



Administration Guide for Cisco VXC 4000 Release 1.0

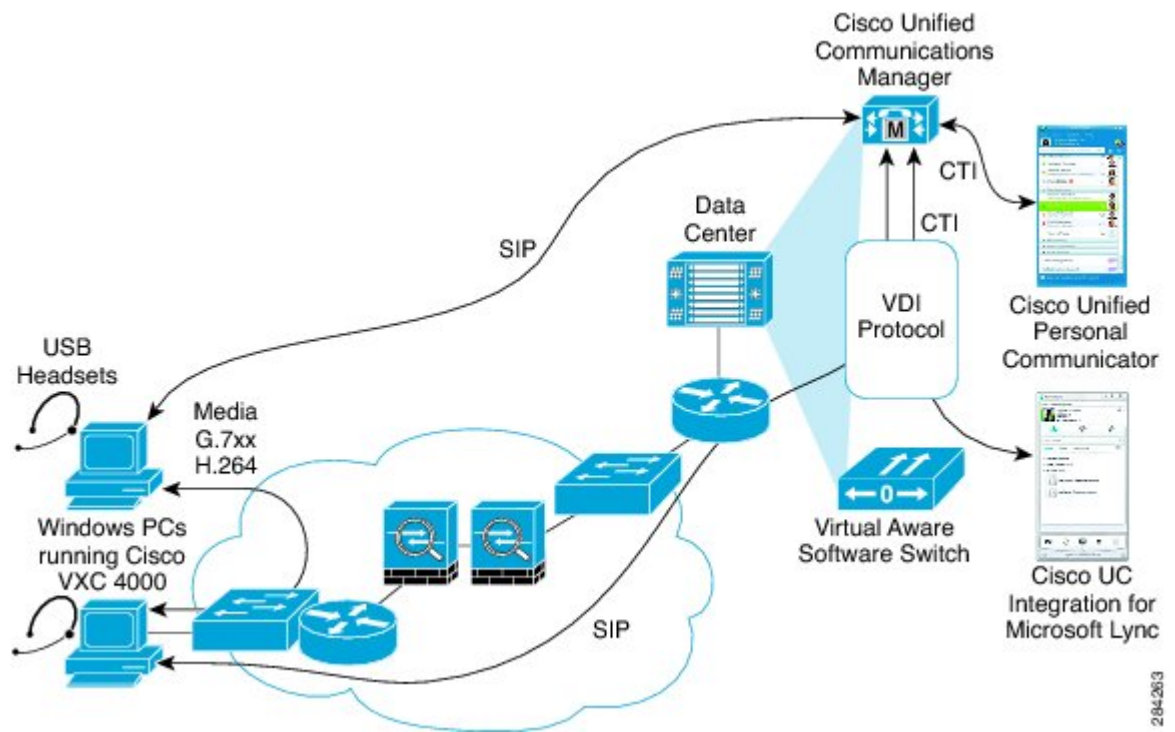
- [Overview, page 1](#)
- [Deployment, page 4](#)
- [Differences in the virtual environment, page 7](#)
- [Audio devices, page 7](#)
- [What to tell users, page 9](#)
- [Troubleshooting, page 9](#)

Overview

Cisco VXC 4000 Release 1.0 is part of the Cisco Virtualization Experience Infrastructure (VXI), a Windows-based software appliance that delivers a next generation virtual workspace by unifying virtual desktops with rich media¹. Cisco VXC 4000 enables peer-to-peer communication in a virtualized environment and eliminates the inefficiency of routing calls through a data center, resulting in high quality voice calling and an optimal user experience.

A typical deployment of Cisco VXC 4000 starts with an installation of Citrix Receiver or VMware View Client on a Windows PC, to enable connectivity to the remote hosted virtual desktop (HVD). Either Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync interact with Cisco VXC 4000 within the HVD to enhance voice communications with presence, instant messaging, voicemail, and web conferencing from anywhere.

Cisco VXC 4000 is an ideal solution for repurposed PCs or remote workers and contractors who use their own PCs to connect with an HVD.



¹Cisco VXC 4000 Release 1.0 supports voice communication only. Video is not supported in this release.

Compatibility

Cisco VXC 4000 is not supported with Cisco Unified Communications Manager Assistant (formerly known as Cisco Unified CallManager Assistant and Cisco IP Manager Assistant [IPMA]).

Cisco VXC 4000 does not interoperate with Cisco Web Dialer.

Network Requirements



Note

The requirements that are described in this guide refer only to Cisco VXC 4000. You may require additional resources to execute other applications while Cisco VXC 4000 is running.

For Cisco VXC 4000 to successfully operate as an endpoint, your network must meet these requirements:

- You must configure VoIP on your Cisco routers and gateways.
- If Cisco VXC 4000 is behind a firewall, you must open ports in the firewall. For details about the TCP and UDP port usage for Cisco Unified Communications Manager, refer to this URL:
http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html
- Your IP network must support DHCP with Cisco Option 150 configured with your TFTP server addresses if you want Cisco Unified Communications Manager to auto-locate its TFTP server.
- To integrate with Cisco Emergency Responder, you need an available Ethernet port on a Cisco Ethernet switch. For details, see the *Cisco Emergency Responder Administration Guide*.

**Note**

If the computer on which Cisco VXC 4000 is running is plugged into the PC port on the back of a Cisco Unified IP Phone, Cisco VXC 4000 will not be discovered by the Emergency Responder software. In this case, the Cisco Discovery Protocol (CDP) will be blocked and will not be detected by CER. Connect Cisco VXC 4000 directly to a switch port to prevent this problem.

Server Requirements

Cisco VXC 4000 requires [Cisco Unified Communications Manager](#) or Cisco Unified Communications Manager Express for call processing. Before you deploy Cisco VXC 4000 to users, make sure that Cisco Unified Communications Manager or Cisco Unified Communications Manager Express is set up properly to manage Cisco VXC 4000 devices and to route and process calls.

**Note**

You must set the device type to Cisco IP Communicator for Cisco VXC 4000 Release 1.0 to register properly with Cisco Unified Communications Manager.

For more information, see the *Cisco Unified Communications Manager Administration Guide* or context-sensitive help in Cisco Unified Communications Manager Administration.

Client PC Requirements

The minimum hardware requirements for Cisco VXC 4000 are based on a system that is running only applications and services that are part of the base operating system image. Administrators should account for other applications on the workstation to determine whether the system configuration—the CPU speed and RAM in particular—can perform adequately with other applications that could affect application performance running concurrently on the PC.

Please note that Citrix Receiver or VMware View Clients are installed separately, so administrators should account for memory and disk space for these applications independently.

Hardware requirements:

- Disk space: 350 MB free disk space before the application is started, 1 GB while running
- Memory: 1 GB RAM

Software requirements:

- Microsoft Windows Operating System:
 - XP Service Pack 3 (32-bit)
 - Vista Service Pack 2 Ultimate, Enterprise, or Business edition (32 or 64-bit)
 - 7 Pro, Enterprise, or Ultimate edition (32- or 64-bit)

**Note**

Microsoft Visual C++ 2005 Redistributable Package Version 8.0.5919 is required for successful operation. Later versions will cause installation failures.


- [Cisco Unified Communications Manager](#) 7.1.x, 8.0.x, 8.5.x, or 8.6.x
- At least one of the following virtual desktop clients:
 - Citrix Receiver for Windows 3.x
 - VMware View Client for Windows 5.x
- At least one of the following soft-client support applications, running in the HVD with CTI control enabled:
 - [Cisco Unified Personal Communicator](#) 8.5.x
 - [Cisco UC Integration for Microsoft Lync](#) 8.5.x
- Standard Windows audio device drivers, plus any drivers required for additional audio devices (for example, a USB headset)
- If you are running Cisco AnyConnect, Version 2.5 (or later) is required.

Deployment

Perform the following tasks to deploy Cisco VXC 4000.

1	<p>Configure Cisco Unified Communications Manager:</p> <ul style="list-style-type: none"> • Add a new phone device with a phone type of Cisco IP Communicator. Associate a directory number and an end user with the new device in Cisco Unified Communications Manager administration. After device selection, Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync starts the transfer of the phone configuration data for that user. • Cisco VXC 4000 can be configured to share the same number with other phones that a user owns; for example, a Cisco IP phone. In this scenario, the user can answer an incoming call on a Cisco IP Phone, hold it and then pick it up on Cisco VXC 4000 through a client application (Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync), and vice-versa. <p>However, multi-line features are not supported in this release: do not configure Cisco VXC 4000 to share the same line with another user, or configure Cisco IP Communicator with multiple buttons, as any calls on buttons other than the one explicitly monitored cannot be controlled by the UC client in the HVD. Shared line support is limited to the capabilities of the client application (Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync); you may select only a single line from within the client Options via which the client will provide telephony features.</p>
2	<p>Configure one of the following virtual desktop clients on the client PC:</p> <ul style="list-style-type: none"> • Citrix Receiver for Windows • VMware View Client for Windows

3	<p>Configure one of the following clients, in the HVD:</p> <ul style="list-style-type: none">• Cisco Unified Personal Communicator• Cisco UC Integration for Microsoft Lync
4	<p>The user should only see a deskphone as the CTI-controlled device. Do not configure a CSF device for Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync. Set the DeskphoneStartupMode registry setting to "1" to set the deskphone as the default mode. This subkey is located in HKEY_CURRENT_USER\Software\Policies\Cisco Systems, Inc.\Client Services Framework\AdminData.</p>
5	<p>Install the default Windows audio drivers on the client machine as required, plus drivers for any additional audio devices that are to be used (for example, a USB headset).</p>
6	<p>Install the Cisco VXC 4000 software appliance by running the installation application locally or remotely (see below). Cisco recommends that you perform the installation from the command line.</p> <p>Note Regardless of the method of deployment (local or remote), Cisco recommends that you configure the device name and/or the TFTP address. For example:</p> <pre>msiexec /i CiscoVXC4000Setup.msi /qb FREEFORMDEVICENAME=devicename TFTP1=10.10.10.10 or CiscoVXC4000Setup.exe /v"FREEFORMDEVICENAME=devicename TFTP1=10.10.10.10"</pre> <p>where devicename equals the name of the Cisco IP Communicator device configured in Cisco Unified Communications Manager administration.</p>

6, cont.	<p>Local installation:</p>  <p>You can deploy either the executable or the MSI package directly to the client PC and perform the installation by running the installer and following the installation wizard. If necessary, use an administrator account to do this task.</p> <p>If you use the MSI package, you can also use a command line on the client PC to customize the installation.</p>
6, cont.	<p>Remote installation:</p> <p>You can install Cisco VXC 4000 for an entire enterprise by using a software distribution technology. This method can temporarily elevate user privileges on the client PC for installation purposes.</p> <p>You can use a software deployment tool to distribute Cisco VXC 4000 to client PCs. You must use this deployment method if users do not have administrative privileges on their computers (and if you want to avoid manually installing the application on each client PC). Software deployment tools include group policy-based tools such as Active Directory, or more advanced tools such as Systems Management Server (SMS).</p> <p>By using a software deployment tool that can pass a command line to a system, you can take advantage of the Windows Installer package and customize values such as the device name and TFTP server addresses during deployment. Specifying these values at deployment means that users do not have to configure these settings after installation and greatly simplifies the post-installation process for users.</p> <p>Note Cisco VXC 4000 does not support the “advertising” or “publishing” deployment in which users install the application by opening an icon that the administrator places on the their desktop.</p>
7	<p>Log in to Cisco Unified Communications Manager and enable CTI control for all Cisco VXC 4000 users. For more information, see the <i>Cisco Unified Communications Manager Administration Guide</i> or context-sensitive help in Cisco Unified Communications Manager Administration.</p>

Differences in the virtual environment

The user experience for Cisco VXC 4000 when it is used with Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync in a virtual environment is very similar to the experience provided by a standard installation, with some differences:

- Virtual machine host server performance may be affected. Consult the Application Characterization Results in the following document for more information:
http://www.cisco.com/en/US/docs/solutions/Enterprise/Data_Center/VXI/CVD/VXI_CVD_Citrix.html
- The user must exit the HVD to mute, unmute, or adjust the audio volume. Note that volume control and mute may be operated on headsets that support those functions.
- Visual Voicemail is not supported.
- The Cisco IP Communicator Administration Tool is not accessible in the virtual environment.
- Contact center functions are not supported.
- Some menus and options are different. Ensure that users have access to the documentation for each of the applications that interact with Cisco VXC 4000:
 - [Cisco Unified Communications Manager](#)
 - [Cisco Unified Personal Communicator](#)
 - [Cisco UC Integration for Microsoft Lync](#)

Audio devices

Supported audio formats

Cisco VXC 4000 supports the following audio formats:

- Internet Speech Audio Codec (iSAC)
- iLBC
- G.711a
- G.711u
- G.722
- G.729a
- G.729ab (SCCP only)

**Note**

The Cisco linear wideband audio codec (uncompressed wideband, 16 bits, 16 kHz) is not supported.

Supported audio devices

While Cisco does perform basic testing of selected third-party headsets and handsets for use with Cisco VXC 4000, it is ultimately the customer's responsibility to test this equipment in their own environment to determine suitable performance.

The following audio devices have been tested for use with Cisco VXC 4000:

- ClearOne Chat 50 USB
- Polycom XC 100 Speakerphone USB
- Jabra GN8110 USB, GN8120 USB, GN2100, GN2000, GN9350, and GN5390
- Plantronics devices:
 - Blackwire USB wired headset family
 - Calisto USB handset/speakerphone family, except for Calisto 800
 - CS50 and CS60 USB wireless headset system family
 - DA45 USB adapter family for use with Plantronics H-series headsets, also known as H-top headsets
 - Savi Office wireless headset system family, DECT
 - Voyager PRO UC Bluetooth headset system family

Cisco offers no warranties about the support of these devices. Direct all support questions to the device manufacturers.



Note

Cisco VXC 4000 does not support Plantronics or Jabra headsets that are specifically designed for Microsoft (for example, any Plantronics device with “-M” in the device name).

Audio quality

Cisco VXC 4000 is designed to provide premium voice quality under a variety of conditions; however, in some instances users may notice interruptions of audio transmission or temporary audio distortions (“artifacts”), which are considered a normal part of the application operation.

To minimize artifacts, use the following:

- Cisco VXC 4000 on a workstation that meets the recommended configuration requirements
- A network that meets the recommended quality criteria in the Cisco Unified Communication Solution Reference Design Document

Cisco takes reasonable measures to ensure that Cisco VXC 4000 interacts with the operating system and applications in ways that minimize interference with audio quality. However, the shared nature of system environments in which these products run is very different than a closed environment like that of Cisco IP Phones, and Cisco cannot guarantee equivalent performance.

The following are some conditions that may cause artifacts:

- Spike in usage of the personal computer CPU—where CPU utilization is between 75 and 100 percent—due to launching applications, system processes, or processing within other applications that are running

- The system is running low on available physical memory
- Other applications using large amounts of bandwidth between the workstation and the network
- Other network bandwidth impairments
- Dynamic reduction in CPU clock speed due to power management policy (for example, laptops running on battery power) or thermal protection that causes the CPU to run in a more highly loaded condition
- Any other condition that causes the application to lose timely access to the network or audio system, for example, interference from third-party software

What to tell users

Provide the following information to your user base during your deployment of Cisco VXC 4000:

- A list of supported audio devices, such as USB handsets or headsets.
- A list of calling features that you configured in Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync during the installation, where applicable.
- Instructions for accessing voicemail, where applicable.
- User documentation. Be sure to emphasize the warning against using the computer as a phone to place emergency calls.
- The following reminders:
 - If users are changing computers or hosted virtual desktops (HVDs), they must release the Cisco VXC 4000 device first for it to be available in the new location.
 - Do not redirect an audio device to the HVD. The user's audio device must be available to Windows outside of the HVD to access the features of Cisco VXC 4000.
- Instructions on how to report problems:
 - When and how to use the Quality Reporting Tool
 - How to enable logging
 - How to use the Problem Reporting Tool

Troubleshooting

Problem Application is slow to register.

Solution Disable HTTP download by changing the following system registry setting to 0:
HKEY_LOCAL_MACHINE > Cisco System, Inc .> Communicator > EnableHttpDownload

Problem Application resets unexpectedly.

Solution Cisco VXC 4000 resets when it loses contact with the Cisco Unified Communications Manager server. The following conditions can cause a lost connection:

- Any network connectivity disruption, such as cable breaks, switch outages, and switch reboots
- Roaming out of range while using a wireless network connection
- Another system administrator with access to Cisco Unified Communications Manager might have intentionally reset the devices

Problem The application does not successfully register with Cisco Unified Communications Manager.

Solution Ensure that the device type is set to Cisco IP Communicator in your Cisco Unified Communications Manager settings.

Problem The application is slow to load.

Solution Verify that the desktop system in which Cisco VXC 4000 is installed is in same domain as Cisco Unified Communications Manager. You can also verify that the desktop system in which Cisco VXC 4000 is installed can resolve Cisco Unified Communications Manager by both fully qualified domain name (FQDN) and by name.

Solution If the desktop in which Cisco VXC 4000 is installed cannot resolve Cisco Unified Communications Manager by name, go to **Control Panel > Network Connections > choose your network connection > Internet Protocol (TCP/IP) > Properties > Properties > Advanced > DNS > Append These DNS Suffixes**. Add a suffix that corresponds to the Cisco Unified Communications Manager suffix in the DNS entry.

Problem The application does not recognize digits.

Solution The user is experiencing DTMF delay and should enter the digits more slowly.

Problem The user is unable to place or receive calls.

Solution Ensure that CTI control is enabled for the user.

Solution Ensure that the user is not attempting to use Cisco VXC 4000 in more than one location; the CTI can control only one instance at a time. The user must deselect Cisco VXC 4000 as a calling device in Cisco Unified Personal Communicator or Cisco UC Integration for Microsoft Lync before selecting it in a new HVD or on a different computer.

Problem The user is unable to use an audio device.

Solution Ensure that the audio device is not being redirected to the HVD by the virtual desktop client. It must be available to Windows outside of the HVD for the user to access the features of Cisco VXC 4000.

Problem Application performance is slow when the user is multitasking.

Solution Assess the CPU usage under these conditions by using the Windows Performance Tool.