Alkit Confero User Manual

ALKIT COMMUNICATIONS AB

Alkit Confero User Manual

http://www.alkit.se

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Chapter 1

Introduction

This chapter gives a brief introduction to Alkit Confero.

Alkit Confero is a versatile multimedia communication and collaboration software. It allows you to communicate in real time using video, audio, text, whiteboard drawings, application sharing, media streaming and more.

The main focus of the Alkit Confero software (hereafter referred to as Confero) is for synchronous collaborative work, i.e. when the information exchange and interpersonal communication happens directly, in real time, as opposed to asynchronous communication, such as email, which relies on a store-and-forward approach. Although the main focus is on synchronous communication, some support for asynchronous collaborative work is also provided.

Both point-to-point and multipoint communication sessions are supported. When used for multipoint communication, Confero is most often used in conjunction with the Alkit Reflex RTP reflector software, which is a multipoint communication server.

Chapter 2

Getting started

This chapter takes you on a tour to quickly get aquatinted with Confero and to start up a conferencing session in no time.

Installing and setting up Confero is easy. Once you have gotten started, you will be able to enjoy the rich multimodal communication and collaboration services offered by Confero.

Installing Confero

To install Confero, just run the installation program. If you don't have it already, it can be downloaded from `http://confero.alkit.se`. When the installation program is executed, you will first be prompted with a question of whether you want to install Confero. Answer "yes" and follow the on-screen instructions. If you encounter any problems, please contact technical support at Alkit Communications.

Important note: If you are upgrading from an earlier version of Confero, make sure that the previous installation is removed prior to installing the new version, and make sure that no software component related to Confero is running when installing. Specifically, check that the Invito SIP user agent program is not running in the background on your computer. (You can see a flower icon on the System Tray if it is running.)

Starting Confero

If you use a Windows operating system and chose to add a shortcut to the desktop when installing Confero, double click that shortcut. You can always use the *Start* menu. In that case, select *Start* → *Programs* → *Alkit Confero* → *confero.*

Setting up Confero

The first time you start Confero you will be asked to provide some information to tailor the software for your needs. The dialog window in Figure 1 appears.

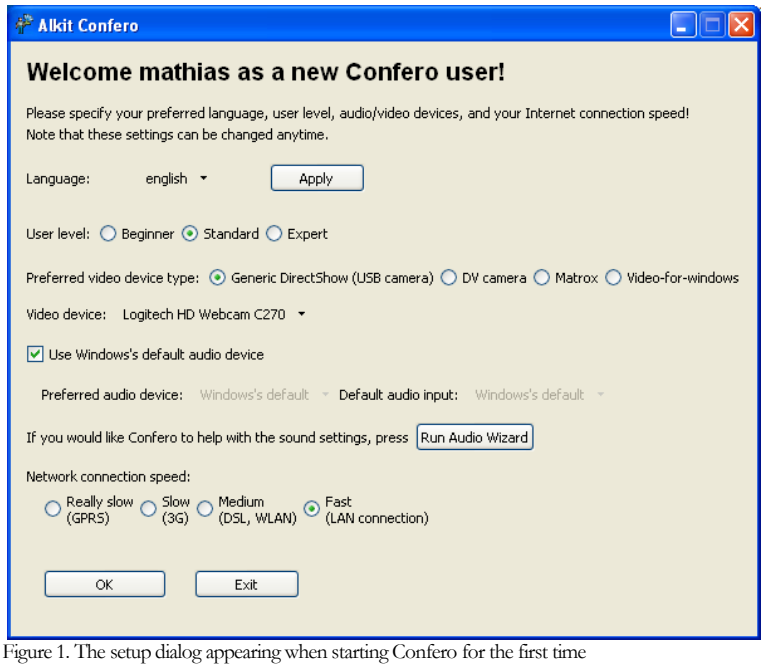


Figure 1. The setup dialog appearing when starting Confero for the first time

The first choice is the language. Select your preferred language from the list and press "Apply". The language of the user interface will be updated.

Next you select your preferred User Level. The user level determines what the graphical user interface of Confero will look like. If you consider yourself to be an experienced user of teleconferencing software in general (and Confero in particular), select user level "Expert". If you are a little bit unsure of how these things work, select "Beginner". Otherwise, select user level "Standard". If it is the first time you use Confero, we recommend that you select "Beginner" as your user level, and then change this to "Standard" when you get more familiar with the software.

You can now configure which kind of video device you will be using. In most cases this will be "Generic DirectShow".

For the audio device to be used, you have the option of using the device that is set as the default audio device by the operating system (Windows). If you check the "Use Windows's default audio device" checkbox, whichever device is selected in Windows will be used by confer, both for audio recording and playback. If you want to set the device specifically, uncheck the checkbox and select the preferred audio device and input from the list. If you know which device you want to use, we recommend specifying it specifically. If not, use the default device.

There is an Audio Wizard that can help you configure your audio device. Click the "Run Audio Wizard" button to start the Wizard and then follow the instructions to configure things like the microphone gain and playback volume.

Finally, you should give a hint to Confero about the kind of network connection you intend to use. This is needed for Confero to be able to select some suitable audio and video quality parameters, for the network bandwidth available. Note that

it is the bandwidth of the *outgoing* connection that is of interest here, since Confero needs to adapt the transmission rate to the available connection bandwidth. Hence, if you are using an asymmetric network connection, like ADSL, it is the upstream capacity that is of interest. If you don't know, select "Fast."

When you are done, click the "OK" button. You are now all set to start a Confero communication session.

Acquiring and Installing a License

When Confero is started without a valid license you will have a trial period of seven days and a maximum usage time of fifteen minutes each time you start Confero. You need a license to be able to use Confero for an extended period of time. To acquire a license you must contact Alkit Communications.

To install an acquired license you should have the license file on a media that can be opened on your local computer. If you have had the license file emailed to you, save it somewhere on the computer, your desktop is just fine. Start Confero and you will be asked if you have a license. When you select that you have a license you will be asked where Confero can find the license file. Select the file in the dialog and press "OK." Now, your license is installed. You must restart Confero and this time there will be no question regarding an evaluation license.

Get Connected

First make sure that all equipment is connected properly to the system, i.e. the camera is connected to the video grabbing device, the microphone is connected, the speakers are connected, all equipment is powered up, the USB devices are plugged in, and so on.

There are basically two ways in which you can establish a connection in Confero. The first is by using the address book and the second is by using *Quick Connect*. In this session we will use the latter way to connect. The former way is covered in chapter 3.

The simplest way to initiate a conference session is by using *Quick Connect*, to connect directly to a remote computer. To do this, enter the remote computer's name, e.g. `basil.alkit.se`, or its IP address, e.g. `192.168.0.4`. The IP address uniquely identifies a computer on a computer network, while the name is a more readable identification that will be resolved to an IP address by your system. Note that when using *Quick Connect*, you must be aware of the hostname or IP address of the remote host with which you wish to establish contact.

If you would like to start a communication session with more than two participants, you should supply a *multicast address* or connect to a *reflector*. A multicast address is a special kind of IP address which works as a group address. Instead of reaching only one computer as in the former case, you reach all computers subscribed to this address. A multicast address is in the range `224.0.0.1` to `239.255.255.254`. However, the participants must agree on an address beforehand. The second way to accomplish a multipoint conference is by using a *reflector*. Multipoint conferencing will be covered in more detail in chapter four.

In each of the above two cases, you enter the name or address in the *Quick Connect* entry in the window shown in Figure 2. If the name or address entered refers to a reflector, check the *Reflector* checkbox to the right of the Quick Connect entry.

Once you have entered the information needed, press *OK* at the bottom left of the window.

Figure 2. The window appearing when starting Confero

This will make the window shown in Figure 3 appear. This will be referred to as the "Session Management" window or the "Conference Participants" window. This window lists the participants of an ongoing communication session. Until someone else has connected, the list will be empty. The window also contains a row of buttons used to invoke the different sub-tools of Confero.

The buttons we will use here are the two leftmost at the top of the window in Figure 3.

Note: *The exact appearance of the window depends on which sub-tools of Confero are enabled, and which software version of the software is installed.*

Figure 3. The session management window.

Transmitting Video

Once you have connected as described above, it is time to start transmitting a live video stream from your computer. To do this, just press the *Transmit Video* button (depicted with a camera symbol) in the toolbar in the session management window. In a moment, the *Video Transmitter Window* (see Figure 4) should appear showing what your camera is pointed at. This is all that is needed for others to see the video stream from your camera.

Figure 4. The preview window of the sent video stream.

Transmitting Audio

To transmit audio from your computer, all you need to do is to press the *Transmit Audio* button in the toolbar in the session management window (Figure 3). The window in Figure 5 will appear. Most things are set to a reasonable default value here. You might want to adjust the volume by using the *Volume* slider. When the adjustments are done, you can minimize or close the window. Now, the other participants will also be able to hear when you speak.

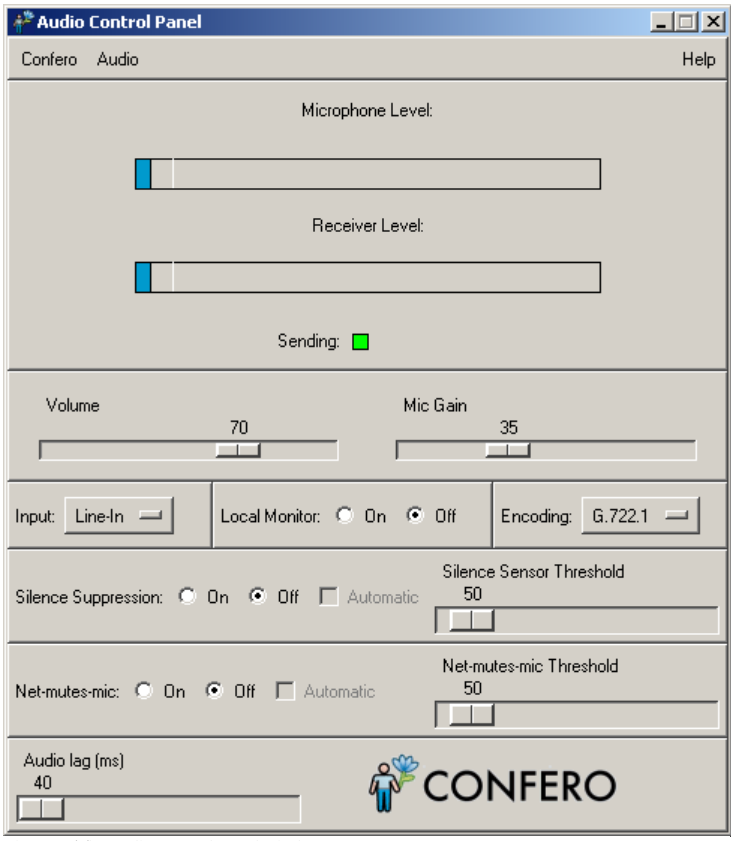


Figure 5. The audio control panel window

Note: *Transmission of audio is usually enabled by default in Confero. This is a configurable option.*

Receiving Video and Audio

When the other participants have also gone through the procedure above, you will be able receive their video and audio streams. For each participant that transmits any media, a list entry in the Conference Participants list of the Session Management window of Figure 3, will appear. By checking the checkboxes for video and audio for each participant, Confero plays out the audio and draws one video window on the screen for each participant who has chosen to transmit audio and video. Note that if not specifically disabled, the checkboxes for audio and video reception are automatically checked when a new media stream appears.

Chapter 3

Point-to-point communication

Communication between two endpoints is called point-to-point communication. After reading this chapter you will be familiar with how to initiate a point-to-point Confero session.

The simplest form of teleconferencing takes place between only two participants, referred to as a point-to-point communication session. Before you can start the session you need to know the other party's IP address or hostname. An IP address is a way to uniquely identify a computer on the Internet. A hostname, is translated into an IP address by a service known as the Domain Name System (DNS).

Using the Address Book

When you start Confero you are presented with the window shown in Figure 6. In the middle section (see Figure 6, 1) you have the *Address Book* listing your contacts. You can add, edit or delete entries with the corresponding buttons on the right. Below the address book, you have the *Quick Connect* entry (Figure 6, 2). If you do not wish to add an entry to the address book, you can simply type the hostname or IP address to which you would like to connect, into the *Quick Connect* entry (see Chapter 2). Initially the address book will be empty. To populate it, you have to add entries.

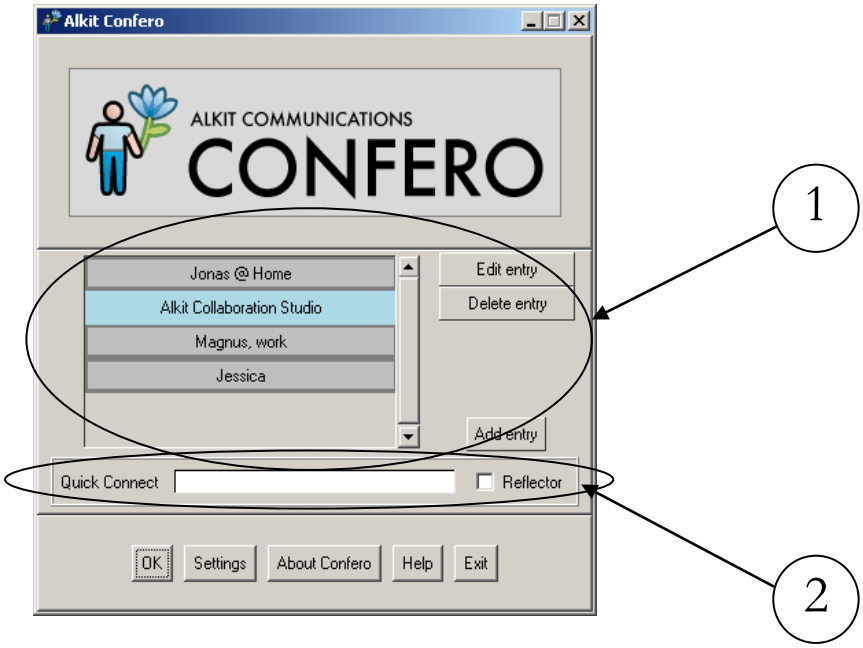


Figure 6. The window that greets you when starting Confero.

Adding an Entry

To add an entry to the address book, simply click the *Add entry* button. When pressing the button, the window in Figure 7 pops up. In the top frame you have the name of the contact. Just below the name, there are checkboxes for three types of contacts. For the moment, let the type be *Host* and we will later get back to the other types, in Chapter 5. In the lower frame you type in the address of the remote party, either in the form of a hostname or an IP address, into the *Destination* entry. It is best to leave the *Video port* and *Audio port* fields unchanged. However, if you need to change this, it is important that you and the other party agrees on which ports to use, or you will not be able to receive any video or audio. Ports on a computer are used to have several connections open simultaneously.

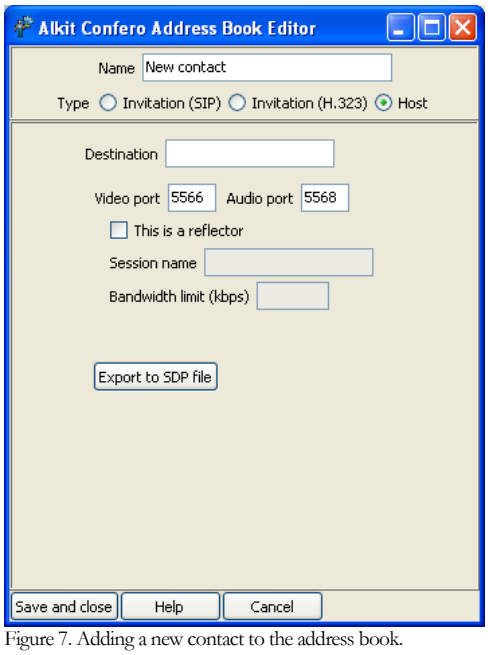


Figure 7. Adding a new contact to the address book.

Leave *This is a reflector* checkbox unchecked, for now. The use of a reflector is explained in Chapter 4. When you are done, click the *Save and close* button to save your new contact. If you for some reason would not like to save the contact, click the *Cancel* button instead.

Change or delete an entry

If you need to change or delete a contact in the address book, all you need to do is to select the entry and press either the *Edit entry* button, to edit the contact, or the *Delete entry* button, to remove the contact from the address book. You can also press the mouse's right button, which makes a pop-up menu appear where you can make your choice.

Connecting to the other Party

To use an entry in the address book when setting up a connection, either double click on the address entry or select the desired entry, and then press the *OK* button at the bottom of the window. If you choose to enter an address in the *Quick Connect* entry, just press the *OK* button to connect.

Once you have pressed the *OK* button, or double clicked an address book entry, the session management window will appear, as depicted in **Error! Reference source not found.** below. You are now ready to start transmitting and receiving media streams. How this is accomplished is discussed in Chapter 5.

Chapter 4

Multipoint communication

When there are several parties involved in communication, it gets really interesting! This chapter shows you how to set up a multipoint communication session.

With several parties participating in a communication session you will be able to have a group meeting on the Internet. In practice, you have two different ways to set up a multipoint session. One is to use a multicast address. When participating in a multicast conference session, you will receive all the streams that are sent to the multicast address selected for the session, and everyone will receive the streams you send. The other way to set up a multipoint session is to use a *reflector*. A reflector is used when the network does not support the multicast communication. The reflector is used as a central conference server to which every participant connects.

Note: *IP Multicast is not supported everywhere on the Internet. The preferred way to realize multipoint communication sessions is hence using a reflector.*

Multipoint Communication using Multicast

The simplest way to accomplish a multipoint session is to use a multicast address. The participants must beforehand agree on which multicast address to use for the session. To connect to the other parties you add the agreed on multicast address to your address book, or using Quick Connect. Both methods are described in Chapter 3, *Using the Address Book* on page 9. The only difference between setting up a point-to-point session and a multipoint session is that multicast address should be supplied as the destination address in the latter case. A multicast address is an IP address in the range `224.0.0.1` to `239.255.255.254`.

Multipoint Communication using a Reflector

In many cases, using multicast is not an option, since it is often not supported by the network infrastructure. Instead, you can use the Reflex RTP reflector/mixer, which is multipoint communication server software developed by Alkit Communications. The Reflex software is not covered here, only how you connect

to one using Confero. The reflector is something which must be set up beforehand. If you do not know whether you have a reflector at your site, contact your site's Confero power user or your system administrator.

A connection to a reflector can be set up either using Quick Connect or by using the address book. When using Quick Connect, simply type in the hostname or IP address of the reflector in the Quick Connect entry and check the "Reflector" checkbox. You will be prompted for a session name as shown in Figure 8

Figure 8. Specifying the reflector session name.

The session name is used to identify a specific communication session on a reflector. The same reflector can hence support multiple simultaneous sessions.

To set up an address book entry for multipoint sessions, simply select *Add Entry* in the Confero window, whereupon the window shown in Figure 9 appears (those who have read chapter 3 are familiar with this window). As before, add a name of your choice in the *Name* entry and select *Type* "Host". In the *Destination* entry you add the name or (unicast) IP address of the reflector. The *Video Port* and *Audio Port* entries should usually not be altered unless your reflector configuration requires it. The difference this time from the procedure described in chapter 3 is that you now check the box *This is a reflector*. Then you choose a descriptive textual name for your session, such as "project meeting", and enter this text string into the *Session name* entry. The session name is used to identify a particular conference session on the reflector. Each participant connecting to the reflector with the same session name will be considered by the reflector to belong to the same meeting, and hence media streams will be relayed between those hosts. If you leave the session name entry blank, you will be prompted for a session name when connecting to the reflector, as shown in Figure 8.

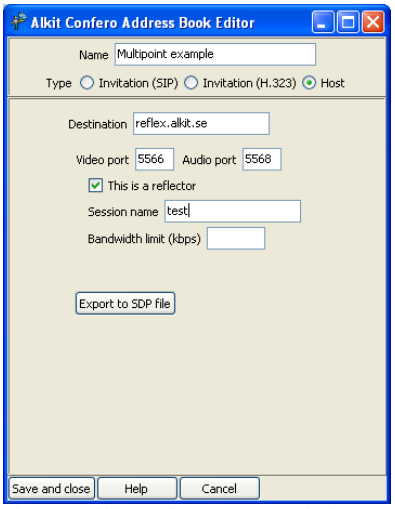


Figure 9. Adding a reflector as an entry in the address book.

It is also possible to specify a bandwidth limit, that the reflector will keep the traffic to the host below. The bandwidth, in kilobits per second, is specified in the *Bandwidth limit* entry. Specifying "unlimited" or a zero bandwidth limit, will disable bandwidth limiting for this host on the reflector.

Select *Save and close* when you are done and use this entry whenever you need to connect to this reflector to participate in the session identified by the chosen name. There can be several entries containing the same reflector address, but different

session names. This corresponds to different group meetings that are using the same reflector for multipoint communication.

Note that it is certainly possible to connect only two parties through a reflector, thus in effect enabling a point-to-point session relayed through a reflector. There are indeed many good reasons for doing so, instead of connecting the endpoints directly as discussed in Chapter 3, including firewall traversal, access control and additional reflector based services.

Having established your session, you are now ready to start communicating using audio, video and other media.

Chapter 5

Communicating with Audio and Video

When a communication session has been established, either point-to-point or multipoint, you will want to start to send and receive audio and video streams. This Chapter will describe how this is done in Confero. Moreover, you will be introduced to some of the basic settings that influence the quality of the video and audio you send.

This section will go through what you need to do in order to transmit a video stream as well as an audio stream. We start with showing how video is transmitted and then go through the different features associated with that. After that, we do the same thing with audio. Note that if a specific menu option or feature that is described seems to be missing in your Confero GUI, that might be because of the user level selected. Setting user level to "Expert" should make all options and features visible.

Transmit Video

Transmitting video

To start transmitting video to the other party, click the *Transmit Video* button. In just a moment you are presented with a local preview window of the video you are currently transmitting (see Figure 10). The Video Transmitter window has a menu bar consisting of five menus. Each one will be described below.

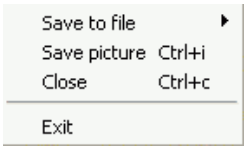
Figure 10. The preview window of the transmitted video stream.

The purpose of the Video Transmitter window is to show you what you are transmitting, and to provide controls for changing different aspects of the transmitted video, such as frame rate, resolution, etc.

The Video Transmitter Window Menu Bar

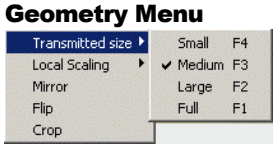
This menu bar includes *File*, *Geometry*, *Input*, *Tools* and *Help*.

File Menu



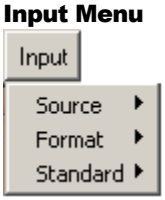
From the *File* Menu, you can start saving the transmitted video stream to disk. You can also save a snapshot picture from the video. By selecting *Close* you will stop transmitting video and close the video transmitter window. *Exit* quits Confero completely. To the right of the *Close* menu item you have the keyboard shortcut to close the video transmitter window, in this case Ctrl+c. Every menu item that has a keyboard shortcut is listed to the right of the menu item. Remember that closing the video transmitter window will also stop sending the video stream.

Geometry Menu



In the *Geometry* menu you have five choices (not all options are available in all versions of Confero though). The *Transmitted size* menu item, which consists of four submenu items (a black arrow to the right of a menu item indicates that there are more submenu items), *Small* (F4), *Medium* (F3), *Large* (F2) and *Full* (F1), controls the size of the video window and the resolution of the transmitted video signal. Select the desired size, and the size of the video transmitter window changes accordingly. This also means that the resolution of the video that is transmitted is changed. If you want to change the size of the video window locally on your screen, without affecting the resolution of the transmitted signal, first select the desired transmitted size, and then select a scaling level from the *Local scaling* submenu. Available scaling levels are *Sixteenth*, *Quarter, Original (no scaling)*, *4 x*, and *Full screen*. If you would like to mirror the video you are sending, select the *Mirror* menu item. *Flip* flips the video upside-down, and *Crop* lets you cut off portions of the video signal at the top, left, bottom and right.

Input Menu

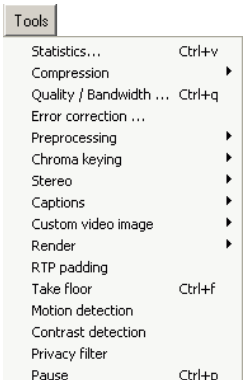


The *Input* menu presents you with three different menu items. In case you have more than one video capture device installed in your system, i.e. more than one camera, you can use the *Source* menu item to choose which device to use.

With the *Format* menu item you can change, depending on the hardware you have, the input format to use. For example, if you have a video card with several video input connectors, such as Composite, S-Video, etc, you decide from which of these inputs you want the get the video you are sending. If your hardware does not support this, the menu item will not be present.

The *Standard* menu item gives you a choice change the connected camera's video standard. The most common standards to choose from are either PAL or NTSC. Normally, you will not have to change the default value.

Tools Menu



The *Tools* menu has many interesting menu items. From the top we have the *Statistics* menu item, which presents you with statistics about the video stream being transmitted.

The Video transmitter Statistics window is shown in Figure 11. The statistics presented include the video capture frame rate from the camera, in frames per second, the encoding time in millisecond (i.e. the time it take for one frame of video to be captured and compressed), the video codec selected and the bandwidth of the outgoing video stream, in kilobits per second. The bandwidth is also plotted as a graph. Below the bandwidth graph, statistics reported by receivers of the stream is presented. This includes the packet loss rate and the round-trip delay between sender and receiver.

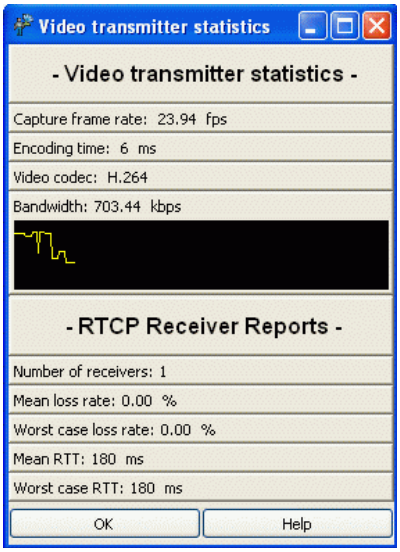


Figure 11. The Video Transmitter Statistics window.

The next menu item is *Compression*. This lets you control the video compression algorithm that is being used for the video transmission. The choice has a big impact on the network bandwidth consumed, the subjective video quality achieved, and the CPU load. The available compression algorithms are *JPEG*, *MPEG-2*, *H.263*, *H.264*, and *DV* (the latter only in case a DV camera is being used). There is also an *Automatic* option, which selects the codec automatically. A comprehensive description of these compression algorithms is beyond the scope of this manual, but in short JPEG is the least efficient of the algorithms in terms of compression performance, but also the one that requires the least processing power. H.264, on the other extreme, gives very high compression efficiency, at the cost of very high computational complexity. MPEG-2 and H.263 are somewhere in between. DV is a very bandwidth demanding encoding that is often implemented in digital video cameras, making it possible for Confero to transmit the digital video signal directly from the camera, without further processing.

The choice of compression algorithm depends on the network bandwidth available, the video quality that is needed, and the computational power of your computer.

Quality/Bandwidth Window (ctrl+q)

The *Quality/Bandwidth* menu item presents you with a window as shown in Figure 12. There are three different sliders to help shape the quality and bandwidth of the video stream you send. The first slider, *Quality*, affects how much each video frame is compressed. A lower quality value means that the image loses in quality and thus consumes less bandwidth. The opposite is true when increasing the quality.

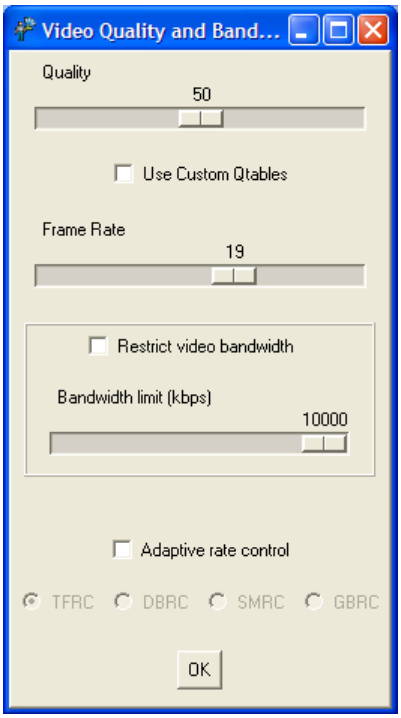


Figure 12. The video quality and bandwidth window.

The next slider is *Frame Rate* which lets you adjust the frame rate of the video stream you send. Higher frame rates result in smoother video and the bandwidth increases accordingly as you send more video frames every second. The unit for this slider is frames per second.

In order to get the last slider (*Bandwidth limit*) to work you need to check the box *Restrict video bandwidth*. Using this slider you can limit the bandwidth of the video stream you send. To conform to the desired bandwidth, Confero adapts the frame rate, and thus you might see the corresponding slider value change as you limit the bandwidth. One way to increase the frame rate while limiting the bandwidth is to lower the quality of each video frame by using the *Quality* slider described above.

Adaptive rate control is a way to adapt to the available network capacity. If you check this box, Confero will dynamically adapt its frame rate to the current load on the network. If the available network capacity decreases, Confero will decrease the frame rate of the video stream and conversely, an increase in available network capacity makes the frame rate increase. However, this should be used with caution, as some networks cannot cope with such a strategy. The four radio buttons at the bottom applies to the adaptive rate control in that you can decide on one of four adaptive rate control algorithms.

Error Correction Window

The next menu item pops up the *Forward Error Correction* (FEC) window of Figure 13. All streams you send, audio and video, are divided into small chunks before they are sent. Such a chunk is called a *packet*. Forward error correction can be useful when you have a network where sent video packets are occasionally lost, resulting in the loss of video frames, which means that the received frame rate is lower than the transmitted frame rate. To cope with this, Confero employs an error correction algorithm, which enables the receiver to recreate lost packets. You can use static FEC where the amount of redundancy is fixed at a certain percentage. Remember though, that the bandwidth requirement increases with increased redundancy. The second choice is to use adaptive FEC by checking the appropriate box. In this mode the receiver sends information back to the sender that tells Confero to either increase or decrease the amount of redundancy, depending on the loss rate experienced.

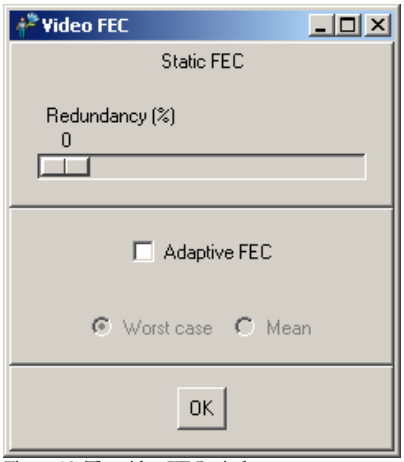


Figure 13. The video FEC window.

Annotations

You can draw graphical annotations, in the shape of a circle or an arrow symbol, overlayed on top of the video, to highlight something of interest in the video. This feature is not available in all versions of Confero.

Preprocessing

Before the input video signal is encoded and transmitted, you can apply a number of preprocessing operations to the signal, such as a sharpening filter or a de-interlacing operation.

Chroma-keying

With chroma-keying you can substitute a blue (or green) background in a video signal with any still image, or with an incoming video signal. This effect can be used to make a person sitting in front of a blue screen in a studio appear as if he or she is in fact somewhere else. See Figure 14 for an example.

Figure 14. A chroma keying operartion is performed on the video signal to the left, substituting the blue background with a still image showing a beach.

To enable chroma-keying, first select *Key* →*Chroma* on the Chroma keying submenu item. Then you have to calibrate the blue screen by selecting Calibrate.

The last step is to select the background image to be keyed in. This is done by selecting *Background* → *Image* and then selecting a JPEG image of your choice in the file selection dialog that appears. It is also possible to key in a video signal, in which case you should select *Background*-→ *Video*, and then select an incoming video signal from the dialog that appears. This can be a live video signal transmitted by Confero from another computer, or it can be a video clip streamed from Alkit Servo (see Chapter 6, for information on how to stream a video clip to Confero).

Stereo

The *Stereo* menu item is not always present, since you need special equipment for stereoscopic video. When available, the Stereo submenu lets you select whether the transmitted video stream corresponds to a left- or right eye viewpoint.

Captions

Captioning is a technique to overlay an image on top of a video signal. This can be used for instance to add a logo or some other graphics to the video. To enable captioning, select *Add* on the *Captions* submenu. You will be prompted for a JPEG or RGB image to add. The captioning image must be created with the logo (or whatever graphics is desired) on a black background. The black pixels will then be substituted with the video signal's pixels. If you add more than one captioning image, you can switch between them by using the *Select* submenu. Captions are disabled with the *Delete all* menu item.

Custom video image

You can replace the live video signal that is transmitted with a static image by selecting one of the items on the *Custom video image* submenu. This is mainly used for testing purposes. Return to sending the live video signal by selecting *None* on the *Custom video image* submenu.

Render

From the *Render* submenu you can select one of the following local video rendering options: *Normal*, *Slow*, *Sporadic*, or *None*. The default is *Normal*, which renders each video image before transmitting it. Setting the rendering mode to *Slow* makes only every fifth video frame be rendered, and setting it to *Sporadic* makes every 25th frame be rendered. Setting the rendering mode to *None* means that local rendering of the transmitted video is turned off. Using a different rendering mode than the normal is sometimes desirable for performance reasons, but usually the *Normal* rendering mode is preferred.

RTP padding

Enabling *RTP padding* makes every video packet to be padded to the maximum video datagram length. This can be useful in certain network settings, but most of the time you should leaves this option disabled, which is the default.

Take floor (Ctrl+f)

With many participants in a session, the screen consists of a large number of video receiver windows which can be tricky to organise. As well, it might be hard to see who is actually talking at the moment. At large meetings it is common to have a chair or at least ask for the floor. The take floor functionality is a way of accomplishing a visual effect of who is speaking at the moment. When you have the floor, a red bar at the bottom of your video indicates that you have the floor and so have all the other participants in their receiver window.

This control can be configured in different ways further explained in Confero User Information and Preferences on page 28.

Motion detection

This is functionality where you can let the motion in front of your camera affect certain behaviour in Confero. When you select this item you turn that functionality on. To define what should actually happen when there is motion in front of the camera is selected in the *User Preferences* window explained in Confero User Information and Preferences on page 28.

Contrast detection

As above, this also affects the behaviour of Confero. It is turned on or off. The difference to the above choice is that the detection algorithm uses the contrast in the video instead of motion. To define what should happen when the detection algorithm triggers is defined in the *User Preferences* window explained in Confero User Information and Preferences on page 28.

Privacy filter

The idea behind a privacy filter is that when you would not like the camera to send video you turn the privacy filter on and a still image will be displayed for all other receivers.

Pause (Ctrl+p)

If you for some reason would like the video stream to be paused, simply select the *Pause* menu item. When you do not want the video stream to be paused anymore, select the menu item once again and the video stream will recommence.

Help Menu

The *Help Menu* consists of two different choices: *Transmitting video* and *About Confero*. Selecting the first choice brings up a window where you can find online comprehensive help on how to use the *Video Transmitter Window*. The second choice brings up a simple window where you can see which version of Confero you use, when your licence expires, and some contact information.

Transmitting Audio

Transmit Audio

So far we have established a video stream connection with the other party. It would now be nice if we could hear each other as well! To make this possible you need to press the *Transmit Audio* button. When the button is pressed the audio control panel window appears, as shown in Figure 15. (If your audio control panel doesn't look like this it is probably because you have the simplified audio control panel enabled. See below.) We will go through the panel from the top and down.

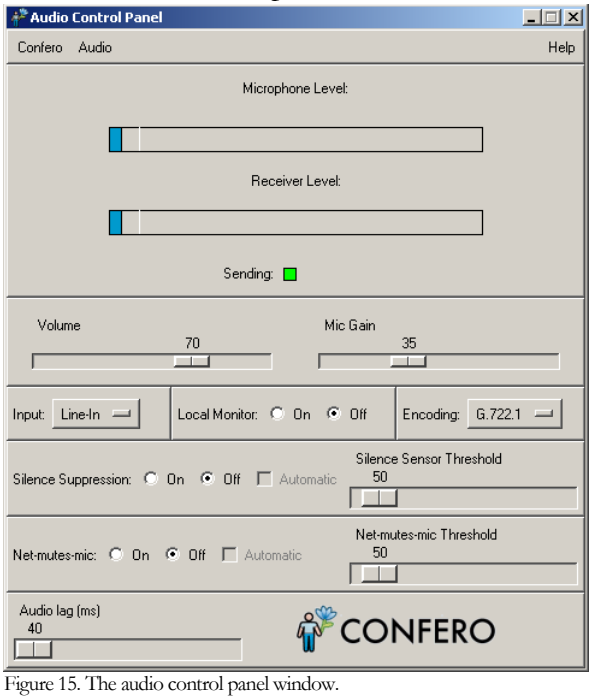


Figure 15. The audio control panel window.

In the topmost frame we have two vu-meters, one for the microphone and one for the received audio. These simply indicate the volume level. Below the two vu-meters there is a little sending indicator, which is in use if silence

suppression or net-mutes-mic is turned on (an explanation of these two alternatives is given below). If the sound is sent, the indicator turns red and if not, blue.

The next frame deals with the volume in the speakers and the local microphone volume. The *Volume* slider affects the output volume to the speakers or whatever other device you use to hear the audio. The *Mic Gain* slider controls the amplification of your microphone.

Local Monitor and Encoding

The next two frames are *Local Monitor* and *Encoding*. The local monitor makes you receive your own audio transmission. Be advised, however, you could end up having a sound feedback loop where you hear a loud whining sound. Usually, it is annoying to hear oneself with a delay, but it can be used to hear your own transmission if necessary. The *Encoding* frame gives you four choices:

1. 16-bit PCM. This is the best sound quality and hence, uses the most bandwidth (about 256 kbit/s).
2. GSM. This is the worst sound quality and uses less bandwidth accordingly (about 13 kbit/s).
3. DVI. This is something in between the two encoding schemes above (64 kbit/s).
4. G.722.1. This is a high quality, low bandwidth audio codec, that is recommended for most situations (32 kbit/s).
5. G.711 (PCMU). This is a medium quality 64 kbit/s encoding.
6. G.711 (PCMA). This is a medium quality 64 kbit/s encoding (just a slight variation of the PCMU encoding).
7. Speex. This is a high quality low bandwidth encoding, that can be used with good results.

Silence Suppression

When low bandwidth consumption is of importance, silence suppression can be used. Silence suppression stops sending audio if the volume level is below a certain threshold, which can be set either with the *Silence Sensor Threshold* slider or automatically, if you check the box *Automatic* when silence suppression is turned on. If the silence suppression is turned off, the *Automatic* check box is disabled and cannot be checked. When you pull the slider manually, a white line in the *Microphone Level* indicator graphically tells you where the threshold is.

Net-mutes-mic

In some cases you can have trouble with the sound feedback loop occurring because the sound you send can be transmitted back to you through the receiver's microphone. This can result in an echo, which can be very annoying. To avoid this, you can use *net-mutes-mic*. What it does is that when the received audio level is above a certain threshold, the transmission of your audio is stopped and thus the audio feedback loop is broken and the problem disappears. The threshold deciding when to stop the transmission of your sound can be set either manually by using the *Net-mutes-mic Threshold* slider, or Confero can automatically adjust the threshold if you check the *Automatic* box. The automatic choice is only available when net-mutes-

mic is turned on. Just as in the case for silence suppression, you can graphically see where the threshold is with the white line in the *Receiver Level* indicator.

Audio Lag

If you experience that the audio is ahead of the video you receive, you can delay the audio playback slightly, in order for the two to be synchronized. Pull the *Audio lag* slider until you have synchronized audio and video. Note that you affect all audio streams with this slider, and this might not be desirable when you receive multiple streams, i.e. more than one participant in the conference. This will be discussed in more detail in Chapter 4.

The Audio Panel Menu Bar

This menu bar includes the menus *Confero*, *Audio* and *Help*. Both the *Confero* menu and the *Help* menu are as described earlier and therefore, only the *Audio* menu will described here.

Audio Menu

The Audio Menu item presents you with the following choices: opening an *Audio statistics* window, change the sound *Encoding*, *Mute* your audio transmission, or *Show advanced controls*. To mute your transmitted audio, click the *Mute* menu item (or press 'm' on your keyboard). When muted, the other party does not receive any audio from you. When the *Show advanced controls* option is enabled, the full audio control panel, as depicted in Figure 15 is shown. When disabled, some of the advanced features are hidden. If you click on the *Audio statistics* menu item, a new window will appear, see Figure 16.

Audio Statistics Window (Ctrl+p)

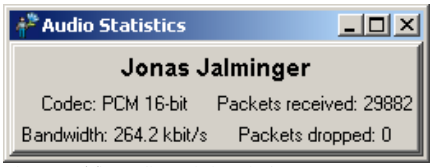


Figure 16. The audio statistics window.

This window displays various statistics about the received audio stream. Each audio stream received will get its own frame. At the top you have the name of the other party sending the stream, in this case *Jonas Jalminger*. Below the name you have *Codec*, indicating which audio encoding scheme the other party has chosen. Below *Codec* you have *Bandwidth,* displaying the bandwidth the current audio codec uses. To the right you see *Packets received* indicating the number of audio packets that has arrived. Finally, *Packets dropped*, indicates the number of audio packets that have been dropped.

Transmitting Screen as Video

Screen grabber

In some circumstances it might be useful to send part of the screen as video. This can be accomplished by using the screen grabber. You can choose which part of the screen that should be sent by using the arrow keys. If you would like to move faster, hold down the shift-key while using the array keys. By choosing *Geometry* →*Transmitted size* →*Custom* in the transmitter window you can enter the desired size to send. It is also possible to remotely control what part of the screen that should be captured. Use the same set of keys as above but use them in the receiver window instead.

Pre configured positions and sizes

Sometimes it can be handy to have pre configured screen positions and sizes and be able to quickly switch between the preset values. To save such a setting you start by selecting the desired size and position of what should be grabbed from the

screen. To save that specific setting, press Ctrl-Alt-F1 through F4. Thus, you can have four different settings to switch between at any time. To recall a previously saved setting, press Ctrl-F1 through F4.

Screen grabber can be CPU intensive

Use this feature with care as sending a large area of the screen consumes a lot of processor power and could therefore harm both the sound and video experience.

Receiving Video and Audio

The previous section dealt with how to initiate audio and a video streams from you to the other party. In order for two participants to interact, we also need to receive audio and a video streams from the other party. This section will guide you through the process of receiving media streams.

Receive Audio

For each party participating in the session, you have a presence awareness box in the session management window. Depending on what media streams the other party sends, you will be presented with one or more of the checkboxes shown in Figure 17. The leftmost checkbox, *Info*, opens a window with the other party's contact information. The middle checkbox, *Video*, opens a video receiver window displaying the received video stream. The rightmost checkbox, *Audio*, starts the playback of the received audio stream. With the slider next to the Audio checkbox, you can adjust the audio stream's playback volume. Note that the Audio and Video checkboxes are usually automatically enabled upon reception of a new media stream.

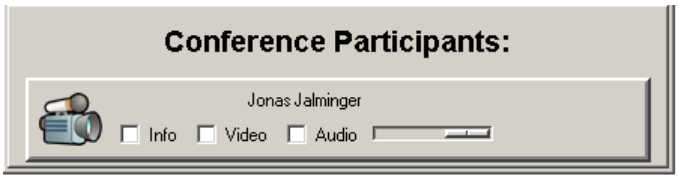


Figure 17. The presence awareness box.

Important! To receive audio you need to click the audio transmit button in the session management window (see **Error! Reference source not found.** on page **Error! Bookmark not defined.**). This is regardless of whether you are about to send audio or not.

Receiving Video

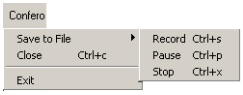
Receive Video

To start receiving the other party's video, click the *Video* checkbox. The moment you check the box, a *Video Receiver* window appears (see Figure 18.) There are a few things you can do with the video receiver window. The receiver window menu bar consists of three different menus:

1. *File*, where you can save the received video stream to disk, or close the window.
2. *Geometry*, where you can change the size of the displayed video.
3. *Misc*, an assortment of features, which depends on the particular system you are on.
4. *Help*, where you get online help on the video receiver window features.

Figure 18. The video receiver window.

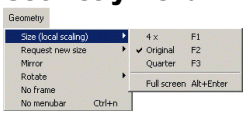
File Menu



There are three menu items in the *File* menu. The *Save to File* submenu, the *Close* menu item (ctrl+c), which closes the receiver menu, and the *Exit* menu item, which exits Confero. The Save to file menu item in turn consists of three sub menu items:

1. *Record* (ctrl+s), for recording the received video stream and, if present, an audio stream in QuickTime™ format. When you click to save the stream a window opens where you can select the name of the file to save to and where to save it.
2. *Pause* (ctrl+p), pauses the current recording. A second click resumes the current recording.
3. *Stop* (ctrl+x), stops the current recording and closes the associated file.

Geometry Menu



The *Geometry* menu consists of six menu items, namely *Size (local scaling), Request new size, Mirror, Rotate, No frame,* and *No menubar*. (Not all menu items are available in all versions of Confero.) The *Size* menu item, that controls the size of the video window, has four submenu items:

1. *Original* (F2), displays the received video in the size defined by the incoming video stream.
2. *Quarter* (F3), decreases the received video frame size four times, halving the size both horizontally and vertically.
3. *4x* (F1), increases the received video frame size four times, doubling the size both horizontally and vertically.
4. *Full screen* (alt+enter), the displayed video is scaled to cover the whole screen. This option is not always present depending on the system you use.

The *Request new size* submenu contains three menu items: *Full, Medium*, and *Small*. These can be used to send a request to the sender of the video stream being displayed to change the resolution of the video being transmitted. Note that the video sender can choose to ignore such requests, in which case this menu has no effect.

Mirror and *Rotate* lets you display a mirrored or a rotated view of the video stream respectively.

No frame and *No menubar*, if present, let you remove the window frame and the menu bar respectively, which can be useful in some applications.

Misc Menu

There are five menu items in the *Misc* menu. Firstly, there is *Statistics* that opens a statistics window for the specific video stream. Secondly, and optionally depending on the remote system, a camera control option (item *Camera Ctrl*) letting you remotely control the movement of the camera. Requirements are that the remote system runs the application *rcamd* (remote camera control daemon) and that the camera is controllable by VISCA commands over a serial cable. Please consult your camera documentation on how to connect your camera in order to control its movement. In case the sender is sending stereoscopic video stream you can render the streams by turning this feature on. However, you will need special glasses to get a true stereoscopic view. If you have not, the displayed stream will seem blurred. For more information on stereoscopic video, contact Alkit Communications. Next, there is an option called *A/V Sync*. It simply turns active synchronization of the audio and video streams on or off. The *Postprocessing* menu item opens into a submenu that lets you apply a post processing filter to the video signal before displaying it. For instance, you can increase or decrease the contrast, or apply a de-interlacing filter. The menu item, *Render*, lets you choose between a few different rendering options. Lastly, there is *Give floor* which works opposite to *Take floor* explained on page 20.

Statistics Window

In the *Statistics* window there are a multitude of different numbers presented. Figure 19 shows the window in question. The window is divided into two sections, the upper section deals with the received video stream's statistics and the lower part deals with the RTP statistics. We'll start with the upper section.

The first item of the statistics is *Video codec* which simply shows the video compression algorithm currently used for the video stream.

Frame rate, naturally, indicates the frame rate of the displayed video stream in frames per second.

Drop rate indicates that your system cannot show all the video frames received and has to drop some of them. Reasons for this can be that your computer is not able to decode and render the video at the frame rate received. Another reason is when one or more packets of a video frame are not received. When frames are dropped, the frame rate explained above will also drop.

Recover rate reflects how many frames per second that are recreated using error correction.

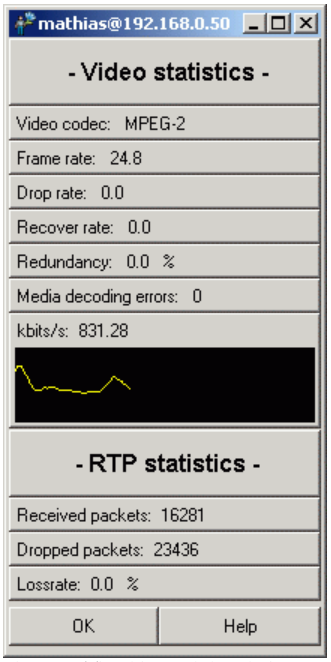


Figure 19. The video statistics window.

Redundancy shows how much of the received video stream is made up of redundant packets. This will only be the case if the sender has turned on error correction (see **Error! Reference source not found.** on page **Error! Bookmark not defined.**).

Media decoding errors, are rare but indicate that images are not successfully decoded.

The last field of video statistics shows a graph of how the bandwidth consumed by the video stream has changed over time. Just above the graph to the left, a number indicates the current bandwidth used in kilobits per second. By clicking in the black graph area, a new window appears with an enhanced view of the graph. This window will be explained shortly below.

The RTP statistics section consists of three numbers. The first, *Received packets*, indicates the number of packets that has been received since you started to receive the video stream. Second, *Dropped packets*, indicates how many packets that did not arrive as they should. And last, *Loss rate* indicates the current rate at which packets are lost.

If you click somewhere in the black graph area, the following window appears. This is the same view as earlier but enhanced with a y-axis and some controls to change how the graph is displayed. You can change how many pixels each bandwidth sample should occupy by changing the number in the box below the graph. This number defaults to 5 and can be varied between 1 and 50. To the right below the graph the two numbers indicate what the y-max and y-min values are for the currently displayed graph.

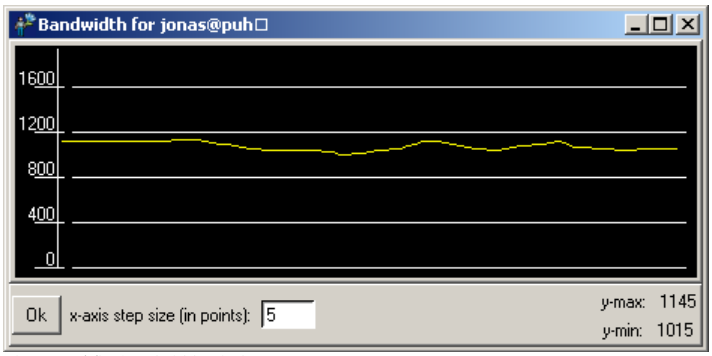


Figure 20. The bandwidth window.

Summary

This chapter covered how to initiate video and audio streams in an established communication session. In addition, you have also learned how to receive and present such media streams. We also covered a multitude of options and features associated with sending and receiving media streams.

Chapter 6

Managing Your Preferences

Confero has a lot of settings that can be configured according to your needs and preferences. This section explores how the user information and preferences are managed.

Each Confero user can set up Confero with personal, like name and email address. Each user also can configure a wide variety of user preferences. Since Confero has a lot of configuration options it is important to know how to set and manage your preferences.

Confero User Information and Preferences

User Preferences

You can configure Confero the way you want it and save your settings, as well as provide user information for other participants to view, by pressing the *User Preferences* button in the toolbar of the session management window (see Figure 3.) The window shown in Figure 21 will appear. Here you can enter your user information, which can be viewed by other participants when they check the *Info* checkbox in the presence awareness box, see Figure 17.

Figure 21. The user information window.

To configure Confero the way you want it, press the *Preferences* button. The window shown in Figure 22 appears.

Note! When the currently configured user level is "Beginner", a simplified version of the User Preferences window will be displayed. Note also that not all options are available in all versions of Alkit Confero.

The user preferences window

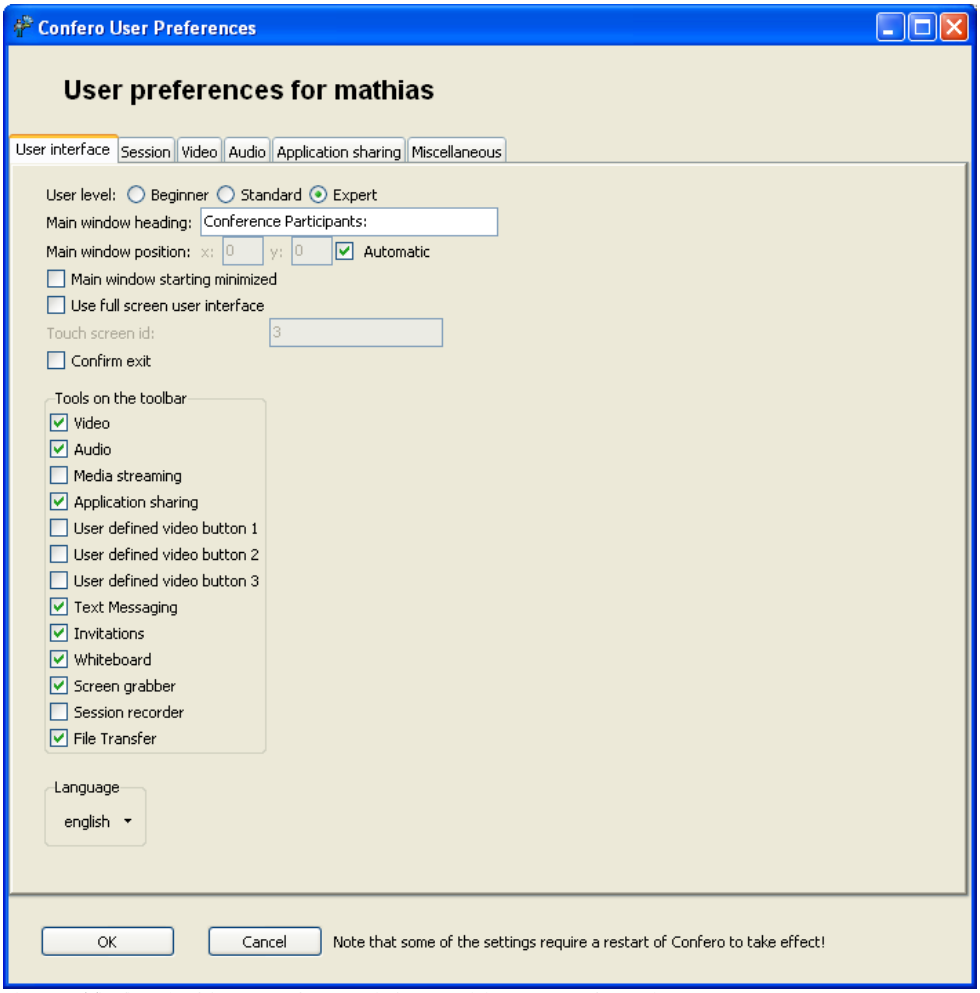


Figure 22. The first tab of the user preferences window containing User Interface settings

The User Preferences window is separated into six tabs grouping preferences of different types together. You select the tab you want to see by clicking on them.

The User Interface tab

GUI settings

The first group of preferences deals with the presentation of the graphical user interface (GUI) of Confero. First, you can select the desired user level, which will control how many of Confero's advanced features are shown in the GUI. Next you can configure what text string Confero will use in the session management window, the default being "Conference Participants:". You can set where the main window should appear on your screen by entering the (x, y) coordinates on the screen. Default is to use automatic positioning, meaning that it is left to the operating system to decide. You can also choose to start Confero with the main window minimized. Another option is to use a full screen GUI. Below this you can ask Confero to confirm your exit with dialog. Then there are a number of checkboxes, entitled *Tools on the toolbar*, that control which buttons should be present in the toolbar in the session management window.

Session parameters

The Session tab

The second tab, *Session*, shown in Figure 23 lets you set a default destination address (or hostname), and default audio and video port numbers, to be used the next time you start Confero. If you check the box *Use default destination address and ports at start-up*, Confero will connect to the default destination address on start-up and you will be taken directly to the session management window. If the default address is a reflector, you also need to check *Use reflector by default*, and provide a default session name and optionally a default bandwidth limit.

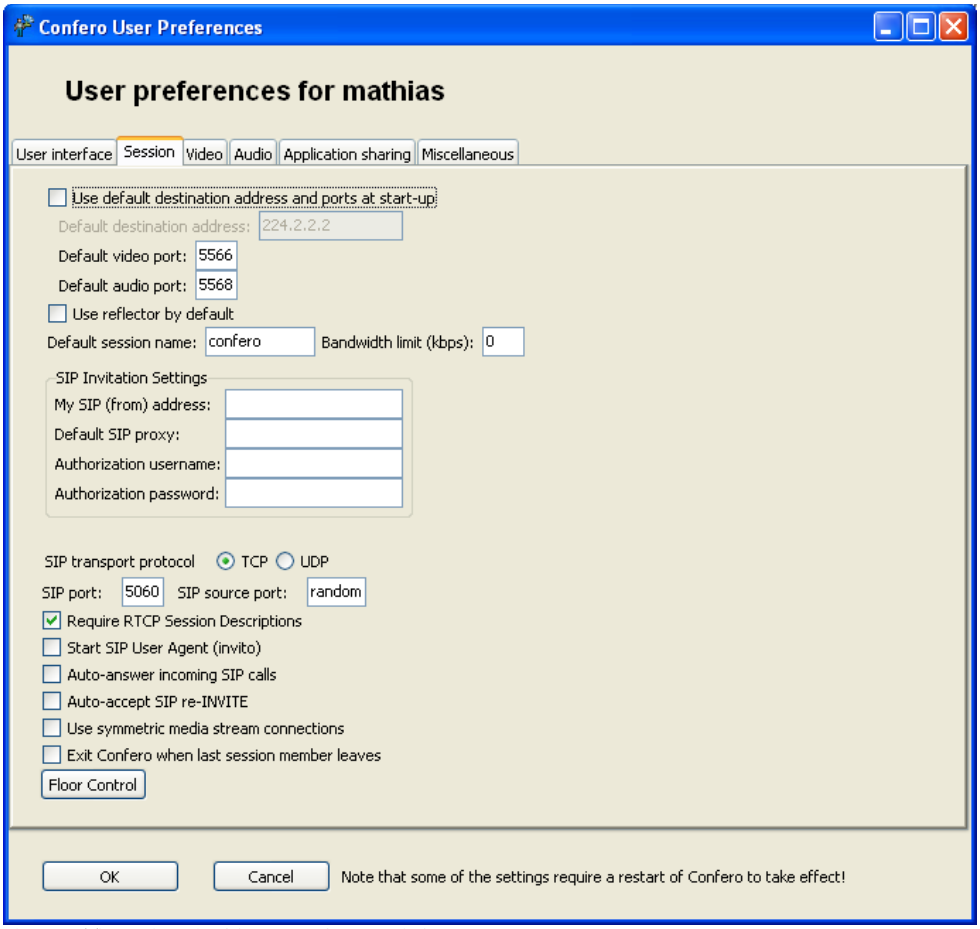


Figure 23. The Session tab of the user preferences window

The rest of the session parameters have to do with the SIP and RTCP protocols for session initiation and control. First of all, you can select the transport protocol to be used for SIP signalling (TCP or UDP). The *Require RTCP Session Descriptions* option lets you control whether Confero should defer presenting RTP media streams until a source has identified itself through an RTCP Source Description message.

To enable invitations to sessions using the SIP protocol, a SIP User Agent needs to be running on your computer. Confero's SIP User Agent is called *Invito* and can be launched automatically by Confero if the *Start SIP User Agent* checkbox is checked.

The *Auto-answer incoming SIP-calls* toggles automatic answering of calls arriving to the SIP user agent *invito*. You can also select to automatically accept a SIP re-INVITE

during an ongoing session, with the Auto accept incoming SIP re-INVITE. With the next checkbox you can let Confero automatically exit when only you are left in the session. This way you won't have to press exit when there are no more participants in the session.

The last setting is a button called Floor Control. Pressing the button opens up the window shown in Figure 24.

Floor control

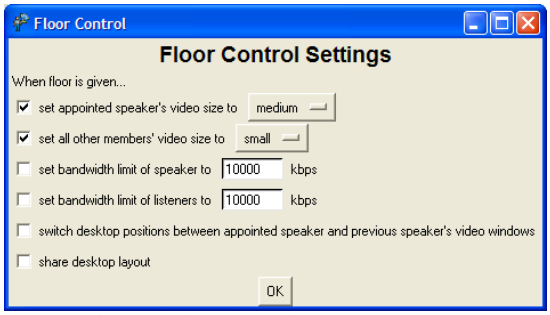


Figure 24. Floor control settings window.

Floor control deals with the situation where there are many participants in a session. As each participant has its own receiver window the screen soon gets filled with such windows. To bring order to this, one can let Confero bring order to the windows. The first two check boxes set the size of the speaker and non-speakers respectively. The next two check boxes limit the bandwidth of speakers and/or listeners. This can be a way of making the speaker achieve a higher frame rate and non-speakers have a lower frame rate in order to increase the bandwidth of who is talking at the moment. With the next to last check box you can have Confero switch the speaker to a fixed position on the screen. This way you have the speaker at the exact same position regardless of who is the speaker. The last check box is useful if you would like to share your specific window layout with the other participants. Of course, only one of the participants should do this.

Video options

The Video tab

The third tab, *Video*, shown in Figure 25, contains various video-related settings. The first option sets which kind of video device Confero should use to grab video from. On the Windows platform, the "Generic DirectShow" option is usually the preferred alternative, e.g. for USB-cameras. If you have a DV video camera connected via the IEEE1394 interface, select "DV". If you happen to have any type of Matrox video grabber card installed, select "Matrox" to use this as the grabber device.

The *Automatic transmit on start-up* setting controls whether video transmission should start automatically once a session has been established. *Start in paused mode* sets a video transmitter in paused mode when it's started. *Start minimized* starts the video transmitted window minimized. *Automatic receive* will make the video receiver window pop up automatically whenever a new video stream is received.

Other options deal with the video window size, the video compression algorithm and various video quality parameters. You can also select a maximum bandwidth that the transmitted video stream should be kept below. To do this you must also check the checkbox labelled *Restrict video bandwidth*.

When a video transmitter is started, the default window size and corresponding video resolution is controlled via *Default transmitted video size*. The default frame rate, quality (compression level) and codec is controlled by the next three choices.

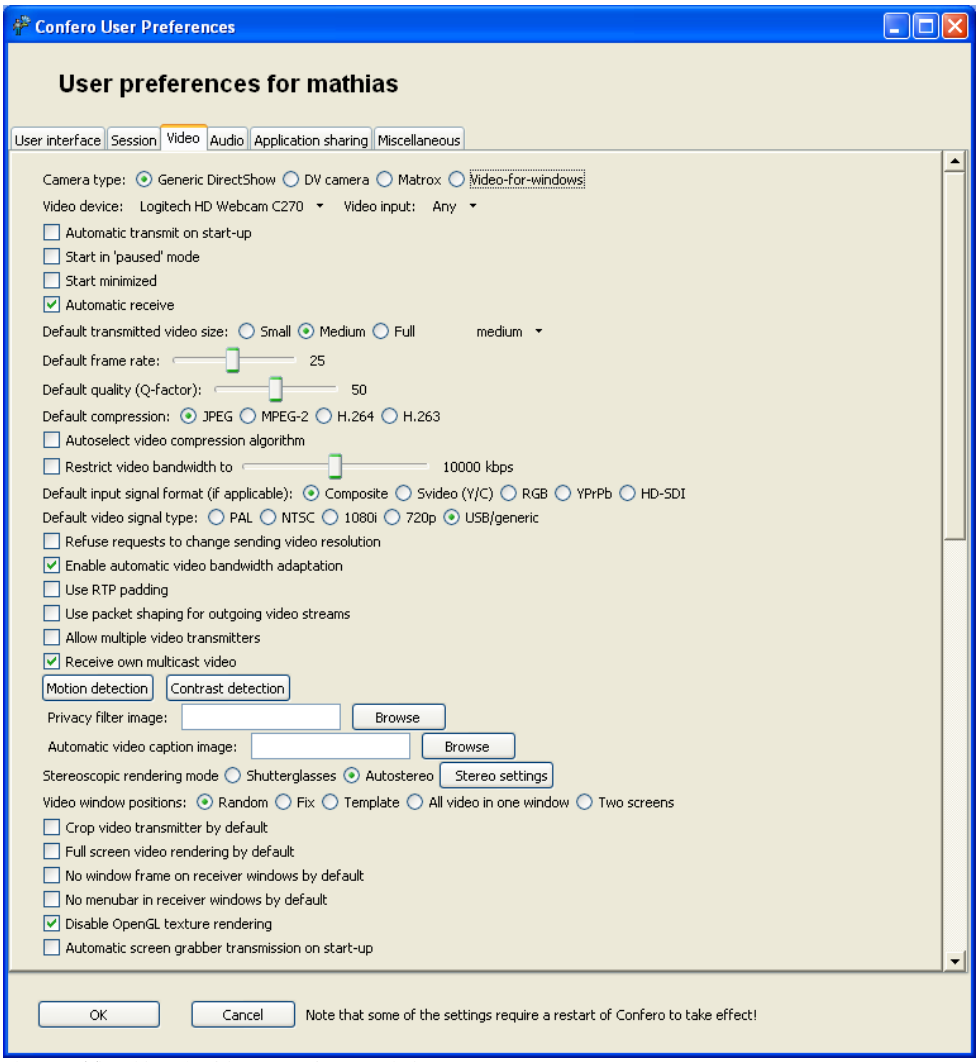


Figure 25. The Video tab of the user preferences window

To limit the bandwidth of transmitted video streams, the *Restrict video bandwidth* slider can be used to set a default bandwidth limit.

Video signal settings

If you use a more elaborate video grabber you can configure what kind of signal is input to the video grabber card. *Default input signal format* sets which signal format is expected. If you do not choose the correct one you might end up with no video. *Default video signal type* identifies which kind of video signal or camera type is used. These settings can be done momentarily from the menus in the video transmitter window. For more information on this you should consult your video card guide or camera guide.

You can choose to disallow the receiver of your transmitted video to change your sending size by checking the box *Refuse request to change sending video resolution*.

Enable automatic video bandwidth adaptation allows the bandwidth of the transmitted video stream to be changed based on available network bandwidth.

Use packet shaping for outgoing video streams enables a smoothing algorithm to pace out the RTP packets of video streams, to reduce burstiness, at the cost of slightly higher latency.

Under some circumstances the RTP video traffic generated by Confero might need *RTP padding*. If you experience a large packet loss when using Confero you can try this to see if it helps. The packet shaping mechanism can also be an option.

In order to use both the screen grabber and a camera at the same time you need to check *Allow multiple transmitters*. If this is not done you will need to close one of the transmitter windows before opening a new one.

If you use multicast form multipoint communication, you can choose to see your own sent traffic. This is mainly used as a debug feature. Check *Receive own multicast video* to turn the feature on.

Motion detection

Clicking the *Motion detection* button will show the window in Figure 26. In *Activity zone* you choose on what part of the video should be sensitive to motion detection. Setting the *Sensitivity threshold* is done using a calibration phase where there must be no motion in order to set a threshold. Press Ctrl-n to start the calibration phase. The calibration phase takes a few seconds to complete and the end is indicated with a new *Sensitivity threshold* value in the *Motion detection settings* window (on the right). The *Recalculate interval* tells how often motion should be detected. Hold-down timer controls the delay from the point when motion or no motion is detected and to when an action should be taken or turned off. Setting this value too small can make actions trigger more often than desired and specifically, being triggered even though the conditions have not really changed.

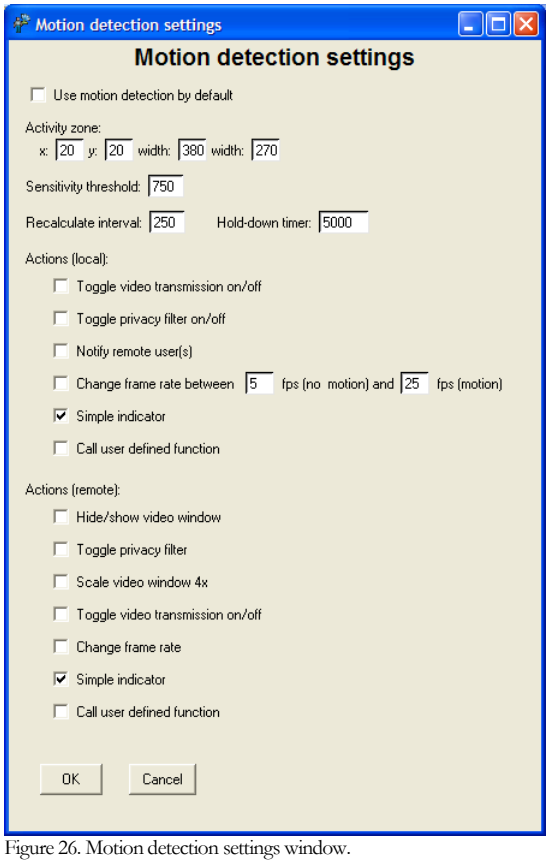


Figure 26. Motion detection settings window.

The set of check boxes indicates what should happen locally and/or remotely when motion is detected. The last option, *Call user defined function*, is primarily for

application developers. For more information on this please contact Alkit Communications. In order for the remote actions to take place you must enable *Notify remote user(s)* in local actions. If not no events will be sent over the network.

Contrast detection

Clicking the *Contrast detection* button will open a similar window to Figure 26 with the exception that you have a choice on what algorithm to use for contrast detection. The algorithms in question are *Michelson* and *Laplacian high-pass*. The main difference is that instead of detecting motion, events are triggered by an object coming into focus of the camera. To calibrate contrast detection, press Ctrl-o when an object is in focus and what for the *Sensitivity threshold* to be updated as this is the indication that the calibration phase is over.

The privacy filter image to use can be configured with *Privacy filter image*. If automatic captioning is desired, it will be enabled by selecting an image in *Automatic video caption image*.

Stereoscopic rendering mode selects between *Shutterglasses* and *Autostereoscopic rendering* when stereoscopic video is presented.

The *Video window positions* setting defines how video windows are presented onscreen. *Random* pops up a new window for each signal and places the window at a random screen position, chosen by the window manager of the operating system. *Fix* arranges the windows in a predefined order; *Template* lets the user specify the window positions specifically using a configuration file; *All video in one window* renders all video signals in one big window, side-by-side, and *Two screens* uses full screen rendering on two displays.

The next four options control various other aspects of the video window presentation onscreen.

Automatic screen grabber transmission on start-up enables automatic transmission of video from a preconfigured screen grabber.

The bottom part of the Video settings tab (not shown in Figure 25) contains settings for automatically saving video to disk and for user defined video buttons.

The Audio tab

Audio options

The fourth tab, *Audio*, shown Figure 27, contains settings related to audio transmission and playback. *Automatic transmit on start-up* controls whether the audio is to be transmitted automatically whenever a session is initiated.

You can set the default audio input and output devices to be used, or you can let Confero rely on the default device configured in the operating system (e.g. *Use Windows's default audio device*). The default playback volume and microphone gain can be set via the corresponding sliders. The audio encoding to use by default can be selected from the range of supported audio codecs (see Chapter 5 for details).

You can select whether the audio control panel should display advanced options or not by default *Show advanced controls by default*.

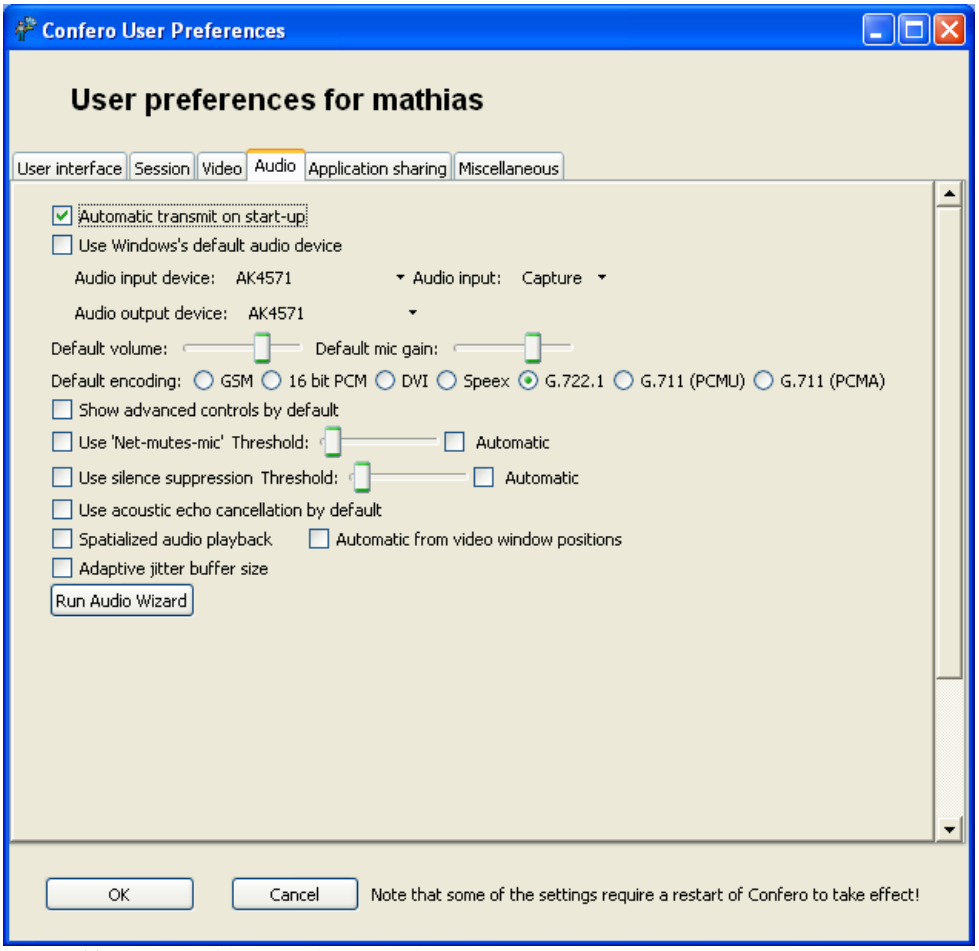


Figure 27. The Audio tab of the user preferences window

Next, the *Net-mutes-mic* and *Silence suppression* features can be configured.

Acoustic echo cancellation can be enabled by default, which is useful if you are not using a headset and the other party complains about echoes.

Spatialized audio playback enables panning of audio signals from different participants between the speakers to achieve directional audio cues. *Automatic from window positions* pans the audio playback of a participant in a way that depends on where the corresponding video window is placed on the screen.

Adaptive jitter buffer size lets the system dynamically adjust the size of the playout buffer depending on the observed variations in audio packet interarrival times.

The Audio Wizard can be started through the *Run Audio Wizard* button to help you configure your audio device.

The Applications Sharing tab

Application sharing

The fifth tab, shown in Figure 28, is concerned with application sharing.

The TCP port number used by the application sharing sub-tool can be configured here.

You can select whether Confero should ask you for a password for the application sharing server when you are sharing applications. If not, Confero will supply an automatically generated password when the application sharing service is started.

Automatically start sharing applications starts sharing applications automatically whenever a session is initiated. *Automatic application sharing window activation* automatically pops up the window showing applications shared by others, without requiring the *Applications sharing* checkbox of the Session Management window to be checked.

You can enable application sharing from a remote host. Just check the corresponding checkbox and type in the name or IP address of the computer from which you wish to share applications. Also type in the password that the application sharing server on the remote computer will be configured with.

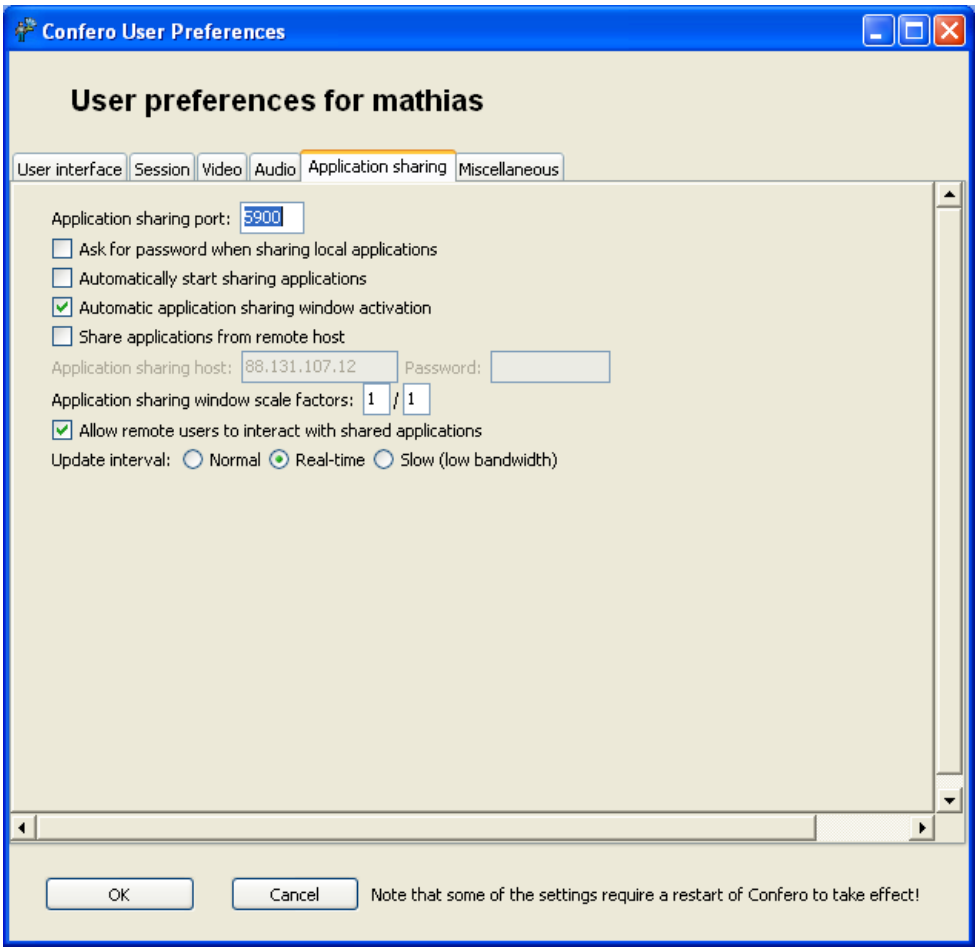


Figure 28. The Application Sharing tab of the user preferences window

The *Application sharing scale factors* can be modified to reduce (or increase) the size of application sharing windows.

The *Allow remote users to interact with shared applications* checkbox controls whether share applications can be controlled by mouse and keyboard by all participants, or only by the user sharing them.

Finally, the *Update interval* settings affect how frequently shared application windows are updated. This is a trade off between performance and bandwidth consumption.

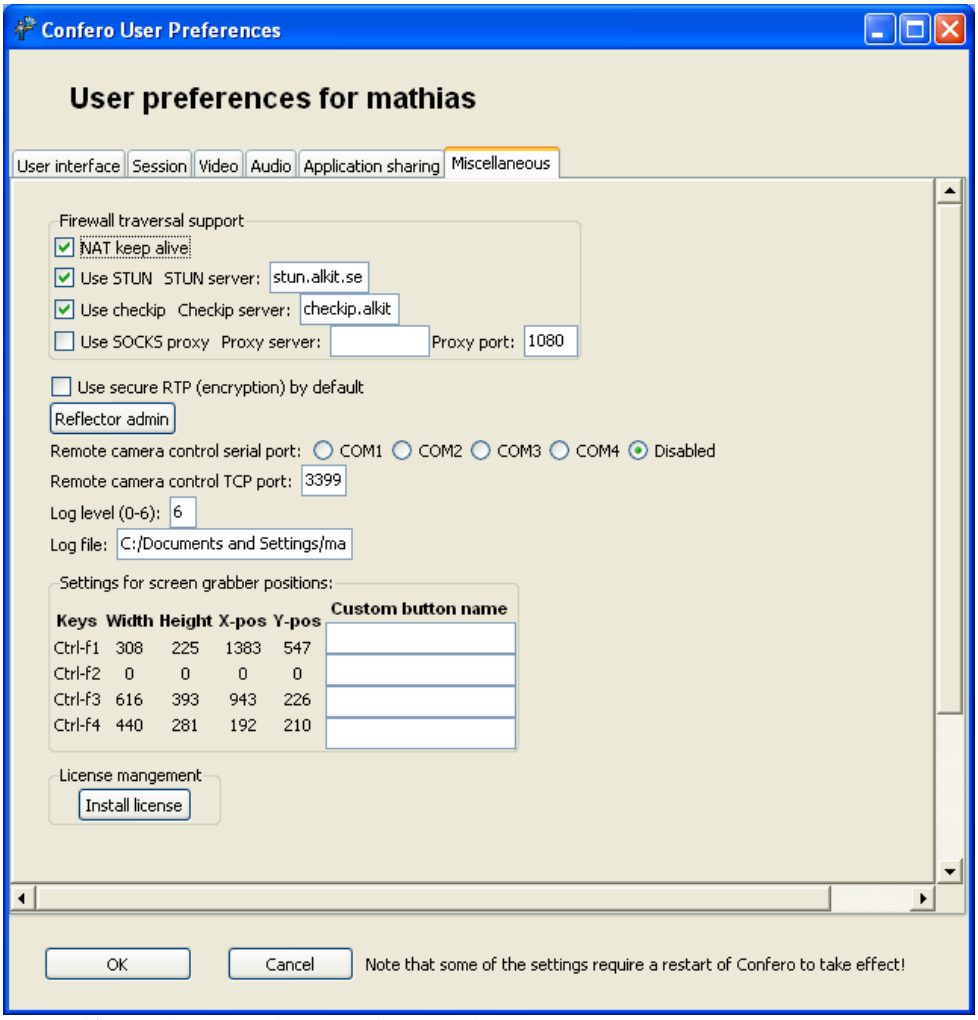


Figure 29. The Miscellaneous tab of the user preferences window

Miscellaneous options

The last tab of the User Preferences window is *Miscellaneous*, shown in Figure 29. You can enable support for transparent firewall traversal by checking the checkbox labelled *NAT keep alive* and one of *Use STUN* or *Use checkip*, depending on which mechanism to find the public IP address of the host is to be used. It is also possible to use a SOCKS5 proxy if one is available. The servers for STUN, checkip and SOCKS need to be configured, and in the latter case also the port number.

If encryption of media streams is required, check the *Use secure RTP (encryption) by default*.

The *Reflector admin* button, if present, gives you access to an administration interface for the RTP Reflector/Mixer *Alkit Reflex*. This is only relevant if you are a reflector administrator.

If remotely controllable cameras are used, you can set which serial port (COM port) your camera is connected to. You can also set the TCP port to which the other party should connect if they would like to control your camera remotely.

If logging of system events is wanted, you can choose which log level to use and which file to log to.

The screen grabber positions that you have defined are shown at the bottom of the *Miscellaneous* section along with a button for installing a new license file.

Summary

This chapter covered how to configure and manage your user information and user preferences.

Chapter 7

Using SIP Invitations

To initiate an unplanned communication session, you need a signalling protocol which alerts the other party and sets up the parameters needed for the communication. When using Confero, the protocol used for this call set-up signalling is the Session Initiation Protocol (SIP). This chapter will cover what is needed to send a SIP invitation, to set up a communication session, and how to receive an incoming SIP invitation.

Sending a SIP invitation in Confero is the equivalence of placing a call with your phone. Indeed, in IP telephony, which is increasingly replacing traditional telephony throughout the world, it is the same protocol, SIP, being used in both cases. The party receiving your SIP invitation will be alerted with a ringing sound and a window on the screen where he or she can accept or decline the incoming call. SIP is an abbreviation for *Session Initiation Protocol* and is a standardized protocol for session initiation and control over IP networks.

This chapter will start by describing how you send a SIP invitation in Confero, how to answer an incoming SIP invitation and some configuration issues.

Sending a SIP Invitation

There are in practise two different ways you can place a SIP invitation: The first is by using the Address Book or entering a SIP address using the *Quick Connect* entry. The second is when you have already chosen an address to connect to and select *Send SIP invitation* in the session management window (see Figure 30) However, to be able to do this you must already be connected to a *reflector*. If not, the button will

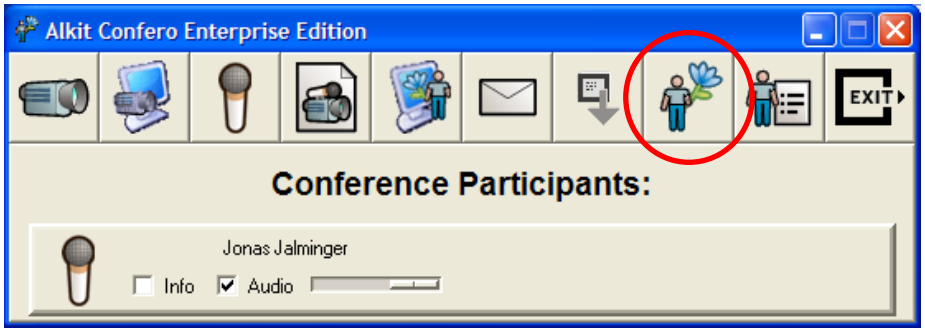


Figure 30. Send SIP Invitation button.

be disabled.

Sending a SIP Invitation using the Address Book

Adding a SIP-invitation address to the address book

To send a SIP invitation using the Address Book, you first add an entry to the address book. As previously described in chapter 3, *Using the Address Book*, you do this by selecting *Add entry* in the first window that appears when starting Confero. This time, however, choose type *Invitation (SIP)* instead of type *Host*. As before, at the top you enter the name of your preferred address book entry. Following that is the *SIP session name*, where it is up to you to freely choose a name for the session. Next, enter the *SIP Address* of the recipient of the invitation. A SIP address consists of a user name and a hostname or IP address. These two parts are separated by an @ sign. It is convenient to use an email address here, but it doesn't have to be. You must also supply a *SIP Server* address to connect to. A SIP server is simply a computer that knows how to handle SIP calls. This can usually be found out automatically, in which case "from SIP address" can be left in the SIP Server entry.

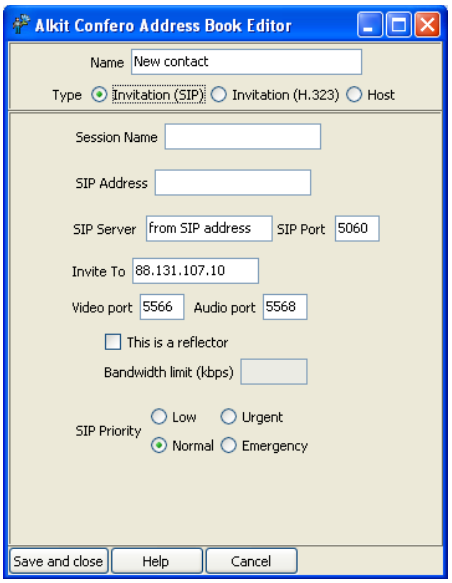


Figure 31. Adding a SIP address to the address book.

So far we have entered information about where the invitation should be sent; now you need to supply an address which the invited party should connect to and this is entered in the *Invite To* entry. This can be the machine you are at, a multicast address or a reflector. In the case of a reflector, the checkbox *This is a reflector* should be checked. Optionally, a bandwidth limit can also be specified.

If you are behind a firewall and want to connect to a computer outside the firewall, things might get a bit more complicated. A firewall allows only connections to certain ports. Connections made to other ports than the allowed is not possible and will not get through the firewall. If this is the case, read the section *Using SIP behind a NAT Firewall* on page 41.

Finally, there is also a possibility to add a *SIP Priority*. It is possible to filter out SIP-invitations if they are not urgent enough and this controls whether your invitation will get through or not.

Now click *Save and close* and you're ready to send your SIP invitation.

Sending a SIP invitation using the Invite button

The second way to send a SIP-invitation is to select the *Send SIP invitation* button in the session management window (see Figure 30.) This is typically done to invite more participants to an ongoing session. Selecting this button presents you with the window shown in Figure 32. In the *SIP address* entry you enter the SIP address of the participant to invite.

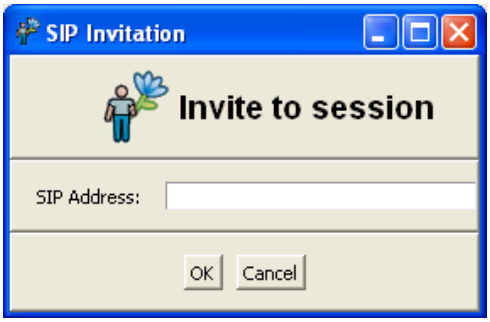


Figure 32. The SIP invitation window.

When the SIP call has been sent, the callee is notified by a ringing sound and a dialog to accept or decline the invitation (see Figure 35 on page 43). You will be notified the moment the other party either accepts or declines your invitation.

Pitfalls

There are a few pitfalls involved when using SIP invitations, and particularly the address you use to invite to. If you have established a point-to-point session with one party and would like to invite another participant, it is not possible just to add a third participant using the SIP invitation button. The reason for this is that when you start Confero you decide which address all packets should be sent to and this cannot be altered in an ongoing session. To do this you need to restart Confero and use either a multicast address or a reflector. To add participants to an ongoing conference session you must have connected to a multicast address or a reflector from the start. Remember to put the multicast address in the *Invite To address* entry if you use a multicast address, and not your computer's name or unicast IP address.

Using SIP behind a NAT Firewall

If you are behind a NAT firewall and you invite someone who is outside the firewall, it is usually necessary to put the externally visible name, or IP-address, of the firewall in the *Invite To address* entry in Figure 31. If you forget to do this, the other participant will not be able to connect, as the address you supply is only valid on your local network.

Note however that some NAT firewalls are SIP capable, which means they inspect SIP messages and automatically translate the IP addresses. If you have a firewall like this, you don't have to supply the public IP address, the firewall will do it for you.

Receiving and answering a SIP-Invitation

If someone sends you a SIP invitation, you will hear a ringing sound and a dialog will open where you will see who sent the invitation and the name of the session. You either answer *Yes* or *No* to accept or decline the invitation respectively.

In order for your computer to be able to receive and process SIP invitations, a software components known as a SIP User Agent needs to be running. The SIP User Agent of the Confero software suite is called *Alkit Invito*.

Using Invito

When you install Confero, a SIP user agent, called Invito, is also installed. Invito can be started when Confero is started by enabling this feature is the User Preferences (The Session tab, on page 30.) It is absolutely vital as without it you will not be able to receive and respond to SIP calls. Invito will continue to run in the background after Confero is exited. You can see that it is running by inspecting the System Tray in the lower right corner of the screen, as depicted in Figure 33. If the icon does not show, you need to manually start Invito. You can do this by entering the *bin* directory where Confero was installed and double-click on *invito.exe*. If you do not know where Confero is installed, use the search functions in the operating system you use to locate invito.exe (on Windows).

Figure 33. The system tray.

Right-click Invito icon for features

Invito has a few features of its own. Right-clicking the invito icon in the system tray reveals these, accessible from the pop-up menu shown in Figure 34. We'll cover each feature from top bottom.

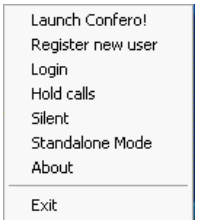


Figure 34. The system tray menu for Invito.

Launch Confero!. Simply starts Confero.

Register new user. This lets you add a new user to the SIP registrar.

Login. This logs you in to a SIP proxy server.

Hold Calls. You won't be bothered with any calls while you hold the calls. When you decide not to hold calls anymore, select it again and your calls will not be on hold.

Silent. Do not play any sound when someone makes a call. Only the answering dialog window will be opened.

Standalone mode. If you don't want to register your SIP address on a SIP server, or no SIP server is available to you, you can still use invite in standalone mode, to accept directly incoming connections. This is a toggle function.

About. Opens a window showing which version of Invito you are using.

Exit. Exits Invito. When you do this, you will no longer be able to accept incoming calls.

Answering incoming calls

Whenever an incoming call is received by invite, a ringing sound is played (unless silent mode is enabled) and the dialog window show in Figure 35 is displayed.

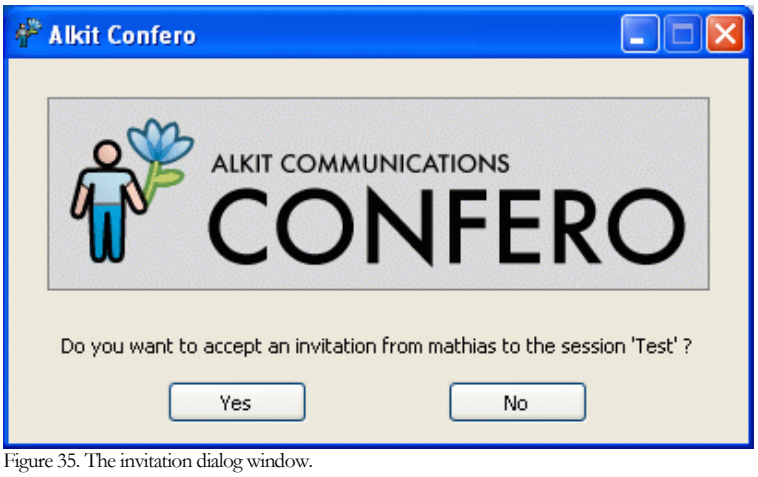


Figure 35. The invitation dialog window.

Click *Yes* to accept the invitation and *No* to decline.

If the call is accepted, Confero proceeds to the session management window and media streams are established.

Summary

In this chapter we have seen how SIP invitations can be used to set up communication sessions. Sending an invitation is done either by using the address book or the SIP invitation button, depending on the invitation is to a new session or an ongoing session. SIP calls are received by the SIP User Agent Invito, which alerts the invited user and starts Confero.

Chapter 8

Streaming Media in Communication Sessions

In situations where you have stored video and/or audio clips you would like to share with other participants, Confero can easily do this for you. Typically, you have earlier recorded a video sequence that you would like to share with others. This is accomplished by connecting to a streaming media server, Alkit Servo, part of the Confero Collaboration Software Suite.

Assume you have recorded an instructional video which is going to be used on your corporate intranet. Before publishing it, however, you want to discuss it with your team members. Some passages need to be explained in detail, so it would be nice pause the video sometimes to go into detail and then resume playback. You may also want to fast forward or go back depending on questions from your teammates. This would be a perfect situation to use Confero with the streaming media server Servo where you as team leader control the video and can stop at certain points and comment. This chapter takes you on a tour of how you accomplish this in just a few simple steps.

Prerequisites

Before you can start to stream media, you need to set up the *Alkit Servo* on a computer, which is the streaming media server that controls the stream. The instructions on setting up such a server are not covered here. You should instead turn to the manual coming with Alkit Servo or talk to your local power user of Confero.

Streaming Media

Streaming media

You establish a connection to a streaming server by selecting the *Connect to video server* button in the toolbar in the session management window. The window that opens is shown in Figure 36. To the left you have an overview frame where you see where in the connection process you are. In Figure 36, all steps have a question mark, meaning that all steps are left to do.

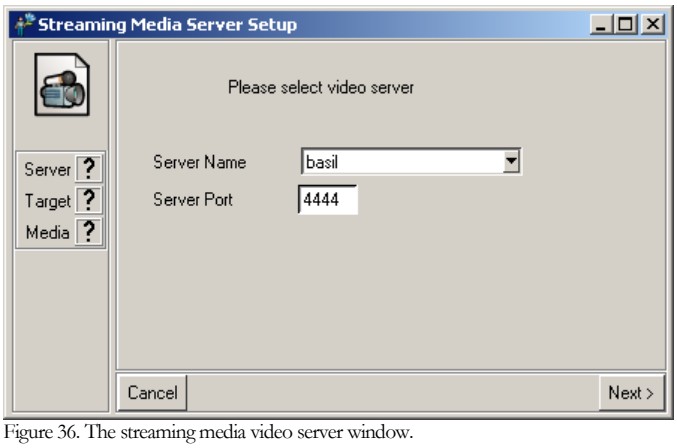


Figure 36. The streaming media video server window.

In the *Server Name* entry you enter the streaming server of your choice. It can be the computer you are at, if you run Alkit Servo locally, or it can be another computer running Alkit Servo. You can change the port to connect to by changing the preset port number in the *Server Port* entry, but usually it is not necessary to change the port. When everything is set to your satisfaction, select *Next*.

This takes you to setting up the target, which means where to send the video. Figure 37 shows this step. Decide where to send the stream by entering an address in the *Streaming Address* entry. You can stream the media to several addresses at the same time by adding addresses in the entry separating each address with a space. It is allowed to mix both multicast addresses and individual computers. If the streaming address is a reflector, you also need to check the box *Stream via reflector*. When you are finished, select *Next*.

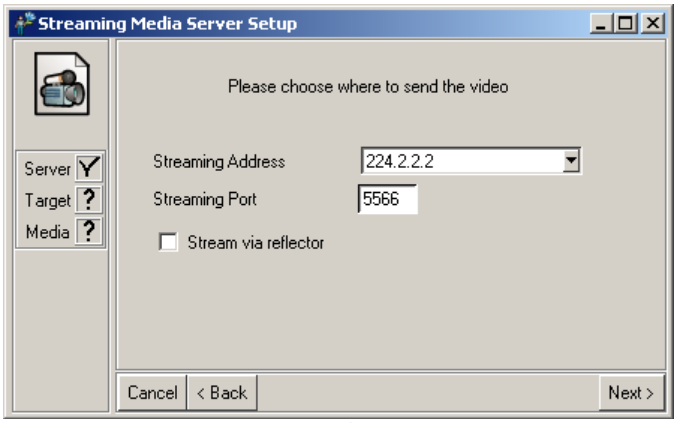


Figure 37. Deciding where to send the video/audio stream.

The last window before you can start to stream anything is where you choose what file to stream. Supported media files/encodings are:

- QuickTime MJPEG movies
  (Use 'QuickTime Still JPEG' movies when streaming to Alkit Confero)

- Wave audio files
  (Use 16 kHz, 16 bits-per-sample Linear PCM .wav files when streaming to Alkit Confero)

Select the file you would like to stream and select Finish, see Figure 38.

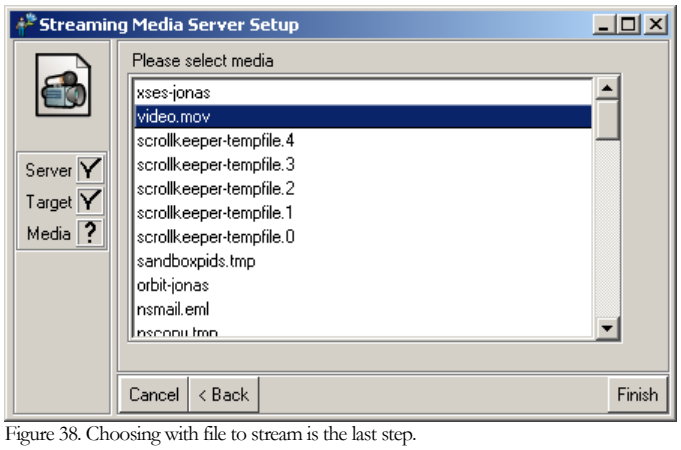


Figure 38. Choosing with file to stream is the last step.

When you have completed the last step, a control panel window will open, see Figure 39. Here you can start, stop, and pause the video/audio, and much more. Checking the *Loop* checkbox will start the stream over from the beginning automatically when the end is reached.

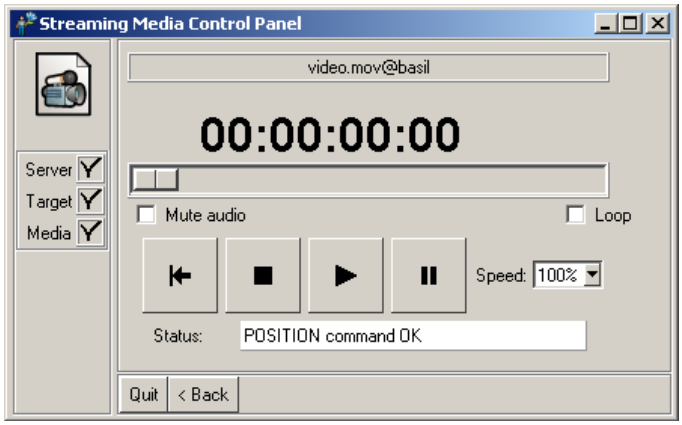


Figure 39. The streaming media control panel.

If you use a streaming server on another computer, don't be alarmed when the stream has a different sender address than your computer's address. This is perfectly correct because you have instructed the server to send the stream for you. To view the stream, each participant simply selects *Video* in the presence awareness box for the streaming server, once again in this case basil.

If you at any point would like to change any of the settings, select *Back*. This will move you one step back in the process described above.

Chapter 9

Text Messaging

It can sometimes be convenient to send text messages to each other in a communication session. This is done in Confero using the Text Messaging Tool.

When you talk on the phone and you need to exchange data where it is essential that you get it correctly, such as a phone number, you get a piece of paper and a pen to write numbers down as you hear them. Just to be sure, you repeat the numbers and the person you are talking to confirms the numbers or you correct them. With Confero, you can use the *Text Messaging Tool* instead, no pen and paper is needed!

Sending and Receiving Text Messages

Exchanging text messages

To send and receive messages, simply select the *Text Messaging* button depicted to the left. The window in Figure 40 opens and you can start to send and receive text messages. In the top text frame you get incoming messages, and in the lower text frame you enter your messages to send. Each incoming message is formatted with a sender header followed by a colon. The sender header tells you who sent the message. You decide whom to send to by selecting the appropriate participant in the *Recipient* entry. One of the selections is *All members*, which of course sends your message to every participant.

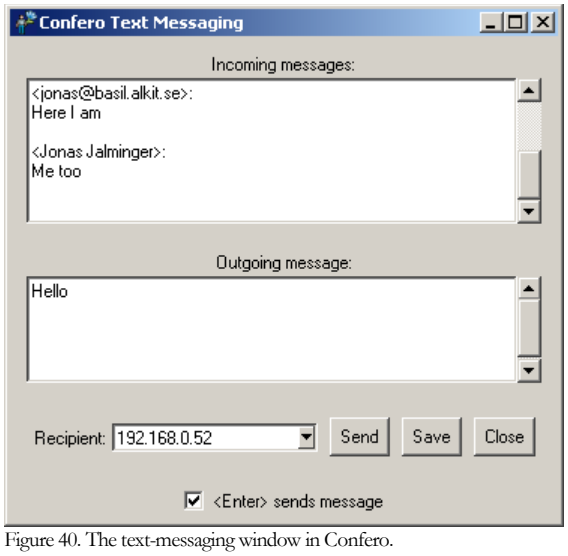


Figure 40. The text-messaging window in Confero.

If you would like to write longer messages without sending each typed part every time you hit enter, uncheck the box *<Enter> sends message*. To send the message, you now need to press the *Send* button.

You can save the all received messages by pressing the *Save* button. To close the window, press *Close*.

Chapter

10

Sharing Applications

Sharing applications during communication sessions is a powerful feature. This is accomplished by using the application sharing tool of Alkit Confero.

To share applications is very useful. Assume that you are two professionals discussing a model of something. This model was created with a visualization tool where you can rotate, zoom and do lots of other things. When you discuss the model, both of you would like to control the model in turns to zoom in on the parts you find interesting. By using the *Application Sharing* tool of Confero, you can do this.

This chapter will explain how to use the application sharing tool of Confero to share the view and control of virtually any desktop application between two or more Confero users.

Using the Application Sharing tool

Start sharing

You start sharing an application by pressing the button shown to the left, in the toolbar of the session management window. The window shown in Figure 41 will appear, instructing you how to select which window on the desktop to share. You select a window to share by right-clicking anywhere in the window.

Figure 41. The application sharing window selection dialog.

Stop sharing

When an application has been shared, the application sharing button in the session management window will display a red outline. Pressing the button again terminates the application sharing.

Viewing and remotely controlling the shared application

When a window has been selected for sharing, all participants of the conference session will receive an *Application sharing* checkbox in the presence awareness box corresponding to the user who is sharing the application. This is shown in Figure 42. When checking the application sharing checkbox, the window selected for sharing will appear on the desktop. When this window is given the mouse and keyboard focus, the application running in the window can be controlled remotely.

Figure 42. The application sharing checkbox

Working with the Alkit VNC server

The Alkit VNC server

We have just described how to share an application, and how to take part of a shared application on another computer. The application sharing feature in Confero is based on the sub-tool *Alkit VNC*, a customized version of the Virtual Network Computing (VNC) software, originally developed by AT&T Laboratories, Cambridge.

When you start sharing an application on your own computer, Confero arranges for the Alkit VNC server to be started. You can see that the server has been started by watching the system tray at the lower right hand of your desktop (see Figure 44).

Figure 44. The Alkit VNC Server system tray icon.

A right-click on the VNC icon in Figure 44 opens the menu shown in Figure 45.

Selecting *Properties* opens a window shown in Figure 46, where you can configure some settings controlling the operation of the VNC server. You can leave most settings as they are. If you do not want others to type into your shared window and move your mouse around, select *Disable Remote Keyboard & Pointer*. You can also control how VNC handles screen updates, using the options available in the *Update Handling* frame. To get the best performance when sharing different applications, you sometimes need to play around with these settings until you find the best settings. When you are finished, press *OK*.

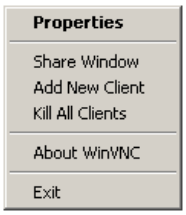


Figure 45. The Alkit VNC Server menu.

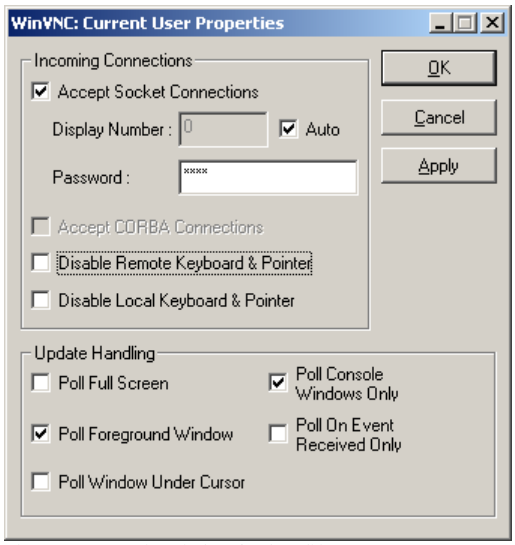


Figure 46. Properties window for the Alkit VNC Server.

If you select *Share Window* in the menu in Figure 45, you will once again be confronted with the window selection dialog in Figure 41. You can now change which window you wish to share, if you like. Note that you can share the full desktop of your computer by right-clicking the desktop backdrop. Use this with care, since this often means that you will share the video windows you have on your desktop. Sharing video windows this way consumes a lot of bandwidth and generally does not work well in terms of the quality of the shared video. Note that if you want to share a video clip stored on disk with your fellow conference participants, you should *not* use the application sharing tool, but rather use the Alkit Servo media streaming server discussed in chapter 8 or use the screen grabber function explained in *Screen grabber*

Transmitting Screen as Video on page 23.

Chapter 11

Transferring Files

In a distributed collaborative work session it is often very convenient to be able to easily share files. This can be done with the file transfer tool of Alkit Confero.

Consider a situation where you are engaged in a collaborative work session using Alkit Confero. Maybe you are jointly producing a text document or some kind of digital presentation material. Of course you will then need to distribute the document to your co-workers. You can do this with very easily with the File Transfer tool in Confero.

Using the file transfer tool

Sending a file

The file transfer tool in Confero will appear a little bit different depending on whether you are using a reflector with multipoint file transfer functionality enabled, or not. Whichever applies to you, you initiate sending of a file by pressing the *File Transfer* button in the session management window.

Point-to-point file transfer

If you are using Confero in point-to-point mode, or if your reflector do not support multipoint file transfer, you will see the window depicted in Figure 47.

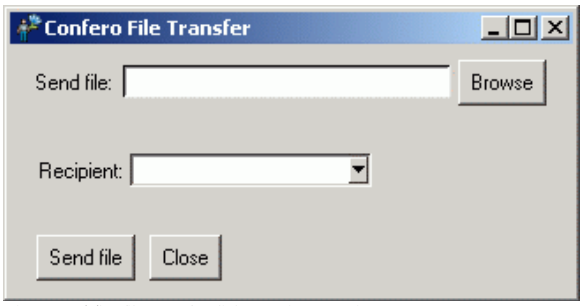


Figure 47. The file transfer dialog (point-to-point)

Press the *Browse* button to bring up a file selection dialog, where you can select which file to transmit. Then select the conference participant you wish to send the file to in the *Recipient* dropdown list. You can also type in the hostname or IP address of the computer to which you want to send the file. Note that the receiving computer must have an instance of Confero running in order to be able to receive the file. The receiving computer must also be directly reachable from the transmitting computer.

Then press the *Send file* button to send the file, or *Close* if you have changed your mind.

Receiving a file (point-to-point)

When a file is being sent to you, you will be asked if you want to receive the file, as shown in Figure 48.

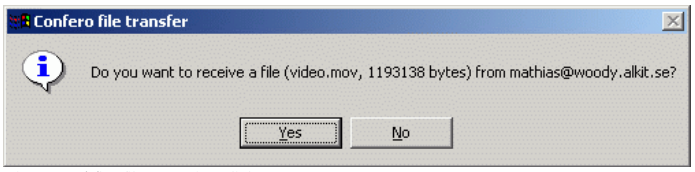


Figure 48. The file reception dialog.

Press the *Yes* button to receive the file, or the *No* button to decline the file transfer. If you accept the file, you will be prompted with a file selection dialog to select where to save the file.

Multipoint file transfer

Multipoint file transfer via reflector

If you are using a reflector that supports multipoint file transfer, you will see the window depicted in Figure 49. To upload a file press the *Browse* button and select the file. Press *Send file* to actually send it. When the file has been uploaded it will be listed in the *Download* file list. Any participant in the session can now download it individually by selecting it from the list and pressing the *Download file* button.

When you don't want the file to be available for download anymore, select it and press the *Delete file* button.

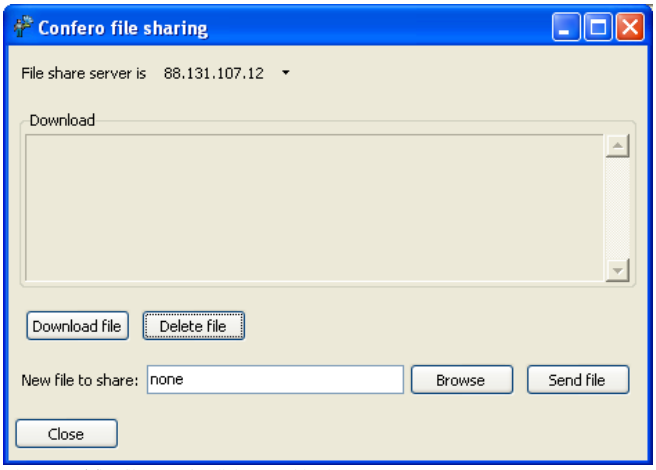


Figure 49. The file transfer dialog (multipoint)

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