



System upgrade preparation

This chapter discusses information to be aware of before the actual upgrade process, such as the general upgrade approach for the different contact center components, upgrade release versions of components involved in the upgrade, and upgrade dependencies and considerations.



Note

The following upgrade strategies are recommendations only, as no formal upgrade testing was done for the UC 9.0 system release.

- [System upgrade approach, page 1](#)
- [System upgrade dependencies, page 2](#)
- [Upgrade release versions, page 8](#)

System upgrade approach

The general approach is to upgrade each Unified Communications Manager cluster and its associated contact center components at one time, before upgrading the next cluster.

For each cluster, upgrade the components in the Cisco Unified Communications family of contact center components in the following order:

- 1 Infrastructure components including switches, routers and firewalls



Note

These components are upgraded first to ensure that the infrastructure is able to support the services required by Cisco Unified Communications components.

- 2 Gatekeepers and voice/data gateways
- 3 Network management components
- 4 Contact Center routing and agent management components
- 5 Agent desktop client software
- 6 Call processing components

- 7 Messaging components
- 8 Queueing and self-service components

After all the Unified Communications Manager clusters in the network have been upgraded, install any new components included in the target release set and remove obsolete or end-of-life components.

**Note**

Ensure that you have a comprehensive “backout” plan in the event of an upgrade failure.

The upgrade sequence of the contact center components should also be dictated by the following considerations:

- The criticality of the service that these components provide. For example, basic phone service is considered to be of greater importance than supplementary services or voice messaging services.
- Backward compatibility of the software releases of these components.
- See [Upgrade release versions, on page 8](#) for details on each base release set, which indicate which components need to be upgraded before or after upgrading Unified Communications Manager, or if the upgrade order does not matter.

Related Topics

[System upgrade](#)

[Backward compatibility issues, on page 6](#)

System upgrade dependencies

Cisco Unified Communications System Release 9.0(1) offers support for new hardware for several components and has removed support for other hardware platforms. The bridge upgrade provides a migration path for customers who use discontinued server models. A bridge upgrade works on unsupported or discontinued hardware for the purpose of creating a DRS backup. The DRS backup can be restored on new hardware after a fresh installation completes. When preparing for an upgrade to Release 9.0(1), read all product upgrade documentation if you plan to migrate to the new hardware offerings.

**Note**

You can set up a virtualized environment by running Unified Communications applications on a virtual machine on a Unified Computing System (UCS). For additional details, including UCS hardware information and third-party requirements, see: <http://www.cisco.com/go/uc-virtualized>

Components within each release set should be compatible with each other and interoperate correctly. For example, components in a specific base release set are compatible with each other and interoperate, as also the components in the target release set.

The order of operations also needs to take into account the impact of backward compatibility or incompatibility as described later in this section, especially for multistage system and multisite migration upgrades, where each stage (or maintenance window) only upgrades some of the components in the release set.

However, as you upgrade individual components of the integrated system, the overall system may operate in a state of degraded service where one or more components have been upgraded to the next release level and may not interoperate with components that are still at the previous release level.

Components that are upgraded first should interoperate with other components that are still at the previous release level. For example, gateways are upgraded before Unified Communications Manager. Therefore, gateways, which are now at the next release level, must interoperate with Unified Communications Manager that has not been upgraded and is still at the previous release level.

Cisco Unified Communications Manager upgrade and compatibility considerations

Because some components have to be upgraded prior to Unified Communications Manager, there are certain upgrade issues and considerations to be aware of. For upgrade and migration on Unified Communications Manager hardware, see *New and Changed Information for Cisco Unified Communications Manager Release 9.0(1)* at: www.cisco.com/en/US/docs/voice_ip_comm/cucm/rel_notes/9_0_1/delta/CUCM_BK_N38FD301_00_cucm-new-and-changed-90.pdf

Pre-upgrade migration

You can migrate Cisco Unified Communications System applications (such as Cisco Unified Contact Center Enterprise (Unified CCE)) before upgrading Unified Communications Manager, if:

- Existing version of the application is compatible with the existing version of Unified Communications Manager
- Existing version of the application is incompatible with the new version of Unified Communications Manager
- New version of the application is compatible with both the existing and new versions of Unified Communications Manager

Post-upgrade migration

You should migrate Cisco Unified Communications System applications after upgrading Unified Communications Manager, if:

- Existing version of application is compatible with existing version of Unified Communications Manager
- Existing version of application is incompatible with new version of Unified Communications Manager
- New version of application is compatible with the new version of Unified Communications Manager, but incompatible with the existing version

For compatibility and interoperability information about Unified Communications Manager, Unified Contact Center Enterprise, Unified IP IVR and other Cisco Unified Communications contact center products, see the following sites:

- Cisco Unified Communications Compatibility Tool:
<http://tools.cisco.com/ITDIT/vtgsc>
- Cisco Unified Communications Manager (CallManager) Compatibility Information:
http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

Upgrade to Cisco Unified Communications Manager Release 9.0(1) using Refresh Upgrade feature

Refresh Upgrade is a new feature that allows upgrades between incompatible OS.

When you install 9.0 upgrade software, there is a temporary server outage while the Cisco Unified Communications Manager software is installed. Once you start the upgrade using either the command line or graphical user interface, the data is exported, and the system automatically reboots, at which point the server outage begins. The duration of this outage depends on your configuration and amount of data.

**Caution**

If you are upgrading your software on HP 7825H3 or HP7828H3 hardware, there is no option to revert to the previous version of Unified Communications Manager. To perform an upgrade on one of these machines, you must use a 16GB USB key to migrate the data from the old system to the new installation.

When the upgrade is complete, you can choose to activate the partition with the new upgrade software or return to using the partition with the previous version of the software. With the exception of HP 7825H3 and HP7828H3 hardware upgrades, the previous software remains in the inactive partition until the next upgrade. Your configuration information migrates automatically to the upgraded version in the active partition.

**Note**

All upgrade paths prior to 8.5(2) require the installation of a Cisco Option Package (COP) file. The COP file delivers functionality to allow the upgrade path to be supported and to provide user experience enhancements.

For more information and detailed procedures, see [Software Upgrades](#) in Cisco Unified Communications Operating System Administration Guide.

Upgrade from Cisco Unified Communications Manager Release 8.5(1) to Release 9.0(1)

Be aware of the following constraints regarding Cisco Unified Communications Manager when upgrading from Cisco Unified Communications System Release 8.5(1) to Release 9.0(1):

- For Unified Communications Manager, you must perform all software installations and upgrades using the Software Upgrade Menu Options from either the Unified OS Administrator GUI or the CLI interface. Only software approved by Cisco Systems can be uploaded and processed by the system installer.
- Before you perform an upgrade, we recommend that you back up the Unified Communications Manager and CDR Analysis and Reporting (CAR) database to an external network directory using the Disaster Recovery System. This practice will prevent any loss of data if the upgrade fails.

To back up data to a remote device on the network, you must have an SFTP server that is configured. Cisco allows you to use any SFTP server product but recommends SFTP products that have been certified with Cisco through the Cisco Technology Developer Partner program (CTDP). CTDP partners certify their products with specified versions of Unified Communications Manager. Information on the vendors who have certified their products with Unified Communications Manager is available at: <http://www.cisco.com/pcgi-bin/ctdp/Search.pl>

**Note**

The preceding SFTP server information also applies to Unified Presence and Unified Contact Center Express.

- If Unified Communications Manager clusters are set up in a 1:1 redundancy model, downtime during upgrade can be kept to a minimum. You can do this by load-balancing device registrations across the first node (publisher) and backup subsequent nodes (subscribers). This way if either the subsequent node server fails or is taken down for maintenance, only half of the devices will have to failover to the remaining subsequent nodes, but will ensure that all devices can remain in service.
- When upgrading Unified Communications Manager clusters, the first node should always be upgraded first. Before rebooting the first node after its upgrade, you can upgrade all the subsequent nodes simultaneously without rebooting them.

**Note**

If you are also changing hardware, the following information may not apply. The bridge upgrade provides a migration path for customers who use discontinued server models. Refer to bridge upgrade procedures in Upgrading to Cisco Unified Communications Manager Release 9.0(1) at: http://www.cisco.com/en/US/partner/docs/voice_ip_comm/cucm/upgrade/9_0_1/CUCM_BK_U8D523AB_00_upgrade-guide-cucm-90.html

After all the nodes in the cluster are upgraded, make sure that you do the following in the listed order:

Procedure

- Step 1** Reboot and switch versions to Unified Communications Manager 9.0(1) on the first node and wait until the first node is initialized and fully operational.
- Step 2** Install the upgrade license and any other licenses that are required.
- Step 3** Reboot and switch versions to Unified Communications Manager 9.0(1). Perform this procedure on the dedicated TFTP and Music-On-Hold (MoH) servers first.
- Step 4** Wait until the TFTP servers fully build their configuration files.
- Step 5** Reboot and switch versions to Unified Communications Manager 9.0(1) on the backup and call processing subsequent nodes and wait until these servers are fully initialized.
- Step 6** Complete the upgrade by rebooting and switching versions to Unified Communications Manager 9.0(1) on the remaining active call processing subsequent nodes in the cluster.
 - When you upgrade the Unified Communications Manager servers, note that the Unified IP Phone software is upgraded automatically to the version included with Unified Communications Manager.
 - Cisco Secure Access Control Server (ACS) is a call recording server for calls that traverse Cisco IOS gateways. It is mainly used for RADIUS accounting and billing purposes. Cisco Unified Analysis Manager (Unified Analysis Manager), which is part of the Cisco Unified Real-Time Monitoring Tool (Unified Real-Time Monitoring Tool) queries the RADIUS server to track call status. It presents the user with failed, dropped or abandoned calls by parsing the records from the ACS server.

If you have ACS servers deployed in your network, make sure that you have version 5.x installed as this the only version with the API support for the Unified Analysis Manager recording capability and the database to

store these records. If you do not have an ACS server with the supported hardware/software version, the gateway information will not be included in the call tracing data.

Cisco Unified Contact Center Express compatibility considerations

Unified CCX versions prior to 8.5(1) are not supported with Unified Communications Manager 9.0. You must upgrade Unified CCX to 8.5(1)SU3 or 9.0(1) before upgrading Unified Communications Manager to 9.0(1). For more information, see [CSCts67056](#).

Cisco Aggregation Services Routers compatibility considerations

Cisco Aggregation Services Routers on an IOS of 15.1(3)S do not exchange routes with Cisco Adaptive Security Appliance 8.4(2). You must downgrade the IOS on Aggregation Services Routers to 15.1(2).

Cisco Unified IP Phone upgrade considerations

Be aware of the following considerations when upgrading Unified IP Phones:

- When you upgrade your Unified Communications Manager servers, note that the Unified IP Phone firmware is also automatically upgraded to the version bundled with the Unified Communications Manager.

For more detailed information about SIP Unified IP Phones and the differences between features on the SCCP and SIP phones, see the documentation at:

- Cisco Unified IP Phones 7900 Series Maintain and Operate Guides:
http://www.cisco.com/en/US/products/hw/phones/ps379/prod_maintenance_guides_list.html
- Cisco Unified IP Phones 7900 Series End-User Guides:
http://www.cisco.com/en/US/products/hw/phones/ps379/products_user_guide_list.html
- “Unified Communications Endpoints” Chapter in the *Cisco Unified Communications System 9.x SRND*:
http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/9x/endpnts.html

Backward compatibility issues

In multistage system upgrade scenarios, you may have to consider additional issues such as backward compatibility across components.

A version of one component is backward compatible with a previous version of another component when service functionality and behavior are maintained between the two component versions. Backward compatibility between two components or applications may limit the component upgrade order and cause service outage during upgrades.

If two components are upgraded during separate maintenance windows, as in the multistage system or multisite migration upgrade scenarios, the whole system exists in a partially upgraded state in the interval between the two maintenance windows.

The service capability during the period between maintenance windows depends on backward compatibility between the two components as discussed in this section. If the two components are not backward compatible, then a service outage occurs in the interval between the two maintenance windows.

Backward compatibility scenarios

This section describes some backward compatibility situations that may occur during the upgrade process.

Related Topics

[Related compatibility documentation](#)

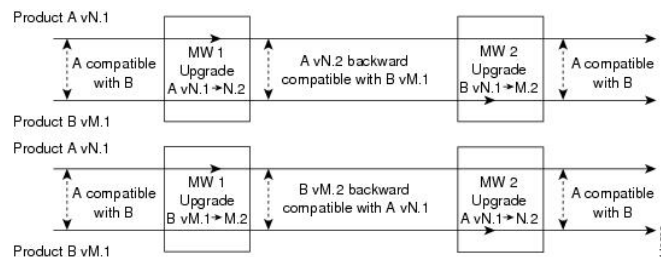
Both new versions are backward compatible

Both new versions of two components are backward compatible with the previous version of the other component.

In this case, there is no restriction in the upgrade order relating to backward compatibility. Either component may be upgraded first and be able to interoperate with the other component as shown in the figure below. An example of this is Unified CCE and Unified Communications Manager.

You can perform the upgrade for these components across multiple maintenance windows. This type of upgrade is described in the multistage system and multisite migration upgrade approaches in [System upgrade planning](#).

Figure 1: Both new release versions are backward compatible



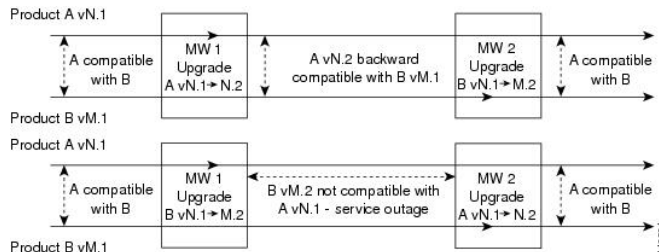
Only one new version is backward compatible

Only one of the new versions is backward compatible with the previous version of the other component.

In this case, the component that is backward compatible should be upgraded first to avoid a service outage during the upgrade as shown in the figure below.

You should perform the upgrade for these components across two separate maintenance windows. This type of upgrade is described in the Multistage System and Multisite Migration upgrade approaches in [System upgrade planning](#)

Figure 2: One new release version is backward compatible



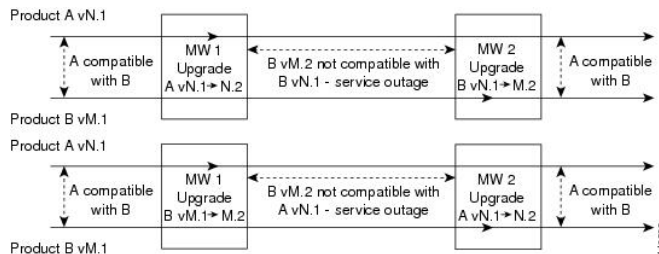
Neither new version is backward compatible

Neither of the new versions is backward compatible with the previous version of the other component.

A service outage exists from the time the first product is upgraded until the second component has completed its upgrade as shown in the figure below.

Because neither component is backward compatible with the other, both components have to be upgraded in the same maintenance window to avoid service outage.

Figure 3: Neither new release version is backward compatible



Related Topics

[System upgrade preparation, on page 1](#)

Upgrade release versions

The tables in this section list the component release versions of the base and target release sets and has the following elements:

- Column 1—Contact center components involved in the upgrade process.
- Column 2—Release version of contact center components in the target release set.
- Columns 3 —Release version of contact center components in the base release set.

Release 9.0(1) and Release 8.5(1) software release sets

The table below lists the software versions for the contact center components in the Cisco Unified Communications System Release 9.0(1) and Release 8.5(1) release sets.


Note

Table cells with “—” indicate products that are not part of the base release sets.

Table 1: Contact Center components in Cisco Unified Communications System Release 9.0(1) and Release 8.5(1) release sets

Component	Release 9.0(1)	Release 8.5(1)
Cisco Unified Communications Manager	9.0(1)	8.5(1)
Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise	9.0(1)	8.5(1)
Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise Operating System	Win2008 R2 SP1	Win2003 SP2/Win2003 R2 SP2
Cisco Unified Contact Center Express	9.0(1)	8.5(1) ¹
Cisco Unified IP IVR	9.0(1) SU1	8.5(1)
Cisco Unified Contact Center Express/Unified IP IVR Operating System	Bundled with Software	Bundled with Software
Cisco Unified Customer Voice Portal	9.0(1)	8.5(1)
Cisco Unified Customer Voice Portal Operating System	Win 2008 R2 SP1	Win2003 SP2/Win2003 R2 SP2
Cisco Unified Intelligence Center	8.5(4)	8.0(3)
Cisco Finesse	9.0(1)	8.5(1) Lab use only
Cisco MediaSense	8.5(4)	8.5(1)
Cisco SocialMiner	9.0(1) ²	8.5(1)
Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) ³	9.0(1)	8.5(1)
Cisco Unified SIP Proxy	8.5(2)	8.5(1)

Component	Release 9.0(1)	Release 8.5(1)
Cisco TelePresence MCU MSE Series	4.3	--
Cisco TelePresence Content Server	5.2 Build 3222	--
Cisco Voice and Video Conferencing for ISR G2 Routers	15.2(3)T1	--
Cisco Unity Connection	9.0(1)	8.5(1)
Cisco IP Communicator	8.6(1) ⁴	7.0(5)
Cisco Unified Video Advantage	2.2(2)	2.2(1)
Cisco Unified IP Phones 7900 Series (7921G (Wireless), 7940, 7962, and 7970)	Bundled with Unified Communications Manager. Firmware 9.3(1)	Bundled with Unified Communications Manager.
Cisco Unified IP Phones 6900 Series (6911, 6921, 6941, 6945, and 6961)	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco Unified IP Phones models 9951 and 9971	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco Unified IP Phones model 8961	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco Unified IP Phones models 8941, 8945	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco IP Video Phone E20	TE 6.0.0	—
Cisco TelePresence System EX60	TE 6.0.0	—
Cisco TelePresence System EX90	TE 6.0.0	—
Cisco Virtualization Experience Clients	Firmware 9.2(1)	—
Cisco Aironet 3502 Access Point	AIR-WLC4400-K9-7-0-116-0-ER.aes	—
Cisco Aironet 1142 Access Point	AIR-WLC4400-K9-7-0-116-0-ER.aes	—
Cisco Adaptive Security Appliance (5520, 5540, 5580) Services ⁵	8.4(3)	8.4(1)
Cisco Adaptive Security Appliance 5500 AIP Security Services Module (IPS)	--	7.0(2) E3

Component	Release 9.0(1)	Release 8.5(1)
CiscoWorks Management Center for Cisco Security Agents	--	6.0(2)
Cisco Security Agent for Unified Communications Manager	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Unified IP IVR	Bundled with Unified IP IVR	Bundled with Unified IP IVR
Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express	Bundled with Unified Contact Center Express
Cisco Unified Operations Manager	--	8.5.1
Cisco IOS Mainline Release	15.2(3)T1 6	15.1(3)T
Cisco 3825, 3845 (Unified CVP VXML, voice/data, H.323, SIP, MGCP, IOS-based Transcoders and Conference Bridges, and Cisco Unified Border Element gateways)	15.2(3)T1	15.1(3)T
Cisco 3900 series routers	15.2(3)T1	—
Cisco AS5400XM (Unified CVP VXML, voice, H.323, SIP and PSTN gateways)	15.2(3)T1	15.1(3)T
Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.2(3)T1	15.1(3)T
Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	XE3.6	3.2
Cisco VGD-1T3 Voice Gateway	--	15.1(3)T
Cisco 3825 MGCP Gateway	15.2(3)T1	15.1(3)T
RSVP Agent (on 38xx platforms)	15.2(3)T1	15.1(3)T
Cisco 881 Router	15.2(3)T1	15.1(3)T
Cisco 891 Router	15.2(3)T1	—
Cisco Catalyst 3750 (access switch)	12.2(53)SE2	12.2(53)SE2
Cisco Catalyst 3750 (WS-3750E-24PD)	12.2(55)SE1	--
Cisco Catalyst 6503 (WS-SUP720-3BXL)	12.2(18)SXF10	--

Component	Release 9.0(1)	Release 8.5(1)
Cisco Catalyst 6506 (WS-SUP720-3BXL)	12.2(33)SXH2a	--
Cisco ASR1002	IOS XE 15.1(1)s	--
Cisco UCS Express	2.0.1	2.0.1
Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.2(3)T1	—
Cisco Unified Computing System B200 M2 Blade Server, Cisco Unified Computing System C200 M2 General-Purpose Rack-Mount Server, Cisco Unified Computing System C210 M2 General-Purpose Rack-Mount Server (Unified Communications Virtualization): Release 9.0(1) Version: Cisco UCS B-Series 2.0(1q), Cisco UCS C-Series 1.4(3c)2	VMWare ESXi 4.1	--
Cisco SRE 910 Service Module	15.2(3)T1	—

- ¹ Cisco Unified Contact Center Express (Unified CCX) versions prior to 8.5(1) are not supported with Unified Communications Manager 9.0. Upgrade Unified CCX to 8.5(1)SU3 or 9.0(1) before upgrading Unified Communications Manager to 9.0(1).
- ² Cisco SocialMiner functionality is being tested as part of Unified CCX, not as a standalone product .
- ³ For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).
- ⁴ This product is EOL on October 25, 2012.
- ⁵ Cisco Aggregation Services Routers on an IOS of 15.1(3)S do not exchange routes with Cisco Adaptive Security Appliance 8.4(2). You must downgrade the IOS on Aggregation Services Routers to 15.1(2).
- ⁶ IOS 15.2(3)T is not compatible with the 28xx and 38xxrouters. The option to stay on IOS 15.1(4)M may be available to maintain 28/38xx routers which will receive extended maintenance in accordance with IOS EOL and EOS policies.