



# Preparing Your Network for Cisco VT Advantage

---

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

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

## Cisco VT Advantage Network Requirements

For Cisco VT 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
  - Cisco CallManager Version 4.0(1), Service Release 2 or higher (minimum requirement; see the [“Software Requirements”](#) section on [page 1-7](#) for compatibility information.)
- IP network that supports DHCP or manual assignment of IP address, gateway, and subnet mask in Cisco 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 VT 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 CallManager* at this URL:  
<http://www.cisco.com/warp/public/779/largeent/it/ese/srnd.html>

- Cisco IP Phone 7940/7960/7970 series 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 IP/VC 3511 or Cisco IP/VC 3540 MCU (with IP/VC Version 3.2 Plus software) is required.

For more information about setting up Cisco CallManager and a Cisco IP/VC 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/univercd/cc/td/doc/product/ipvc/index.htm>

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

For more information about setting up Cisco CallManager to use a Cisco IP/VC 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 VT Advantage

Cisco VT 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)	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 CallManager and gateways.	<p>CAST works:</p> <ul style="list-style-type: none"> <li>• Between Cisco VT Advantage and the Cisco IP Phone to exchange capabilities</li> <li>• Between Cisco VT Advantage and Cisco CallManager, with the Cisco IP Phone as an SCCP proxy.</li> </ul> <p>CAST triggers Cisco VT 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 VT Advantage to discover remote Cisco VT Advantage-capable endpoints.</p>

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

# Supported Video Codecs on Cisco VT Advantage

These video codecs are supported in Cisco VT Advantage.

- H.263 (128 Kbps – 1.5 Mbps)
- Cisco VT Camera wideband video codec (7 Mbps)

## Configuring Cisco CallManager for Cisco VT Advantage

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

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

These guides are available at this URL:

[http://www.cisco.com/univercd/cc/td/doc/product/voice/c\\_callmg/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/index.htm)


The following table provides information about particular feature settings that need to be properly configured on Cisco CallManager to support Cisco VT 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 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 CallManager System Guide</i> , Bandwidth Management section
Locations	Locations in Cisco 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 CallManager Administration Guide</i> , Location Configuration section
Media Resource Group List (MRGL)	A Media Resource Group List in Cisco 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 CallManager Administration Guide</i> , Media Resource Group List Configuration section  <i>Cisco CallManager System Guide</i> , Media Resource Management section

CCM Feature	Description	Configuration Reference
Regions	<p>Regions in Cisco 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>	<i>Cisco CallManager Administration Guide</i> , Region Configuration section
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>	<i>Cisco CallManager Administration Guide</i> , Phone Configuration Settings section

# Configuring Cisco IP Phones for Cisco VT Advantage

Cisco VT Advantage is supported on the Cisco IP Phone 7940/7960/7970 series.

The PC on which Cisco VT Advantage is installed must be directly connected to the Access port labelled “10/100 PC” on the back of the Cisco IP Phone. The Cisco IP Phone requires Cisco 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 IP Phone administration guides for Cisco CallManager to ensure that the Cisco IP Phones are properly set up and configured:

- *Cisco IP Phone Administration Guide for Cisco CallManager, Cisco IP Phone Models 7960G and 7940G*
- *Cisco IP Phone 7970 Administration Guide for Cisco CallManager*

These guides are available at this URL:

[http://www.cisco.com/univercd/cc/td/doc/product/voice/c\\_ipphon/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/voice/c_ipphon/index.htm)



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

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 VT Advantage.  <i>Cisco 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 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 VT Advantage.  <i>Cisco 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 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/univercd/cc/td/doc/product/voice/c\\_callmg/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/index.htm)

