System Installation and Upgrade Manual for IP Telephony

Cisco Unified Communications System Release 8.5(1)

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System Installation and Upgrade Manual for IP Telephony, Cisco Unified Communications Release 8.5(1)

CONTENTS

Preface

Overview

This document provides installation and upgrade information about the IP telephony components and configurations that have been tested and verified as a part of Cisco Unified Communications System testing. It consists of two parts:

- Part 1: System Installation for IP Telephony— Describes the system-level procedures used to install IP telephony components in Cisco Unified Communications System Release 8.5(1).
- Part 2: System Upgrade for IP Telephony—Describes the system-level procedures used to upgrade software and hardware components in the IP telephony environment from Cisco Unified Communications Release 6.1(1), Release 7.1(3), and Release 8.0(2) to Cisco Unified Communications Release 8.5(1).

This document also includes information related to compatibility, upgrade paths between releases, and upgrade strategies for different sized network installations. It discusses the upgrade sequence for individual test sites emphasizing the order in which the components are to be upgraded and provides references to installation and upgrade documentation for individual components.

Note Many of the IP telephony component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

Audience

This document is intended for system administrators who are familiar with various hardware and software components included in Cisco Unified Communications System family of IP telephony products. Readers should have the technical and product knowledge to install, configure, manage, and troubleshoot the system described.

Organization

This manual is organized as follows:

Topic	Description
Part 1: System Installation for IP Telephony	
Chapter 1, "Planning Your System Installation."	Provides an overview of the system installation, a list of components in a typical IP telephony environment, and different installation strategies.
Chapter 2, "Preparing for Your System Installation."	Discusses the general approach for the installation of IP telephony components, installation release set versions, and software dependencies and considerations.
Chapter 3, "Performing Your System Installation."	Provides information about the installation order and process for all IP telephony components that are configured in specific deployment models.
Part 2: System Upgrade for IP Telephony	
Chapter 4, "Planning Your System Upgrade"	Provides an overview of the system upgrade requirements, the targeted release versions involved in the upgrade process, and upgrade paths and strategies.
Chapter 5, "Preparing for Your System Upgrade."	Discusses the general upgrade approach for the different IP telephony components, upgrade release versions, and software compatibility considerations.
Chapter 6, "Performing Your System Upgrade."	Contains information on the upgrade order for all IP telephony components, including North America and Europe and Emerging Market, configured in specific deployment models for Cisco Unified Communications Release 8.5(1).

Related Documentation

The Cisco Unified Communications solution provides a suite of interactive documentation that covers details about system architecture and components, installation and upgrade information, troubleshooting, topology diagrams, and related information. You can access this information from:

http://www.cisco.com/go/unified-techinfo

You can access sites specific to IP telephony or contact center system applications for Cisco Unified Communications System Release 8.5(1) at:

- Cisco Unified Communications System for IP Telephony Release 8.5(1) at: http://www.cisco.com/iam/unified/ipt851/index.htm
- Cisco Unified Communications System for Contact Center Release 8.5(1) at: http://www.cisco.com/iam/unified/ipcc851/index.htm

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feed is a free service and Cisco currently supports RSS Version 2.0.

PART 1

System Installation for IP Telephony

CHAPTER 1

Planning Your System Installation

This chapter provides an overview of the installation processes for IP telephony components. It describes the types of installations, provides an overview of components that are included in the release sets, and describes various installation strategies.

This section contains the following topics:

Note Many of the IP telephony component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

Cisco Unified Communications System Overview

The Cisco Unified Communications System is a full-featured business communications system built into an intelligent IP network. It enables voice, data, and video communications for businesses of all sizes. The Cisco Unified Communications System in this document is defined around commonly deployed business topology models in North America and European and Emerging Markets (EUEM). The Cisco Unified Communications System testing process validates the interoperability of voice products to ensure that they work together as an integrated system.

Cisco Unified Communications System provides an integrated system to meet a wide variety of customer needs. Cisco Unified Communications refers to the entire range of specific Cisco IP Communications products including all call control, conferencing, voicemail and messaging, customer contact, IP phone, video telephony, video conferencing, rich media clients, and voice application products. These products and applications are designed, developed, tested, documented, sold, and supported as an integrated system. Cisco Unified Communications System for enterprise is built upon IP telephony products that centers around the core call processing component, Cisco Unified Communications Manager. Cisco Unified Communications System for midmarket is built upon IP telephony products that centers around the call processing component, Cisco Unified Communications Manager Business Edition.

Scope of this Installation Documentation

The installation procedures that are described in this document are intended to provide a high-level guide to installing the Cisco Unified Communications System. This document provides installation information from a system perspective and only for products that are part of Cisco Unified Communications System Release 8.5(1).

The Cisco Unified Communications IP telephony systems should meet the following basic characteristics and requirements:

- A deployment that is based on Cisco recommendations and guidelines for network design and architecture
- A new *greenfield* or a legacy system deployment
- An installation of Cisco Unified Communications System, not an upgrade from previous software versions. This topic only provides information related to installing components that are present in the Cisco Unified Communications System. See Release Set Versions in Chapter 2, "Preparing for Your System Installation" for more information.

Note If you have a legacy system with PBXs and other products that need to interoperate with the Cisco Unified Communications system, see the Interoperability and Compatibility Portals section.

Due to the variety of options and complexity of procedures required to set up an IP telephony system completely, this document does not provide installation or configuration procedures for:

- Individual standalone components and features of the components
- Third-party coresident applications, such as antivirus, security, server management, and remote access
- Additional third-party off-board applications such as operator console, and billing and accounting
- Server replacement (hardware installation) for components. For information on how to replace a single server or an entire cluster for Cisco Unified Communications Manager Release 8.5(1), see: http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/install/8_5_1/cluster/clstr851.html

  For information on supported Cisco 7800 Series Media Convergence Servers and Unified Computing System B-series servers, see: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html

  Refer to product-specific installation documents to perform the installation and configuration of the IP telephony products.
- Cisco Unified Communications on the Cisco Unified Computing System Solution Overview:

  http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/solution_overview_c22-597556.html
- Product-specific installation documentation for all Cisco voice products is available at: http://www.cisco.com/cisco/web/psa/default.html?mode=prod
- List of URLs for component-specific installation and configuration documents for all IP telephony components in Cisco Unified Communications System Release 8.5(1) are available at: http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/Component_Installation_and_Configuration_Guides.html

- Links to configuration information for IP telephony components tested in the Cisco Unified Communications System Release 8.5(1) are available at: http://docwiki.cisco.com/wiki/Category:Unified_Communications_System_Implementation

  Also see the Related Documentation section in Chapter 3, "Performing Your System Installation."

System Installation Overview

This section includes the following topics:

Installation Types

When installing and creating an IP telephony environment, consider the following deployment types:

- Greenfield deployment—A completely new installation of Cisco Unified Communications System, using no existing equipment.
- Legacy deployment—A new installation of Cisco Unified Communications System combined with existing legacy equipment, such as TDM PBXs and third-party adjuncts, which may require long-term co-existence and integration or eventual migration to new installation.
- Installed base (*brownfield* deployment)—An existing Cisco Unified Communications System, which requires an upgrade and migration from a previous system release to current system release. For more information about upgrading an existing installed base, see the upgrade topics in this document.

Note When performing upgrades, be aware of backward compatibility issues such as co-existence and interoperability with previous system release versions.

Release Sets

A release set is defined as the combination of products, components, and software versions that were tested to work together as an integrated Cisco Unified Communications System. A particular system release is also referred to as a release set.

Legacy Deployment and Installed Base Release Sets

If you are dealing with a legacy or brownfield deployment, be aware of interoperability issues between legacy and existing component versions and Cisco Unified Communications System Release 8.5(1) component versions.

You can verify a previous system release set by product release version in a summary matrix. Use the following links if you are unfamiliar with the versions of release sets deployed in IP telephony environments:

- Cisco Unified Communications System Release Summary Matrix for IP Telephony:

  http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/versions/IPTMtrix.html

- IP Communications System Test Release:

  http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/GB_resources/ipcmtrix.htm

You can also see the Interoperability and Compatibility Portals section for information about support for legacy products and third-party product interoperability with Cisco IP telephony products.

Greenfield Deployment Release Set

If you are dealing with a greenfield deployment, be aware that certain features, applications, and components are part of Cisco Unified Communications System Release 8.5(1) family of products and have been tested and verified for interoperability and compatibility.

Based on your specific network design, you may choose to install all or some of these features, applications, and components. For a list of components that apply to IP telephony environment, see the Component Installation Overview section.

For information about the Cisco Unified Communications System Release 8.5(1) IP telephony components and their software and firmware versions, see Release Set Versions in Chapter 2, "Preparing for Your System Installation."

System Installation Roadmap

Table 1-1 provides an overview of tasks that are performed during the installation of Cisco Unified Communications System.

Table 1-1 Overview of Installation Tasks

	Task	Remarks
Step 1	Perform preinstallation tasks.	See the Before You Begin section in Chapter 2, "Preparing for Your System Installation," and refer to the tasks that are described in the individual product installation documents.
Step 2	Install and configure network infrastructure.	Install and cable the hardware.
Step 3	Install and configure the software for the components to enable functionality between the installed components.	See Chapter 3, "Performing Your System Installation."
Step 4	Initialize installed components and ensure that components are functional.	• Applications at the system level (such as cold start, elapse time) • Each application at node level
Step 5	Perform verification and validation testing to ensure that installed components interoperate.	—

Table 1-1 Overview of Installation Tasks (continued)

	Task	Remarks
Step 6	Integrate Cisco and third-party or legacy components and ensure interoperability.	See the Before You Begin section in Chapter 2, "Preparing for Your System Installation," and refer to the tasks that are described in the individual product installation documents.
Step 7	Perform postinstallation tasks	See the Postinstallation Tasks section in Chapter 3, "Performing Your System Installation."

Component Installation Overview

The Cisco Unified Communications System IP Telephony environment consists of these primary software components:

- Call processing—Unified Communications Manager, Unified Communications Manager Express, Unified SRST
- Communications—Cisco Emergency Responder, Cisco Unified Contact Center Express
- Messaging—Cisco Unity, Cisco Unity Connection, Cisco Unity Express, Cisco Unified Messaging Gateway
- Instant Messaging and Presence—Cisco Unified Presence
- Conferencing—Cisco Unified MeetingPlace, Cisco Unified Videoconferencing
- System Management—Cisco Unified Operations Manager, Cisco Unified Service Monitor, Cisco Unified Service Statistics Manager, Cisco Unified Provisioning Manager, LAN Management Solution
- Virtualization—VMware vSphere, VMware ESXi, VMware vCenter Server, Cisco UCS 2104XP Fabric Extender, Cisco UCS 6100 Series Fabric Interconnect, Cisco UCS 5108 Blade Server Chassis, Cisco UCS C-Series servers

In addition, the following Cisco hardware and software products are required for a complete IPT deployment:

- Cisco Unified IP Phones, Cisco IP Communicator, Cisco Unified Personal Communicator
- Cisco gateways, gatekeepers, Cisco Unified Border Element
- Cisco LAN/WAN infrastructure and components
- Cisco security components

Table 1-2 provides an overview of primary components in Cisco Unified Communications System Release 8.5(1) product family that can be installed and configured in IP telephony environments.

Note Cisco Unified Communications System IP telephony components listed in Table 1-2 are for enterprise business models. Not all these components are required for midmarket business models. For the list of components for midmarket business model deployments, see Component Installation Overview for Unified Communications Manager Business Edition.

Table 1-2 System Installation Overview for Cisco Unified Communications System IP Telephony Components

Component/Application/Feature	Purpose
Communications Infrastructure and Wireless Components	
Switches and routers	Cisco switches and routers provide switching and intelligent routing services that can deliver voice, video, data and Internet access, wireless, and other applications. They can also provide high-speed connectivity between users, applications, and communications systems.
Gateways and gatekeepers	Cisco gateways and gatekeepers are optimized for data, wireless, and IP communications. They support IP-to-IP connectivity between independent voice-over-IP (VoIP) networks and analog phone gateways using your existing phone equipment.
Firewall and security components	Security components include firewall and policy enforcement services, antivirus software, and domain and web server hardening. Firewall allows any port on the device to operate as a firewall port and integrates firewall security inside the network infrastructure. Policy enforcement services can protect networks from unauthorized access. These services combine with VPN services to enable businesses to securely extend their networks to business partners, remote sites, and mobile workers.
Wireless components	Wireless components provide for secure, scalable, cost-effective WLANs with real-time access to instant messaging, e-mail, and network resources.
System network management applications	These applications provide the means to monitor, manage, and troubleshoot the Cisco Unified Communications System. For example, Unified Operations Manager provides comprehensive monitoring and diagnostics for the entire system. It performs automatic discovery of the entire system and provides contextual diagnostics for rapid troubleshooting.
Cisco Unified Communications Manager and Call Processing Components	
Cisco Unified Communications Manager	Unified Communications Manager provides the call-processing functionality to Cisco Unified Communications IP telephony networks.
Cisco Unified Communications Manager Services	There are a variety of services on the publisher, subscribers, and TFTP servers that are essential for call processing in the Unified Communications Manager cluster.
Cisco Unified Communications Manager Express	Cisco Unified Communications Manager Express provides call-processing functionality for small sized businesses
Cisco Unified IP Phones (SCCP and SIP)	Use methods such as auto-registration and Bulk Administration Tool (BAT) to install and configure Unified IP Phones and to add them to Unified Communications Manager database.
Install and configure Cisco IP Communicator	Cisco IP Communicator is a software-based application that delivers enhanced telephony support through desktop. It is designed to meet diverse customer needs by serving as a supplemental telephone when traveling, a telecommuting device, or as a primary desktop telephone.

Table 1-2 System Installation Overview for Cisco Unified Communications System IP Telephony Components

Component/Application/Feature	Purpose
Conferencing applications	Cisco Unified MeetingPlace provides intuitive interfaces for setting up, attending and managing meetings. Extensive voice, video using Cisco Unified Videoconferencing and web conferencing capabilities enable a range of meeting applications, including highly collaborative meetings, training sessions, and presentations.
Cisco Unified Communications Manager cluster (integration with switches, routers, gateways, gatekeepers, and Cisco Unified Communications Manager Telephony client	Install the Unified Communications Manager Telephony client on the Cisco Unified Contact Center Express system to enable communication with Unified Communications Manager cluster.
Voice Mail and Unified Messaging components	These applications combine voice messaging, integrated messaging, speech recognition capabilities, and call-routing rules. The applications include Cisco Unity Connection, Cisco Unity, Cisco Unity Express, and Cisco Unified Messaging Gateway.
Presence application	Cisco Unified Presence links the various knowledge within each application to provide a ubiquitous and broad view of a defined user within the Cisco Unified Communications System.
Mobility components	Wireless and mobility components provide services that enable secure, scalable, methods to real-time access to instant messaging, e-mail, and network resources. Some examples of these components are Cisco Unified Mobility Advantage and Cisco Unified Mobile Communicator.
Cisco Unified Computing System	The Cisco Unified Computing System (UCS) is a data center platform that unites computing, networking, storage access, and virtualization into a cohesive system and integrates a low-latency, lossless 10 Gb Ethernet unified network fabric with enterprise-class, x86-architecture servers. It includes products such as blade servers, network adapters, blade server chassis, fabric interconnect and extenders and UCS Manager, which provides centralized management capabilities for the Cisco Unified Computing System.

Component Installation Overview for Unified Communications Manager Business Edition

The Cisco Unified Communications System IP telephony environment for midmarket consists of these primary software components:

- Call processing—Cisco Unified Communications Manager Business Edition, Unified SRST
- Communications—Cisco Unified Contact Center Express
- Messaging—Cisco Unity Connection
- Instant Messaging and Presence—Cisco Unified Presence

In addition, the following Cisco hardware and software products are required for a complete IP telephony deployment:

- Cisco Unified IP Phones, Cisco IP Communicator, Cisco Unified Personal Communicator
- Cisco gateways and gatekeepers
- Cisco LAN/WAN infrastructure and components

- Cisco security components

Table 1-3 provides a an overview of primary components in the Cisco Unified Communications System Release 8.5(1) product family that can be installed and configured in IP telephony midmarket environments.

Table 1-3 System Installation Overview for Cisco Unified Communications System IP Telephony Components for Midmarket Businesses

Component/Application/Feature	Purpose
Communications Infrastructure and Wireless Components	
Switches and routers	Cisco switches and routers provide switching and intelligent routing services that can deliver voice, video, data and Internet access, wireless, and other applications. They can also provide high-speed connectivity between users, applications, and communications systems.
Gateways and gatekeepers	Cisco gateways and gatekeepers are optimized for data, wireless, and IP communications. They support IP-to-IP connectivity between independent voice-over-IP (VoIP) networks and analog phone gateways using your existing phone equipment.
Firewall	Allows any port on the device to operate as a firewall port and integrates firewall security inside the network infrastructure.
Cisco Unified Communications Manager Business Edition and Call Processing Devices	
Cisco Unified Communications Manager, Business Edition	Cisco Unified Communications Manager, Business Edition (includes Cisco Unified Communications Manager and Cisco Unity Connection) provides call-processing functionality for midmarket businesses. It integrates call-processing, conferencing, mobility, and messaging on a single platform and eliminates the need for multiple servers to run each application.
Cisco Unified IP Phones (SCCP and SIP)	Use methods such as auto-registration and Bulk Administration Tool (BAT) to install and configure Unified IP Phones and to add them to Unified Communications Manager database.
Conferencing applications	Cisco Unified MeetingPlace provides intuitive interfaces for setting up, attending and managing meetings. Extensive voice, video using Cisco Unified Videoconferencing and web conferencing capabilities enable a range of meeting applications, including highly collaborative meetings, training sessions, and presentations.
Cisco Unity Connection	These applications combine voice messaging, integrated messaging, speech recognition capabilities, and call-routing rules. Cisco Unified Communications Manager Business Edition includes Cisco Unity Connection.
Presence application	Cisco Unified Presence links the various knowledge within each application to provide a ubiquitous and broad view of a defined user within Cisco Unified Communications System.
Cisco Unified Business Attendant Console	The Cisco Unified Business Attendant Console uses a powerful queuing engine to direct the calls to the operator and provides the operator several monitoring features to help ensure that incoming calls are handled efficiently.

For installation information on Cisco Unified Communications System Release 8.5(1) for contact center components, see the following:

- System Installation and Upgrade for Contact Center: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/UC8.5.1/cc_system_inst_upg/siumc851.pdf

System Installation Strategies

This section describes the installation strategies that can be used for an IP telephony deployment. Details of individual components installations are not described unless additional information or clarification is required.

Installation of new networks in Cisco Unified Communications IP telephony environments (using new hardware) is supported via a *flash-cut* or a *shrink-and-grow* approach.

Single-Stage installation Using New Hardware (for Greenfield Deployments)

A completely new network is built using the components and software versions in the current Cisco Unified Communications System release set. The new system becomes operational when it is turned on after the required software is installed and initial configuration is completed.

Single-Stage installation Using New Hardware (for Legacy Deployments)

A new network using components and software versions in the current Cisco Unified Communications System release set is built alongside the legacy network. The new network is staged and configured to support the production environment.

All users should be migrated from the existing legacy network to the new network in a single installation window using a flash-cut installation process. Because interoperability with the legacy system is not required, components of the legacy system do not need to be upgraded. After all users are moved to the newly installed system, the legacy system is decommissioned.

Multistage Installation using New Hardware (for Legacy Deployments)

A new network using components and software versions in the current Cisco Unified Communications System release set is built alongside the legacy network. The new network is staged and configured to support the production environment.

This strategy uses either a flash-cut or shrink-and-grow installation process or a combination of both to:

- Deploy all the applications in one installation window (flash-cut) or in several installation windows (shrink-and-grow).
- Migrate all the users in one installation window (flash-cut) or in multiple installation windows (shrink-and-grow).

After all users have been moved to the newly installed system, the legacy system is decommissioned.

Multisite Phased Installation

For large enterprises with many sites, you can install one site at a time in multiple phases. Depending on whether it is a greenfield or legacy deployment, within each site, you can either employ the single-stage or multistage installation strategies described in this chapter.

Interoperability and Compatibility Portals

For information about support for legacy products and third-party product interoperability with Cisco IP telephony products, see the Cisco Interoperability Portal at:

http://www.cisco.com/go/interoperability

For detailed information about the compatibility with Unified Communications Manager and Cisco Unified Contact Center Express, see the following sites:

- Cisco Unified Communications Compatibility Tool: http://tools.cisco.com/ITDIT/vtgsca
- Cisco Unified Communications Manager Compatibility Information: http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html
- *Cisco Unified Contact Center Express Software and Hardware Compatibility Guide*: http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/crs/express_compatibility/matrix/crscomtx.pdf
- *Cisco Unified Communications Manager Express and Cisco IOS Software Version Compatibility Matrix*: http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/requirements/guide/33matrix.htm
- Cisco Computer Telephony Integration Option: CTI Compatibility Matrix: http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_technical_reference_list.html
- Cisco 7800 Series Media Convergence Servers: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html
- UCS and MCS Server Models Supported by Cisco Unified Communications Manager Releases

  http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html
- Cisco Unified Communications Virtualization (including links to UCS hardware information): www.cisco.com/go/uc-virtualized
- Cisco Unified Communications System Release Summary Matrix for IPT: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/versions/IPTMtrix.html

CHAPTER 2

Preparing for Your System Installation

This topic provides information that your should review before you install Cisco Unified Communications System. It describes preinstallation tasks and initial installation sequence. It also lists the components in the release set and provides information regarding deployment of various components.

This section contains the following topics:

Note Many of the IP telephony component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

Before You Begin

Before you install Cisco Unified Communications System, make sure to perform the following activities, which are on the Cisco Systems product deployment and lifecycle model.

Note See Cisco Unified Communications System Technical Information Site at: http://www.cisco.com/go/unified-techinfo for a comprehensive system-level deployment and lifecycle model information.

Prepare and Plan Phase

- Review preinstallation planning guidelines from Steps to Success at: http://www.cisco.com/web/partners/tools/steps-to-success/index.html
- Understand your business and technical requirements such as call flows, capacity and critical features, and incumbent dependencies.
- Consider integration issues for legacy and third-party products (see the System Installation Overview section in Chapter 1, "Planning Your System Installation").
- Assess your services and support strategy for training and lifecycle support.

- Assess system passwords requirements and create a password synchronization and maintenance strategy.

Design Phase

- Develop a high-level and low-level design, including product and component selections appropriate for your needs.
- Use the recommendations provided in the Cisco Solution Reference Network Design (SRND) documents at: http://www.cisco.com/go/srnd.
- Become familiar with Cisco Unified Communications System Release 8.5(1) components and subsystems in the *Cisco Unified Communications System 8.x SRND*:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/8x/uc8x.html
- Review system architecture and testing information for IP telephony systems at: http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/index.html

Note The results obtained from conducting the tasks in the prepare, plan, and design phases indicate which Cisco Unified Communications System components apply to your business requirements and should be part of your deployment.

Implement Phase

- Confirm the design and special feature considerations developed during the design phase.
- Develop an implementation plan and a migration or integration strategy.

  Note The implementation plan derived from the implement phase should drive the staging, phases, and deadlines of the system installation.

- Review preinstallation and planning documents, such as site surveys, equipment lists, and product-specific documents.
- Conduct hardware installation and verification tasks such as:
  - Catalog and inventory equipment
  - Rack mount equipment
  - Complete cabling and other physical connectivity
  - Verify that all units power up correctly
  - Capture rack layout, cabling, port-specific details, and related information
- Conduct software installation and verification tasks such as:
  - Check that all required installation discs are available for each of the system components being installed.
  - Check that all required installation discs for software applications, including third-party applications, are available.
  - Access and download license files required to install and operate the appropriate software from: http://www.cisco.com/go/license

System installation Approach

After you perform preinstallation tasks, install each Cisco Unified Communications Manager cluster and its associated IP telephony components. Install each cluster one at a time, following the general sequence that is described in Table 2-1.

The installation sequence of IP telephony components should also be dictated by the following considerations:

- The relative importance 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.
- Integration and configuration of the system components to ensure interoperability.

Table 2-1 System Installation General Sequence

	Procedure	Remarks
Step 1	Install and configure network infrastructure, wireless, and security components.	These components should be installed first to ensure that the infrastructure is able to support the services that the Cisco Unified Communications System components required.
Step 2	Install the operating system on system servers and install and configure directory and network services.	Network services include NTP, DHCP, DNS, TFTP, and LDAP servers. **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: www.cisco.com/go/uc-virtualized
Step 3	Install and configure network management tools	Network management tools include Unified Provisioning Manager, Unified Operations Manager, Unified Service Monitor and Cisco Unified Service Statistics Monitor.
Step 4	Install call processing components such as Unified Communications Manager clusters.	Make sure that you complete all initial setup and configuration procedures that are required.
Step 5	Install Media resource components	Includes Music on Hold, Transcoders, Conferences Bridges, Media Termination Points (MTPs) and RSVP agents.
Step 6	Install IOS Gatekeeper, voice and data gateways	—
Step 7	Install and configure messaging components	Includes Cisco Unity Connection and Cisco Unity components like Windows Exchange 2007 SP2 and Cisco Unity.
Step 8	Install and configure mobility components	—
Step 9	Install and configure conferencing components	Includes Cisco Unified MeetingPlace components
Step 10	Install and Configure contact center components	Includes Cisco Unified Contact Center Express and Unified IP Phone Agents

Table 2-1 System Installation General Sequence (continued)

	Procedure	Remarks
Step 11	Install and Configure presence/IM components	Includes Cisco Unified Presence and Cisco Unified Personal Communicator
Step 12	Install and Configure videoconferencing components	Includes Cisco Unified Videoconferencing Manager, gateways and Multiple Control Units (MCUs), and SCCP/SIP/H.323/H.320 video endpoints
Step 13	Install and Configure Cisco applications co-resident on MCS servers	Includes Cisco Security Agent, ASA
Step 14	Install and configure the IPT components based on your requirements and the interdependencies of components.	—
Step 15	Install and configure third-party applications	Includes Antivirus, backup agent, management agent
Step 16	Complete postinstallation tasks.	These tasks include system validation and verification.

Release Set Versions

This section lists the applications and components that are part of the Cisco Unified Communications System Release 8.5(1) family of products. These products have been tested and verified for interoperability and compatibility and are used in a greenfield deployment of an IP Telephony system. Based on your network design, you may choose to install all or some of these applications and components.

This section lists the following release set versions:

- Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager)
- Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager Business Edition)

Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager)

Table 2-2 lists the release versions of the Cisco Unified Communications System Release 8.5(1) components for business model that were used in the IP telephony test environment.

Table 2-2 Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager)

Category	Component	Release
Call Control	Cisco Unified Communications Manager	8.5(1)
	Cisco Unified Communications Manager—Cisco IP Telephony Operating System	Bundled with Unified Communications Manager
	Cisco Unified Communications Manager Business Edition	8.5(1)
	Cisco Unified Communications Manager Express	8.5.1 15.1.3T[1]
	Cisco Unified Survivable Remote Site Telephony (SRST)	8.5(1) 15.1.3T[1]
	Cisco Intercompany Media Engine	8.5(1)
Contact Center	Cisco Unified Contact Center Express	8.5(1)
	Cisco Unified Contact Center Express Operating System	Bundled with Unified Contact Center Express
Applications	Cisco Unified Presence	8.5(1)
	Cisco Emergency Responder	8.5(1)
	Cisco Emergency Responder—Cisco IP Telephony Operating System	Bundled with Cisco Emergency Responder
	Cisco Unified Business Attendant Console and Unified Department Attendant Console	8.5
	Cisco Unified Enterprise Attendant Console	8.5
	Cisco Unified SIP Proxy	8.5(1)
Conferencing	Cisco Unified MeetingPlace	8.0[2]
	Cisco Unified MeetingPlace Web Conferencing	8.0
	Microsoft Outlook for Cisco Unified MeetingPlace	8.0
	Jabber for Cisco Unified MeetingPlace	8.0
	Microsoft Office Communicator for Cisco Unified MeetingPlace	8.0
	Cisco Unified Media Server for 3545 MCU (video)	5.7.0.0.4
	Cisco Unified Media Server for 3545 MCU (audio)	6.1.0.0.16
	Cisco Unified Videoconferencing 3522 BRI Gateways	5.0.0.0.22
	Cisco Unified Videoconferencing 3527 and 3545 PRI Gateways	5.0.0.0.22

Table 2-2 Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager)

Category	Component	Release
Voice Mail and Unified Messaging	Cisco Unity	8.0(3)
	Unity-CM TSP	8.4(3)
	Cisco Unity—Microsoft Exchange	Microsoft Exchange 2003 SP2 (on Cisco Unity and partner Exchange servers) and Microsoft Exchange 2007 SP1 or Exchange 2003 SP2 (on other message store servers)
	Cisco Unity Connection	8.5.(1)
	Cisco Unity Express	8.5(1)
	Cisco Unified Messaging Gateway	8.5(1)
	Cisco Unified Survivable Remote Site Voicemail	8.5(1) IOS 15.1.3T[1]
Endpoints and Clients	Cisco Unified IP Phones models 7906G, 7911G, 7931, 7941G, 7942G, 7945G, 7961G, 7962G, 7965G, 7970G, 7971G, 7975G	Bundled with Unified Communications Manager Firmware 9.1(1) SR1
	Cisco Unified IP Phones models 7921G, 7925G	1.3(4)
	Cisco Unified IP Phones model 7937G	1.4(3)
	Cisco Unified IP Phones models 7940G, 7960G	Firmware 8.1(2)
	Cisco Unified IP Phones model 3911, 3951	8.1(2)SR1
	Cisco Unified IP Phones models 6901, 6911	Firmware 9.1(1)
	Cisco Unified IP Phones models 6921, 6941, 6961	Firmware 9.1(1) Firmware 9.0(2) 9.0(2) SR1
	Cisco Unified IP Phones models 8961, 9951, and 9971	Firmware 9.1(1) SR1
	Cisco IP Communicator	7.0(5)
	Cisco Unified Personal Communicator	8.0(1)
	Cisco UC Integration for Microsoft Office Communicator	8.5(1)
	Cisco UC Integration for Microsoft Lync	8.5(1)
	Cisco Unified Communications for RTX	8.5(1)
Wireless and Mobility	Cisco Aironet Access Point (AP) 1200G	12.4(21a)JA2
	Cisco 4400 Series Wireless LAN Controllers	6.0.188.0
	Cisco Unified Mobility Advantage	7.1(3)
	Cisco Unified Mobile Communicator	7.1(3)
	Cisco Unified Mobile Communicator iPhone	7.1(3)

Table 2-2 Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager)

Category	Component	Release
Security	Cisco Adaptive Security Appliance (ASA)	8.4(1)
	Cisco Intrusion Prevention System (AIP-SSM, IDSM-2 Module, IPS-4200)	7.0(2)E3
	Management Center for Cisco Security Agents	5.2.1
	Cisco Security Agent for Cisco Unified Communications Manager	Bundled with Unified Communications Manager
	Cisco Security Agent for Cisco Emergency Responder	Bundled with Unified Communications Manager
	Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express
	Cisco Security Agent for Cisco Unity	6.0(1)
	Cisco Security Agent for Cisco Unified MeetingPlace	6.0(1)
Network Management	Cisco Unified Operations Manager	8.5.1[3]
	Cisco Unified Service Monitor	8.5.1[3]
	Cisco Unified Service Statistics Manager	8.5.1[3]
	Cisco Unified Provisioning Manager	8.5[3]

Table 2-2 Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager)

Category	Component	Release
Communications Infrastructure	Cisco IOS Mainline Release	IOS Extended MR 15.0.1M4
	Unified Computing System B200 M2, C200 M2, and C210 M2 (Unified Communications Virtualization)	VMWare ESXi 4.0
	Cisco 2801, 2821, 2851, 3825, 3845 (router, voice/data gateway)	15.1(3)T[1]
	Cisco 38xx Gatekeepers	15.1(3)T[1]
	Cisco 3800 (IP-to-IP gateway)	15.1(3)T[1]
	Cisco 3900 (IP-to-IP gateway)	15.1(3)T[1]
	Cisco Integrated Services Router (ISR) 1861	15.1(3)T[1]
	Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.1(3)T[1]
	Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.1(3)T[1]
	Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	3.2
	Cisco Secure RTP and Cisco Secure SRST	15.1(3)T[1]
	Cisco Catalyst 3750 (data center switch)	12.2(53)SE2
	Cisco Catalyst 4503 Switch	12.2(53)SE2
	Cisco Catalyst 4506 (access switch)	12.2(54)SG
	Cisco Catalyst 6506, 6509 (voice access switch, supervisor 2/MSFC2)	12.2(33)SXI4 CatOS8.6(6a)
	Cisco Catalyst 6508, 6624 (voice gateway)	Bundled with Unified Communications Manager
	Cisco VG202 and 204 (analog voice gateway)	15.1.3T[1]
	Cisco VG224 (analog voice gateway	15.1.3T[1]
	Cisco VG248 (analog voice gateway)	1.3(2)
	Cisco ATA 187 (analog telephony adaptor)	
Third Party	McAfee Antivirus[4]	Enterprise 8.7.0i

1. Cisco IOS Release 15.1(3)T and 15.1(1)T are short deployment Standard Maintenance releases ideal for the very latest new features and hardware support from Cisco. Cisco provides 18 months of support for Standard Maintenance releases. Customers requiring longer-term maintenance support should consider upgrading to the next 15 M Extended Maintenance release (when it becomes available), which will incorporate all features and hardware support of previous Standard Maintenance and Extended Maintenance releases. For more information, refer to http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps10587/ps10591/ps10621/qa_c67_561940.html
2. Adhoc conferencing feature in Unified MeetingPlace Releases 8.0/8.5 is not supported with Unified Communications Manager Release 8.5(1).
3. Will be available in CYQ1 2011.
4. You can install third-party antivirus agents on Windows-based servers such as Unified Operations Manager and Unified Provisioning Manager, but not on non-Windows appliances such as Unified Communications Manager and Unified Communications Manager Business Edition.

Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager Business Edition)

Table 2-3 lists the release versions of the Cisco Unified Communications System Release 8.5(1) components for midmarket business model that were used in the IP telephony test environment.

Table 2-3 Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager Business Edition)

Category	Component	Release Version
Call Control	Cisco Unified Communications Manager Business Edition 3000	8.5(1)
	Cisco Unified Survivable Remote Site Telephony (SRST)	8.5(1)/ IOS 15.1.3T[1]
	Cisco Unified Business Attendant Console and Unified Department Attendant Console	8.5
Contact Center	Cisco Unified Contact Center Express	8.5(1)
	Cisco Unified Contact Center Express Operating System	Bundled with Unified Contact Center Express
Applications	Cisco Emergency Responder	8.5(1)
	Cisco Unified Presence	8.5(1)[2]
Conferencing	Cisco Unified MeetingPlace	8.0
Voice Mail and Unified Messaging	Cisco Unity Connection	8.5(1)
Endpoints and Clients	Cisco Unified IP Phones models 7906G, 7911G, 7931, 7941G, 7942G, 7945G, 7961G, 7962G, 7965G, 7970G, 7971G, 7975G	Bundled with Unified Communications Manager Firmware 9.1(1) SR1
	Cisco Unified IP Phones models 3911, 3951	8.1(2)SR1
	Cisco Unified IP Phones models 6901, 6911	Firmware 9.1(1)
	Cisco Unified IP Phones models 6921, 6941, 6961	Firmware 9.1(1) Firmware 9.0(2) 9.0(2) SR1
	Cisco Unified IP Phones models 8961, 9951, and 9971	Firmware 9.1(1) SR1
	Cisco IP Communicator	7.0(5)
	Cisco Unified Personal Communicator	8.0(1)
Wireless	Cisco Aironet Access Point (AP) 1200G	12.4(21a)JA2
	Cisco Unified Mobility Advantage	7.1(3)
	Cisco Unified Mobile Communicator	7.1(3)

Table 2-3 Software Release Versions in Cisco Unified Communications Release 8.5(1) for IP Telephony (Unified Communications Manager Business Edition) (continued)

Category	Component	Release Version
Communications Infrastructure	Cisco IOS Mainline Release	IOS Extended MR 15.0.1M4
	Cisco 2801, 2821, 2851, 3825, 3845 (router, voice/data gateway)	15.1(3)T[1]
	Cisco Secure RTP and Cisco Secure SRST	15.1(3)T[1]
	Cisco 38xx Gatekeepers	15.1(3)T[1]
	Cisco 3800 (IP-to-IP gateway)	15.1(3)T[1]
	Cisco Integrated Services Router (ISR) 1861	15.1(3)T[1]
	Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.1(3)T[1]
	Cisco Catalyst 4503 Switch	12.2(53)SE2
	Cisco Catalyst 4506 (access switch)	12.2(54)SG
	Cisco Catalyst 6506, 6509 (voice access switch, supervisor 2/MSFC2)	12.2(33)SXI4 CatOS8.6(6a)
	Cisco VG224 (analog voice gateway)	15.1.3T[1]
Third Party	McAfee Antivirus[3]	Enterprise 8.7.0i

1. Cisco IOS Release 15.1(3)T and 15.1(1)T are short deployment Standard Maintenance releases ideal for the very latest new features and hardware support from Cisco. Cisco provides 18 months of support for Standard Maintenance releases. Customers requiring longer-term maintenance support should consider upgrading to the next 15 M Extended Maintenance release (when it becomes available), which will incorporate all features and hardware support of previous Standard Maintenance and Extended Maintenance releases. For more information, refer to http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps10587/ps10591/ps10621/qa_c67_561940.html
2. Will be available in CYQ1 2011.
3. You can install third-party antivirus agents on Windows-based servers such as Unified Contact Center Express, Unified Operations Manager, and Unified Provisioning Manager, but not on non-Windows appliances such as Unified Communications Manager and Unified Communications Manager Business Edition.

System Installation Dependencies

The components within each release set are compatible with each other and will interoperate correctly. As you install individual components, the overall system may not be operational until all components have been installed or until initial configuration or setup is completed.

CHAPTER 3

Performing Your System Installation

This topic provides guidance for the installation order components for a Cisco Unified Communications IP telephony deployment. This information is to be used with the information from the planning and design phases as input to the implementation phase. The implementation phase drives the staging phases and deadlines of the system installation.

This document does not describe installation procedures for individual components. This information is included in the installation documents for the components. See the Related Documentation section for for references to these documents.

This topic contains the following sections:

Note Many of the IP telephony component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

Deployment Models

This section describes the general order of installation for each Cisco Unified Communications System deployment models. Because each model can include different components, compare these deployments to your deployment to best understand the installation process that is applicable in your environment.

The following sections provide the general installation sequence for the various IP telephony components for the following deployment models.

Unified Communications Manager IP Telephony Model

This sections provide the general installation sequence for the various IP telephony components in the enterprise deployment models.

- Single Site Model
- MultiSite Centralized with SRST or SRSV Model
- Multisite WAN Distributed Model
- Clustering over the WAN Model

For more detailed information about these IP telephony deployment models, see: http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/Review_Tested_Site_Models.html

Also see the following documents:

- *System Description: Cisco Unified Communications Release 8.5(1)* at: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/UC8.5.1/system_description/SD851.pdf
- Solution Reference Network Design (SRND) document for various IP telephony components are available at: http://www.cisco.com/go/srnd

After you determine the general installation sequence, use one of the installation strategies that is described in Installing Components to install your components.

Single Site Model

A single-site deployment refers to any scenario in which voice gateways, phones, and call processing servers (Cisco Unified Communications Manager) are located at the same site and have no WAN connectivity between any software modules.

For a single site deployment, install components in the following order:

1. Infrastructure Components such as:
   - Core switches
   - Access switches
   - Security Components
   - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
   - Cisco Wireless LAN Controller(s) and Access Points
2. Directory and network service components such as
   - NTP server
   - DHCP server
   - DNS server
   - TFTP server
   - LDAP server
3. Network management applications such as:
   - Cisco Unified Provisioning Manager,
   - Cisco Unified Operations Manager
   - Cisco Unified Service Monitor
   - Cisco Unified Service Statistics Manager)
4. Call processing components such as:
   - Cisco Unified Communications Manager

- Cisco Unified IP Phones
- Cisco IP Communicator
- Cisco Unified Communications Manager-Session Manager Edition (Cisco UCM-SME) (optional)
- Cisco Unified Intercompany Media Engine (optional)

5. Media resource components such as:
   - Music on Hold
   - Transcoders
   - Conferences Bridges
   - Media Termination Points (MTPs)
   - RSVP agents (optional)
6. Cisco IOS Gatekeeper
7. Voice and data gateways
8. Cisco Messaging components such as
   - Cisco Unity Connection and optional Voice Recognition Server or
   - Cisco Unity components:
     - Windows Exchange 2007
     - Cisco Unity
   - Cisco Unified Messaging Gateway
9. Mobility components such as:
   - Cisco Unified Mobility Advantage
   - Cisco Unified Mobile Communicator
10. Cisco Unified MeetingPlace components
11. Cisco Unified Contact Center Express, Cisco Unified IP Phone Agents
12. Cisco Unified Presence and Cisco Unified Personal Communicator
13. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
14. SCCP/SIP/H.323/H.320 video endpoints
15. Cisco applications co-resident on MCS servers such as Cisco Security Agent
16. Third-party on-board agents on MCS servers such as Antivirus, backup agent, and management agent
17. Cisco and third-party adjunct applications or endpoints on other servers

MultiSite Centralized with SRST or SRSV Model

A multisite centralized with Unified SRST or Unified SRSV deployment refers to any scenario in which call processing servers (for example, Unified Communications Manager) are located at the same site, while any combination of voice gateways, and phones are located remotely across a WAN link or centrally.

For a multisite Centralized with Unified SRST or Unified SRSV deployment, the central site should be installed first. To install the central site, follow the guidelines in the Single Site Model, page 3-2 section.

For each remote site, install components in the following order:

1. Access switches
2. Security Components such as Cisco Adaptive Security Appliance
3. Cisco Wireless LAN Controller(s) and Access Points
4. Cisco Unified Communications Manager Express or Unified SRST router or Unified SRSV router, Cisco Unified IP Phones, Cisco IP Communicator
5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
6. SCCP/SIP/H.323/H.320 video endpoints

Multisite WAN Distributed Model

In a multisite WAN distributed deployment model, each site has its own Unified Communications Manager cluster. However, as with the centralized call processing model, sites can be deployed with or without local voice gateways. Some deployments may contain a combination of distributed voice gateways (possibly for locally dialed calls) and centralized voice gateways (possibly for toll-free calls). The multisite distributed model includes several Unified Communications Manager cluster sites interconnected by ICT or H.323 trunks.

The installation of each site should be treated as a separate stage in the overall system installation.

To install each Unified Communications Manager site, follow the guidelines in the Single Site Model section.

For each remote site, install components in the following order:

1. Access Switches
2. Cisco Adaptive Security Appliance
3. Cisco Wireless LAN Controller(s) and Access Points
4. Cisco Unified Communications Manager Express or Unified SRST router or Unified SRSV router, Cisco Unified IP Phones, Cisco IP Communicator
5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
6. SCCP/SIP/H.323/H.320 video endpoints

Clustering over the WAN Model

In the clustering over the WAN model, the Unified Communications Manager cluster is distributed across several sites connected by a QoS-enabled WAN. This model provides the redundancy of the distributed model while offering the convenience of administering a single Unified Communications Manager cluster.

To install this model, install the central sites first, following the guidelines in the Single Site Model section for the central sites.

Note Install clustered components in the same installation period and stage at each of the central sites.

Next install remote sites. For each remote site, install components in the following order:

1. Access Switches
2. Cisco Adaptive Security Appliance

3. Cisco Wireless LAN Controller(s) and Access Points
4. Cisco Unified Communications Manager Express or Unified SRST router or Unified SRSV router, Cisco Unified IP Phones, Cisco IP Communicator
5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
6. SCCP/SIP/H.323/H.320 video endpoints

Unified Communications Manager Business Edition IP Telephony Model

This section provides the general installation sequence for the various IP telephony components in medium business deployment model.

- MultiSite Centralized with SRST Model

For more detailed information about these IP telephony deployment models, see: http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/Review_Tested_Site_Models.html

MultiSite Centralized with SRST Model

A multisite centralized with SRST deployment refers to any scenario in which call processing servers (for example, Unified Communications Manager Business Edition) are located at the same site, while any combination of voice gateways, and phones are located remotely across a WAN link or centrally.

In the central site, install components in the following order:

1. Infrastructure Components such as:
   - Core switches
   - Access switches
   - Security Components
   - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
   - Cisco Wireless LAN Controller(s) and Access Points
2. Call processing components such as:
   - Cisco Unified Communications Manager Business Edition/Cisco Unified Communications Manager with Cisco Unity Connection installed as a co-resident application
   - Cisco Unified IP Phones
   - Cisco IP Communicator
   - Cisco Unified Intercompany Media Engine (optional)
3. Media resource components such as:
   - Music on Hold
   - Transcoders
   - Conferences Bridges
   - Media Termination Points (MTPs)
   - RSVP agents (optional)
4. Cisco Unified Contact Center Express, Cisco Unified IP Phone Agents
5. Cisco Unified Business Attendant Console

For each remote site, install components in the following order:

1. Access switches
2. Security Components
3. Cisco Wireless LAN Controller(s) and Access Points
4. Cisco Unified Survival Remote Site Telephony router, Cisco Unified IP Phones, Cisco IP Communicator
5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
6. SCCP/SIP/H.323/H.320 video endpoints
7. Cisco Computer Telephony Interface (CTI) OS Agent and Supervisor Desktop
8. Cisco Unified Business Attendant Console and Cisco Unified Department Attendant Console

Installing Components

After you review the general installation sequence for the deployment model that you are installing, install your components based on the following installation strategies:

- Single-Stage Installation (Unified Communications Manager)—Recommended for small single-site or multisite enterprise installations.
- Single-Stage Installation (Unified Communications Manager Business Edition)—Recommended for small single-site or multisite Midmarket installations.
- Multistage System Installation—Recommended for large single-site or multisite enterprise installations.

See Chapter 1, "Planning Your System Installation" for additional information and for the software release versions of the components in the release set.

Note After you install the software and applications, be aware that you may also need to install client software such as Cisco IP Communicator on the client desktops.

When you install each component, see the product-specific installation document for detailed information. See the Related Documentation section for a list of this documentation.

Single-Stage Installation (Unified Communications Manager)

The single-stage installation process is recommended for small single-site and multisite enterprise installations and can be performed in a single installation window.

Table 3-1 lists the recommended order in which to install components. See Chapter 1, "Planning Your System Installation" for the software release versions of these components.

Table 3-1 Single-Stage Installation Order for IP Telephony Components for Enterprise

Installation Order	Component
1	Switches and routers
2	Security components

Table 3-1 Single-Stage Installation Order for IP Telephony Components (continued) for

Installation Order	Component
3	Wireless components
4	Directory and network services
5	Network management components
6	Call processing components
7	Media resources
8	Gatekeepers and voice and data gateways
9	Messaging components
10	Mobility components
11	Cisco Unified MeetingPlace components
12	Contact Center components
13	Presence/IM components
14	Videoconferencing components
15	Cisco applications coresident on MCS servers
16	Cisco and third-party applications on other servers

Single-Stage Installation (Unified Communications Manager Business Edition)

The single-stage installation process is recommended for small single-site and multisite midmarket deployment installations and can be performed in a single installation window.

Table 3-2 lists the recommended order in which to install components. See Chapter 1, "Planning Your System Installation" for the software release versions of these components.

Table 3-2 Single-Stage Installation Order for IP Telephony Components for Midmarket

Installation Order	Component
1	Switches and routers
2	Security components
3	Wireless components
4	Network management components
5	Call processing components
6	Voice and data gateways
7	Media resources
8	Queuing and self-service components
9	Messaging components
10	Cisco Unified MeetingPlace components
11	Cisco and third-party applications on other servers

Multistage System Installation

A multistage system installation is the recommended approach for medium and large single-site and medium multisite installations. In this process, components are grouped for installation in several stages or installation windows. Within each installation window, there is a recommended order for installing each component.

The grouping of the components into the stages may vary depending on the size of the networks being upgraded. For smaller networks, several installation windows may be collapsed into a single installation window. Additional stages may be necessary for larger sites.

After each installation window and before initiating the next installation stage, we recommend that you verify that the operation of all basic and critical call types remain unaffected. We also recommend that you maintain a list of components that have been installed and the ones yet to be installed.

Table 3-3 lists the recommended order in which to install components. See Chapter 1, "Planning Your System Installation" for the software release versions of these components.

Table 3-3 Multi-Staged System Installation Order for IP Telephony Components

Stage	Component Groupings	Installation Order of Components in Each Stage
1	Switches, Routers and Security components	1. Core Switches 2. Access Switches 3. Cisco Adaptive Security Appliance (ASA) 5540 Services
2	Wireless components	1. Cisco Aironet Access Point 1240AG
3	Directory and network services	1. Domain Controllers (including Active Directory) 2. LDAP Directory 3. NTP Server 4. DHCP Server 5. DNS Server 6. TFTP Server
4	Network Management applications	1. Cisco Unified Provisioning Manager 2. Cisco Unified Operations Manager 3. Cisco Unified Service Monitor 4. Cisco Unified Service Statistics Monitor
5	Call processing components	1. Cisco Unified Communications Manager (includes ATA) 2. Cisco Unified IP Phones 3. Cisco Unified Communications Manager-Session Management Edition (optional) 4. Cisco Intercompany Media Engine (optional) 5. Cisco IP Communicator 6. Cisco Emergency Responder

Table 3-3 Multi-Staged System Installation Order for IP Telephony Components (continued)

Stage	Component Groupings	Installation Order of Components in Each Stage
6	Gatekeepers and voice and data gateways	1. Cisco Unified Communications Manager Express 2. IOS Gateways (SIP, MGCP, and H.323) 3. IOS Gatekeepers 4. Cisco Unified Border Element
7	Media resources	1. Conference bridges 2. Transcoders 3. Music-On-Hold servers 4. Media termination points 5. RSVP Agents
8	Cisco MeetingPlace components	1. Cisco Unified MeetingPlace components
9	Cisco Unity components	1. Cisco Unity components 2. Cisco Unity Express 3. Cisco Unity TSP 4. Microsoft Exchange Server 5. Domain Controller (including Active Directory) 6. Cisco Unity Connection 7. Cisco Unified Messaging Gateway
10	Mobility components	1. Cisco Unified Mobility Advantage 2. Cisco Unified Mobile Communicator
11	Contact Center Components	1. Cisco Unified Contact Center Express Unified IP Phone Agents
12	Presence/Messaging components	1. Cisco Unified Presence 2. Cisco Unified Personal Communicator
13	Cisco Unified Application Environment component	1. Cisco Unified Application Environment
14	Video conferencing components	1. SCCP/ H.323 /H.320 Video Endpoints 2. IP/VC Gateway and MCUs 3. Cisco VT Advantage (Video PC Endpoint)
15	Cisco applications coresident on MCS servers	1. Depends on the applications being upgraded
16	Third-party on-board agents on MCS servers	1. Depends on the applications being upgraded
17	Cisco and third-party applications on other servers	1. Depends on the applications being upgraded

Postinstallation Tasks

After you complete the tasks in the implement phase and install the IP telephony components in the Cisco Unified Communications System release set, be aware of the following postinstallation phases and related tasks.

Note See the Cisco Unified Communications System Technical Information Site at http://www.cisco.com/go/unified-techinfo for comprehensive system-level deployment and lifecycle model information.

Implement Phase

Configure the newly-installed IP telephony system using the configuration information available at: http://docwiki.cisco.com/wiki/Category:Unified_Communications_System_Implementation

Operate Phase

Ensure that the newly installed IP telephony system is fully operational by performing tasks that include the following:

- Manage the newly installed network by conducting:
  - Fault and performance management at the platform level—Use the Real-Time Monitoring Tool (RTMT), which is a client application, to monitor CPU, memory, disk space, processes, and critical services.
  - Network management at the system level—Use Unified Operations Manager to perform SNMP/HTTP polling, track device and inventory status, and monitor logical relationships and physical connectivity in the network.
- Conduct Day 1 operations (cutover to customer) tasks such as:
  - Train administrators to support end-users to use the newly installed IP telephony system.
  - Provide documentation including as-builts, equipment inventory lists, topology diagrams, unique design or feature considerations, and others.
  - Explain the engagement process with Technical Assistance Center (TAC) support and tasks to perform prior to contacting TAC.
- Conduct Day 2 operations (post-cutover) tasks such as:
  - Enforce security with the appropriate antivirus security software, where applicable.
  - Provision for system password synchronization and maintenance.
  - Implement data backup and restore. For more information, see Backing up and Restoring Components at: http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/Backing_Up_and_Restoring_Components.html
  - Plan for release set management and system and security patches updates.

Optimize Phase

During this phase, perform system optimizations tasks such as:

- Tune and resize the network for better performance.
- Perform configuration cleanup procedures such as deleting user IDs that are no longer in use.
- Set trace logs and reporting levels to ensure optimal performance.

Related Documentation

The following sections list compatibility guides and installation documentation for Cisco Unified Communications System components:

- Compatibility Guides
- Component Release Notes and Installation and Upgrade Documents

For information about support for legacy products and third-party product interoperability with Cisco Unified Communications contact center products, see the Cisco Interoperability Portal at: http://www.cisco.com/go/interoperability

Compatibility Guides

The following documentation provides information about compatibility of components:

- For information about support for legacy products and third-party product interoperability with Cisco IP telephony products, see the Cisco Interoperability Portal at:

  http://www.cisco.com/go/interoperability
- Cisco Unified Communications Compatibility Tool: http://tools.cisco.com/ITDIT/vtgsca
- Cisco Unified Communications Manager Compatibility Information: http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html
- Cisco Unified Contact Center Express Software and Hardware Compatibility Guide: http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/crs/express_compatibility/matrix/crscomtx.pdf
- Cisco Unified Communications Manager Express and Cisco IOS Software Version Compatibility Matrix: http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/requirements/guide/33matrix.htm
- Cisco Computer Telephony Integration Option: http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_technical_reference_list.html
- Cisco 7800 Series Media Convergence Servers: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html
- UCS and MCS Server Models Supported by Cisco Unified Communications Manager Releases

  http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html
- Cisco Unified Communications Virtualization (including links to UCS hardware information): www.cisco.com/go/uc-virtualized
- Cisco Unified Communications System Release Summary Matrix for IPT: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/versions/IPTMtrix.html

Component Release Notes and Installation and Upgrade Documents

Table 3-4 lists provides references to release notes and installation and upgrade documents for components. These URLs link to web pages that list various release versions of these documents. Review the appropriate documents based on the release versions of the components in your base and target release sets.

Table 3-4 Component-Specific Release Notes and Installation and Upgrade Documents

Components	Release Notes	Installation and Upgrade Documents
Cisco Unified Communications Manager	http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_installation_guides_list.html
Cisco Unity	http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_installation_guides_list.html
Cisco Unity Express	http://www.cisco.com/en/US/products/sw/voicesw/ps5520/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps5520/prod_installation_guides_list.html
Cisco Unified MeetingPlace	http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_installation_guides_list.html
Cisco IP/VC 3500 Series Videoconferencing	http://www.cisco.com/en/US/products/hw/video/ps1870/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/video/ps1870/prod_installation_guides_list.html
Cisco Unified Video Advantage	http://www.cisco.com/en/US/products/sw/voicesw/ps5662/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps5662/prod_installation_guides_list.html
Cisco Unity Connection	http://www.cisco.com/en/US/products/ps6509/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6509/prod_installation_guides_list.html
Cisco Unified IP Phone 9900 Series	http://www.cisco.com/en/US/products/ps10453/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps10453/prod_installation_guides_list.html
Cisco Unified IP Phone 8900 Series	http://www.cisco.com/en/US/products/ps10451/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps10451/prod_installation_guides_list.html
Cisco Unified IP Phone 7900 Series	http://www.cisco.com/en/US/products/hw/phones/ps379/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps646/prod_installation_guides_list.html
Cisco Unified IP Phone 6900 Series	http://www.cisco.com/en/US/products/ps10326/prod_release_notes_list.html	—
Cisco Unified Operations Manager	http://www.cisco.com/en/US/products/ps6535/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6535/prod_installation_guides_list.html
Cisco Unified Presence	http://www.cisco.com/en/US/products/ps6837/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6837/tsd_products_support_install_and_upgrade.html

Table 3-4 Component-Specific Release Notes and Installation and Upgrade Documents (continued)

Components	Release Notes	Installation and Upgrade Documents
Cisco Unified Service Monitor	http://www.cisco.com/en/US/products/ps6536/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6536/tsd_products_support_install_and_upgrade.html
Cisco IP Communicator	http://www.cisco.com/en/US/products/sw/voicesw/ps5475/prod_release_notes_list.html	—
Cisco Unified Contact Center Express	http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_installation_guides_list.html
Cisco Emergency Responder	http://www.cisco.com/en/US/products/sw/voicesw/ps842/prod_release_notes_list.html	—
Cisco Unified Survivable Remote Site Telephony	—	http://www.cisco.com/en/US/products/sw/voicesw/ps2169/prod_installation_guides_list.html
Cisco Catalyst 3550 Series Access Switches	http://www.cisco.com/en/US/products/hw/switches/ps646/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps646/prod_installation_guides_list.html
Cisco Catalyst 6500 Series Switches	http://www.cisco.com/en/US/products/hw/switches/ps708/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps708/prod_installation_guides_list.html
Cisco IOS Software Releases 15.1	http://www.cisco.com/en/US/products/ps10592/prod_release_notes_list.html	—
Cisco 1861 Integrated Services Router	—	http://www.cisco.com/en/US/products/ps5853/prod_installation_guides_list.html
Cisco 3800 Series Voice Gateways	http://www.cisco.com/en/US/products/ps5855/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps5855/prod_installation_guides_list.html
Cisco 2800 Series Voice Gateways		http://www.cisco.com/en/US/products/ps5854/prod_installation_guides_list.html
Cisco 3900 Series Voice Gateways		http://www.cisco.com/en/US/products/ps10536/prod_installation_guides_list.html
Cisco 2900 Series Voice Gateways		http://www.cisco.com/en/US/products/ps10537/prod_installation_guides_list.html

PART 2

System Upgrade for IP Telephony

CHAPTER 4

Planning Your System Upgrade

This topic provides an overview of the upgrade process for IP telephony components, the software releases that are involved in the upgrade process, and different upgrade strategies that can be used based on the size of your network.

This topic contains the following sections:

Note Many of the IP telephony component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

Cisco Unified Communications System Overview

The Cisco Unified Communications System is a full-featured business communications system built into an intelligent IP network. It enables voice, data, and video communications for businesses of all sizes. The Cisco Unified Communications System is defined around commonly deployed midmarket and topology models in North America and European and Emerging Markets (EUEM).

Cisco Systems provides an integrated system to meet a wide variety of customer needs. Cisco Unified Communications refers to the entire range of specific Cisco IP Communications products including all call control, conferencing, voicemail and messaging, customer contact, IP phone, video telephony, video conferencing, rich media clients, and voice application products. These products and applications are designed, developed, tested, documented, sold, and supported as an integrated system. Cisco Unified Communications System for enterprise is built upon IP telephony products that centers around the core call processing component, Cisco Unified Communications Manager. Cisco Unified Communications System for midmarket is built upon IP telephony products that centers around the call processing component, Cisco Unified Communications Manager Business Edition.

Cisco Unified Communications System testing is a process for specifying (designing) and validating the interoperability of enterprise voice products to ensure that they work together as an integrated system.

Scope of this Upgrade Documentation

The upgrade process that is discussed in this document addresses upgrade strategies, preparations for upgrade operation, order of operations such as the sequence in which IP telephony components should be upgraded, and other dependencies such as backward compatibility of software.

This topic provides information related to upgrading components present in base release sets that are to be upgraded. See Release Sets for more information.

This topic does not provide installation, upgrade, or backup procedures for:

- Components not part of the existing production network and the newly added components as a part of the next release. This information is available in the product specific documentation.
- Individual standalone components such as Unified Communications Manager and Cisco Unity. This section addresses only the upgrade procedures of Cisco Unified Communications System components at the system level.
- Third-party coresident applications (although these applications may be used during the upgrade and backup process) such as:
  - Antivirus
  - Security
  - Server management
  - Remote access
- Additional third-party off-board applications such as:
  - Operator console
  - VoIP recording
  - Billing and accounting
  - Paging and Informacast
  - Unity Fax Server
  - DPNSS gateway specific Server replacement (hardware upgrade) for components. For information on how to replace a single server or an entire cluster for Cisco Unified Communications Manager Release 8.5(1), see: http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/install/8_5_1/cluster/clstr851.html

  For information on supported Cisco 7800 Series Media Convergence Servers and Unified Computing System B-series servers, see: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html
- Cisco Unified Communications on the Cisco Unified Computing System Solution Overview:

  http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/solution_overview_c22-597556.html

Release Sets

A release set is a combination of products, components, and software versions that were tested to work together as an integrated Cisco Unified Communications System. A particular system release is also referred to as a release set.

A *base* release or release set is the starting release set that is being upgraded. A *target* release or release set is the ending release set to which the base release set is being upgraded.

Cisco Unified Communications System (Unified Communications Manager)

The enterprise systems involved in the upgrade process include:

- Base releases—Your environment may include one of the following base release sets:
  - Cisco Unified Communications System Release 6.1(1)—For detailed information about the IP telephony deployment models and topologies that are developed to test this release set, see Review Tested Site Models for IP Telephony and Review Tested Site Models for Contact Center.
  - Cisco Unified Communications System Release 7.1(3) —For detailed information about the IP telephony deployment models and topologies that are developed to test this release set, see Review Tested Site Models for IP Telephony and Review Tested Site Models for Contact Center.
  - Cisco Unified Communications System Release 8.0(2)—For detailed information about the IP telephony deployment models and topologies that are developed to test this release set, see Review Tested Site Models for IP Telephony and Review Tested Site Models for Contact Center.
- Target release:
  - Cisco Unified Communications System Release 8.5(1)—The new software release set that is the goal of the upgrade process, regardless of your base release set. For detailed information about the IP telephony deployment models and topologies that were developed to test this release set, see Review Tested Site Models for IP Telephony.

Cisco Unified Communications System (Unified Communications Manager Business Edition)

The midmarket systems that are involved in the upgrade and that are discussed in this document include:

- Base releases—Your environment may include one of the following base release sets:
  - Cisco Unified Communications System Release 8.0(2)—The new software release set that is the goal of the upgrade process, regardless of your base release set. For detailed information about the IP telephony deployment models and topologies that were developed to test this release set, see Review Tested Site Models for IP Telephony.
- Target release:
  - Cisco Unified Communications System Release 8.5(1)—The new software release set that is the goal of the upgrade process, regardless of your base release set. For detailed information about the IP telephony deployment models and topologies that were developed to test this release set, see Review Tested Site Models for IP Telephony.

For detailed information about the software versions of the components in the base and target release sets, see Chapter 5, “Preparing for Your System Upgrade.”

Upgrade Roadmap

This section provides a summary of the high-level upgrade tasks:

Step 1 Review your hardware and software requirements.

For example, verify that the deployed hardware configurations and operating system support the target release and are ready for an upgrade.

For a list of supported MCS servers, see the following:

- Cisco 7800 Series Media Convergence Servers Brochures: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html
- Hardware and Software Interoperability Matrix for Unified Computing System (UCS) B-series Servers: http://www.cisco.com/en/US/docs/unified_computing/ucs/interoperability/matrix/hw_sw_interop_matrix_seriesB_111.pdf
- Hardware and Software Interoperability Matrix for Unified Computing System (UCS) C-series Servers: http://www.cisco.com/en/US/docs/unified_computing/ucs/interoperability/matrix/hw_sw_interop_matrix_seriesC_101.pdf
- Cisco Unified Communications Manager Server Support Matrix: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure0900aecd8062a4f9.html
- Cisco Unity Connection Supported Platforms List: http://www.cisco.com/en/US/docs/voice_ip_comm/connection/8x/supported_platforms/8xcucspl.html

Step 2 Perform all required hardware equipment checks.

For example, verify that the DVD ROM drive in the server on which you plan to perform the upgrade tasks is operational before you start the upgrade process.

Step 3 Upgrade the *existing* network components from the base release set to the target release set. For a list of existing components, see Table 4-1.

Note The existing network should include components that are already supported by one of the base release sets.

Use the recommended upgrade paths defined in the System Upgrade Paths to Cisco Unified Communications System Release 8.5(1) section and the upgrade strategies described in System Upgrade Strategies section to perform the upgrade. The upgrade paths and strategies that you select should depend on a number of factors, such as:

- Base release set currently deployed in your network
- Size of the network and number of sites
- Topology of the network

Step 4 Perform verification and validation testing in between upgrading components in multiple stages to ensure that the components in the network interoperate. For information on verifying and validating multistage upgrades and interoperability of components, see Performing Your System Upgrade.

Step 5 Install and configure *new* components that are supported by the target release.

See the individual component installation and configuration documents that are listed in New Components in Target Release Set.

Step 6 Remove or replace any components from your network that are not part of the target release or that have reached end-of-life (EOL) or end-of-sale (EOS).

Follow proper procedures to uninstall these components. For a list of these components, see Components Not in Target Release Set.

Note See the EOS/EOL website for a list of recommended replacements at: http://www.cisco.com/en/US/products/prod_end_of_life.html. For Cisco EOS/EOL policy, see the information at: http://www.cisco.com/en/US/products/products_end-of-life_policy.html.

Upgrade Overview

This section lists existing components included in the base release sets that are involved in the upgrade process, components that have to be newly installed for the target release set, and components that must be uninstalled because they are not part of the target release set.

This section includes these topics:

- Existing Components in Base Release Sets
- New Components in Target Release Set
- Components Not in Target Release Set

Existing Components in Base Release Sets

Table 4-1 lists the components that are part of the base release sets that are being upgraded to Cisco Unified Communications System Release 8.5(1).

Note A dash (—) indicates a product that was not tested, either because it was unavailable or because it was not part of the release set.

Table 4-1 IP Telephony Components in Base Release Sets

	Unified Communications Releases		
Component	**8.0(2)**	**7.1(3)**	**6.1(1)**
Cisco Unified Communications Manager	X	X	X[1]
Cisco Unified Communications Manager—Cisco IP Telephony Operating System	X	X	X
Cisco Unified Communications Manager Business Edition	X	X	X
Cisco Unified Communications Manager Express	X	X	X
Cisco Unified Survivable Remote Site Telephony (SRST)	X	X	X
Cisco Intercompany Media Engine	X	—	—
Cisco Unified Contact Center Express	X	X	X
Cisco Unified Contact Center Express Operating System	X	X	X
Cisco Unified Presence	X	X	X
Cisco Emergency Responder	X	X	X

Table 4-1 IP Telephony Components in Base Release Sets

Component	Unified Communications Releases		
	8.0(2)	7.1(3)	6.1(1)
Cisco Emergency Responder—Cisco IP Telephony Operating System	X	X	X
Cisco Fax Server	—	—	X
Cisco Unified Application Environment	X	X	X
Cisco Unified Phone Proxy	—	—	X
Cisco ASA Phone Proxy	X	X	—
Cisco Unified Business Attendant Console and Unified Department Attendant Console	X	X	X
Cisco Unified Enterprise Attendant Console	X	X	—
Cisco Enterprise Policy Manager	X	—	—
Cisco Unified MeetingPlace	X	X	X
Cisco Unified MeetingPlace Web Conferencing	X	X	X
Microsoft Outlook for Cisco Unified MeetingPlace	X	X	X
IBM Lotus Notes for Cisco Unified MeetingPlace Release	—	X	X
Jabber for Cisco Unified MeetingPlace	X	X	—
Microsoft Office Communicator for Cisco Unified MeetingPlace	X	X	—
Cisco Unified MeetingPlace Express	—	X	X
Cisco Unified Videoconferencing 3515 MCU	—	—	X
Cisco Unified Videoconferencing 3540 MCU	—	—	X
Cisco Unified Videoconferencing Enhanced Media Processor (EMP) Module for 3540 MCU	—	—	X
Cisco Unified Videoconferencing 3545 MCU	—	—	X
Cisco Unified Videoconferencing Enhanced Media Processor EMP for 3545 MCU	—	—	X
Cisco Unified Media Server for 3545 MCU (video)	X	X	—
Cisco Unified Media Server for 3545 MCU (audio)	X	X	—
Cisco Unified Videoconferencing 3521 and 3522 BRI Gateways	X	X	X
Cisco Unified Videoconferencing 3526, 3527, and 3545 PRI Gateways	X	X	X
Cisco Unified Videoconferencing 3540 PRI Gateway	X	X	X
Cisco Integrated Services Router (ISR) 2800, 3800 (Voice DSP for Ad Hoc Conferencing)	X	X	—
Cisco Integrated Services Router (ISR) 2900, 3900 (Voice DSP for Ad Hoc Conferencing)	X	X	—
Cisco Unity	X	X	X

Table 4-1 IP Telephony Components in Base Release Sets

Component	Unified Communications Releases		
	8.0(2)	7.1(3)	6.1(1)
Unity-CM TSP	X	X	X
Cisco Unity—Microsoft Exchange	X	X	X
Cisco Unity—IBM Lotus Domino	—	X	X
Cisco Unity Connection	X	X	X
Cisco Unity Express	X	X	X
Cisco Unified Messaging Gateway	X	X	X
Cisco Unified Survivable Remote Site Voicemail	X	—	—
Cisco Unified IP Phones models 7906G, 7911G, 7921G, 7931, 7936, 7937G, 7940G, 7941G, 7942G, 7945G, 7960G, 7961G, 7962G, 7965G, 7970G, 7971G, 7975G, 7985G	X	X	X
Cisco Unified IP Phones model 3911, 3951	X	X	X
Cisco Unified IP Phones models 6921, 6941, 6961	X	X	—
Cisco Unified IP Phones models 6901, 6911	X	—	—
Cisco Unified IP Phones models 8961 and 9951	X	X[2]	—
Cisco Unified IP Phones models 9971	X	X[2]	—
Cisco IP Communicator	X	X	X
Cisco Unified Personal Communicator	X	X	X
Cisco UC Integration for Microsoft Office Communicator	X	X	—
Cisco Unified Client Services Framework	X	—	—
Cisco UC Integration for Webex	X	—	—
Cisco Unified Video Advantage	X	X	X
Cisco Unified Communications Widgets	X	X	—
Cisco Aironet Access Point (AP) 1200G	X	X	X
Cisco 4400 Series Wireless LAN Controllers	X	X	—
Cisco Unified Mobility Advantage	X	X	X
Cisco Unified Mobile Communicator	X	X	X
Cisco Unified Mobile Communicator iPhone	X	X	—
Cisco ASA Adaptive Security Appliance	X	X	X
Cisco Catalyst Firewall Service Module	—	X	X
Cisco Intrusion Prevention System (AIP-SSM, IDSM-2 Module, IPS-4200)	X	X	X
Cisco NAC Appliance (Clean Access)	—	—	X
Management Center for Cisco Security Agents	X	X	X
Cisco Security Agent for Cisco Unified Communications Manager	X	X	X

Table 4-1 IP Telephony Components in Base Release Sets

Component	Unified Communications Releases		
	8.0(2)	7.1(3)	6.1(1)
Cisco Security Agent for Cisco Emergency Responder	X	X	X
Cisco Security Agent for Unified Contact Center Express	X	X	X
Cisco Security Agent for Cisco Unity	X	X	X
Cisco Security Agent for Cisco Unified MeetingPlace	X	X	X
Cisco Security Agent for Cisco Unified MeetingPlace Express	—	X	—
Cisco Unified Operations Manager	X	X	X
Cisco Unified Service Monitor	X	X	X
Cisco netManager Unified Communications	—	—	X
Cisco Unified Service Statistics Manager	X	X	X
Cisco Unified Provisioning Manager	X	X	X
Cisco Resource Management Essentials	X	X	X
Cisco IOS Mainline Release	—	X	X
Cisco 2801, 2821, 2851, 3825, 3845 (router, voice/data gateway)	X	X	—
Cisco 38xx Gatekeepers	X	X	—
Cisco 3800 (IP-to-IP gateway)	X	X	—
Cisco 3900 (IP-to-IP gateway)	X	X	—
Cisco 3725, 3745 (voice/data gateway)	—	—	X
Cisco 3745 (IP-to-IP gateway)	—	—	X
Cisco 3745 (gatekeeper)	—	—	X
Cisco Integrated Services Router (ISR) 1861	X	X	X
Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	X	X	—
Cisco Unified SIP Proxy	X	X	—
Cisco Unified Border Element	X	X	X
Cisco Secure RTP and Cisco Secure SRST	X	X	X
Cisco 7206 (voice/data gateway)	X	X	X
Cisco 2610XM, 2611XM, 2620XM, 2621XM, 2650XM, 2651XM (routers)	—	—	X
Cisco Catalyst 3500XL (access switch)	—	—	X
Cisco Catalyst 3550 (access switch)	X	X	X
Cisco Catalyst 3560 (access switch)	X	X	X
Cisco Catalyst 3750 (data center switch)	—	X	X
Cisco Catalyst 4503 Switch	X	X	X

Table 4-1 IP Telephony Components in Base Release Sets

Component	Unified Communications Releases		
	8.0(2)	7.1(3)	6.1(1)
Cisco Catalyst 4506 (access switch)	X	X	X
Cisco Catalyst 6506, 6509 (voice access switch, supervisor 2/MSFC2)	X	X	X
Cisco Catalyst 6506, 6509 (core switch, supervisor 720)	X	X	X
Cisco Catalyst Communications Media Module (CMM)	—	—	X
Cisco Catalyst 6608, 6624 (voice gateway)	X	X	X
Cisco VG202 and 204 (analog voice gateway)	X	X	—
Cisco VG224 (analog voice gateway)	X	X	X
Cisco VG248 (analog voice gateway)	—	X	X
Cisco ATA 186,188 (analog telephony adaptor)	—	—	X
McAfee Antivirus[3]	X	X	X

1. For this base release, Cisco Unified Communications Manager must first be upgraded to interim version Release 6.1(2), before it can be upgraded to the target release version.
2. Unified Communications Manager Release 7.1(3) baseline version does not have the option to add Unified IP Phones 8961, 9951, or 9971. You must upgrade Unified CM Release 7.1(3) to Unified CM Release 7.1(3a)su1 to support the Unified IP Phone 8961, 9951, and 9971 models.
3. You can install third-party antivirus agents on Windows-based servers such as Unified Operations Manager and Unified Provisioning Manager, but not on non-Windows appliances such as Unified Communications Manager and Unified Communications Manager Business Edition.

New Components in Target Release Set

Some components are new to the Cisco Unified Communications System Release 8.5(1) release set. You must install these new components and configure them in the network (instead of upgrading them). New components include:

- Cisco Unified Session Management Edition for Unified Communications Manager

New Components when Upgrading from Cisco Unified Communications System Release 6.1(1)

This section lists components that will be new in your Release 8.5(1) release set when you upgrade from Release 6.1(1). For information about installing and configuring these components, see the documentation for each component at the URL shown.

- Cisco Unified IP Phone 7937G
  http://www.cisco.com/en/US/products/hw/phones/ps379/prod_installation_guides_list.html
- Cisco Unified IP Phone 3911
  http://www.cisco.com/en/US/products/ps7193/prod_installation_guides_list.html
- Cisco 1861 Integrated Services Router:
  http://www.cisco.com/en/US/products/ps5853/prod_installation_guides_list.html
- Cisco Unified Messaging Gateway:
  http://www.cisco.com/en/US/products/ps8605/prod_installation_guides_list.html
- Cisco Unified Readiness Assessment Manager
  http://www.cisco.com/en/US/products/ps8542/prod_installation_guides_list.html

- Cisco 881 Integrated Services Router

  http://www.cisco.com/en/US/products/hw/routers/ps380/tsd_products_support_install_and_upgrade.html

- Cisco Unified SIP Proxy

  http://cisco.com/en/US/products/ps10140/tsd_products_support_model_home.html

- Cisco Unified IP Phones models 6901, 6911, 6921, 6941, and 6961:
  http://www.cisco.com/en/US/products/ps10326/tsd_products_support_series_home.html

- Cisco Unified IP Phones model 8961:
  http://www.cisco.com/en/US/products/ps10451/tsd_products_support_series_home.html

- Cisco Unified IP Phones models 9951 and 9971:
  http://www.cisco.com/en/US/products/ps10453/tsd_products_support_series_home.html

- Cisco Integrated Services Routers 19xx, 29xx, 39xx Series

  Cisco 3900 Series documentation:
  http://www.cisco.com/en/US/products/ps10536/tsd_products_support_series_home.html

  Cisco 2900 Series documentation:
  http://www.cisco.com/en/US/products/ps10537/tsd_products_support_series_home.html

- Cisco Intercompany Media Engine:
  http://www.cisco.com/en/US/products/ps10669/tsd_products_support_series_home.html

- Cisco Unified Enterprise Attendant Console:
  http://www.cisco.com/en/US/products/ps7282/products_user_guide_list.html

- Cisco Unified Survivable Remote Site Voicemail:
  http://www.cisco.com/en/US/products/ps10769/tsd_products_support_series_home.html

- Cisco UC Integration for Lync (formerly Microsoft Office Communicator):
  http://www.cisco.com/en/US/products/ps10317/tsd_products_support_series_home.html

- Cisco UC Integration for RTX:
  http://www.cisco.com/en/US/products/ps11241/tsd_products_support_series_home.html

New Components when Upgrading from IP Communications Systems Test Release 7.1(3)

This section lists components that will be new in your Release 8.5(1) release set when you upgrade from Release 7.1(3) . For information about installing and configuring these components, see the documentation for each component at the URL shown:

- Cisco Unified SIP Proxy

  http://cisco.com/en/US/products/ps10140/tsd_products_support_model_home.html

- Cisco Unified IP Phones models 6901, 6911, 6921, 6941, and 6961:
  http://www.cisco.com/en/US/products/ps10326/tsd_products_support_series_home.html

- Cisco Unified IP Phones model 8961:
  http://www.cisco.com/en/US/products/ps10451/tsd_products_support_series_home.html

- Cisco Unified IP Phones models 9951 and 9971:
  http://www.cisco.com/en/US/products/ps10453/tsd_products_support_series_home.html

- Cisco Integrated Services Routers 19xx, 29xx, 39xx Series

  Cisco 3900 Series documentation:
  http://www.cisco.com/en/US/products/ps10536/tsd_products_support_series_home.html

Cisco 2900 Series documentation:
http://www.cisco.com/en/US/products/ps10537/tsd_products_support_series_home.html

- Cisco Intercompany Media Engine:
http://www.cisco.com/en/US/products/ps10669/tsd_products_support_series_home.html
- Cisco Unified Survivable Remote Site Voicemail:
http://www.cisco.com/en/US/products/ps10769/tsd_products_support_series_home.html
- Cisco UC Integration for RTX:
http://www.cisco.com/en/US/products/ps11241/tsd_products_support_series_home.html

New Components when Upgrading from IP Communications Systems Test Release 8.0(2)

This section lists components that will be new in your Release 8.5(1) release set when you upgrade from Release 8.0(2). For information about installing and configuring these components, see the documentation for each component at the URL shown:

- Cisco Unified Readiness Assessment Manager
http://www.cisco.com/en/US/products/ps8542/prod_installation_guides_list.html
- Cisco 881 Integrated Services Router

  http://www.cisco.com/en/US/products/hw/routers/ps380/tsd_products_support_install_and_upgrade.html
- Cisco Unified SIP Proxy

  http://cisco.com/en/US/products/ps10140/tsd_products_support_model_home.html
- Cisco Unified IP Phones models 6901, 6911, 6921, 6941, and 6961:
http://www.cisco.com/en/US/products/ps10326/tsd_products_support_series_home.html
- Cisco Unified IP Phones model 8961:
http://www.cisco.com/en/US/products/ps10451/tsd_products_support_series_home.html
- Cisco Unified IP Phones models 9951 and 9971:
http://www.cisco.com/en/US/products/ps10453/tsd_products_support_series_home.html
- Cisco Integrated Services Routers 19xx, 29xx, 39xx Series

  Cisco 3900 Series documentation:
  http://www.cisco.com/en/US/products/ps10536/tsd_products_support_series_home.html

  Cisco 2900 Series documentation:
  http://www.cisco.com/en/US/products/ps10537/tsd_products_support_series_home.html
- Cisco UC Integration for RTX:
http://www.cisco.com/en/US/products/ps11241/tsd_products_support_series_home.html

Components Not in Target Release Set

The following components should be removed or replaced with appropriate new components because they are no longer supported in the target release of Unified Communications System 8.5(1) deployments.

- Cisco Unified MeetingPlace Express
- Cisco Unity—IBM Lotus Domino
- IBM Lotus Notes for Cisco Unified MeetingPlace Release

- Cisco Security Agent for Cisco Unified MeetingPlace Express
- Cisco Unified Videoconferencing 3511 MCU
- Cisco Unified Videoconferencing 3515 MCU
- Cisco Unified Videoconferencing 3521 BRI Gateway—Cisco Unified Videoconferencing Gateway 3522 (ISDN BRI)
- Cisco Unified Videoconferencing 3526 PRI Gateway—Cisco Unified Videoconferencing Gateway 3527 (ISDN PRI
- Cisco Catalyst 6506, 6509 (Supervisor Engine 32)
- Cisco Catalyst 6508, 6524
- Cisco Catalyst Express 500
- Cisco Fax Server
- Cisco SIP Proxy Server
- Cisco Personal Assistant—Replaced with Cisco Unity
- Tandberg 990 MXP (H.323 video endpoint)
- Cisco 2691 router
- Cisco 831 router
- Cisco 37xx routers
- Cisco Catalyst 3550 series switches
- Cisco Catalyst 3660 multiservice platform
- Cisco Catalyst Firewall Service Module
- Cisco NAC Appliance (Clean Access)
- Cisco VG248 (analog voice gateway)
- Cisco ATA 186,188 (analog telephony adaptor)

Note See the EOS/EOL website for a list of recommended replacements (if any) for the above components: http://www.cisco.com/en/US/products/prod_end_of_life.html. For Cisco EOS/EOL policy, see the information at: http://www.cisco.com/en/US/products/products_end-of-life_policy.html.

System Upgrade Paths to Cisco Unified Communications System Release 8.5(1)

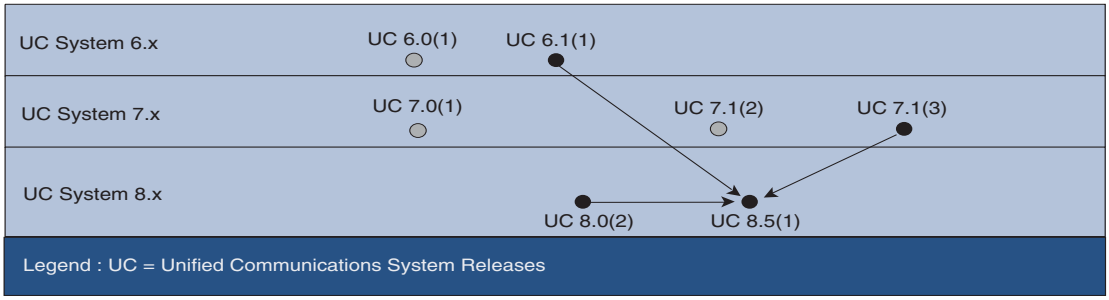
The following upgrade paths are available in Cisco Unified Communications System Release 8.5(1) for IP telephony environments:

- Cisco Unified Communications Systems Release 6.1(1) to Cisco Unified Communications System Release 8.5(1)
- Cisco Unified Communications System Release 7.1(3) to Cisco Unified Communications System Release 8.5(1)
- Cisco Unified Communications System Release 8.0(2) to Cisco Unified Communications System Release 8.5(1)

Note You can access a complete listing of all the Cisco Unified Communications System releases for IP telephony components at the Cisco Unified Communications System Release Summary Matrix for IP Telephony: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/versions/IPTMtrix.html

See Figure 4-1 for a representation of the upgrade paths for Cisco Unified Communications System Release 8.5(1).

Figure 4-1 Upgrade Paths to Cisco Unified Communications System Release 8.5(1)



System Upgrade Strategies

This section discusses the upgrade strategies for all components in the target release deployment scenarios. Details of individual components upgrades are not described unless additional information or clarification is required.

The following upgrade strategies are available for use when upgrading to target release:

- Single-stage upgrade using existing hardware (flash-cut)—All components in the network start at a base release set and all components are upgraded to the target release set within a single maintenance window.
- Single-stage upgrade using new hardware (either flash-cut or shrink-and-grow)—A parallel target release network should be built using new hardware and pre-staged with configuration to support the existing production network.

  All users can then be moved from the existing production network to the new network in either of these ways:

  - In a single maintenance window using a flash-cut upgrade process
  - In several maintenance windows using a shrink-and-grow upgrade process (where a single maintenance window is used to implement the new release versions on the new hardware, but multiple windows are used to migrate the users)

Note We recommend that you do not use backup and restore procedures to perform the pre-staged configuration on the parallel network. In many applications, you are required to use the same hostname and IP address for the backup and restore process. This approach can prevent you from creating a truly parallel network, as two systems cannot exist on the same network with identical hostnames and IP addresses.

The upgrade strategies involving the single-stage upgrade approach are appropriate for small sites (fewer than 500 seats) with smaller number of components in the network.

- Multistage system upgrade using existing hardware (hybrid system)—The components in individual sites can be upgraded from the base release set software to the target release set software in stages, during separate maintenance windows.

  At the completion of each intermediate stage, the network within each site exists as a *hybrid system* with a mix of the following:

  – Some components are operating on the base release set
  – Other upgraded components are operating on the target release set

Note *Hybrid system* refers to interproduct versions, not to intraproduct versions. For example, all Unified Communications Manager servers in the same cluster will remain at the same software release version.

  The multistage system upgrade approach is recommended for medium-to-large sites (ranging from 501 to 1,499 seats for medium and 1,500 to 4,999 seats for large) with a greater number of components in the network.

- Multisite migration (via hybrid network with release set interworking)—Components are upgraded from the base release set software to the target release set software on a site-by-site basis during separate maintenance windows.

  At the completion of each maintenance window, a *hybrid network* exists within the multiple sites with a mix of the following:

  – Sites whose components are operating on the base release set
  – Sites whose components are operating on the target release set
  – Sites whose components are a hybrid system as described in Multistage System Upgrade Using Existing Hardware (Hybrid System)

  This model assumes that sites may be upgraded independently. However, with the multisite migration strategy, you must account for distributed applications with shared components among sites. For example, if you have deployed a Cisco Emergency Responder supporting multiple Unified Communications Manager clusters, Centralized TFTP clusters, or a Unified Communications Manager cluster using Clustering-over-WAN (CoW), then these sites must be upgraded concurrently.

  Users can be moved in stages from the existing production network to the new network operating on the target release set software.

  The multisite migration strategy is recommended for large multisite environments (more than 5000 seats) with a large number of components in the network.

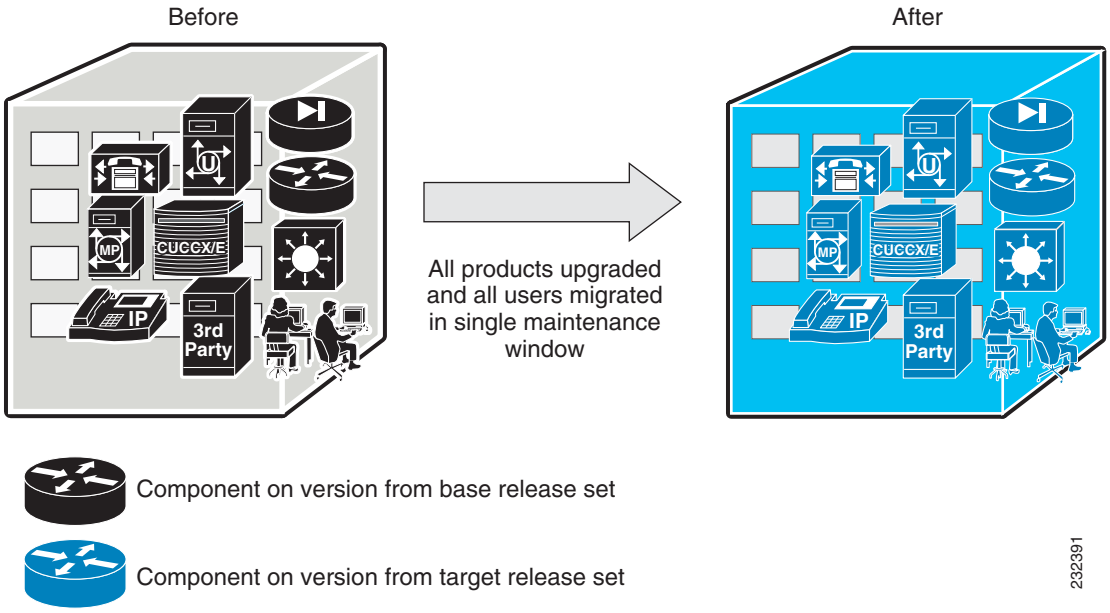
Single-Stage Upgrade Using Existing Hardware

All components in the network start at the base release set and all components are upgraded to the target release set software within a single maintenance window. Since all components are upgraded within a single maintenance window, interoperability is not required between the base and target release sets.

The single-stage upgrade on existing hardware approach is typically not recommended for large sites and networks, since it has to be performed within a single maintenance window.

Figure 4-2 shows an example of the single maintenance window that is involved in the single-stage upgrade on existing hardware approach.

Figure 4-2 Single-Stage Upgrade Using Existing Hardware



Single-Stage Upgrade Using New Hardware

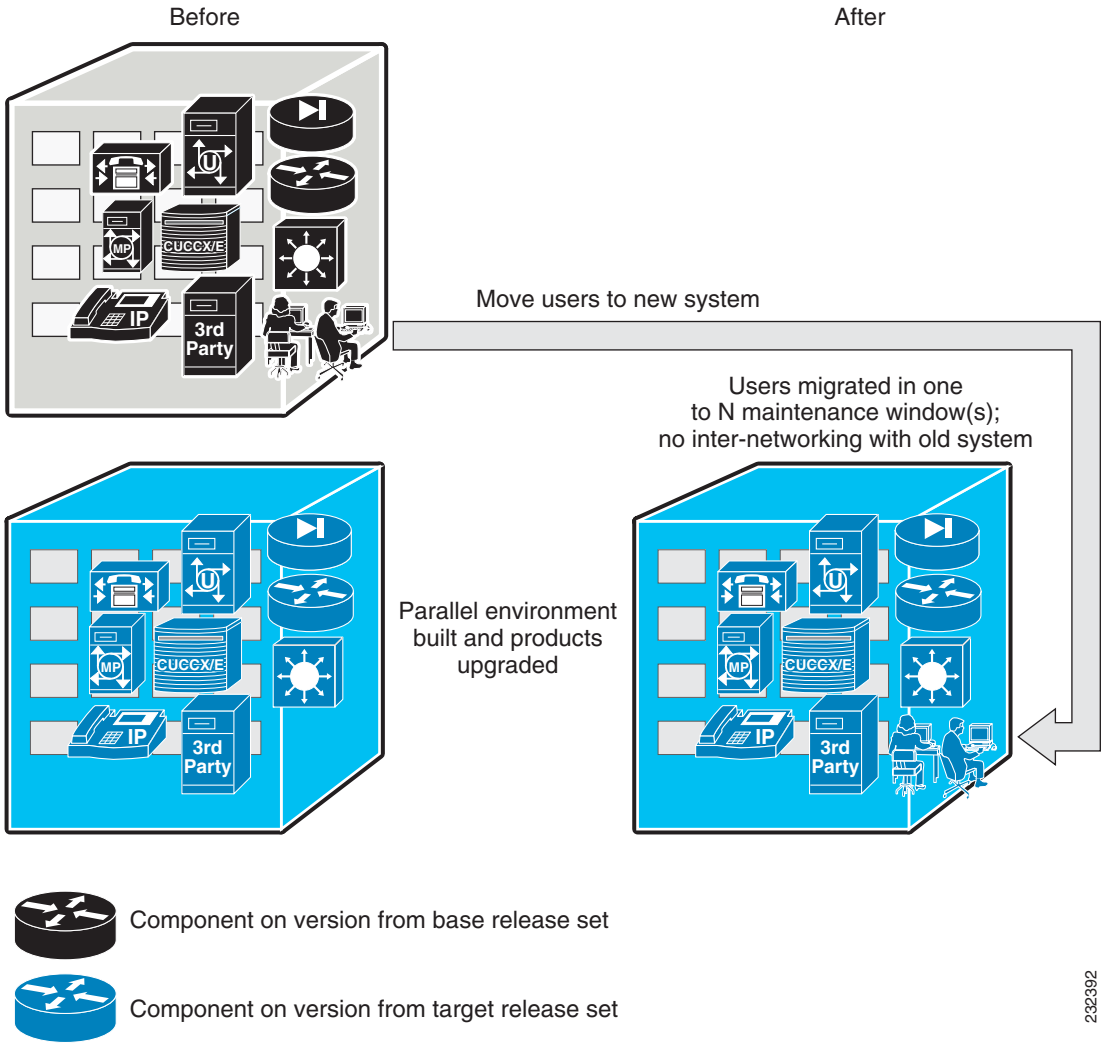
A parallel Cisco Unified Communications System network should be built using new hardware and pre-staged with configuration to support the existing production network. All users can then be moved from the existing production network to the new network operating with the target release set software either in a single maintenance window (using flash-cut) or in several maintenance windows (using shrink-and-grow).

The single-stage upgrade on new hardware approach is not recommended for large sites and networks for the following reasons:

- The upgrade cannot be performed within a single maintenance window.
- The expense of a complete new parallel network is significant.

Figure 4-3 shows an example of the maintenance windows that are involved in the single-stage upgrade on new hardware approach.

Figure 4-3 Single-Stage Upgrade Using New Hardware



Multistage System Upgrade Using Existing Hardware (Hybrid System)

Individual components and/or sites can be upgraded in stages, from the base release set software to the target release set software, during separate maintenance windows. At the completion of each intermediate stage, the individual site exists as a *hybrid system* with a mix of the following:

- Some components operating on the base release set software
- Other upgraded components operating on the target release set software

The multistage system upgrade on existing hardware is the recommended approach for medium-to-large networks. In this case, individual components within a single site and/or individual sites in a multisite environment are progressively upgraded over the span of several days or weekends.

This type of staging is required because:

- Sufficient time may not be available (maintenance window) to take the system out of service for the complete upgrade of all the components involved.

- You must test existing functionality following the upgrade.
- You must test new functionality following the upgrade.

You can view a staged upgrade as a series of maintenance windows separated by inter-maintenance window intervals. During each maintenance window, one or more components of the system or a subset of the components is upgraded.

Businesses typically have a maintenance window during which service disruptions are likely to cause minimal disruption and affect only a limited number of users, for example, during the night or during a weekend.

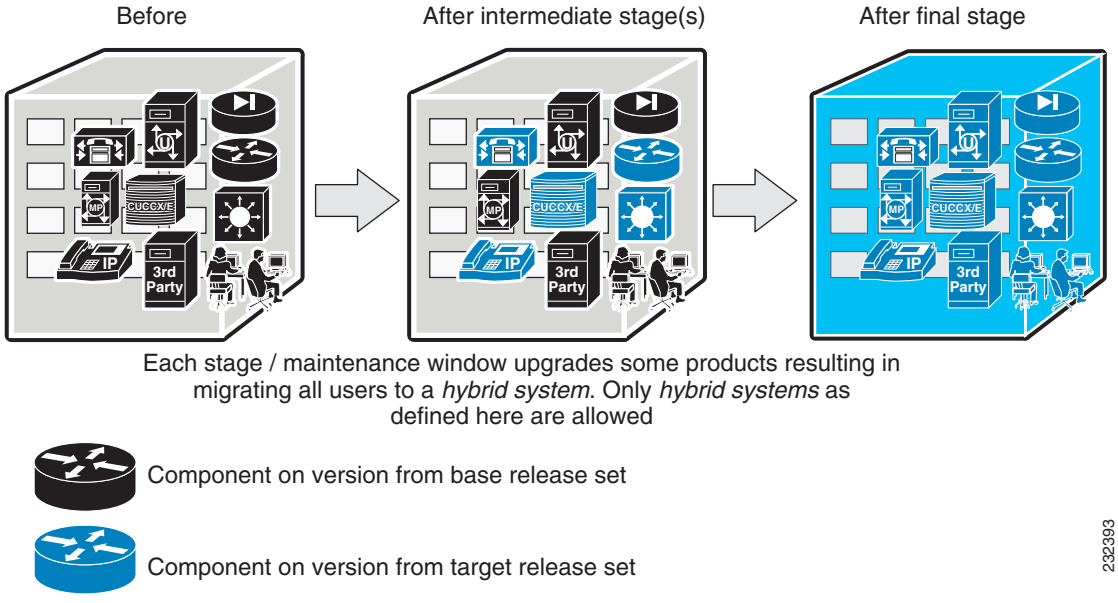
Before the staged upgrade is completed, the whole network exists in a partially upgraded state where some components have been upgraded to the target release set software and the remaining components are operating with the base release set software.

Backward compatibility of the components is critical during the staged upgrade, so that target release set components are able to interoperate with the base release set components. If any component is not backward compatible, this can potentially result in prolonged periods of service outage spanning several maintenance windows (possibly several weeks).

Therefore, during multistage upgrades, it is mandatory to have interoperability between the base and target release set software versions. For more information about software and backward compatibility considerations, see Chapter 5, “Preparing for Your System Upgrade.”.

Figure 4-4 shows an example of the maintenance windows that are involved in the multistage system upgrade on existing hardware approach.

Figure 4-4 Multistage System Upgrade Using Existing Hardware (Hybrid System)



Multisite Migration (Hybrid Network)

Components are upgraded from the base release set to the target release set on a site-by-site basis during separate maintenance windows.

At the completion of each maintenance window, a *hybrid network* will exist across multiple sites. Within each site, either a single-stage or multistage system upgrade strategy can be used to upgrade that particular site's components from the base to the target release set.

Interworking can be expected among sites with *pure* base release set versions and sites with *pure* target release set versions as shown in Figure 4-5. However, interworking will not be possible between these *pure* sites and *hybrid system* sites. For more information about software and backward compatibility considerations, see Chapter 5, "Preparing for Your System Upgrade.".

Note A component that is common to multiple sites, such as shared Cisco Emergency Responder, may affect the interoperability itself, the order in which sites may be upgraded, or which sites must be upgraded concurrently.

Users can be moved in stages from the existing production network to the new network operating with the target release set software. The number of users on the existing base network will shrink while the number on the target network will grow correspondingly.

This migration process can span several weeks and, sometime months, if necessary. During this upgrade approach, it is essential that the two networks, existing and new, be able to communicate with each other.

Figure 4-5 shows an example of the maintenance windows that are involved in the multisite migration approach.

Figure 4-5 Multisite Migration

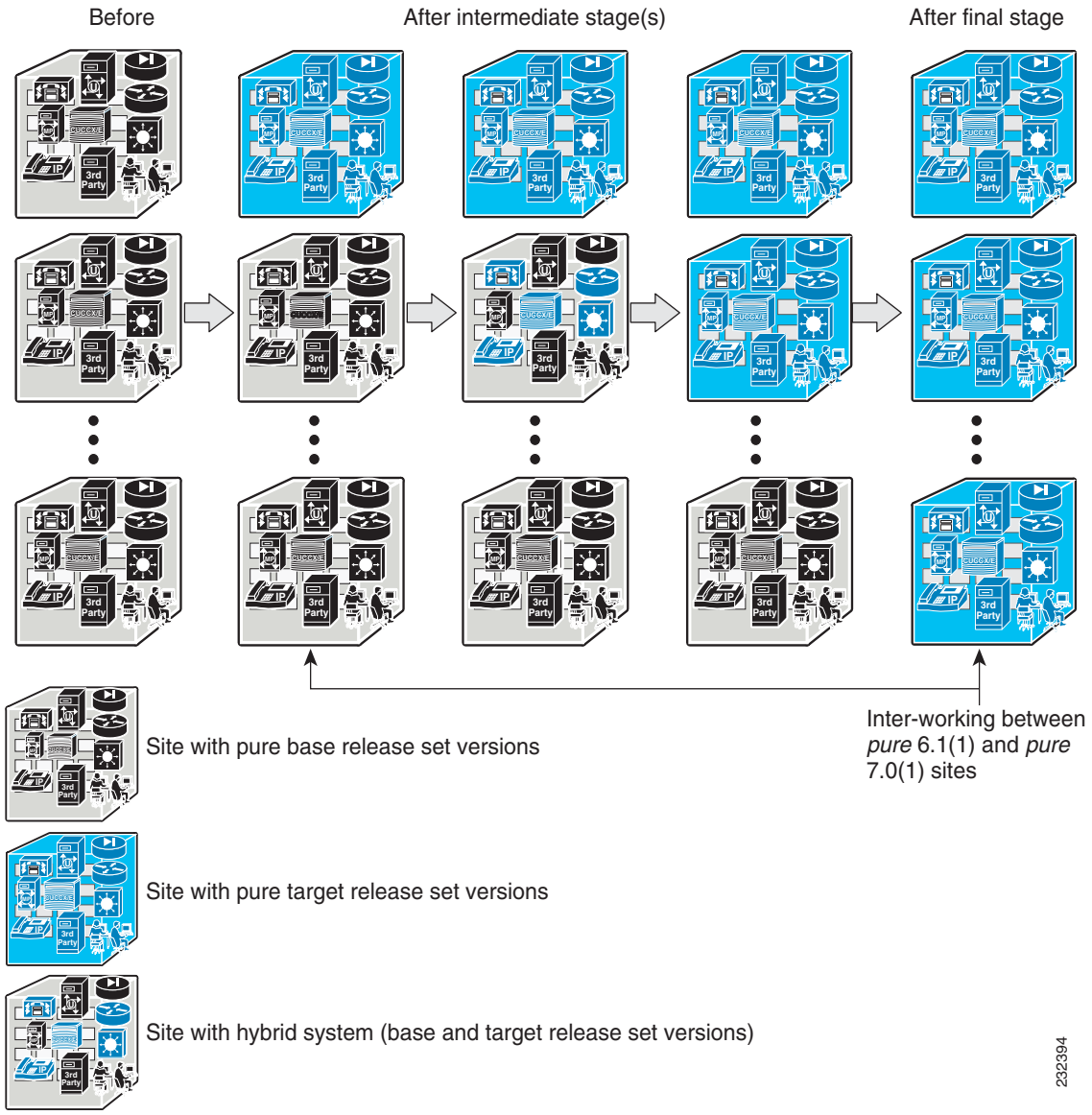


Table 4-2 provides a summary of the upgrade strategies.

Table 4-2 Summary of Upgrade Strategies

	Single-Stage Upgrade	Multistage System Upgrade	Multisite Migration Upgrade
Type of deployment	• Small single-site • Small multisite (fewer than 500 seats)	• Medium single-site • Medium multisite (501–1,499 seats) • Large single-site (1,500 – 4,999 seats)	• Large multisite (5,000 or more seats)
Maintenance window (MW)	One	Multiple	Multiple

Table 4-2 Summary of Upgrade Strategies (continued)

	Single-Stage Upgrade	Multistage System Upgrade	Multisite Migration Upgrade
Interoperability between releases at component level	Not required	Required	Required
Interoperability between releases at site level	Not required	• Medium single-site— Not required • Large single-site— Not required • Medium multisite— Required	Required
User migration	Complete in one stage	Partial until final stage	Partial until final stage
Upgrade time	One time slot, for example, during a weekend maintenance window	Several days to weeks	Several weeks to months

CHAPTER 5

Preparing for Your System Upgrade

This section discusses information to be aware of before performing the actual upgrade process, such as the general upgrade approach for different components, upgrade release versions of components involved in the upgrade, and release version compatibility.

This section includes the following topics:

Note Many of the IPT component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

System Upgrade Approach

The general approach is to upgrade each Cisco Unified Communications Manager cluster and its associated IP telephony components one at a time before upgrading the next cluster.

Note Access and download the license files required to upgrade (or newly install) and operate the appropriate software at: http://www.cisco.com/go/license.

For each cluster, upgrade the components of the Cisco Unified Communications System solution in the following order:

1. Infrastructure components, including switches, routers, and security components. These components should be upgraded first to ensure that the infrastructure is able to support the services required by Cisco Unified Communications System components.
2. Cisco data and voice gateways and gatekeepers (including videoconferencing MCUs and 3G gateways).

Note These components should be upgraded first to ensure that the infrastructure is able to support the services required by Cisco Unified Communications System components.

3. Network Management Components

4. Call processing components, such as Unified Communications Manager clusters
5. Queuing and self-service components such as Cisco Unified Contact Center Express
6. Messaging components such as Cisco Unity Connection
7. Cisco Unified MeetingPlace components
8. Video Conferencing components
9. Cisco applications co-resident on servers

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.

See Chapter 6, "Performing Your System Upgrade" for detailed information about the order in which components have to be upgraded.

The upgrade sequence of the IP telephony components should 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. For additional information, see Backward Compatibility Issues.
- The components which provide more critical service should be upgraded first. See Upgrade Release Versions section, which describes, for each base release set, whether components need to be upgraded before or after upgrading Unified Communications Manager, or if the upgrade order does not matter.

System Upgrade Dependencies

Cisco Unified Communications System Release 8.5(1) offers support for new hardware for several components and has removed support for some of the existing 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 completion of a fresh installation. When preparing for an upgrade to Release 8.5(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: www.cisco.com/go/uc-virtualized.

Components within each release set are compatible with each other and will interoperate correctly. That is, components in a specific base release set are compatible with each other and will interoperate, and components in the target release set are compatible with each other and will interoperate.

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

As you upgrade individual components of the integrated system, the overall system may operate in a state of degraded service when some components have been upgraded to the next release level and do 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 first so they can interoperate with Cisco Unified Communications Manager that is still on the base release.

Cisco Unified Communications Manager Upgrade and Compatibility Considerations

As some of the components have to be upgraded prior to Unified Communications Manager, there are certain upgrade issues and considerations to be aware of. For bridge upgrade and migration on Unified Communications Manager hardware, see *New and Changed Document for Cisco Unified Communications Manager 8.0(1)* at:
http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/rel_notes/8_5_1/delta/install.html#wp1227378

Pre-Upgrade Migration

You can migrate Cisco Unified Communications System applications before upgrading Unified Communications Manager, if:

- 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 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 and Unified Communications components, see the following sites:

- Cisco Unified Communications Compatibility Tool:
  http://tools.cisco.com/ITDIT/vtgsca

Cisco Unified Communications Manager (CallManager) Compatibility Information:
http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

Upgrading from Cisco Unified Communications Manager Releases 6.1(1) to Cisco Unified Communications Manager Release 8.5(1)

Be aware of the following constraints regarding Cisco Unified Communications Manager when you upgrade from Cisco Unified Communications System Release 6.1(1) to Release 8.5(1):

- Unified Communications Manager must first be upgraded to the latest version of 6.1(x) available on CCO, before it can be upgraded to the target release version.

- If you have a Unified CCX deployment in your network and you are upgrading from:
  - Cisco Unified Communications System Release 6.1(1) to Release 8.5(1), you can upgrade Unified CCX in the same maintenance window as the Unified Communications Manager for backward compatibility issue. So, you must first upgrade from Unified CCX 5.0(2) to Unified CCX 7.x or Unified CCX 8.0(2) and then upgrade to Unified CCX 8.5(1).
  - Cisco Unified Communications System Release 7.1(3) to Release 8.5(1), there are no backward compatibility issues.
  - Cisco Unified Communications System Release 8.0(2) to Release 8.5(1), there are no backward compatibility issues.

  For upgrade recommendations, see Cisco Unified Contact Center Express Considerations, page 5-8.
- For Unified Communications Manager, you must perform all software installations and upgrades using the Software Upgrade Menu 0ptions 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 Framework. This practice prevents 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 above SFTP server information also applies to Unified Presence, Unified Contact Center Express, Unity Connection and Emergency Responder.

- After upgrading Cisco Unified Communications Manager 6.x release to Cisco Unified Communications Manager Release 8.5(1), upload the software feature license file for Cisco Unified Communications Manager Release 8.5(1) and restart the Cisco Unified Communications Manager service. Until you perform these tasks, Cisco Unified Communications Manager service will not be activated and devices will not register properly. For more information on licensing, refer to the Licensing chapter in *Cisco Unified Communications Manager Features and Services Guide.*
- If Unified Communications Manager clusters are set up in a 1:1 redundancy model, downtime during upgrade can be kept to a minimum by load-balancing device registrations across the first node (primary) 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 fail over to the remaining subsequent nodes, but all devices remain in service.
- After upgrading Cisco Emergency Responder 2.0(4) to Cisco Emergency Responder 8.5(1), upload the software feature license file for Cisco Emergency Responder 8.5(1) and restart the Cisco Emergency Responder service. Until you perform these tasks, Cisco Emergency Responder service will not be activated.
- When you upgrade Unified Communications Manager clusters set up in 1:1 redundancy model, the first node should always be upgraded first. Before rebooting the first node after its upgrade, upgrade all the subsequent nodes simultaneously without rebooting them.

Though Unified Communications Manager 8.5(1) is supported on 72 GB hard disk drives with MCS servers 7835 and 7845, it is highly recommended to use 146 GB hard disk drives with MCS servers 7835 and 7845.

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

1. Reboot and switch versions to Unified Communications Manager 8.5(1) on the first node and wait until that node is initialized and fully operational.
2. Install the upgrade license and any other required licenses.
3. Reboot and switch versions to Unified Communications Manager 8.5(1). Perform this procedure on the TFTP and Music-On-Hold (MOH) servers first. Wait until the TFTP servers fully build their configuration files.
4. Reboot and switch versions to Unified Communications Manager 8.5(1) on the subsequent backup and call processing servers and wait until these servers are fully initialized.
5. Complete the upgrade by rebooting and switching versions to Unified Communications Manager 8.5(1) on the remaining active call processing servers in the cluster.

Note For additional details about recommended upgrade procedures, see the "Call Processing" chapter in Cisco Unified Communications SRND based on Cisco Unified Communications Manager 8.x:
http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/8x/uc8x.html

When you upgrade the Unified Communications Manager servers, note that the Unified IP Phone software is also automatically upgraded to the version included with Unified Communications Manager.

- Cisco Unity support for IBM Lotus Domino ended with Cisco Unified Communications System Release 8.0(2). The only upgrade option available is from Cisco Unity 6.x on IBM Lotus Domino to Cisco Unity Connection 8.5(1).
- Cisco Unified MeetingPlace Video Integration supports:
  - Cisco Unified Videoconferencing MCU 3540 4.x releases, which do not provide cascading MCU (virtual) feature that enables the use of multiple EMPs in a single meeting.
  - Cisco Unified Videoconferencing MCU 3545 5.x releases, which provide the virtual MCU feature.

  If you do not require the virtual MCU feature, you do not need to upgrade your hardware and software to the Cisco Unified Videoconferencing MCU 3545 5.x release.
- 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 is 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.

Upgrading from Cisco Unified Communications Manager Releases 7.1(3) to Cisco Unified Communications Manager Release 8.5(1)

Be aware of the following constraints with regards to Cisco Unified Communications Manager when upgrading from Cisco Unified Communications System Release 7.x to Release 8.5(1):

- If you have a Unified CCX deployment in your network and if you are upgrading Unified CCX in the same maintenance window as Unified Communications Manager, then there are no backward compatibility issue.
- If you are upgrading Unified CCX after upgarding Unified Communications Manager, then:
  - Unified Communications Manager Release 8.0(2) with Unified CCX Release 7.0(1) is not compatible
  - Unified Communications Manager Release 7.1(3) with Unified CCX 8.0(2) is compatible
- Cisco Unified Communications System Release 7.1(3) to Release 8.0(2), there are no backward compatibility issues.
- Cisco Unified Communications System Release 8.0(2) to Release 8.5(1), there are no backward compatibility issues.

  For upgrade recommendations, see Cisco Unified Contact Center Express Considerations, page 5-8.
- For Unified Communications Manager, you must perform all software installations and upgrades using the Software Upgrade Menu Options. 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 Framework. 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 above SFTP server information also applies to Unified Presence, Unified Contact Center Express, Unity Connection and Emergency Responder.

- After upgrading Cisco Unified Communications Manager Release 7.1(3) to Cisco Unified Communications Manager 8.5(1), upload the software feature license file for Cisco Unified Communications Manager 8.5(1) and restart the Cisco Unified Communications Manager service. Until you perform these tasks, Cisco Unified Communications Manager service will not be activated and devices will not register properly. For more information on licensing, refer to the Licensing chapter in *Cisco Unified Communications Manager Features and Services Guide*.
- When upgrading from Unified Communications Manager 7.x releases to 8.x releases, if the user requires backward compatibility for phone messaging, the messages service must be added in the Phone services page.
- 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 (primary) 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 set up in a 1:1 redundancy model, the first node should always be upgraded first. Before rebooting the first node after its upgrade, upgrade all the subsequent nodes simultaneously without rebooting them.

  Though Unified Communications Manager 8.5(1) is supported on 72 GB hard disk drives with MCS servers 7835 and 7845, it is highly recommended to use 146 GB hard disk drives with MCS servers 7835 and 7845.

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

  1. Reboot and switch versions to Unified Communications Manager 8.5(1) on the first node and wait until that node is initialized and fully operational.
  2. Install the upgrade license and any other required licenses.
  3. Reboot and switch versions to Unified Communications Manager 8.5(1). Perform this procedure on the TFTP and Music-On-Hold (MOH) servers first. Wait until the TFTP servers fully build their configuration files.
  4. Reboot and switch versions to Unified Communications Manager 8.5(1) on the subsequent backup and call processing servers and wait until these servers are fully initialized.
  5. Complete the upgrade by rebooting and switching versions to Unified Communications Manager 8.5(1) on the remaining active call processing servers 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 Unity support for IBM Lotus Domino ended with Cisco Unified Communications System Release 8.0(2). The only upgrade option available if from Cisco Unity 6.x on IBM Lotus Domino to Cisco Unity Connection 8.5(1).
- Cisco Unified MeetingPlace Video Integration supports:
  - Cisco Unified Videoconferencing MCU 3540 4.x releases, which do not provide cascading MCU (virtual) feature that enables the use of multiple EMPs in a single meeting.
  - Cisco Unified Videoconferencing MCU 3545 5.x releases, which provide the virtual MCU feature.

  If you do not require the virtual MCU feature, you do not have to upgrade your hardware and software to Cisco Unified Videoconferencing MCU 3545 5.x release.
- 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.

Upgrading from Cisco Unified Communications System Releases 8.0(2) to Cisco Unified Communications System Release 8.5(1)

Be aware of the following constraints when upgrading from Cisco Unified Communications System Release 8.0(2) to Release 8.5(1):

- Due to toll-fraud prevention, Cisco IOS Gateways, Unified SRST, and Unified Communications Manager Express require additional CLI configurations after upgrading from Cisco Unified Communications System Release 8.0(2) to Release 8.5(1).

  For more information, see:
  http://www.cisco.com/en/US/tech/tk652/tk90/technologies_tech_note09186a0080b3e123.shtml

Cisco Unified Contact Center Express Considerations

If you have a Unified CCX deployment in your network, before you proceed with the Cisco Unified CCX upgrade, consider the following requirements and recommendations.

Upgrade Requirements

- Use Backup n' Restore (BnR) system to take the regular backup of the Cisco CRS 5.0(x) or Cisco Unified Contact Center Express 7.0(x) server before you start the backup process using Pre-Upgrade Tool (PUT).
- PUT is required for an indirect upgrade from Unified CCX Release 7.0(1) to Release 8.5(1) due to the change in platform. For upgrade from Release 5.0(2) to Release 8.5(1), you must first upgrade to Release 7.0(1) or Release 8.0(2). If the intermediate upgrade is to Release 8.0(2), then you should use the 8.0.2 PUT.
- After running PUT and before installing Cisco Unified Contact Center Express 8.5(1), you must upgrade the system running Cisco Unified Communications Manager to the latest compatible version.

  Note You will install Cisco Unified Contact Center Express 8.5(1) on a new system or re-image your existing system running either Cisco CRS 5.0(x) or Cisco Unified Contact Center Express 7.x.

- After installing Cisco Unified Contact Center Express 8.5(1), retrieve the backed up data on the system using the Cisco Unified Contact Center Express Administration web interface.

  For information on how to upgrade to Cisco Unified Contact Center Express, Release 8.5(1) from the 5.0(x) and 7.0(x) releases, see *Upgrading to Cisco Unified Contact Center Express, Release 8.5(1)* at:
  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/crs/express_8_5/installation/guide/uccx851ug.pdf

Upgrade Recommendations

If you are upgrading from the following base release sets:

- Cisco Unified Communications System Release 6.1(1) to Release 8.5(1)—Be aware that Unified CCX 8.5(1) is not backward compatible with Unified Communications Manager 6.1(2) and Unified Communications Manager Release 8.5(1) is not backward compatible with Unified CCX 5.0(2). You should first upgrade Unified CCX 5.0(2) to 5.0(2)SR2 and Unified Communications Manager Release 6.1(2) to 8.5(1) before proceeding with the upgrade recommendations listed below.

- Cisco Unified Communications System Release 7.1(3) to Release 8.5(1)—You will be running Unified CCX 7.0(1)SR4 and Unified Communications Manager Release 7.1(3). You can directly proceed with the upgrade recommendations listed below.

Cisco recommends the following two upgrade options:

- Same Maintenance Window—You can upgrade all call processing components first and Unified CCX 8.5(1) next. Be aware that time estimates for this option are approximately 16 hours.

Note To upgrade Unified Communications Manager and Unified CCX on the same maintenance window, ensure that Unified CCX is upgraded to 5.0(2)SR2 or 7.0(1)SR4 release before you upgrade the Unified Communications System Release 8.5(1) call processing components.

- Different Maintenance Windows—You should upgrade Unified CCX to Release 8.5(1) before upgrading Unified Communications Manager Release 8.5(1).

  See Table 6-2 and Table 6-3 in Chapter 6, "Performing Your System Upgrade" for additional upgrade information on the above components.

Cisco Unified Presence Upgrade Considerations

Upgrade Cisco Unified Presence before you upgrade Unified Communications Manager. Be aware of the following considerations while upgrading Cisco Unified Presence:

Note Note: Cisco Unified Presence provides a bridge upgrade for customers to migrate from a discontinued hardware to supported hardware. The bridge upgrade allows you to create a DRS backup on the discontinued hardware. You can then restore the DRS backup on supported hardware after you complete a fresh Cisco Unified Presence installation on the supported hardware.

Upgrade Recommendations

If you are performing a bridge upgrade to Unified Presence Release 8.5(1), do the following:

Upgrading from Unified Presence Release 6.x to Release 8.5(1)

a. Instead of performing a bridge upgrade to Unified Presence 8.5(1), you should first upgrade Unified Presence Release 6.x to 7.x on the discontinued hardware.

b. Change the SIP Trunk Destination Port on Unified Communications Manager to 5060, since the SIP Trunk listening port for Unified Presence Release 7.x has changed to 5060.

c. Perform a DRS backup.

d. Then complete a fresh installation of Unified Presence Release 7.x on the supported hardware.

e. Finally restore the DRS backup on the supported hardware and upgrade to Unified Presence Release 8.5(1).

Upgrading from Unified Presence Release 7.x to Release 8.5(1)

a. Instead of performing a bridge upgrade to Unified Presence 8.5(1), you should perform a DRS backup of the Unified Presence Release 7.x on the discontinued hardware.

b. Then complete a fresh installation of Unified Presence Release 8.5(1) on the supported hardware. For multi-node cluster (install first node, do post-install configuration, configure second node in GUI, install second node)

c. Finally restore the DRS backup on the supported hardware (restore as a cluster, both nodes at the same time) and upgrade to Unified Presence Release 8.5(1).

- After upgrading Unified Communications Manager, stop and then restart the Intercluster Sync Agent using the Serviceability Pages in Unified Presence. This enables a complete reinitialization and resynchronization required due to database schema changes between Unified Communications Manager 6.x, 7.x and 8.x.
- Upgrade both nodes in a Unified Presence cluster, starting with the first node and then the subsequent node.

Proxy Profiles need not be configured for Unified Presence Release 8.x. If upgrading from Unified Presence Release 6.0(2) to 8.x, delete any Proxy Profiles that have been configured. They are not accessible and are not used in Release 8.x.

Cisco Unified IP Phones Considerations

The following are considerations to be aware of 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 following documentation:

- Cisco 7900 Series IP Phones Maintain and Operate Guides: http://www.cisco.com/en/US/products/hw/phones/ps379/prod_maintenance_guides_list.html
- Cisco 7900 Series IP Phones End-User Guides: http://www.cisco.com/en/US/products/hw/phones/ps379/products_user_guide_list.html
- "IP Telephony Endpoints" chapter in *Cisco Unified Communications SRND based on Cisco Unified Communications Manager 8.x*: www.cisco.com/go/srnd

Cisco Unified Mobility Advantage Considerations

The following should be considered when upgrading the Unified Communications Manager:

- When a Unified Communications Manager cluster upgrade is performed, a restart of the Unified Mobility Advantage server is required. This is to ensure the Unified Mobility Advantage server can be in right state to handle mobile client registrations.

Considerations for Migrating to Cisco Unified MeetingPlace Release 8.0 from Cisco Unified MeetingPlace Express

Currently Cisco supports migrations from only Cisco Unified MeetingPlace Express Release 2.1.2 to Cisco Unified MeetingPlace Release 8.x; therefore, if you are using an earlier version of Cisco Unified MeetingPlace Express, you must first upgrade to Cisco Unified MeetingPlace Express Release 2.1.2.

Perform the following to migrate to Cisco Unified MeetingPlace Release 8.x from Cisco Unified MeetingPlace Express:

1. Use the migrate_tool utility to export data from the Cisco Unified MeetingPlace Express system.
2. Install and configure your Cisco Unified MeetingPlace Release 8.5(1) system.
3. Get new licenses for your Cisco Unified MeetingPlace Release 8.5(1) system. Licenses for Cisco Unified MeetingPlace Express do not work with a Cisco Unified MeetingPlace Release 8.x system.
4. Use the migrate_tool utility to import data to the Cisco Unified MeetingPlace Release 8.5(1) system.

Note Do not run any other processes or tasks on your system during the data migration. This can potentially affect the data that is being transferred from one system to another.

5. Verify that the data was successfully migrated to the Cisco Unified MeetingPlace Release 8.5(1) by comparing the number of user profiles on the Cisco Unified MeetingPlace Express system with the number of user profiles on the Cisco Unified MeetingPlace system.

For more information on migrating to Cisco Unified MeetingPlace Release 8.5(1) from Cisco Unified MeetingPlace Express, see the Cisco Unified MeetingPlace Documentation at: http://www.cisco.com/en/US/products/sw/ps5664/ps5669/tsd_products_support_series_home.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 order of upgrade of the components 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, service outages occur in the interval between the two maintenance windows.

Some backward compatibly situations that are described in Backward Compatibility Scenarios may occur during the upgrade process. For more information, see the component compatibility matrices that are listed in Compatibility Guides.

Backward Compatibility Scenarios

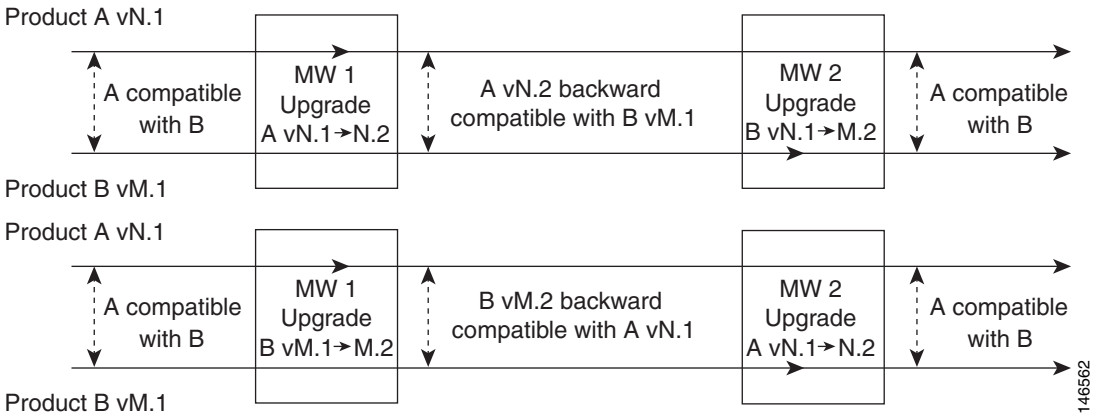
This section describes the various backward compatibility scenarios.

Both New Versions are Backward Compatible

It is possible for versions of two components to each be backward compatible with the previous version of the other component, for example Unified MeetingPlace and Unified Communications Manager. In this case, there is no backward compatibility restriction in the order of upgrades. Either component may be upgraded first and will be able to interoperate with the other component as illustrated in Figure 5-1.

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 Chapter 4, "Planning Your System Upgrade."

Figure 5-1 Both New Release Versions Are Backward Compatible



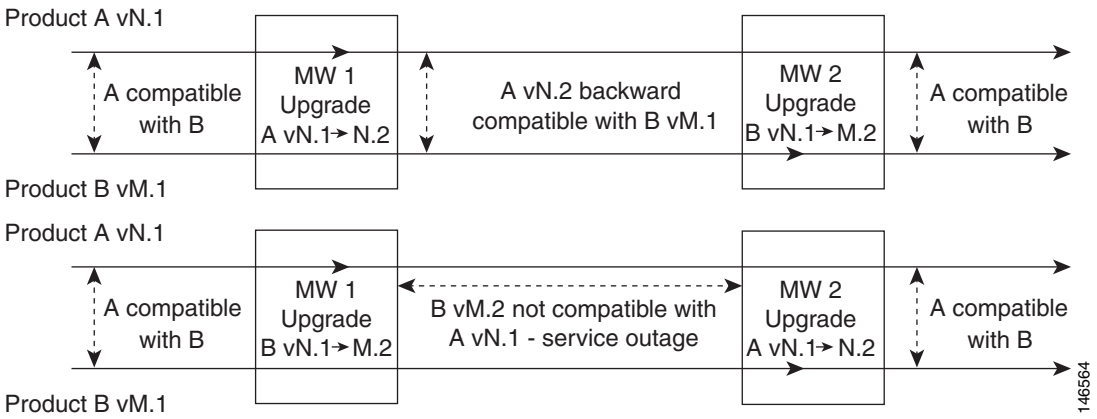
Only One New Version is Backward Compatible

It is possible that only one of the new versions is backward compatible with the previous version of the other component. There are no components that fit this model.

In this case, the component that is backward compatible should be upgraded first to avoid a service outage during the upgrade, as illustrated in Figure 5-2.

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 Chapter 4, "Planning Your System Upgrade."

Figure 5-2 One New Release Version is Backward Compatible



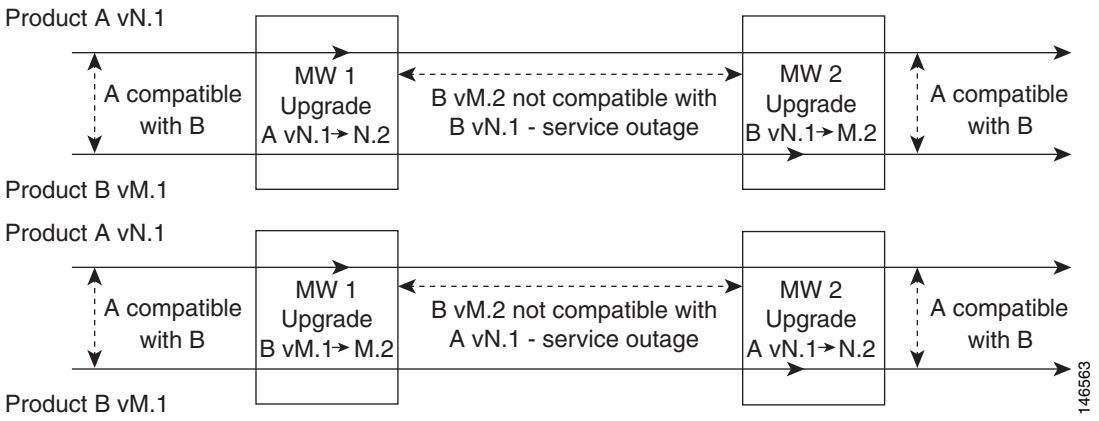
Neither New Version is Backward Compatible

It is possible that neither of the new versions is backward compatible with the previous version of the other component, as with Unified Contact Center Express and Unified Communications Manager.

In this case, a service outage exists from the time the first product is upgraded until the second component is upgraded, as shown in Figure 5-3.

This upgrade is described in the Single-Stage upgrade approach in Chapter 4, "Planning Your System Upgrade."

Figure 5-3 Neither New Release Version is Backward Compatible



Upgrade Release Versions

The tables in this section list the component release versions of the base and target release sets in relation to Unified Communications Manager 8.5(1).

Release 6.1(1) and Release 8.5(1) Software Release Sets

Table 5-1 lists the software versions for IP telephony components in the Cisco Unified Communications Release 6.1(1) and Release 8.5(1) release sets.

Table 5-1 IPT Components in Cisco Unified Communications System Release 6.1(1) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 6.1(1)
Cisco Unified Communications Manager	8.5(1)	6.1(1a)[1]
Cisco Unified Communications Manager—Cisco IP Telephony Operating System	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Unified Communications Manager Business Edition	8.5(1)	6.1(1)
Cisco Unified Communications Manager Express	8.5.1 15.1.3T[2]	4.2/IOS 12.4(15)T3[3], 4.2/IOS 12.4(11)XW5

Table 5-1 IPT Components in Cisco Unified Communications System Release 6.1(1) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 6.1(1)
Cisco Unified Survivable Remote Site Telephony (SRST)	8.5(1) 15.1.3T[2]	4.1/IOS 12.4(15)T4.2/ IOS 12.4(11)XW5[4]
Cisco Intercompany Media Engine	8.5(1)	—
Cisco Unified Contact Center Express	8.5(1)	5.0(2)
Cisco Unified Contact Center Express Operating System	Bundled with Unified Contact Center Express	2003.1.1 SR4
Cisco Unified Presence	8.5(1)	6.0(2)[1]
Cisco Emergency Responder	8.5(1)	2.0(3)[1]
Cisco Emergency Responder—Cisco IP Telephony Operating System	Bundled with Cisco Emergency Responder	Bundled with Cisco Emergency Responder
Cisco Fax Server	—	9.0
Cisco Unified Application Environment	—	2.4
Cisco Unified Phone Proxy	—	1.0(2)
Cisco Unified Business Attendant Console and Unified Department Attendant Console	8.5	1.1.2.24 CM TSP 6.1 (0.10)
Cisco Unified Enterprise Attendant Console	8.5	—
Cisco Enterprise Policy Manager	—	—
Cisco Unified MeetingPlace	8.0[5]	6.0(1)
Cisco Unified MeetingPlace Web Conferencing	8.0	6.0(1)
Microsoft Outlook for Cisco Unified MeetingPlace	8.0	6.0(1)
IBM Lotus Notes for Cisco Unified MeetingPlace Release	—	6.0(1)
Jabber for Cisco Unified MeetingPlace	8.0	—
Microsoft Office Communicator for Cisco Unified MeetingPlace	8.0	—
Cisco Unified MeetingPlace Express	—	2.0.2.126 [1]
Cisco Unified Videoconferencing 3515 MCU	—	5.1.0.0.24
Cisco Unified Videoconferencing 3540 MCU	—	4.2.10
Cisco Unified Videoconferencing Enhanced Media Processor (EMP) Module for 3540 MCU	—	4.2.8
Cisco Unified Videoconferencing 3545 MCU	—	5.1.0.0.24
Cisco Unified Videoconferencing Enhanced Media Processor EMP for 3545 MCU	—	5.1.0.0.27
Cisco Unified Media Server for 3545 MCU (video)	5.7.0.0.4	—
Cisco Unified Media Server for 3545 MCU (audio)	6.1.0.0.16	—
Cisco Unified Videoconferencing 3521 and 3522 BRI Gateways	5.0.0.0.22	5.0.0.0.22
Cisco Unified Videoconferencing 3526, 3527, and 3545 PRI Gateways	5.0.0.0.22	5.0.0.0.22
Cisco Unified Videoconferencing 3540 PRI Gateway	—	5.0.0.0.17

Table 5-1 IPT Components in Cisco Unified Communications System Release 6.1(1) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 6.1(1)
Cisco Unity	8.0(3)	5.0
Unity-CM TSP	8.4(3)	8.1(3)
Cisco Unity—Microsoft Exchange	Microsoft Exchange 2003 SP2 (on Cisco Unity and partner Exchange servers) and Microsoft Exchange 2007 SP1 or Exchange 2003 SP2 (on other message store servers)	Microsoft Exchange 2003 SP2 (on Cisco Unity and partnerExchange servers) and Microsoft Exchange 2000 SP3 or Exchange 2003 SP2 (on other message store servers)
Cisco Unity—IBM Lotus Domino	—	7.0 with DUC 1.2.3
Cisco Unity Connection	8.5(1)	2.1(1)
Cisco Unity Express	8.5(1)	3.1(1)
Cisco Unified Messaging Gateway	8.5(1)	1.0.1
Cisco Unified Survivable Remote Site Voicemail	8.5(1) IOS 15.1.3T[2]	—
Cisco Unified IP Phones models 7906G, 7931, 7941G, 7942G, 7945G, 7961G, 7962G, 7965G, 7970G, 7971G, 7975G	Bundled with Unified Communications Manager Firmware 9.1(1) SR1	Bundled with Unified Communications Manager
Cisco Unified IP Phones models 7921G, 7925G	1.3(4)	Bundled with Unified Communications Manager
Cisco Unified IP Phones model 7937G	1.4(3)	Bundled with Unified Communications Manager
Cisco Unified IP Phones models 7940G, 7960G	Firmware 8.1(2)	8.1(1b)
Cisco Unified IP Phones models 7936, 7985G	—	Bundled with Unified Communications Manager
Cisco Unified IP Phones model 3911, 3951	8.1(2)SR1	8.1(1b)
Cisco Unified IP Phones models 6921, 6941, 6961	Firmware 9.1(1) Firmware 9.0(2) 9.0(2) SR1	—
Cisco Unified IP Phones models 6901, 6911	Firmware 9.1(1)	—
Cisco Unified IP Phones models 8961, 9951, 9971	Firmware 9.1(1) SR1	—
Cisco IP Communicator	7.0.(5)	2.1
Cisco Unified Personal Communicator	8.0(1)	1.2(1)
Cisco UC Integration for Microsoft Lync (formerly Microsoft Office Communicator)	8.5(1)	—
Cisco Unified Communications for RTX	8.5(1)	—
Cisco Unified Client Services Framework	—	—
Cisco UC Integration for Webex	—	—
Cisco Unified Video Advantage	—	2.0(3)

Table 5-1 IPT Components in Cisco Unified Communications System Release 6.1(1) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 6.1(1)
Cisco Unified Communications Widgets	8.0(1) VVM 8.0 C2C 7.0(1) PD	—
Cisco Aironet Access Point (AP) 1200G	12.4(21a)JA2	12.3(8)JA
Cisco 4400 Series Wireless LAN Controllers	6.0.188.0	—
Cisco Unified Mobility Advantage	7.1(3)	3.0(3)
Cisco Unified Mobile Communicator	7.1(3)	3.0
Cisco Unified Mobile Communicator iPhone	7.1(3)	—
Cisco ASA Adaptive Security Appliance	8.4(1)	8.0(3)
Cisco Catalyst Firewall Service Module	—	3.2(2)
Cisco Intrusion Prevention System (AIP-SSM, IDSM-2 Module, IPS-4200)	7.0(2)E3	6.0(2)
Cisco NAC Appliance (Clean Access)	—	4.1.1
Management Center for Cisco Security Agents	5.2.1	5.0.0.216
Cisco Security Agent for Cisco Unified Communications Manager	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Cisco Emergency Responder	Bundled with Unified Communications Manager	Bundled with Cisco Emergency Responder
Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express	5.0.0.216-3.0.4
Cisco Security Agent for Cisco Unity	6.0(1)	4.5.1.639-2.0.3
Cisco Security Agent for Cisco Unified MeetingPlace	6.0(1)	5.0.0.205-6.0.7
Cisco Security Agent for Cisco Unified MeetingPlace Express	—	—
Cisco Unified Operations Manager	8.5.1[6]	2.0.2
Cisco Unified Service Monitor	8.5.1[6]	2.0.1
Cisco netManager Unified Communications	—	1.0
Cisco Unified Service Statistics Manager	8.5.1[6]	1.0
Cisco Unified Provisioning Manager	8.5[6]	1.2
Cisco Resource Management Essentials	—	4.0.5
Cisco IOS Mainline Release	IOS Extended MR 15.0.1M4	12.4(13d)[7]
Unified Computing System B200 M2, C200 M2, and C210 M2 (Unified Communications Virtualizations)	VMWare ESXi 4.0	—
Cisco 2801, 2821, 2851, 3825, 3845 (router, voice/data gateway)	15.1(3)T[2]	—
Cisco 38xx Gatekeepers	15.1(3)T[2]	—
Cisco 3800 (IP-to-IP gateway)	15.1(3)T[2]	—
Cisco 3900 (IP-to-IP gateway)	15.1(3)T[2]	—
Cisco 3725, 3745 (voice/data gateway)	—	12.4(15)T3

Table 5-1 IPT Components in Cisco Unified Communications System Release 6.1(1) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 6.1(1)
Cisco 3745 (IP-to-IP gateway)	—	12.4(15)T3
Cisco 3745 (gatekeeper)	—	12.4(15)T3
Cisco Integrated Services Router (ISR) 1861	15.1(3)T[2]	12.4(11)XW5
Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.1(3)T[2]	—
Cisco Unified SIP Proxy	8.5(1)	—
Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.1(3)T[2]	12.4(11)XW3
Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	3.2	—
Cisco Secure RTP and Cisco Secure SRST	15.1(3)T[2]	12.4(15)T3
Cisco 7206 (voice/data gateway)	—	12.4(15)T3
Cisco 2610XM, 2611XM, 2620XM, 2621XM, 2650XM, 2651XM (routers)	—	12.4(15)T3
Cisco Catalyst 3500XL (access switch)	—	12.0(5)WC17
Cisco Catalyst 3550 (access switch)	—	12.2(25)SEE3
Cisco Catalyst 3560 (access switch)	—	12.2(25)SEE3
Cisco Catalyst 3750 (data center switch)	12.2(53)SE2	12.2(25)SEE3
Cisco Catalyst 4503 Switch	12.2(53)SE2	12.2(25)EWA8
Cisco Catalyst 4506 (access switch)	12.2(54)SG	12.2(25)EWA8
Cisco Catalyst 6506, 6509 (voice access switch, supervisor 2/MSFC2)	12.2(33)SXI4 CatOS8.6(6a)	CatOS 8.5(8) / 12.2(18)SXF8
Cisco Catalyst Communications Media Module (CMM)	—	12.4(15)T3
Cisco Catalyst 6608, 6624 (voice gateway)	—	Bundled with Unified Communications Manager
Cisco VG202 and 204 (analog voice gateway)	15.1.3T[2]	—
Cisco VG224 (analog voice gateway)	15.1.3T[2]	12.4(15)T3
Cisco VG248 (analog voice gateway)	1.3(2)	1.3(2)
Cisco ATA 187 (analog telephony adaptor)	—	Bundled with Unified Communications Manager
McAfee Antivirus[8]	Enterprise 8.7.0i	Enterprise 8.0.0 Patch Version: 11

1. For software running on a MCS 7825-H2 server, an additional patch file is recommended; see the *System Release Notes for IP Telephony: Cisco Unified Communications System, Release 6.1(1)* for more information.
2. Cisco IOS Release 15.1(3)T and 15.1(1)T are short deployment Standard Maintenance releases ideal for the very latest new features and hardware support from Cisco. Cisco provides 18 months of support for Standard Maintenance releases. Customers requiring longer-term maintenance support should consider upgrading to the next 15 M Extended Maintenance release (when it becomes available), which will incorporate all features and hardware support of previous Standard Maintenance and Extended Maintenance releases. For more information, refer to http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps10587/ps10591/ps10621/qa_c67_561940.html
3. Tested on all ISR platforms except Unified Communications 500 Series for Small Business and ISR 1861. The Unified Communications 500 Series for Small Business and ISR 1861 platforms were tested on Cisco IOS version 12.4(11)XW2.
4. Secure SRST deployments require advipservicesk9 image 4.2/IOS 12.4(11)XW5.

5. Adhoc conferencing feature in Unified MeetingPlace Releases 8.0/8.5 is not supported with Unified Communications Manager Release 8.5(1).
6. Will be available in CYQ1 2011.
7. Cisco IOS Mainline software was used for additional basic PSTN functionality and load testing as part of regression testing conducted in IP telephony environments.
8. You can install third-party antivirus agents on Windows-based servers such as Unified Operations Manager and Unified Provisioning Manager, but not on non-Windows appliances such as Unified Communications Manager and Unified Communications Manager Business Edition.

Release 7.1(3) and Release 8.5(1) Software Release Sets

Table 5-2 lists the software versions for the IP telephony components in the Cisco Unified Communications System Release 7.1(3) and Release 8.5(1) release sets.

Table 5-2 IP Telephony Components in Cisco Unified Communications System Release 7.1(3) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 7.1(3)
Cisco Unified Communications Manager	8.5(1)	7.1(3)
Cisco Unified Communications Manager—Cisco IP Telephony Operating System	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Unified Communications Manager Business Edition	8.5(1)	7.1(3)
Cisco Unified Communications Manager Express	8.5.1 15.1.3T[1]	7.2/IOS 15.(0)1M 8.0/IOS 15.0(1)XA[2]
Cisco Unified Survivable Remote Site Telephony (SRST)	8.5(1) 15.1.3T[1]	7.2/IOS 15.(0)1M 8.0/IOS 15.0(1)XA[5]
Cisco Intercompany Media Engine	8.5(1)	—
Cisco Unified Contact Center Express	8.5(1)	7.0(1) SR4
Cisco Unified Contact Center Express Operating System	Bundled with Unified Contact Center Express	Windows 2003 version: 2003.1.4a SR6
Cisco Unified Presence	8.5(1)	7.0(5)
Cisco Emergency Responder	8.5(1)	7.1(1)
Cisco Emergency Responder—Cisco IP Telephony Operating System	Bundled with Cisco Emergency Responder	Bundled with Cisco Emergency Responder
Cisco Fax Server	—	—
Cisco Unified Application Environment	—	2.5(1) SR2
Cisco ASA Phone Proxy	—	Bundled with Cisco Adaptive Security Appliance (ASA)
Cisco Unified Business Attendant Console and Unified Department Attendant Console	8.5	3.1
Cisco Unified Enterprise Attendant Console	8.5	3.1
Cisco Enterprise Policy Manager	—	—
Cisco Unified MeetingPlace	8.0[3]	7.0 MR1
Cisco Unified MeetingPlace Web Conferencing	8.0	7.0MR1

Table 5-2 IP Telephony Components in Cisco Unified Communications System Release 7.1(3) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 7.1(3)
Microsoft Outlook for Cisco Unified MeetingPlace	8.0	7.0MR1
IBM Lotus Notes for Cisco Unified MeetingPlace Release	—	7.0MR1
Jabber for Cisco Unified MeetingPlace	8.0	7.0MR1
Microsoft Office Communicator for Cisco Unified MeetingPlace	8.0	7.0MR1
Cisco Unified MeetingPlace Express	—	2.1.1.2
Cisco Unified Videoconferencing 3515 MCU	—	—
Cisco Unified Videoconferencing 3540 MCU	—	—
Cisco Unified Videoconferencing Enhanced Media Processor (EMP) Module for 3540 MCU	—	—
Cisco Unified Videoconferencing 3545 MCU	—	—
Cisco Unified Videoconferencing Enhanced Media Processor EMP for 3545 MCU	—	—
Cisco Unified Media Server for 3545 MCU (video)	5.7.0.0.4	5.3.3.0.45A
Cisco Unified Media Server for 3545 MCU (audio)	6.1.0.0.16	6.1.0.0.16
Cisco Unified Videoconferencing 3521 and 3522 BRI Gateways	5.0.0.0.22	5.0.0.0.22
Cisco Unified Videoconferencing 3526, 3527, and 3545 PRI Gateways	5.0.0.0.22	5.0.0.0.22
Cisco Unified Videoconferencing 3540 PRI Gateway	—	5.6.1.1.13
Cisco Unity	8.0(3)	7.0(2)
Unity-CM TSP	8.4(3)	8.3(1)
Cisco Unity—Microsoft Exchange	Microsoft Exchange 2003 SP2 (on Cisco Unity and partner Exchange servers) and Microsoft Exchange 2007 SP1 or Exchange 2003 SP2 (on other message store servers)	Microsoft Exchange 2003 SP2 (on Cisco Unity and partner Exchange servers) and Microsoft Exchange 2007 SP1 or Exchange 2003 SP2 (on other message store servers)
Cisco Unity—IBM Lotus Domino	—	7.0(2) with DUC 1.2.3
Cisco Unity Connection	8.5.(1)	7.1(3) MR
Cisco Unity Express	8.5(1)	7.1
Cisco Unified Messaging Gateway	8.5(1)	1.0(2)/IOS 15.0(1)M
Cisco Unified Survivable Remote Site Voicemail	8.5(1) IOS 15.1.3T[1]	—
Cisco Unified IP Phones models 7906G, 7911G, 7931, 7941G, 7942G, 7945G, 7961G, 7962G, 7965G, 7970G, 7971G, 7975G	Bundled with Unified Communications Manager Firmware 9.1.1 SR1	Bundled with Unified Communications Manager Firmware 8.5.3

Table 5-2 IP Telephony Components in Cisco Unified Communications System Release 7.1(3) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 7.1(3)
Cisco Unified IP Phones models 7921G, 7925G	1.3(4)	Bundled with Unified Communications Manager Firmware 8.5.3
Cisco Unified IP Phones model 7937G	1.4(3)	Bundled with Unified Communications Manager Firmware 8.5.3
Cisco Unified IP Phones models 7940G, 7960G,	Firmware 8.1(2)	8.1(2)SR1
Cisco Unified IP Phones models 7936, 7985G,	—	Bundled with Unified Communications Manager Firmware 8.5.3
Cisco Unified IP Phones model 3911, 3951	8.1(2)SR1	8.1(2)SR1
Cisco Unified IP Phones models 6921, 6941, 6961	Firmware 9.1(1) Firmware 9.0(2) 9.0(2)SR1	Firmware 8.5.3
Cisco Unified IP Phones models 6901, 6911	Firmware 9.1(1)	—
Cisco Unified IP Phones models 8961, 9951, 9971	Firmware 9.1(1)	—
Cisco IP Communicator	7.0.(5)	7.0.(3)MR
Cisco Unified Personal Communicator	8.0(1)	7.0(2)
Cisco UC Integration for Microsoft Lync (formerly Microsoft Office Communicator)	8.5(1)	—
Cisco Unified Communications for RTX	8.5(1)	—
Cisco Unified Client Services Framework	—	—
Cisco UC Integration for Webex	—	—
Cisco Unified Video Advantage	—	2.1(2)
Cisco Aironet Access Point (AP) 1200G	12.4(21a)JA2	12.3-8.JA2
Cisco 4400 Series Wireless LAN Controllers	6.0.188.0	5.2.193.0
Cisco Unified Mobility Advantage	7.1(3)	7.1(3)
Cisco Unified Mobile Communicator	7.1(3)	7.1(3)
Cisco Unified Mobile Communicator iPhone	7.1(3)	7.1
Cisco ASA Adaptive Security Appliance	8.4(1)	8.2(1)
Cisco Catalyst Firewall Service Module	—	4.0(6)
Cisco Intrusion Prevention System (AIP-SSM, IDSM-2 Module, IPS-4200)	7.0(2)E3	6.1(1)E2 Signature: S359.0
Cisco NAC Appliance (Clean Access)	—	—
Management Center for Cisco Security Agents	5.2.1	5.2.0.272

Table 5-2 IP Telephony Components in Cisco Unified Communications System Release 7.1(3) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 7.1(3)
Cisco Security Agent for Cisco Unified Communications Manager	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Cisco Emergency Responder	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express	5.2.0.272-3.1.2
Cisco Security Agent for Cisco Unity	6.0(1)	5.2.0.272-3.1.6
Cisco Security Agent for Cisco Unified MeetingPlace	6.0(1)	5.2.0.263-7.0
Cisco Security Agent for Cisco Unified MeetingPlace Express	—	6.0.517
Cisco Unified Operations Manager	8.5.1[4]	2.2
Cisco Unified Service Monitor	8.5.1[4]	2.2
Cisco netManager Unified Communications	—	—
Cisco Unified Service Statistics Manager	8.5.1[4]	1.2
Cisco Unified Provisioning Manager	8.5[3]	2.0
Cisco Resource Management Essentials	—	4.0.5
Cisco IOS Mainline Release	IOS Extended MR 15.0.1M4	12.4(25)b
Cisco 2801, 2821, 2851, 3825, 3845 (router, voice/data gateway)	15.1(3)T[1]	15.0(1)M
Cisco 38xx Gatekeepers	15.1(3)T[1]	15.0(1)M
Cisco 3800 (IP-to-IP gateway)	15.1(3)T[1]	15.0(1)M
Cisco 3900 (IP-to-IP gateway)	15.1(3)T[1]	15.0(1)M
Cisco Integrated Services Router (ISR) 1861	15.1(3)T[1]	15.0(1)M
Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.1(3)T[1]	15.0(1)M
Cisco Unified SIP Proxy	8.5(1)	1.1(2)
Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.1(3)T[1]	1.3/15.0(1)M
Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	3.2	—
Cisco Secure RTP and Cisco Secure SRST	15.1(3)T[1]	15.0(1)M[5]
Cisco 7206 (voice/data gateway)	—	15.0(1)M
Cisco 2610XM, 2611XM, 2620XM, 2621XM, 2650XM, 2651XM (routers)	—	—
Cisco Catalyst 3500XL (access switch)	—	—
Cisco Catalyst 3550 (access switch)	—	12.2(25)SEE4
Cisco Catalyst 3560 (access switch)	—	12.2(25)SEE4
Cisco Catalyst 3750 (data center switch)	12.2(53)SE2	12.2(25)SEE4

Table 5-2 IP Telephony Components in Cisco Unified Communications System Release 7.1(3) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 7.1(3)
Cisco Catalyst 4503 Switch	12.2(53)SE2	12.2(25)SEE4
Cisco Catalyst 4506 (access switch)	12.2(54)SG	12.2(25)EWA
Cisco Catalyst 6506, 6509 (voice access switch, supervisor 2/MSFC2)	12.2(33)SXI4 CatOS8.6(6a)	Cat OS 8.6.3 /12.2.(18)SXF9 Cat OS 8.5(7)
Cisco Catalyst 6608, 6624 (voice gateway)	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco VG202 and 204 (analog voice gateway)	15.1.3T[1]	15.0(1)M
Cisco VG224 (analog voice gateway)	15.1.3T[1]	15.0(1)M
Cisco VG248 (analog voice gateway)	1.3(2)	1.3(2)
Cisco ATA 187 (analog telephony adaptor)	—	—
McAfee Antivirus[6]	Enterprise 8.7.0i	Enterprise 8.0.0 Patch Version: 11

1. Cisco IOS Release 15.1(3)T and 15.1(1)T are short deployment Standard Maintenance releases ideal for the very latest new features and hardware support from Cisco. Cisco provides 18 months of support for Standard Maintenance releases. Customers requiring longer-term maintenance support should consider upgrading to the next 15 M Extended Maintenance release (when it becomes available), which will incorporate all features and hardware support of previous Standard Maintenance and Extended Maintenance releases. For more information, refer to http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps10587/ps10591/ps10621/qa_c67_561940.html
2. Unified IP Phone models 6921, 6941, and 6961 were tested with Unified Communications Manager Express and Unified SRST Release 8.0 and IOS 15.0(1)XA; all other phone models were tested with Unified Communications Manager Express and Unified SRST Release 7.2 and IOS 15.0(1)M.
3. Adhoc conferencing feature in Unified MeetingPlace Releases 8.0/8.5 is not supported with Unified Communications Manager Release 8.5(1).
4. Will be available in CYQ1 2011.
5. Cisco Secure SRST 8.0/15.0(1)M for Cisco Unified IP Phones models 6921, 6941, 6961.
6. You can install third-party antivirus agents on Windows-based servers such as Unified Operations Manager and Unified Provisioning Manager, but not on non-Windows appliances such as Unified Communications Manager and Unified Communications Manager Business Edition.

Release 8.0(2)and Release 8.5(1) Software Release Sets

Table 5-3 lists the software versions for the IP telephony components in the Cisco Unified Communications System Release 8.0(2) and Release 8.5(1) release sets.

Table 5-3 IP Telephony Components in Cisco Unified Communications System Release 8.0(2) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 8.0(2)
Cisco Unified Communications Manager	8.5(1)	8.0(2)
Cisco Unified Communications Manager—Cisco IP Telephony Operating System	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Unified Communications Manager Business Edition	8.5(1)	8.0(2)
Cisco Unified Communications Manager Express	8.5.1 15.1.3T[1]	8.0/IOS 15.1(1)T[5]

Table 5-3 IP Telephony Components in Cisco Unified Communications System Release 8.0(2) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 8.0(2)
Cisco Unified Survivable Remote Site Telephony (SRST)	8.5(1) 15.1.3T[1]	8.0/IOS 15.1(1)T[5]
Cisco Intercompany Media Engine	8.5(1)	8.0(2)
Cisco Unified Contact Center Express	8.5(1)	8.0(2)
Cisco Unified Contact Center Express Operating System	Bundled with Unified Contact Center Express	Bundled with Unified Contact Center Express
Cisco Unified Presence	8.5(1)	8.0(2)[2]
Cisco Emergency Responder	8.5(1)	8.0(1)
Cisco Emergency Responder—Cisco IP Telephony Operating System	Bundled with Cisco Emergency Responder	Bundled with Cisco Emergency Responder
Cisco Fax Server	—	—
Cisco Unified Application Environment	—	8.0(1)
Cisco ASA Phone Proxy	—	Bundled with Cisco ASA Adaptive Security Appliance
Cisco Unified Business Attendant Console and Unified Department Attendant Console	8.5	8.0
Cisco Unified Enterprise Attendant Console	8.5	8.0
Cisco Enterprise Policy Manager	—	3.3
Cisco Unified MeetingPlace	8.0[3]	8.0
Cisco Unified MeetingPlace Web Conferencing	8.0	8.0
Microsoft Outlook for Cisco Unified MeetingPlace	8.0	8.0
Jabber for Cisco Unified MeetingPlace	8.0	8.0
Microsoft Office Communicator for Cisco Unified MeetingPlace	8.0	8.0
Cisco Unified Media Server for 3545 MCU (video)	5.7.0.0.4	5.7.0.0.4
Cisco Unified Media Server for 3545 MCU (audio)	6.1.0.0.16	6.1.0.0.16
Cisco Unified Videoconferencing 3521 and 3522 BRI Gateways	5.0.0.0.22	5.0.0.0.22
Cisco Unified Videoconferencing 3526, 3527, and 3545 PRI Gateways	5.0.0.0.22	5.0.0.0.22
Cisco Unified Videoconferencing 3540 PRI Gateway	—	5.6.1.1.13
Cisco Unity	8.0(3)	8.0(3)
Unity-CM TSP	8.4(3)	8.4(3)
Cisco Unity—Microsoft Exchange	Microsoft Exchange 2003 SP2 (on Cisco Unity and partner Exchange servers) and Microsoft Exchange 2007 SP1 or Exchange 2003 SP2 (on other message store servers)	Microsoft Exchange 2003 SP2 (on Cisco Unity and partner Exchange servers) and Microsoft Exchange 2007 SP1 or Exchange 2003 SP2 (on other message store servers)

Table 5-3 IP Telephony Components in Cisco Unified Communications System Release 8.0(2) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 8.0(2)
Cisco Unity Connection	8.5.(1)	8.0(2)
Cisco Unity Express	8.5(1)	8.0(1)
Cisco Unified Messaging Gateway	8.5(1)	1.0(2)/IOS 15.1(1)T[5]
Cisco Unified Survivable Remote Site Voicemail	8.5(1) IOS 15.1.3T[1]	8.0/IOS 15.1(1)T[5]
Cisco Unified IP Phones models 7906G, 7911G, 7931, 7941G, 7942G, 7945G, 7961G, 7962G, 7965G, 7970G, 7971G, 7975G	Bundled with Unified Communications Manager Firmware 9.1(1)SR1	Bundled with Unified Communications Manager Firmware 9.0(2), 9.0(2)SR1
Cisco Unified IP Phones model 7937G	1.4(3)	Bundled with Unified Communications Manager Firmware 9.0(2), 9.0(2)SR1
Cisco Unified IP Phones models 7921G, 7925G	1.3(4)	Bundled with Unified Communications Manager Firmware 9.0(2), 9.0(2)SR1
Cisco Unified IP Phones models 7940G, 7960G	Firmware 8.1(2)	8.1(2)SR1
Cisco Unified IP Phones models 7936, 7985G	—	Bundled with Unified Communications Manager Firmware 9.0(2), 9.0(2)SR1
Cisco Unified IP Phones model 3911, 3951	8.1(2)SR1	8.1(2)SR1
Cisco Unified IP Phones models 6921, 6941, 6961	Firmware 9.1(1) Firmware 9.0(2), 9.0(2)SR1	Firmware 9.0(2), 9.0(2)SR1
Cisco Unified IP Phones models 6901, 6911	Firmware 9.1(1)	Firmware 9.0(2)
Cisco Unified IP Phones models 8961, 9951, 9971	Firmware 9.1(1)SR1	Firmware 9.0(2)
Cisco IP Communicator	7.0.(5)	7.0.(3)
Cisco Unified Personal Communicator	8.0(1)	8.0(1)
Cisco UC Integration for Microsoft Lync (formerly Microsoft Office Communicator)	8.5(1)	—
Cisco Unified Communications for RTX	8.5(1)	—
Cisco Unified Client Services Framework	—	8.1(1)
Cisco UC Integration for Webex	—	8.0(1)
Cisco Unified Video Advantage	—	2.1(3)
Cisco Aironet Access Point (AP) 1200G	12.4(21a)JA2	12.4(21a)JA2
Cisco 4400 Series Wireless LAN Controllers	6.0.188.0	6.0.188.0
Cisco Unified Mobility Advantage	7.1(3)	7.1(3)
Cisco Unified Mobile Communicator	7.1(3)	7.1(3)

Table 5-3 IP Telephony Components in Cisco Unified Communications System Release 8.0(2) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 8.0(2)
Cisco Unified Mobile Communicator iPhone	7.1(3)	7.1(3)
Cisco ASA Adaptive Security Appliance	8.4(1)	8.3(1)
Cisco Intrusion Prevention System (AIP-SSM, IDSM-2 Module, IPS-4200)	7.0(2)E3	7.0(2)E3
Management Center for Cisco Security Agents	5.2.1	5.2.1
Cisco Security Agent for Cisco Unified Communications Manager	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Cisco Emergency Responder	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express	Bundled with Unified Contact Center Express
Cisco Security Agent for Cisco Unity	6.0(1)	6.0(1)
Cisco Security Agent for Cisco Unified MeetingPlace	6.0(1)	6.0(1)
Cisco Unified Operations Manager	8.5.1[4]	2.3
Cisco Unified Service Monitor	8.5.1[4]	2.3
Cisco Unified Service Statistics Manager	8.5.1[4]	1.3
Cisco Unified Provisioning Manager	8.5[4]	2.1
Cisco Resource Management Essentials	—	4.0.5
Cisco IOS Mainline Release	IOS Extended MR 15.0.1M4	—
Cisco 2801, 2821, 2851, 3825, 3845 (router, voice/data gateway)	15.1(3)T[1]	15.1(1)T[5]
Cisco 38xx Gatekeepers	15.1(3)T[1]	15.1(1)T[5]
Cisco 3800 (IP-to-IP gateway)	15.1(3)T[1]	15.1(1)T[5]
Cisco 3900 (IP-to-IP gateway)	15.1(3)T[1]	15.1(1)T[5]
Cisco Integrated Services Router (ISR) 1861	15.1(3)T[1]	15.1(1)T[5]
Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.1(3)T[1]	15.1(1)T[5]
Cisco Unified SIP Proxy	8.5(1)	1.1(4)
Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.1(3)T[1]	1.3/15.1(1)T[5]
Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	3.2	3.1
Cisco Secure RTP and Cisco Secure SRST	15.1(3)T[1]	8.0/15.1(1)T[5]
Cisco 7206 (voice/data gateway)	—	15.1(1)T[5]
Cisco Catalyst 3550 (access switch)	—	12.2(50)SE3
Cisco Catalyst 3560 (access switch)	—	12.2(50)SE3
Cisco Catalyst 4503 Switch	12.2(53)SE2	12.2(50)SE3
Cisco Catalyst 4506 (access switch)	12.2(54)SG	12.2(50)SE3

Table 5-3 IP Telephony Components in Cisco Unified Communications System Release 8.0(2) and Release 8.5(1) Release Sets

Component	Release 8.5(1)	Release 8.0(2)
Cisco Catalyst 6506, 6509 (voice access switch, supervisor 2/MSFC2)	12.2(33)SXI4 CatOS8.6(6a)	Cat OS 8.6.3 /12.2.(18)SXF9 Cat OS 8.5(7)
Cisco Catalyst 6506, 6509 (core switch, supervisor 720)	12.2(33)SXI4	2.2(18)SXF9
Cisco Catalyst Communications Media Module (CMM)	—	—
Cisco Catalyst 6608, 6624 (voice gateway)	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco VG202 and 204 (analog voice gateway)	15.1(3)T[1]	15.1(1)T[5]
Cisco VG224 (analog voice gateway)	15.1(3)T[1]	15.1(1)T[5]
Cisco VG248 (analog voice gateway)	1.3(2)	1.3(2)
Cisco ATA 187 (analog telephony adaptor)	—	—
McAfee Antivirus[6]	Enterprise 8.7.0i	Enterprise 8.7.0i

1. Cisco IOS Release 15.1(3)T and 15.1(1)T are short deployment Standard Maintenance releases ideal for the very latest new features and hardware support from Cisco. Cisco provides 18 months of support for Standard Maintenance releases. Customers requiring longer-term maintenance support should consider upgrading to the next 15 M Extended Maintenance release (when it becomes available), which will incorporate all features and hardware support of previous Standard Maintenance and Extended Maintenance releases. For more information, refer to http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps10587/ps10591/ps10621/qa_c67_561940.html
2. Multi-stage upgrade testing was performed with Unified Presence Release 8.0(1) and feature and interoperability testing was performed with Unified Presence 8.0(2).
3. Adhoc conferencing feature in Unified MeetingPlace Releases 8.0/8.5 is not supported with Unified Communications Manager Release 8.5(1).
4. Will be available in CYQ1 2011.
5. Cisco IOS Release 15.1(1)T is a short deployment Standard Maintenance release ideal for the very latest new features and hardware support from Cisco. Cisco provides 18 months of support for Standard Maintenance releases. Customers requiring longer-term maintenance support should consider upgrading to the next 15 M Extended Maintenance release (when it becomes available), which will incorporate all features and hardware support of previous Standard Maintenance and Extended Maintenance releases. For more information, refer to http://www.cisco.com/en/US/prod/collateral/iosswrel/ps8802/ps10587/ps10591/ps10621/qa_c67_561940.html.
6. You can install third-party antivirus agents on Windows-based servers such as Unified Operations Manager and Unified Provisioning Manager, but not on non-Windows appliances such as Unified Communications Manager and Unified Communications Manager Business Edition.

CHAPTER 6

Performing Your System Upgrade

This section discusses in detail the upgrade sequence for all of the IP telephony components that are configured in various deployment models for Cisco Unified Communications System Release 8.5(1).

Upgrade procedures for individual IP telephony components are not described in this document as they are available in individual component upgrade product documents. See the Related Documentation section for appropriate product upgrade documents.

This topic contains the following sections:

Note Many of the IP telephony component names have changed as part of Cisco Unified Communications System releases. The latest product names are used in this document, even when referencing products from previous releases.

IP Telephony Deployment Models

The upgrade procedures in this document are tailored for each deployment model in the IP telephony test environment, because each site includes different components.

The following IP telephony site models were tested in the Cisco Unified Communications System test environment:

Unified Communications Manager IP Telephony Model

This section provide the upgrade procedure for the various IP telephony components in the enterprise deployment models.

Detailed information about IP telephony deployments and site models that are tested for the target release is available at http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/Review_Tested_Site_Models.html

The following deployment models were tested in the Cisco Unified Communications System IP telephony test environment:

- Single-Site or Campus Deployment Model
- Multisite Centralized with SRST Model
- Multisite WAN Distributed Model
- Clustering Over the WAN Model

Choose the deployment model that best matches your deployment to understand the upgrade process that best applies to your environment. The following sections provide the general upgrade sequence for the components in the each deployment model and provide other detailed upgrade procedures.

After you determine the general upgrade sequence, use one of the upgrade strategies that is described in Upgrading IP Telephony Components to upgrade your components.

Single-Site or Campus Deployment Model

In IP telephony single-site (campus) deployment model, upgrade the components in the following order:

1. Infrastructure components such as:
   - Core and access switches and routers
   - Security components such as Cisco Adaptive Security Appliance
   - Wireless LAN Controllers and Access Points
2. Gatekeepers and data/voice gateways:
   - Cisco Unified Communication Manager Express
   - IOS Gateways (MGCP, H.323, SIP)
   - IOS based transcoders and conference bridges
   - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
   - Gatekeepers
   - Cisco Unified Border Element (formerly IPIPGW)
   - Cisco Unified SIP Proxy
   - Analog Phone Gateways (VG224, VG30D)
   - Cisco Aironet Access Points and Wireless Access Points
3. Network management tools such as Cisco Unified Operations Manager, Cisco Unified Service Monitor, Cisco Unified Service Statistics Manager, Cisco Unified Provisioning Manager.
4. Call processing components. The following components should be upgraded first in the following order:
   a. Cisco Unified Presence
   b. Cisco Unified Communications Manager
   c. JTAPI on client applications (if necessary)
   d. Cisco Security Agent and virus scanning software
   e. Cisco Unified IP Phones Firmware (if needed) incluidng ATA
   f. Cisco Intercompany Media Engine (Optional)

   The following call processing components can be upgraded in any order:

- Cisco Emergency Responder and Music On Hold
- Cisco IP Communicator and Cisco Unified Personal Communicator
- Cisco Unified Video Advantage (Video PC endpoint)
- Cisco UC Integration for Microsoft Office Communicator

5. Queueing and self-service components such as Cisco Unified Contact Center Express and Cisco Unified Intelligence Suite.
6. Cisco Messaging components such as Cisco Unity, Cisco Unity TSP (if required), Cisco Unity Express, Microsoft Exchange 2003, Domain Controller (including Active Directory), Cisco Unity Connection.
7. Cisco Unified MeetingPlace components
8. Video Endpoints SCCP/SIP/H.323/H.320 and IP/VC gateways and MCU
9. Cisco and third-party adjunct applications or endpoints on other servers (such as SCCP video endpoints)

Multisite Centralized with SRST Model

You must first upgrade central sites followed by the remote SRST sites in the multisite centralized model.

Central Site

In each central site, upgrade the components in the following order:

1. Infrastructure components such as:
   - Core and access switches and routers
   - Security components such as Cisco Adaptive Security Appliance
   - Wireless LAN Controllers and Access Points
2. Gatekeepers and data/voice gateways:
   - Cisco Unified Communication Manager Express
   - PSTN Gateways (IOS)
   - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
   - Gatekeepers

     Note Gatekeeper licensing required for 3800 series integrated services routers.

   - Cisco Unified Border Element (formerly IPIPGW)
   - Analog Phone Gateways (VG224, VG30D)
   - Cisco Aironet Access Points
3. Network management tools such as Cisco Unified Operations Manager and Cisco Unified Service Monitor.
4. Cisco Unified Presence, Cisco Unified Communications Manager, Cisco Unified IP Phones and Cisco Intercompany Media Engine
5. Cisco Emergency Responder and Music On Hold
6. Cisco Unified Personal Communicator and Cisco IP Communicator

7. Unified Contact Center Express
8. Cisco Unity components
9. Cisco Unified MeetingPlace components
10. Video components
11. Cisco applications co-resident on Media Convergence servers (MCSs) (such as Cisco Security Agent, JTAPI software)
12. Third-party on-board agents on MCS servers (such as antivirus, Backup agent, Management agent (SNMP))
13. Cisco and third-party adjunct applications or endpoints on other servers (such as Tandberg SCCP Video endpoints)

Remote Site

In each remote site, upgrade the components in the following order:

1. Infrastructure components including switches, routers and security components such as Cisco Adaptive Security Appliance
2. Analog Voice Gateways (VG224, VG30D)
3. PSTN Gateways (IOS)
4. Network management tools such as Cisco Unified Operations Manager and Cisco Unified Service Monitor
5. Cisco Unified Communications Manager Express or Unified SRST router/SRSV, Cisco Unified IP Phones, Cisco IP Communicator
6. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
7. SCCP/SIP/H.323/H.320 video endpoints

Multisite WAN Distributed Model

The multisite distributed model includes several Cisco Unified Communications Manager cluster sites interconnected by ICT or H.323 trunks.

Note You should treat the upgrade of each site as a separate stage in the overall upgrade process.

Upgrade the components within each site in the following order:

1. Infrastructure components such as:
   - Core and access switches and routers
   - Security components such as Cisco Adaptive Security Appliance
   - Wireless LAN Controllers and Access Points
2. Gatekeepers and data/voice gateways:
   - Cisco Unified Communication Manager Express
   - PSTN Gateways (IOS)
   - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
   - Gatekeepers
   - Cisco Unified Border Element (formerly IPIPGW)

  - Analog Phone Gateways (VG224, VG230D)
  - Cisco Aironet Access Points
3. Network management tools such as Cisco Unified Operations Manager and Cisco Unified Service Monitor.
4. Cisco Unified Presence, Cisco Unified Communications Manager, Cisco Unified IP Phones and Cisco Intercompany Media Engine (Optional)
5. Cisco Emergency Responder and Music On Hold
6. Cisco Unified Personal Communicator and Cisco IP Communicator
7. Unified Contact Center Express
8. Cisco Messaging Gateway, Cisco Unity components
9. Cisco Unified MeetingPlace components
10. Video components
11. Cisco applications co-resident on MCSs (such as Cisco Security Agent, JTAPI software)
12. Third-party on-board agents on MCS servers (such as antivirus, Backup agent, Management agent (SNMP))
13. Cisco and third-party adjunct applications or endpoints on other servers (such as SCCP video endpoints)

In each remote site, upgrade the components in the following order:

1. Infrastructure components including switches, routers and security components such as Cisco Adaptive Security Appliance
2. Analog Voice Gateways (VG224, VG30D)
3. PSTN Gateways (IOS)
4. Network management tools such as Cisco Unified Operations Manager and Cisco Unified Service Monitor
5. Cisco Unified Communications Manager Express or Unified SRST router, Cisco Unified IP Phones, Cisco IP Communicator
6. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
7. SCCP/SIP/H.323/H.320 video endpoints

Clustering Over the WAN Model

In the IP telephony clustering over the WAN model, upgrade the components in the following order:

1. Infrastructure components such as:
  - Core and access switches and routers
  - Security components such as Cisco Adaptive Security Appliance
  - Wireless LAN Controllers and Access Points
2. Gatekeepers and data/voice gateways:
  - Cisco Unified Communication Manager Express
  - PSTN Gateways (IOS)
  - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)

- Gatekeepers
- Cisco Unified Border Element (formerly IPIPGW)
- Analog Phone Gateways (VG224, VG30D)
- Cisco Aironet Access Points

3. Network management tools such as Cisco Unified Operations Manager and Cisco Unified Service Monitor.
4. Cisco Unified Presence, Cisco Unified Communications Manager, Cisco Unified IP Phones and Cisco Intercompany Media Engine (Optional)
5. Cisco Emergency Responder and Music On Hold
6. Cisco Unified Personal Communicator and Cisco IP Communicator
7. Unified Contact Center Express
8. Cisco Messaging Gateway and Unity components
9. Cisco Unified MeetingPlace components
10. Video components
11. Cisco applications coresident on Media Convergence Servers (MCSs) (such as Cisco Security Agent, JTAPI software)
12. Third-party on-board agents on MCS servers (such as antivirus, Backup agent, Management agent (SNMP)
13. Cisco and third-party adjunct applications or endpoints on other servers (such as SCCP video endpoints)

If there are any remote sites, upgrade the components in those sites in the following order:

1. Infrastructure components including switches, routers and security components such as Cisco Adaptive Security Appliance
2. Analog Voice Gateways (VG224, VG30D)
3. PSTN Gateways (IOS)
4. Network management tools such as Cisco Unified Operations Manager and Cisco Unified Service Monitor
5. Cisco Unified Communications Manager Express or Unified SRST router, Cisco Unified IP Phones, Cisco IP Communicator
6. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
7. SCCP/SIP/H.323/H.320 video endpoints

Unified Communications Manager Business Edition IP Telephony Model

This section provides the general installation sequence for the various IP telephony components in midmarket business deployment models.

- MultiSite Centralized with SRST or SRSV Model

For more detailed information about these IP telephony deployment models, see:
http://www.cisco.com/cisco/web/docs/iam/unified/ipt851/Review_Tested_Site_Models.html

MultiSite Centralized with SRST or SRSV Model

A multisite centralized with SRST deployment refers to any scenario in which call processing servers (for example, Unified Communications Manager Business Edition) are located at the same site, while any combination of voice gateways, and phones are located remotely across a WAN link or centrally.

You must first upgrade central sites followed by the remote SRST sites in the multisite centralized model.

In each central site, upgrade the components in the following order:

1. Infrastructure Components such as:
   - Core switches
   - Access switches
   - Security Components
   - Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
   - Cisco Wireless LAN Controller(s) and Access Points
2. Call processing components such as:
   - Cisco Unified Presence
   - Cisco Unified Communications Manager Business Edition
   - Cisco Unified Communications Manager

   Note Upgrade of Cisco Unified Communication Manager in a Cisco Unified Communications Manager Business Edition site includes upgrading the co-resident Unity Connection on a UCS C-series server.

   - Cisco Unified IP Phones
   - Cisco IP Communicator
   - Cisco Unified Personal Communicator
3. Media resource components such as:
   - Music on Hold
   - Transcoders
   - Conferences Bridges
   - Media Termination Points (MTPs)
   - RSVP agents
4. Cisco Unified Contact Center Express, Cisco Unified IP Phone Agents
5. Cisco Unity Connection and optional Voice Recognition Server
6. Cisco Unified Business Attendant Console

For each remote site, install components in the following order:

1. Access switches
2. Security Components
3. Cisco Wireless LAN Controller(s) and Access Points

4. Cisco Unified Survival Remote Site Telephony router, Cisco Unified IP Phones, Cisco IP Communicator
5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU)
6. SCCP/SIP/H.323/H.320 video endpoints
7. Cisco Computer Telephony Interface (CTI) OS Agent and Supervisor Desktop
8. Cisco Unified Business Attendant Console and Cisco Unified Department Attendant Console

Upgrading IP Telephony Components

This section describes the following upgrade strategies for IP telephony components:

- Single-Stage Upgrade—Recommended for small single-site or multisite installations.
- Multistage System Upgrade—Recommended for medium or large single-site and medium multisite installations.
- Multisite Migration—To upgrade large, multisite IP telephony installations to the Cisco Unified Communications System release set using the multisite migration upgrade strategy, you can use either the single-stage or multistage system upgrade procedures listed in the respective sections.

See Chapter 4, "Planning Your System Upgrade" for detailed information about these upgrade strategies and see Chapter 5, "Preparing for Your System Upgrade" for the software release versions of the components involved in the upgrade. For more information about the number of seats in these various types of sites, see Table 4-2 in Chapter 4, "Planning Your System Upgrade."

The upgrade paths that are available for upgrading IP telephony components are defined in System Upgrade Paths to Cisco Unified Communications System Release 8.5(1) in Chapter 4, "Planning Your System Upgrade"

When performing the upgrade of each component, see the product-specific upgrade document for detailed information. See the Related Documentation section for a list of URLs for component-specific release notes and installation and upgrade documents.

Single-Stage Upgrade

The single-stage upgrade process is recommended for small single-site and small multisite installations. This upgrade process can be performed in a single maintenance window, which allows you to upgrade components in a relatively short time and with no loss of functionality.

See Chapter 5, "Preparing for Your System Upgrade," for the software release versions of the components involved in the upgrade. Based on your environment and the base release set deployed in your network, upgrade the components in the order listed in Table 6-1.

Table 6-1 Single-Stage Upgrade Order for IP Telephony Components

Component to Upgrade	Release Set for Release			
	6.1(1)	7.1(3)	8.0(2)	8.5(1)
Cisco Catalyst 6506 (core switch)	1	1	1	1
Cisco Catalyst 6509/3524[1] (access switch)	2	2	2	2
Cisco Adaptive Security Appliance	3	3	3	3

Table 6-1 Single-Stage Upgrade Order for IP Telephony Components

Component to Upgrade	Release Set for Release			
	6.1(1)	7.1(3)	8.0(2)	8.5(1)
Cisco Resource Management Essentials	4	4	4	4
Cisco Unified Operations Manager and Cisco Unified Service Monitor	5	5	5	5
Cisco Unified Service Statistics Monitor and Cisco Unified Provisioning Manager	6	6	6	6
Cisco Unified Communications Manager cluster (Cisco Unified IP Phones, Cisco Intercompany Media Engine (optional), Cisco Catalyst 6500/6000 Gateways, Cisco IP Communicator, and Cisco ATA186/188/187 analog telephony adapters are upgraded with cluster)	7	7	7	7
Unified Contact Center Express	8	8	8	8
Cisco Unified Presence	9	9	9	9
Cisco Emergency Responder	10	10	10	10
Cisco Unified Communications Manager Express	11	11	11	11
Cisco IOS Gateway	12	12	12	12
Cisco Communications Media Module	13	13	13	13
Cisco VG248 (analog phone gateway)	14	14	14	—
Cisco VG244 (analog phone gateway)	15	15	15	14
Cisco VG30D (analog phone gateway)	—	—	—	15
Cisco IOS Gatekeeper	16	16	16	16
Cisco Unified MeetingPlace components	17	17	17	17
Cisco Unified MeetingPlace Express	18	18	—	—
Cisco Unity components and Cisco Unity Connection	19	19	18	18
Cisco Unity	20	20	—	—
Windows Exchange 2000 ???	21	21	19	19
Domain Controller (including Active Directory)	22	22	20	20
SCCP/ SIP / H.323/ H.320[1] Video Endpoints	23	23	21	21
Cisco Unified Videoconferencing Gateway[1] and Cisco Unified Videoconferencing System MCUs	24	24	22	22
Cisco Unified VideoAdvantage (Video PC Endpoint)	25	25	23	23
Cisco Aironet Access Point 1200	26	26	24	24
Cisco Unified Personal Communicator	27	27	25	25
Cisco applications co-resident on MCS servers	28	28	26	26
Third-party on-board agents on MCS servers	29	29	27	27
Cisco and third-party applications on other servers	30	30	28	28

1. Tested in EUEM (European & Emerging Markets) site models only during Cisco Unified Communications System testing.

Multistage System Upgrade

A multistage system upgrade is the recommended approach for medium and large single-site and medium multisite installations. In this upgrade process, components are grouped for upgrading in several stages or maintenance windows. Within each maintenance window, there is a recommended order for upgrading each component.

The grouping of the components into the stages may vary depending on the size of the networks being upgraded. For smaller networks, several maintenance windows may be collapsed into a single maintenance window. Additional stages may be necessary for larger sites.

After each maintenance window and before initiating the next upgrade stage, we recommend that you verify that the operation of all basic and critical call types remains unaffected. We also recommend that you maintain a list of the components that have been upgraded and the ones yet to be upgraded.

See Chapter 5, "Preparing for Your System Upgrade," for the software release versions of the components involved in the upgrade. Based on your environment and the base release set deployed in your network, upgrade the components in the order listed in Table 6-2 for 6.1(1) to 8.5(1) upgrade, Table 6-3 for 7.1(3) to 8.5(1) upgrade, and table 6-4 for 8.0(2) to 8.5(1) upgrade.

If you are upgrading from the following base release sets:

- Cisco Unified Communications System Release 6.1(1) to Release 8.5(1)—Be aware that Unified CCX 8.0(2) is not backward compatible with Unified Communications Manager 6.1(2) and Unified Communications Manager Release 8.5(1) is not backward compatible with Unified CCX 5.0(2). You should first upgrade Unified CCX 5.0(2) to 5.0(2)SR2 and Unified Communications Manager Release 6.1(2) to 8.0(2) before proceeding with the upgrade recommendations listed below.
- Cisco Unified Communications System Release 7.1(3) to Release 8.5(1)—You will be running Unified CCX 7.0(1)SR4 and Unified Communications Manager Release 7.1(3). You can directly proceed with the upgrade recommendations listed below.
- Cisco Unified Communications System Release 8.0(2) to Release 8.5(1)—You will be running Unified CCX 8.0(2) and Unified Communications Manager Release 8.0(2). You can directly proceed with the upgrade recommendations listed below

Cisco recommends the following two upgrade options:

- Same Maintenance Window—You can upgrade all the call processing components first and Unified CCX 8.0(2) next in the same maintenance window. Be aware that time estimates for this option are approximately 16 hours.

  Note To upgrade Unified Communications Manager and Unified CCX on the same maintenance window, ensure that Unified CCX is upgraded to 5.0(2)SR2 or 7.0(1)SR4 release before you upgrade the Unified Communications System Release 8.5(1) call processing components.

  If you are upgrading from Unified Communications Release 6.1(1), use the information listed in Stage 4 in Table 6-2 on page 6-11. If you are upgrading from Unified Communications Release 7.0(1), use the information listed in Stage 4 in Table 6-3 on page 6-15.

- Different Maintenance Windows—You should upgrade Unified CCX to Release 8.5(1) before upgrading Unified Communications Manager Release 8.5(1).

  If you are upgrading from Unified Communications Release 6.1(1), use the information listed in the Optional Stage in Table 6-2 on page 6-11. If you are upgrading from Unified Communications Release 7.0(1), use the information listed in the Optional Stage in Table 6-3 on page 6-15.

Table 6-2 Multistage System Upgrade Order for IP Telephony Components from Release 6.1(1) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
1	Switches, routers and security components	1. Core Switches[1] 2. Access Switch[1] 3. Cisco Adaptive Security Appliance (ASA) 5540	Verify the following exit criteria for Stage 1: 1. Switches and Routers Upgrade Exit Criteria 2. Security Components Upgrade Exit Criteria 3. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway 4. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 5. Unified Communications Manager Upgrade Exit Criteria 6. Unified Contact Center Express Upgrade Exit Criteria 7. Cisco Unity Upgrade Exit Criteria 8. Cisco Unity Connection Upgrade Exit Criteria 9. Cisco Unity Express Upgrade Exit Criteria 10. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway
2	Gatekeepers and data/voice gateways	1. Cisco Unified Communications Manager Express 2. IOS Gateway (MGCP, H.323 [1], and SIP) 3. Cisco VG244 (analog voice gateway) 4. IOS based transcoders and conference bridges 5. IOS Gatekeeper 6. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU) 7. Cisco Unified Border Element (formerly IPIPGW) 8. Cisco Aironet Access Point 1200 and Lightweight Wireless Access points 9. Cisco Unified SIP Proxy	Verify the following exit criteria for Stage 2: 1. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 2. Unified Contact Center Express Upgrade Exit Criteria 3. Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger Upgrade Exit Criteria 4. Unified Communications Manager Express Upgrade Exit Criteria 5. Cisco IOS Gatekeeper and Cisco Unified Border Element (formerly IPIPGW) Upgrade Exit Criteria 6. Cisco VG224 Upgrade Exit Criteria 7. Cisco Aironet Access Point 1200 Upgrade Exit Criteria 8. Cisco Unified SIP Proxy Upgrade Exit Criteria

Table 6-2 Multistage System Upgrade Order for IP Telephony Components from Release 6.1(1) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
3	Network management	1. Cisco Unified Operations Manager 2. Cisco Unified Service Monitor 3. Cisco Unified Service Statistics Monitor 4. Cisco Unified Provisioning Manager 5. Cisco Resource Management Essentials	Verify the following exit criteria for Stage 3: 1. Network Management Components Upgrade Exit Criteria 2. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 3. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 4. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 5. Cisco Unified Provisioning Manager Upgrade Exit Criteria
Optional Stage **Note** You must perform this stage only if you want to upgrade Unified CCX 8.5(1) and Unified Communications Manager 8.5(1) in different maintenance windows.		1. Upgrade Unified CCX to Release 5.0(2)SR2 2. Upgrade Unified CCX to Release 8.5(1) 3. In the Stage 4 maintenance window, perform only the upgrade order for call processing components/applications and skip the Unified Contact Center Express components upgrade.	Verify the following exit criteria for this optional stage: 1. Unified Contact Center Express Upgrade Exit Criteria 2. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria

Table 6-2 Multistage System Upgrade Order for IP Telephony Components from Release 6.1(1) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
4	Call processing **Note** To upgrade Unified Communications Manager 8.5(1) and Unified CCX 8.5(1) on the same maintenance window, ensure that Unified CCX is first upgraded to 5.0(2)SR2 release before you upgrade the Unified Communications System Release 8.5(1) call processing components.	Components upgraded first and in order: 1. Cisco Unified Presence[1] 2. Cisco Unified Communications Manager [2] 3. Upgrade JTAPI if necessary on client applications 4. CSA and virus scanning software 5. Cisco Unified IP Phones Firmware (if needed) (including ATA and 6608) 6. Install Cisco Intercompany Media Engine (Optional) Components below may be upgraded in any order after completion of upgrades above: 1. Cisco Emergency Responder 2. Cisco IP Communicator 3. Cisco Unified Personal Communicator[1] 4. Cisco VT Advantage (Video PC Endpoint) 5. Cisco Unified Mobile Communication Cisco recommends that Cisco Unified CCX upgrade is performed in the same upgrade stage as Cisco Unified Communications Manager. 1. Install Cisco Unified Contact Center Express For more information on installing and migrating Unified CCX, see the Cisco Unified Contact Center Express Considerations section.	Verify the following exit criteria for Stage 4: 1. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 2. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 3. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 4. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 5. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 6. Cisco Unified Provisioning Manager Upgrade Exit Criteria 7. Unified Communications Manager Upgrade Exit Criteria 8. Cisco Unified Presence Upgrade Exit Criteria 9. Cisco Security Agent (CSA) Management Console Upgrade Exit Criteria 10. Cisco Unified Personal Communicator Upgrade Exit Criteria 11. Cisco Unified Mobility Advantage Upgrade Exit Criteria 12. Cisco Emergency Responder Upgrade Exit Criteria 13. Cisco Unified IP Phones Upgrade Exit Criteria 14. Cisco IP Communicator Upgrade Exit Criteria 15. Cisco Unified Video Advantage Upgrade Exit Criteria 16. Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria 17. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway 18. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria

Table 6-2 Multistage System Upgrade Order for IP Telephony Components from Release 6.1(1) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
5	Queueing and Self Service Components	1. Cisco Unified CCX 2. Cisco Unified Intelligence Suite	**19**. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria Verify the following exit criteria for Cisco Unified CCX: 1. Unified Contact Center Express Upgrade Exit Criteria
6	Voice mail and Unified Messaging	1. Cisco Unity 2. Cisco Unity TSP (if needed) 3. Cisco Unity Express 4. Windows Exchange (Unity backend message store) and using COBRAS tool, migrate the data from Domino into new Exchange. 5. Domain Controller (including Active Directory) 6. Cisco Unity Connection[1] [2] 7. Cisco Unified Messaging Gateway	Verify the following exit criteria for Stage 6: 1. Cisco Unified Personal Communicator Upgrade Exit Criteria 2. Cisco Unity Upgrade Exit Criteria 3. Cisco Unity Connection Upgrade Exit Criteria 4. Cisco Unity Express Upgrade Exit Criteria 5. Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria 6. Stage 6 Exit Criteria for Cisco Unified Messaging Gateway 7. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 8. Cisco Unified Provisioning Manager Upgrade Exit Criteria
7	Conferencing	1. Cisco Unified MeetingPlace components 2. Migrate Cisco Unified MeetingPlace Express Release 2.1.2 to Cisco Unified MeetingPlace Release 8.0. For more information, see the Considerations for Migrating to Cisco Unified MeetingPlace Release 8.0 from Cisco Unified MeetingPlace Express section.	Verify the following exit criteria for Stage 7: 1. Unified MeetingPlace 7.x Upgrade Exit Criteria 2. Cisco Unified MeetingPlace 6.x or Earlier Upgrade Exit Criteria 3. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria
8	Video Conferencing	1. SCCP/ H.323 /H.3203 Video Endpoints 2. IP/VC Gateway and MCUs	Verify the following exit criteria for Stage 8: Cisco IP Videoconferencing and MCU Upgrade Exit Criteria

Table 6-2 Multistage System Upgrade Order for IP Telephony Components from Release 6.1(1) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
9	Other Cisco applications	Cisco applications co-resident on servers: upgrade order depends on the applications being upgraded	
	Third-party on-board agents	Third-party on-board agents on MCS servers: upgrade order depends on the applications being upgraded	

1. This component is included in Cisco Unified Communications Manager Business Edition deployments in EUEM site model.
2. Upgrading Cisco Unified Communications Manager Business Edition includes upgrading co-resident Cisco Unity Connection.

Table 6-3 Multistage System Upgrade Order for IP Telephony Components from Release 7.1(3) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
1	Switches, routers and security components	1. Core Switches[1] 2. Access Switch[1] 3. Cisco Adaptive Security Appliance (ASA) 5540	Verify the following exit criteria for Stage 1: 1. Switches and Routers Upgrade Exit Criteria 2. Security Components Upgrade Exit Criteria 3. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 4. Unified Communications Manager Upgrade Exit Criteria 5. Unified Contact Center Express Upgrade Exit Criteria 6. Cisco Unity Upgrade Exit Criteria 7. Cisco Unity Connection Upgrade Exit Criteria 8. Cisco Unity Express Upgrade Exit Criteria 9. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway

Table 6-3 Multistage System Upgrade Order for IP Telephony Components from Release 7.1(3) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
2	Gatekeepers and IOS gateways	1. Cisco Unified Communications Manager Express 2. IOS Gateway (MGCP, H.323 [1], and SIP) 3. Cisco VG244 (analog voice gateway) 4. IOS based transcoders and conference bridges 5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU) 6. IOS Gatekeeper 7. Cisco Unified Border Element (formerly IPIPGW) 8. Cisco Aironet Access Point 1200	Verify the following exit criteria for Stage 2: 1. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 2. Unified Contact Center Express Upgrade Exit Criteria 3. Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger Upgrade Exit Criteria 4. Unified Communications Manager Express Upgrade Exit Criteria 5. Cisco IOS Gatekeeper and Cisco Unified Border Element (formerly IPIPGW) Upgrade Exit Criteria 6. Cisco VG224 Upgrade Exit Criteria 7. Cisco Aironet Access Point 1200 Upgrade Exit Criteria
3	Network management	1. Cisco Unified Operations Manager 2. Cisco Unified Service Monitor 3. Cisco Unified Service Statistics Monitor 4. Cisco Unified Provisioning Manager 5. Cisco Resource Management Essentials	Verify the following exit criteria for Stage 3: 1. Network Management Components Upgrade Exit Criteria 2. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 3. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 4. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 5. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 6. Cisco Unified Provisioning Manager Upgrade Exit Criteria

Table 6-3 Multistage System Upgrade Order for IP Telephony Components from Release 7.1(3) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
Optional Stage **Note** You must perform this stage only if you want to upgrade Unified CCX 8.0(2) and Unified Communications Manager 8.0(2) in different maintenance windows.		1. Upgrade Unified CCX to Release 7.0(1)SR4 2. Upgrade Unified CCX to Release 8.0(2) 3. In the Stage 4 maintenance window, perform only the upgrade order for call processing components/applications and skip the Unified Contact Center Express component upgrade.	Verify the following exit criteria for this optional stage: 1. Unified Contact Center Express Upgrade Exit Criteria 2. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria

Table 6-3 Multistage System Upgrade Order for IP Telephony Components from Release 7.1(3) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
4	Call processing **Note** To upgrade Unified Communications Manager 8.0(2) and Unified CCX 8.0(2) on the same maintenance window, ensure that Unified CCX is first upgraded to 7.0(1)SR4 release before you upgrade the Unified Communications System Release 8.0(2) call processing components.	Components upgraded first and in order: 1. Cisco Unified Presence[1] 2. Cisco Unified Communications Manager [2] 3. Upgrade JTAPI if necessary on client applications 4. CSA and virus scanning software 5. Cisco Unified IP Phones Firmware (if needed) (including ATA and 6608) 6. Install Cisco Intercompany Media Engine (Optional) Components below may be upgraded in any order after completion of upgrades above: 1. Cisco Emergency Responder 2. Cisco IP Communicator 3. Cisco Unified Personal Communicator[1] 4. Cisco VT Advantage (Video PC Endpoint) 5. Cisco Unified Mobile Communication Cisco recommends that Cisco Unified CCX upgrade is performed in the same upgrade stage as Cisco Unified Communications Manager. 1. Install Cisco Unified Contact Center Express	Verify the following exit criteria for Stage 4: 1. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 2. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 3. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 4. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 5. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 6. Cisco Unified Provisioning Manager Upgrade Exit Criteria 7. Unified Communications Manager Upgrade Exit Criteria 8. Cisco Unified Presence Upgrade Exit Criteria 9. Cisco Security Agent (CSA) Management Console Upgrade Exit Criteria 10. Cisco Unified Personal Communicator Upgrade Exit Criteria 11. Cisco Unified Mobility Advantage Upgrade Exit Criteria 12. Cisco Emergency Responder Upgrade Exit Criteria 13. Cisco Unified IP Phones Upgrade Exit Criteria 14. Cisco IP Communicator Upgrade Exit Criteria

Table 6-3 Multistage System Upgrade Order for IP Telephony Components from Release 7.1(3) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
4			15. Cisco Unified Video Advantage Upgrade Exit Criteria 16. Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria 17. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway 18. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 19. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 20. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 21. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 22. Cisco Unified Provisioning Manager Upgrade Exit Criteria Verify the following exit criteria after installing Cisco Unified CCX: 1. Unified Contact Center Express Upgrade Exit Criteria 2. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria
5	Voice mail and Unified Messaging	1. Cisco Unity 2. Cisco Unity TSP (if needed) 3. Cisco Unity Express 4. Install Windows Exchange (Unity backend message store) and using COBRAS tool, migrate the data from Domino into new Exchange. 5. Domain Controller (including Active Directory) 6. Cisco Unity Connection[1] [2] 7. Cisco Unified Messaging Gateway	Verify the following exit criteria for Stage 6: 1. Cisco Unified Personal Communicator Upgrade Exit Criteria 1. Cisco Unity Upgrade Exit Criteria 2. Cisco Unity Connection Upgrade Exit Criteria 3. Cisco Unity Express Upgrade Exit Criteria 4. Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria 5. Stage 6 Exit Criteria for Cisco Unified Messaging Gateway 6. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 7. Cisco Unified Provisioning Manager Upgrade Exit Criteria

Table 6-3 Multistage System Upgrade Order for IP Telephony Components from Release 7.1(3) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components with in Stage	Exit Criteria for the Stage
6	Conferencing	1. Cisco Unified MeetingPlace components 2. Migrate Cisco Unified MeetingPlace Express Release 2.1.2 to Cisco Unified MeetingPlace Release 8.0. For more information, see the Considerations for Migrating to Cisco Unified MeetingPlace Release 8.0 from Cisco Unified MeetingPlace Express section.	Verify the following exit criteria for Stage 7: 1. Unified MeetingPlace 7.x Upgrade Exit Criteria 2. Cisco Unified MeetingPlace 6.x or Earlier Upgrade Exit Criteria 3. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria
7	Videoconferencing	1. SCCP/ H.323 /H.3203 Video Endpoints 2. IP/VC Gateway and MCUs	Verify the following exit criteria for Stage 8: Cisco IP Videoconferencing and MCU Upgrade Exit Criteria
8	Other Cisco applications	Cisco applications co-resident on servers: upgrade order depends on the applications being upgraded	
9	Third-party on-board agents	Third-party on-board agents on MCS servers: upgrade order depends on the applications being upgraded	

1. This component is included in Cisco Unified Communications Manager Business Edition deployments in EUEM site model.
2. Upgrading Cisco Unified Communications Manager Business Edition includes upgrading co-resident Cisco Unity Connection.

Table 6-4 Multistage System Upgrade Order for IP Telephony Components from Release 8.0(2) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components within Stage	Exit Criteria for the Stage
1	Switches, routers and security components	1. Core Switches[1] 2. Access Switch[1] 3. Cisco Adaptive Security Appliance (ASA) 5540	Verify the following exit criteria for Stage 1: 1. Switches and Routers Upgrade Exit Criteria 2. Security Components Upgrade Exit Criteria 3. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 4. Unified Communications Manager Upgrade Exit Criteria 5. Unified Contact Center Express Upgrade Exit Criteria 6. Cisco Unity Upgrade Exit Criteria 7. Cisco Unity Connection Upgrade Exit Criteria 8. Cisco Unity Express Upgrade Exit Criteria 9. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway
2	Gatekeepers and IOS gateways	1. Cisco Unified Communications Manager Express 2. IOS Gateway (MGCP, H.323 [1], and SIP) 3. Cisco VG244 (analog voice gateway) 4. IOS based transcoders and conference bridges 5. Cisco Unified Videoconferencing gateway and Multipoint Control Units (MCU) 6. IOS Gatekeeper 7. Cisco Unified Border Element (formerly IPIPGW) 8. Cisco Aironet Access Point 1200	Verify the following exit criteria for Stage 2: 1. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 2. Unified Contact Center Express Upgrade Exit Criteria 3. Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger Upgrade Exit Criteria 4. Unified Communications Manager Express Upgrade Exit Criteria 5. Cisco IOS Gatekeeper and Cisco Unified Border Element (formerly IPIPGW) Upgrade Exit Criteria 6. Cisco VG224 Upgrade Exit Criteria 7. Cisco Aironet Access Point 1200 Upgrade Exit Criteria

Table 6-4 Multistage System Upgrade Order for IP Telephony Components from Release 8.0(2) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components within Stage	Exit Criteria for the Stage
3	Network management	1. Cisco Unified Operations Manager 2. Cisco Unified Service Monitor 3. Cisco Unified Service Statistics Monitor 4. Cisco Unified Provisioning Manager 5. Cisco Resource Management Essentials	Verify the following exit criteria for Stage 3: 1. Network Management Components Upgrade Exit Criteria 2. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 3. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 4. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 5. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 6. Cisco Unified Provisioning Manager Upgrade Exit Criteria

Table 6-4 Multistage System Upgrade Order for IP Telephony Components from Release 8.0(2) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components within Stage	Exit Criteria for the Stage
4	Call processing **Note** To upgrade Unified Communications Manager 8.0(2) and Unified CCX 8.0(2) on the same maintenance window, ensure that Unified CCX is first upgraded to 7.0(1)SR4 release before you upgrade the Unified Communications System Release 8.0(2) call processing components.	Components upgraded first and in order: 1. Cisco Unified Presence[1] 2. Cisco Unified Communications Manager [2] 3. Upgrade JTAPI if necessary on client applications 4. CSA and virus scanning software 5. Cisco Unified IP Phones Firmware (if needed) (including ATA and 6608) 6. Install Cisco Intercompany Media Engine (Optional) Components below may be upgraded in any order after completion of upgrades above: 1. Cisco Emergency Responder 2. Cisco IP Communicator 3. Cisco Unified Personal Communicator[1] 4. Cisco VT Advantage (Video PC Endpoint) 5. Cisco Unified Mobile Communication Cisco recommends that Cisco Unified CCX upgrade is performed in the same upgrade stage as Cisco Unified Communications Manager. 1. Install Cisco Unified Contact Center Express	Verify the following exit criteria for Stage 4: 1. Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria 2. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 3. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 4. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 5. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 6. Cisco Unified Provisioning Manager Upgrade Exit Criteria 7. Unified Communications Manager Upgrade Exit Criteria 8. Cisco Unified Presence Upgrade Exit Criteria 9. Cisco Security Agent (CSA) Management Console Upgrade Exit Criteria 10. Cisco Unified Personal Communicator Upgrade Exit Criteria 11. Cisco Unified Mobility Advantage Upgrade Exit Criteria 12. Cisco Emergency Responder Upgrade Exit Criteria 13. Cisco Unified IP Phones Upgrade Exit Criteria 14. Cisco IP Communicator Upgrade Exit Criteria 15. Cisco Unified Video Advantage Upgrade Exit Criteria 16. Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria 17. Stage 1 Exit Criteria for Cisco Unified Messaging Gateway 18. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria 19. Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria

Table 6-4 Multistage System Upgrade Order for IP Telephony Components from Release 8.0(2) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components within Stage	Exit Criteria for the Stage
			20. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 21. Cisco Unified Service Statistic Manager Upgrade Exit Criteria 22. Cisco Unified Provisioning Manager Upgrade Exit Criteria Verify the following exit criteria after installing Cisco Unified CCX: 1. Unified Contact Center Express Upgrade Exit Criteria 2. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria
5	Voice mail and Unified Messaging	1. Cisco Unity 2. Cisco Unity TSP (if needed) 3. Cisco Unity Express 4. Install Windows Exchange (Unity backend message store) and using COBRAS tool, migrate the data from Domino into new Exchange. 5. Domain Controller (including Active Directory) 6. Cisco Unity Connection[1] [2] 7. Cisco Unified Messaging Gateway	Verify the following exit criteria for Stage 6: 1. Cisco Unified Personal Communicator Upgrade Exit Criteria 1. Cisco Unity Upgrade Exit Criteria 2. Cisco Unity Connection Upgrade Exit Criteria 3. Cisco Unity Express Upgrade Exit Criteria 4. Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria 5. Stage 6 Exit Criteria for Cisco Unified Messaging Gateway 6. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria 7. Cisco Unified Provisioning Manager Upgrade Exit Criteria
6	Conferencing	1. Cisco Unified MeetingPlace components 2. Migrate Cisco Unified MeetingPlace Express Release 2.1.2 to Cisco Unified MeetingPlace Release 8.0. For more information, see the Considerations for Migrating to Cisco Unified MeetingPlace Release 8.0 from Cisco Unified MeetingPlace Express section.	Verify the following exit criteria for Stage 7: 1. Unified MeetingPlace 7.x Upgrade Exit Criteria 2. Cisco Unified MeetingPlace 6.x or Earlier Upgrade Exit Criteria 3. Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria

Table 6-4 Multistage System Upgrade Order for IP Telephony Components from Release 8.0(2) to 8.5(1)

Stage	Component Grouping	Upgrade Order for IP Telephony Components within Stage	Exit Criteria for the Stage
7	Videoconferencing	1. SCCP/ H.323 /H.3203 Video Endpoints 2. IP/VC Gateway and MCUs	Verify the following exit criteria for Stage 8: Cisco IP Videoconferencing and MCU Upgrade Exit Criteria
8	Other Cisco applications	Cisco applications co-resident on servers: upgrade order depends on the applications being upgraded	
9	Third-party on-board agents	Third-party on-board agents on MCS servers: upgrade order depends on the applications being upgraded	

1. This component is included in Cisco Unified Communications Manager Business Edition deployments in EUEM site model.
2. Upgrading Cisco Unified Communications Manager Business Edition includes upgrading co-resident Cisco Unity Connection.

Exit Criteria for Multistage System Upgrade Stages

Table 6-5 provides exit criteria you need to execute after completing each system upgrade stage.

Table 6-5 System Upgrade Stages and Exit Criteria Matrix

	Multistage System Upgrade Stage							
Component Grouping	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Switches and Routers Upgrade Exit Criteria	x							
Security Components Exit Criteria	x							
Gatekeepers and Voice and Data Gateways Exit Criteria	x	x		x				
Unified Communications Manager Express Upgrade Exit Criteria		x		x				
Cisco IOS Gatekeeper and Cisco Unified Border Element (formerly IPIPGW) Upgrade Exit Criteria		x						
Cisco VG248; Cisco VG224 Upgrade Exit Criteria Cisco VG30D ???		x						
Cisco Aironet Access Point 1200 Upgrade Exit Criteria		x						
Network Management Components Upgrade Exit Criteria			x					
Unified Communications Manager Upgrade Exit Criteria	x			x				
Cisco Unified Presence Upgrade Exit Criteria				x				
Cisco Security Agent (CSA) Management Console Upgrade Exit Criteria				x				
Cisco Unified Personal Communicator Upgrade Exit Criteria				x		x		
Cisco Emergency Responder Upgrade Exit Criteria				x				

Table 6-5 System Upgrade Stages and Exit Criteria Matrix

Component Grouping	Multistage System Upgrade Stage							
	1	2	3	4	5	6	7	8
Cisco Unified IP Phones Upgrade Exit Criteria				X				
Cisco IP Communicator Upgrade Exit Criteria				X				
Cisco Unified Video Advantage Upgrade Exit Criteria				X				
Unified Contact Center Express Upgrade Exit Criteria	X	X		X	X			
Cisco Unity Upgrade Exit Criteria	X					X		
Cisco Unity Connection Upgrade Exit Criteria	X					X		
Cisco Unity Express Upgrade Exit Criteria	X					X		
Unified MeetingPlace 7.x Upgrade Exit Criteria							X	
Cisco Unified MeetingPlace 6.x or Earlier Upgrade Exit Criteria							X	
Cisco IP Videoconferencing and MCU Upgrade Exit Criteria								X
Cisco Unified Mobile Communicator Upgrade Exit Criteria				X		X		
Cisco Unified Messaging Gateway Upgrade Exit Criteria	X					X		
Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger Upgrade Exit Criteria		X						
Cisco Unified Service Monitor Upgrade Exit Criteria			X	X				
Cisco Unified Operation Manager Upgrade Exit Criteria			X	X	X	X	X	
Cisco Unified Service Statistics Manager Upgrade Exit Criteria			X	X				
Cisco Unified Provisioning Manager Upgrade Exit Criteria			X	X		X		
Cisco UC Integration™ for Microsoft Office Communicator				X		X		
Cisco Intercompany Media Engine		X		X				

Switches and Routers Upgrade Exit Criteria

After upgrading core routers and switches, verify the following:

1. Check the buffer log or console for error messages.
2. Verify that a dump file was not created in the flash memory.
3. Use the `show running-config` command to verify that previous configuration was not deleted during the upgrade process.
4. Use the `show ip interface brief` command to verify that configured interfaces are in up/up state.
5. Verify that the Unified IP Phones connected to the switches are powered up and register correctly with their primary Unified Communications Manager node.

Security Components Upgrade Exit Criteria

After upgrading Cisco Catalyst 6500 Services Switch and Cisco Adaptive Security Appliance (ASA), verify the following:

1. In a deployment where Unified Communications Manager servers are separated by a Adaptive Security Appliance (ASA), place a call from a Unified IP Phone that is registered to one Unified Communications Manager to a Unified IP Phone that is registered to another Unified Communications Manager.
2. When Unified CM servers are inside the Firewall, make a call between outside and inside phones of the same Unified CM cluster. After the call completed and disconnected, perform a factory reset of the outside phone. Verify outside phone can successfully register with CUCM.
3. Repeat the above Step for SIP phone too.
4. (for IP telephony only) Update the Call Forward All (CFA) entry for a Unified IP Phone in a Unified Communications Manager cluster and verify that the update also happens in the other Unified Communications Manager when the Unified Communications Manager servers are separated by ASA.
5. Verify that database replication is successful between Unified Communications Manager servers which are separated by ASA.
6. Verify all voice gateways outside of Firewall can register with Unified Communications Manager inside the firewall.

Gatekeepers and Voice and Data Gateways Upgrade Exit Criteria

After upgrading IOS Gateways, verify the following:

1. At the Cisco IOS exec level, execute the CLI commands.

   To check that the upgraded IOS target image is running:

   ```
   show version
   ```

   To verify that the boot system is configured to boot the correct image:

   ```
   show running-config
   ```

   To verify that configuration done previously (i.e. H.323/SIP dial-peer and MGCP) is not lost.

   ```
   show running-config
   ```

   To verify that the ISDN connection status is at MULTIFRAME_ESTABLISHED:

   ```
   show isdn status
   ```

   To verify that configured interfaces are in up/up state:

   ```
   show ip interface brief
   ```

   To verify a manually placed incoming calls:

   ```
   show isdn history
   ```

   To verify IP routing from branch site to a datacenter:

   ```
   ping or traceroute
   ```

   To verify IP routing from one branch site to another branch site:

   ```
   ping or traceroute
   ```

2. Ensure that all MGCP end points (FXS, FXO, PRI, T1 CAS and BRI) are properly registered with Unified Communications Manager.

IOS MGCP Gateways Upgrade Exit Criteria:

1. From PSTN make an inbound call to IP Phone in Cisco Unified Communications Manager through MGCP Gateway.

   IP (SCCP and SIP) <-> PSTN via MGCP Gateway.
2. Put the call on hold and then resume.
3. Verify PSTN user hears MOH when the call is on hold.

IOS SIP Gateways Upgrade Exit Criteria:

1. From PSTN make an inbound call to IP Phone in Cisco Unified Communications Manager through SIP Gateway.

   IP (SCCP and SIP) <-> PSTN via SIP Gateway.
2. Put the call on hold and then resume.
3. Verify PSTN user hears MOH when the call is on hold.

IOS H.323 Gateways Upgrade Exit Criteria:

1. From PSTN make an inbound call to IP Phone in Cisco Unified Communications Manager through H.323 Gateway.

   IP (SCCP and SIP) <-> PSTN via H.323 Gateway.
2. Put the call on hold and then resume.
3. Verify PSTN user hears MOH when the call is on hold.

Unified Communications Manager Express Upgrade Exit Criteria

After upgrading Unified Communications Manager Express, verify the following:

1. To check the Cisco Unified Communications Manager Express version running on the box, type the following show command:

   ```
   show telephony-service
   ```
2. Verify the phones register to Cisco Unified Communications Manager Express after upgrade
3. Verify if you are able to make internal and PSTN calls from IP Phones.
4. Call From Phone A to Phone B which is CFA/CFNA to a PSTN Number
5. Verify if you are able to call VM (either Cisco Unity or Cisco Unity Express) from IP Phone.
6. Test calls to Shared Line
7. Verify Call-blocking functionality in Cisco Unified Communications Manager Express
8. Verify the Cisco Unified Communications Manager Express DN Overlay functionality.

Cisco IOS Gatekeeper and Cisco Unified Border Element (formerly IPIPGW) Upgrade Exit Criteria

After upgrading Cisco IOS Gatekeeper and Cisco Unified Border Element (formerly IPIPGW), verify the following:

1. To verify the running IVS version of IOS Image (for example, Cisco IOS Software, 3800 Software (C3845-IPVOICE_IVS-M), type the following show command:

   ```
   show version
   ```
2. To check if the configuration is not lost, use the following show command:

   ```
   show running-config
   ```

3. Verify that all H.323 End Points are configured to register with Gatekeeper registers properly.
4. Verify Cisco Unified Communications Manager registers with Gatekeeper
5. Make a call between two end points that uses Gatekeeper; verify the call is successful and proper bandwidth is reduced in Gatekeeper for that call.

Cisco VG224 Upgrade Exit Criteria

After upgrading Cisco VG224, verify the following:

1. Verify all configured VG224 ports are registered to Cisco Unified Communications Manager.
2. Make a call to VG224 Analog port and verify two way audio is working.
3. Make a call to VG224 Analog port and do a hook-flash transfer to an IP Phone.

Cisco Aironet Access Point 1200 Upgrade Exit Criteria

After upgrading Cisco Aironet Access Point 1200, verify the following:

1. Verify the 7920 and 7921 phones register with Cisco Unified Communications Manager; and stay registered after the upgrade.
2. Make call from IP Phone 7920 and IP Phone 7921 to another IP Phone and ensure audio in both direction.
3. When the call is active, verify audio in both direction when IP Phone 7920/21 phone roams between Access Points
4. Verify if IP Phone 7920/21 phone can register with different types of encryption

Network Management Components Upgrade Exit Criteria

After upgrading network management components, verify the following:

1. Verify the software version and the build ID using Cisco Works to ensure that the upgrade was successful.
2. Ensure that access to the Unified Operations Manager console is still available.
3. Ensure that access to all devices managed by Unified Operations Manager is still available.

Unified Communications Manager Upgrade Exit Criteria

After upgrading Unified Communications Manager, verify the following:

1. Verify that no error messages have occurred during the upgrade process.
2. Check the upgrade log file for any errors.
3. Verify that there is no replication failure between the Publisher and Subscribers.
4. Verify that SIP and SCCP IP Phones are registered with Cisco Unified Communications Manager.
5. Ensure the following devices are configured correctly:
   - Gatekeeper
   - MGCP/H.323 Gateways
   - Trunks
   - CTI Route points.

6. Ensure the Media Resources (Conference or MTP or Transcoder) are configured correctly by checking their status.
7. Verify if the end users are able to connect to their CTI Managers.
8. Check if the license usage is correct as reported in the License Unit Report.
9. Check if services on all servers in the cluster are up.
10. Perform the Cisco Unified Communications Manager Publisher and Subscriber process verification through the following RTMT Feature verification.
11. Verify the Active Directory integration for user information and authentication is carried out and all users are in place (IP telephony only).

Cisco Unified Communications Manager AAR Upgrade Exit Criteria:

Verify AAR configured and working in the system by making a IP to PSTN call (IP telephony only).

Cisco Unified Communications Manager Hunt Pilots and List Upgrade Exit Criteria:

Verify if Multiple Hunt Pilot and Hunt List are configured and working (IP telephony only).

Cisco Unified Communications Manager Attendant Console Upgrade Exit Criteria:

Verify if Attendant Console Cisco Unified Business Attendant Console /CUDAC (as applicable) are configured and running (IP telephony only).

Cisco Unified Communications Manager IPMA Upgrade Exit Criteria:

Check if Cisco IPMA is configured and running (IP telephony only):

a. Verify Manager can intercept incoming call
b. Verify all call routed to Assistance
c. Verify intercom is working

Other Cisco Unified Communications Manager Upgrade Exit Criteria:

1. Verify if Extension Mobility is configured and working.
2. Verify if IP Phone Services are configured and working.
3. Check if Web Dialer is configured and working (IP telephony only).
4. Verify if non Cisco Skinny Video End Points are working (IP telephony only).
5. Check if Client Matter Codes (CMC) and Forced Authorization Codes (FAC) are configured for Route Patterns (IP telephony only).
6. Check if Multilevel Administration (MLA) is configured (IP telephony only).
7. Verify the Active Directory integration for user information and authentication is carried out and all users are in place (IP telephony only).
8. Verify if the phones can register in both Encrypted/Authenticated mode (IP telephony only).
9. Verify if Device Mobility is configured and working (IP telephony only).
10. Check if CAR is configured and working (IP telephony only).

Cisco Unified Presence Upgrade Exit Criteria

After upgrading Cisco Unified Presence, verify the following:

1. Verify that no error messages have occurred during the upgrade process.

2. Check the upgrade log file for any errors.
3. Check if the license usage is correct as reported in the License Unit Report.Using RTMT check if the CPU usage is consistent over 5 minutes of time without any spikes.
4. Add other Cisco Unified Personal Communicator clients to a Cisco Unified Personal Communicator client's buddy list.
5. Change the presence status of a client and verify that its presence status is updated in the other Cisco Unified Personal Communicator client.

Cisco Security Agent (CSA) Management Console Upgrade Exit Criteria

After upgrading Cisco Security Agent (CSA) Management Console, verify the following:

1. Ensure that basic functionality of call flows that previously worked before the upgrade should work the same and operate normally.
2. Check if the previous configuration still exists after the upgrade.
3. Check if access to the console is still available.
4. Check if all managed devices are visible.

Cisco Intercompany Media Engine Upgrade Exit Criteria

After upgrading Cisco IME, verify the following:

1. At the Cisco IOS exec level, execute the CLI commands:

   To verify if Cisco IME servers have Unified CM registrations:

   ```
   show ime vapstatus summary
   ```

   To verify if there are no errors:

   ```
   show ime dht summary
   ```

   To verify the core dump:

   ```
   utils core active list
   ```

2. Verify the calls from SJC to FYI:
   - Make a PSTN call from SJC to FYI with Cisco IME support
   - Repeat the same call and verify if it uses only Cisco IME trunk for the second call.
3. Verify the calls from FYI to SJC:
   - Make a PSTN call from FYI to SJC with Cisco IME support
   - Repeat the same call and verify if it uses only Cisco IME trunk for the second call.

Cisco Unified Personal Communicator Upgrade Exit Criteria

After upgrading Unified Personal Communicator, verify the following:

1. Check if Unified Personal Communicator is able to derive its soft-phone device name and register with Cisco Unified Communications Manager.
2. Establish a video call from the Cisco Unified Personal Communicator client.
3. Check if Cisco Unified Personal Communicator is able to derive its soft-phone device name and register with Cisco Unified Communications Manager.
4. Check if Cisco Unified Personal Communicator in Softphone mode is able to make internal and PSTN calls

5. Check if Cisco Unified Personal Communicator is able to control IP hard phones.
6. Check if IP Phone Messenger is configured and working.

Cisco Unified Mobility Advantage Upgrade Exit Criteria

After upgrading Cisco Unified Mobility Advantage, verify the following:

1. Register Cisco Unified Mobile Communicator clients with Cisco Unified Mobility Advantage
2. Verify if new messages for subscriber are received as voicemail alerts by Cisco Unified Mobile Communicator client.
3. Verify that the Cisco Unified Mobile Communicator client receive call log information after the call to the client's desk phone is torn down.

Cisco Emergency Responder Upgrade Exit Criteria

After upgrading Cisco Emergency Responder, verify the following:

1. In the OS Admin page, goto Settings ->Version to check if the correct active and inactive versions are shown.
2. Ensure 911, 912 and 913 Route points are registered in Cisco Unified Communications Manager.
3. Ensure CTI ports for on site security alert are registered in Cisco Unified Communications Manager.
4. Select Tools -> Event Viewer on the Serviceability page to ensure Cisco Emergency Responder did not raise any "SNMP unreachable" alert for any switch or Cisco Unified Communications Manager.
5. In the Serviceability page, select Tools -> Control Center and check that there is no stopped service.
6. Ensure there are no additional phones marked as unlocated by Cisco Emergency Responder after upgrade.
7. In a dual-node deployment, shut down the Primary Cisco Emergency Responder and make sure secondary Cisco Emergency Responder takes over. Then restart Primary Cisco Emergency Responder and make sure primary Cisco Emergency Responder takes over the control.
8. Make sure 911, 912 and 913 Route points are registered in CUCM.

Cisco Unified IP Phones Upgrade Exit Criteria

After upgrading Cisco Unified IP Phones, verify the following:

1. Verify that the phones are upgraded to the target firmware images as indicated in the Unified Communications Manager
2. Verify access to the Corporate Directories in the Unified IP Phones
3. Verify that Unified IP Phone services such as Fast Dial, Extension Mobility, etc. are working properly.

Cisco IP Communicator Upgrade Exit Criteria

After upgrading Cisco IP Communicator, verify the following:

1. After rebooting the PC, launch IP Communicator and verify that it registers correctly with Unified Communications Manager
2. Place a call to IP Communicator and verify that the two-way audio works properly
3. Place outbound, inbound, and PSTN calls from the IP Communicator and verify that the two-way audio works properly.

4. Verify that additional call functionality such as hold, transfers, conferences etc. work correctly. Verify access to the Corporate Directories in the Unified IP Phones
5. Verify that Unified IP Phone services such as Fast Dial, Extension Mobility, etc. are working properly.

Cisco Unified Video Advantage Upgrade Exit Criteria

After upgrading Cisco Unified Video Advantage, verify the following:

1. After rebooting your PC, launch the Cisco Unified Video Advantage
2. Verify if Cisco Unified Video Advantage finds the Unified Video Advantage phones and gets associated to them.
3. Check if you are able to make a call to another Unified Video Advantage phone.
4. Verify the Video pops-up.
5. Check if you put a call on hold, the video goes away and when you resume the call, Video comes back.

Unified Contact Center Express Upgrade Exit Criteria

After upgrading Cisco Unified Contact Center Express Solutions, verify the following:

1. Verify that no error messages have occurred during the upgrade process.
2. Check the upgrade log file for any errors.Verify if all required services are up after upgrade.
3. Verify if JTAPI is upgraded to the proper version and it is properly connected and synchronized to Cisco Unified Communications Manager.
4. Check if all CTI Ports are registered with Cisco Unified Communications Manager.
5. Check if all CTI Route Points are registered with Cisco Unified Communications Manager.
6. Check if a prompt is heard when a call is made.
7. Perform Telephony Synchronization and ensure it is successful.
8. If you are using CAD desktop, ensure the desktop auto upgrades to the version bundled with Cisco Unified Contact Center Express Solutions.
9. Log In to IP Phone Agent, CAD Agent and CRSADMIN, and ensure all logins are successful.
10. Make an inbound call and ensure call is presented to Ready Agent.
11. If it is dual node, ensure one node is Master while other Node is in Slave state.

Cisco Unity Upgrade Exit Criteria

After upgrading Cisco Unity, verify the following:

1. Launch the System Administrator to check the software version.
2. Check the status of Cisco Unity services.
3. Run GUSI to check the software version as well as the TSP version.
4. Run the 'Verify Servers' from UTIM to check the status of the integration.
5. Check the status of the voicemail ports in Cisco Unified Communications Manager.
6. Prior to the upgrade leave a voicemail for a subscriber for the MWI to turn on. Perform the upgrade and refresh the MWI status. After the upgrade, check to see if MWI is still on.

7. Create a couple of subscribers and verify that supervised transfer and MWI work properly.
8. Check if there are any errors in the event viewer.
9. If Cisco Unity is deployed in failover mode, check the Unity status using “Failover Monitor”
10. Manually failover the server to make the secondary server active and place a call into Unity to leave a message for a subscriber and verify if MWI turns on. Retrieve to check if the MWI turns off.
11. Stop the primary server and place a call into Unity to leave a message for a subscriber and verify if MWI turns on. Retrieve to check if the MWI turns off.
12. Make a cCall to Unity Subscriber's DN extension and deposit a short voice mail. Retrieve the voice mail and then delete the voice mail.

Cisco Unity Connection Upgrade Exit Criteria

After upgrading Unity Connection, verify the following:

1. Check the Cisco Unity Connection software version from the Command Line Interface (CLI) using the **show cuc** command
2. Check the software version on the active partition from Cisco Unified OS Administration web page
3. Check the status of the services either from the Serviceability page or through the CLI.
4. Check the status of voicemail ports in Unified Communication Manager.
5. Run the **Test Port** command from the Port page under Telephony Integrations.
6. Prior to the upgrade, activate the Message Waiting Indicator (MWI) by leaving a voicemail for a subscriber. After the upgrade, refresh the MWI status And verify that the MWI is still on.
7. Create a couple of subscribers and verify that supervised transfers and the MWI functionality work properly.
8. If authentication and encryption have been enabled for the ports, place a call from an endpoint that supports encryption into Unity Connection and verify that the RTP is encrypted.
9. If authentication and encryption have been enabled for the ports, place a call from an endpoint that supports authentication into Unity Connection and verify that the signaling is secure.
10. Make a call to Unity Connection Subscriber's DN extension and deposit a short voicemail.
11. Retrieve the voice mail and then delete the voice mail from Unity Connection.

Cisco Unity Express Upgrade Exit Criteria

After upgrading Unity Express, verify the following:

1. Check the Cisco Unity Express software version from the Command Line Interface (CLI) using the `show software status` command.
2. To verify if Cisco Unity Express is registered to Cisco Unified Communications Manager, use the **show ccn status ccm-manager** command.
3. Prior to the upgrade, leave a voicemail for a subscriber for message-waiting indication (MWI) to turn on. Perform the upgrade and refresh the MWI status. Check to see if MWI is still on.
4. Configure notification for a subscriber and verify if Cisco Unity Express can place call to the configured extension when there is a new voicemail.
5. Create a subscriber, leave and check a voicemail and delete the subscriber.
6. Make a call to Unity Express Subscriber's DN extension and deposit a short voicemail.

7. Retrieve the voice mail and then delete the voice mail from Unity Express.

Unified MeetingPlace 7.x Upgrade Exit Criteria

After upgrading Unified MeetingPlace 7.x, verify the following:

1. Since you cannot upgrade on the internal Cisco Unified MeetingPlace server, to verify if installation is completed successfully, login to Cisco Unified MeetingPlace Application server console as root and type the **mpx_version** command.
2. To verify all services running, type the **mpx_sys status** command from the MeetingPlace console or through SSH.
3. Login to Cisco Unified MeetingPlace web server, select Home-->Admin -->Test Server Configuration and check that no error is reported.
4. Login to Cisco Unified MeetingPlace web server, schedule audio, web and video.Verify you are able to dial-in, dial-out, join web and video calls.
5. Login and schedule audio, web and video meetings through outlook and verify if recipients receive meeting requests and are able to join these meetings.
6. Repeat step 4 for DMZ (SMA) server.
7. Login as Conference Manager to Unified MeetingPlace Application server console and verify if you are able to schedule and attend audio, web and video meetings.

Cisco Unified MeetingPlace 6.x or Earlier Upgrade Exit Criteria

After upgrading Unified MeetingPlace 6.x or Earlier, verify the following:

1. To verify if the Cisco Unified MeetingPlace software version is upgraded, login to Cisco Unified MeetingPlace Audio Server and type the **swstatus** command.
2. To verify if all the other servers (Unified MeetingPlace web server, Unified MeetingPlace IPGW, Unified MeetingPlace DMZ, Unified MeetingPlace DS, etc.) are registered to Cisco Unified MeetingPlace Application Server after the upgrade, type the **gwstatus** command.
3. Login to "MeetingTime" or "Conference Manager" client software, schedule meetings (audio, web and video) and verify if you are able to dial-in, dial-out of audio meeting, web conference, and video call.
4. To verify if Cisco Unified MeetingPlace software version is upgraded on Unified MeetingPlace web server, Unified MeetingPlace IP Gateway, Unified MeetingPlace DMZ, Unified MeetingPlace Outlook and Unified MeetingPlace Video, type the **gwstatus** command on the Unified MeetingPlace Audio Server.
5. Login to Cisco Unified MeetingPlace web server through browser and schedule audio, web and video meetings, check if you are able to dial-out, dial-in through web and video endpoints for these meetings.
6. After the upgrade, check logs in Event Viewer->System Log and Event Viewer->Application Log for any red alert/alarm for Cisco Unified MeetingPlace Web, Unified MeetingPlace IPGW, Unified MeetingPlace DS on Windows server.

Cisco IP Videoconferencing and MCU Upgrade Exit Criteria

After upgrading Cisco IP Videoconferencing and MCU, verify the following:

1. After you reboot Cisco IP Videoconferencing, verify that it registers to Cisco Unified Communications Manager in SCCP or H323 mode.

2. When a video end point registers to Cisco Unified Communications Manager, initiate a conference with two other video end points.
3. Verify that all parties can see each other with the configured multiple video window display.
4. Invite one more person to the conference and verify if this person is seen in the video window display.

Stage 1 Exit Criteria for Cisco Unified Messaging Gateway

In Stage 1, use the existing subscribers of Cisco Unity Express, Unity Connection, Unity and perform the following:

1. Send and mark a voice mail for Cisco Unity Express user as urgent.
2. Successfully retrieve Cisco Unity Express user's message and delete it.
3. Send and mark a voice mail for Cisco Unity Connection user as private.

Stage 6 Exit Criteria for Cisco Unified Messaging Gateway

In Stage 6, do the following after each messaging component is upgraded:

1. Send and mark a voice mail for Cisco Unity Express user as urgent.
2. Successfully retrieve Cisco Unity Express user's message and delete it.
3. Send and mark a voice mail for Cisco Unity Connection user as private.
4. Successfully retrieve Unity Connection user's message and delete it
5. Send a voice mail for Unity Connection user and mark it private and urgent.
6. Successfully retrieve Unity user's message and delete it.

Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger Upgrade Exit Criteria

After upgrading the Unified ICME Support Tools Server, verify the following:

1. Ensure that basic calls and call functionality such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc. are working properly.
2. Verify that all previously registered endpoint devices have re-registered correctly.
3. Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.
4. After Side A Central Controller components have been upgraded, verify basic operations such as the following:
   - Setup logs indicate no errors or failure conditions.
   - All components can “ping” public and private IP addresses as applicable.
   - Schema upgrade is successful for all databases and there is no loss of data integrity or data.
   - Registry changes are correct and match the information in the setup logs.
   - All component services start correctly without generating errors.
   - All general activities such as ability to access SQL server and to run third-party software components like VNC or PCAnywhere, etc. are not stopped by Cisco Security Agent.
   - “Ccagent” is in service and connected to any Peripheral Gateways located in Side A.
   - Recovery process not required, no activity other than process start up.

- Configuration information is passed to the router by the logger. Replication process begins when the Historical Database Server comes online.
- Replication process begins with no errors.
- Database space allocation and % used are reported correctly.
- Unified ICME Support Tools server can acquire logs, capture registry information, and schedule collection of logs.

Cisco Unified Service Monitor (CUSM) Upgrade Exit Criteria

1. In CUSM user interface, Go to Configuration > Trap Receivers.
2. Enter the Community String and IP address of the OM server.
3. Click 'ok'. Click 'yes' when the message window pops up asking "Do you want this set up?"
4. Start background load traffic.
5. In OM Dashboard, launch the Service Quality Alerts report.
6. In CUSM GUI, Go to Configuration > Trap Receivers.
7. Enter the Community String and IP address of the OM server.
8. Click 'ok'. Click 'yes' when the message window pops up asking "Do you want this set up?"
9. Make sure background load traffic is running.
10. Check if the traps are sent to trap receiver.

Cisco Unified Operation Manager (CUOM) Upgrade Exit Criteria

1. Check whether the devices are in Monitored state.
2. Stop the CUCM services or trigger a means for the CUOM to generate alert.
3. (Optional) Check whether email is generated when the services go down.
4. Emails are generated based on the severity and setting on CUOM, Emails should be generated for the criteria that was set under Notification.
5. Check whether Discovery ends after discovering all the devices (sometimes the discovery runs continuously).
6. Check whether the devices that falls in the subnet range are discovered.
7. Check whether the filtered IP are not getting discovered during the process.
8. Schedule Phone discovery.
9. After the discovery is completed Check whether all the above listed Phone types are getting Discovered.
10. Configure and run Auto Discovery.
11. After the discovery is completed Check whether the device listed in the Description are discovered.
12. Make sure CUOM is able to discover device cap of the device discovered.

Cisco Unified Service Statistic Manager Upgrade Exit Criteria

Periodically receive reports from Cisco Unified Operation Manager and Cisco Unified Service Monitor.

Cisco Unified Provisioning Manager Upgrade Exit Criteria

1. Successfully created two new users. One user is for CUCM and Unity, the other user is for CUCM and Unity Connection.
2. Verify the same two new users are in CUCM end users, Unity, and Unity Connection.
3. Verify a test call to each newly created user's DN.

Cisco Unified Mobile Communicator (CUMC) Upgrade Exit Criteria

1. Integrate CUPS. Make the client can see other clients on contact list.
2. In Stage 4, make a call via Presence contact list. Verify there is bi-directional audio
3. In Stage 6, call CUPS's extension and deposit a voicemail. Mark voicemail as private. Notice the voicemail counter increment by 1. Retrieve the voice mail via unity pilot # and delete it. Notice the voicemail counter in CUPS decrement by 1.
4. Black Berry Smart Client retrieving Voice Mails and read/unread/delete Voice Mails
5. Meeting Notification at Black Berry Smart Client.

Cisco Unified SIP Proxy Upgrade Exit Criteria

After upgrading Cisco Unified SIP Proxy, verify the following:

1. Verify if SIP calls from Unified CM to Unified CM Business Edition through Cisco Unified SIP Proxy is successful
2. Verify if SIP calls from Unified CME to Unified CM through Cisco Unified SIP Proxy is successful
3. Verify if conference calls between Unified CM and Unified CM Business Edition through Cisco Unified SIP Proxy is successful.

Related Documentation

The following sections list compatibility guides and installation documentation for Cisco Unified Communications System components:

- Compatibility Guides
- Component Release Notes and Installation and Upgrade Documentation

Compatibility Guides

The following documentation provides information about compatibility of components:

- For information about support for legacy products and third-party product interoperability with Cisco IP telephony products, see the Cisco Interoperability Portal at:

  http://www.cisco.com/go/interoperability
- Cisco Unified Communications Compatibility Tool:
  http://tools.cisco.com/ITDIT/vtgsca
- Cisco Unified Communications Manager Compatibility Information:
  http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

- *Cisco Unified Contact Center Express Software and Hardware Compatibility Guide*: http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/crs/express_compatibility/matrix/crscomtx.pdf
- *Cisco Unified Communications Manager Express and Cisco IOS Software Version Compatibility Matrix*: http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/requirements/guide/33matrix.htm
- Cisco Computer Telephony Integration Option: CTI Compatibility Matrix: http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_technical_reference_list.html
- Cisco 7800 Series Media Convergence Servers: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_brochure_list.html
- UCS and MCS Server Models Supported by Cisco Unified Communications Manager Releases

  http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html
- Cisco Unified Communications Virtualization (including links to UCS hardware information): www.cisco.com/go/uc-virtualized
- Cisco Unified Communications System Release Summary Matrix for IPT: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/versions/IPTMtrix.html
- IP Communications System Test Release at: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/GB_resources/ipcmtrix.htm

Component Release Notes and Installation and Upgrade Documentation

Table 6-6 lists provides references to release notes and installation and upgrade documents for components. These URLs link to web pages that list various release versions of these documents. Review the appropriate documents based on the release versions of the components in your base and target release sets.

Table 6-6 Component-Specific Release Notes and Installation and Upgrade Documents

Components	Release Notes	Installation and Upgrade Documents
Cisco Unified Communications Manager	http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_installation_guides_list.html
Cisco Unity	http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps2237/prod_installation_guides_list.html
Cisco Unity Express	http://www.cisco.com/en/US/products/sw/voicesw/ps5520/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps5520/prod_installation_guides_list.html
Cisco Unified MeetingPlace	http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_installation_guides_list.html
Cisco IP/VC 3500 Series Videoconferencing	http://www.cisco.com/en/US/products/hw/video/ps1870/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/video/ps1870/prod_installation_guides_list.html

Table 6-6 Component-Specific Release Notes and Installation and Upgrade Documents (continued)

Components	Release Notes	Installation and Upgrade Documents
Cisco Unified Video Advantage	http://www.cisco.com/en/US/products/sw/voicesw/ps5662/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/voicesw/ps5662/prod_installation_guides_list.html
Cisco Unity Connection	http://www.cisco.com/en/US/products/ps6509/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6509/prod_installation_guides_list.html
Cisco Unified IP Phone 9900 Series	http://www.cisco.com/en/US/products/ps10453/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps10453/prod_installation_guides_list.html
Cisco Unified IP Phone 8900 Series	http://www.cisco.com/en/US/products/ps10451/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps10451/prod_installation_guides_list.html
Cisco Unified IP Phone 7900 Series	http://www.cisco.com/en/US/products/hw/phones/ps379/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps646/prod_installation_guides_list.html
Cisco Unified IP Phone 6900 Series	http://www.cisco.com/en/US/products/ps10326/prod_release_notes_list.html	—
Cisco Unified Operations Manager	http://www.cisco.com/en/US/products/ps6535/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6535/prod_installation_guides_list.html
Cisco Unified Presence	http://www.cisco.com/en/US/products/ps6837/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6837/tsd_products_support_install_and_upgrade.html
Cisco Unified Service Monitor	http://www.cisco.com/en/US/products/ps6536/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6536/tsd_products_support_install_and_upgrade.html
Cisco IP Communicator	http://www.cisco.com/en/US/products/sw/voicesw/ps5475/prod_release_notes_list.html	—
Cisco Unified Contact Center Express	http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_installation_guides_list.html
Cisco Emergency Responder	http://www.cisco.com/en/US/products/sw/voicesw/ps842/prod_release_notes_list.html	—
Cisco Unified Survivable Remote Site Telephony	—	http://www.cisco.com/en/US/products/sw/voicesw/ps2169/prod_installation_guides_list.html
Cisco Catalyst 3550 Series Access Switches	http://www.cisco.com/en/US/products/hw/switches/ps646/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps646/prod_installation_guides_list.html
Cisco Catalyst 6500 Series Switches	http://www.cisco.com/en/US/products/hw/switches/ps708/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps708/prod_installation_guides_list.html

Table 6-6 Component-Specific Release Notes and Installation and Upgrade Documents (continued)

Components	Release Notes	Installation and Upgrade Documents
Cisco IOS Software Releases 15.1	http://www.cisco.com/en/US/products/ps10592/prod_release_notes_list.html	—
Cisco 1861 Integrated Services Router	—	http://www.cisco.com/en/US/products/ps5853/prod_installation_guides_list.html
Cisco 3800 Series Voice Gateways	http://www.cisco.com/en/US/products/ps5855/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps5855/prod_installation_guides_list.html
Cisco 2800 Series Voice Gateways		http://www.cisco.com/en/US/products/ps5854/prod_installation_guides_list.html
Cisco 3900 Series Voice Gateways		http://www.cisco.com/en/US/products/ps10536/prod_installation_guides_list.html
Cisco 2900 Series Voice Gateways		http://www.cisco.com/en/US/products/ps10537/prod_installation_guides_list.html

INDEX

G

H

I

L

M

P

R

S

U