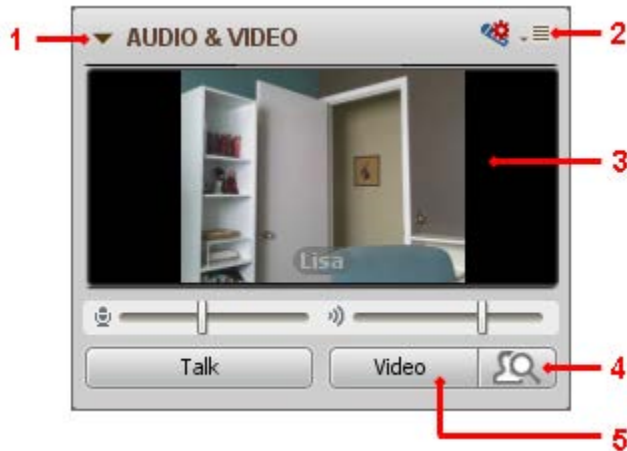




WEB CAMERAS

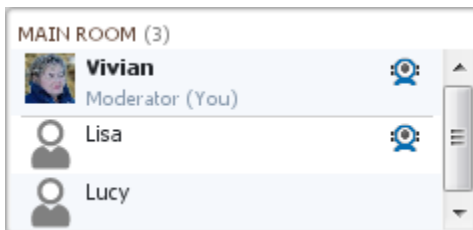
The Video feature of CCC Confer enables you to transmit and receive video broadcasts with others in a session. This is video you send live via a video camera. (e.g., web cam) The Video feature can display up to six simultaneous camera transmissions.

The Audio & Video window has the following Video components:



- 1 Expand/Collapse button
- 2 Options menu
- 3 Primary video display
- 4 Preview Video button
- 5 Transmit Video button

You will know someone is transmitting video (has their Transmit Video button turned on) when the blue Video activity indicator (📹) appears next to their name in the Participants list. In the example below, Vivian and Lisa are transmitting video.






Moderators can use all the available Video features and Participants a subset of those features. In the table below, a checkmark indicates which functions can be performed by Moderators and which can be performed by Participants (with the Video permission enabled).

Feature	Moderators	Participants
Preview a Video transmission	✓	✓
Transmit a Video broadcast	✓	✓
Receive a Video broadcast	✓	✓
Set Video camera preferences	✓	✓
Capture a Video image and send it to the Whiteboard	✓	✓
Change what is shown in the primary video display	✓	✓
Make the Video display follow the current speaker	✓	✓
Make the Video display follow the Moderator's focus	✓	
Grant/revoke the Video permission to/from Participants	✓	
Configure simultaneous cameras	✓	

Activity and Permission Indicators

The table below describes the icons displayed in the Participant list to indicate Moderator and Participant permissions and activity while using Video.

Activity Indicator	Meaning
	User has turned on his/her video camera.
	Video permission is set globally to "on" but the Moderator has revoked Video permission from this user.
	Video permission is set globally to "off" but the Moderator has granted Video permission to this user.

Status Indicators

Status indicators appear on the Video activity indicator icons of Video users in the Participants list if there are delays in the transmission or receipt of Video. When there are delays, the server begins to drop frames. You will experience delays as a drop in video quality. The degree of delay is indicated by color:

- **Amber Indicator:** Appears when a person's receipt or transmission of video is moderately delayed.
- **Red Indicator:** Appears when a person's receipt or transmission of video is significantly delayed.

Note: Video transmitters see status indicators for themselves and video viewers. Video viewers see status indicators for video transmitters only – not for themselves. (There is one exception: if using multiple cameras, a person can be a viewer and transmitter at the same time, so “viewers” may see status indicator for themselves – but only because they are also “transmitters”.)

In the example below,

Vivian is transmitting video,

Lisa is experiencing a moderate delay in receiving Video,

Lucy is experiencing a significant delay in receiving Video, and

Charlie is not having any problems receiving Video.



Previewing and Transmitting Video

Before you transmit video to everyone in the session, it is a good idea to preview it first to check the quality of the image. If it is not satisfactory, you may want to adjust your camera settings or change the Video Frame Rate.

Tip: If your Video button is inaccessible (grayed out) it may be because a Moderator has removed your Video permission or the maximum number of simultaneous cameras has been reached.

If your Audio & Video panel is in its collapsed state, it will automatically be expanded when you preview or transmit video..

Previewing Video

To preview video, click on the Preview button. Notice that, when activated, your Preview button turns blue. The images captured by your camera will be displayed in your primary video display, along with the word "Preview". No one else will be able to see your preview.



Note: If you get an error when you click on the Preview button (such as "Cannot connect to the video source"), your camera may be in use by another application or you don't have the correct camera selected under Preferences.

Transmitting Video

To transmit video to everyone in the room, do one of the following:

- Click on the Transmit Video button in the Audio & Video panel.
- Enter the keyboard shortcut Ctrl+F3 (Command-F3 on Mac).

Tip: This keyboard shortcut is a "hot key", meaning you can redefine it. You are actually able to configure two hot keys for the Video button: one to turn it on and one to turn it off. For details, see *Hot Keys*.

Note: If you get an error when you click on the Video button (such as "Cannot connect to the video source"), your camera may be in use by another application or you don't have the correct camera selected under Preferences.



Stopping Video Transmission

To stop video transmission, turn your camera off in the same way you turned it on:

- Click on the Video button in the Audio & Video panel.
- Enter the keyboard shortcut Ctrl+F3 (Command-F3 on Mac).
- Click on the Preview button. You will continue to see video images, but others will not see you.

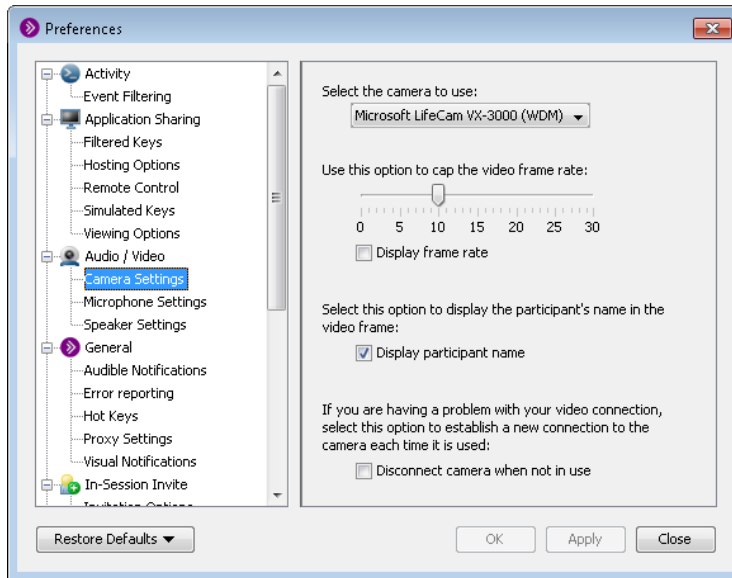
Tip: This keyboard shortcut is a "hot key", meaning you can redefine it. You are actually able to configure two hot keys for the Video button: one to turn it on and one to turn it off. For details, see *Hot Keys*.

Selecting your Video Camera

If you have only one video camera installed on your computer, that device is automatically used by CCC Confer to preview and transmit video. However, if you have more than one video input device on your computer, you can select which device you want to use through the Preferences dialog.

Note: When a connection is established to a video camera device, that connection is maintained until a different device is connected or the session is terminated. While a connection exists to a video device, that device is not available for use by other applications.

1. Open the Preferences dialog.
2. In the left pane of the Preferences dialog, select *Camera Settings* under *Audio/Video*.

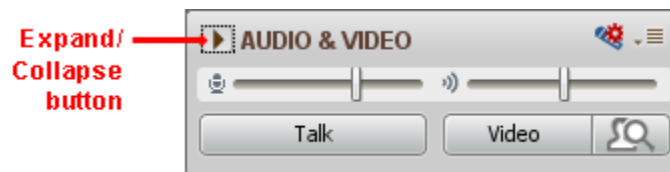


3. Select the desired camera from the *Select the camera to use* drop-down list.
4. Click on **OK** to save your preferences and close the Preferences dialog, **Apply** to save your preferences and leave the Preferences dialog open or **Cancel** to close the Preference dialog without saving any of your changes.

When you configure preferences, CCC Confer will remember the settings each time you join another session on the same computer.

Viewing Video

To view the video being transmitted by others, your primary video display must be open. If it is collapsed, click on the Expand button to open it.



Alternatively, if you want to preview your Video, click on the Preview Video button to expand the panel. If you want to transmit Video, click on the Video button to expand the panel.

If you do not wish to view another's video transmission, collapse the primary video display by clicking on the Collapse button.

The Default Views

By default, the option *Make Video Follow Speaker* is turned **on** and the Moderator-only option, *Make Video Follow Moderator Focus*, is turned **off**. These options affect what is shown in the primary video display.

If the default options are maintained (and you are not previewing your own video), the following happens in the primary video display as people join the session, transmit video or speak:

- If you are the first person in the session, your primary video display will be blank. If you click on the Transmit Video button, you will see your own transmission in the primary video display.
- When a second person joins the session, you will see their video transmission or, if they are not transmitting video, their profile picture. It is assumed you will want to look at that person, not yourself, regardless of who is speaking. (This happens even if neither of you has spoken.)
- As subsequent people transmit video or speak, their video transmissions or profile pictures are added as thumbnails.

Note: There is one exception: if neither of the first two parties is transmitting video, when a third person joins the session, the primary video display will go blank until someone transmits video or speaks.

- When someone speaks, your primary video display will always show either the profile picture or the video transmission of the person currently speaking or, if no one is speaking, the last person to speak (even if that speaker has left the room).

When someone is transmitting video while you are previewing your own video, the received video will be displayed in a thumbnail and the video from your camera will be displayed in your primary video display.

In the example below, Lisa is speaking (she doesn't have her video camera turned on so you just see her profile picture) and Vivian has her video camera turned on. Vivian's video is shown in a thumbnail below the primary video display.

Hover your mouse over a thumbnail to display a "tool tip" containing the transmitter's name.



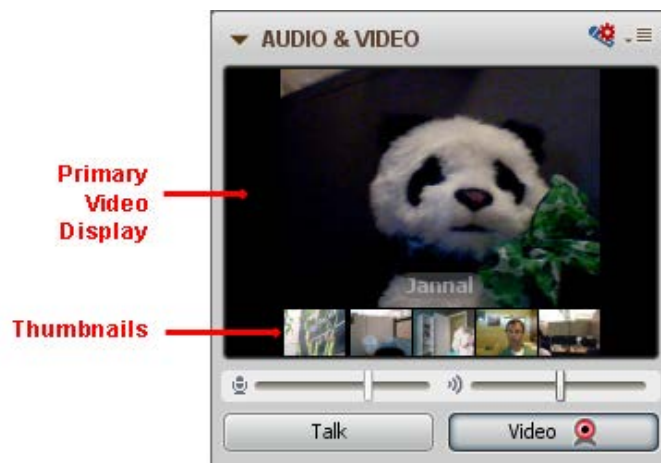
Tip: If you are having difficulty with your camera (e.g., it freezes), try changing the frame rate.

If desired, you can display a box showing the frame rate of the transmission in the upper-left corner of the primary video display. This is useful for troubleshooting video. (See *setting video frame rate*.)

Multiple Simultaneous Cameras

Sessions can be enhanced by having the video streams of multiple people displayed at once. CCC Confer has the capacity to show the transmissions of up to six video cameras simultaneously. Moderators can disable multiple simultaneous cameras (by setting the maximum allowed to one) or enable from two to six simultaneous cameras.

When there is more than one simultaneous camera enabled, the video stream of one person will appear in the primary video display. Everyone else's transmission will appear in thumbnails, up to a maximum of five thumbnails



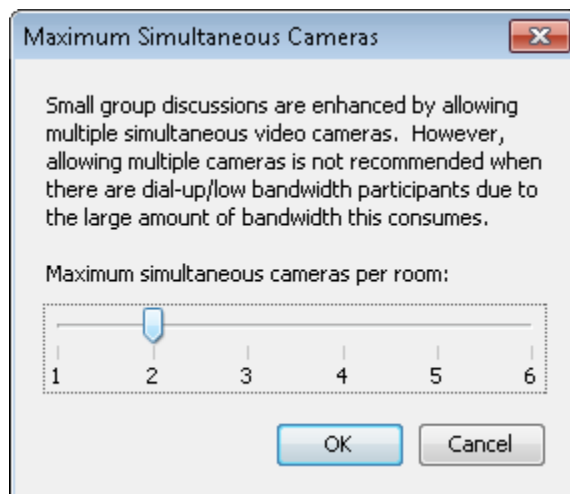
Setting Maximum Simultaneous Cameras

The maximum number of simultaneous cameras allowed is initially set CCC Confer. As a Moderator, you can override this default at any time during a session.

Caution: When using multiple simultaneous cameras in conjunction with breakout rooms, CCC Confer will allow you to have six active cameras in each room. However, since video is bandwidth intensive, using more than six total active cameras in a session will affect the quality and speed of video in all breakout rooms and the main room. It is recommended that you limit the number of active cameras to six across all rooms in the session.

To configure the maximum number of simultaneous cameras allowed in a room, do the following:

1. Open the Maximum Simultaneous Cameras dialog in one of the following ways:
 - From the *Tools* menu, select *Video* and then *Maximum Simultaneous Cameras*.
 - From the Audio & Video panel Options menu, select *Maximum Simultaneous Cameras*.
2. Select the number of simultaneous cameras you would like to permit in the room by moving the slider with your mouse.
3. Click on **OK**.



Multi-Camera Video in Recordings

If a session with multiple simultaneous cameras is recorded, the video from all cameras is saved and, when playing the recording, you can choose who to show in your primary video display just as you would if you attended the live session.

Controlling the Primary Video Display

The primary video display can be controlled in three ways:

- setting the *Make Video Follow Moderator Focus* option,
- setting the *Make Video Follow Speaker* option, and
- by manually selecting what to display.

The *Make Video Follow Moderator Focus* option is set by Moderators only and overrides an individual's *Make Video Follow Speaker* option. Both options override a person's ability to manually select what video stream to show in the primary video display.

Note: When images change in the primary video display, they may be a bit fuzzy for a few seconds while the server changes the resolution of the new image from low (which is what is used for thumbnails) to a higher resolution (which is used in the primary display).

Make Video Follow Moderator Focus

Moderators can use the *Make Video Follow Moderator Focus* option to force everyone in the room to see the same thing in their primary video display as what the Moderator is seeing in his or her primary video display. This option overrides all other methods of controlling the primary video display.

If there is more than one Moderator in a session, a second Moderator can override what the first Moderator set as the primary video display. Be careful not to disrupt another Moderator's presentation by inadvertently changing your primary video display.

You can turn on *Make Video Follow Moderator Focus* in two ways:

- From the *Tools* menu, select *Video* and then *Make Video Follow Moderator Focus*.
- From the Audio & Video panel Options menu, select *Make Video Follow Moderator Focus*.

To turn the option back off, just repeat the process.

Sending a Video Image to the Whiteboard

If you want to take a snapshot of an image in your primary video display, you can do so in one of the following ways:

- From the *Tools* menu, select *Video* and then *Send Camera Snapshot to Whiteboard*.
- From the Audio & Video Options menu, select *Send Camera Snapshot to Whiteboard*.



The image you “snap” is placed in the foreground of the current page of the Whiteboard. You can manipulate it like you would any other Whiteboard image.

The name of the person transmitting the video will not be captured in the snapshot and, if you have the *Display frame rate* option selected in the Camera Setting preferences (see [Setting the Video Frame Rate](#)), the frame rate box will not be captured in the image. If you take a snapshot of your Preview view, the word "Preview" **will** be captured in the snapshot.

Note: For Participants to use this feature, they must have Whiteboard permissions.

Tip: If you want to take a snapshot of an image in a thumbnail (simultaneous cameras), you must move the thumbnail image into the primary video display and then take a snapshot. (For details, see [Controlling the Primary Video Display](#).)

Troubleshooting Video Delays

A pause in the video transmission may be due to a slow connection speed, network congestion or an overloaded server. To compensate, and keep the viewer up-to-date, the server does not send the viewer all of the frames that the transmitter sends to the server.

If you are the transmitter of video, and users are frequently getting amber or red video status indicators, try lowering your frame rate in the Preferences dialog.

Understanding Video Frame Rates

The frame rate is the number of frames per second being transmitted or received. The default rate is 10 frames per second. The higher the frame rate, the higher the bandwidth being used. To reduce the load on your Internet connection, you can choose to receive video at a frame rate lower than what is being transmitted. However, you need to be careful not to put it too low or you may find that the quality of the video is compromised (making it jerky or blurry).

Raising the frame rate will improve the quality of the video only up to a point. Ideally, the frame rate should be set at the lowest possible value that will maintain good video transmission for the type of video being

transmitted. For video with little movement, such as when you are having a conversation using your web cam (“talking heads”), a frame rate of 7 should be sufficient. Setting the frame rate higher than 7 would not improve your video quality, but would only increase the bandwidth load on your connection.

Generally speaking, the greater the movement in a video, the higher the frame rate required to prevent jerkiness or blurriness of the image. (For example, a TV show would need a frame rate of 10 to 15 and a theatrical movie would need a frame rate of about 25 to 30.) The best frame rate is the one that best matches the transmission.

If the video is being transmitted at a rate higher than your connection can receive it, the Blackboard Collaborate Web Conferencing server will start dropping frames in order to keep you up-to-date. For example, if your frame rate is 7 frames per second and the transmitter is sending the video at 10 frames per second, the server will send you only 7 out of every ten frames. This way you will not lag behind. The quality of the image you receive may or may not be compromised.

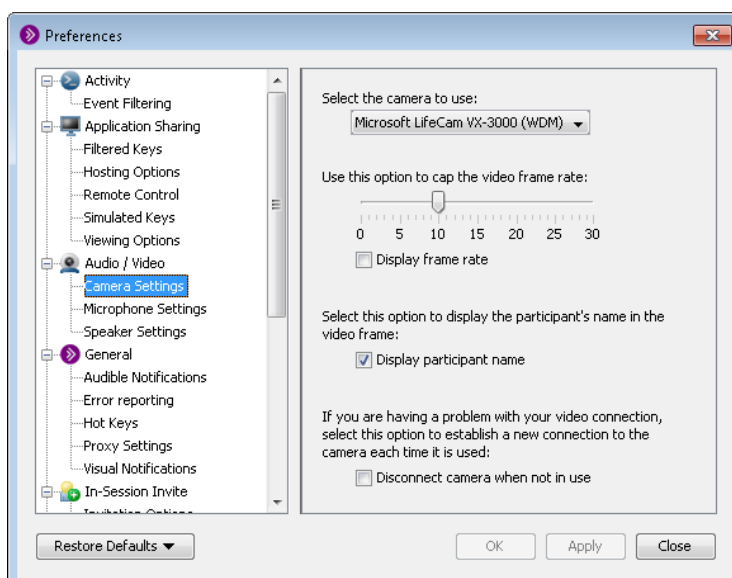
Setting the Video Frame Rate

You can limit the amount of bandwidth used by Video by adjusting the frame rate. The default frame rate is set to 10 frames per second.

Note: Increasing your frame rate increases the bandwidth used by Video and the load placed on your Internet connection. Even if your camera supports a high frame rate, your connection speed may prevent you from sending or receiving video at a high frame rate.

Change your Video Frame Rate settings in the Preferences dialog.

1. Click on Edit, Click on Preferences
2. In the left pane of the Preferences dialog, select Camera Settings under Audio/Video. The Camera Settings preferences panel appears.



3. Under *Use this option to cap the video frame rate*, move the slider to the desired value.
4. If you wish to show the frame rate in the top left corner of the primary video display, select the option *Display frame rate*.
5. Click on **OK** to save your preferences and close the Preferences dialog, **Apply** to save your preferences and leave the Preferences dialog open or **Cancel** to close the Preference dialog without saving any of your changes.

When you configure preferences, CCC Confer will remember the settings each time you join another session on the same computer.

Note: You can restore your preference settings to the default by clicking the dropdown on the Restore Defaults button (bottom left Preferences dialog box.) Select *Restore Panel "Camera Settings"*.

Setting Video Permission for Participants

The Video permission is included in the default set of Global permissions so all Participants are granted the permission to use a web camera upon joining the session.

There may be times when you want to turn the Video permission off – such as when you want to eliminate distractions and focus the Participants' attention on the information you are presenting. When you remove the Video permission from Participants, their Video buttons are disabled so they will not be able to transmit video.

Participants will still be able to view another's video transmission, set their camera preferences, move thumbnails into their primary Video display and make Video follow the current speaker.

To remove the Video permission from all Participants at once, deselect Video in the Global Options menu. To remove the Video permission from an individual Participant, deselect Video in their Participant Options menu.