

InterwiseConnect™

Video Conferencing

Version 7.2

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Introduction

Interwise Connect is the Web platform that powers Interwise meeting sessions with participants from virtually anywhere, using their PC, TDM or Mobile phone. Interwise meetings are enabled with advanced conferencing services that enable data sharing, application sharing, chatting, the sharing of emotions (via emoticons), white board sharing, and session recording and playback capabilities, in addition to *voice* and *video conferencing*.

Interwise Connect provides a comprehensive, highly scalable, and unique, efficient utilization of bandwidth that remains near constant while expanding to large conference sessions. All capabilities and meeting features are enabled via a single platform with a common simple to use web-based interface.

Video Conferencing powers Interwise Connect

Attaching a Web Camera to Transmit Video within Interwise Video Conferencing

The Interwise Participant application supports the Microsoft Video for Windows API that ensures compatibility with virtually all web cameras available today. The web camera driver should be installed and the web camera USB cable should be attached to the Participant's PC in order to enable the Participant to stream their video to other Participants.

Video Conferencing Capabilities Per Interwise Event Type:

Interwise Event Type	Video Conferencing Mode
iMentoring	Two-way Video Conferencing
iMeeting	Multipoint Video Conferencing
iClass	Two-way Video Conferencing
iSeminar	One-way Video Conferencing
iCast	One-way Video Conferencing

Multipoint Video Conferencing in iMeetings

Up to five video enabled Participants can stream video in parallel to other Participants who are not transmitting video. All Participants can view the Participant streamed video in parallel in up to 5 QCIF (Quarter Common Intermediate Format of 144 lines and 176 pixels per line) sized video windows via the Participant application. Participants who streamed video and exit from the Event immediately enable a new video-enabled Participant to take their place.

Setting up for an iMeeting Event

Participants joining an iMeeting are required to send a captured, QCIF sized, still image to all other Participants (as shown in *Figure 1*). This image is displayed whenever the Participant is not speaking.

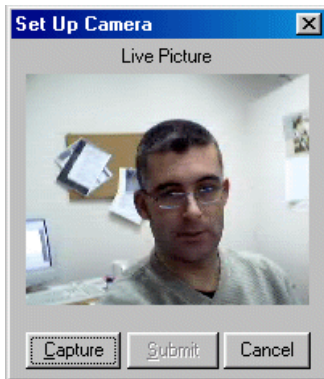


Figure 1: Sending the 'captured' image to other Participants

Video Conferencing

Once a Participant goes 'On Air' and starts speaking, the captured image is replaced with live real-time streamed video. When the Participant 'exits the stage', the display automatically switches back to the captured image.

During a voice activated iMeeting, live video is shown for each speaker who has a properly installed and USB attached video web camera.

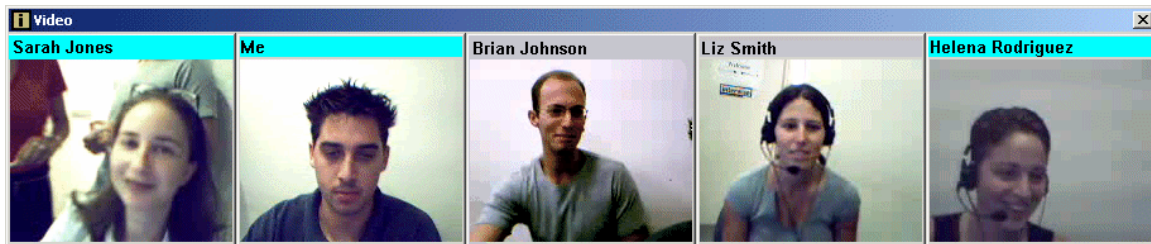


Figure 2: Video Conferencing

The speaker in a Queued iMeeting can initiate a conversation with another Participant, which initiates two-way video streaming of the two conferencing Participants. The additional three Participants' images in the video pane will display the captured images.

Two-way Video Conferencing in iMentoring and iClass Events

Two-way QCIF streaming video is now enabled. Both the Moderator and Participant (or Co-Moderator) in conversation can watch each other, while other Participants and Co-Moderators can watch both interacting.



Figure 3: Two-way Streaming Video

Video Conferencing Setup

Select **Options** from the *File* menu in the Participant application, and then in the **Video** tab of the displayed window, click **Compression**.

The *Video Compression Configuration* window is displayed, as shown in *Figure 4*.

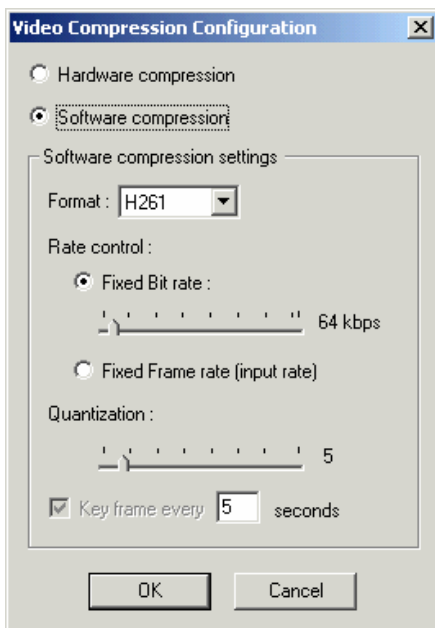


Figure 4: Video Compression Configuration Window

In this window, you can select the following:

- ◆ **Hardware Compression** – Select this option when you use an Osprey video card with an attached video camera that performs a Microsoft Video for Windows compatible hardware compression, instead of the PC's main CPU.
- ◆ **Software Compression** – Select this option when you use a USB web camera.

Software Compression Settings

- ◆ **Format:** Software compressed format - H261 or H263 (Use the H.263 for enhanced video quality).
- ◆ **Rate Control:**

- **Fixed Bit Rate:** Defines the maximum bandwidth utilized by the encoded video camera streaming. Picture frame rate and quality are adjusted accordingly.
- **Fixed Frame Rate:** According to settings of frame rate and picture quality. Required bandwidth is not fixed and may reach levels exceeding the available bandwidth. Consequently, this option is not recommended unless high bandwidth is available.
- ◆ **Key Frame:** Sets the time frame for sending a full sample of video image.

Frame Rate Settings

Select **Options** from the *File* menu in the Participant application, and then in the **Video** tab of the displayed window, select the required FPS (Frames Per Second) from the dropdown list). These settings apply to Software Compression using Fixed Frame Rate features.

The frame rate defines the number of video frames shown per second. The default frame rate is set to five frames per second.

In good IP bandwidth conditions (such as above 256Kbps) it is highly recommended to set the frame rate to 30fps for an enhanced smooth video motion experience.

To overcome a known bug for this setup, please stop your video first than setup the FPS (Frame Rate Per second) and then reactivate your Web camera with the 30 frames per second.

Interwise Connect Video Technical Requirements

Device

Interwise Connect supports any Video Capture Device (camera, board with camera) that:

- ◆ Supports the VFW (Video For Windows) API
- ◆ Has one of the following input formats:
 - Compressed: H263, H261
 - Uncompressed: I420, IYUV, YVU9, YUY2, YV12, UYVY, RGB24, RGB555, RGB565
- ◆ Supports a frame size of 176x144 (QCIF) or less.

Bandwidth

- ◆ Participant application minimum requirements:
TCP/IP intranet access or modem Internet access \geq 56K, combined with Video fixed bit rate of 32K.
For two-way simultaneous video, the recommended bandwidth is \geq 96K.
- ◆ Video data is always in synch with audio (Lips Synchronization) and other data types transferred in an Interwise Event. However, audio and data have higher priority in the communication queue and therefore video data will be sent only when bandwidth allows it.
- ◆ Interwise has implemented a bandwidth protection mechanism that will shutdown video operations when encountering network congestion or bandwidth lower than the above required specifications. The video streaming bandwidth is set to 256KB by default.
- ◆ Note that a stable, high bandwidth environment will allow you to enjoy high quality video conferencing of 30 frames per second.

Troubleshooting

Video Settings for Low Bandwidth Environment

Video bandwidth requirements are at least 56K per Participant with fixed bit rate set to 32K. If your bandwidth is low but you still wish to participate in a video Event, the following settings are recommended:

Format	Rate Control	Key Frame	Frame Rate
H263	8 kbps fixed bit rate	Every 10 seconds	5

You can also set your camera to a smaller frame size to enhance performance.

Note: Attempting to activate the video in a very low bandwidth environment may cause the 'Intelligent Video' bandwidth protection mechanism to close the video window.

Wrong Video Configuration Message

The Video camera configuration message may cause the Participant application to disconnect from an Event.

Workaround: Configure and test video image size and attributes prior to an Event to prevent the configuration message from popping up.

Video and Application Sharing

Application Sharing or Over The Shoulder initiated while the initiator's video is on can cause the video window to close.

Workaround: Restart the video after Application Sharing or OTS is up and running.