - 8 In the **Configure Disk** panel, click the **Create a new blank virtual hard disk** radio button, enter the disk size in the **Size** field, and then click the **Next >** button.  
For backup storage, Cisco recommends 300GB. For data collection storage, Cisco recommends 150GB.
  - 9 In the **Summary** panel, review the virtual disk settings, and then click the **Finish** button.
  - 10 In **Hyper-V Manager**, right-click the virtual machine of the Control Center master host, and then select **Settings...**
  - 11 In the **Settings** dialog, select **SCSI Controller** from the **Hardware** list in the left column.
  - 12 In the **SCSI Controller** area on the right side, select **Hard Drive**, and then click the **Add** button.
  - 13 In the **Hard Drive** area, click the **Virtual hard disk** radio button, and then click the **Browse** button.
  - 14 In the **Open** dialog, select the hard disk image created previously, and then click the **Open** button.
  - 15 In the **Settings** dialog, click the **OK** button.

## Creating primary partitions on a disk

This procedure demonstrates how to create primary partitions on a disk. Each primary partition may be formatted as a file system or swap space, used in a device mapper thin pool, or reserved for future use. Each disk must have one primary partition, and may have four.

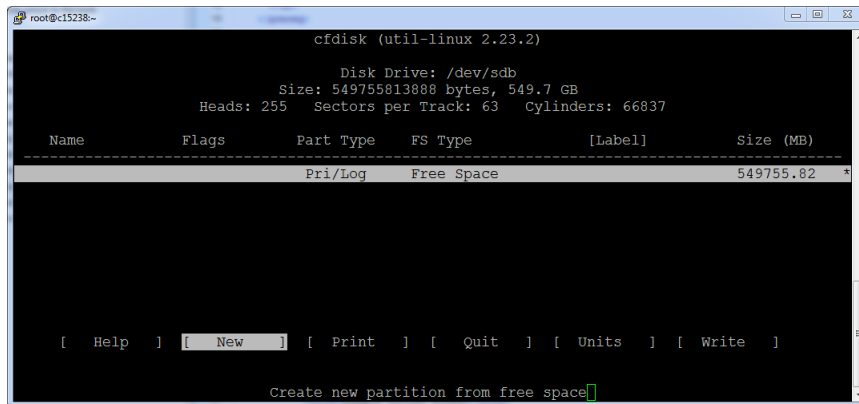
---

**Note** Data present on the disk you select is destroyed by this procedure. Please ensure that data present on the disk is backed up elsewhere, or no longer needed, before proceeding.

---

- 1 Start the partition table editor for the target disk.  
In this example, the target disk is `/dev/sdb`, and it has no entries in its partition table.

```
cfdisk /dev/sdb
```

**Figure 17: Initial screen**

The `cfdisk` command provides a text user interface (TUI) for editing the partition table. The following list describes how to navigate through the interface:

- To select an entry in the table, use the up and down arrow keys. The current entry is highlighted.
- To select a command from the menu at the bottom of the interface, use the left and right arrow keys, or **Tab** and **Shift-Tab**. The current command is highlighted.
- To choose a command, press the **Enter** key.
- To return to the previous level of the menu, press the **Esc** key.
- To exit the interface, select **Quit** from the menu, and then press the **Enter** key.

For more information about `cfdisk`, enter `man cfdisk`.

## 2 Create a new partition.

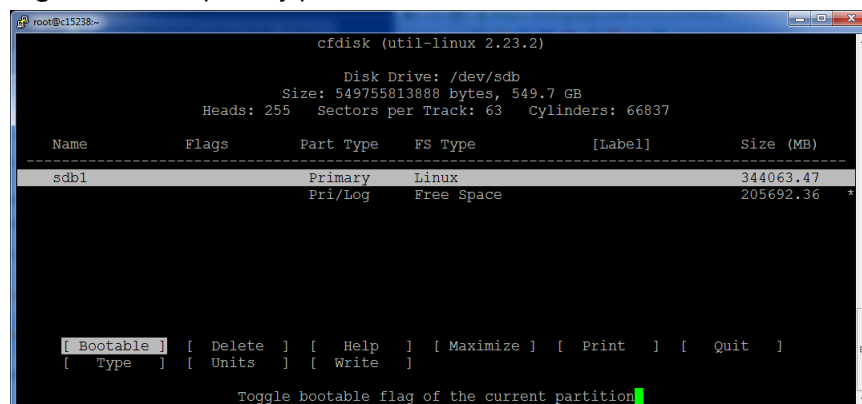
Repeat the following substeps for each primary partition to create. You may create four primary partitions on a disk.

- a Select the table entry with the value **Free Space** in the **FS Type** column.
- b Select **[New]**, and then press the **Enter** key.
- c Select **[Primary]**, and then press the **Enter** key.
- d At the **Size (in MB)** prompt, enter the size of the partition to create in megabytes, and then press the **Enter** key.

To accept the default value, which is all of the free space on the disk, just press the **Enter** key.

- 
- e **Note** If you created a single partition that uses all of the available disk space, skip this substep.
- 

Optional: Select **[Beginning]**, and then press the **Enter** key.

**Figure 18: One primary partition**

- 3 Write the partition table to disk, and then exit the partition table editor.
  - a Select **[Write]**, and then press the **Enter** key.
  - b At the **Are you sure...** prompt, enter **yes**, and then press the **Enter** key.  
You can ignore the warning about a bootable partition.
  - c Select **[Quit]**, and then press the **Enter** key.

Perform one of the following procedures:

[Preparing a partition for backups](#) on page 27

[Preparing a partition for data collection storage](#) on page 28

## Preparing a partition for backups

Before performing this procedure, complete all of the steps in [Creating and adding a virtual disk](#) on page 23.

This procedure prepares a partition for backups for a Control Center master host.

- 1 Identify the partition to prepare.  
Replace *Device* with the virtual disk added previously:

```
lsblk -p --output=NAME,SIZE,TYPE Device
```

Example output:

```
NAME          SIZE TYPE
/dev/sdb      300G disk
|--/dev/sdb1  300G part
```

In this example, the partition to prepare is `/dev/sdb1`.

- 2 Create an XFS file system on the partition, and label the partition.  
Replace *Partition* with the partition identified previously:

```
mkfs -t xfs -L BACKUPS Partition
```

- 3 Create a mount point for the file system, and then set its permissions bits.

```
mkdir -p /opt/serviced/var/backups && \
  chmod 777 /opt/serviced/var/backups
```

- 4 Create an entry in the `/etc/fstab` file.  
Replace *Partition* with the partition identified previously:

```
myPart=Partition
echo "$myPart /opt/serviced/var/backups xfs defaults 0 0" \
  >> /etc/fstab
```

- 5 Mount the file system, and then verify it mounted correctly.

```
mount -a && mount | grep backups
```

Example result:

```
/dev/sdb1 on /opt/serviced/var/backups type xfs
(rw,relatime,attr2,inode64,noquota)
```

## Preparing a partition for data collection storage

Before performing this procedure, complete all of the steps in [Creating and adding a virtual disk](#) on page 23.

This procedure prepares a partition for data collection storage for a Control Center master host.

- 1 Identify the partition to prepare, and record its size.  
Replace *Device* with the virtual disk added previously:

```
lsblk -p --output=NAME,SIZE,TYPE Device
```

Example output:

NAME	SIZE	TYPE
/dev/sdc	150G	disk
--/dev/sdc1	150G	part

In this example, the partition to prepare is /dev/sdc1, and it contains 150GB.

- 2 Create a new physical volume.  
Replace *Partition* with the partition identified previously:

```
pvccreate Partition
```

On success, the `pvccreate` command displays the name of the new physical volume, which is the same name as the partition.

- 3 Extend the volume group used for data collection, `serviced`.  
Replace *PhysicalVolume* with the name of the physical volume created in the previous step:

```
vgextend serviced PhysicalVolume
```

- 4 Extend the thin pool used for data collection with the updated volume group.  
Replace *SIZE* with the total size (including the units) of the physical volume that you added to the `serviced` volume group:

```
lvextend -L+SIZE serviced/serviced-pool
```

The `lvextend` command automatically extends both the data and metadata areas of the thin pool.

# Creating a multi-host Control Center cluster

# B

This appendix describes how to create a multi-host Control Center cluster, which includes installing agent hosts, and reconfiguring the master host.

---

**Note** The first step to a multi-host deployment is installing a master host. For more information, see [Installing a Control Center master host](#) on page 10.

---

A multi-host Cisco UCS Performance Manager deployment includes one Control Center master host and three Control Center agent hosts. (Fewer agent hosts is not supported, and additional agent hosts are rarely necessary.)

The following list outlines the process of configuring a multi-host deployment.

- 1 Create a master host:

[Installing a Control Center master host](#) on page 10

- 2 Optional: Migrate data from your Cisco UCS Performance Manager version 1.1.x system. For more information, refer to the *Cisco UCS Performance Manager Migration Guide*.
- 3 Create agent hosts by repeating these procedures three times:

- a [Creating a virtual machine](#) on page 30
- b [Configuring the virtual machine mode](#) on page 33
- c [Set system hostname](#) on page 16

- 4 If you are using hostnames or fully-qualified domain names, perform this procedure on the Control Center master host and on each agent host:

[Editing the /etc/hosts file](#) on page 38

- 5 Create a ZooKeeper cluster:

[Configuring a ZooKeeper cluster](#) on page 39

- 6 Optional: Create a private NTP server. This is only required on Microsoft Hyper-V guests.
- 7 Perform these procedures on the master host:

- a [Adding agent hosts to the default resource pool](#) on page 45
- b [Moving the master host to a new pool](#) on page 45
- c [Redeploying Cisco UCS Performance Manager](#) on page 47
- d [Reducing master host resources](#) on page 48
- e [Adding storage to a Control Center master host](#) on page 23
- f [Restarting the master host](#) on page 49

## Creating a virtual machine

You may create a virtual machine for the Cisco UCS Performance Manager appliance with VMware vSphere or Microsoft Hyper-V. Choose one of the procedures in this section.

### Creating a virtual machine with vSphere

To perform this task, you need a VMware vSphere client.

This procedure installs the Cisco UCS Performance Manager OVA package as a virtual machine managed by vSphere Server version 5.0.0, using VMware vSphere Client 5.0.0. The procedure is slightly different with different versions of VMware vSphere Client.

- 1 Download the Cisco UCS Performance Manager OVA file from the [Cisco UCS Performance Manager](#) site to your workstation, if necessary.

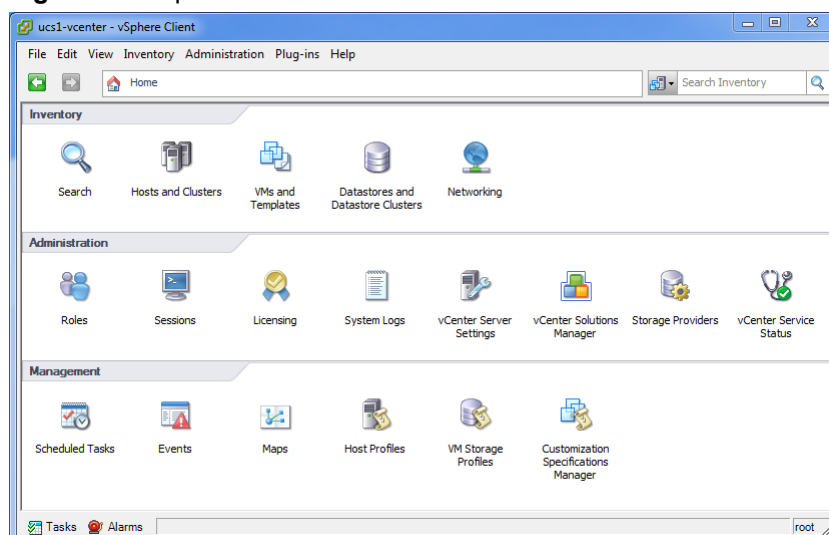
---

**Note** The same OVA package is used for both master host and agent host virtual machines.

---

- 2 Use the VMware vSphere Client to log in to vCenter as `root`, or as a user with superuser privileges, and then display the **Home** view.

**Figure 19: vSphere client Home view**



- 3 From the **File** menu, select **Deploy OVF Template....**
- 4 In the **Source** panel, specify the path of the Cisco UCS Performance Manager package, and then click **Next >**.
- 5 In the **OVF Template Details** panel, click **Next >**.
- 6 In the **Name and Location** panel, provide a name and a location for the server.
  - a In the **Name** field, enter a new name.
  - b In the **Inventory Location** area, select a data center for the virtual machine.
  - c Click **Next >**.
- 7 In the **Host / Cluster** panel, select a host system, and then click **Next >**.
- 8 In the **Storage** panel, select a storage system with sufficient space for your UCS system, and then click **Next >**.
- 9 In the **Disk Format** panel, select **Thin Provision**, and then click **Next >**.
- 10 In the **Ready to Complete** panel, review the deployment settings, and then click **Finish**.  
You may check the check box labeled **Power on after deployment**, if desired.
- 11 Optional: On the new virtual machine's **Getting Started** tab, click the **Power on virtual machine** link, if necessary.

## Creating a virtual machine with Hyper-V

To perform this task, you need:

- A Microsoft Remote Desktop client
- Administrator privileges on a Microsoft Hyper-V server

This procedure installs the Cisco UCS Performance Manager appliance as a virtual machine managed by Microsoft Hyper-V.

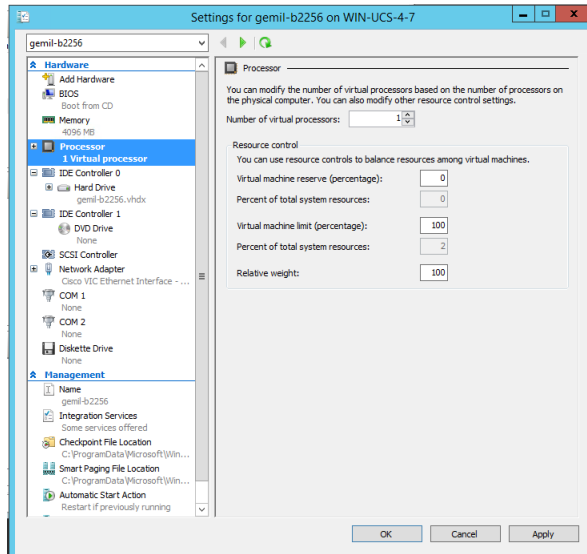
- 1 Use a Microsoft Remote Desktop client to log in to a Hyper-V host as Administrator, or as a user with Administrator privileges.
- 2 Download the Cisco UCS Performance Manager ISO file from the [Cisco UCS Performance Manager](#) site to the Hyper-V host, if necessary.

---

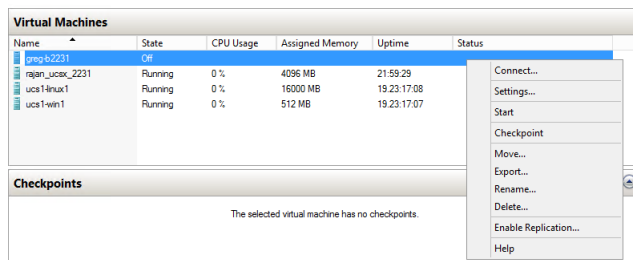
**Note** The same OVA package is used for both master host and agent host virtual machines.

---

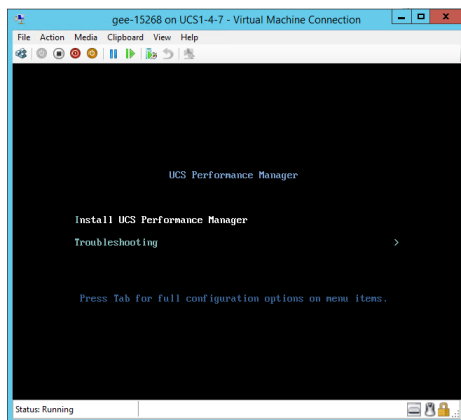
- 3 Start **Hyper-V Manager**.
- 4 In the left column, select a server to host the virtual machine.
- 5 From the **Action** menu, select **New > Virtual Machine....**
- 6 In the **New Virtual Machine Wizard** dialog, display the **Specify Name and Location** panel.  
If the first panel displayed is the **Before You Begin** panel, click **Next >**.
- 7 In the **Specify Name and Location** panel, provide a name for the virtual machine, and then click **Next >**.
- 8 In the **Specify Generation** panel, select **Generation 1**, and then click **Next >**.
- 9 In the **Assign Memory** panel, enter 40960 (40GB) in the **Startup memory** field, and then click **Next >**.
- 10 In the **Configure Networking** panel, select **Cisco VIC Ethernet Interface - Virtual Switch**, and then click **Next >**.
- 11 In the **Connect Virtual Hard Disk** panel, select **Create a virtual hard disk**, enter 140 in the **Size** field, and then click **Next >**.
- 12 In the **Installation Options** panel, specify the Cisco UCS Performance Manager ISO package.
  - a Select **Install an operating system from a bootable CD/DVD-ROM**.
  - b Select **Image file (.iso)**, and then specify the location of the Cisco UCS Performance Manager ISO image file.
  - c Click **Next >**.
- 13 In the **Summary** panel, review the virtual machine specification, and then click **Finish**.  
Hyper-V Manager creates the new virtual machine, and then closes the **New Virtual Machine Wizard** dialog.
- 14 In the **Virtual Machines** area of Hyper-V Manager, select the new virtual machine, and then right-click to select **Settings....**
- 15 In the **Hardware** area of the **Settings** dialog, select **Processor**.

**Figure 20: Settings dialog, Processor selected**

- 16 In the **Processor** area, enter 8 in the **Number of virtual processors** field, and then click **OK**.
- 17 In the **Virtual Machines** area of Hyper-V Manager, select the new virtual machine, and then right-click to select **Start**.

**Figure 21: Starting a virtual machine**

- 18 In the **Virtual Machines** area of Hyper-V Manager, select the new virtual machine, and then right-click to select **Connect**.
- 19 In the **Virtual Machine Connection** window, press the **Enter** key.

**Figure 22: Appliance installation start screen**

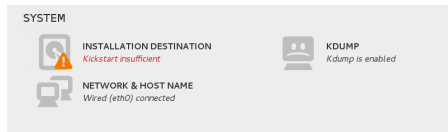
The appliance installation process takes about 15 minutes, and should complete with no additional input.

- 20 Optional: Select the installation destination, if necessary.



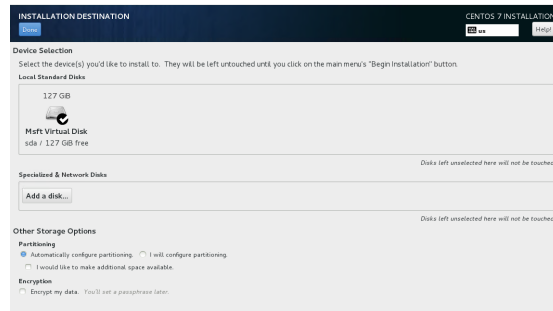
Occasionally, installation is interrupted with the Kickstart `insufficient` message.

**Figure 23:** Kickstart insufficient message



- a In the **SYSTEM** area of the **INSTALLATION SUMMARY** page, click the **INSTALLATION DESTINATION** control.

**Figure 24:** INSTALLATION DESTINATION page



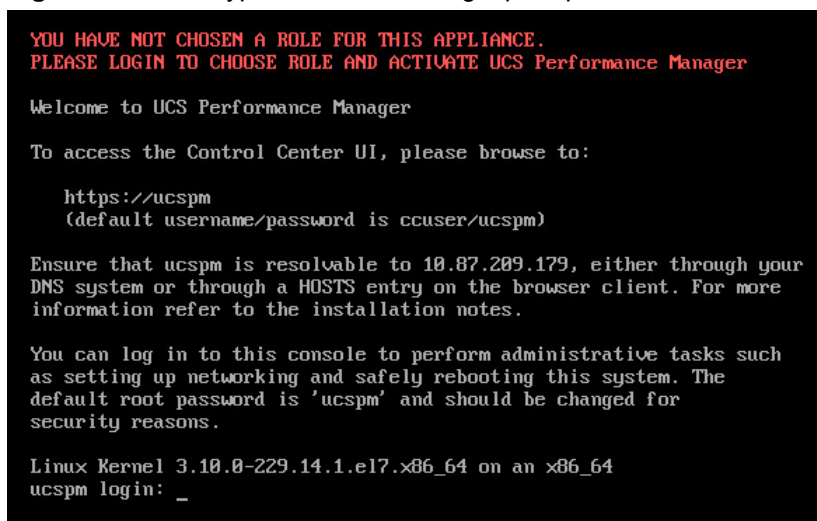
- b On the **INSTALLATION DESTINATION** page, click the **Done** button, located at the upper-left corner of the page.
- c On the **INSTALLATION SUMMARY** page, click the **Begin Installation** button, located at the bottom-right corner of the page.

## Configuring the virtual machine mode

Perform this procedure immediately after creating and starting a virtual machine for Cisco UCS Performance Manager. A Cisco UCS Performance Manager deployment may include three systems configured as agent hosts.

- 1 Gain access to the console interface of the Control Center host through your hypervisor console interface.

**Figure 25:** Initial hypervisor console login prompt



- 2 Log in as the `root` user.  
The initial password is `ucspm`.
- 3 The system prompts you to enter a new password for `root`.

---

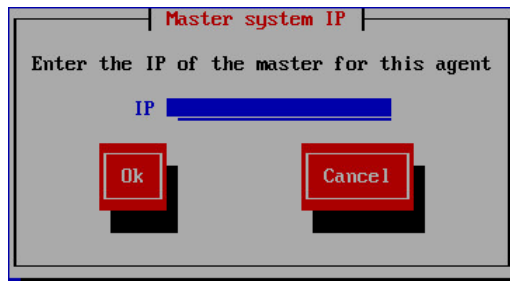
**Note** Passwords must include a minimum of eight characters, with at least one character from three of the following character classes: uppercase letter, lowercase letter, digit, and special.

---

- 4 The system prompts you to enter a new password for `ccuser`.  
The `ccuser` account is the default account for gaining access to the Control Center browser interface.
- 5 Select the agent role for the virtual machine.



- a In the **Configure appliance** menu, press the down-arrow key to select **Agent**.
- b Press the the **Tab** key to select the **Choose** button, and then the **Enter** key.



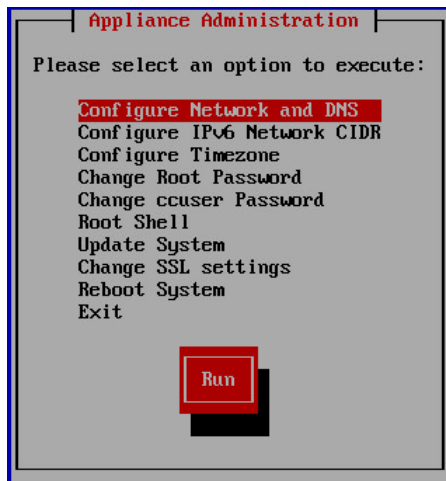
- c In the **IP** field, enter the hostname, fully-qualified domain name, or IPv4 address of the master host.  
If you enter the hostname or fully-qualified domain name of the master host, you need an entry in the `/etc/hosts` file of the agent host, or a nameserver on your network, that resolves the name to its IPv4 address.
- d Press the the **Tab** key to select the **Ok** button, and then the **Enter** key.  
The system reboots.

## Edit a connection

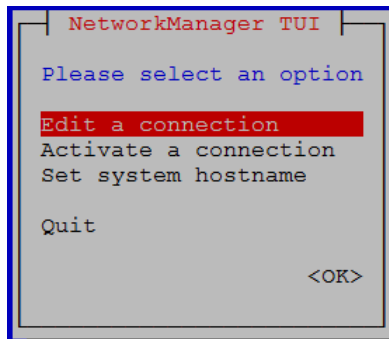
---

The default configuration for network connections is DHCP. To configure static IPv4 addressing, perform this procedure.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.

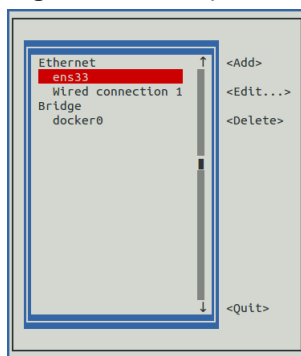


- 3 Select the **NetworkManager TUI** menu.
  - a In the **Appliance Administration** menu, select the **Configure Network and DNS** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.



- 4 On the **NetworkManager TUI** menu, select **Edit a connection**, and then press the **Return** key. The TUI displays the connections that are available on this host.

**Figure 26:** Example: Available connections

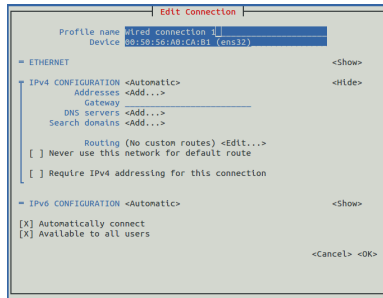



---

**Note** Do not modify the `docker0` connection.

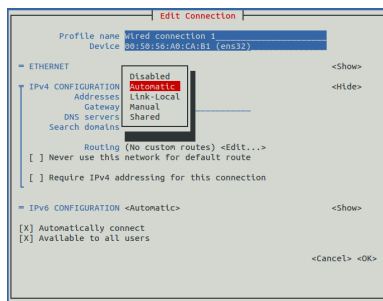
---

- 5 Use the down-arrow key to select **Wired Connection 1**, and then press the **Return** key.

**Figure 27:** Example: Edit Connection screen

Use the **Tab** key and the arrow keys to navigate among options in the **Edit Connection** screen, and use the **Return** key to toggle an option or to display a menu of options.

- 6 Optional: If the **IPv4 CONFIGURATION** area is not visible, select its display option (<Show>), and then press the **Return** key.
- 7 In the **IPv4 CONFIGURATION** area, select <Automatic>, and then press the **Return** key.

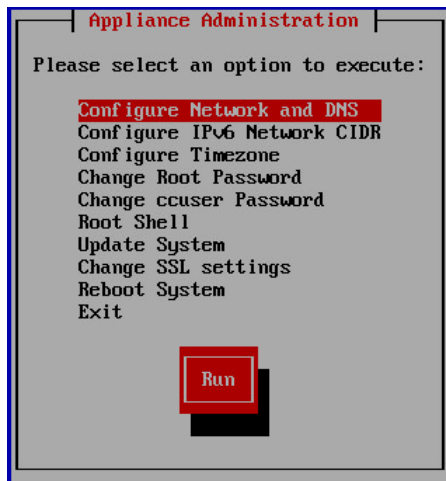
**Figure 28:** Example: IPv4 Configuration options

- 8 Configure static IPv4 networking.
  - a Use the down arrow key to select **Manual**, and then press the **Return** key.
  - b Use the **Tab** key or the down arrow key to select the <Add...> option next to **Addresses**, and then press the **Return** key.
  - c In the **Addresses** field, enter an IPv4 address for the virtual machine, and then press the **Return** key.
  - d Repeat the preceding two steps for the **Gateway** and **DNS servers** fields.
- 9 Use the **Tab** key or the down arrow key to select the <OK> option at the bottom of the **Edit Connection** screen, and then press the **Return** key.
- 10 In the available connections screen, use the **Tab** key to select the <Quit> option, and then press the **Return** key.
- 11 Reboot the operating system.
  - a In the **Appliance Administration** menu, use the down-arrow key to select the **Reboot System** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.

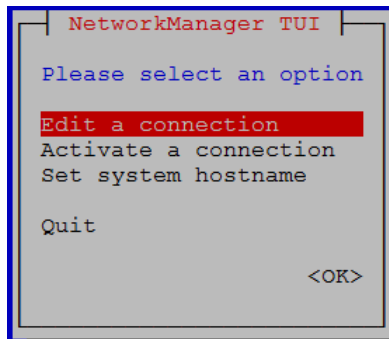
## Set system hostname

The default hostname of a Control Center host is `ucspm`. To change the hostname, perform this procedure.

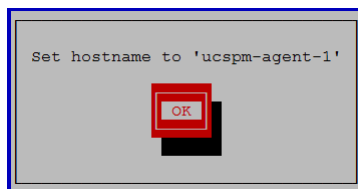
- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 Select the **NetworkManager TUI** menu.
  - a In the **Appliance Administration** menu, select the **Configure Network and DNS** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.



- 4 Display the hostname entry field.
  - a In the **NetworkManager TUI** menu, use the down-arrow key to select **Set system hostname**.
  - b Press the **Tab** key to select the **OK** button.
  - c Press the **Enter** key.
- 5 In the **Hostname** field, enter the new hostname.  
You may enter either a hostname or a fully-qualified domain name.
- 6 Press the **Tab** key twice to select the **OK** button, and then press the **Enter** key.

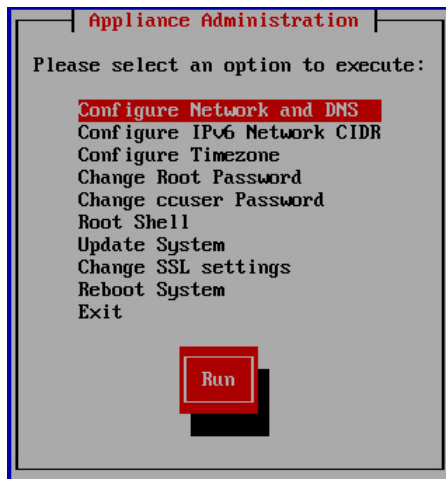


- 7 In the confirmation dialog, press the **Return** key.
- 8 Reboot the operating system.
  - a In the **Appliance Administration** menu, use the down-arrow key to select the **Reboot System** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.

## Editing the /etc/hosts file

This procedure is optional. Perform this procedure only if you use hostnames or fully-qualified domain names instead of IPv4 addresses, and only after all agent hosts are installed and renamed. Perform this procedure on the Control Center master host and on each agent host.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 Start a command-line session as `root`.
  - a In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.
  - b Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~]#
```

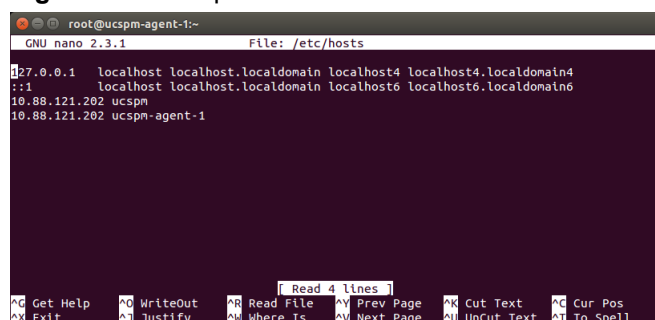
- 4 Open the `/etc/hosts` file in a text editor.

The following steps use the *nano* editor.

- a Start the editor.

```
nano /etc/hosts
```

**Figure 29:** Example nano session



Use the up-arrow and down-arrow keys to select lines, and the right-arrow and left-arrow keys to select characters on a line.

- b Optional: On agent hosts, the file may include two entries with the same the IP address. Remove the first of the two entries, which maps the IP address to the `ucspm` hostname.

- c Add entries for the Control Center master host and for each agent host.
  - d Save the file and exit the editor.  
To save, press **Control-o**. To exit, press **Control-x**.
- 5 Return to the **Appliance Administration** menu.

```
exit
```

- 6 Exit the **Appliance Administration** menu.
- a Use the down-arrow key to select **Exit**.
  - b Press the **Tab** key, and then press the **Return** key.

## Configuring a ZooKeeper cluster

Control Center relies on *Apache ZooKeeper* to keep its services in sync. The procedures in this section create a ZooKeeper cluster on the master host and two agent hosts.

### Configuring a ZooKeeper cluster on the master host

This procedure configures a ZooKeeper cluster on the master host.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Start a command-line session as **root**.
  - a In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.
  - b Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~]#
```

- 3 Create a variable for each node in the ZooKeeper cluster.  
The variables are used in subsequent steps.

---

**Note** Define these variables identically on the master host and on each agent host.

---

Replace each of the *CC\*Host* variables with the IP address or hostname of one of the Control Center hosts in the ZooKeeper cluster.

```
node1=CCMasterHost
node2=CCAgentHost-A
node3=CCAgentHost-B
```

- 4 Set the ID of this node in the ZooKeeper cluster to 1.

```
echo "SERVICED_ISVCS_ZOOKEEPER_ID=1" >> /etc/default/serviced
```

- 5 Specify the hosts in the ZooKeeper ensemble.  
You may copy the following text from this document and paste it in your console:

```
echo "SERVICED_ZK=${node1}:2181,${node2}:2181,${node3}:2181" \
>> /etc/default/serviced
```

- 6 Specify the hosts in the ZooKeeper quorum.  
You may copy the following of text from this document and paste it in your console:

```
q1="1@${node1}:2888:3888"
```

```
q2="2@${node2}:2888:3888"
q3="3@${node3}:2888:3888"
echo "SERVICED_ISVCS_ZOOKEEPER_QUORUM=${q1},${q2},${q3}" \
>> /etc/default/serviced
```

- 7 Restart the Control Center service.

```
systemctl restart serviced
```

## Configuring a ZooKeeper cluster on agent hosts

This procedure configures a ZooKeeper cluster on an agent host. Repeat this procedure on each Control Center agent host in the ZooKeeper cluster.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Start a command-line session as **root**.
  - a In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.
  - b Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~]#
```

- 3 Create a variable for each node in the ZooKeeper cluster.

The variables are used in subsequent steps.

---

**Note** Define these variables identically on the master host and on each agent host.

---

Replace each of the *CC\*Host* variables with the IP address or hostname of one of the Control Center hosts in the ZooKeeper cluster.

```
node1=CCMasterHost
node2=CCAgentHost-A
node3=CCAgentHost-B
```

- 4 Set the ZooKeeper start flag.

```
echo "SERVICED_ISVCS_START=zookeeper" >> /etc/default/serviced
```

- 5 Set the ID of this node in the ZooKeeper cluster.

For *CCAgentHost-A* (node2), set the ID to 2. For *CCAgentHost-B* (node3), set the ID to 3.

Replace *n* with 2 or 3:

```
echo "SERVICED_ISVCS_ZOOKEEPER_ID=n" >> /etc/default/serviced
```

- 6 Specify the hosts in the ZooKeeper ensemble.

You may copy the following text from this document and paste it in your console:

```
echo "SERVICED_ZK=${node1}:2181,${node2}:2181,${node3}:2181" \
>> /etc/default/serviced
```

- 7 Specify the hosts in the ZooKeeper quorum.

You may copy the following of text from this document and paste it in your console:

```
q1="1@${node1}:2888:3888"
q2="2@${node2}:2888:3888"
```



```
q3="3@${node3}:2888:3888"
echo "SERVICED_ISVCS_ZOOKEEPER_QUORUM=${q1},${q2},${q3}" \
>> /etc/default/serviced
```

- 8 Restart the Control Center service.

```
systemctl restart serviced
```

## Enabling NTP on Microsoft Hyper-V guests

Like most distributed applications, Control Center requires a common time source. The procedures in this section enable [NTP](#) to synchronize the system clocks of all hosts in your Control Center cluster.

You may configure NTP to rely on public time servers or on a private master server.

- If all of the hosts in your Control Center cluster can access the internet, configure NTP to rely on public time servers.
- If none of the hosts in your Control Center cluster can access the internet, configure NTP to rely on a private master server.

---

**Note** The procedures in this section are required only for multi-host deployments running as Microsoft Hyper-V guests. VMware vSphere guests use an hourly `cron` job to synchronize their system clocks with the host.

---

## Configuring NTP for public time servers

This procedure uses the default configuration of NTP to synchronize system clocks with public time servers. If all of the hosts in your Control Center cluster can access the internet, repeat this procedure on each host in the cluster, starting with the Control Center master host.

---

**Note** Do not perform this procedure on VMware vSphere guests.

---

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as [PuTTY](#).
- 2 Start a command-line session as `root`.
  - a In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.
  - b Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~]#
```

- 3 Stop Control Center.

```
systemctl stop serviced
```

- 4 Synchronize the system clock and enable the NTP daemon.

- a Set the system time.

```
ntpdate -gq
```

- b Enable the `ntpd` daemon.

```
systemctl enable ntpd
```

- c Configure `ntpd` to start when the system starts.

Currently, an unresolved issue associated with NTP prevents `ntpd` from restarting correctly after a reboot, and the following commands provide a workaround to ensure that it does.

```
echo "systemctl start ntpd" >> /etc/rc.d/rc.local
chmod +x /etc/rc.d/rc.local
```

- d Start `ntpd`.

```
systemctl start ntpd
```

- 5 Start Control Center.

```
systemctl start serviced
```

## Configuring an NTP master server

This procedure configures an NTP master server on the Control Center master host. Perform this procedure only if the host does not have internet access.

---

**Note** Do not perform this procedure on VMware vSphere guests.

---

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as [PuTTY](#).
- 2 Start a command-line session as `root`.
  - a In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.
  - b Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~]#
```

- 3 Create a backup of the NTP configuration file.

```
cp -p /etc/ntp.conf /etc/ntp.conf.orig
```

- 4 Edit the NTP configuration file./
  - a Open `/etc/ntp.conf` with a text editor.
  - b Replace all of the lines in the file with the following lines:

```
# Use the local clock
server 127.127.1.0 prefer
fudge 127.127.1.0 stratum 10
driftfile /var/lib/ntp/drift
broadcastdelay 0.008

# Give localhost full access rights
restrict 127.0.0.1

# Grant access to client hosts
restrict ADDRESS_RANGE mask NETMASK nomodify notrap
```

- c Replace `ADDRESS_RANGE` with the range of IPv4 network addresses that are allowed to query this NTP server.

For example, the following IP addresses are assigned to the hosts in an Control Center cluster:

```
203.0.113.10
203.0.113.11
203.0.113.12
203.0.113.13
```

For the preceding addresses, the value for `ADDRESS_RANGE` is `203.0.113.0`.

- d** Replace `NETMASK` with the IPv4 network mask that corresponds with the address range.  
For example, the network mask for `203.0.113.0` is `255.255.255.0`.
  - e** Save the file and exit the editor.
- 5** Stop Control Center.

```
systemctl stop serviced
```

- 6** Enable and start the NTP daemon.

- a** Enable the `ntpd` daemon.

```
systemctl enable ntpd
```

- b** Configure `ntpd` to start when the system starts.

Currently, an unresolved issue associated with NTP prevents `ntpd` from restarting correctly after a reboot, and the following commands provide a workaround to ensure that it does.

```
echo "systemctl start ntpd" >> /etc/rc.d/rc.local
chmod +x /etc/rc.d/rc.local
```

- c** Start `ntpd`.

```
systemctl start ntpd
```

- 7** Start Control Center.

```
systemctl start serviced
```

## Configuring NTP clients

This procedure configures agent hosts to synchronize their clocks with the NTP server on the Control Center master host. Perform this procedure only if the hosts do not have internet access, and repeat this procedure on each agent host in your Control Center cluster.

---

**Note** Do not perform this procedure on VMware vSphere guests.

---

- 1** Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as [PuTTY](#).
- 2** Start a command-line session as `root`.

- a** In the **Appliance Administration** menu, use the down-arrow key to select **Root Shell**.

- b** Press the **Tab** key to select **Run**, and then press the **Return** key.

The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~] #
```

- 3 Create a backup of the NTP configuration file.

```
cp -p /etc/ntp.conf /etc/ntp.conf.orig
```

- 4 Edit the NTP configuration file./

- a Open `/etc/ntp.conf` with a text editor.
- b Replace all of the lines in the file with the following lines:

```
# Point to the master time server
server MASTER_ADDRESS

restrict default ignore
restrict 127.0.0.1
restrict MASTER_ADDRESS mask 255.255.255.255 nomodify notrap noquery

driftfile /var/lib/ntp/drift
```

- c Replace both instances of `MASTER_ADDRESS` with the IPv4 address of the host where the NTP server is running (the Control Center master host).
  - d Save the file and exit the editor.
- 5 Stop Control Center.

```
systemctl stop serviced
```

- 6 Synchronize the clock with the master server.

```
ntpdate -gq
```

- 7 Enable and start the NTP daemon.

- a Enable the `ntpd` daemon.

```
systemctl enable ntpd
```

- b Configure `ntpd` to start when the system starts.

Currently, an unresolved issue associated with NTP prevents `ntpd` from restarting correctly after a reboot, and the following commands provide a workaround to ensure that it does.

```
echo "systemctl start ntpd" >> /etc/rc.d/rc.local
chmod +x /etc/rc.d/rc.local
```

- c Start `ntpd`.

```
systemctl start ntpd
```

- 8 Start Control Center.

```
systemctl start serviced
```

## Configuring the master host

The default installation of the Control Center master host configures it for migration tasks and for single-host deployments. The procedures in this section change the default configuration to enable a multi-host deployment.

## Adding agent hosts to the default resource pool

This procedure adds agent hosts to the Control Center default resource pool.

- 1 Display the login page of the Control Center browser interface.  
Replace *HostName* with the name or IP address of the Control Center master host.

```
https://HostName
```

- 2 At the login page, enter `ccuser` and its password.
- 3 At the top of the page, click **Hosts**.

**Figure 30: Hosts page**

Name	Active	Resource Pool	Memory	RAM Commitment	RAM Cur/Max/Avg GB	CPU Cores	Kernel Version	CC Release	Actions
ucgm-master		default	62.76 GB	0.00 GB	0.00 / 0.00 / 0.00	8	#1	1.1.0-0.0.2453 unstable	

- 4 On the **Hosts** page, click the **+ Host** button.  
The button is at the right side of the page.

**Figure 31: Add Host dialog page**

- 5 In the **Add Host** dialog, add one of the agent hosts to the default resource pool.
  - a In the **Host and Port** field, enter the hostname or IP address of an agent host, followed by a colon character (:), and then 4979.
  - b In the **Resource Pool ID** field, select `default` from the list, and then click **Next**.
  - c In the **RAM Commitment** field, enter the percentage of agent host RAM to devote to Control Center.  
The amount of RAM required for the operating system is not included in this value. Cisco recommends entering 100 in the field.
  - d At the bottom of the **Add Host** dialog, click **Add Host**.
- 6 Repeat the preceding two steps for each of your agent hosts.

## Moving the master host to a new pool

This procedure creates a new resource pool for the Control Center master host, and moves it to the new pool.

- 1 Display the login page of the Control Center browser interface.  
Replace *HostName* with the name or IP address of the Control Center master host.

```
https://HostName
```

- 2 At the login page, enter `ccuser` and its password.
- 3 At the top of the page, click **Resource Pools**.

**Figure 32: Resource Pools page**

Resource Pool	CPU Cores	Memory Usage	Created	Last Modified	Actions
default	28	37.38 GB / 146.71 GB	Nov 11, 2015 12:43:20 PM	Nov 11, 2015 12:43:20 PM	Delete

- 4 On the **Resource Pools** page, click the **+ Resource Pool** button.  
The button is at the right side of the page.

**Figure 33: Add Resource Pool dialog**

- 5 In the **Add Resource Pool** dialog, create a resource pool named `master`.
  - a In the **Resource Pool** field, enter `master`.  
You may use a different name, if desired.
  - b Optional: In the **Description** field, enter descriptive text, if desired.
  - c At the bottom of the **Add Resource Pool** dialog, click **Add Resource Pool**.
- 6 At the top of the page, click **Hosts**.

**Figure 34: Hosts page with 4 hosts**

Name	Active	Resource Pool	Memory	RAM Commitment	RAM Cur/Max/Avg GB	CPU Cores	Kernel Version	CC Release	Actions
ucspm-agent-1	✓	default	39.14 GB	0.00 GB	0.00 / 0.00 / 0.00	8	#1	1.1.0-0.0.2461-unstable	Delete
ucspm-agent-2	✓	default	39.14 GB	0.00 GB	0.00 / 0.00 / 0.00	8	#1	1.1.0-0.0.2461-unstable	Delete
ucspm-agent-3	✓	default	39.14 GB	0.00 GB	0.00 / 0.00 / 0.00	8	#1	1.1.0-0.0.2461-unstable	Delete
ucspm-master	✓	default	29.30 GB	0.00 GB	0.00 / 0.00 / 0.00	4	#1	1.1.0-0.0.2461-unstable	Delete

- 7 Remove the Control Center master host from the `default` resource pool.
  - a In the **Actions** column of the **Hosts** table, click the **Delete** control of the Control Center master host.  
In the preceding example, the master host is named `ucspm-master`.
  - b In the **Remove Host** dialog, click the **Remove Host** button.
- 8 Add the Control Center master host to the `master` resource pool.
  - a Click the **+ Host** button.  
The button is at the right side of the page.
  - b In the **Host and Port** field, enter the hostname or IP address of the master host, followed by a colon character (:), and then 4979.
  - c In the **Resource Pool ID** field, select `master` from the list.
  - d In the **RAM Commitment** field, enter the percentage of agent host RAM to devote to Control Center.  
Cisco recommends entering 100 in the field.
  - e At the bottom of the **Add Host** dialog, click **Add Host**.

The icon in the Active column of the master host becomes grey.

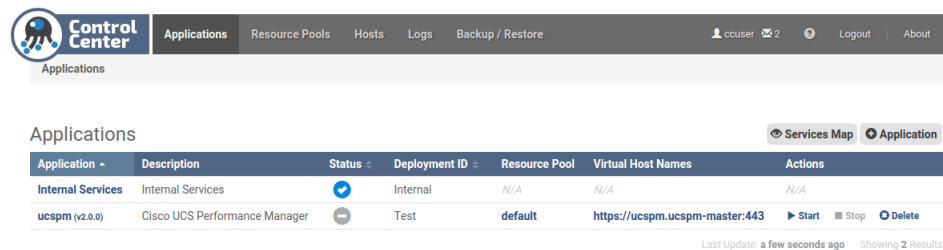
## Redeploying Cisco UCS Performance Manager

- 1 Display the login page of the Control Center browser interface.  
Replace *HostName* with the name or IP address of the Control Center master host.

```
https://HostName
```

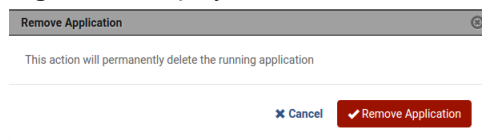
- 2 At the login page, enter `ccuser` and its password.

**Figure 35: Landing page**



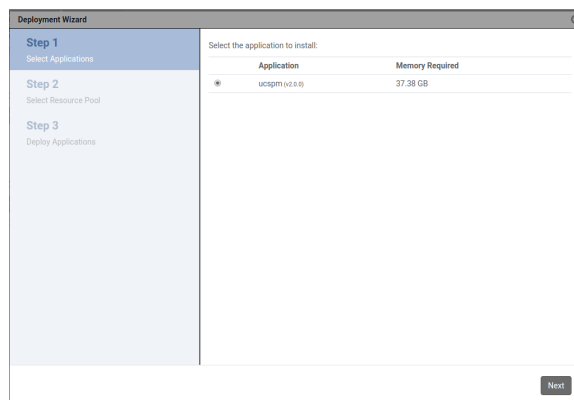
- 3 In the **Actions** column of the **Applications** table, click the **Delete** button of the **ucspm** entry.
- 4 On the **Remove Application** dialog, click the **Remove Application** button.

**Figure 36: Deployment Wizard**

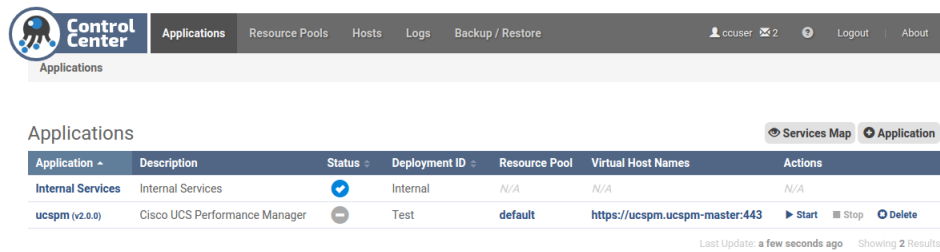


- 5 On the **Applications** page, click the **+ Application** button, located at the right side of the page.

**Figure 37: Deployment Wizard**



- 6 In the **Deployment Wizard**, select the application to deploy.
  - a Select `ucspm`.
  - b At the bottom of the **Deployment Wizard**, click **Next**.
- 7 Select the resource pool for the application.
  - a Select `master`.
  - b At the bottom of the **Deployment Wizard**, click **Next**.
- 8 Choose a deployment ID and deploy Cisco UCS Performance Manager.
  - a In the **Deployment ID** field, enter a name for this deployment of Cisco UCS Performance Manager.
  - b At the bottom of the **Deployment Wizard**, click **Deploy**.

**Figure 38:** Cisco UCS Performance Manager is deployed

- 9 At the top of the page, click **Logout**.  
The control is located at the right side of the page.

## Reducing master host resources

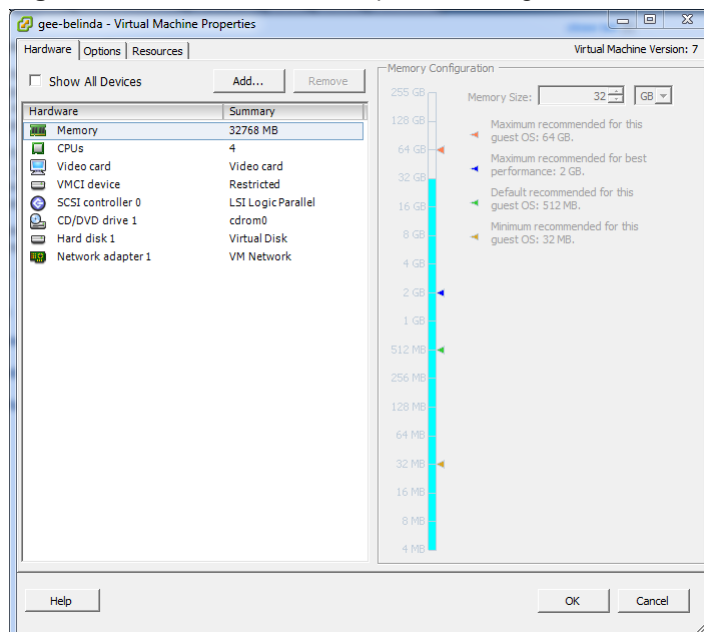
Perform one of the procedures in this section to reduce the amount of RAM and the number of CPU cores that are dedicated to the Control Center master host.

### Reducing master host resources with vSphere

To perform this task, you need a VMware vSphere client.

This procedure reduces the amount of RAM and the number of CPU cores that are dedicated to the Control Center master host, using VMware vSphere Client 5.0.0. The procedure is slightly different with different versions of VMware vSphere Client.

- 1 Use the VMware vSphere Client to log in to vCenter as `root`, or as a user with superuser privileges, and then display the **Home > Inventory > Inventory** view.
- 2 In the left column, right-click on the name of the Control Center master host.
- 3 On the **Getting Started** tab, click the **Shut down the virtual machine** link.
- 4 When the system is shut down, click the **Edit virtual machine settings** link.

**Figure 39:** Virtual Machine Properties dialog

- 5 In the **Hardware** table on the left side, select **Memory**.



- 6 In the **Memory Configuration** area on the right side, change the value in the **Memory Size** field from 64GB to 30GB.
- 7 In the **Hardware** table, select **CPUs**.
- 8 In the **Number of virtual sockets** field, change the value from 8 to 4.
- 9 At the bottom of the **Virtual Machine Properties** dialog, click the **OK** button.

### Reducing master host resources with Hyper-V

To perform this task, you need:

- A Microsoft Remote Desktop client
- Administrator privileges on a Microsoft Hyper-V server

This procedure reduces the amount of RAM and the number of CPU cores that are dedicated to the Control Center master host, using Microsoft Hyper-V Manager.

- 1 Use a Microsoft Remote Desktop client to log in to a Hyper-V host as Administrator, or as a user with Administrator privileges.
- 2 Start **Hyper-V Manager**.
- 3 In **Hyper-V Manager**, right-click the name of the Control Center master host, and then select **Shut Down...**
- 4 When the master host state is **Off**, right-click name of the Control Center master host, and then select **Settings...**
- 5 In the **Hardware** area of the **Settings** dialog, select **Memory**.
- 6 In the **Memory** area, change the value in the **Startup RAM** field from 65536 to 30720.
- 7 In the **Hardware** area of the **Settings** dialog, select **Processor**.
- 8 In the **Processor** area, change the value in the **Number of virtual processors** field from 8 to 4, and then click **OK**.

## Restarting the master host

Perform one of the procedures in this section to restart the Control Center master host.

### Restarting the master host with vSphere

To perform this task, you need a VMware vSphere client.

- 1 Use the VMware vSphere Client to log in to vCenter as `root`, or as a user with superuser privileges, and then display the **Home > Inventory > Inventory** view.
- 2 In the left column, right-click on the name of the Control Center master host.
- 3 On the **Summary** tab, click the **Power On** link.

### Restarting the master host with Hyper-V

To perform this task, you need:

- A Microsoft Remote Desktop client
- Administrator privileges on a Microsoft Hyper-V server

- 1 Use a Microsoft Remote Desktop client to log in to a Hyper-V host as Administrator, or as a user with Administrator privileges.
- 2 Start **Hyper-V Manager**.
- 3 In **Hyper-V Manager**, right-click the name of the Control Center master host, and then select **Start**.

## C

## Using the Appliance Administration menu

This appendix describes the curses-based Appliance Administration menu, a text user interface (TUI).

### Configure Network and DNS

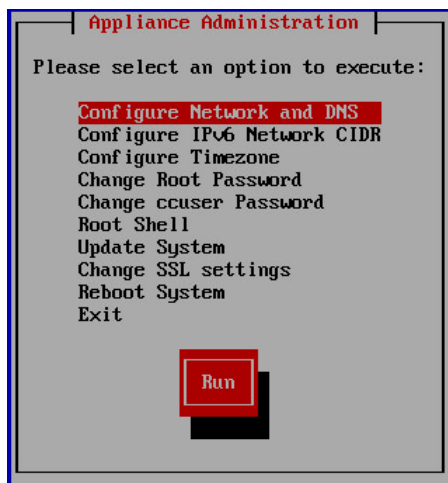
The **Configure Network and DNS** option invokes `nmtui`, the *NetworkManager* text user interface (TUI) tool. The `nmtui` utility provides submenus for editing and activating network connections, and for changing the hostname.

**Note** Cisco recommends using only the **Configure Network and DNS** option to change connection properties or the hostname, and always rebooting after making changes.

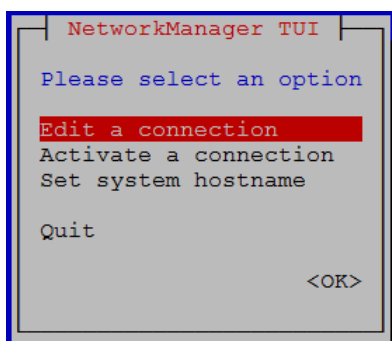
### Edit a connection

The default configuration for network connections is DHCP. To configure static IPv4 addressing, perform this procedure.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.

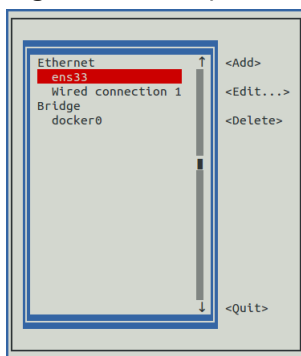


- 3 Select the **NetworkManager TUI** menu.
  - a In the **Appliance Administration** menu, select the **Configure Network and DNS** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.



- 4 On the **NetworkManager TUI** menu, select **Edit a connection**, and then press the **Return** key. The TUI displays the connections that are available on this host.

**Figure 40:** Example: Available connections



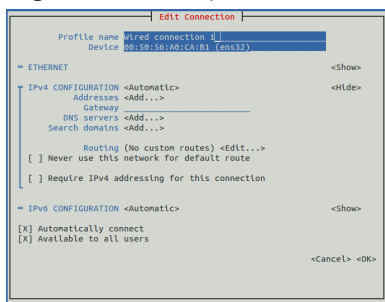

---

**Note** Do not modify the `docker0` connection.

---

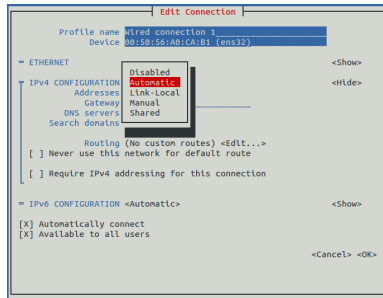
- 5 Use the down-arrow key to select **Wired Connection 1**, and then press the **Return** key.

**Figure 41:** Example: Edit Connection screen



Use the **Tab** key and the arrow keys to navigate among options in the **Edit Connection** screen, and use the **Return** key to toggle an option or to display a menu of options.

- 6 Optional: If the **IPv4 CONFIGURATION** area is not visible, select its display option (**<Show>**), and then press the **Return** key.
- 7 In the **IPv4 CONFIGURATION** area, select **<Automatic>**, and then press the **Return** key.

**Figure 42: Example: IPv4 Configuration options**

- 8 Configure static IPv4 networking.
  - a Use the down arrow key to select **Manual**, and then press the **Return** key.
  - b Use the **Tab** key or the down arrow key to select the **<Add...>** option next to **Addresses**, and then press the **Return** key.
  - c In the **Addresses** field, enter an IPv4 address for the virtual machine, and then press the **Return** key.
  - d Repeat the preceding two steps for the **Gateway** and **DNS servers** fields.
- 9 Use the **Tab** key or the down arrow key to select the **<OK>** option at the bottom of the **Edit Connection** screen, and then press the **Return** key.
- 10 In the available connections screen, use the **Tab** key to select the **<Quit>** option, and then press the **Return** key.
- 11 Reboot the operating system.
  - a In the **Appliance Administration** menu, use the down-arrow key to select the **Reboot System** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.

## Activate a connection

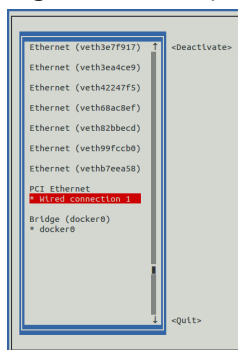
The **Activate a connection** submenu provides options for activating and deactivating network connections.

---

**Note** Do not deactivate the `docker0` connection.

---

On selection, the **Activate a connection** submenu displays the available connections. The asterisk character (\*) at the beginning of a connection name indicates that the connection is active.

**Figure 43: Example: Available connections**

Use the arrow keys to select a connection, and then use the **Tab** key to navigate the options at the right side of the list. Use the **Return** key to choose an option.

---

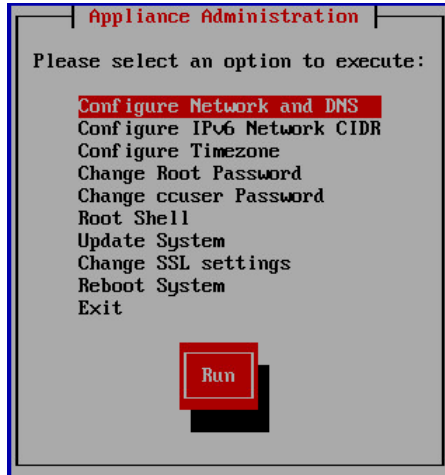
**Note** Always reboot after activating or deactivating a connection.

---

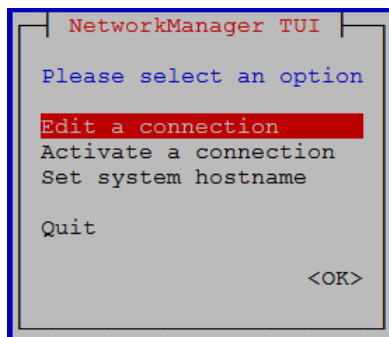
## Set system hostname

The default hostname of a Control Center host is `ucspm`. To change the hostname, perform this procedure.

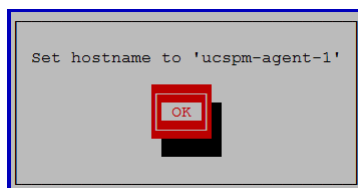
- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 Select the **NetworkManager TUI** menu.
  - a In the **Appliance Administration** menu, select the **Configure Network and DNS** option.
  - b Press the **Tab** key to select the **Run** button.
  - c Press the **Enter** key.



- 4 Display the hostname entry field.
  - a In the **NetworkManager TUI** menu, use the down-arrow key to select **Set system hostname**.
  - b Press the **Tab** key to select the **OK** button.
  - c Press the **Enter** key.
- 5 In the **Hostname** field, enter the new hostname.  
You may enter either a hostname or a fully-qualified domain name.
- 6 Press the **Tab** key twice to select the **OK** button, and then press the **Enter** key.



- 7 In the confirmation dialog, press the **Return** key.
- 8 Reboot the operating system.

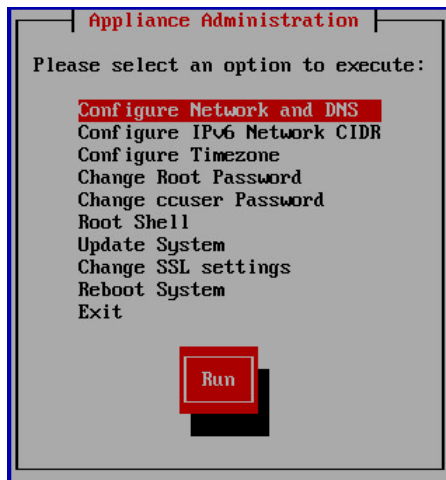
- a In the **Appliance Administration** menu, use the down-arrow key to select the **Reboot System** option.
- b Press the **Tab** key to select the **Run** button.
- c Press the **Enter** key.

## Configure IPv6 Network CIDR

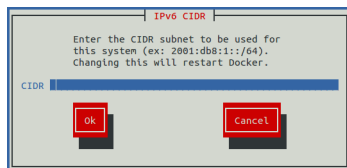
---

The version of Docker included in the Cisco UCS Performance Manager virtual appliance needs to know at startup the address prefix of the IPv6 network it will use. To enable monitoring of devices that use IPv6, perform this procedure on the Control Center master host, and all agent hosts.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 In the **Appliance Administration** menu, select the **Configure IPv6 Network CIDR** option.



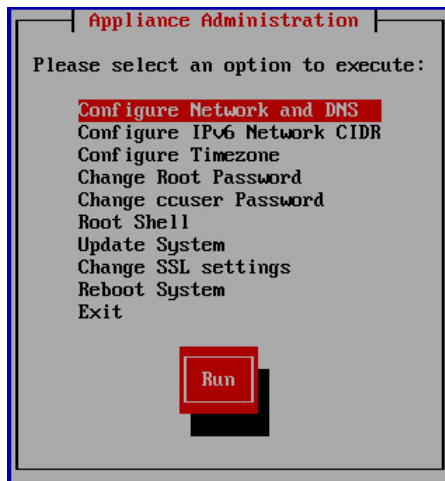
- 4 In the **IPv6 CIDR** screen, enter the address prefix of your IPv6 network in the **CIDR** field.
- 5 User the **Tab** key to select the **Ok** button, and then press the **Return** key.  
The Docker daemon restarts, and the **Appliance Administration** disappears briefly before returning. This is normal.

## Change Root Password

---

This option invokes the `passwd` command to change the password of the `root` user account.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 In the **Appliance Administration** menu, select the **Change Root Password** option.  
The **Appliance Administration** menu disappears, and the system prompts for a new password:

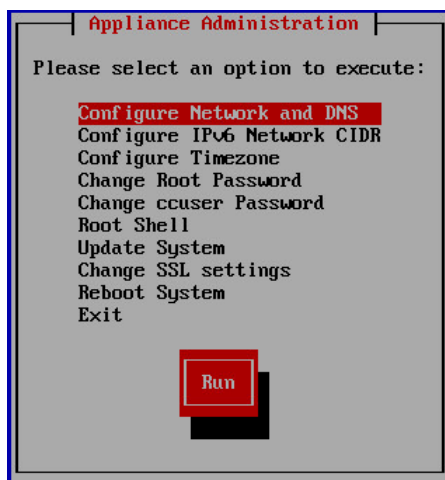
```
Changing password for user root.  
New password:
```

- 4 **Note** Passwords must include a minimum of eight characters, with at least one character from three of the following character classes: uppercase letter, lowercase letter, digit, and special.  
Enter a new password, and then press the **Return** key.
- 5 Enter the password again, and then press the **Return** key.  
The **Appliance Administration** menu reappears.

## Change ccuser Password

This option invokes the `passwd` command to change the password of the `ccuser` user account.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 In the **Appliance Administration** menu, select the **Change Root Password** option.  
The **Appliance Administration** menu disappears, and the system prompts for a new password:

```
Changing password for user ccuser.
```

New password:

- 4 **Note** Passwords must include a minimum of eight characters, with at least one character from three of the following character classes: uppercase letter, lowercase letter, digit, and special.

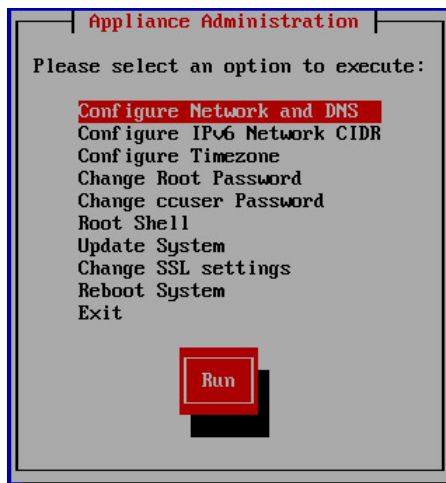
Enter a new password, and then press the **Return** key.

- 5 Enter the password again, and then press the **Return** key.  
The **Appliance Administration** menu reappears.

## Root Shell

This option starts a command-line session as the `root` user.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.



- 3 Use the down arrow key to select **Root Shell**, and then press the **Return** key.  
The menu is replaced by a command prompt similar to the following example:

```
[root@ucspm ~]#
```

To return to the **Appliance Administration** menu, enter the `exit` command.

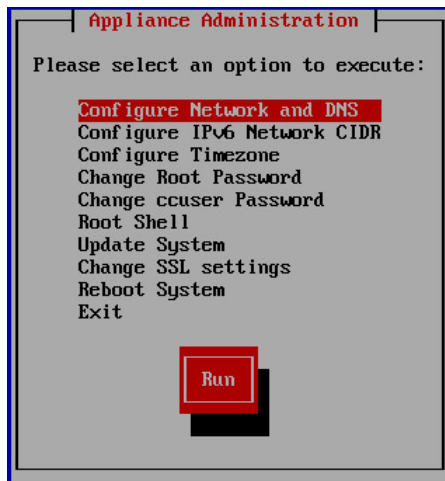
## Change SSL settings

To perform this step, you need to be able to display the contents of the SSL certificate and key files that you want to install on the Control Center master host, and you need a copy of the root certificate file (`rootCA.pem`). In addition, Cisco recommends logging in to the master host through SSH, rather than the hypervisor console, so that you can copy and paste content.

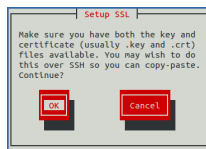
This option allows you to provide new content for SSL certificate and key files.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as *PuTTY*.
- 2 Log in as the `root` user.

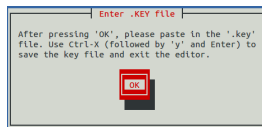




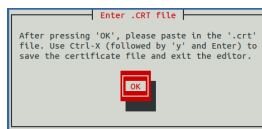
- 3 Use the down arrow key to select **Change SSL settings**, and then press the **Return** key.



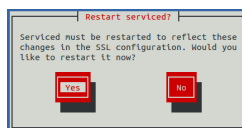
- 4 When you are ready to add the contents of your SSL certificate and key files to the Control Center master host, press the **Return** key.



- 5 Press the **Return** key.  
The **Appliance Administration** menu is replaced with the nano text editor.
- 6 Enter the contents of your SSL key file, and then save the file and exit the editor.
  - a Press **Ctrl-O**.
  - b Press **Ctrl-X**.
  - c Press the **y** key, and then press the **Return** key.



- 7 Press the **Return** key.  
The **Appliance Administration** menu is replaced with the nano text editor.
- 8 Enter the contents of your SSL certificate file, and then save the file and exit the editor.
  - a Press **Ctrl-O**.
  - b Press **Ctrl-X**.
  - c Press the **y** key, and then press the **Return** key.



- 9 Restart the Control Center daemon (**serviced**) now or later.  
Restarting **serviced** pauses Cisco UCS Performance Manager services briefly.
  - To restart **serviced** now, press the **Return** key.

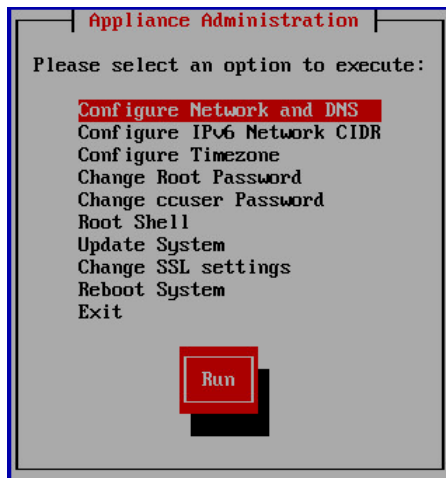
- To restart serviced later, press the **Tab** key to select **No**, and then press the **Return** key.
- 10 Install the root certificate into browser clients.
- The procedures for installing a root certificate into a browser client varies by browser and client operating system. For more information, refer to your browser documentation or articles such as [this one](#).

## Reboot System

---

This option reboots a Control Center host.

- 1 Gain access to the Control Center host, through the console interface of your hypervisor, or through a remote shell utility such as [PuTTY](#).
- 2 Log in as the `root` user.



- 3 Use the down arrow key to select **Reboot System**, and then press the **Return** key.

## D

# Networking and security

---

This appendix describes important networking and security aspects of Cisco UCS Performance Manager appliances. The appliances use the CentOS 7.1 operating system.

## Networking requirements

---

On startup, Docker creates the `docker0` virtual interface and selects an unused IP address and subnet (typically, 172.17.42.1/16) to assign to the interface. The virtual interface is used as a virtual Ethernet bridge, and automatically forwards packets among real and virtual interfaces attached to it. The host and all of its containers communicate among one another through this virtual bridge.

Docker can only check directly-connected routes, so the subnet it chooses for the virtual bridge may be inappropriate for your environment. To customize the virtual bridge subnet, refer to Docker's [advanced network configuration](#) article.

The `FirewallD` utility includes rules that can conflict with Docker, and therefore, Control Center and Cisco UCS Performance Manager. The following interactions illustrate the conflicts:

- The `firewalld` daemon removes the `DOCKER` chain from `iptables` when it starts or restarts.
- Under `systemd`, `firewalld` is started before Docker. However, if you start or restart `firewalld` while Docker is running, you need to restart Docker.

By default, `firewalld` is disabled. If you wish to enable it, please ensure that it does not conflict with Docker.

If you are not using a firewall utility, your firewall settings may still prevent communications over the Docker virtual bridge. This occurs when `iptables` INPUT rules restrict most traffic. To ensure that the bridge works properly, append an INPUT rule to your `iptables` configuration that allows traffic on the bridge subnet. For example, if `docker0` is bound to 172.17.42.1/16, then the following, non-specific command ensures that the bridge works.

```
iptables -A INPUT -d 172.17.0.0/16 -j ACCEPT
```

---

**Note** The preceding command is only an example. Please consult your networking specialist before modifying your `iptables` configuration.

---

## Additional requirements

Control Center requires a 16-bit, private IPv4 network for virtual IP addresses. The default network is 10.3/16. If the default network is already in use in your environment, you may select any valid IPv4 16-bit address space during installation.

This release of Control Center relies on Network File System (NFS) for its distributed file system implementation. For this reason, hosts in a Control Center cluster may not run a general-purpose NFS server, and all hosts require NFS.

All hosts in Control Center resource pools must:

- be able to resolve the hostnames of all other resource pool hosts to IPv4 addresses (for example, if the public IP address of your host is 192.0.2.1, then the `hostname -i` command should return 192.0.2.1)
- respond with an IPv4 address other than 127.x.x.x when `ping Hostname` is invoked
- return a unique result from the `hostid` command

## Security considerations

---

In Cisco UCS Performance Manager appliances, the `firewalld` service is disabled. If desired, you may enable it, and then close unused ports.

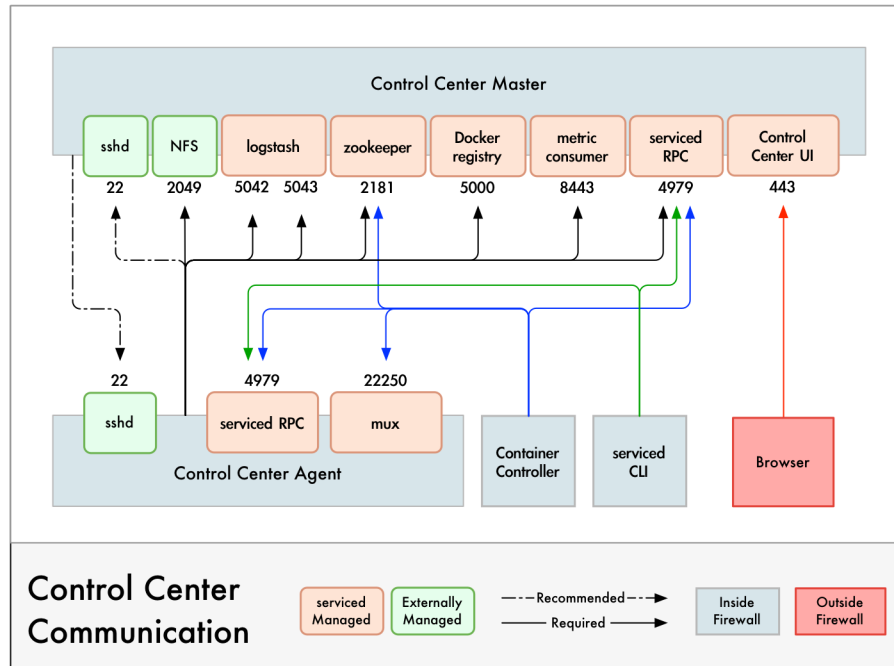
Control Center includes a virtual multiplexer (mux), to aggregate the UDP and TCP traffic among the services it manages. The aggregation is opaque to services, and mux traffic is encrypted when it travels among containers on remote hosts. (Traffic among containers on the same host is not encrypted.) The mux, along with the distributed file system, enables Control Center to deploy services to any pool host, rapidly. The mux also reduces the number of open ports required on a Control Center host to a predictable set.

The following illustration identifies the ports that Control Center requires for its operations. All of the ports except 4979 are configurable. All traffic is TCP.

---

**Note** Control Center relies on the system clock to synchronize its actions, and indirectly, NTP, to synchronize clocks among multiple hosts. In the default configuration of `ntpd`, the firewalls of master and resource pool hosts must support an incoming UDP connection on port 123.

---

**Figure 44:** Port requirements for Control Center hosts**Additional considerations**

- To gain access to the Control Center browser interface, users must have login accounts on the Control Center master host. (Pluggable Authentication Modules (PAM) is supported.) By default, the users must be members of the wheel group. The default group may be changed by setting the `SERVICED_ADMIN_GROUP` variable, and the replacement group does not need superuser privileges.
- The serviced startup script sets the hard and soft open files limit to 1048576, but does not modify the `/etc/sysconfig/limits.conf` file.
- Control Center does not support *Security Enhanced Linux* in enforcing mode, so it is disabled in Cisco UCS Performance Manager appliances.



## Tuning considerations

---

This appendix describes how to tune the service definitions of key Cisco UCS Performance Manager services, for both single-host and multi-host deployments. For more information about tuning your system, contact your Cisco representative.

### Single-host deployment tuning options

---

In single-host deployments, all Cisco UCS Performance Manager services run on the same host. So, adjusting the values of the `RAMCommit` parameter in the Cisco UCS Performance Manager service definition is not as important as it is in multi-host deployments. Nonetheless, the following list identifies both the services to modify to support 500 UCS servers, and their new values:

- RegionServer, 4GB
- mariadb-event, 2GB
- memcached, 2GB
- CentralQuery, 2GB
- Zope, 2GB
- zenhub, 4GB
- zenmodeler, 2GB
- zenucsevents, 2GB
- zenvsphere, 4GB

In addition, the following adjustments are recommended:

- For big UCS servers, reduce `configsipsize` from 25 to 5 or less in `zenucsevents.conf` (in the `zenucsevents` service).
- For large vCenters (10,000 VMs), reduce `configsipsize` from 25 to 1 in `zenvsphere.conf` (in the `zenvsphere` service).

### Multi-host deployment tuning options

---

For multi-host deployments, adjust the values of the `RAMCommit` parameter in the Cisco UCS Performance Manager service definition for the services in the following list. The list identifies both the services to modify and their new values:

- RegionServer, 8GB
- reader, 4GB
- mariadb-model, 4GB

- mariadb-events, 4GB
- memcached, 4GB
- Zope, 4GB
- zenucsevents, 3GB
- zenvsphere, 6GB
- zenpython, 3GB
- zenmodeler, 3GB
- zenhub, 15GB
- CentralQuery, 4GB
- MetricConsumer, 2GB

In addition, adjust the zenhub service to use 6 workers and 3 invalidation workers.