



Jump Upgrade Procedure for Cisco Unified Communications Manager Release 4.1(3)–7.1(5) to 9.1(2)

First Published: July 23, 2013

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.

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

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

© 2013 Cisco Systems, Inc. All rights reserved.



CONTENTS

CHAPTER 1

Introduction 1

About jump upgrades 1

CHAPTER 2

Upgrade preparation checklist 3

Licensing 3

Compatibility verification 4

Virtualization requirements 4

Software downloads 4

Configuration and login information 6

Cluster registration 6

Security tokens 6

Test plan 7

Create a backup 7

Isolated network 7

CHAPTER 3

Preupgrade procedures 9

Pre-upgrade procedures 9

CHAPTER 4

Upgrade process 11

Upgrade your current release to Release 6.1(4) or Release 7.1(5) 12

Virtualize your current release in an isolated environment 14

Upgrade your virtualized release to Release 9.1(2) 15

Rebuild virtual machines to align disk partitions 16

CHAPTER 5

Rollback procedures 19

Rollback process 19

CHAPTER 6

Related information 21

[Links and references](#) 21



Introduction

If you are upgrading to Cisco Unified Communications Manager Release 9.1(2) from an older release and a direct upgrade from that release is not supported, you can follow the jump upgrade procedure. The jump upgrade procedure allows you to upgrade to an intermediate release on UCS hardware and then migrate to a virtualized platform. This document provides procedures for performing a jump upgrade to Release 9.1(2) using the following intermediate releases:

- 6.1(4)
- 6.1(5)
- 7.1(3)
- 7.1(5)

The jump upgrade procedure supports the installation of these releases on UCS hardware for migration purposes only. Cisco does not support the production installation of these releases on UCS hardware or on any virtualized hardware.

- [About jump upgrades, page 1](#)

About jump upgrades

It is not possible to upgrade directly to Unified Communications Manager Release 9.1(2) from the following releases:

- 4.1(3)
- 4.2(3)
- 4.3(2)
- 5.1(2)
- 5.1(3)
- 6.0(1)
- 6.1(1)
- 6.1(2)

- 6.1(3)
- 7.0(1)
- 7.0(2)
- 7.1(2)

For these releases, you must perform upgrade to an intermediate release before upgrading to Unified Communications Manager Release 9.1(2). Perform the upgrade in four stages:

- 1 Upgrade to Unified Communications Manager Release 6.1(x) or 7.1(x) as an intermediate release.
- 2 Virtualize Unified Communications Manager in an isolated environment.
- 3 Upgrade the virtualized Unified Communications Manager to Release 9.1(2).
- 4 Rebuild the Unified Communications Manager virtual machines to align the disk partitions.

This document is applicable to Unified Communications Manager clusters with the following environment:

- One of the following Unified Communications Manager releases is installed: Releases 4.1(3)–4.3(2), Releases 5.1(2)–5.1(3), or Releases 6.0(1)–7.1(5).
- None of the current Media Convergence Server (MCS) servers support Unified Communications Manager Release 9.1(x).
- No changes are required to the IP addresses or hostnames for the Unified Communications Manager upgrade. If you need to change IP addresses or hostnames, you must do so in a separate maintenance window, prior to the upgrade. For more information, see [Changing the IP Address and Hostname for Cisco Unified Communications Manager, Release 9.1\(1\)](#).
- The upgrade to Release 9.1(2) and data migration will be performed in an isolated environment and moved to production during a service window.



CHAPTER 2

Upgrade preparation checklist

Review the following information and ensure that you have met all of the requirements for the upgrade to Release 9.1(x) before you begin:

- [Licensing, page 3](#)
- [Compatibility verification, page 4](#)
- [Virtualization requirements, page 4](#)
- [Software downloads, page 4](#)
- [Configuration and login information, page 6](#)
- [Cluster registration, page 6](#)
- [Security tokens, page 6](#)
- [Test plan, page 7](#)
- [Create a backup, page 7](#)
- [Isolated network, page 7](#)

Licensing

This upgrade procedure requires licensing for Unified Communications Manager 9.1(x).

Before you upgrade to Unified Communications Manager Release 9.1(x) from earlier Unified Communications Manager versions, install all previously purchased license files before you begin the upgrade process; otherwise, your unclaimed licenses will not be available to your upgraded Unified Communications Manager. You cannot re-install licenses after the upgrade.

To support high availability, Unified Communications Manager Release 9.x clusters operate in a full-featured demo mode for 60 days without a license. After 60 days, the clusters continue to operate and route calls, but the functionality to add or remove devices and users is disabled until valid licenses are available on the associated Enterprise License Manager (ELM).

Refer to the license documentation posted at the Upgrade Central for additional information:

<https://communities.cisco.com/community/partner/collaboration/migration/blog/2013/04/15/license-migration>

Refer to the following link to obtain the proper licenses:

[Licensing User Interface](#)

Compatibility verification

To determine if the versions of the devices and applications in use in your organization—such as endpoints, gateways, voicemail, presence, or other applications—are supported by Unified Communications Manager Release 9.1(x), review the following information:

[Cisco Unified Communications System Release Summary Matrix for IP Telephony](#)

[Cisco Unified Communications Manager Software Compatibility Matrix](#)

Cisco recommends that you consider the compatibility of applications such as Attendant console for upgrades.

For third-party applications, review the application catalog at the following link to verify that the application is supported by Unified Communications Manager Release 9.1(x). If your application is not listed in the catalog, confirm with your vendor that the application is compatible with Unified Communications Manager Release 9.1(x).

[Developer Network Marketplace Solutions Catalog](#)

Cisco highly recommends that you review the list of open caveats for your intermediate and targeted Unified Communications Manager releases that may impact functionality or integration with other applications. You can find the list of open caveats in the Release Notes at the following location:

[Cisco Unified Communications Manager Release Notes](#)

Virtualization requirements

You must design your Unified Computing Servers (UCS) system for virtualization. Most deployments require high availability and therefore you need to plan for the type and number of UCS servers. In addition, you must plan for storage, server connectivity, and the ESXi version. You can find details about designing a virtualized environment at the following link:

[Before You Buy or Deploy—Considerations for Design and Procurement](#)

UCS servers do not support external music-on-hold (MOH) sources; consider the impact on similar services when using the virtualized Unified Communications Manager cluster on UCS servers.

Additionally, Cisco recommends that you review the documentation on virtualization support for Unified Communications Manager Release 8.0(2) and higher in the following locations:

[Unified Communications in a Virtualized Environment](#)

[Unified Communications VMware Requirements](#)

Software downloads

To prepare for the upgrade, download all of the software listed in the following table:

Software	Download location
Cisco Unified Communications Manager Release 6.x upgrade image or Release 7.x upgrade image, depending on the version that you are using as an intermediate release during the upgrade process	http://software.cisco.com/download/navigator.html?mdfid=268439621&flowid=37562
Cisco Unified Communications Manager Release 9.1(2) upgrade image	
Phone firmware for Unified Communications Manager Release 9.1(2)	
Cisco Unified Communications Manager Release 9.1(x) device package	
(Optional) Cisco Unified Communications Release 9.1(x) Locale Installer for your local language	
Virtual Server Template (OVA file) for Unified Communications Manager Release 9.1(x)	
Jump upgrade Refresh Upgrade version 1.2 COP file for upgrading from your current release to Communications Manager Release 9.1(2)	
Cisco Unified Communications Manager Recovery software for your current Unified Communications Manager release	
For Unified Communications Manager Release 4.1(3), 4.2(3), 4.3(1): <ul style="list-style-type: none"> • Cisco Unified Communications Manager Data Migration Assistant (DMA) 7.1(5) • Cisco CallManager Upgrade Assistant 4.3(13) 	
Bootable version of your current release from which to create the virtualized Unified Communications Manager nodes	http://tools.cisco.com/gct/Upgrade/jsp/index.jsp To obtain software that is not available at this URL, contact the GLO at licensing@cisco.com . Please mention that you need to perform "jump" upgrade, and indicate one of the releases you will be "jumping" from: 6.1.4, 6.1.5, 7.1.3 or 7.1.5.
Bootable version of Unified Communications Manager Release 9.1(2)	
Bootable version of Unified Communications Manager Release 7.1(5) (as applicable)	

Configuration and login information

Record the current configuration and login information for your Unified Communications Manager nodes in case any issues are encountered during the upgrade process. Before you gather the configuration information, review the Unified Communications Manager Real-Time Monitoring Tool (RTMT) and syslogs and address any errors.

You need to record the following information:

- IP addresses, hostnames, gateways, domain names, DNS servers, NTP servers, and SMTP information
- administrator, cluster security, and Certificate Trust List (CTL) security token passwords
- server versions and time zones
- all services running on each server and the associated activation status
- Call Detail Record server configuration and any additional information
- LDAP information and access details
- SNMP information

In addition, you must determine the registration counts by using the RTMT or the Unified Communications Manager device count summary. For each node, record the number of each device type that is displayed. For example, record the number of each type of registered IP phone, gateway, and each FXS, FXO, TICAS, PRI, MOH, MTP, CFB, or XCODE device resource.

Cluster registration

This document assumes that the Unified Communications Manager cluster will have a publisher node and a TFTP node that will not have any registrations of IP phones or devices. All registrations will be to the primary Unified Communications Manager subscriber nodes in the cluster. The backup Communications Manager subscriber nodes will be used for full registration redundancy.

**Note**

In a two node cluster deployment, the publisher node can also be the TFTP server and the backup subscriber.

Security tokens

If your cluster is a mixed-mode cluster, locate your existing security certificate tokens and record the token password.

To verify if you are running a secure cluster, use the steps in the [Cisco Unified Communications Manager Security Guide](#) for your current release.

Test plan

Create a test plan that you can execute prior to the upgrade and again directly afterwards. Your plan can include a set of tests that cover different use cases. Run the same tests before and after the upgrade. This approach provides a way to verify the expected functionality of Unified Communications Manager prior to and after the upgrade.

Create a backup

Cisco strongly recommends that you perform a Disaster Recovery System (DRS) backup up of your entire cluster before each upgrade. Upgrading without a current backup can result in lost data, lost node configuration, or disruption to services if there are complications during the upgrade process. For more information, see the [Disaster Recovery System Administration Guide](#).

Isolated network

After you upgrade to an intermediate release, you must virtualize Unified Communications Manager in an isolated environment. The isolated network should be a separate parallel network that duplicates the IP addressing and network infrastructure components in the existing Unified Communications Manager cluster. The following network services should also be provided:

- default gateways—recreate all relevant networks and ensure connectivity between them
- NTP server—this can be different IP address or a local router
- DNS server—if a DNS server is used in the existing production environment, ensure the domain name matches for forward and reverse lookup of cluster nodes.
- FTP and SFTP server—ensure sufficient storage for firmware, images, and backups



Preupgrade procedures

This section provides the following information:

- [Pre-upgrade procedures, page 9](#)

Pre-upgrade procedures

Cisco recommends that you perform all upgrade and migration tasks during a maintenance window.

Procedure

- Step 1** To shorten the upgrade time, delete or purge Call Detail Records (CDRs) or log files that you no longer need.
- Step 2** If you are a partner, Cisco recommends that you contact the PDI help desk during the upgrade planning phase. The PDI team can review the upgrade plan, provide necessary support, and file a proactive TAC case on your behalf. To contact the PDI team, see <http://www.cisco.com/go/pdihelpdesk>. If you choose to contact TAC directly, you must provide the following information for a proactive TAC case:
- complete output from the Unified Communications Manager upgrade readiness application (web or iPad version)
 - information about contact persons and the maintenance window
 - the upgrade plan

For more information, see <http://tools.cisco.com/ServiceRequestTool/create/launch.do>.

- Step 3** Extend the database replication timeout value so that subscriber servers have sufficient time to request replication. For more information, see the *Pre-Upgrade Tasks* section in the [Upgrade Guide for Cisco Unified Communications Manager, Release 9.1\(1\)](#).
- Step 4** Ensure that the device name for Cisco Unified Mobile Communicator devices contains a maximum of 15 characters. For more information, see the [Command Line Interface Guide for Cisco Unified Communications Solutions](#).
- Step 5** Apply phone firmware that corresponds to Unified Communications Manager Release 9.1(2). The phones download their new firmware after an upgrade. However, you can apply new firmware files to the endpoints in a controlled manner prior to the upgrade to minimize phone downtime after an upgrade.

Applying new firmware to phones in groups eliminates the load on the TFTP server after the upgrade and accelerates the upgrade of the individual devices. Afterwards, restart the TFTP service on the Unified Communications Manager servers, and restart the IP Phones in a controlled order to minimize downtime. Because the phones cannot be used for calls when their firmware is being upgraded, Cisco recommends that you use a maintenance window outside of your Unified Communications Manager upgrade window to upgrade phone firmware.

Note You may need to upgrade some phones to an interim firmware release before you upgrade to the phone firmware corresponding to Release 9.1(2). Please refer to the Release Notes for additional information.

The [Cisco Unified Communications System Release Summary Matrix for IP Telephony](#) summarizes the phone firmware version recommended with all Cisco Unified Communications Manager releases.



Upgrade process

Use the procedures in this section to complete a jump upgrade. Perform these procedures in a isolated network that simulates production network features such as default gateways, DNS, NTP, SMTP, FTP, SFTP and LDAP servers, as applicable. This approach allows your production network to function while the servers are migrated in parallel. You can also use an isolated environment to validate the functionality of other application servers that are part of the deployment.

You must perform the upgrade in stages. The number of stages that you need to complete depends on the software version that you are upgrading from. The sections below outline the upgrade process that you need to follow based on your currently installed software version.

Upgrading from releases that do not support direct upgrades

You cannot upgrade directly to Unified Communications Manager Release 9.1(2) from the following releases:

- 4.1(3)
- 4.2(3)
- 4.3(2)
- 5.1(2)
- 5.1(3)
- 6.0(1)
- 6.1(1)
- 6.1(2)
- 6.1(3)
- 7.0(1)
- 7.0(2)
- 7.1(2)

For these releases, you must perform upgrade to an intermediate release before upgrading to Unified Communications Manager Release 9.1(2). Upgrade to the intermediate release listed in the table below:

Current release	Upgrade to . . .
4.1(3), 4.2(3), 4.3(2)	7.1(5) via DMA
5.1(3), 6.1(2), 6.1(3)	6.1(4)
5.1(2), 6.0(1), 6.1(1)	Upgrade to 6.1(2), then 6.1(4) (This is a multiple upgrade.)
7.0(1)	Upgrade to 7.0(2), then 7.1(5) (This is a multiple upgrade.)
7.0(2), 7.1(2)	7.1(5)

Complete the upgrade in the following stages:

- 1 Upgrade to Unified Communications Manager Release 6.1(x) or 7.1(x) as an intermediate release.
- 2 Virtualize Unified Communications Manager in an isolated environment.
- 3 Upgrade the virtualized Unified Communications Manager to Release 9.1(2).
- 4 Rebuild the Unified Communications Manager virtual machines to align the disk partitions.

Upgrading from Releases 6.1(4), 6.1(5), 7.1(4) or 7.1(5)

If you currently have Releases 6.1(4), 6.1(5), 7.1(4), or 7.1(5) installed, you do not need to upgrade to an intermediate release. Complete the upgrade in the following stages:

- 1 Virtualize Unified Communications Manager in an isolated environment.
- 2 Upgrade the virtualized Unified Communications Manager to Release 9.1(2).
- 3 Rebuild the Unified Communications Manager virtual machines to align the disk partitions.

Navigation

This section provides the following procedures:

- [Upgrade your current release to Release 6.1\(4\) or Release 7.1\(5\), page 12](#)
- [Virtualize your current release in an isolated environment, page 14](#)
- [Upgrade your virtualized release to Release 9.1\(2\), page 15](#)
- [Rebuild virtual machines to align disk partitions, page 16](#)

Upgrade your current release to Release 6.1(4) or Release 7.1(5)

Use the following procedure to upgrade to Unified Communications Manager Releases 6.1(4) or 7.1(5) from any of the following releases :

- Release 5.1(3)
- Release 6.1(2)
- Release 6.1(3)
- Release 7.0(2)
- Release 7.1(2)

Before You Begin

Before you begin, ensure that you have completed the [Pre-upgrade procedures](#), on page 9.

Procedure

- Step 1** Stop all configuration tasks. Do not perform any configuration tasks during the upgrade.
- Step 2** Disable extension mobility for the cluster.
- Step 3** Perform a DRS backup of your current cluster.
- Step 4** Upgrade the publisher node to Unified Communications Manager from the current release to the target release and choose **No** for automatic reboot.
- Step 5** Upgrade each subscriber node and each utility node in the cluster, such as dedicated TFTP nodes and dedicated music-on-hold (MOH) servers; choose **No** for automatic reboot.
- Step 6** Switch the publisher node to the upgraded partition.
- Step 7** Install the phone firmware that corresponds to the Unified Communications Manager Release 9.1(2). If your publisher node is also the TFTP server, restart the TFTP service.
- Step 8** Switch the dedicated TFTP nodes to the upgraded partition.
- Step 9** Install the phone firmware that corresponds to the Unified Communications Manager Release 9.1(2) and restart the TFTP service on the dedicated TFTP servers.
- Step 10** Switch the backup subscriber nodes to the upgraded partition.
- Step 11** When the switch to the upgraded partition is complete for the publisher node, the TFTP node, and the backup subscriber nodes, verify that the database replication for the cluster completed without errors. Use the Cisco Unified Reporting or Cisco Real Time Monitoring Tool (RTMT); for more information, see the *Upgrade Tasks* section of the [Upgrade Guide for Cisco Unified Communications Manager, Release 9.1\(1\)](#)
- Step 12** Configure the phones and devices in the cluster to use the backup subscriber nodes for registration by changing the order in the Unified Communications Manager group, or by using device pools.
- Step 13** Switch all of the primary subscriber nodes to the upgraded partition.
At this point, all of the IP phones and devices will register with the backup subscriber nodes and continue operating for calls.
- Step 14** Verify that the primary subscriber nodes are upgraded and that database replication completed with no errors.
- Step 15** Configure the phones and devices in the cluster to use the primary subscriber nodes for registration by changing the order in the Unified Communications Manager group. Reset the devices using the device pool in an ordered manner, or restart the Unified Communications Manager service on all backup subscriber nodes to allow devices to register with the primary subscriber nodes simultaneously.
At this point, all the IP phones and devices will register with the primary subscribers and continue operating for calls.
- Step 16** Run your post-upgrade test plan.
At this point, the entire cluster is running on the upgraded Unified Communications Manager release.

Step 17 Perform a Disaster Recovery System (DRS) backup up of your entire cluster now that it is upgraded.

What to Do Next

Proceed to [Virtualize your current release in an isolated environment](#), on page 14

Virtualize your current release in an isolated environment

Follow this procedure to virtualize Unified Communications Manager Releases 6.1(4), 6.1(5), 7.1(3) and 7.1(5).

This procedure requires you to perform a refresh upgrade. A refresh upgrade is required when the major version of the operating system (OS) changes between the version you are upgrading from, and the target version that you are upgrading to.

Refresh upgrades require the node to reboot early in the upgrade process, and also require the node to be offline while the new software is installed. The node is offline much longer than in a standard upgrade. A typical refresh upgrade takes between 1 and 4 hours per server, depending on the size of the database.

Procedure

- Step 1** For every node in your cluster, create virtual machines using the Virtual Server Template (OVA file) recommended for Unified Communications Manager Release 9.1(x). Cisco recommends that you deploy the same OVA file throughout your entire cluster. There are two different releases of OVA files available. Version 7 OVAs (vm7) are for installing in an ESXi 4.x environment, while version 8 OVAs (vm8) are for installing in ESXi 5.x environments. Choose the correct OVA release based on the environment in which the virtualized UC applications will be deployed.
- Step 2** Edit the virtual machine Guest OS version to **Red Hat Enterprise Linux 3 (32-bit)**.
- Step 3** This step is applicable only if your starting release was Release 4.1(3), 4.2(3), or 4.3(1). Skip this step for other Unified Communications Manager releases.
- Install your current publisher node on the virtual machine using the same IP Address and hostname that was configured on the physical servers, and select the **Migrate data** option from the installation wizard. When you migrate the data, use the cluster information and data that you backed up using the DMA tool.
 - Follow the procedure to install subscriber nodes and migrate data using the DMA tool; see [Upgrading to Cisco Unified Communications Manager Release 7.1\(2\) from Cisco Unified Communications Manager 4.x Releases](#).
 - Install subscriber nodes and utility nodes with the same IP Address and hostname as the physical servers.
 - Install the jump upgrade refresh upgrade (RU) COP file on all nodes before you start the upgrade to Unified Communications Manager Release 9.1(2).
 - Proceed to step 11.
- Step 4** Install your current publisher node on the virtual machine using the same IP Address and hostname that was configured on the physical servers.

The cluster is installed as a new cluster.

- Step 5** When installation of the publisher node is complete, add each subscriber to the server list to allow the subscriber servers to install correctly. Add the subscriber servers by selecting **System > Server** on the publisher server.
- Step 6** Install the subscriber nodes and utility nodes with the same IP Address and hostname that was configured on the physical servers.
- Step 7** Install the jump upgrade refresh upgrade (RU) COP file on all nodes before you start the upgrade to Unified Communications Manager Release 9.1(2).
Do not reboot the servers in the cluster.
- Step 8** Configure the backup device identically to the one configured in your production Unified Communications Manager cluster.
- Step 9** Restore the entire cluster using the documentation for your current release.
If you are upgrading from Release 6.1(x), see "Restoring the entire cluster" in the [Disaster Recovery System Administration Guide](#).
If you are upgrading from Release 7.1(x), see "Restoring the entire cluster" in the [Disaster Recovery System Administration Guide](#).
- Step 10** Reboot all the subscriber nodes and then reboot the publisher node.
- Step 11** Verify that database replication is complete between the virtualized Unified Communications Manager publisher, the virtualized TFTP nodes, and the virtualized backup subscriber nodes running on UCS servers. At this point your entire Unified Communications Manager cluster is virtualized on UCS servers.

What to Do Next

Proceed to [Upgrade your virtualized release to Release 9.1\(2\)](#), on page 15

Upgrade your virtualized release to Release 9.1(2)

Use the following procedure to upgrade from your current virtualized release to Unified Communications Manager Release 9.1(2).

Procedure

- Step 1** Upgrade the publisher node from the current release to Release 9.1(2); choose **run new version** at the completion of the upgrade.
- Step 2** Shut down the publisher node and change the virtual machine Guest OS version to **Red Hat Enterprise Linux 5 (32-bit)**. For more information, see [Release Notes for Unified Communications Manager, Release 9.1\(1\)](#).
- Step 3** Restart the publisher node.
- Step 4** When the publisher node is fully operational, upgrade the dedicated TFTP nodes and the subscriber nodes. Choose **run new version** at the completion of the upgrade. You can upgrade multiple nodes in parallel. For more information, see the *Upgrade Tasks* section in the [Upgrade Guide for Cisco Unified Communications Manager Release 9.1\(1\)](#).

- Step 5** Shut down the virtual machine of the TFTP nodes and the subscriber nodes and change the Guest OS version to **Red Hat Enterprise Linux 5 (32-bit)**. For more information, see [Release Notes for Unified Communications Manager, Release 9.1\(1\)](#).
- Step 6** Restart the TFTP nodes and the subscriber nodes.
- Step 7** Verify that database replication is complete between the publisher node and all other nodes in the cluster after the upgrade to Release 9.1(2).
- Step 8** Verify that the virtualized Unified Communications Manager cluster services and device registration is operating.
At this point the entire virtual Unified Communications Manager cluster is upgraded to Release 9.1(2) and running on UCS servers.
- Step 9** Run your post-upgrade test plan.
- Step 10** Perform a Disaster Recovery System (DRS) backup up of your current virtual Unified Communications Manager cluster.
- Step 11** Shut down all of the servers in the upgraded cluster.
-

What to Do Next

Proceed to [Rebuild virtual machines to align disk partitions, on page 16](#)

Rebuild virtual machines to align disk partitions

Use the following procedure to rebuild the Unified Communications Manager virtual machine. You must rebuild the virtual machine to ensure that the installation of Unified Communications Manager has aligned disk partitions. For more information, see the *Release Notes for Unified Communications Manager Release 9.1(2)*.



Note Because Unified Communications Manager versions prior to 8.0(2) are not supported on VMware, installations of these versions have unaligned disk partitions, even when you use the Cisco-generated OVA template. The VMware Installation information line in the Cisco Unified Communications Manager Administration web page will indicate `ERROR-UNSUPPORTED: Partitions unaligned`. If your virtual machine is in this state, Cisco cannot provide support for performance issues.

Procedure

- Step 1** For every node in your cluster, create virtual machines using the Virtual Server Template (OVA file) recommended for Unified Communications Manager Release 9.1(x).
Cisco recommends that you deploy the same OVA file throughout your entire cluster. There are two different releases of OVA files available. Version 7 OVAs (vm7) are for installing in an ESXi 4.x environment, while version 8 OVAs (vm8) are for installing in ESXi 5.x environments. Choose the correct OVA release based on the environment in which the virtualized UC applications will be deployed.

- Step 2** Install your current publisher node on the virtual machine using the same IP Address and hostname. Install the cluster as a new cluster.
 - Step 3** When installation of the publisher is complete, add each subscriber to the server list to allow the subscriber servers to install correctly. Add the subscriber servers by selecting **System > Server** on the publisher server.
 - Step 4** Install the subscriber nodes and utility nodes on the virtual machines with the same IP Address and hostname.
 - Step 5** Configure the backup device identically to the one configured in your production Unified Communications Manager cluster.
 - Step 6** Restore the entire cluster; see "Restoring the entire cluster" in the [Disaster Recovery System Administration Guide](#).
 - Step 7** Reboot all the subscriber nodes and then reboot the publisher node.
 - Step 8** Verify that database replication is complete between the virtualized Unified Communications Manager publisher, the virtualized TFTP nodes, and the virtualized subscriber nodes running on UCS servers.
 - Step 9** If you have a secure cluster, update the CTL files. For more information, see the *Update CTL File* section in [Cisco Unified Communications Manager Security Guide, Release 9.0\(1\)](#).
 - Step 10** Install the Release 9.1(x) dial plans and locales. For more information, see the [Upgrade Guide for Cisco Unified Communications Manager, Release 9.1\(1\)](#).
 - Step 11** If you changed the database replication timeout values as part of the Pre-upgrade Tasks, restore the values to the default setting.
 - Step 12** Enable extension mobility for the cluster.
 - Step 13** Verify that the virtualized Unified Communications Manager cluster services and device registration is operating.
 - Step 14** Migrate your current licenses to the Release 9.1(x) license. You have 60 days to complete this licensing step. For information about obtaining Release 9.1(x) licenses, see <https://tools.cisco.com/SWIFT/LicensingUI/Home>.
 - Step 15** Run your post-upgrade test plan.
 - Step 16** Once you have executed your test plan successfully, you can disconnect the existing production cluster and connect the upgraded cluster from the isolated network in the production network during a planned service window.
 - Step 17** Run your post-upgrade test plan again.
Once you have executed your test plan successfully, the upgrade is complete.
-



Rollback procedures

- [Rollback process, page 19](#)

Rollback process

If you encounter an issue during your upgrade and need to rollback to the pre-upgrade version, see [Upgrade Guide for Cisco Unified Communications Manager, Release 9.1\(1\)](#).

If you are reverting your cluster to a release prior to 8.0(x), review the following documents, which explain important security-related changes:

[Migrating IP Phones Between Clusters with CUCM 8 and ITL Files](#)

[Rolling Back the Cluster to a Pre-8.0 Release](#)

When the rollback is completed, execute your test plan again to make sure all services and features are functioning as expected.



CHAPTER

6

Related information

- [Links and references, page 21](#)

Links and references

For additional information, refer to the following documents:

Installation, upgrade, and migration

[Installing Cisco Unified Communications Manager Release 8.0\(2\)](#)

[Installing Cisco Unified Communications Manager Release 8.5\(1\)](#)

[System Installation and Upgrade Manual for IP Telephony, Cisco Unified Communications System Release 9.0\(1\)](#)

[Cisco Unified Communication Manager Release 9.1 Migration and Upgrade Guide](#)

[Upgrade Guide for Cisco Unified Communications Manager, Release 9.1\(1\)](#)

[Cisco Unified Communications Manager on Virtualized Servers](#)

Compatibility

[Supported Servers for Releases of Cisco Unified Communications Manager \(Including Business Edition 3000/5000/6000 and Session Manager Edition\) and Cisco Intercompany Media Engine](#)

Network design and deployment

[Cisco Unified Communications System 9.x SRND](#)

Software downloads

[Download Software Center for Cisco Unified Communications Manager Utilities and COP Files](#)

Licensing

[Enterprise License Manager User Guide 9.1\(1\)](#)

[Cisco Software Licencing Portal Changes Quick Reference Guide](#)

Release information

[Release Notes for Cisco Unified Communications Manager 8.0\(3\)](#)

[Release Notes for Cisco Unified Communications Manager Release 8.5\(1\)](#)

[Release Notes for Cisco Unified Communications Manager, Release 9.1\(1\)](#)

[New and Changed Document for Cisco Unified Communications Manager Release 9.1\(1\)](#)

Release Notes for phone firmware. The [Cisco Unified Communications System Release Summary Matrix for IP Telephony](#) summarizes the phone firmware version recommended with all Cisco Unified Communications Manager releases.

Disaster recovery

[Disaster Recovery System Administration Guide for Release 6.1\(2\)](#)

[Disaster Recovery System Administration Guide for Cisco Unified Communications Manager Release 7.0\(1\)](#)

[Disaster Recovery System Administration Guide for Release 7.1\(2\)](#)

[Disaster Recovery System Administration Guide for Release 8.0\(2\)](#)

[Disaster Recovery System Administration Guide for Release 8.5\(1\)](#)

Troubleshooting

[Database Replication Error in Cisco Unified Communications Manager](#)