System Installation and Upgrade Manual for Contact Center: Cisco Unified Communications System Release 9.0(1)

First Published: August 10, 2012

Last Modified: August 20, 2012

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Text Part Number: OL-27394-01

CONTENTS

Preface

Purpose

This document provides installation and upgrade information about contact center 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 Contact Center—Provides the system-level information required to install contact center components in Cisco Unified Communications System Release 9.0(1).
- Part 2: System Upgrade for Contact Center—Provides the system-level information required to upgrade contact center components from Cisco Unified Communications System Release 8.5(1) to Cisco Unified Communications System Release 9.0(1).

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

For a complete list of contact center products included in Cisco Unified Communications System Release 9.0(1), see the Software Version Matrix in Preparation for system installation, on page 17.

Audience

This document is intended for system administrators who are familiar with the various hardware and software components included in the Cisco Unified Communications System family of contact center products. Readers

should have the technical and product knowledge to install, configure, manage, and troubleshoot the system described.

Organization

The document is divided into the following chapters:

Chapter	Description
Part 1: System Installation for Contact Center	
System installation planning, on page 3	Provides an overview of the system installation, a list of components in a typical contact center environment, and different installation strategies.
Preparation for system installation, on page 17	Discusses the general approach for the installation of contact center components, installation release set versions, and software dependencies and considerations.
System installation, on page 25	Provides information about the installation order and process for all contact center components configured in specific deployment models.
Part 2: System Upgrade for Contact Center	
System upgrade planning, on page 43	Provides an overview of the system upgrade requirements, the targeted release sets involved in the upgrade process, and upgrade paths and strategies.
System upgrade preparation, on page 59	Discusses the general upgrade approach for the different contact center components, upgrade release versions, and software compatibility considerations.
System upgrade, on page 71	Provides information about the upgrade order and process for all contact center components configured in specific deployment models.

Related documentation

The Cisco Unified Communications System Technical Information Site at:

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

contains system-level documentation, resources, and training. This site provides a suite of interactive documentation that covers details of the system architecture and components, installation and upgrade information, troubleshooting, topology diagrams, and related information.

The sites specific to IP telephony or contact center system applications for Cisco Unified Communications System Release 9.0(1) are:

- Cisco Unified Communications System for Contact Center Release 9.0(1) at:

  http://www.cisco.com/cisco/web/docs/iam/unified/ipcc901/index.html

- Cisco Unified Communications System for IP Telephony Release 9.0(1) at:

  http://www.cisco.com/cisco/web/docs/iam/unified/ipt901/index.html

Documentation and service requests

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 an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

PART I

System installation for Contact Center

CHAPTER 1

System installation planning

This chapter provides an overview of the components typically deployed in a contact center environment and the installation processes for contact center components. It also describes the types of installations and various installation strategies.

Note Many of the contact center component names have changed as part of Cisco Unified Communication System releases. Only 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 enterprise topology models in North America and European & Emerging Markets (EUEM).

Cisco Systems provides an integrated system to meet customer needs. The system contains a number of communications products that are designed, developed, tested, documented, sold, and supported as one entity. This system is built upon individual IP telephony and contact center products including, but not limited to, the Cisco Unified Communications Manager, Cisco Unified Intelligent Contact Management Enterprise (Unified ICME), Cisco Unified Customer Voice Portal (Unified CVP), Cisco Unified Contact Center Enterprise (Unified CCE), Cisco Unified Contact Center Express (Unified CCX), Cisco Unified IP Integrated Voice Response (Unified IP IVR), Cisco Unified Intelligence Center (Unified Intelligence Center), Cisco MediaSense (MediaSense), Cisco Finesse (Finesse), self-service and queuing capabilities, and voice-capable gateways and routers.

Cisco contact center solutions allow you to move beyond today's contact center to a customer interaction network by creating a better customer experience, making customer-service agents more efficient and productive, improving contact center reporting, and extending the workforce with expert. mobile, and remote agents.

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 installation documentation

The installation procedures described in this document provide a high-level guide to installing the Cisco Unified Communications System. This document provides installation information from a system perspective and only for the products that are part of Cisco Unified Communications System Release 9.0(1).

The Cisco Unified Communications contact center system should have the following basic characteristics and requirements:

- A deployment that is based on Cisco recommendations and guidelines for network design, architecture, and deployment models
- A new greenfield system deployment or integration with a legacy system deployment
- An installation of these systems, not an upgrade from previous software versions. This chapter only provides information related to installing components that are present in the Cisco Unified Communications System. See Release Set Versions in Preparation for system installation, on page 17 for more information.

Note If you have a legacy system with PBXs and other products that need to interoperate with the Cisco Unified Communication System, see Interoperability and compatibility portals, on page 15 for interoperability and integration information.

Because of the variety of the installations and the complexity of the procedures that are required to completely set up a contact center system, this document does not provide installation procedures for:

- Individual standalone components and features of these components
- Third-party coresident applications such as antivirus, security, 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 9.0(1), see:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/install/8_6_1/cluster/clstr861.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/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html

  Refer to product-specific installation documents to perform the installation and configuration of the contact center 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

- Links to component-specific installation documents for all contact center components in the Cisco Unified Communications System Release 9.0(1) are available at:

  http://www.cisco.com/cisco/web/docs/iam/unified/ipcc901/Component_Installation_and_Configuration_Guides.html

- Links to configuration information for contact center call flows and components tested in the Cisco Unified Communications System Release 9.0(1) are available at:

  http://docwiki.cisco.com/wiki/Category:Unified_Communications_System_Implementation

  Also see Related Documentation in System installation, on page 25.

System installation overview

Installation types

The following types of deployments should be considered when installing and creating a contact center environment:

- Greenfield deployment—A completely new installation of the Cisco Unified Communication System, using no existing equipment.
- Legacy deployment—A new installation of the Cisco Unified Communication 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 the new installation.
- Installed base (“brownfield” deployment)—An existing Cisco Unified Communication System, which requires an upgrade/migration from a previous system release to the current system release. For more information about upgrading an existing installation, see the system upgrade chapters later in this document.

Note When performing upgrades, be aware of backward compatibility issues such as coexistence and interoperability with sites on 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 Communication 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, you need to be aware of interoperability issues between legacy or existing component versions and the Cisco Unified Communications System Release 9.0(1) component versions.

You can browse a previous system release set by product release version in a summary matrix. Use the following links if you are unfamiliar with the version content of release sets deployed in contact center environments:

- Cisco Unified Communications System Release Summary Matrix for Contact Center at: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/versions/CCMtrix.html
- IP Communications System Test Release Matrix at: http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/GB_resources/ipcmtrix.htm

You can also see Interoperability and compatibility portals, on page 15 for information about support for legacy products and third-party product interoperability with Cisco contact center products.

Greenfield deployment release set

If you are dealing with a greenfield deployment, be aware that certain features, applications, and components are part of the Cisco Unified Communications System Release 9.0(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 a contact center environment, see Components installation overview, on page 7.

For information about the Cisco Unified Communications System Release 9.0(1) contact center components and their software and firmware versions, see Release Set Versions in Preparation for system installation, on page 17.

System installation roadmap

The following table provides an overview of the tasks that are performed in the installation of the Cisco Unified Communications contact center system.

Table 1: Overview of installation tasks

	Task	Remarks
Step 1	Perform preinstallation tasks.	See Before you begin and refer to the tasks that are described in the individual product installation documents.
Step 2	Install and cable the hardware.	—

	Task	Remarks
Step 3	Install and configure the software for the components to enable functionality between the installed components.	See System installation, on page 25 for the installation sequence of the components. Refer to the detailed installation and configuration tasks described in the individual product installation and configuration documents. Additional configuration information for contact center call flow and components tested in the Cisco Unified Communications System Release 9.0(1) is available at: http://docwiki.cisco.com/wiki/Category:Unified_Communications_System_Implementation
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 the node level
Step 5	Perform verification and validation testing in between installing components to ensure that the installed components interoperate.	
Step 6	Integrate between Cisco and third-party or legacy products to ensure interoperability.	See Before you begin and refer to the tasks that are described in the individual product installation documents.
Step 7	Perform postinstallation tasks.	See Postinstallation tasks.

Components installation overview

The Cisco Unified Communications contact center environment consists of the following primary software components:

- Call processing infrastructure consisting of Cisco Unified Communications Manager components
- Contact center routing and agent management provided by Cisco Unified Contact Center Enterprise (Unified CCE), which is based on the Unified Intelligent Contact Management Enterprise (Unified ICME) software
- Queuing provided by either Unified IP IVR, Cisco Unified Contact Center Express (Unified CCX) or Unified CVP, including Unified CVP self-service for queuing and call treatment

Note Typically, in most contact center deployments, you need to install only one of these components for queuing and call treatment purposes. However, if you want to deploy a parent and child model, you can install both components.

- Agent desktop client applications consisting of the Cisco Agent Desktop (CAD), Cisco Telephony Integration Object Server (CTI OS) desktop software or Cisco Finesse.

Note Typically, in most contact center deployments, you need to install only one of these components for agent desktop capabilities.

- Web-based reporting applications for Cisco Unified Communications family of products such as Cisco Unified Intelligence Center (Unified Intelligence Center)

In addition to these core components, the following Cisco hardware and software products are part of a typical contact center deployment:

- Cisco Unified IP Phones
- Cisco gateways and gatekeepers/proxy servers
- Cisco LAN/WAN infrastructure and components
- Cisco security components
- Network management tools
- Cisco Unified Computing System

The following table provides an overview of components in the Cisco Unified Communications System Release 9.0(1) product family that can be installed and configured in contact center environments.

For additional information, refer to Cisco Unified Communications System Product Comparison at:

http://www.cisco.com/en/US/products/sw/voicesw/products_category_buyers_guide.html

Note Some of the listed components might not apply to particular installations. Therefore, if there is an application, component, or feature listed that you do not require in your environment, you need not include them in your deployment.

Table 2: Contact Center components in Cisco Unified Communications System

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 and provide high-speed connectivity among users, applications, and communications systems.
Gateways and gatekeepers/proxy servers	Cisco gateways and gatekeepers/proxy servers are optimized for data, wireless, and IP Communications, and support IP-to-IP connectivity between independent Voice-over-IP (VoIP) networks and analog phone gateways using your existing phone equipment.

Component/ Application/Feature	Purpose
Proxy Servers	Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) [1] and Cisco Unified SIP Proxy (Unified SIP Proxy) are designed to help connect and manage SIP networks by aggregating SIP elements, enabling application of highly developed routing rules and simplifying large deployments. The Unified SIP Proxy module is designed to be an integrated solution in Cisco 3800/3900 Series Integrated Services Routers. The module provides multiple features including SIP trunk aggregation, name resolution, routing, scalability, and high availability.
Firewall and security components	Security components include firewall and policy enforcement services, intrusion prevention systems, antivirus software, and domain and web server hardening. Firewalls allow 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.
Cisco Unified Communications Manager and Call Processing Devices	
Cisco Unified Communications Manager	Unified Communications Manager provides the call-processing functionality to Cisco Unified Communications contact center networks. **Note** Make sure that you obtain the required licenses to perform the installation.
Cisco Unified Communications Manager services	A variety of services must be activated on the publisher, subscribers, and TFTP servers that are essential for call processing in the Unified Communications Manager cluster.
Cisco Unified IP Phones (SIP and SCCP)	Use different methods like auto-registration and Bulk Administration Tool (BAT) to install and add Unified IP Phones to the Unified Communications Manager database.
Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence)	Unified Communications Manager IM and Presence Service links the various knowledge within each application to provide a ubiquitous and broad view of a defined user within the Cisco Unified Communication System. It provides SIP presence to deliver Instant Messaging (IM) and Click to Call features; works in conjunction with Unified Communications Manager and supports Unified Personal Communicator, Cisco IP Phone Messenger and IBM Sametime clients. **Note** In certain deployments, IM and Presence Service can be implemented to provide SIP Proxy services as well.

Component/ Application/Feature	Purpose
Cisco Unified Personal Communicator	Cisco Unified Personal Communicator is a desktop application that integrates frequently used communications applications and services such as voice, video, instant messaging, web conferencing, voicemail, and presence information from a single, multimedia interface.
Cisco Unified Communications Manager cluster (integration with switches, routers, gateways, gatekeepers/proxy servers, JTAPI client and Cisco Unified Communications Manager Telephony client and Unified ICME)	Install the JTAPI client on the Unified Communications Manager Peripheral Gateways and the Unified Communications Manager Telephony client on the Unified IP IVR and on the Unified CCX systems to enable communication with the Unified Communications Manager cluster. Configure dial plans, route points, groups, device parameters, and the JTAPI user to set up call processing and policy rules in Unified Communications Manager to enable interaction with switches, routers, gateways, and gatekeepers/proxy servers.
Cisco Unified Contact Center Enterprise and Contact Center Components	
Cisco Unified Contact Center Enterprise software	Unified CCE combines Cisco IP telephony products and Unified ICME software to create an IP-based contact management solution that provides intelligent call routing, network-to-desktop computer telephony integration (CTI), and multimedia contact management to contact center agents over an IP network.
Cisco Unified Communications Manager (integration with Cisco Unified Contact Center Enterprise)	Unified Communications Manager provides call processing to the Unified CCE applications, but requires configuration changes to support Unified CCE such as CTI and JTAPI capabilities.
Cisco Unified Intelligent Contact Management Enterprise software	Unified ICME software provides the intelligence needed to make call-by-call routing decisions for your call center using a combination of multichannel contact management, intelligent routing, and network-to-desktop computer telephony integration (CTI) capabilities. This software includes the Rogger (CallRouter and Logger), Peripheral Gateways (generic and Real-Time Administrator Workstation/Cisco Unified Intelligence Center/HDS servers.
Cisco Unified Intelligent Contact Management Enterprise setup	Configure skill groups, device targets, labels, agents, scripts and others on Unified ICME to provide call routing capabilities.
Computer Telephony Integration Object Server (CTI OS)	CTI OS is a server-based integration point for third-party applications and for deploying CTI applications that provide desktops for use by call center agents and supervisors. Configuration and behavior information is managed at the server, simplifying customization, updates, and maintenance.

Component/ Application/Feature	Purpose
Cisco Agent Desktop server	Cisco Agent Desktop is a computer telephony integration (CTI) solution that provides agents and supervisors call control capabilities, such as call answer, hold, conference, and transfer, and ACD state control and so on.
CTI OS and Cisco Agent and Supervisor Desktops	CTI OS includes the CTI OS Server, CTI OS Agent/Supervisor Desktop, CTI OS Toolkit, and Client Interface Library (CIL). Cisco Agent/Supervisor Desktop includes the Desktop Administrator, Agent Desktop, and Supervisor Desktop. The desktop applications provide productivity tools for agents and supervisors. The desktop allows supervisors to view agent states and call information, to send text messages to agents, to record conversations, and to provide advanced monitoring functions. You can select which application to deploy in the Unified CCE system.
Cisco Unified Contact Center Express	Provides customer interaction management services for medium-sized businesses and enterprise branches with up to 300 agents; options include multichannel content management and outbound campaign management. **Note** Make sure you obtain the required licenses to perform the installation.
Cisco Unified IP IVR	Provides IP-based Interactive Voice Response (IVR) and queueing capabilities for the Unified CCE system. **Note** Make sure you obtain the required licenses to perform the installation.
Cisco Unified IP IVR system setup	Configure media dialog groups, Unified Communications Manager Telephony connection, Unified ICME connection port, Voice Response Unit (VRU) scripts, applications, prompts and others on the Cisco Unified IP IVR system to provide call routing capabilities.
Cisco Unified CVP system	Unified CVP provides a call-management and call-treatment solution with a self-service IVR option. Automated speech recognition (ASR) and text-to-speech (TTS) capabilities enable callers to obtain personalized information and conduct business without interacting with a live agent. **Note** Make sure you obtain the required licenses to perform the installation.
Cisco Unified CVP (integration with Cisco Unified SIP Proxy)	Cisco Unified SIP Proxy (Unified SIP Proxy) is added as a server under Device Management in the Unified CVP Operations Console. Static routes are configured in Unified SIP Proxy to route incoming calls to Unified CVP from the gateway, to transfer calls to the VXML gateway, and to transfer calls to agent devices on Unified Communications Manager.

Component/ Application/Feature	Purpose
Cisco Outbound Option	Outbound Option provides outbound dialing functionality that can be "blended" with the existing inbound capabilities of Unified ICME software. Related components that require installing and configuring include the Outbound Campaign Manager, Outbound Dialer, SIP Dialer, and Media Routing Peripheral Gateway (MRPG). **Note** In an Outbound Option deployment that uses the SIP Dialer, functions such as dialing, call control, and Call Progress Analysis for Outbound campaigns are handled by the voice gateway, and not by Unified Communications Manager. This increases the number of outbound agents that a deployment can service on a PG, and reduces the number of PGs and Dialers customers need to deploy for larger enterprise systems.
Supervisors and agents setup	This enables Unified Communications Manager, Unified ICME and gateways to route calls to the different types of supervisors and agents within and outside the contact center environment such as CAD, CTI OS, Remote Agents and Cisco Unified Mobile Agents.
Cisco Finesse	Finesse is a browser-based agent and supervisor desktop implemented through a web 2.0 interface that integrates traditional contact center functions into a thin-client desktop. Finesse has a customizable interface, that gives customer care providers quick and easy access to multiple assets and information sources.
Cisco MediaSense	MediaSense is an IP media recording and playback system that implements the Open Recording Architecture open interfaces. MediaSense comprises many elements to support IP based recording. It solves topology issues and accelerates the adoption of Cisco Unified Communications Solutions.
Cisco SocialMiner	SocialMiner is a social media customer care solution that provides social media monitoring, queuing, and workflow to organize customer posts on social media networks like Twitter, Facebook, or other public forums or blogging sites. SocialMiner delivers posts to the social media customer care team, so they can respond to customers in real time using the same social network the customers are using.
Agent Greeting and Whisper Announcement	Agent Greeting is defined as the ability for a computer telephony integration (CTI) application (e.g. contact center) to instruct Cisco Unified Communications Manager to automatically play a pre-recorded announcement to the customer immediately following a successful media connection to the Agent device. Whisper Announcement is defined as the ability to play a pre-recorded announcement to an Agent right before the caller is connected. The announcement is played to the Agent only and is not heard by the customer. The announcement helps the Agent answer the call correctly.

Component/ Application/Feature	Purpose
Cisco Unified Intelligence Center	Unified Intelligence Center offers both a web-based Reporting application and an Administration interface. The Reporting application is designed for use with report templates that are populated by the report databases of Unified Contact Center Enterprise and Unified Customer Voice Portal. The Administration interface supports the Operations, Administration, Maintenance, and Provisioning (OAMP) of the Reporting application.
Cisco Security Agent	The agent provides intrusion detection and prevention and controls system operations by using a policy that allows or denies specific system actions before system resources are accessed. **Note** Cisco Security Agent comes bundled with the product software for Unified Communications Manager, Unified CCX and Unified IP IVR.
Cisco Unified Operations Manager	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 Computing System	
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.
UCS C-series Rack Mount Server	The Unified Computing System (UCS) family expands to include the C-Series Rack Mount Servers. The Cisco Unified Computing System C210 M2 General-Purpose Rack Mount Server balances performance, density and efficiency for storage-intensive workloads. The system is built for applications such as network file servers and applications, storage servers, database servers, and content-delivery servers.

1 For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).

For installation information on Cisco Unified Communications System Release 9.0(1) IP telephony components, see *System Installation and Upgrade for IP Telephony* at http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/UC9.0.1/ipt_system_inst_upg/VTGS_BK_S3E53B1F_00_system-installation-and-upgrade-manual.pdf.

Related Topics

Preparation for system installation, on page 17

System installation strategies

This section discusses the installation strategies for contact center components in the release set being deployed. Details of individual components installations are not described unless additional information or clarification is required.

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

Single-stage installation using new hardware (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 is operational once it is turned on and the required software is installed and initial configuration is completed.

Single-stage installation using new hardware (legacy deployments)

A new network using the 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.

In this strategy, you can implement the release versions on the new hardware and migrate all users from the existing legacy network to the new network in a single installation window using a flash-cut installation process.

Because interoperability is not required with the legacy system, components of the legacy system need not be upgraded and can remain at their original release versions. After all users have been moved to the newly installed system, the legacy system is decommissioned.

Multistage installation using new hardware (legacy deployments)

A new network using the 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 section.

Interoperability and compatibility portals

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

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

- Cisco Unified Communications Compatibility Tool:

  http://tools.cisco.com/ITDIT/vtgsca

- Cisco Unified Communications Manager (CallManager) Compatibility Information:

  http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

- Hardware and Software Compatibility Information for Cisco Unified Presence Release 9.0(1):

  http://www.cisco.com/en/US/products/ps6837/products_device_support_tables_list.html

- *Cisco Unified Contact Center Enterprise (Unified CCE) Software Compatibility Guide*:

  http://docwiki.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCE

- *Hardware and System Software Specification (Bill of Materials) for Cisco Unified ICM/ Contact Center Enterprise & Hosted:*

  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/icm_enterprise/icm_enterprise_9_0_1/reference/guide/_ICM9.0_BOM.pdf

- *Cisco Unified Contact Center Express (Cisco Unified CCX) 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

- *Hardware and System Software Specification for Cisco Unified Customer Voice Portal (Unified CVP), Release 9.0(1)* at:

  http:/www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_technical_reference_list.html

- Cisco 7800 Series Media Convergence Servers:

  http://www.cisco.com/en/US/products/hw/voiceapp/ps378/index.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 Unified Communications Virtualization (including links to UCS hardware information):

http://www.cisco.com/go/uc-virtualized

- Cisco Unified Communications System Release Summary Matrix for Contact Center:

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

- IP Communications System Test Release Matrix:

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

CHAPTER 2

Preparation for system installation

This chapter provides information that you should review before the actual installation process such as the general installation approach, release set software versions of the contact center components being installed, and dependencies impacting system installation.

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

Before you begin

Before you install and configure the Cisco Unified Communications contact center family of products, make sure that you have performed the required planning, design and implementation activities that are part of the Cisco Systems product deployment and lifecycle model.

Note See the Cisco Unified Communications System Technical Information Site at http://www.cisco.com/en/US/docs/voice_ip_comm/uc_system/unified/communications/system/ucstart.htm for comprehensive system-level deployment and lifecycle model information.

This section lists some, but not all, of the required planning, design and implementation activities:

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

- Assess your business and technical requirements such as call flows, capacity and critical features, and incumbent dependencies.
- Consider integration for legacy and third-party products (see System Installation Overview in System installation planning, on page 3).
- Assess system passwords requirements and create a password synchronization and maintenance strategy.
- Assess your services and support strategy for training and lifecycle support.

Design phase

- Develop a high-level and low-level design including product and component selections appropriate for your needs.
- Use the recommendations of the Cisco Solution Reference Network Design (SRND) documents at:

  http://www.cisco.com/go/srnd
- Become familiar with Cisco Unified Communications System Release 9.0(1) components and subsystems in the *Cisco Unified Communications System 9.x SRND*:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/9x/uc9x.html
- Review system description, architecture, and testing information for contact center systems at:

  http://www.cisco.com/cisco/web/docs/iam/unified/ipcc901/index.html

Note The results derived 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 overall deployment.

Implementation 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 implementation 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 at each site such as:
  - Catalog and inventory the equipment.
  - Install equipment in data racks.
  - Complete cabling and other physical connectivity tasks.
  - Ensure that no duplex mismatches exist.

- Verify all units power up correctly.
- Capture rack layout, cabling, port-specific details, and so on.

- Conduct software installation and verification tasks at each site such as:
  - Check that all the required installation discs are available for each system component being installed.
  - Check that all the required installation discs are available for software applications, including third-party applications.
  - Access and download the license files required to install and operate the appropriate software at: http://www.cisco.com/go/license

System installation approach

After you perform preinstallation tasks, install each Cisco Unified Communications Manager cluster and its associated contact center components at one time, before installing the next cluster.

The installation sequence of the contact center 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. For additional information, see Interoperability and Compatibility Portals in System installation planning, on page 3

The following table provides the general approach to installing a contact center environment.

Table 3: System installation general sequence

	Procedure	Remarks
Step 1	Install and configure network infrastructure such as switches and routers, 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 requires.
Step 2	Install the operating system on system servers and install and configure directory and network services.	These services include LDAP, DNS, NTP, and DHCP 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: http://www.cisco.com/go/uc-virtualized
Step 3	Install call processing components such as Unified Communications Manager clusters.	Make sure that you complete all initial setup and configuration procedures that are required.

	Procedure	Remarks
Step 4	Install and configure the contact center components based on your requirements and the interdependencies of components.	See System installation, on page 25 for the installation sequence of the components. Refer to the detailed installation and configuration tasks described in the individual product installation and configuration documents. Additional configuration information for contact center call flows and components tested in the Cisco Unified Communications System Release 9.0(1) is available at: http://docwiki.cisco.com/wiki/Category:Unified_Communications_System_Implementation
Step 5	Install and configure gateways, gatekeepers/proxy servers, network management tools, and other third-party services and applications.	—
Step 6	Complete postinstallation tasks.	These tasks include system validation and verification.

Release set versions

This section provides the software versions of the Cisco Unified Communications System Release 9.0(1) contact center components.

Software version matrix

The following table lists the release versions of the Cisco Unified Communications System Release 9.0(1) components in the contact center test environment.

Note For current Cisco Unified Communications System Release 9.0(1) compatible component versions, refer to the Cisco Unified Communications Compatibility Tool: http://tools.cisco.com/ITDIT/vtgsca/VTGServlet

Table 4: Software versions for Contact Center components in Cisco Unified Communications System Release 9.0(1)

Category	Component	Release 9.0(1)
Contact Center	Cisco Unified Communications Manager	9.0(1)
	Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise	9.0(1)
	Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise Operating System	Win2008 R2 SP1
	Cisco Unified Contact Center Express	9.0(1)
	Cisco Unified IP IVR	9.0(1)
	Cisco Unified Contact Center Express/Unified IP IVR Operating System	Bundled with Software
	Cisco Unified Customer Voice Portal	9.0(1)
	Cisco Unified Customer Voice Portal Operating System	Win2008 R2 SP1
	Cisco Unified Intelligence Center	8.5(4)
	Cisco Finesse	9.0(1)
	Cisco MediaSense	8.5(4)
	Cisco SocialMiner	9.0(1)[2]
Applications	Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) [3]	9.0(1)
	Cisco Unified SIP Proxy	8.5(2)
Voice Mail and Unified Messaging	Cisco Unity Connection	9.0(1)
Conferencing	Cisco TelePresence MCU MSE Series	4.3
	Cisco TelePresence Content Server	5.2 Build 3222
	Cisco Voice and Video Conferencing for ISR G2 Routers	15.2(3)T1

Category	Component	Release 9.0(1)
End Points and Clients	Cisco IP Communicator	8.6(1) [4]
	Cisco Unified Video Advantage	2.2(2)
	Cisco Unified IP Phones 7900 Series (7942, 7945, 7962, 7965 and 7975)	Bundled with Unified Communications Manager. Firmware 9.3.1
	Cisco Unified IP Phones 6900 Series (6921, 6941 6961, and 6945)	Firmware 9.3.1
	Cisco Unified IP Phones models 9951 and 9971	Firmware 9.3.1
	Cisco Unified IP Phones model 8961	Firmware 9.3.1
	Cisco Unified IP Phones models 8941, 8945	Firmware 9.3.1
	Cisco Virtualization Experience Clients	Firmware 9.2.1
	Cisco IP Video Phone E20	TE 6.0.0
	Cisco TelePresence System EX90	TE 6.0.0
	Cisco TelePresence System EX60	TE 6.0.0
Wireless	Cisco Aironet 3502 Access Point	AIR-WLC4400-K9- 7-0-116-0-ER.aes
	Cisco Aironet 1142 Access Point	AIR-WLC4400-K9- 7-0-116-0-ER.aes
Security	Cisco Adaptive Security Appliance (5520, 5540, 5580) Services	8.4(3)
	Cisco Security Agent for Unified Communications Manager	Bundled with Unified Communications Manager
	Cisco Security Agent for Unified IP IVR	Bundled with Unified IP IVR
	Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express
Licensing	Enterprise License Manager	9.0(1)

Category	Component	Release 9.0(1)
Communications Infrastructure	Cisco IOS Mainline Release	15.2(3)T1[5]
	Cisco 3825, 3845 (Unified CVP VXML, voice/data, H.323, SIP, MGCP, IOS-based Transcoders and Conference Bridges, and Cisco Unified Border Element gateways)	15.2(3)T1
	Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.2(3)T1
	Cisco 3900 series routers	15.2(3)T1
	Cisco AS5400XM (Unified CVP VXML, voice, H.323, SIP and PSTN gateways)	15.2(3)T1
	Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.2(3)T1
	Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	XE3.6
	Cisco VGD-1T3 Voice Gateway	15.2(3)T1
	Cisco 3825 MGCP gateway	15.2(3)T1
	RSVP Agent (on 38xx platforms)	15.2(3)T1
	Cisco 881 router	15.2(3)T1
	Cisco 891 router	15.2(3)T1
	Cisco SRE 910 Service Module	15.2(3)T1
	Cisco Unified Computing System B200 M2 Blade Server, Cisco Unified Computing System C200 M2 General-Purpose Rack-Mount Server, Cisco Unified Computing System C210 M2 General-Purpose Rack-Mount Server (Unified Communications Virtualization): Release 9.0(1) Version: Cisco UCS B-Series 2.0(lq), Cisco UCS C-Series 1.4(3c)2	VMWare ESXi 4.1
	Cisco UCS Express	2.0.1
	Cisco ASR1002	IOS-XE 15.1(1)S
	Cisco Catalyst 6503 (access switch)	12.2(18)SXF10

Category	Component	Release 9.0(1)
	Cisco Catalyst 6506 (access switch)	12.2(33)SXH2A
	Cisco Catalyst 3750 (access switch)	12.2(55)SE1

2 Cisco SocialMiner is tested as part of Unified CCX, not as a standalone product.

3 For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).

4 This product is EOL on October 25, 2012.

5 IOS 15.2(3)T is not compatible with the 28xx and 38xxrouters. The option to stay on IOS 15.1(4)M may be available to maintain 28/38xx routers which will receive extended maintenance in accordance with IOS EOL and EOS policies.

System installation dependencies

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

CHAPTER 3

System installation

This chapter provides guidance for the installation order of components for a Cisco Unified Communications System Release 9.0(1) contact center deployment. Use this chapter along with information from the planning and design phases as input to your implementation plan. The implementation plan 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 Related documentation, on page 35 for references to these documents.

Note Many of the contact center component names have changed as part of Cisco Unified Communication System releases. Only 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 model. 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 list the installation sequence of components in the various deployment models in the Cisco Unified Communications contact center test environment:

Detailed information about these contact center deployment models at different sites is available at http://www.cisco.com/cisco/web/docs/iam/unified/ipcc861/Review_Tested_Deployment_Models.html and in the following documents:

- *System Description: Cisco Unified Communications Release 9.0(1)* at:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/ipcc_enterprise/ippcenterprise9_0_1/design/guide/ucce_srnd_9.x.pdf

- *Cisco Unified Contact Center Enterprise Solution Reference Network Design (SRND)* at:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/ipcc_enterprise/ippcenterprise9_0_1/design/guide/ucce_srnd_9.x.pdf

After you determine the general installation sequence for your deployment model, use one of the installation strategies that is described in Component installations, on page 30 to install your components.

Single site model

A single-site deployment refers to any scenario where all voice gateways, agents, desktops, phones, and call processing servers (Unified Communications Manager, Unified ICME/Unified CCE, and Unified IP IVR, Unified CCX or Unified CVP) are located at the same site and have no WAN connectivity between any Unified CCE software modules.

In the single site model, be aware of the following installation order for:

1. Infrastructure components such as:
   - Core and access switches and routers
   - Voice and data gateways and gatekeepers/proxy servers
   - Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence)[6] (as a SIP Proxy Server for Unified CVP implementation)
   - Security components
   - Wireless LAN Controllers and Access Point(s)
2. Directory and network service components such as:
   - Domain Controllers (including Active Directory)
   - LDAP Directory
   - NTP Server
   - DHCP Server
   - DNS Server
   - TFTP Server
3. Network Management applications such as:
   - Cisco Unified Operations Manager

[6] For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).

4 Call processing components such as:

- Cisco Unified Communications Manager
- Cisco Unified IP Phones and Endpoints
- Cisco Unified IP Communicator
- Cisco IME

5 Messaging components such as:

- Cisco Unity Connection
- Voice Recognition Server

6 Media resource components such as:

- Music-On-Hold servers
- Transcoders
- Conference bridges
- Media termination points
- RSVP agents

7 Contact Center components such as:

- Cisco Unified ICM system (CallRouter, Logger, Peripheral Gateway, CTI OS and Cisco Agent Desktop (CAD) servers)
- Real-time Administration Workstation (at least one)
- Cisco Unified Outbound Dialer
- CTI OS Agent and Supervisor Desktop
- Cisco Agent Desktop (CAD) and Cisco Supervisor Desktop (CSD)
- VoIP Monitor
- Cisco Unified Customer Voice Portal (CVP) Voice Browser/Application Server/ HTTP Media Server or Cisco Unified IP IVR
- Cisco Unified Intelligence Center
- Cisco MediaSense, Cisco Finesse and Cisco SocialMiner

8 Cisco applications co-resident on MCS servers (such as Cisco Security Agent, etc.)

9 Third-party on-board agents on MCS servers (such as antivirus, backup agent, management agent (SNMP))

Note If using MCS servers for Unified Communications Manager Release 9.0(1), third-party on-board agents must be installed on a separate MCS server.

Multi-site centralized model

A multi-site deployment with centralized call processing refers to any scenario where call processing servers (Unified Communications Manager, Unified ICME, and Unified IP IVR, Unified CCX, or Unified CVP) are located at the same site, while any combination of voice gateways, agents, desktops, and phones are located remotely across a WAN link or centrally.

In the multi-site centralized model, install the central site first and then install the remote sites.

Central site

In the central site, be aware of the following installation order for:

1. Infrastructure components such as:
   - Core and access switches and routers
   - Voice and data gateways and gatekeepers/proxy servers
   - Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) (as a SIP Proxy Server for Unified CVP implementation)
   - Security components
   - Wireless LAN Controllers and Access Point(s)
2. Directory and network service components such as:
   - Domain Controllers (including Active Directory)
   - LDAP Directory
   - NTP Server
   - DHCP Server
   - DNS Server
   - TFTP Server
3. Network Management applications such as:
   - Cisco Unified Operations Manager
4. Call processing components such as:
   - Cisco Unified Communications Manager
   - Cisco Unified IP Phones and Endpoints
   - Cisco Unified IP Communicator
   - Cisco IME
5. Messaging components such as:
   - Cisco Unity Connection
   - Voice Recognition Server

6 Media resource components such as:

- Music-On-Hold servers
- Transcoders
- Conference bridges
- Media termination points
- RSVP agents

7 Contact Center components such as:

- Cisco Unified ICM system (CallRouter, Logger, Peripheral Gateway, CTI OS and Cisco Agent Desktop (CAD) servers)
- Real-time Administration Workstation (at least one)
- Cisco Unified Outbound Dialer
- CTI OS Agent and Supervisor Desktop
- Cisco Agent Desktop (CAD) and Cisco Supervisor Desktop (CSD)
- VoIP Monitor
- Cisco Unified Customer Voice Portal (CVP) Voice Browser/Application Server/ HTTP Media Server or Cisco Unified IP IVR
- Cisco Unified Intelligence Center
- Cisco MediaSense, Cisco Finesse and Cisco SocialMiner

8 Cisco applications co-resident on MCS servers (such as Cisco Security Agent, etc.)

9 Third-party on-board agents on MCS servers (such as antivirus, backup agent, management agent (SNMP))

Note If using MCS servers for Unified Communications Manager Release 9.0(1), third-party on-board agents must be installed on a separate MCS server.

Remote site

For the remote site(s), be aware of the following installation order for:

1 Infrastructure components such as:

- Access switches
- Voice and data gateways
- Cisco Secure ASA Firewall
- Cisco wireless LAN Controller(s) and Aironet Access Point(s)

2 CTI OS Agent and Supervisor Desktop

3 Cisco Agent Desktop and Cisco Supervisor Desktop

Multi-site distributed model

In this model, each site has its own Unified Communications Manager cluster, treatment and queue points, Peripheral Gateways, and CTI Server. However, as with the centralized call processing model, sites could be deployed with or without local voice gateways. Some deployments may also contain a combination of distributed voice gateways (possibly for locally dialed calls) and centralized voice gateways (possibly for toll-free calls) as well as centralized or distributed treatment and queue points. The multi-site distributed model includes several Unified CCE and Unified Communications Manager cluster sites interconnected by ICT or H.323 trunks.

Install the components in each cluster site and any small remote sites as listed in the Multi-site centralized model, on page 28 section.

Note Treat the installation of each cluster site as a separate stage in the overall system installation.

Clustering over WAN model

In the Clustering over the WAN (CoW) model, a single Unified Communications Manager cluster with its subscriber servers and Unified CCE components are split across multiple sites connected via a QoS-enabled WAN. This model provides the redundancy of the distributed model with the simplicity of administering a single Unified Communications Manager cluster and Unified CCE installation.

Install the central sites first where CoW is implemented and then install any remote sites as listed in the Multi-site centralized model, on page 28 section.

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

Component installations

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

- Single-stage installation—Recommended for small single-site and multisite deployments.
- Multistage system installation—Recommended for medium and large single-site and medium multisite deployments.
- Multisite Phased installation—To install large, multisite contact center deployments to the Cisco Unified Communications release set using the multisite phased installation strategy, you can use either the single-stage or multistage system installation information listed in this section.

Note After you install the system software and applications, you may also need to install client software such as CTI OS and CAD desktop software, and others on the client desktops.

To install each component, see the product-specific installation document for the relevant release for detailed information.

Related Topics

Single-stage installation, on page 31
Multistage system installation, on page 31
System installation planning, on page 3
Preparation for system installation, on page 17
Related documentation, on page 35

Single-stage installation

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

Table 5: Single-stage installation order for Contact Center components

Order	Components Being Installed
1	Infrastructure
2	Directory and network services
3	Network management applications
4	Call processing
5	Messaging
6	Media resource
7	Contact center
8	Cisco application
9	Third-party on-board agents[7]

[7] If using MCS servers for Unified Communications Manager Release 9.0(1), third-party on-board agents must be installed on a separate MCS server.

Related Topics

Preparation for system installation, on page 17

Multistage system installation

A multistage system installation is the recommended approach for medium and large single-site and medium multisite installations. In this installation process, components are grouped together for installing 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 installed. For smaller networks, one or more stages may be collapsed into a single maintenance window. For larger networks, some stages may require multiple maintenance windows.

After each installation window, we recommend that you verify that the interoperability of the installed components before you initiate the next installation stage listed in the table. We also recommend that you maintain a list to track the components that have been installed and the ones yet to be installed.

The following table lists the recommended order in which to install components in stages and the sequence within each stage.

Table 6: Multistage system installation order for Contact Center components

Stage	Component Groupings	Installation Order of Components in Each Stage
1	Infrastructure components	**1** Core Switches **2** Access Switches **3** IOS Gateways (SIP, MGCP and H.323) **4** Cisco Unified CVP VXML Gateway **5** IOS Gatekeepers/Proxy Servers **6** Cisco Unified Border Element **7** Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) (as a SIP Proxy Server for Unified CVP implementation **8** Cisco Adaptive Security Appliance (ASA) 5540 Services **9** Cisco Adaptive Security Appliance 5500 AIP Security Services Module (IPS) **10** Cisco Aironet Access Point 1240AG
2	Directory and network service components	**1** Domain Controllers (including Active Directory) **2** LDAP Directory **3** NTP Server **4** DHCP Server **5** DNS Server **6** TFTP Server
3	Network management components	**1** Cisco Unified Operations Manager

Stage	Component Groupings	Installation Order of Components in Each Stage
4	Call processing components	**1** Cisco Unified Communications Manager **2** Cisco Unified IP Phones and Endpoints **3** Cisco Unified IP Communicator **4** Cisco IME
5	Messaging components	**1** Cisco Unity Connection **2** Voice Recognition Server
6	Media resource components	**1** Music-On-Hold servers **2** Conference bridges **3** Transcoders **4** Media termination points **5** RSVP agents
7	Contact center components	**1** Cisco Unified ICM system (CallRouter, Logger, Peripheral Gateway, CTI OS and Cisco Agent Desktop (CAD) servers) **2** Real-time Administration Workstation (at least one) **3** Cisco Unified Outbound Dialer **4** CTI OS Agent and Supervisor Desktop **5** Cisco Agent Desktop (CAD) and Cisco Supervisor Desktop (CSD) **6** VoIP Monitor **7** Cisco Unified Customer Voice Portal (CVP) Voice Browser/Application Server/ HTTP Media Server or Cisco Unified IP IVR **8** Cisco Unified Intelligence Center **9** Cisco MediaSense **10** Cisco Finesse and Cisco Social Miner
8	Cisco applications co-resident on MCS servers	**1** Cisco Security Agent

Stage	Component Groupings	Installation Order of Components in Each Stage
9	Third party on-board agents[8] on MCS servers	**1** Antivirus **2** Backup agent **3** Management agent

8 If using MCS servers for Unified Communications Manager Release 9.0(1), third party on-board agents must be installed on a separate MCS server.

Related Topics

Preparation for system installation, on page 17

Postinstallation tasks

After you complete the tasks in the implement phase and install the contact center 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 contact center system using the configuration information available at: http://docwiki.cisco.com/wiki/Category:Unified_Communications_System_Implementation

Operate phase

Ensure that the newly-installed contact center 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. Cisco Unified Analysis Manager (Unified Analysis Manager) is a new application included with RTMT that collects troubleshooting information from your system and provides an analysis of that information.
  - Network management at the system level—Use Unified Operations Manager to perform SNMP/HTTP/syslog monitoring, 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 contact center system.

- Provide documentation including as-builts, equipment inventory lists, topology diagrams, and unique design or feature considerations.
- Explain the engagement process with Technical Assistance Center (TAC) support and the tasks to perform before contacting TAC.

- Conduct Day 2 operations (post-cutover) tasks such as:
  - Enforce security with the appropriate anti-virus 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/ipcc901/Backing_Up_and_Restoring_Components.html
  - Ensure that a change control process exists within the customer's organization.
  - Plan for release set management and system and security patches updates.

Optimize phase

During this phase, perform system optimization 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, on page 35
- Component release notes and installation and upgrade documents, on page 36

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

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

- Cisco Unified Communications Compatibility Tool:

  http://tools.cisco.com/ITDIT/vtgsca
- Cisco Unified Communications Manager (CallManager) Compatibility Information:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

- Hardware and Software Compatibility Information for Cisco Unified Presence Release 8.5(1), including TCP and UDP port usage:

  http://www.cisco.com/en/US/products/ps6837/products_device_support_tables_list.html

- Cisco Unified Contact Center Enterprise (Unified CCE) Software Compatibility Guide:

  http://docwiki.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCE

- Hardware and System Software Specification (Bill of Materials) for Cisco Unified ICM/ Contact Center Enterprise & Hosted:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/icm_enterprise/icm_enterprise_9_0_1/reference/guide/_ICM9.0_BOM.pdf

- Cisco Unified Contact Center Express (Cisco Unified CCX) 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

- Hardware and System Software Specification for Cisco Unified Customer Voice Portal (Unified CVP), Release 9.0(1):

  http:/www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_technical_reference_list.html

- Cisco 7800 Series Media Convergence Servers:

  http://www.cisco.com/en/US/products/hw/voiceapp/ps378/index.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 Unified Communications Virtualization (including links to UCS hardware information):

  http://www.cisco.com/go/uc-virtualized

- Cisco Unified Communications System Release Summary Matrix for Contact Center:

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

- IP Communications System Test Release Matrix:

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

Component release notes and installation and upgrade documents

The following table provides a listing of contact center components and URLs for related component release notes and installation and upgrade documents.

Table 7: 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 Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence)	http://www.cisco.com/en/US/products/ps6837/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6837/prod_installation_guides_list.html
Cisco Unified SIP Proxy	http://www.cisco.com/en/US/products/ps10475/prod_release_notes_list.html	—
Cisco Unified Intelligent Contact Management	http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_installation_guides_list.html
Cisco Unified Contact Center Enterprise	http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_installation_guides_list.html
Cisco Unified Contact Center Express and Cisco Unified IP IVR	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 Customer Voice Portal	http://www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_installation_guides_list.html
Cisco Outbound Option	—	http://www.cisco.com/en/US/products/sw/custcosw/ps524/prod_installation_guides_list.html
Cisco Telephony Integration Object Server (CTI OS)	http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_installation_guides_list.html
Cisco Agent Desktop (CAD)	http://www.cisco.com/en/US/products/sw/custcosw/ps427/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps427/prod_installation_guides_list.html
Cisco Unified Intelligence Center	http://www.cisco.com/en/US/products/ps9755/prod_release_notes_list.html	—
Cisco Unified Personal Communicator	http://www.cisco.com/en/US/products/ps6844/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6844/prod_installation_guides_list.html

Components	Release Notes	Installation and Upgrade Documents
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 MediaSense	http://www.cisco.com/en/US/products/ps11389/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps11389/prod_installation_guides_list.html
Cisco Finesse	http://www.cisco.com/en/US/products/ps11324/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps11324/prod_installation_guides_list.html
Cisco Social Miner	http://www.cisco.com/en/US/products/ps11349/prod_release_notes_list.html	—
Cisco Unified Computing System	http://www.cisco.com/en/US/products/ps10477/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps10477/prod_installation_guides_list.html
Cisco ASA 5500 Series Adaptive Security Appliances	http://www.cisco.com/en/US/products/ps6120/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6120/tsd_products_support_install_and_upgrade.html
Cisco Security Agent	http://www.cisco.com/en/US/products/sw/secursw/ps5057/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/secursw/ps5057/tsd_products_support_install_and_upgrade.html
Cisco Series 800 Routers	http://www.cisco.com/en/US/products/hw/routers/ps380/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/routers/ps380/prod_installation_guides_list.html
Cisco 2900 Series Integrated Services Routers	--	http://www.cisco.com/en/US/products/ps10537/index.html
Cisco Series 7200 Routers	http://www.cisco.com/en/US/products/hw/routers/ps341/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/routers/ps341/prod_installation_guides_list.html
Cisco Catalyst 3600 Series MultiService Platforms	—	http://www.cisco.com/en/US/products/hw/routers/ps274/prod_installation_guides_list.html
Cisco AS5400 Series Universal Gateways	http://www.cisco.com/en/US/products/hw/univgate/ps505/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/univgate/ps505/prod_installation_guides_list.html

Components	Release Notes	Installation and Upgrade Documents
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 3900 Series Routers	—	http://www.cisco.com/en/US/products/ps10536/prod_installation_guides_list.html
Cisco VGD 1T3 Voice Gateway	—	http://www.cisco.com/en/US/products/ps9890/prod_installation_guides_list.html
Cisco Catalyst 3750 Series Access Switches	http://www.cisco.com/en/US/products/hw/switches/ps5023/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps5023/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 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/phones/ps379/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 Aironet Access Point 1240AG	http://www.cisco.com/en/US/products/ps6521/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6521/prod_installation_guides_list.html
Cisco IOS Software Releases 15.2	http://www.cisco.com/en/US/products/ps10592/prod_release_notes_list.html	—

System Installation and Upgrade Manual for Contact Center: Cisco Unified Communications System Release 9.0(1)

PART II

System upgrade for Contact Center

CHAPTER 4

System upgrade planning

This chapter provides an overview of the upgrade process for contact center components, the software releases that are involved in the upgrade process, and the different upgrade strategies that can be used based on the size of the customer network.

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

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 enterprise topology models in North America and European & Emerging Markets (EUEM).

Cisco Systems provides an integrated system to meet customer needs. The system contains a number of communications products that are designed, developed, tested, documented, sold, and supported as one entity. This system is built upon individual IP telephony and contact center products including, but not limited, to the Cisco Unified Communications Manager, Cisco Unified Intelligent Contact Management Enterprise (Unified ICME), Cisco Unified Customer Voice Portal (Unified CVP), Cisco Unified Contact Center Enterprise (Unified CCE), Cisco Unified Contact Center Express (Unified CCX), Cisco Unified IP Integrated Voice Response (Unified IP IVR), Cisco Unified Intelligence Center (Unified Intelligence Center), Cisco MediaSense (MediaSense), Cisco Finesse (Finesse) and voice-capable gateways and routers.

Cisco contact center solutions allow you to move beyond today's contact center to a customer interaction network by creating a better customer experience, making customer-service agents more efficient and productive, improving contact center reporting, and extending the workforce with expert mobile and remote agents.

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 discussed for this Cisco Unified Communications System release addresses different upgrade paths and strategies, preparation for the upgrade operation, order of operations such as the sequence in which the contact center components should be upgraded, and other dependencies such as backward compatibility of software.

This chapter only provides information related to upgrading components that are present in the base release set that is to be upgraded.

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

- Components that are not part of the existing production network and are being newly added as a part of the target release. This information is available in the individual component documents.
- Individual standalone components such as Unified Communications Manager, Unified CCE, and Unified CVP. It only addresses the upgrade sequence and information of Cisco Unified Communications System components at a system-level.

  See System upgrade, on page 71 for a list of URLs to component-specific release notes and installation and upgrade documents. When performing the actual component upgrades, see the product-specific upgrade documents for detailed information.
- Third-party co-resident applications (although they can 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
- 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 9.0(1), see:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/install/8_6_1/cluster/clstr861.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/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.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

Related Topics

Release sets, on page 45

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 Communication System. A particular system release is also referred to as a release set.

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

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

- Base releases—Your environment may include one of the following base release sets:
  - Cisco Unified Communications System Release 8.5(1) —For detailed information about the deployment models and topologies developed to test this release set, see Review Tested Deployment Models for Contact Center.
- Target release:
  - Cisco Unified Communications System Release 9.0(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 deployment models and topologies developed to test this release set, see Review Tested Deployment Models for Contact Center.

For upgrade information on Cisco Unified Communications System Release 9.0(1) IP Telephony components, see: http://preview.cisco.com/en/US/docs/voice_ip_comm/uc_system/UC9.0.1/ipt_system_inst_upg/VTGS_BK_S3E53B1F_00_system-installation-and-upgrade-manual.pdf

Related Topics

System upgrade strategies, on page 51
System upgrade preparation, on page 59

Upgrade roadmap

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

Procedure

Step 1 Review your hardware and software requirements. For instance, verify that the deployed hardware configurations and operating system support the target release and are ready for an upgrade.

Step 2 Perform all required hardware equipment checks. For instance, verify that the DVD ROM drive in the server where you plan to perform the upgrade tasks is operational before you start the upgrade process.

Step 3 Ensure that you have backed up all configuration files prior to performing an upgrade of your system, in the event that your upgrade is unsuccessful and you need to restore your previous configuration.
For information on backing up and restoring major contact center components, see: http://www.cisco.com/cisco/web/docs/iam/unified/ipcc861/Backing_Up_and_Restoring_Components.html.

Step 4 If necessary, remove any engineering specials or service releases for components that are related to the previous base release version before upgrading to the target release version.

Step 5 Access and download the license files required to upgrade (or newly install) and operate the appropriate software at: http://www.cisco.com/go/license.

Step 6 Upgrade the existing network components from the base release set to the target release set.

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

Use the recommended upgrade strategies described in System upgrade strategies, on page 51 to perform the upgrade. The upgrade strategies 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
- Presence or absence of shared components among sites, for instance, a Unified ICME system that spans multiple clusters

Step 7 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 Verifying Multistage System Upgrades in System upgrade, on page 71

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

Step 8 Install any *new* components supported by the target release in the network and configure them.

Step 9 Remove and/or replace any components from your network that are not part of the target release or have reached EOL (end-of-life) and/or EOS (end-of-sale). Follow proper procedures to uninstall these components.

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

Related Topics

Interoperability and compatibility portals, on page 57
Components in base release set, on page 47
New components and features in target release set, on page 49
Components not in target release set, on page 50

Upgrade overview

This section lists the components included in the base release set involved in the upgrade process, the 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.

Components in base release set

The following table contains a listing of components that are part of the base release set that should be upgraded to Cisco Unified Communications System Release 9.0(1).

Table 8: Contact Center components in Cisco Unified communications system base release sets

Component	Release 8.5(1)
Cisco Unified Communications Manager	X
Cisco Unified SIP Proxy	X
Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise	X
Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise Operating System	X
Cisco Unified Contact Center Express	X
Cisco Unified IP IVR	X
Cisco Unified Contact Center Express/Unified IP IVR Operating System	X
Cisco Unified Customer Voice Portal	X
Cisco Unified Customer Voice Portal Operating System	X
Cisco Unified Intelligence Center	X
Cisco Finesse	X
Cisco MediaSense	X
Cisco SocialMiner	X
Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) [9]	X
Cisco Unified SIP Proxy	X
Cisco Unity Connection	X

Component	Release 8.5(1)
Cisco IP Communicator	X
Cisco Unified Video Advantage	X
Cisco Unified IP Phones 7900 Series (7921G (Wireless), 7940, 7940G, 7960, 7960G, 7962, 7970, and 7970G)	X
Cisco Unified IP Phones 6900 Series (6911, 6921, 6941 6961, and 6945)	X
Cisco Unified IP Phones models 9951 and 9971	X
Cisco Unified IP Phones model 8961	X
Cisco Unified IP Phones models 8941, 8945	X
Cisco Adaptive Security Appliance (5520, 5540, 5580) Services	X
Cisco Adaptive Security Appliance 5500 AIP Security Services Module (IPS)	X
Cisco Works Management Center for Cisco Security Agents	X
Cisco Security Agent for Unified Communications Manager	X
Cisco Security Agent for Unified IP IVR	X
Cisco Security Agent for Unified Contact Center Express	X
Cisco Unified Operations Manager	X
Cisco IOS Mainline Release [10]	X
Cisco 3825, 3845 (Unified CVP VXML, voice/data, H.323, SIP, MGCP, IOS-based Transcoders and Conference Bridges, and Cisco Unified Border Element gateways)	X
Cisco 3900 series routers	X
Cisco AS5400XM (Unified CVP VXML, voice, H.323, SIP and PSTN gateways)	X
Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	X
Cisco VGD-1T3 Voice Gateway	X
RSVP Agent (on 38xx platforms)	X
Cisco 881 router	X
Cisco Catalyst 3750 (access switch)	X

Component	Release 8.5(1)
Cisco Catalyst 6506, 6509 (core switch, Supervisor 2)	X
Cisco Catalyst 6506, 6509 (Supervisor 720)	X

9 For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).

10 IOS 15.2(3)T is not compatible with the 28xx and 38xxrouters. The option to stay on IOS 15.1(4)M may be available to maintain 28/38xx routers which will receive extended maintenance in accordance with IOS EOL and EOS policies.

Related Topics

System upgrade preparation, on page 59

New components and features in target release set

Some components are new to the Cisco Unified Communications System Release 9.0(1) release set. You must install these new components and configure them into the network (rather than upgrade them).

New components when upgrading from Cisco Unified Communications System Release 8.5(1)

This section lists components that are new in the Release 9.0(1) release set when you upgrade from Release 8.5(1).

- Cisco Telepresence MCU MSE Series

  http://www.cisco.com/en/US/products/ps11340/index.html

- Cisco TelePresence Content Server

  http://www.cisco.com/en/US/products/ps11347/index.html

- Cisco Voice and Video Conferencing for ISR G2 Routers

  http://www.cisco.com/en/US/products/sw/voicesw/ps4952/index.html

- Cisco Virtualization Experience Clients

  http://www.cisco.com/en/US/products/ps11295/Products_Sub_Category_Home.html#~one

- Cisco TelePresence System EX60 and EX90

  http://www.cisco.com/en/US/products/ps11327/index.html

- Cisco IP Video Phone E20

  http://www.cisco.com/en/US/products/ps11329/index.html

- Enterprise License Manager

  http://www.cisco.com/en/US/products/ps7138/index.html

- Cisco SRE 910 Service Module

  http://www.cisco.com/en/US/products/ps10598/prod_module_series_home.html

- Cisco 2900 Series Integrated Services Router (ISR)

  http://www.cisco.com/en/US/products/ps10537/index.html

- Cisco Unified Computing System B200 M2, C200 M2 and C210 M2 (Unified Communications Virtualization)

  http://www.cisco.com/en/US/netsol/ns1067/networking_solutions_relevant_products.html

- Cisco Unified Computing System Express

  http://www.cisco.com/en/US/products/ps11273/index.html

- Cisco ASR 1002 Router

  http://www.cisco.com/en/US/products/ps9436/index.html

- Cisco Catalyst 6503 (WS-SUP720-3BXL)

  http://www.cisco.com/en/US/products/hw/switches/ps708/index.html

- Cisco Catalyst 6506 (WS-SUP720-3BXL)

  http://www.cisco.com/en/US/products/hw/switches/ps708/index.html

- Cisco Catalyst 3750 (WS-C3750E-24PD)

  http://www.cisco.com/en/US/products/ps7077/index.html

- Cisco 891 Router

  http://www.cisco.com/en/US/products/ps10194/index.html

Components not in target release set

The following deployment and components were removed from the Cisco Unified Communications System Release 9.0(1) release set (and previous release sets) in relation to the base release sets:

- Cisco 7206VXR(core/WAN router). Replaced with Cisco ASR 1002.http://www.cisco.com/en/US/products/ps9436/index.html
- Cisco Catalyst 6506,6509 (core switch, Supervisor 2). Replace with Cisco Catalyst 6503, 6506 (WS-SUP720-3BXL).http://www.cisco.com/en/US/products/hw/switches/ps708/index.html

Note For a list of recommended replacements (if any) for components that are no longer supported or sold, see the EOS and EOL website at: http://www.cisco.com/en/US/products/prod_end_of_life.html. For Cisco EOS and EOL policy, see the information at:

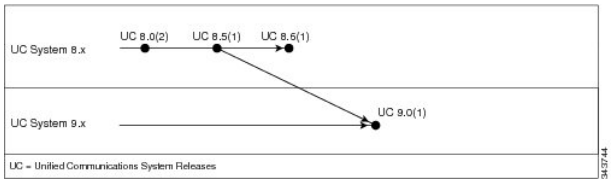
http://www.cisco.com/en/US/products/products_end-of-life_policy.html.

Upgrade paths to Cisco Unified Communications System Release 9.0(1)

The figure below illustrates the upgrade paths available for Cisco Unified Communications System

Release 9.0(1) in contact center environments – from Cisco Unified Communications System Release 8.5(1) to Cisco Unified Communications System Release 9.0(1).

Figure 1: Upgrade paths for Cisco Unified Communications System release



Note The horizontal arrows represent the upgrade paths within an individual release, The vertical arrows indicate the upgrade paths from one release to the next.

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 the target release:

- Single-stage upgrade using existing hardware (*flash-cut*)—All components in the network start at the base release set and all components can be 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 network should be built using new hardware and prestaged with configuration to support the existing production network.

  All users can then be moved from the existing production network to the new network in one of two 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 prestaged configuration on the parallel network. In many applications, you are required to use the same hostname and IP address for the backup as well as the restore process. This 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 above upgrade strategies involving the single-stage upgrade approach are appropriate for small sites (fewer than 300 seats) with a 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 only to interproduct versions, not to intraproduct versions. For instance, all Unified Communications Manager servers in the same cluster, or all servers that are part of the same Unified ICME system, will remain at the same software version.

  The multistage system upgrade approach is recommended for medium-to-large sites (ranging from 301 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), on page 54

    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 distributed Unified ICME system or a

    Unified Communications Manager cluster using Clustering over the 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 5,000 seats) with a large number of components in the network.

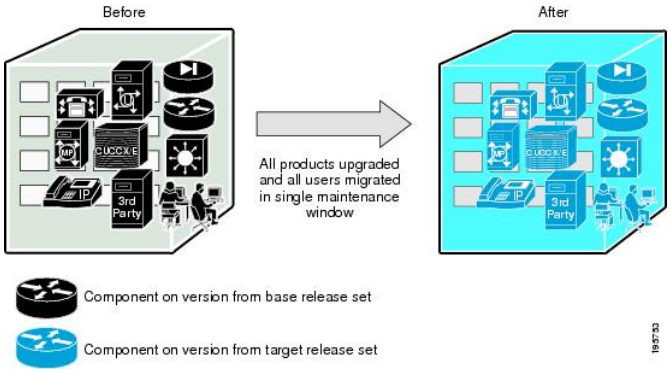
Single-stage upgrade using existing hardware

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. Because 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 customer sites and networks, because it has to be performed within a single maintenance window.

The following figure shows an example of the single maintenance window that is involved in the single-stage upgrade on existing hardware approach.

Figure 2: Single-stage upgrade using existing hardware



Single-stage upgrade using new hardware

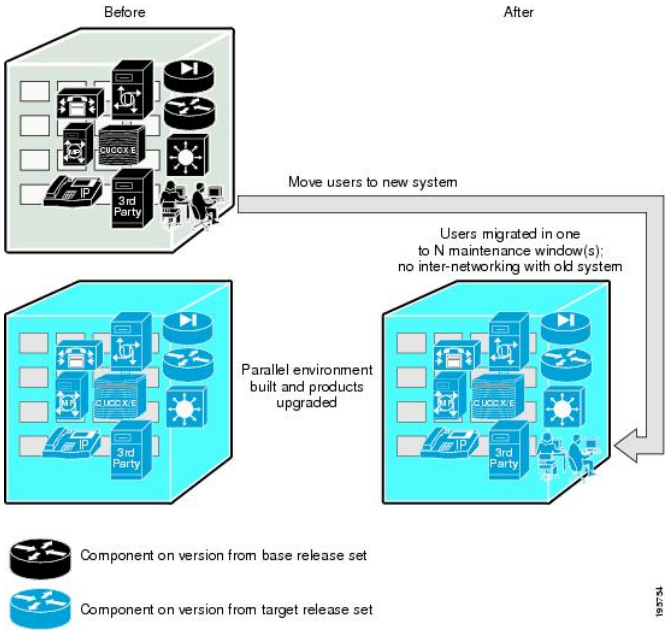
A parallel Cisco Unified Communications System network should be built using new hardware and prestaged with configuration to support the existing production network. All users can be then moved from the existing production network to the new network operating with the target release set software either 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 customer 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.

The following figure shows an example of the maintenance windows that are involved in the single-stage upgrade on new hardware approach.

Figure 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 requird 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 intermaintenance window intervals. During each maintenance window, one or more components of the system or a subset of the components is upgraded.

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

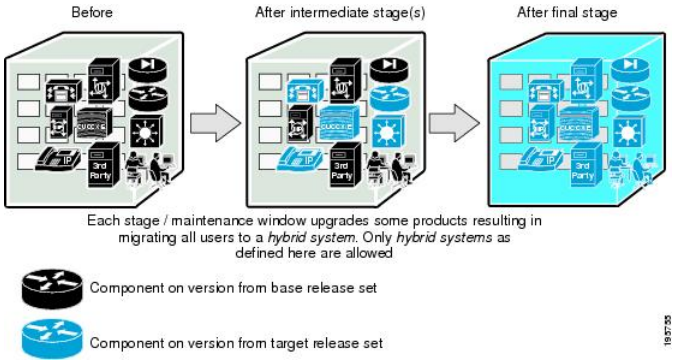
Before the staged upgrade is completed, the whole network exists in a partially upgraded state where some components have been upgraded to the target release set software and the remaining components are operating with the base release set software.

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.

The following figure shows an example of the maintenance windows that are involved in the multistage system upgrade on existing hardware approach.

Figure 4: Multistage system upgrade using existing hardware (hybrid system)



Related Topics

System upgrade preparation, on page 59

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 the figure below. However, interworking will not be possible between these *pure* sites and *hybrid system* sites.

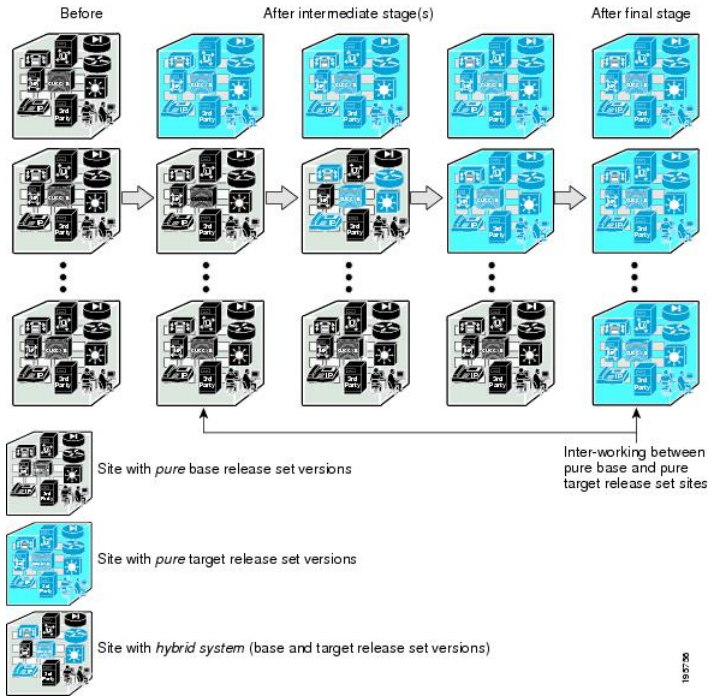
Note A component that is common to multiple sites, such as a shared Unified ICME system, may impact the interoperability itself, the order in which sites may be upgraded, or which sites must be upgraded concurrently.

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, are able to communicate with each other.

The following figure shows an example of the maintenance windows that are involved in the multisite migration approach.

Figure 5: Multisite migration



The following table provides a summary of the preceding upgrade strategies.

Table 9: Summary of upgrade strategies

	Single-Stage Upgrade	Multistage System Upgrade	Multisite Migration
Recommended for type of deployment	• Small single-site • Small multisite (fewer than 300 seats)	• Medium single-site • Medium multisite(301 to 1,499 seats) • Large single-site (1,500 to 4,999 seats)	• Large multisite(5,000 seats and more)

	Single-Stage Upgrade	Multistage System Upgrade	Multisite Migration
Maintenance Window	One	Multiple	Multiple
Interoperability between releases at component level	Not Required	Required	Required
Interoperability between releases at site level	Not Required	Not Required for medium single-site and large single-site Required for medium multisite	Required
User migration	Complete in one stage	Partial until final stage	Partial until final stage
Upgrade time period	One time slot, for example, during a weekend maintenance window	Several days to weeks	Several weeks to months

Related Topics

System upgrade preparation, on page 59

Interoperability and compatibility portals

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

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

- Cisco Unified Communications Compatibility Tool:

  http://tools.cisco.com/ITDIT/vtgsca
- Cisco Unified Communications Manager (CallManager) Compatibility Information:

  http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html
- Hardware and Software Compatibility Information for Cisco Unified Presence Release 9.0(1):

  http://www.cisco.com/en/US/products/ps6837/products_device_support_tables_list.html
- Cisco Unified Contact Center Enterprise (Unified CCE) Software Compatibility Guide:

  http://docwiki.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCE

- Hardware and System Software Specification (Bill of Materials) for Cisco Unified ICM/ Contact Center Enterprise & Hosted:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/icm_enterprise/icm_enterprise_9_0_1/reference/guide/_ICM9.0_BOM.pdf

- Cisco Unified Contact Center Express (Cisco Unified CCX) 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

- Hardware and System Software Specification for Cisco Unified Customer Voice Portal (Unified CVP), Release 9.0(1)

  http:/www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_technical_reference_list.html

- Cisco 7800 Series Media Convergence Servers:

  http://www.cisco.com/en/US/products/hw/voiceapp/ps378/index.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 Unified Communications Virtualization (including links to UCS hardware information):

  http://www.cisco.com/go/uc-virtualized

- Cisco Unified Communications System Release Summary Matrix for Contact Center:

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

- IP Communications System Test Release Matrix:

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

CHAPTER 5

System upgrade preparation

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

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

System upgrade approach

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

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

1 Infrastructure components including switches, routers and firewalls

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

2 Gatekeepers and voice/data gateways

3 Network management components

4 Contact Center routing and agent management components

5 Agent desktop client software

6 Call processing components

7 Messaging components

8 Queueing and self-service components

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

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

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

- The criticality of the service that these components provide. For example, basic phone service is considered to be of greater importance than supplementary services or voice messaging services.
- Backward compatibility of the software releases of these components.
- See Upgrade release versions, on page 66 for details on each base release set, which indicate which components need to be upgraded before or after upgrading Unified Communications Manager, or if the upgrade order does not matter.

Related Topics

System upgrade, on page 71
Backward compatibility issues, on page 64

System upgrade dependencies

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

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

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

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

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

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

Cisco Unified Communications Manager upgrade and compatibility considerations

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

Pre-upgrade migration

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

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

Post-upgrade migration

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

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

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

- Cisco Unified Communications Compatibility Tool:

  http://tools.cisco.com/ITDIT/vtgsca

- Cisco Unified Communications Manager (CallManager) Compatibility Information:

  http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

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

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

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

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

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

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

For more information and detailed procedures, see Software Upgrades in Cisco Unified Communications Operating System Administration Guide.

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

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

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

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

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

- If Unified Communications Manager clusters are set up in a 1:1 redundancy model, downtime during upgrade can be kept to a minimum. You can do this by load-balancing device registrations across the first node (publisher) and backup subsequent nodes (subscribers). This way if either the subsequent node

server fails or is taken down for maintenance, only half of the devices will have to failover to the remaining subsequent nodes, but will ensure that all devices can remain in service.

- When upgrading Unified Communications Manager clusters, the first node should always be upgraded first. Before rebooting the first node after its upgrade, you can upgrade all the subsequent nodes simultaneously without rebooting them.

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

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

Procedure

Step 1 Reboot and switch versions to Unified Communications Manager 9.0(1) on the first node and wait until the first node is initialized and fully operational.

Step 2 Install the upgrade license and any other licenses that are required.

Step 3 Reboot and switch versions to Unified Communications Manager 9.0(1). Perform this procedure on the dedicated TFTP and Music-On-Hold (MoH) servers first.

Step 4 Wait until the TFTP servers fully build their configuration files.

Step 5 Reboot and switch versions to Unified Communications Manager 9.0(1) on the backup and call processing subsequent nodes and wait until these servers are fully initialized.

Step 6 Complete the upgrade by rebooting and switching versions to Unified Communications Manager 9.0(1) on the remaining active call processing subsequent nodes in the cluster.

- When you upgrade the Unified Communications Manager servers, note that the Unified IP Phone software is upgraded automatically to the version included with Unified Communications Manager.
- Cisco Secure Access Control Server (ACS) is a call recording server for calls that traverse Cisco IOS gateways. It is mainly used for RADIUS accounting and billing purposes. Cisco Unified Analysis Manager (Unified Analysis Manager), which is part of the Cisco Unified Real-Time Monitoring Tool (Unified Real-Time Monitoring Tool) queries the RADIUS server to track call status. It presents the user with failed, dropped or abandoned calls by parsing the records from the ACS server.

If you have ACS servers deployed in your network, make sure that you have version 5.x installed as this the only version with the API support for the Unified Analysis Manager recording capability and the database to store these records. If you do not have an ACS server with the supported hardware/software version, the gateway information will not be included in the call tracing data.

Cisco Unified Contact Center Express compatibility considerations

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

Cisco Aggregation Services Routers compatibility considerations

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

Cisco Unified IP Phone upgrade considerations

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

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

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

- Cisco Unified IP Phones 7900 Series Maintain and Operate Guides:

  http://www.cisco.com/en/US/products/hw/phones/ps379/prod_maintenance_guides_list.html
- Cisco Unified IP Phones 7900 Series End-User Guides:

  http://www.cisco.com/en/US/products/hw/phones/ps379/products_user_guide_list.html
- "Unified Communications Endpoints" Chapter in the *Cisco Unified Communications System 9.x SRND*:

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/9x/endpnts.html

Backward compatibility issues

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

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

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

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

Backward compatibility scenarios

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

Related Topics

Related compatibility documentation, on page 92

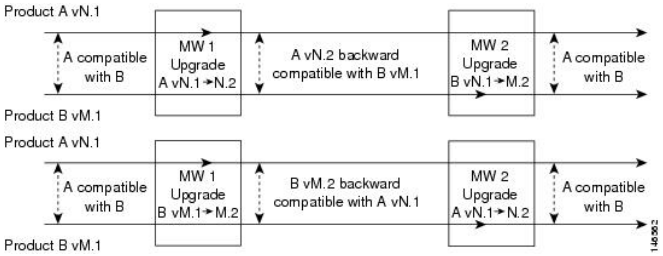
Both new versions are backward compatible

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

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

You can perform the upgrade for these components across multiple maintenance windows. This type of upgrade is described in the multistage system and multisite migration upgrade approaches in System upgrade planning, on page 43.

Figure 6: Both new release versions are backward compatible



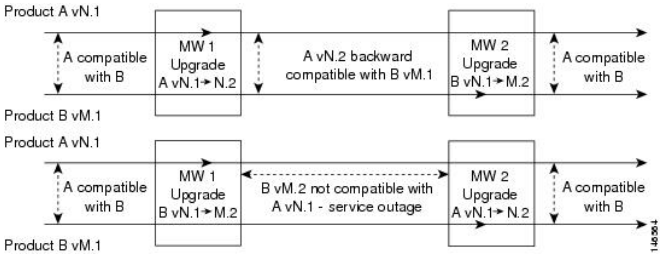
Only one new version is backward compatible

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

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

You should perform the upgrade for these components across two separate maintenance windows. This type of upgrade is described in the Multistage System and Multisite Migration upgrade approaches in System upgrade planning, on page 43

Figure 7: One new release version is backward compatible



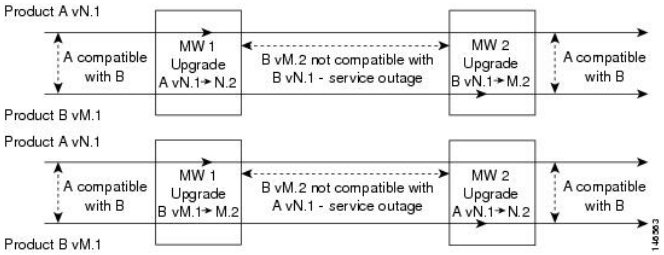
Neither new version is backward compatible

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

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

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

Figure 8: Neither new release version is backward compatible



Related Topics

System upgrade preparation, on page 59

Upgrade release versions

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

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

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

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

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

Table 10: Contact Center components in Cisco Unified Communications System Release 9.0(1) and Release 8.5(1) release sets

Component	Release 9.0(1)	Release 8.5(1)
Cisco Unified Communications Manager	9.0(1)	8.5(1)
Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise	9.0(1)	8.5(1)

Component	Release 9.0(1)	Release 8.5(1)
Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise Operating System	Win2008 R2 SP1	Win2003 SP2/Win2003 R2 SP2
Cisco Unified Contact Center Express	9.0(1)	8.5(1) [11]
Cisco Unified IP IVR	9.0(1) SU1	8.5(1)
Cisco Unified Contact Center Express/Unified IP IVR Operating System	Bundled with Software	Bundled with Software
Cisco Unified Customer Voice Portal	9.0(1)	8.5(1)
Cisco Unified Customer Voice Portal Operating System	Win 2008 R2 SP1	Win2003 SP2/Win2003 R2 SP2
Cisco Unified Intelligence Center	8.5(4)	8.0(3)
Cisco Finesse	9.0(1)	8.5(1)Lab use only
Cisco MediaSense	8.5(4)	8.5(1)
Cisco SocialMiner	9.0(1)[12]	8.5(1)
Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) [13]	9.0(1)	8.5(1)
Cisco Unified SIP Proxy	8.5(2)	8.5(1)
Cisco TelePresence MCU MSE Series	4.3	--
Cisco TelePresence Content Server	5.2 Build 3222	--
Cisco Voice and Video Conferencing for ISR G2 Routers	15.2(3)T1	--
Cisco Unity Connection	9.0(1)	8.5(1)
Cisco IP Communicator	8.6(1) [14]	7.0(5)
Cisco Unified Video Advantage	2.2(2)	2.2(1)
Cisco Unified IP Phones 7900 Series (7921G (Wireless), 7940, 7962, and 7970)	Bundled with Unified Communications Manager. Firmware 9.3(1)	Bundled with Unified Communications Manager.

Component	Release 9.0(1)	Release 8.5(1)
Cisco Unified IP Phones 6900 Series (6911, 6921, 6941, 6945, and 6961)	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco Unified IP Phones models 9951 and 9971	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco Unified IP Phones model 8961	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco Unified IP Phones models 8941, 8945	Firmware 9.3.1	Firmware 9.1.1SRI
Cisco IP Video Phone E20	TE 6.0.0	—
Cisco TelePresence System EX60	TE 6.0.0	—
Cisco TelePresence System EX90	TE 6.0.0	—
Cisco Virtualization Experience Clients	Firmware 9.2(1)	—
Cisco Aironet 3502 Access Point	AIR-WLC4400-K9-7-0-116-0-ER.aes	—
Cisco Aironet 1142 Access Point	AIR-WLC4400-K9-7-0-116-0-ER.aes	—
Cisco Adaptive Security Appliance (5520, 5540, 5580) Services [15]	8.4(3)	8.4(1)
Cisco Adaptive Security Appliance 5500 AIP Security Services Module (IPS)	--	7.0(2) E3
CiscoWorks Management Center for Cisco Security Agents	--	6.0(2)
Cisco Security Agent for Unified Communications Manager	Bundled with Unified Communications Manager	Bundled with Unified Communications Manager
Cisco Security Agent for Unified IP IVR	Bundled with Unified IP IVR	Bundled with Unified IP IVR
Cisco Security Agent for Unified Contact Center Express	Bundled with Unified Contact Center Express	Bundled with Unified Contact Center Express
Cisco Unified Operations Manager	--	8.5.1
Cisco IOS Mainline Release	15.2(3)T1 [16]	15.1(3)T

Component	Release 9.0(1)	Release 8.5(1)
Cisco 3825, 3845 (Unified CVP VXML, voice/data, H.323, SIP, MGCP, IOS-based Transcoders and Conference Bridges, and Cisco Unified Border Element gateways)	15.2(3)T1	15.1(3)T
Cisco 3900 series routers	15.2(3)T1	—
Cisco AS5400XM (Unified CVP VXML, voice, H.323, SIP and PSTN gateways)	15.2(3)T1	15.1(3)T
Cisco Unified Border Element Enterprise Edition for Cisco ISR Series	15.2(3)T1	15.1(3)T
Cisco Unified Border Element Enterprise Edition for Cisco ASR 1000 Series	XE3.6	3.2
Cisco VGD-1T3 Voice Gateway	--	15.1(3)T
Cisco 3825 MGCP Gateway	15.2(3)T1	15.1(3)T
RSVP Agent (on 38xx platforms)	15.2(3)T1	15.1(3)T
Cisco 881 Router	15.2(3)T1	15.1(3)T
Cisco 891 Router	15.2(3)T1	—
Cisco Catalyst 3750 (access switch)	12.2(53)SE2	12.2(53)SE2
Cisco Catalyst 3750 (WS-3750E-24PD)	12.2(55)SE1	--
Cisco Catalyst 6503 (WS-SUP720-3BXL)	12.2(18)SXF10	--
Cisco Catalyst 6506 (WS-SUP720-3BXL)	12.2(33)SXH2a	--
Cisco ASR1002	IOS XE 15.1(1)s	--
Cisco UCS Express	2.0.1	2.0.1
Cisco Integrated Services Router (ISR) 2901, 2911, 2921, 2951, 3925, 3945, 3925E, 3945E	15.2(3)T1	—
Cisco Unified Computing System B200 M2 Blade Server, Cisco Unified Computing System C200 M2 General-Purpose Rack-Mount Server, Cisco Unified Computing System C210 M2 General-Purpose Rack-Mount Server (Unified Communications Virtualization): Release 9.0(1) Version: Cisco UCS B-Series 2.0(1q),Cisco UCS C-Series 1.4(3c)2	VMWare ESXi 4.1	--

Component	Release 9.0(1)	Release 8.5(1)
Cisco SRE 910 Service Module	15.2(3)T1	—

11 Cisco Unified Contact Center Express (Unified CCX) versions prior to 8.5(1) are not supported with Unified Communications Manager 9.0. Upgrade Unified CCX to 8.5(1)SU3 or 9.0(1) before upgrading Unified Communications Manager to 9.0(1).

12 Cisco SocialMiner functionality is being tested as part of Unified CCX, not as a standalone product .

13 For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).

14 This product is EOL on October 25, 2012.

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

16 IOS 15.2(3)T is not compatible with the 28xx and 38xxrouters. The option to stay on IOS 15.1(4)M may be available to maintain 28/38xx routers which will receive extended maintenance in accordance with IOS EOL and EOS policies.

CHAPTER 6

System upgrade

This chapter discusses in more detail the upgrade sequence for all the contact center components configured in specific deployment models for Cisco Unified Communications System Release 9.0(1).

Upgrade procedures for individual components are not described in this document, because they are available in individual component upgrade documents. See the Related compatibility documentation, on page 92 section at the end of this chapter for the appropriate upgrade documents and their URLs.

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

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

Upgrade deployment models

Upgrade procedures should be specifically tailored for each of the deployment models in the contact center test environment, because it is possible that each site includes different components.

Detailed information about these contact center deployment models at the different sites is available at: http://www.cisco.com/cisco/web/docs/iam/unified/ipcc861/Review_Tested_Deployment_Models.html

Listed in this section are the various deployment models tested in the Cisco Unified Communications contact center test environment:

- Single-site upgrade model

- Multisite centralized upgrade model
- Multisite distributed upgrade model
- Clustering over the WAN (CoW) model

Compare these deployments to your specific deployment to best understand the upgrade process that is applicable in your environment. The following section provides the general upgrade sequence for the various contact center components in the different deployment models.

After you determine the general upgrade sequence, depending on the base release set in your network, use one of the upgrade strategies discussed in Component upgrades, on page 73 to upgrade your components. Additional upgrade procedures for contact center components are discussed in Contact Center test bed upgrades, on page 74.

Related Topics

Single-site upgrade model, on page 72
Multisite centralized upgrade model, on page 72
Multisite distributed upgrade model, on page 73
Multisite distributed upgrade model, on page 73

Single-site upgrade model

In the single-site model, be aware of the following upgrade sequence for the components:

1. Switches, routers and security components
2. Gatekeepers/proxy servers, and voice and data gateways
3. Network management components
4. Contact center routing components
5. Agent management components
6. Agent desktop client software
7. Call processing components
8. Queuing and self-service components

Multisite centralized upgrade model

In the multisite centralized model, the central site is typically upgraded in conjunction with the remote sites.

Central site

In the central site, be aware of the following upgrade sequence for the components:

1. Switches, routers and security components
2. Gatekeepers/proxy servers and voice and data gateways
3. Network management components
4. Contact center routing components

5 Agent management components

6 Agent desktop client software

7 Call processing components

8 Queuing and self-service components

Multisite distributed upgrade model

In the multisite distributed model, be aware of the following upgrade sequence for the components in each cluster site and any small remote sites as listed in the Multisite centralized upgrade model, on page 72 section.

Note Treat the upgrade of each cluster site as a separate stage in the overall system upgrade process.

Clustering over the WAN model

In the Clustering over the WAN (CoW) model, be aware of the following upgrade sequence for the components in the central sites first where CoW is implemented and any remote sites as listed in the Multisite centralized upgrade model, on page 72 section.

Note Upgrade clustered components in the same upgrade period and stage at each of the central sites. Other components in the central sites must be upgraded in conjunction with the remote sites.

Component upgrades

Once you have reviewed the general upgrade sequence for your specific deployment model, perform your upgrades based on the following upgrade strategies:

- Single-stage upgrade—Recommended for small single-site and multisite installations.
- Multistage system upgrade—Recommended for medium and large single-site and medium multisite installations.
- Multisite Migration—To upgrade large, multisite contact center installations to the Cisco Unified Communications release set using the multisite migration upgrade strategy, you can use either the single-stage or multistage system upgrade procedures listed in this section.

See System upgrade planning, on page 43 for detailed information about the above upgrade strategies and System upgrade preparation, on page 59 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 System upgrade planning, on page 43.

The upgrade path available for upgrading contact center components is defined in System upgrade planning, on page 43. For components that are new to the target release and that you may want to install, see New components and features in target release set, on page 49.

See Related compatibility documentation, on page 92 for a list of URLs to component-specific release notes and installation and upgrade documents. When performing the upgrade of each component, see the product-specific upgrade document for the relevant release for detailed information.

Note Some of the listed components might not apply to your specific installed base. Therefore, if there is an application, component, or feature listed that you do not already have installed in your environment, you need not upgrade them.

Related Topics

Single-stage upgrade, on page 74
Multistage system upgrade, on page 76

Contact Center test bed upgrades

The contact center test sites are set up as two separate test beds:

- Cisco Unified CVP Post-Routed Call Flow Test Bed, Local and Remote Agents Test Bed. Use normal upgrade procedures based on the single-stage or multistage upgrade approaches discussed in System upgrade planning, on page 43.
- Cisco Unified CVP Post-Routed Call Flow Test Bed Local Agents—Unified CVP test bed with Unified CVP Post-Routed call flows. Use normal upgrade procedures based on the single-stage or multistage upgrade approaches discussed in System upgrade planning, on page 43.

Note To verify the interoperability between clusters running different release set versions, some of the Unified Communications Manager clusters and other components in the Cisco Unified CVP Post-Routed Call Flow Test Bed have not been upgraded to Cisco Unified Communications System Release 9.0(1).

Single-stage upgrade

The single-stage upgrade process is recommended for small single-site and multisite installations and can be performed in a single maintenance window. This enables you to upgrade all the components in a brief period of time with no loss of functionality.

See System upgrade preparation, on page 59 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 the following table.

Table 11: Single-stage upgrade order for Contact Center components

Component to Upgrade	Upgrade Order for Base Release Set
	8.5(1)
Core switch	1
Access switch	2

Component to Upgrade	Upgrade Order for Base Release Set
	8.5(1)
Cisco Security Agent Management Console	3
Cisco IOS Gateways (MGCP, H.323 and SIP)	4
Unified CVP VXML Gateways	5
Cisco Aironet Access Point 1240AG	6
Cisco IOS-based Transcoders and Conference Bridges	7
Cisco Unified Videoconferencing 3545 MCU	8
Cisco Gatekeepers/Proxy Servers	9
Unified Border Element	10
Unified Operations Manager	11
Unified ICME Rogger/Progger	13
Real Time AW/HDS	14
Peripheral Gateways[17], Unified Contact Center Gateway Enterprise (Unified CCGE)	15
CTI OS Server	16
CAD Server	17
Outbound Option	18
CTI OS Agent/Supervisor Desktop	19
CAD Agent/Supervisor Desktop	20
Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence)[18]	21
Unified Communications Manager	22
JTAPI (upgrade if needed on client applications)	23
Cisco Security Agent and virus scanning software	24
Unified IP Phones firmware (if needed) including ATA and 6608	25

Component to Upgrade	Upgrade Order for Base Release Set 8.5(1)
Cisco IP Communicator	26
Unified CVP system components	27
Unified IP IVR	28
Unified Contact Center Express[19]	29
Unified Intelligence Center	30
Cisco MediaSense	31
Cisco Finesse	32
SocialMiner	33
Cisco and third-party applications resident on other servers	34
Install new components	35
Remove obsolete or end-of-life components	36

17 Cisco Unified System Contact Center Enterprise (Unified SCCE) is supported in Unified CCE Release 8.5(1); however, there is no separate Unified SCCE Release 8.5(1). If you request features that are in Release 8.5(1), you must migrate all Unified SCCE deployments to Unified CCE deployments. For more information on the migration from Unified SCCE Release 8.0(1) to Unified CCE 8.5(1), see *Upgrade Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1a)* at: http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/ipcc_enterprise/ipccenterprise8_0_1/installation/guide/icm80ug.pdf.

18 For Cisco Unified Communications System Release 9.0, Cisco Unified Presence has been integrated into Cisco Unified Communications Manager and is now known as Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service).

19 Unified CCX versions prior to 8.5(1) are not supported with Unified Communications Manager 9.0. You must upgrade Unified CCX to 8.5(1)SU3 or 9.0(1) before upgrading Unified Communications Manager to 9.0(1).

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 together 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, one or more stages may be collapsed into a single maintenance window. For larger networks, some stages may require multiple maintenance windows.

After each maintenance window, we recommend that you verify that the operation of all basic and critical call types remains unaffected before you initiate the next upgrade stage listed in the table. See detailed information about the upgrade exit criteria and procedures for verifying component interoperability for each

stage in Multistage system upgrade verification, on page 80. We also recommend that you maintain a list to track the components that have been upgraded and the ones yet to be upgraded.

See System upgrade preparation, on page 59 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 the following table for an upgrade from base release set 8.5(1) to 9.0(1).

Table 12: Multistage system upgrade order for Contact Center components for Release 8.5(1) to 9.0(1)

Stage	Component Groupings	Upgrade Order for Contact Center Components within Stages	Upgrade Verification
1	Switches, routers and security components	**1** Core Switch **2** Access Switch • Cisco Adaptive Security Appliance 5540 • Cisco Security Agent Management Console	Verify the following exit criteria for Stage 1: **1** Verify upgrade to core switches and routers, on page 82 **2** Verify IOS gateway upgrade, on page 83 **3** Verify upgrade to Cisco Unified Communications Manager, on page 89 **4** Verify upgrade to Cisco Security Agent Management Console, on page 90
2	Gatekeepers/proxy servers and voice and data gateways	• Cisco IOS Gateways (MGCP, H.323 and SIP) • Cisco Unified CVP VXML Gateways • Cisco Aironet Access Point 1240AG • Cisco IOS-based transcoders and conference bridges • Cisco Gatekeepers/Proxy Servers • Cisco Unified Border Element	Verify the following exit criteria for Stage 2: **1** Verify IOS gateway upgrade, on page 83 **2** Verify upgrade to Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger, on page 85 **3** Verify upgrade to Cisco Unified IP IVR, on page 91 **4** Verify upgrade to Cisco IOS gatekeeper and Cisco Unified Border Element Gateway, on page 84 **5** Verify upgrade to Cisco IOS-based transcoders and conference bridges, on page 84

Stage	Component Groupings	Upgrade Order for Contact Center Components within Stages	Upgrade Verification
3	Network management components	1 Cisco Unified Operations Manager	Verify the following exit criteria for Stage 3: 1 Verify upgrade to network management components, on page 85
4	Contact center routing components	1 Cisco Unified ICME Rogger/Progger 2 Real Time AW/HDS	Verify the following exit criteria for Stage 4: 1 Verify upgrade to Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger, on page 85 2 Verify upgrade to Cisco Real Time Administration Workstation, Historical Database Server, on page 86
5	Agent management components	1 Peripheral, VRU, and MGCP Gateways 2 CTI OS Server 3 CAD Server 4 Outbound Option	Verify the following exit criteria for Stage 5: 1 Verify upgrade to Peripheral, VRU and MRPG gateways, on page 87 2 Verify upgrade to Cisco Telephony Integration Object Server and Cisco Agent Desktop Server, on page 88 3 Verify upgrade to Cisco Outbound Option, on page 88
6	Agent desktop client software	1 CTI OS Agent/Supervisor Desktop 2 CAD Agent/Supervisor Desktop	Verify the following exit criteria for Stage 6: • Verify upgrade to CTI OS and Cisco Agent Desktop Agent/Desktop Clients, on page 89 • Verify upgrade to Cisco Remote Agent, on page 89

Stage	Component Groupings	Upgrade Order for Contact Center Components within Stages	Upgrade Verification
7	Call processing components	The following components should be upgraded first and in the order listed below: **1** Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) **2** Unified Communications Manager **3** JTAPI (upgrade if needed on client applications) **4** Cisco Security Agent and virus scanning software **5** Unified IP Phones firmware (if needed) The following components may be upgraded in any order after completing the above upgrades: • Cisco IP Communicator • Cisco VT Advantage (Video PC Endpoint)	Verify the following exit criteria for Stage 7: **1** Verify Cisco Unified Communications Manager IM and Presence Service upgrade, on page 90 **2** Verify upgrade to Cisco Unified Communications Manager, on page 89 **3** Verify Cisco Unified IP Phones upgrade, on page 91
8	Queuing and self-service components	• Unified CVP system components • Unified IP IVR • Unified Contact Center Express [20]	Verify the following exit criteria for Stage 8: **1** Verify upgrade to Cisco Unified Customer Voice Portal, on page 91 **2** Verify upgrade to Cisco Unified IP IVR, on page 91
9	Cisco and third party Applications resident on other servers		
10	Install new components		
11	Remove obsolete or end-of-life components		

20 Unified CCX versions prior to 8.5(1) are not supported with Unified Communications Manager 9.0. You must upgrade Unified CCX to 8.5(1)SU3 or 9.0(1) before upgrading Unified Communications Manager to 9.0(1).

Note After upgrading the existing components, install any new components and then remove any obsolete or end-of-life components from your system.

Note After upgrading the existing components, install any new components and then remove any obsolete or end-of-life components from your system.

Multistage system upgrade verification

Components that are upgraded in each stage must interoperate with components that have been upgraded in a previous stage as well as with components that have yet to be upgraded in subsequent stages to ensure the overall operation of the network.

Therefore it is important to verify this interoperability as well as check that basic call service has not been adversely affected during multistage system upgrade operations. This section provides detailed information about the verification procedures as you exit each system upgrade stage.

Exit criteria for multistage system upgrade stages

The following table provides exit criteria you need to execute after completing each system upgrade stage.

Table 13: System upgrade stages and exit criteria matrix

Components	Multistage System Upgrade Stage							
	1	2	3	4	5	6	7	8
Switches and Routers Upgrade Exit Criteria	X							
Security Components Upgrade Exit Criteria	X							
Gatekeepers/Proxy Servers and Voice and Data Gateways Upgrade Exit Criteria	X	X						
Cisco Aironet Access Point 1240AG Upgrade Exit Criteria		X						
Cisco IOS-based Transcoders and Conference Bridges Upgrade Exit Criteria		X						

Components	Multistage System Upgrade Stage							
	1	2	3	4	5	6	7	8
Cisco IOS Gatekeeper and Unified Border Element Gateway Upgrade Exit Criteria		X						
Network Management Components Upgrade Exit Criteria			X					
Unified Intelligent Contact Management Enterprise Support Tools Server Upgrade Exit Criteria			X					
Unified Intelligent Contact Management Enterprise Rogger/Progger Upgrade Exit Criteria		X		X				
Cisco Real Time Administration Workstation, Historical Database Server Upgrade Exit Criteria				X				
Peripheral Gateways, VRU PGs and MRPG Gateways Upgrade Exit Criteria					X			
Cisco Telephony Integration Object Server and Cisco Agent Desktop Server Upgrade Exit Criteria					X			
Outbound Option Upgrade Exit Criteria					X			
Cisco Telephony Integration Object Server and Cisco Agent Desktop Agent/Desktop Clients Upgrade Exit Criteria						X		
Cisco Remote Agent Upgrade Exit Criteria						X		
Unified Communications Manager Upgrade Exit Criteria	X						X	
Cisco Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence) Upgrade Exit Criteria							X	

Components	Multistage System Upgrade Stage							
	1	2	3	4	5	6	7	8
Cisco Security Agent (CSA) Management Console Upgrade Exit Criteria	X							
Cisco Unified IP Phones Upgrade Exit Criteria							X	
Cisco Unified CVP Upgrade Exit Criteria								X
Cisco Unified IP IVR Upgrade Exit Criteria	X	X						X

Verify upgrade to core switches and routers

After upgrading core routers and switches, verify the following:

Procedure

Step 1 Check the buffer log or console for error messages.

Step 2 Verify that a dump file was not created in the flash memory.

Step 3 Use the "show running-config" command to verify that the previous configuration was not deleted during the upgrade process.

Step 4 Use the "show ip interface brief" command to verify that the configured interfaces are in up/up state.

Step 5 Verify that the Unified IP Phones connected to the switches are powered up and register correctly with their primary Unified Communications Manager node.

Verify security components upgrade

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

Procedure

Step 1 In a deployment where Unified Communications Manager servers are separated by an Adaptive Security Appliance, 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.

Step 2 Verify that the database replication is successful between Unified Communications Manager servers which are separated by an Adaptive Security Appliance.

Verify IOS gateway upgrade

After upgrading IOS gateways, verify the following:

Procedure

Step 1 At the Cisco IOS exec level, execute the following 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 manually placed incoming calls:

  show isdn history

- To verify IP routing from branch site to a data center:

  ping or **traceroute**

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

  ping or **traceroute**

- To verify system startup process after software reload:

  show logging

Step 2 Ensure that the following devices are configured and registered correctly: Gatekeeper, MGCP and H.323 gateways, trunks, and CTI Route Point.

Step 3 Ensure that all MGCP end points (FXS, FXO, PRI, T1 CAS and BRI) are properly registered with Unified Communications Manager.

Step 4 Manually spot check calls as appropriate:

- IP (SCCP and SIP) <-> PSTN via MGCP Gateway.
- IP (SCCP and SIP) <-> PSTN via SIP Gateway.
- IP (SCCP and SIP) <-> PSTN via H.323 Gateway.

Step 5 Verify that a PSTN user who places an inbound call from the PSTN to a Unified IP Phone in a Unified Communications Manager cluster through gateways such as MGCP, SIP, and H.323 and puts the call on hold can hear Music-on-Hold (MOH) and can also finally resume the call.

Verify upgrade to Cisco IOS gatekeeper and Cisco Unified Border Element Gateway

After upgrading the Cisco IOS gatekeeper and the Cisco Unified Border Element Gateway, verify the following:

Procedure

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

Step 2 To check that the configuration is not lost, use the following command:
show running-config

Step 3 Verify that all H.323 end points that are configured to register with the gatekeeper and gateway register properly.

Step 4 Verify that Unified Communications Manager registers with the gatekeeper and gateway.

Step 5 Make a call between two end points that uses the gatekeeper and gateway; verify that the call is successful and proper bandwidth is reduced in the gatekeeper for that call.

Verify upgrade to Cisco Aironet Access Point

After upgrading Cisco Aironet Access Point 1240AG, verify the following:

Procedure

Step 1 Verify that Unified IP Phones 7920 and 7921 register with Cisco Unified Communications Manager; and stay registered after the upgrade.

Step 2 Make a call from IP Unified Phone 7920 and Unified IP Phone 7921 to another Unified IP Phone and ensure audio is available in both directions.

Step 3 When the call is active, verify audio is available in both directions when Unified IP Phone 7920/21 phones roam between access points.

Step 4 Verify if Unified IP Phone 7920/21 phones can register with different types of encryption.

Verify upgrade to Cisco IOS-based transcoders and conference bridges

After upgrading Cisco IOS-based transcoders and conference bridges, verify the following:

Procedure

Step 1 Check if the complete configuration before the upgrade still exists.

Step 2 Check if all DSPs are registered and are functioning normally.

Step 3 Check if there are no error messages in the buffer log or console.

Step 4 Check if no dump file is created in the flash memory.

Step 5 To verify that the configuration is not lost, type the “show running-config” command.

Step 6 To verify that the interfaces are in up state, type the “show ip interface brief” command.

Step 7 To verify the system startup process, type the “show logging” command after reload.

Step 8 Make an inbound call to a Unified IP Phone through a gateway (MGCP, SIP, H.323) and conference the call with another Unified IP Phone, using a conference bridge in the gateway.

Step 9 Verify IOS Transcoding is working with G711 codec configure for one device while G729 codec is configured on another device.

Verify upgrade to network management components

After upgrading network management components, verify the following:

Procedure

Step 1 Verify the software version and the build ID using CiscoWorks to ensure that the upgrade was successful.

Step 2 Ensure that access to the Unified Operations Manager console is still available.

Step 3 Ensure that access to all devices managed by Unified Operations Manager is still available.

Verify upgrade to Cisco Unified Intelligent Contact Management Enterprise Support Tools Server

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

Procedure

Step 1 Verify that the complete configuration prior to the upgrade still exists on the Unified ICME Support Tools server.

Step 2 Ensure that access to the Unified ICME Support Tools server console is still available.

Step 3 Ensure that access to all the devices managed by the Unified ICME Support Tools server is still available.

Verify upgrade to Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger

After upgrading the Cisco Unified Intelligent Contact Management Enterprise Rogger/Progger, verify the following:

Procedure

Step 1 Ensure that basic calls and call functionality such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc. are working properly.

Step 2 Verify that all previously registered endpoint devices have re-registered correctly.

Step 3 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Step 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 ICM-CCE-CCH Diagnostic Framework Portico. (Unified ICM-CCE-CCH Diagnostic Framework Portico is installed automatically along with ICM software.)

Verify upgrade to Cisco Real Time Administration Workstation, Historical Database Server

After upgrading the Real Time AW/HDS software, verify the following:

Procedure

Step 1 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Step 2 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 the ability to access SQL server and to run third-party software components like VNC or PCAnywhere, etc. are not stopped by Cisco Security Agent.
- "Rtsvr" is connected to the primary Administrative Workstation.
- Configuration information is passed to the router by the logger. Replication process begins when the Historical Database Server comes online.
- Real Time Administrative Workstation indicates that it is ready.
- Replication process begins with no errors.
- Authorized users are able to use the Configuration Manager on the Real Time Administrative Workstation.
- Authorized users are able to log into Cisco Unified Intelligence Center and can access both public and private reports and that all previously existing reports are still available.
- Previous settings for users are still valid when any application is opened.
- The "Validate All" script yields the same results after the upgrade as prior to the upgrade.

  Note All existing scripts can be opened and edited and new scripts can be created.

- Database space allocation and % used are reported correctly.
- Unified ICM-CCE-CCH Diagnostic Framework Portico can acquire logs, capture registry information, and schedule collection of logs.
- Verify that configuration changes are possible.

Verify upgrade to Peripheral, VRU and MRPG gateways

After upgrading the Peripheral, VRU and MRPG gateways, verify the following:

Procedure

Step 1 Ensure that basic calls and call functionality (such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc.) are working properly.

Step 2 Ensure that the peripheral is running properly on the upgraded gateway by verifying call flows, CTI desktops and other applications, Outbound Option, etc.

Step 3 Verify that all previously registered endpoint devices have re-registered correctly.

Step 4 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Verify upgrade to Cisco Unified Contact Center Gateway Enterprise and Cisco Unified System Contact Center Gateway

After upgrading the Unified CCGE and Unified SCCG, verify the following:

Procedure

Step 1 Ensure that basic calls and call functionality (such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc.) are working properly.

Step 2 Ensure that the peripheral is running properly on the upgraded gateway by verifying call flows, CTI desktops and other applications, Outbound Option, etc.

Step 3 Verify that all previously registered endpoint devices have re-registered correctly.

Step 4 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Note Cisco Unified System Contact Center Enterprise (Unified SCCE) is supported in Unified CCE Release 8.5(1); however, there is no separate Unified SCCE Release 8.5(1). If you request features that are in Release 8.5(1), you must migrate all Unified SCCE deployments to Unified CCE deployments. For more information on the migration from Unified SCCE Release 8.0(2) to Unified CCE 8.5(1), see *Upgrade Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.0(1a)* at: http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/ipcc_enterprise/ipccenterprise8_0_1/installation/guide/icm80ug.pdf

Verify upgrade to Cisco Telephony Integration Object Server and Cisco Agent Desktop Server

After upgrading the CTI OS and CAD Servers, verify the following:

Procedure

Step 1 Ensure that basic calls and call functionality (such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc.) are working properly.

Step 2 Verify that all previously registered endpoint devices have re-registered correctly.

Step 3 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Verify upgrade to Cisco Outbound Option

Procedure

Step 1 Ensure that basic calls and call functionality (such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc.) are working properly.

Step 2 Verify that all previously registered endpoint devices have re-registered correctly.

Step 3 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Verify upgrade to CTI OS and Cisco Agent Desktop Agent/Desktop Clients

After upgrading the Cisco Telephony Integration Object Server (CTI OS) and CAD agent client software, verify the following:

Procedure

Step 1 Ensure that basic calls and call functionality (such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc.) are working properly.

Step 2 Verify that all previously registered endpoint devices have re-registered correctly.

Step 3 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Step 4 Check that agents are still able to log in and answer calls.

Verify upgrade to Cisco Remote Agent

After upgrading the remote agent CAD desktop, verify the following:

Procedure

Step 1 Ensure that basic calls and call functionality such as transfers, conferences, call treatment and queuing by Unified IP IVR, etc.) are working properly.

Step 2 Verify that all previously registered endpoint devices have re-registered correctly.

Step 3 Check that no exceptions, errors, or unexpected events have occurred or found in the log buffer.

Step 4 Check that remote CAD agents are still able to log in and answer calls.

Verify upgrade to Cisco Unified Communications Manager

After upgrading Unified Communications Manager, verify the following:

Procedure

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

Step 2 Check the upgrade log file for any errors.

Step 3 Start all first node and subsequent node servers.

Step 4 Verify that there is no replication failure between the first node and subsequent node servers.

Step 5 Verify that SIP and SCCP IP Phones are registered with Unified Communications Manager.

Step 6 Ensure that the following devices are configured correctly: gatekeeper, MGCP, H.323 gateways, trunks, and CTI route points.

Step 7 Ensure that the media resources (conference bridges, MTP and transcoders) are configured correctly by checking their status.

Step 8 Verify if the end users are able to connect to their CTI managers.

Step 9 Check if the license usage is correct as reported in the License Unit Report.

Step 10 Check if services on all servers in the cluster are up.

Step 11 Perform the Unified Communications Manager first node and subsequent node process verification using the following Real Time Monitoring Tool feature verification process:

a) Verify if Multiple Route Patterns and Route Lists are configured and working properly.

b) Verify if Extension Mobility is configured and working properly.

c) Verify if Unified IP Phone Services are configured and working properly.

Verify Cisco Unified Communications Manager IM and Presence Service upgrade

After upgrading Cisco Unified Communications Manager IM and Presence Service , verify the following:

Procedure

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

Step 2 Check the upgrade log file for any errors.

Step 3 Verify the Static Route configuration.

Step 4 Check if the license usage is correct as reported in the License Unit Report. Using the Real Time Monitoring Tool, check if the CPU usage is consistent over 5 minutes without any spikes.

Verify upgrade to Cisco Security Agent Management Console

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

Procedure

Step 1 Ensure that basic functionality of call flows that previously worked before the upgrade work the same and operate normally.

Step 2 Check if the previous configuration still exists after the upgrade.

Step 3 Check if access to the console is still available.

Step 4 Check if all managed devices are visible.

Verify Cisco Unified IP Phones upgrade

After upgrading Cisco Unified IP Phones, verify the following:

Procedure

Step 1 Verify that the phones are upgraded to the target firmware images as indicated in the Unified Communications Manager.

Step 2 Verify access to the Corporate Directories in the Unified IP Phones.

Step 3 Verify that Unified IP Phone services such as Fast Dial, Extension Mobility, and so on, are working properly.

Step 4 Check if Unified Personal Communicator is able to control IP hard phones.

Verify upgrade to Cisco Unified Customer Voice Portal

After upgrading Unified CVP, verify the following:

Procedure

Step 1 Verify that error messages did not display during the upgrade process.

Step 2 Check the upgrade logs for error messages.

Step 3 Ensure that the Unified CVP Operations, Administration, Monitoring and Provisioning (OAMP) Web interface is available for use.

Step 4 Use the diagnostic page at http://<CVPHOST>:8000/cvp/diag to verify the status of the Unified CVP system.

Step 5 Ensure that the Unified CVP Voice Browser is registered with the H.323 gatekeeper.

Step 6 Check that the H.323 gatekeeper for Unified CVP Server is registered as an H.323 endpoint.

Step 7 Verify that the appropriate voice prompt is heard when the call is made.

Step 8 Ensure that the Unified CVP license is properly installed.

Verify upgrade to Cisco Unified IP IVR

After upgrading Unified IP IVR, verify the following:

Procedure

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

Step 2 Check the upgrade log file for any errors.Verify if all required services are operational after the upgrade.

Step 3 Verify if JTAPI is upgraded to the proper version and it is properly connected and synchronized to Unified Communications Manager.

Step 4 Check if all CTI Ports are registered with Unified Communications Manager.

Step 5 Check if all CTI Route Points are registered with Unified Communications Manager.

Step 6 Check if a prompt is heard when a call is made.

Step 7 Perform Telephony Synchronization and ensure that it is successful.

Step 8 If you are using a CAD desktop, ensure that the desktop auto upgrades to the version bundled with Unified IP IVR.

Step 9 Log in to IP Phone Agent, CAD Agent and CRSADMIN, and ensure that all the logins are successful.

Step 10 Make an inbound call and ensure that the call is presented to Ready Agent.

Step 11 If it is dual node, ensure one node is the Master while other node is in Slave state.

Related compatibility documentation

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

- Compatibility guides, on page 92
- Component release notes and installation and upgrade documents, on page 93

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

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

- Cisco Unified Communications Compatibility Tool:

  http://tools.cisco.com/ITDIT/vtgsca

- Cisco Unified Communications Manager (CallManager) Compatibility Information:

  http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html

- Hardware and Software Compatibility Information for Cisco Unified Presence Release 9.0(1), including TCP and UDP port usage:

  http://www.cisco.com/en/US/products/ps6837/products_device_support_tables_list.html

- *Cisco Unified Contact Center Enterprise (Unified CCE) Software Compatibility Guide:*

http://docwiki.cisco.com/wiki/Compatibility_Matrix_for_Unified_CCE

- *Hardware and System Software Specification (Bill of Materials) for Cisco Unified ICM/ Contact Center Enterprise & Hosted:*

  http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/icm_enterprise/icm_enterprise_9_0_1/reference/guide/_ICM9.0_BOM.pdf

- *Cisco Unified Contact Center Express (Cisco Unified CCX) 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

- *Hardware and System Software Specification for Cisco Unified Customer Voice Portal (Unified CVP), Release 9.0(1)* at:

  http:/www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_technical_reference_list.html

- Cisco 7800 Series Media Convergence Servers:

  http://www.cisco.com/en/US/products/hw/voiceapp/ps378/index.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 Unified Communications Virtualization (including links to UCS hardware information):

  http://www.cisco.com/go/uc-virtualized

- Cisco Unified Communications System Release Summary Matrix for Contact Center:

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

- IP Communications System Test Release Matrix:

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

Component release notes and installation and upgrade documents

The following table provides a listing of contact center components and URLs for related component release notes and installation and upgrade documents. These URLs link to webpages 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 14: 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 Unified Communications Manager IM and Presence Service (formerly Cisco Unified Presence)	http://www.cisco.com/en/US/products/ps6837/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6837/prod_installation_guides_list.html
Cisco Unified SIP Proxy	http://www.cisco.com/en/US/products/ps10475/prod_release_notes_list.html	—
Cisco Unified Intelligent Contact Management	http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_installation_guides_list.html
Cisco Unified Contact Center Enterprise	http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_installation_guides_list.html
Cisco Unified Contact Center Express and Cisco Unified IP IVR	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 Customer Voice Portal	http://www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps1006/prod_installation_guides_list.html
Cisco Outbound Option	http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps524/prod_installation_guides_list.html
Cisco Telephony Integration Object Server (CTI OS)	http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps14/prod_installation_guides_list.html
Cisco Agent Desktop (CAD)	http://www.cisco.com/en/US/products/sw/custcosw/ps427/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/custcosw/ps427/prod_installation_guides_list.html
Cisco Unified Intelligence Center	http://www.cisco.com/en/US/products/ps9755/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

Components	Release Notes	Installation and Upgrade Documents
Cisco MediaSense	http://www.cisco.com/en/US/products/ps11389/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps11389/prod_installation_guides_list.html
Cisco Finesse	http://www.cisco.com/en/US/products/ps11324/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps11324/prod_installation_guides_list.html
Cisco SocialMiner	http://www.cisco.com/en/US/products/ps11349/prod_release_notes_list.html	—
Cisco Unified Computing System	http://www.cisco.com/en/US/products/ps10477/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps10477/prod_installation_guides_list.html
Cisco ASA 5500 Series Adaptive Security Appliances	http://www.cisco.com/en/US/products/ps6120/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6120/tsd_products_support_install_and_upgrade.html
Cisco Security Agent	http://www.cisco.com/en/US/products/sw/secursw/ps5057/prod_release_notes_list.html	http://www.cisco.com/en/US/products/sw/secursw/ps5057/tsd_products_support_install_and_upgrade.html
Cisco Series 800 Routers	http://www.cisco.com/en/US/products/hw/routers/ps380/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/routers/ps380/prod_installation_guides_list.html
Cisco 2900 Series Integrated Services Routers	—	http://www.cisco.com/en/US/products/ps5854/prod_installation_guides_list.html
Cisco Integrated Services Routers (ISR) 2901, 2911, 2921, 2951	—	—
Cisco Series 7200 Routers	http://www.cisco.com/en/US/products/hw/routers/ps341/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/routers/ps341/prod_installation_guides_list.html
Cisco Catalyst 3600 Series MultiService Platforms	—	http://www.cisco.com/en/US/products/hw/routers/ps274/prod_installation_guides_list.html
Cisco AS5400 Series Universal Gateways	http://www.cisco.com/en/US/products/hw/univgate/ps505/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/univgate/ps505/prod_installation_guides_list.html

Components	Release Notes	Installation and Upgrade Documents
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 3900 Series Routers	—	http://www.cisco.com/en/US/products/ps10536/prod_installation_guides_list.html
Cisco VGD 1T3 Voice Gateway	—	http://www.cisco.com/en/US/products/ps9890/prod_installation_guides_list.html
Cisco Catalyst 3750 Series Access Switches	http://www.cisco.com/en/US/products/hw/switches/ps5023/prod_release_notes_list.html	http://www.cisco.com/en/US/products/hw/switches/ps5023/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 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/phones/ps379/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 Aironet Access Point 1240AG	http://www.cisco.com/en/US/products/ps6521/prod_release_notes_list.html	http://www.cisco.com/en/US/products/ps6521/prod_installation_guides_list.html
Cisco IOS Software Releases 15.2	http://www.cisco.com/en/US/products/ps10592/prod_release_notes_list.html	—

INDEX

H

I

M

P

R

S

T

U

V