



# **Installation and Troubleshooting Guide for Cisco Unified Video Advantage**

Release 2.0

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# Preface

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## Overview

The *Installation and Troubleshooting Guide for Cisco Unified Video Advantage* provides you with the information you need to install and administer Cisco Unified Video Advantage.

## Audience

The *Installation and Troubleshooting Guide for Cisco Unified Video Advantage* is written for network and telephony administrators who will be administering Cisco Unified Video Advantage for end users.

## Objectives

This guides provides installation and administration information to configure Cisco Unified Video Advantage on your network with Cisco Unified CallManager and Cisco IP Phones.



### Note

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In this document, references to Cisco Unified IP Phones include all video-enabled Cisco Unified IP Phones (the 7940, 7960 and 7970 series), as well as Cisco IP Communicator release 2.0.

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# How To Use This Guide

Locate the task you want to perform and then refer to the corresponding chapter in this guide.

To do this	See
Find an overview Cisco Unified Video Advantage	<a href="#">“Overview of Cisco Unified Video Advantage”</a>
Prepare your network for Cisco Unified Video Advantage	<a href="#">“Preparing Your Network for Cisco Unified Video Advantage”</a>
Install Cisco Unified Video Advantage	<a href="#">“Deploying and Installing Cisco Unified Video Advantage”</a>
Troubleshoot Cisco Unified Video Advantage	<a href="#">“Troubleshooting Cisco Unified Video Advantage”</a>
Provide information about Cisco Unified Video Advantage to end users	<a href="#">“Providing Information to End Users”</a>
Review technical specifications for Cisco Unified Video Advantage	<a href="#">“Technical Specifications”</a>
Review regulatory compliance and safety information for Cisco Unified Video Advantage	<a href="#">Regulatory Compliance and Safety Information</a>

## Related Documentation

For more information about Cisco Unified Video Advantage , Cisco Unified IP Phones, or Cisco CallManager, see these documents.

Document Name	Location
<i>Cisco Unified Video Advantage User Guide</i>	<a href="http://www.cisco.com/en/US/products/sw/voicesw/ps5662/products_user_guide_list.html">http://www.cisco.com/en/US/products/sw/voicesw/ps5662/products_user_guide_list.html</a>
<i>Cisco Unified Video Advantage Quick Start Guide</i>	<a href="http://www.cisco.com/en/US/products/sw/voicesw/ps5662/rod_installation_guides_list.html">http://www.cisco.com/en/US/products/sw/voicesw/ps5662/rod_installation_guides_list.html</a>
<i>Release Notes for Cisco Unified Video Advantage</i>	<a href="http://www.cisco.com/en/US/products/sw/voicesw/ps5662/rod_release_notes_list.html">http://www.cisco.com/en/US/products/sw/voicesw/ps5662/rod_release_notes_list.html</a>

Document Name	Location
Cisco IP Communicator User Guides	<a href="http://www.cisco.com/en/US/products/sw/voicesw/ps5475/products_user_guide_list.html">http://www.cisco.com/en/US/products/sw/voicesw/ps5475/products_user_guide_list.html</a>
Cisco IP Communicator Administration Guides	<a href="http://www.cisco.com/en/US/products/sw/voicesw/ps5475/prod_maintenance_guides_list.html">http://www.cisco.com/en/US/products/sw/voicesw/ps5475/prod_maintenance_guides_list.html</a>
Cisco Unified IP Phone Administration Guides	<a href="http://www.cisco.com/en/US/products/hw/phones/ps379/prod_maintenance_guides_list.html">http://www.cisco.com/en/US/products/hw/phones/ps379/prod_maintenance_guides_list.html</a>
Cisco Unified CallManager Administration Guides	<a href="http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html">http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html</a>

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

### Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Product Documentation DVD

The Product Documentation DVD is a comprehensive library of technical product documentation on a portable medium. The DVD enables you to access multiple versions of installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the same HTML

documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .PDF versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

## Ordering Documentation

Registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at [tech-doc-store-mkpl@external.cisco.com](mailto:tech-doc-store-mkpl@external.cisco.com) or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

## Documentation Feedback

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You can submit comments about Cisco documentation by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems  
Attn: Customer Document Ordering  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

# Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

From this site, you will find information about how to:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

[http://www.cisco.com/en/US/products/products\\_psirt\\_rss\\_feed.html](http://www.cisco.com/en/US/products/products_psirt_rss_feed.html)

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For Emergencies only—[security-alert@cisco.com](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For Nonemergencies—[psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

**Tip**

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We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

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## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

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Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

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## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

<http://www.cisco.com/go/guide>

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:  
<http://www.cisco.com/go/marketplace/>
- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:  
<http://www.ciscopress.com>
- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:  
<http://www.cisco.com/packet>
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<http://www.cisco.com/go/iqmagazine>  
or view the digital edition at this URL:  
<http://ciscoiq.texterity.com/ciscoiq/sample/>
- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:  
<http://www.cisco.com/ipj>
- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:  
<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>



# Overview of Cisco Unified Video Advantage

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This section provides an overview of Cisco Unified Video Advantage and includes the following topics:

- [Overview of Cisco Unified Video Advantage](#)
- For information about using the Cisco Unified Video Advantage software, refer to the [Cisco Unified Video Advantage User Guide](#), which is available from the [Cisco Unified Video Advantage link online](#):  
[http://www.cisco.com/en/US/products/sw/voicesw/ps5662/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/sw/voicesw/ps5662/tsd_products_support_series_home.html)
- [Cisco Unified Video Advantage Software Components](#)
- [Cisco Unified Video Advantage Hardware and Software Requirements](#)

## Overview of Cisco Unified Video Advantage

Cisco Unified Video Advantage brings video telephony functionality to the all video-enabled Cisco Unified IP Phones including Cisco IP Communicator. The Cisco Unified Video Advantage software coupled with the Cisco VT Camera (a USB camera) allows a personal computer (PC) connected to a Cisco Unified IP Phone to add video to phone calls without requiring any extra button-pushing or mouse-clicking. When registered to Cisco Unified CallManager, the Cisco Unified Video Advantage-enabled Cisco Unified IP Phone has the features and functionality of a full-featured IP videophone. Call features like call forward, transfer, conference, hold, and mute are available with video — and are all

initiated through the Cisco IP Communicator or Cisco Unified IP Phone. Cisco Unified Video Advantage is intended for desktop-to-desktop IP video telephony environments, not as a general purpose video conferencing solution for use in conference rooms.

**Note**

In this document, references to Cisco Unified IP Phones include all video-enabled Cisco Unified IP Phones as well as Cisco IP Communicator. See the Cisco Unified IP Phone documentation for the latest information about which phone models support video. The Cisco Unified IP Phone documentation is available at the following URL:

[http://www.cisco.com/en/US/products/hw/phones/ps379/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/phones/ps379/tsd_products_support_series_home.html)

**Note**

For information about using the *Cisco Unified Video Advantage* software, refer to the *Cisco Unified Video Advantage User Guide*, which is available from the Cisco Unified Video Advantage link online:

[http://www.cisco.com/en/US/products/sw/voicesw/ps5662/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/sw/voicesw/ps5662/tsd_products_support_series_home.html)

## Cisco Unified Video Advantage Software Components

The Cisco Unified Video Advantage software includes the following major components.

Component	Description
Cisco Discovery Protocol (CDP) Driver	The CDP driver transmits and receives device information so that the Cisco Unified Video Advantage software can determine the IP address of the Cisco Unified IP Phone to which it is connected and associate to that phone.

Component	Description
Cisco Unified IP Phone firmware	<p>Firmware release that supports video on the Cisco Unified IP Phone.</p> <p><b>Note</b> For information about specific phone models and firmware releases, refer to the release notes for the phone model you are using. Release notes for the Cisco Unified IP Phones are available at this URL: <a href="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_release_notes_list.html</a>.</p>
Cisco Unified Video Advantage Win32 Application	<p>This application performs the following functions:</p> <ul style="list-style-type: none"> <li>• Enables and manages the video window display</li> <li>• Communicates with the Cisco Discovery Protocol (CDP) driver</li> <li>• Communicates with the Cisco Unified CallManager using a Cisco IP Phone as an Skinny Client Control Protocol (SCCP) proxy</li> <li>• Discovers the associated Cisco Unified IP Phone using CDP</li> <li>• Connects to the Cisco Unified IP Phone using the Cisco Audio Session Tunnel (CAST) protocol</li> <li>• Indirectly communicates with Cisco Unified CallManager and remote endpoints via CAST messages sent to the Cisco Unified IP Phone</li> <li>• Responds to events from a Cisco Unified IP Phone</li> <li>• Creates and manages system tray icons</li> <li>• Creates and displays the system tray popup messages for status feedback to the user</li> </ul>
Software Video Decoders and Encoders	Includes: H.263 and H.264

# Cisco Unified Video Advantage Hardware and Software Requirements

This section details the hardware and software requirements for Cisco Unified Video Advantage.

## Hardware Requirements

Cisco Unified Video Advantage requires the following hardware:

- Cisco VT Camera
- Personal Computer (PC)
- Cisco Unified IP Phone or Cisco IP Communicator

### Cisco VT Camera

Must be installed and connected to the PC on which the Cisco Unified Video Advantage software is installed. For more information about setting up the Cisco VT Camera, see the [“Setting Up the Cisco VT Camera”](#) section on [page 3-8](#).



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**Note**

In this document, references to the Cisco VT Camera include both the Cisco VT Camera and the Cisco VT Camera II.

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**Note**

The Cisco VT Camera II meets all European Union RoHS compliance requirements.

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### Personal Computer (PC) on which the Cisco Unified Video Advantage Software is Installed.

Must meet these specifications:

PC Feature	Requirement
Operating system	<p>Cisco Unified Video Advantage operating alone or with Cisco IP Communicator</p> <ul style="list-style-type: none"> <li>– Windows 2000 Professional with service pack 4.0 or later</li> <li>– Windows XP Professional with service pack 2.0 or later</li> </ul>
CPU	<p>Cisco Unified Video Advantage using H.263</p> <ul style="list-style-type: none"> <li>– 1.9 GHz or higher Pentium IV or compatible processor (Streaming SIMD Extensions support required)</li> </ul> <p>Cisco Unified Video Advantage using H.264</p> <ul style="list-style-type: none"> <li>– 2.4 GHz or higher Pentium IV or compatible processor (Streaming SIMD Extensions support required)</li> </ul> <p>Preferred CPU for all Cisco Unified Video Advantage installations</p> <ul style="list-style-type: none"> <li>– 2.8 GHz or higher compatible processor recommended</li> </ul>
System memory	<ul style="list-style-type: none"> <li>• 256 MB RAM minimum, 512 MB RAM or more recommended</li> </ul>
Free disk space	<ul style="list-style-type: none"> <li>• 100 MB free disk space for Cisco Unified Video Advantage operating alone</li> <li>• 200 MB free disk space for Cisco Unified Video Advantage operating with Cisco IP Communicator</li> </ul>
USB port	<ul style="list-style-type: none"> <li>• At least 1 free USB (1.1 or 2.0 compliant) port</li> </ul>

PC Feature	Requirement
Video display	<ul style="list-style-type: none"> <li>Video capable graphics card at 800x600x16 bit screen resolution, 1024x768x16 bit or better recommended</li> </ul>
Network	<ul style="list-style-type: none"> <li>10/100 Mbit Ethernet NIC</li> </ul>

### Cisco Unified IP Phones

Cisco Unified Video Advantage is supported on the Cisco IP Communicator and all video-enabled Cisco Unified IP Phones.

For information about specific phone models and firmware releases, refer to the release notes for the phone model you are using. Release notes for the Cisco Unified IP Phones are available at this URL:

[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_release_notes_list.html).

For more information about configuring the phones for Cisco Unified Video Advantage, see the “[Configuring Cisco Unified IP Phones for Cisco Unified Video Advantage](#)” section on page 2-9.



#### Caution

Cisco Unified Video Advantage is not supported on Cisco Unified IP Phones running SIP protocol. They are only supported on Cisco Unified IP Phones running SCCP protocol.

# Software Requirements

Cisco Unified Video Advantage requires the following software:

- Cisco Unified Video Advantage software
- Cisco Unified CallManager

## Cisco Unified Video Advantage Software

Must be installed on the PC along with Cisco IP Communicator or on the PC connected directly to the Cisco Unified IP Phone. For more information about installing Cisco Unified Video Advantage, see the [“Installing the Cisco Unified Video Advantage Application”](#) section on page 3-10.



### Caution

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In order for the Cisco VT Camera to operate properly, the PC on which it is installed must have Microsoft DirectX 9.0c installed.

---

## Cisco Unified CallManager

The minimum Cisco Unified CallManager version required for Cisco Unified Video Advantage is used with a physical Cisco Unified IP Phone is Cisco Unified CallManager Version 4.0(1) Service Release 2.

The minimum Cisco Unified CallManager version required for Cisco Unified Video Advantage to interoperate with Cisco IP Communicator is Cisco Unified CallManager Version 4.1(3), Service Release 1.

Cisco Unified Video Advantage requires Cisco Unified CallManager to handle video call processing on the Cisco IP Phones. For more information about configuring Cisco Unified CallManager for Cisco Unified Video Advantage, see the [“Configuring Cisco Unified CallManager for Cisco Unified Video Advantage”](#) section on page 2-6.





# Preparing Your Network for Cisco Unified Video Advantage

---

This section provides information about preparing your network and configuring Cisco Unified CallManager and Cisco IP Phones for Cisco Unified Video Advantage. It includes the following topics:

- [Cisco Unified Video Advantage Network Requirements](#)
- [Supported Protocols on Cisco Unified Video Advantage](#)
- [Supported Video Codecs on Cisco Unified Video Advantage](#)
- [Configuring Cisco Unified CallManager for Cisco Unified Video Advantage](#)
- [Configuring Cisco Unified IP Phones for Cisco Unified Video Advantage](#)

## Cisco Unified Video Advantage Network Requirements

For Cisco Unified Video Advantage to successfully operate as a video endpoint in your network, your network must meet the following requirements:

- Working VoIP Network
  - Voice over IP (VoIP) configured on your Cisco routers and gateways

- For Cisco Unified Unified IP Phones, Cisco Unified CallManager Version 4.0(1), Service Release 2 or higher (minimum requirement; see the “[Software Requirements](#)” section on page 1-7 for compatibility information.)
- For Cisco IP Communicator version 2.0 and Cisco Unified CallManager Version 4.1(3) Service Release 1 or higher

**Caution**


---

Cisco Unified Video Advantage is not supported on Cisco Unified IP Phones running on the SIP protocol. They are only supported on Cisco Unified IP Phones running on the SCCP protocol.

---

- IP network that supports DHCP or manual assignment of IP address, gateway, and subnet mask in Cisco Unified CallManager.
- IP telephony networks with access control lists and/or firewalls between voice VLANs and data VLANs must be configured so that the access control lists and/or firewalls allow the Cisco Audio Session Tunnel (CAST) protocol to communicate with the Cisco IP Phone and the PC (Cisco Unified Video Advantage) over TCP/IP using TCP port 4224. Bi-directional communication on TCP port 4224 is required.

For more information, refer to the *Cisco IP Video Telephony Solution Reference Network Design (SRND) for Cisco Unified CallManager* at this URL: <http://www.cisco.com/warp/public/779/largeent/it/ese/srnd.html>

- Cisco IP Communicator (Release 2.0 or later) or video-enabled Cisco Unified IP Phone installed and configured on your IP network with phone loads that support video.
- Quality of Service is properly configured on your network to provide prioritized treatment of the audio and video streams.

For more information about quality of service, refer to the Quality of Service Design Guide, which is available at this URL:

<http://www.cisco.com/warp/public/779/largeent/it/ese/srnd.html>

- If multi-party video conferences are desired, a Cisco Unified Videoconferencing 3511 or Cisco Unified Videoconferencing 3540 MCU (with Cisco IP/VC Version 3.2 Plus software) is required.

For more information about setting up Cisco Unified CallManager and a Cisco Unified Videoconferencing MCU 3511 or 3540 to provide video conferences, refer to the *Cisco IP/VC 3511 MCU and Cisco IP/VC 3540 MCU*

*Module Administrator Guide (Version 3.2)*, which is available at this URL: [http://www.cisco.com/en/US/products/hw/video/ps1870/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/hw/video/ps1870/prod_maintenance_guides_list.html)

- If Public Switched Telephone Network (PSTN) connectivity for video calls is required, a Cisco Unified Videoconferencing 3521 BRI, Cisco Unified Videoconferencing 3526, or Cisco Unified Videoconferencing 3540 PRI Gateway is required.

For more information about setting up Cisco Unified CallManager to use a Cisco Unified Videoconferencing 3526 or 3540 PRI Gateway, refer to the *Cisco IP/VC 3526 PRI Gateway and Cisco IP/VC 3540 PRI Gateway Module Administrator Guide, 2.0*, which is available at this URL: <http://www.cisco.com/univercd/cc/td/doc/product/ipvc/ipvc3540/gateway/index.htm>

## Supported Protocols on Cisco Unified Video Advantage

Cisco Unified Video Advantage supports several industry-standard and Cisco networking protocols required for video communication. See the following table for an overview of the supported networking protocols.

Networking Protocol	Purpose	Usage Notes
Cisco Audio Session Tunnel (CAST)	<p>The CAST protocol allows Cisco IP Phones and associated applications behind the phone to discover and communicate with the remote endpoints without requiring changes to the traditional signaling components like Cisco Unified CallManager and gateways.</p>	<p>CAST works:</p> <ul style="list-style-type: none"> <li>• Between Cisco Unified Video Advantage and the Cisco Unified IP Phone to exchange capabilities</li> <li>• Between Cisco Unified Video Advantage and Cisco Unified CallManager, with the Cisco IP Phone as an SCCP proxy.</li> </ul> <p>CAST triggers Cisco Unified Video Advantage call events such as: call video stream start and stop; speaker on/speaker off; audio mute on/audio mute off; call hold/call resume.</p> <p>CAST allows Cisco Unified Video Advantage to discover remote Cisco Unified Video Advantage-capable endpoints.</p>
Cisco Discovery Protocol (CDP)	<p>CDP is a device-discovery protocol that runs on all Cisco-manufactured equipment.</p> <p>Using CDP, a device can advertise its existence to other devices and receive information about other devices in the network.</p>	<p>Cisco Unified Video Advantage uses the CDP protocol to communicate configuration information to the Cisco IP Phone, and the Cisco IP Phone uses CDP to communicate to Cisco Unified Video Advantage. With CDP, each device sends periodic messages to a multicast address and in turn listens to the periodic messages sent by other devices. This allows devices on the network to discover one another and learn information such as protocols used, protocol addresses, and so on.</p>
Internet Protocol (IP)	<p>IP is a networking protocol that addresses and sends packets across the network.</p>	<p>To communicate using IP, network devices must have an assigned IP address, subnet, and gateway.</p>

<b>Networking Protocol</b>	<b>Purpose</b>	<b>Usage Notes</b>
Real-Time Transport Protocol (RTP)	RTP is a standard for using UDP to transport real-time data, such as interactive voice and video, over data networks.	The RTP protocol is used to encapsulate and stream the audio and video between endpoints and Cisco Unified Video Advantage.
Skinny Client Control Protocol (SCCP)	A Cisco protocol using low-bandwidth messages that allows communication between IP devices and the Cisco Unified CallManager.	If a Skinny Client Control Protocol Cisco IP Phone reports video capabilities, Cisco Unified CallManager automatically opens a video channel if the other end supports video.  For Skinny Client Control Protocol video calls, the system determines video call bandwidth by using regions.
Transmission Control Protocol (TCP)	TCP is a connection-oriented transport protocol in the IP family.	Cisco Unified Video Advantage uses TCP to connect to Cisco Unified CallManager and to communicate to a Cisco Unified IP Phone.

# Supported Video Codecs on Cisco Unified Video Advantage

These video codecs are supported in Cisco Unified Video Advantage.

- H.263
- H.264

By default, Cisco Unified Video Advantage is configured to support both H.263 and H.264 video codecs. If both codecs are available, the application will give priority to H.264. See the “[Customizing Deployment with Command Line Options](#)” section on page 3-4 for more information about customizing video codecs.

## Configuring Cisco Unified CallManager for Cisco Unified Video Advantage

Cisco Unified Video Advantage requires Cisco Unified CallManager to handle video call processing on the Cisco Unified IP Phones. The Cisco Unified CallManager documentation provides detailed information about video call processing. Specifically, the following reference guides provide more details:

- *Cisco Unified CallManager System Guide*, section “Understanding Video Telephony”
- *Cisco Unified CallManager Administration Guides*.

These guides are available at this URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)


The following table provides information about particular feature settings that need to be properly configured on Cisco Unified CallManager to support Cisco Unified Video Advantage.

CCM Feature	Description	Configuration Reference
Alternate routing	You can use route/hunt lists or Automated Alternate Routing (AAR) groups to try different paths for video calls if you do not want the default behavior specified by the Retry Video Call as Audio setting (see below in this table).	<i>Cisco Unified CallManager Administration Guide</i> , Route/Hunt List Configuration and Automated Alternate Routing Group Configuration sections
Differentiated Service Code Point (DSCP)	DSCP packet marking can be changed using these QOS service parameters: <ul style="list-style-type: none"> <li>• DSCPForAudioCalls</li> <li>• DSCPForVideoCalls</li> </ul>	<i>Cisco Unified CallManager System Guide</i> , Bandwidth Management section
Locations	Locations in Cisco Unified CallManager Administration specify how much audio and video bandwidth is allowed for all calls in a specific location.  Parameters include: <ul style="list-style-type: none"> <li>• Location audio bandwidth</li> <li>• Location video bandwidth</li> </ul>	<i>Cisco Unified CallManager Administration Guide</i> , Location Configuration section
Media Resource Group List (MRGL)	A Media Resource Group List in Cisco Unified CallManager specifies a prioritized list of Media Resource Groups (MRG).  For video conference calls, make sure that a video conference bridge is configured in a Media Resource Group as the first conference bridge resource, and that this MRG is the first entry in the MRGL assigned to a video endpoint.	<i>Cisco Unified CallManager Administration Guide</i> , Media Resource Group List Configuration section  <i>Cisco Unified CallManager System Guide</i> , Media Resource Management section

CCM Feature	Description	Configuration Reference
Regions	<p>Regions in Cisco Unified CallManager Administration specify the maximum audio codec and video call bandwidth that are used within and between regions for each video call.</p> <p>Parameters include:</p> <ul style="list-style-type: none"> <li>• Region audio codec</li> <li>• Region video call bandwidth</li> </ul>	<p><i>Cisco Unified CallManager Administration Guide</i>, Region Configuration section</p>
Retry Video Call as Audio	<p>When an endpoint (phone, gateway, trunk) cannot obtain the bandwidth that it needs for a video call, call control retries the call as an audio call.</p>	<p><i>Cisco Unified CallManager Administration Guide</i>, Phone Configuration Settings section</p>

# Configuring Cisco Unified IP Phones for Cisco Unified Video Advantage

Cisco Unified Video Advantage is supported on all video-enabled Cisco Unified IP Phones including Cisco IP Communicator.

The PC on which Cisco Unified Video Advantage is installed must be directly connected to a Cisco Unified IP Phone, either to Cisco IP Communicator or directly connected to the Access port labelled “10/100 PC” on the back of the Cisco Unified IP Phone. The Cisco Unified IP Phone requires Cisco Unified CallManager to handle call processing and the appropriate phone load that enables video on the phone. (A phone enabled for video will display a video icon  in the lower righthand corner of the LCD screen.)

Refer to the appropriate Cisco Unified IP Phone administration guides for Cisco Unified CallManager to ensure that the Cisco Unified IP Phones are properly set up and configured. These guides are available at this URL: [http://www.cisco.com/en/US/products/hw/phones/ps379/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/phones/ps379/tsd_products_support_series_home.html)

The following table provides information about particular feature settings that need to be properly configured on Cisco Unified CallManager to support Cisco Unified Video Advantage on Cisco IP Phones.

**Note**

In this document, references to Cisco Unified IP Phones include all video-enabled Cisco Unified IP Phones as well as Cisco IP Communicator. See the Cisco Unified IP Phone documentation for the latest information about which phone models support video. The Cisco Unified IP Phone documentation is available at the following URL:

[http://www.cisco.com/en/US/products/hw/phones/ps379/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/phones/ps379/tsd_products_support_series_home.html)

CCM Feature	Description	Configuration Reference
PC Port	Indicates whether the PC port on the Cisco IP Phone is enabled or disabled. The port labelled "10/100 PC" on the back of the phone connects a PC or workstation to the phone so they can share a single network connection.	Make sure this feature is enabled on Cisco IP Phones that operate with Cisco Unified Video Advantage.  <i>Cisco Unified CallManager Administration Online Help &gt; Device &gt; Phone &gt; Phone Configuration</i>
Phone load	Indicates the phone load that supports video.	Make sure that the phone load that supports video is loaded on each Cisco IP Phone.  <i>Cisco Unified CallManager Administration Online Help &gt; Device &gt; Phone &gt; Phone Configuration</i>
Video Capabilities	Indicates that the phone will participate in video calls when connected to an appropriately equipped PC.	Make sure this feature is enabled on Cisco IP Phones that operate with Cisco Unified Video Advantage.  <i>Cisco Unified CallManager Administration Online Help &gt; Device &gt; Phone &gt; Phone Configuration</i>

## Using the Bulk Administration Tool (BAT) to Update Cisco IP Phones for Video Support

You can use the Cisco Unified CallManager Bulk Administration Tool (BAT) to update a large number of phones on your network for video support. You can use BAT to set these video settings on the phones: PC Port and Video Capabilities. For more information about this tool, refer to the *Bulk Administration Tool (BAT) User Guide*, which is available at this URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)



# Deploying and Installing Cisco Unified Video Advantage

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This section provides deployment and installation information for the Cisco Unified Video Advantage software and the Cisco VT Camera. It includes the following topics:

- [Deploying Cisco Unified Video Advantage, page 3-1](#)
- [Updating the Application, page 3-6](#)
- [Installing Cisco Unified Video Advantage, page 3-7](#)
- [Using Your Cisco VT Camera, page 3-12](#)

## Deploying Cisco Unified Video Advantage

You can deploy Cisco Unified Video Advantage using either of the following installer packages:

- `CiscoUnifiedVideoAdvantageSetup.exe`—This executable contains the required Windows Installer engines and default verbose logging for typical deployments. This executable is recommended for use when end users are installing the application on their own PCs themselves.
- `CiscoUnifiedVideoAdvantageSetup.msi`—This Microsoft Windows Installer package (MSI package) allows you to provide deployment customization using command line options. Logging is not automatically set when you use the MSI package. This MSI package is recommended for use by Systems Administrators in conjunction with their deployment tools.

### Related Topics

- [Software Download Site, page 3-2](#)
- [Deployment Methods, page 3-2](#)
- [Customizing Deployment with Command Line Options, page 3-4](#)

## Software Download Site

You must register for an account on Cisco.com to access the software download site:

<http://tools.cisco.com/support/downloads/go/Redirect.x?mdfid=278875240>

On the download site, the installer package is offered as a single Zip file, which contains all the files required to deploy Cisco Unified Video Advantage. The application installer automatically installs the VT camera drivers; you do not need to install them separately.

## Deployment Methods

Using either the executable or MSI package, you have three options for performing installation:

- You can place the installer on a shared location where you or a user can run it. (To use this method, users must have administrative privileges on their PCs.)
- You can perform installation for an entire enterprise by using a software distribution technology. (This method will temporarily elevate user privileges for installation purposes, if necessary.)
- You can perform installation operations directly on an individual's computer.



---

**Note**

If users in your company do *not* have administrator rights on their computers, Cisco recommends that you use a software deployment tool for initial deployment. Alternately, you (the administrator) can install Cisco Unified Video Advantage manually on each client PC.

---

**Related Topics**

- [Deploying to a Shared Location, page 3-3](#)
- [Using a Software Deployment Tool, page 3-3](#)
- [Using the Installer on the Client PC, page 3-4](#)

## Deploying to a Shared Location

You can deploy the executable or MSI package to a shared location, such as a web server, where users can access it to perform installation. Alternately, you can use the following command line option with the MSI package to create a server image of Cisco Unified Video Advantage at a specified network location:

```
msiexec.exe /a CiscoUnifiedVideoAdvantageSetup.msi
```

**Related Topics**

- [Using a Software Deployment Tool, page 3-3](#)
- [Customizing Deployment with Command Line Options, page 3-4](#)
- [Updating the Application, page 3-6](#)

## Using a Software Deployment Tool

You can use a software deployment tool to distribute Cisco Unified Video Advantage to client PCs. In fact, you must use this deployment method if users do not have administrative privileges on their computers (and if you want to avoid installing the application manually on each client PC). A software deployment tool can temporarily elevate user privileges on the client PC for installation purposes.

Software deployment tools include group policy-based tools such as Active Directory, or more advanced tools, such as the System Management Server (SMS) software from Microsoft.

Using a software distribution tool that can pass a command line to a system allows you to take advantage of the Windows Installer package and customize values such as the video codec and video port at the time of deployment. Using command line options to specify these values at deployment means that users do not have to configure these settings after installation. This greatly simplifies the post-installation process for users.

**Note**

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Cisco Unified Video Advantage does not support the “advertising” or “publishing” deployment whereby a user installs the application by opening an icon that the administrator has placed on the user’s desktop.

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**Related Topics**

- [Deploying to a Shared Location, page 3-3](#)
- [Customizing Deployment with Command Line Options, page 3-4](#)
- [Updating the Application, page 3-6](#)

## Using the Installer on the Client PC

You can deploy either the executable or the MSI package directly to the client PC and perform installation by running the installer and following the installation wizard. If necessary, use an administrator account to do this task.

If you use the MSI package, you can use command line options on the client PC to customize the installation. See the “[Customizing Deployment with Command Line Options](#)” section on [page 3-4](#) for information.

**Related Topics**

- [Updating the Application, page 3-6](#)

## Customizing Deployment with Command Line Options

The Microsoft Windows Installer package (MSI package) provides numerous command line options and properties that allow you to customize the installation and management of an application.

For Cisco Unified Video Advantage, you can use command line options to specify the video codec, video UDP port and other variables. Doing so reduces the number of configuration tasks that users will otherwise need to perform during and after installation.

[Table 3-1](#) provides examples of command line options that you can use when deploying Cisco Unified Video Advantage with the MSI package. (Values given for variables are examples only.)

**Table 3-1** Using command line options with the MSI package

If you want to....	Use this command line
Prevent users from interacting with the installation process, but allow them to view its progress	<code>msiexec.exe /i C:\VideoAdvantageInstaller_2.0.msi /qb</code>
Specify an installation directory location	<code>msiexec /i \\server\share\VideoAdvantageInstaller_2.0.msi /qb INSTALLDIR="D:\Newlocation"</code>
Limit the deployment to use only the H.264 codec	<code>msiexec /i CiscoUnifiedVideoAdvantageSetup.msi /qb CODEC="H.264"</code>
Limit the deployment to use only the H.263 codec	<code>msiexec /i CiscoUnifiedVideoAdvantageSetup.msi /qb CODEC="H.263"</code>
Allow the deployment to use either the H.263 or H.264 codecs	<code>msiexec /i CiscoUnifiedVideoAdvantageSetup.msi /qb CODEC="ALL"</code> This is the default setting
Specify an alternate port	<code>msiexec /i CiscoUnifiedVideoAdvantageSetup.msi /qb UDPPORT="5555"</code>
Configure the Cisco Unified Problem Reporting Tool to send email to a different address	<code>msiexec /i CiscoUnifiedVideoAdvantageSetup.msi PROBLEMREPORTMAILER=[email address]</code>



#### Note

- The options to specify video codec and video UDP port variables apply to new installations only, not upgrades.
- If you want Cisco Unified Video Advantage to display a dialog box that users must manually dismiss before the installer reboots the machine, add a “+” character after “qb” in the command line options in [Table 3-1](#).

#### Related Topics

- [Deploying Cisco Unified Video Advantage, page 3-1](#)
- [Updating the Application, page 3-6](#)

# Updating the Application

You can download the latest available software from the Cisco Unified Video Advantage Software web site:

<http://tools.cisco.com/support/downloads/go/Redirect.x?mdfid=278875240>

After you obtain updated software, you can update Cisco Unified Video Advantage in one of the following ways, depending on whether or not users are granted administrator privileges on the client PCs:

- If users have administrative privileges on client PCs, they can manually launch the CiscoUnifiedVideoAdvantageSetup.exe to upgrade.
- Or you can use a software deployment tool to handle updates. A software deployment tool can temporarily elevate privileges for installation purposes. (In this case, you probably used a software deployment tool to initially deploy the application, as well.)

## Related Topics

- [Pushing Updates Using a Software Deployment Tool, page 3-6](#)

# Pushing Updates Using a Software Deployment Tool

You can use a software deployment tool to push software updates. You must use this method if Cisco Unified Video Advantage users do not have administrator privileges on their client PCs (and if you do not want to administer updates locally on each user's machine).

## Related Topics


- [Deployment Methods, page 3-2](#)
- [Customizing Deployment with Command Line Options, page 3-4](#)

# Installing Cisco Unified Video Advantage

This section provides instructions for installing Cisco Unified Video Advantage.

## Before You Begin

Verify the following *before* you begin installing Cisco Unified Video Advantage and the Cisco VT Camera:

- Ensure that the Cisco Unified IP Phone is connected to the corporate telephony network. If the Cisco Unified IP Phone is powered on and you can make voice calls, then it is properly connected.
- Ensure that the Cisco Unified IP Phone is video enabled. If the phone screen on the Cisco Unified IP Phone displays this video icon  on the status line, then the phone is video enabled.
- If users are using Cisco Unified Video Advantage in conjunction with a Cisco Unified IP Phone, ensure that a standard Ethernet cable is connected from the personal computer's (PC) Ethernet input to the Access Port labelled "10/100 PC" on the back of the Cisco Unified IP Phone. On most PCs, you can verify that this connection is working by the presence of a lit green LED at the point where the Ethernet cable plugs into the PC.
- If users are using Cisco Unified Video Advantage in conjunction with Cisco IP Communicator, ensure that they have Version 2.0 installed on their PCs.
- Ensure that the PC meets the specifications provided in the [“Cisco Unified Video Advantage Hardware and Software Requirements”](#) section on page 1-4.



---

**Note**

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Cisco Unified Video Advantage supports only the Cisco VT Camera, and the Cisco VT Camera works only with the Cisco Unified Video Advantage software.

---

## Installation Sequence

You must follow this sequence when installing Cisco Unified Video Advantage:

1. Remove the Cisco VT Camera parts from the packaging and set up the camera. See the [“Setting Up the Cisco VT Camera”](#) section on page 3-8.
2. Install the Cisco Unified Video Advantage software. See the [“Installing the Cisco Unified Video Advantage Application”](#) section on page 3-10.



---

**Caution**

Do not connect the camera to your PC until after the system has rebooted following installation of the Cisco Unified Video Advantage software. If you connect the camera before the installation is complete, the Find New Hardware wizard will appear. If this occurs, click **cancel**, unplug the camera, and wait until after installation is complete to plug in the camera.

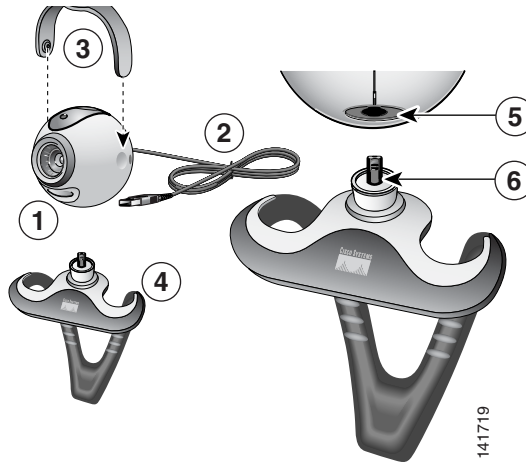
---

## Setting Up the Cisco VT Camera

This section provides information about how to set up the Cisco VT Camera.

### Procedure

See [Figure 3-1](#) and the steps that follow.

**Figure 3-1 Cisco VT Camera Components and Connections**

<b>1</b>	Cisco VT Camera	<b>4</b>	Flexible camera base
<b>2</b>	USB cable and connector	<b>5</b>	Opening on the bottom of the camera
<b>3</b>	Privacy shade (attaches to the camera)	<b>6</b>	Tab on the flexible camera base (snaps into the opening on the bottom of the camera)

- Step 1** Remove the camera, privacy shade, and the flexible camera base from the packaging.
- Step 2** Mount the camera on the flexible camera base:
- Insert the protruding black plastic tab on the camera base into the opening on the bottom of the camera.
  - Snap the camera into place.
- The camera will then be firmly connected to the flexible camera base.
- Step 3** Attach the privacy shade to the camera.
- Step 4** Position the camera on top of your PC monitor or flat panel screen, adjusting the flexible camera base as necessary. See [Figure 3-2](#).

**Figure 3-2** Cisco VT Camera Place on PC Monitor



---

**Note** DO NOT CONNECT THE CAMERA TO THE PC.

---

- Step 5** Now go to the [“Installing the Cisco Unified Video Advantage Application”](#) section on page 3-10.
- 

## Installing the Cisco Unified Video Advantage Application



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**Note** You must be logged into Windows with Administrator authority to install Cisco Unified Video Advantage.

---

### Procedure



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**Note** Depending on the options selected in the Deployment Tool, you might or might not need to follow steps 2 – 4 below.

---

- Step 1** Close and Exit any open applications.

**Step 2** To find the URL to download the Cisco Unified Video Advantage Installer, follow the appropriate steps for your phone model:

**On a Cisco Unified IP Phone 7940 or 7960 series:**

- a. Press the “?” or “i” **Help** button and then press the **Services** button.
- b. Use the **Navigation** button to scroll down to the end of the help text. Instructions provide the URL for downloading software.
- c. Write down the URL displayed and then exit the phone help display.

**On a Cisco IP Communicator and Cisco Unified IP Phone 7970 series:**

- a. Press the “?” **Help** button and then quickly press the **Services** button.
- b. After the Services Topics screen displays, press the PC Client Software Plugins menu item on the touchscreen. Instructions provide the URL for downloading software.
- c. Write down the URL displayed and then exit the phone help display.

**Step 3** Open your Web browser and type the URL in the address field. Then press **Enter**.

**Step 4** On the Cisco Unified CallManager Client Install Plugins page, click the Cisco Unified Video Advantage Installer plugin icon.

**Step 5** After the Cisco Unified Video Advantage Installer program starts, follow the instructions presented in the dialog boxes to complete the installation of Cisco Unified Video Advantage.

- a. On the Welcome screen, click **Next**.
- b. On the License Agreement screen, read the full License Agreement. Then, select **I Accept the terms in the license agreement** and click **Next**.
- c. On the User Information screen, enter the user information, select the desired option, and then click **Next**.
- d. On the Destination Folder screen, accept the default installation folder, or click **Change** to enter a different installation folder. Click **Next**.
- e. On the Shortcut Options screen, review and select the desired options, and then click **Next**.
- f. On the InstallShield Wizard Completed screen, click **Finish**.

**Step 6** If prompted to restart the PC, click **Yes** to restart the PC.

**Note**

Do not connect the Cisco VT Camera to your PC until after software installation is complete.

For more information about using the Cisco VT Camera, see the [“Using Your Cisco VT Camera” section on page 3-12](#). For more information about using Cisco Unified Video Advantage, refer to the *Cisco Unified Video Advantage User Guide*.

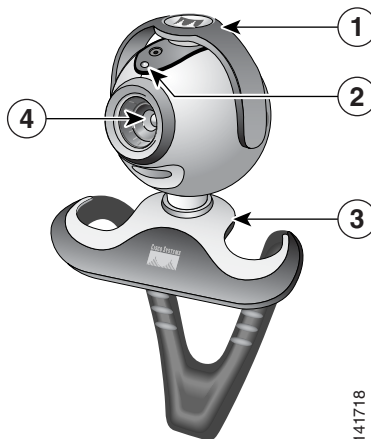
## Using Your Cisco VT Camera

The camera is designed for optimal eye contact when placed on top of a PC monitor or flat panel screen. You might want to try out several different positions.

### Cisco VT Camera Features

[Figure 3-3](#) shows the features of your Cisco VT Camera.

**Figure 3-3** Cisco VT Camera Features



141718

<b>1</b>	Privacy shade	<b>3</b>	Flexible base
<b>2</b>	Ready light	<b>4</b>	Lens

**Note**

Cisco VT Cameras shipped before June 2006 have a focus ring around the lens that you can use to adjust the camera focus. These cameras can also be used with a USB 1.1 port.

**Note**

The Cisco VT Camera II operates most effectively with USB version 2.0. While the Cisco VT Camera II will operate with USB version 1.1, we do not recommend this configuration.

## Tips for Positioning the Cisco VT Camera

- Place the camera in the middle of the PC monitor or flat panel screen, or on a table top, for optimal eye contact and lift up the privacy shade.
- Pivot the camera up or down, left or right, for the best position.
- View live video to guide your focus adjustments. Rotate the focus ring (the black ring around the camera lens; see [Figure 3-3](#)) to get a sharp image.

## Tips for Adjusting Cisco VT Camera Settings

You can adjust various settings for the Cisco VT Camera such as, brightness and contrast. For more information, refer to the *Cisco Unified Video Advantage User Guide*, which is available from the Cisco Unified Video Advantage link online: [http://www.cisco.com/en/US/products/sw/voicesw/ps5662/products\\_user\\_guide\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps5662/products_user_guide_list.html)

**Note**

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If the Cisco VT Camera is not connected to the PC, you will still be able to receive video, even though you cannot transmit. For more information, refer to the *Cisco Unified Video Advantage User Guide* at the URL cited above.

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# Troubleshooting Cisco Unified Video Advantage

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This chapter provides information for troubleshooting Cisco Unified Video Advantage and includes the following topics:

- [General Troubleshooting](#)
- [Checking the Connections and the Video Signal Quality](#)
- [Using the Troubleshooting Tools in Cisco Unified Video Advantage](#)

## General Troubleshooting

This section provides information for troubleshooting possible problems with Cisco Unified Video Advantage, and includes the following topics:

- [General Problems and Solutions, page 4-2](#)
- [Using Cisco Unified CallManager Serviceability Troubleshooting Traces, page 4-7](#)
- [Using the Cisco Unified CallManager Real-Time Monitoring Tool \(RTMT\), page 4-7](#)
- [Using Cisco Unified CallManager CDR Analysis and Reporting \(CAR\), page 4-9](#)

## General Problems and Solutions

This section describes some general problems that you might encounter with Cisco Unified Video Advantage, and provides some suggested solutions. It includes these topics:


- [Video Problems, page 4-2](#)
- [Audio Problems, page 4-4](#)
- [Other Problems, page 4-4](#)

### Video Problems

**Table 4-1**      **Video Problems**

Symptom	Solution
No video on multi-party conferences	<p>In Cisco Unified CallManager, check that the Media Resource Groups and Media Resource Group Lists include an MCU.</p> <p>Make sure that a video conference bridge has been allocated and not an audio conference bridge.</p> <p>Reference these guides for additional information:</p> <ul style="list-style-type: none"> <li>• <i>Cisco Unified CallManager Administration Guide</i>, Media Resource Group List Configuration Settings section</li> <li>• <i>Cisco Unified CallManager System Guide</i>, Media Resources section</li> </ul>
Poor audio/video lip sync	<p>Can be due to, but not limited to, the following conditions:</p> <ul style="list-style-type: none"> <li>• Quality of Service issues. Verify that Quality of Service is properly configured throughout the network (Refer to the Quality of Service design guide available at this URL: <a href="http://www.cisco.com/warp/public/779/largeent/it/ese/srnd.html">http://www.cisco.com/warp/public/779/largeent/it/ese/srnd.html</a>)</li> <li>• High CPU utilization on the PC. A user might need to close some applications during a video call.</li> <li>• Network congestion</li> </ul>

Symptom	Solution
No video in the video windows, no-video icon appears	<ul style="list-style-type: none"> <li>• See the <i>Cisco Unified Video Advantage User Guide</i> to troubleshoot no-video issues for end users.</li> <li>• Make sure that Regions have been configured correctly for video. (See the “<a href="#">Configuring Cisco Unified CallManager for Cisco Unified Video Advantage</a>” section on page 2-6.)</li> <li>• Make sure that Locations have sufficient video bandwidth. (See the “<a href="#">Configuring Cisco Unified CallManager for Cisco Unified Video Advantage</a>” section on page 2-6.)</li> <li>• Make sure that a Media Termination Point (MTP) or Transcoder has not been allocated for video calls, as they do not support video capabilities.</li> <li>• If you are using Cisco Unified CallManager 5.0, adjusting the video quality settings below a certain value will cause Cisco Unified Video Advantage to display no video. Upgrade to Cisco Unified CallManager 5.0(4) or above to resolve this problem.</li> <li>• Cisco Unified Video Advantage uses Port 5445. If your firewall blocks this port, users will receive no video. You will need to configure your firewall to allow access to Port 5445 and enable video.</li> <li>• Upgrade to Cisco VPN Client 4.0. Earlier versions of Cisco VPN Client do not support video.</li> <li>• Make sure that Cisco IP Phone is running on the SCCP protocol. Cisco Unified Video Advantage is not supported in a SIP environment.</li> </ul>
Remote Video window shows double or distorted images	<p>This is caused by packet loss across a broadband connection. Select <b>Settings &gt; Video Quality ...</b> to open the Video Quality dialog box. Deselect the <b>Automatic</b> checkbox, and click <b>OK</b>. The application automatically resets the bandwidth to 125kbps, which should be sufficient for most calls. Retry the call.</p>
"Video bandwidth unavailable" displays on the Cisco Unified IP Phone phone screen	<p>There is not enough bandwidth available to make a video call. See the “<a href="#">Configuring Cisco Unified CallManager for Cisco Unified Video Advantage</a>” section on page 2-6, and refer to the <i>Cisco Unified CallManager Administration Guide</i>, Location Configuration section.</p> <p><b>Note</b> In this situation, the Cisco IP Phone falls back to an audio-only call.</p>

Symptom	Solution
<p>This icon appears in the system tray on the PC</p> 	<ul style="list-style-type: none"> <li>• There might be a problem with the video connection. See the <a href="#">“Checking the Connections and the Video Signal Quality”</a> section on page 4-10.</li> <li>• Low frame rate (see above)</li> </ul>

## Audio Problems


**Table 4-2**      *Audio Problems*

Symptom	Solution
No audio	<ul style="list-style-type: none"> <li>• Check that the audio is not muted on the Cisco IP Phone.</li> <li>• If the user is on a broadband connection, advise the user to lower the video quality settings. Select <b>Settings &gt; Video Quality ...</b> to open the Video Quality dialog box. Deselect the <b>Automatic</b> checkbox, and click <b>OK</b>. The application automatically resets the bandwidth to 125kbps, which should be sufficient for most calls.</li> </ul>

## Other Problems

**Table 4-3**      *Other Problems*

Symptom	Solution
---------	----------

<p>No  icon displays on the Cisco Unified IP Phone LCD screen</p> <p>Cisco Unified Video Advantage is not associating with the Cisco IP Phone.</p>	<ul style="list-style-type: none"> <li>• Verify the version of Cisco Unified IP Phone firmware; the firmware version must support video.</li> <li>• Verify that the Cisco Unified IP Phone model is supported.</li> <li>• Verify that these parameters are properly set in Cisco Unified CallManager for the hardware Cisco Unified IP Phones:             <ul style="list-style-type: none"> <li>– Video Capabilities is enabled</li> <li>– PC Port is enabled</li> </ul> </li> </ul> <p>See the <a href="#">“Configuring Cisco Unified IP Phones for Cisco Unified Video Advantage”</a> section on page 2-9.</p> <ul style="list-style-type: none"> <li>• Verify that you can ping between the PC and the Cisco IP Phone.</li> <li>• Verify that you are not using a phone configured for SIP. Cisco Unified Video Advantage is currently only supported on SCCP.</li> </ul>
<p>Video Quality Settings</p>	<p>In most cases when working over a Local Area Network (LAN), users will not need to adjust the bandwidth setting. If you have mobile workers or telecommuters, they may need to cap their bandwidth settings at a maximum rate.</p> <p>The Video Quality dialog is available from the Cisco Unified Video Advantage main window. By clicking <b>Settings &gt; Video Quality...</b> and then disabling the Automatic checkbox, a user can move the slider to adjust the bandwidth setting. A popup tooltip will display the bandwidth rate. Users can contact their respective Internet service providers, or if they are advanced users, they can use the DSL Reports internet site (<a href="http://www.dslreports.com/stest">http://www.dslreports.com/stest</a>) and follow the instructions for obtaining upload and download speeds. Selecting a bandwidth is usually a factor of the uplink speed, which can range from a low of 50 Kbps up to perhaps 500 Kbps.</p> <p>After the uplink speed is determined, you need to leave some headroom between the selected bandwidth setting and the capacity of the channel. (See the <a href="#">“Configuring Cisco Unified CallManager for Cisco Unified Video Advantage”</a> section on page 2-6 for information about Location and Region settings.)</p> <p><b>Note</b> If users are limited to a low rate, for example 50 Kbps, they might not be able to participate in video conferences.</p>

Disconnected calls on  
H.323 endpoints

When an H.323 endpoint is placed on hold by a Cisco Unified IP Phone, Cisco Unified CallManager utilizes a procedure referred to as the Empty Capabilities Set (ECS), sometimes also referred to as the Null Capabilities Set or TCS=0. H.323 endpoints must support ECS in order to respond properly when placed on hold. If they do not, the call will be disconnected when it is placed on hold, because the H.323 endpoint will not understand the ECS message from Cisco Unified CallManager and will therefore disconnect the call. Transfer, conference, and park operations also exhibit this behavior because there is an implicit hold operation that takes place in these scenarios as well (for example, when a call is transferred, the call is first placed on hold by Cisco Unified CallManager prior to completing the transfer).

- Verify that the H.323 endpoint you are using supports ECS.

**Note** Some ECS implementations do not allow audio calls to become video calls after a transfer, conference, or park operation.

- If an endpoint does not support ECS:
  - A Media Termination Point (MTP) can be added to provide supplementary support so that hold, transfer, conference, and park are available, ensuring that calls are not dropped. In this case, video is not supported for these calls.
  - To preserve video over the features (hold, transfer, conference, and park), configure the H.323 endpoint to require an MTP. But, make sure that the Media Resource Group List (MRGL) and the default MRGL do not include MTPs or Transcoders. Then hold, transfer, conference, and park will be disabled when calling this device, and the Cisco Unified CallManager will understand that the H.323 endpoint does not support these features

PC CPU utilization at 100 %	<p>The minimum Cisco Unified CallManager version required for Cisco Unified Video Advantage is used with a physical Cisco Unified IP Phone is Cisco Unified CallManager Verision 4.0(1) Service Release 2.</p> <p>The minimum Cisco Unified CallManager version required for Cisco Unified Video Advantage to interoperate with Cisco IP Communicator is Cisco Unified CallManager Version 4.1(3), Service Release 1. (See the “<a href="#">Cisco Unified Video Advantage Hardware and Software Requirements</a>” section on page 1-4.)</p> <p>Close any applications that are not being used while on a video call in order to free up some PC CPU resources.</p>
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## Using Cisco Unified CallManager Serviceability Troubleshooting Traces

You can use the Serviceability Troubleshooting Trace Setting web pages that are available on Cisco Unified CallManager. From the Cisco Unified CallManager Administration application, you can access the Serviceability Troubleshooting Trace Setting pages by going to **Application > Cisco Unified CallManager Serviceability > Trace > Troubleshooting Trace Setting**.

For more information about setting up and using Cisco Unified CallManager Serviceability Traces, refer to the following guides:

- *Cisco Unified CallManager Serviceability System Guide*, “Trace” section.
- *Cisco Unified CallManager Serviceability Administration Guide*, “Troubleshooting Trace Setting Configuration” section.

These guides are available at this URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)

## Using the Cisco Unified CallManager Real-Time Monitoring Tool (RTMT)

You can use the Cisco Unified CallManager Real-Time Monitoring Tool to monitor real-time information (video active calls, video completed calls, and so on).

For more information about setting up and using this tool, refer to the following guides:

- *Cisco Unified CallManager Serviceability System Guide*, “Real-Time Monitoring Tool” section.
- *Cisco Unified CallManager Serviceability Administration Guide*, “Real-Time Monitoring Configuration” section.

These guides are available at this URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)

## Using Cisco Unified CallManager CDR Analysis and Reporting (CAR)

You can use CAR to view Call Details Records and generate reports on video conference bridge information.

For more information about setting up and using this tool, refer to the following guides:

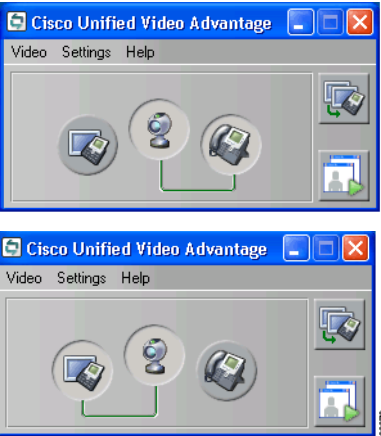
- *Cisco Unified CallManager Serviceability System Guide*, “CDR Analysis and Reporting” section.
- *Cisco Unified CallManager Serviceability Administration Guide*.


These guides are available at this URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)

# Checking the Connections and the Video Signal Quality

From the Cisco Unified Video Advantage main window, you can check the connections from the PC to the Cisco Unified IP Phone and the Cisco VT Camera, as well as the video signal quality.

If you want to...	Then...
<p data-bbox="95 527 460 553">Check the connection indicators</p> 	<p data-bbox="475 527 1112 553">Open the Cisco Unified Video Advantage main window.</p> <p data-bbox="475 573 1224 634">If the connections are working, in the main window you see green connecting lines between the selected phone and the camera.</p> <p data-bbox="475 651 1224 740">If a connection to the Cisco Unified IP Phone and/or to the Cisco VT Camera is not working, you see a broken red connecting line.</p> <ul data-bbox="494 760 1224 1003" style="list-style-type: none"> <li>• Make sure that you are placing the call on the selected phone device.</li> <li>• If using the hardware phone, check that the Ethernet cable from the PC is connected directly to the port labelled “10/100PC” on the back of the Cisco Unified IP Phone.</li> <li>• Make sure that the Cisco Unified IP Phone is enabled for video. (See the “<a href="#">Before You Begin</a>” section on page 3-7.)</li> </ul> <p data-bbox="475 1019 1224 1143"><b>Note</b> After the Cisco Unified Video Advantage software is started, you need to wait about 1 minute to 1 1/2 minutes for the software to be active and communicating with Cisco Unified CallManger before you place a call.</p>

If you want to...	Then...
<p data-bbox="95 240 443 297">Check the video signal quality indicator</p> 	<p data-bbox="475 240 947 264">Open the local or remote video windows.</p> <p data-bbox="475 289 1233 378">In the status bar on the bottom of each window you see the video signal quality indicator. (You can think of this video signal quality indicator as similar to the signal strength indicator on a cell phone.)</p> <p data-bbox="475 402 1233 581">The strongest possible signal quality is shown when the bar is solid green. The poorest signal quality is shown when the bar is solid grey. Video signal quality is affected by both the state of the network and the state of the PC, and fluctuates over time. If the indicator stays in the mostly green range, you can expect higher quality video. If the indicator is mostly grey, you will notice poorer video quality.</p> <p data-bbox="475 605 1220 686">See the <a href="#">“Using the Troubleshooting Tools in Cisco Unified Video Advantage”</a> section on page 4-12 for more troubleshooting information.</p>

# Using the Troubleshooting Tools in Cisco Unified Video Advantage

This section describes some tools in Cisco Unified Video Advantage that can help you to troubleshoot video call problems. These include:

- [Diagnostics Tool, page 4-12](#)
- [Enable Detailed Logs Tool, page 4-12](#)
- [Cisco Unified Problem Reporting Tool, page 4-13](#)

## Diagnostics Tool

The Diagnostics Tool provides some technical details about the current state of the Cisco Unified Video Advantage software that is running on the PC, as well as connectivity to Cisco IP Communicator or the Cisco IP Phone, and information about the performance of the Cisco VT Camera.

To use the Diagnostics Tool:

- Double right-click anywhere on the console. The Diagnostics window displays.

When troubleshooting some Cisco Unified Video Advantage problems with the assistance of the Cisco Technical Assistance Center (TAC), TAC representatives might ask you to provide them with the information displayed in the Diagnostics dialog.

## Enable Detailed Logs Tool

The Enable Detailed Logs Tool in Cisco Unified Video Advantage provides some trace reporting options.

To use the Detailed Logs Tool:

- Open the Cisco Unified Video Advantage main window and select **Settings > Enable Detailed Logs**.

When troubleshooting some Cisco Unified Video Advantage problems with the assistance of the Cisco Technical Assistance Center (TAC), TAC representatives might ask you to adjust these options and then provide them with the trace information you obtain through the reporting and logging options. The log files are stored in the C:\Documents and Settings\\Application Data\Cisco\Cisco Unified Video Advantage folder.

## Cisco Unified Problem Reporting Tool

In general, if Cisco Unified Video Advantage crashes, or experiences other problems, the Cisco Unified Problem Reporting Tool will launch automatically. If it does not, and users need to generate a report, they should select **Start > Programs > Cisco Unified Video Advantage > Cisco Unified Problem Reporting Tool**. A dialog box displays. The user should click **Next**, then enter a description of the problem encountered in the description box. Clicking **Next** will email a copy of the problem report to a Cisco representative who will then respond to the problem. If you would prefer that your users send problem reports directly to you, advise them to deselect the Email the problem report to Cisco Systems, Inc. checkbox, and click **Next**. The problem report will appear as a zip file on the user's desktop, and they can then email it to you directly.





## Providing Information to End Users

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If you are a system administrator, you are likely the primary source of information for Cisco Unified Video Advantage users in your network or company. It is important to provide current and thorough information to end users.

Cisco recommends that you create a web page on your internal support site that provides end users with important information about Cisco Unified Video Advantage.

Consider including the following types of information on this site:

- [How Users Install Cisco Unified Video Advantage](#)
- [How Users Obtain Support for Cisco Unified Video Advantage](#)
- [How Users Provide Troubleshooting Information](#)
- [How Users Get Copies of Cisco Unified Video Advantage Manuals](#)

## How Users Install Cisco Unified Video Advantage

If users need to install Cisco Unified Video Advantage on their own PCs, then they must receive instructions from you or your network support team. Be sure to provide the following information:

- for users: a copy of the *Cisco Unified Video Advantage Quick Start Guide* provided with the Cisco VT Camera.
- for your network support team: the instructions in this guide in the [“Installing Cisco Unified Video Advantage”](#) section on page 3-7.

# How Users Obtain Support for Cisco Unified Video Advantage

To successfully use some of features of Cisco Unified Video Advantage, users must receive information from you or your network support team or be able to contact you for assistance.

## How Users Provide Troubleshooting Information

To assist you with troubleshooting user problems with Cisco Unified Video Advantage, users can provide you with the Cisco Unified Video Advantage Log files and the data generated from the Cisco Unified Problem Reporting Tool. Advise users on the best way to provide you with this information.

## How Users Get Copies of Cisco Unified Video Advantage Manuals

You should provide end users with access to user documentation for Cisco Unified Video Advantage, Cisco IP Communicator, and the Cisco Unified IP Phones. Cisco Unified Video Advantage end-user guides provide information about setting up and using the Cisco VT Camera and the Cisco Unified Video Advantage software. Cisco Unified IP Phone user guides include detailed user instructions for key phone features.

Cisco Unified Video Advantage is supported on the Cisco IP Communicator and video-enabled Cisco Unified IP Phones. To assist users in finding the appropriate documentation on the Cisco website, we recommend that you provide links to the current documentation. If you do not want to or cannot send users to the Cisco website, Cisco suggests that you download the PDF files and provide them to end users on your website. A PDF version of the user guide for Cisco Unified Video Advantage and for Cisco IP Communicator are each available from the main menu of the application.

For a list of available documentation for Cisco Unified Video Advantage and Cisco IP Phones, go to this URL:

[http://www.cisco.com/en/US/products/hw/phones/ps379/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/phones/ps379/tsd_products_support_series_home.html)

For a list of available documentation for Cisco Unified CallManager, go to this URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_series_home.html)

For more information about viewing or ordering documentation, see the “Obtaining Documentation” section on page ix.





## Technical Specifications

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The following section describes the technical specifications for the Cisco VT Camera.

### Physical and Operating Environment Specifications

[Table A-1](#) shows the physical and operating environment specifications for the Cisco VT Camera.



**Note**

The Cisco VT Camera II meets all European Union ROHAS compliance requirements.

**Table A-1**

<b>Specification</b>	<b>Value or Range</b>
Operating temperature and relative humidity	0 to 40°C (32° to 104°F) 10% to 90% RH (non-condensing)
Storage temperature and relative humidity	-10 to 60°C (14° to 140°F) 10% to 90% RH (non-condensing)

**Table A-1**

<b>Specification</b>	<b>Value or Range</b>
Weight	< 200g, including the camera's flexible base
USB Cable and connector	<ul style="list-style-type: none"><li>• Shielded</li><li>• UL recognized</li><li>• 3.9mm diameter</li><li>• 9 ft. long</li></ul>



# Regulatory Compliance and Safety Information

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This section describes the regulatory compliance and safety information for the Cisco VT Camera.

## Regulatory Compliance

The Cisco VT Camera meets the following regulatory compliance and safety standards:

Specification	Description
Regulatory Compliance	Products shall bear CE Marking indicating compliance with the 89/366/EEC and 73/23/EEC directives, which includes the following safety and EMC standards.
Safety	UL 60950 CAN/CSA-C22.2 No. 60950 EN 60950 IEC 60950 AN/NZS 60950

Specification	Description
EMC	FCC Part 15 (CFR 47) Class B ICES-003 Class B EN55022 Class B CISPR22 Class B AS/NZS CISPR22 Class B CISPR24 VCCI Class B EN55024 EN50082-1 EN61000-6-1 EN61000-3-2 EN61000-3-3

## FCC Class B Compliance

This equipment has been tested and found to comply with the limits for a Class B Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generated, uses and can radiate radio frequency and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

[cfr reference 15.105]

## Canada Class B Notice

This Class ‘B’ digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe ‘B’ est conforme à la norme NMB-003 du Canada.

## Korea Class B Notice



**This is a Class B Device and is registered for EMC requirements for residential use. This device can be used not only in residential areas but in all other areas.**

주의 B급 기기 이 기기는 가정용으로 전자파 적합 등록을 한 기기로서 주거지역 내에서는 물론 모든 지역에서 사용할 수 있습니다.

## Declaration of Conformity for the European Community, Switzerland, Norway, Iceland, Romania, and Liechtenstein

With regard to Directives 73/23/EEC and 89/336/EEC, as amended by Directive 93/68/EEC

**English:** This equipment is in compliance with the essential requirements and other provisions of Directives 73/23/EEC and 89/336/EEC as amended by Directive 93/68/EEC.

**Dansk:** Dette udstyr er i overensstemmelse med de ufravigelige hensyn og andre bestemmelser i direktiv 73/23/EEC og 89/336/EEC som ændred i direktiv 93/68/EEC.

**Deutsch:** Dieses Gerät entspricht den wesentlichen Anforderungen und weiteren Bestimmungen der Richtlinien 73/23/EWG und 89/336/EWG mit der Ergänzung durch Richtlinie 93/68/EWG.

**Español:** Este equipo cumple con los requisitos esenciales y otras disposiciones de las Directrices 73/23/EEC y 89/336/EEC de acuerdo a las modificaciones de la Directriz 93/68/EEC.

**Ελληνικά:** Αυτός ο εξοπλισμός συμμορφώνεται με τις ουσιαστικές απαιτήσεις και τις λοιπές διατάξεις των Οδηγιών 73/23/ΕΟΚ και 89/336/ΕΟΚ, όπως τροποποιήθηκαν με την Οδηγία 93/68/ΕΟΚ.

**Français:** Cet appareil remplit les principales conditions requises et autres dispositions des Directives 73/23/EEC et 89/336/EEC, modifiées par la Directive 93/68/EEC.

**Íslenska:** Þessi búnaður samrýmist lögboðnum kröfum og öðrum ákvæðum tilskipana 73/23/EBE og 89/336/EBE, með breytingum skv. tilskipun 93/68/EBE.

**Italiano:** Questa apparecchiatura è conforme ai requisiti essenziali e altre disposizioni delle Direttive 73/23/EEC e 89/336/EEC modificate con la Direttiva 93/68/EEC.

**Nederlands:** Deze apparatuur voldoet aan de belangrijkste eisen en andere voorzieningen van richtlijnen 73/23/EEC en 89/336/EEC zoals gewijzigd door richtlijn 93/68/EEC.

**Norsk:** Dette utstyret samsvarer med de vesentligste kravene og andre regler i direktivene 73/23/EEC og 89/336/EEC samt i tilleggsdirektiv 93/68/EEC.

**Português:** Este equipamento satisfaz os requisitos essenciais e outras provisões das Directivas 73/23/EEC e 89/336/EEC, conforme amendados pela Directiva 93/68/EEC.

**Română** Prin prezenta, noi Cisco Systems România SRL, declarăm pe propria răspundere că produsul de mai jos, îndeplinește principalele cerințe de conformitate cu Directiva Europeană 89/336/EEC, 73/23/EEC(R&TTE)

**Cisco VT Camera**

**Suomalainen:** Tämä laite on direktiivien 73/23/ETY ja 89/336/ETY (kuten muutettu direktiivissä 93/68/ETY) keskeisten vaatimusten ja määräysten mukainen.

**Svenska:** Denna utrustning uppfyller de väsentliga kraven och andra villkor i direktiven 73/23/EEC och 89/336/EEC enligt ändringarna i direktiv 93/68/EEC.





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## B

BAT [2-10](#)

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## C

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