



TrueConf Group

User guide

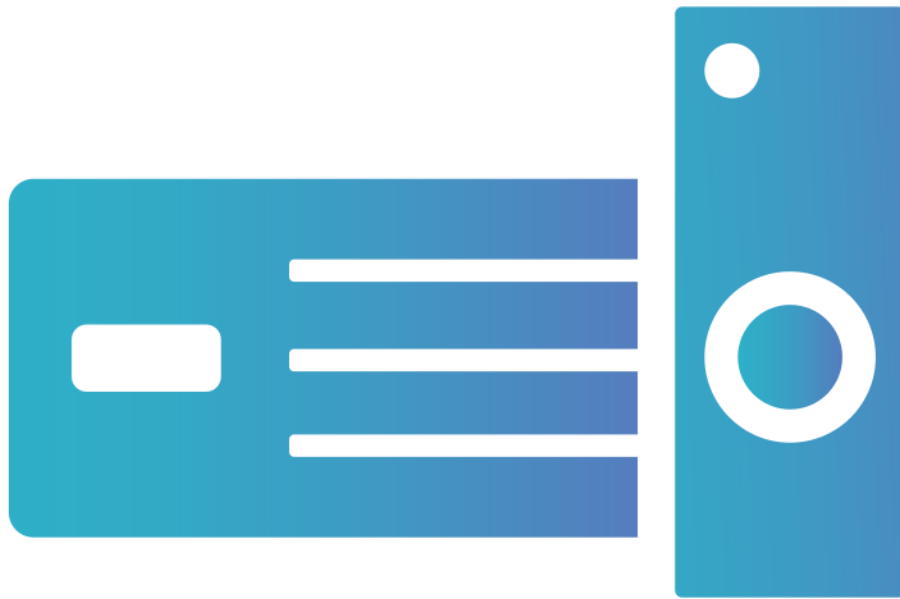


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1. What Is TrueConf Group?

1.1. Endpoint Purpose

TrueConf Group is a video conferencing system for small, medium, and large meeting rooms.

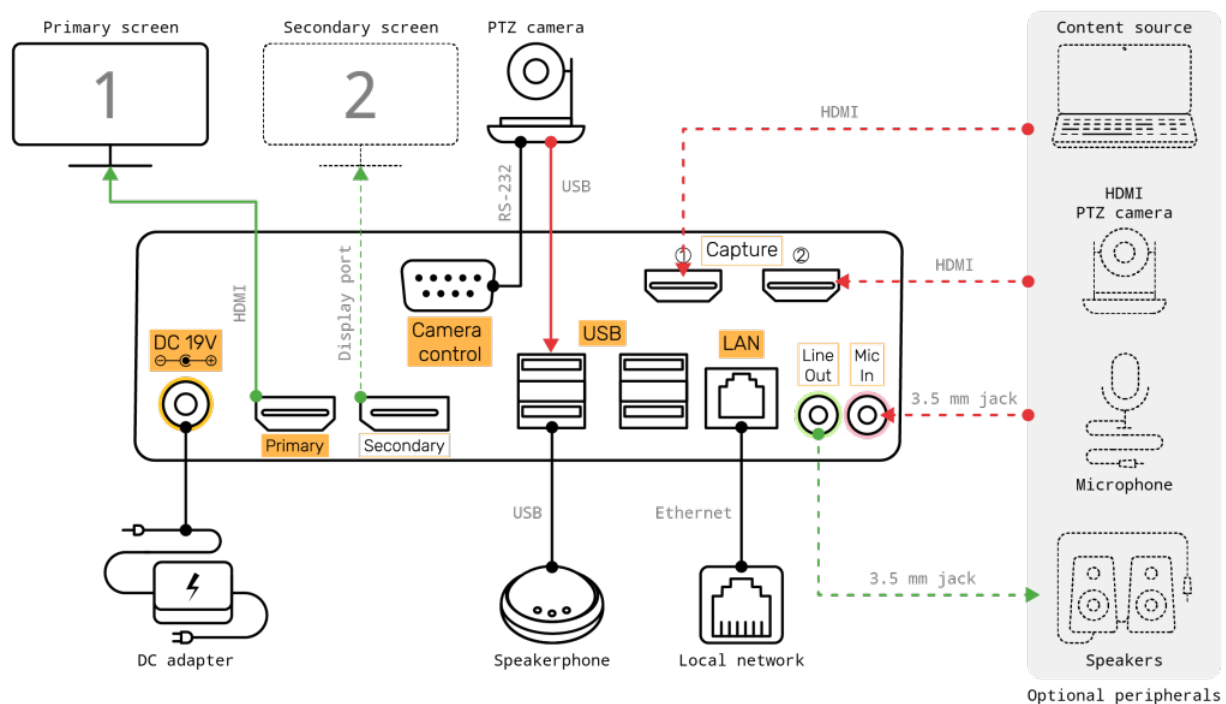
With TrueConf Group, you can deploy a ready-to-use system to organize high quality video conferences (up to 2160p) depending on your configuration. The endpoint supports SIP, H.323, RTSP, and RTP protocols and may have a built-in MCU for up to 12 connections.

You can use TrueConf Group to:

- Make video calls
- Organize video conferences (if built-in MCU is enabled)
- Record video meetings
- Capture and share content from USB devices and video capture cards
- Stream conferences to third-party platforms
- Connect NDI and VNC video sources
- Control the system using web interface
- Use additional features when integrating with TrueConf Server and TrueConf MCU
- Simultaneous connection to two different networks

Thanks to modular configuration, TrueConf Group is compatible with a number of peripheral devices:

- Any compatible PTZ cameras via USB 2.0/USB 3.0/HDMI interfaces that support RS-232 (Clevermic VISCA, Sony VISCA, Pelco-P, Pelco-D) or USB control
- USB speakerphones
- Analog playback or audio capture devices
- Monitors via HDMI and DisplayPort
- USB keyboard



Our managers will be happy to provide you with a free consultation about the TrueConf Group kit that suits your needs best. Please [contact our sales department](#) to learn more.

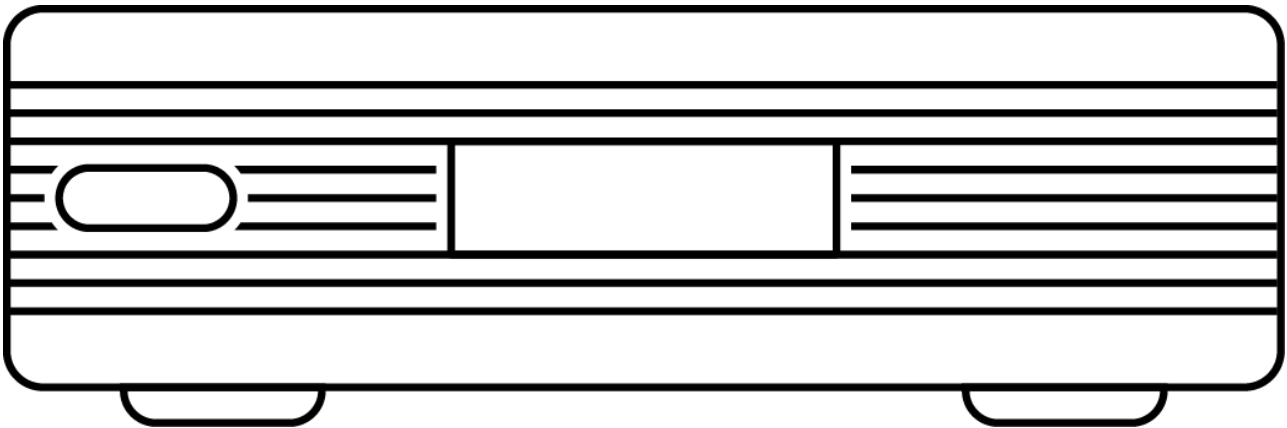
1.2. Configuration

TrueConf Group comes in different kits that may include:

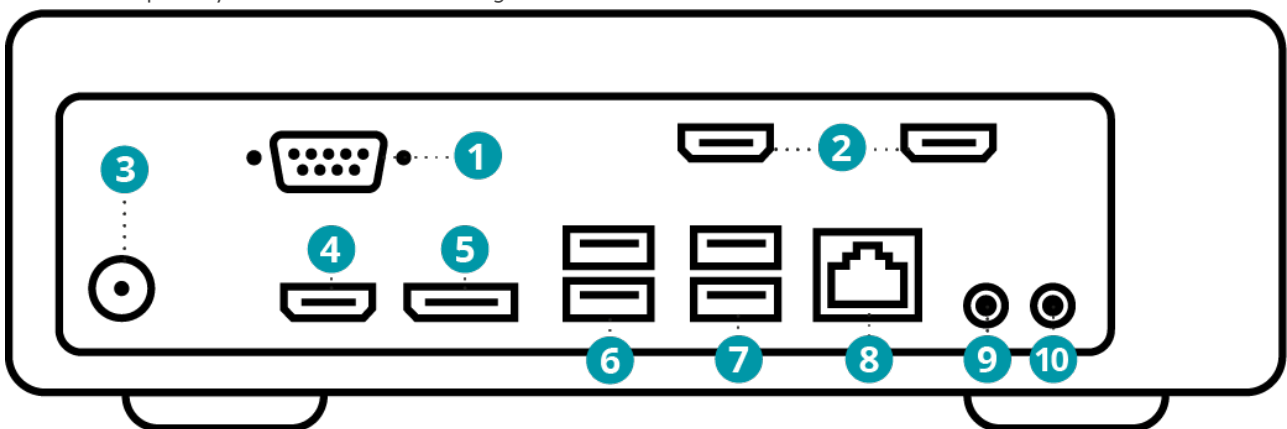
- Video conferencing endpoint (with an optional built-in MCU)
- Built-in capture card with two HDMI inputs (optional)
- Remote control
- AV peripherals (e.g., PTZ camera and speakerphone).

1.3. General Description

TrueConf Group is placed into a metal case. The power button is located on the left side of the front panel, while the IR receiver for [remote control](#page1-remote-buttons-scheme) can be found on the right side, behind the decorative plastic panel.



On the back panel you can find the following connectors:



1. RS-232 to control PTZ camera
2. HDMI inputs to capture content or connect HDMI cameras (depends on your kit)
3. Power connector
4. HDMI output to connect the main screen
5. DisplayPort to connect an additional screen
6. USB 3.1 to connect AV peripherals
7. USB 2.0 to connect AV peripherals
8. RJ-45 for Ethernet connection
9. Additional audio output to connect an audio output device
10. Additional audio input to connect an analog microphone

2. How to control TrueConf Group






There are several ways to control the endpoint:

- In meeting room:
 - With a remote control (an IR receiver can be found on the front panel)
 - With hotkeys on the USB keyboard connected to the endpoint.
- Remotely:
 - Through the [web interface](#) available in the local network
 - With the Android application TrueConf Room Discovery; you can request the latest version of the apk file from [TrueConf technical support department](#). Check our [TrueConf Room documentation](#) to learn how this application can be used.

The remote control is powered by two AAA batteries (included in the package).

2.1. Home Screen

Once you have turned on the device, TrueConf Group home screen will be displayed:

- Upper part of the screen: Local network connection state (IP address of the endpoint if connection is successful or **Network unreachable** otherwise), date, time and notifications panel. Besides, in the upper part of the screen, users can check the status of SIP/H.323 registration:
 - [SIP registration](#): if successful, you will see the endpoint's name on the SIP server, e.g., `SIP: meeting-room`. Otherwise, an error code will be displayed, e.g., `SIP: 200 Unregistered`
 - [H.323 gatekeeper registration](#): if successful, you will see the endpoint's name on the H.323 gatekeeper, e.g., `H323: meeting-room`. Otherwise, an error code will be displayed, e.g., `H323: TransportError`.
- In the central part – the main menu with options:
 - **Dial**
 - **Call history**
 - **Address book**
 - **Configuration**
 - **Calendar.**
- Lower part of the screen: notification icons
 - Muted microphone 
 - Disabled audio output device 
 - [Conference recording](#) 
 - [RTMP streaming](#) 
 - [SAP streaming](#) 
- Video from the webcam connected to the endpoint displayed in the background.

To go to any section in the main menu, you need to move the focus to it by using the arrow buttons on the remote control or keyboard and [press OK](#).

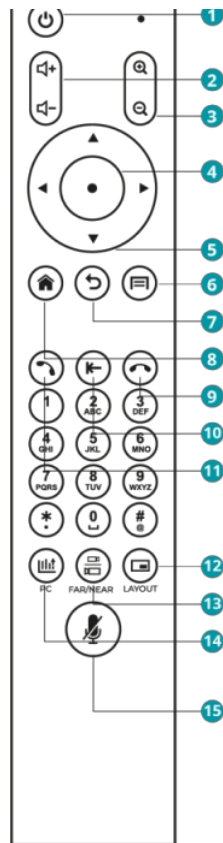
To choose an item in the drop-down list or enter text, you need to move the focus to the corresponding element and press [OK](#).

In addition, you can use the onscreen or regular keyboard to enter text. To call the onscreen keyboard, focus on the field and press [OK](#) on the remote control.

Read more about different sections of the menu below (see [Setting Up](#) and [How to control TrueConf Group](#) sections).


2.2. Remote Control Keys





The remote control has the following keys:

1. Turn off the endpoint
2. Adjust the volume level of [the endpoint speakers](#)
3. Zoom the image when controlling a PTZ camera or showing slides
4. Central key of the navigation box (**OK** button):
 - Press the selected button on the screen.
 - Expand the selected list on the screen.
5. Arrow keys:
 - In the menu – switching between UI elements
 - During a call or conference – PTZ camera control.
- Depending on the usage scenario:
 - In the main menu: press to go to the [address book](#); press again to open the virtual keyboard and quickly add a new contact
 - During a video call: open the context menu to manage your call.
- Return key:
 - In the main menu: go back to the previous section; in the upper menu: hide the menu
 - During a video call or conference: end the meeting.
- Go to the main menu
- Hang Up:
 - During a video call: end the meeting
 - During a group video conference: choose and end one of the connections
 - In the menu: return to the previous section; in the upper menu: hide the menu.
- When entering characters or using the onscreen keyboard: delete the last typed character.
- Call key:

- In the address book or call history: call the selected user
- In the main menu: Open the [call menu](#).
- [Change video layout](#) during a call or conference.
- During a call, switch control buttons (arrows and zoom buttons) between different content sources:
 - Your PTZ camera
 - Other user's PTZ camera
 - Shared slides.
- Choose a device to [share content](#).
- Mute microphone ( icon will appear at the bottom of the screen)

The [onscreen controller](#) with the same features is also available in the web interface.

3. Before You Begin

This section shows how to configure initial settings for the TrueConf Group endpoint by using the remote control. For more convenient administration with extended features, we recommend using the [control panel](#), accessible via the web interface.

By default the access to the control panel may be unavailable; so, when [the endpoint is connected to the local network](#), you may need to [set access rights](#). Then, you will be able to configure all settings in the browser.

Go back to default settings.

3.1. Hardware setup



Please note: turn off TrueConf Group before connecting any devices or equipment to it.

Connect the supplied equipment, screen, and network interface to TrueConf Group. In addition, you can connect a USB keyboard if you want to control the device this way. Then plug TrueConf Group to 110–240V grid with the power supply unit and turn it on by pressing the power button on the front panel.

Once you have turned on the endpoint for the first time, you need to configure your network connection parameters and [control panel access](#).

3.2. Setting the IP Address

To set the IP address, gateway and subnet mask for TrueConf Group, go to **Configuration → Network → IPv4**.

If your network has a DHCP network service, check the corresponding box to configure the connection automatically. Otherwise, configure the following parameters manually:

- **IP address**
- **Mask**
- **Gateway**
- **Primary DNS**
- **Secondary DNS**

If your network uses IPv6, you can configure it in the **Configuration → Network → IPv6**.

To finetune network settings, go to **Configuration → Network → Ethernet**:

1. In the **PHY** menu, you can disable the **Autonegotiate** feature and manually configure **Network speed (Mbit/s)** and **Duplex mode (half duplex or full duplex)**.
2. In the **IEEE 802.1x** section, you can configure connection via the IEEE 802.1x access protocol by specifying the login, password, and authentication method (MD5, PEAP, TLS, TTLS).
3. If the VLAN corporate network is used, you can configure the connection via IEEE 802.1q by specifying the subnetwork ID in the **IEEE 802.1q** section.

If the network connection is successful, the endpoint IP address will be displayed at the top of the screen.

3.3. Control Panel Access

To manage conferences remotely (from the web interface), go to the **Configuration → Network → HTTP**, enable **HTTP server** section and select the port (**80** is used by default).



In the [control panel](#), one can find the direct link to the [conference recording section](#). You can share this link with an operator so that this person could download conference recordings.

You can configure HTTPS access in the same way. If you need to restrict access to the control panel from the browser, specify the administrator login and password.



You can download the certificate and private key files for HTTPS only in the [control panel](#).

Once this is complete, you can access the control panel at the address specified in the [IP settings](#). The same address will be displayed at the top of the screen when working with the endpoint menu.

3.4. Language and Date

Language settings are available in **Configuration → System**.

This section also allows you to set date and time settings. This can be done manually, but TrueConf Group can connect to Internet time services and synchronize parameters via NTP. To that end, indicate the service address in the **NTP Server** field.

In the **Configuration → System** section you can also clear the [address book](#).



Please note that clearing the address book is irreversible!

3.5. Restricting Access to Settings

To restrict access to the endpoint settings for TrueConf Group users in the meeting room, you can set a password in **Configuration → System → Settings password** field.

Once the password has been entered, exit **Configuration → System**. The new access password will become active. To manage the settings, you need to enter this password using the remote control or connected keyboard, while you are in the main menu.



If you forgot the password to access the endpoint settings, you can change or reset it in the [control panel](#).

To set the password for accessing TrueConf Group from the [command line interface](#), go to the **API password** section and enter the combination of characters.

3.6. Go back to default settings.

Factory reset is available for the TrueConf Group terminal. This process involves a **complete firmware reinstallation** while preserving the license. To perform the reset, you will need a flash drive with a clean system image. To obtain it, please [contact us](#) using any convenient method.



Please note that a flash drive containing a complete system image is required; you cannot attempt to restore the terminal using just a firmware file copied to an external media.

To reset the firmware:

1. Turn off the terminal, but do not disconnect it from the power supply. A connection to the local network is not required.
2. (Optional) Connect a keyboard to the terminal. This can be useful if a remote control is not available.
3. Connect the flash drive with the system image to any USB port on the terminal.
4. Turn on the terminal using the remote control or the power button, and immediately afterwards, press the [remote "erase" button](#) several times until the recovery menu appears, or press **Backspace** on the keyboard.
5. The recovery menu will appear with the title **TrueConf Group Installation Program**.
6. Use the arrow buttons to select **Offline Installation** and press the **OK button on the remote** or **Enter** on the keyboard to start the process.

If you encounter any issues during the process, please contact [the technical support of TrueConf](#).

3.7. Changing devices



The reset settings functionality is not available in all firmware versions. [Contact](#) your TrueConf representative to check its availability on your device.

In some cases, you may need to reset most of the TrueConf Group terminal settings to their default values. For example, if you cannot access the settings due to a forgotten password or to quickly restore the factory state after unsuccessful configuration changes. In this case, all settings will be reset except those listed below:

- Address Book
- Call log
- Record video meetings
- logs;
- Network Interfaces
- Call settings

To reset the settings, you won't need a remote control or control panel, just access to the terminal itself:

1. Press the power button on the terminal case five times in a row. A warning window about resetting to factory settings will appear.
2. Press the power button again to confirm the reset.

4. Hardware Setup

Choose your device models from the sections below. If a device is not included in the standard configuration of TrueConf Group, its name will be displayed in square brackets in the list, e.g., **[USB] CleverMic**.

4.1. Screens

The standard version of TrueConf Group supports two monitors simultaneously connected to HDMI and DisplayPort sockets. To configure these monitors, go to the **Configuration → Video → Display** section.

If both screens are connected, choose the screen to display the main menu of the endpoint in the **Primary display** drop-down list.

If necessary, you can change the resolution of the main and secondary screen (in the **Secondary monitor** section) by selecting the corresponding options. To access the menu rendering section, select the **UI resolution** option. These settings will help you address potential compatibility issues when connecting two monitors with different resolutions.

In **Secondary display content** menu, choose what should be displayed on the additional screen:

- **Presentation:** Shared content
- **Local video:** Video feed from the webcam connected to the endpoint
- **Copy primary:** Copy the feed from the primary screen.

Using **Test video outputs** function: show numbers **1** and **2** on the displays connected to the endpoint — for the main and additional screens respectively.

4.2. Video capture

Go to the **Configuration → Video → Capture** section and configure settings for the web camera and other video capture device:

1. Select the source in the **Main device** list. The following options are possible:
 - Web camera;
 - Content from the capture card;
 - NDI stream – all streams found in the local network are displayed (i.e., the same streams that are available in the **Address book → NDI** section);
 - RTSP stream – all contacts found in [the local address book of the endpoint](#) are displayed (if they have an RTSP call string). If a contact has multiple RTSP addresses, the video will be captured from the first address in the list. So, to capture video from an RTSP stream instead of the camera, one first has to add this stream to the endpoint address book and select it in the settings;
 - VNC stream – the names of contacts from the address book are displayed if they have a VNC call string. The rendering rules are similar to the rules for RTSP.
2. If a web camera is selected, it will be possible to:
 - Change brightness, contrast, saturation, and other parameters of the captured video. To do it, go to the **Image settings** section. Please note that depending on the camera model, some settings may have no effect on the video.
 - Indicate **Max. camera resolution** to be used
 - Enable **Adaptive camera resolution** so that the endpoint could automatically adjust quality for the video captured from the camera.
3. If you use a PTZ camera, choose a control protocol in **PTZ control**.
4. If you control your camera via VISCA, indicate **Camera address**.
5. The endpoint allows users to control a camera connected to the local network via VISCA over IP. To send commands to such a camera, you need to specify its address in the **VISCA IP** field.



One can connect additional USB-to-RS-232 adapters to TrueConf Group to control multiple cameras simultaneously via VISCA, PELCO-D or PELCO-P protocols.

4.3. Microphone

Go to the **Configuration → Audio → Audio inputs** section.

In the **Default input** list, choose the interface used to connect the microphone. Say a few words, and if the equipment works correctly and is detected by the endpoint, **Microphone level** will change depending on the voice volume.

You can test your microphone in **Configuration → Audio → Diagnostics**. Click **Start** in **Loopback test**. Check the volume and playback quality of an audio signal from the [endpoint speakers](#). If the volume parameters are not suitable, e.g., the volume is too low, adjust the microphone volume in **Microphone gain** and try to enable **Microphone boost**.



Using the microphone input gain along with the volume can cause noise or sound distortion. We recommend using this setting only if it is absolutely necessary.

To remove echo, return to **Configuration → Audio → Audio inputs** section and enable **Noise suppression**. If this does not help, use **Microphone gain control**, **AEC**, and **AEC settings** to achieve the best combination of settings. When using a USB speakerphone, echo and noise cancellation needs to be disabled, and it should be enabled when using an analog microphone or equivalent connected via a mini jack. When a speakerphone is used to capture sound, while the device connected via HDMI (e.g., TV or monitor speakers) is used for output purposes, the hardware echo canceller can't work, so you need to use a software one.

Audio settings (noise cancellation, echo cancellation, and volume) are saved for each device individually.



When the Yamaha YVC-1000 speakerphone is used, it needs to be connected to the endpoint **only** via the USB 3.1 port for proper configuration.

4.4. Speakers

Go to **Configuration → Audio → Audio outputs** and choose a speaker in **Default output**.

To test sound playback, click **Start** in **Speaker test**. If the connection is successful, you will hear a short piece of music.



Check your speaker connection in **Configuration → Audio → Diagnostics**.

4.5. Sleep Mode

You can configure sleep mode settings. The endpoint will switch to power-saving mode, but will still be able to accept incoming calls. When the endpoint goes to sleep mode or is turned off, the connected PTZ cameras will automatically go all the way left and up regardless of the control type, in other words, this rule will apply to RS-232, NDI, VISCA-IP, and USB. When the camera exits sleep mode, it will return to its previous position.

If you press a button on the remote control and access the [Conference control tab](#) section in the web interface when a video call is made, the endpoint exits the sleep mode and turns on peripherals.

To make sure that TrueConf Group can automatically enter sleep mode; it should not be in the content preview state, and the main menu should be selected on the main screen.

You can change settings in **Configuration → Powersave** section:

1. Choose the time period before the endpoint goes into sleep mode.
2. Specify the action for the power button on the remote control: the endpoint either goes to sleep mode or is turned off.
3. Choose if TrueConf Group should put connected displays to sleep state (if they support such state) when going to sleep mode.

If the endpoint automatically goes to sleep mode, the clock will be displayed on the main screen for the first ten minutes.

5. Configuring Protocols

5.1. H.323 Settings

To configure the H.323 protocol in the endpoint main menu, use the remote control to navigate to the **Configuration → Network → H.323** section.

1. Enable **H.323 support**.
2. **H.323 extension (E.164)** and **H.323 Alias** in case of calls from devices within the gatekeeper without the need to indicate the TrueConf Group IP address (otherwise the system name will be used as a default value)
3. In the **H.235 encryption** menu, select if it is necessary to use H.235 encryption:
 - **Off** – is not used
 - **Optional** – encryption is preferred, but not required which means that the connection will be established if the encryption is not configured on the far-end side
 - **Mandatory** – TrueConf Group will not connect to the endpoints if they do not support H.235 encryption.
4. If necessary, configure NAT traversal via H.460.18 and H.460.19 in the **NAT traversal** menu.
5. To register the endpoint on an external H.323 gatekeeper, go to the **Registration** section:
 - Choose **Discover** in **Gatekeeper use:** to find its address in the network or **Manual** to enter the address manually
 - Specify if it is necessary to use the gatekeeper for outgoing H.323 calls
 - **Address** (in case of manual input)
 - **User name** and **Password** for authorization (if necessary)

5.2. SIP Settings

To enable your endpoint to use the SIP protocol, configure it in the **Configuration → Network → SIP** section.

1. Enable **SIP support**.
2. If necessary, enable **Spam protection**. This feature is useful when the endpoint becomes available via SIP from outside the local network. In this case, it can be attacked by different types of malware that looks for poorly protected corporate IP PBX systems to forward traffic. These attacks are spam calls to the endpoint. When antispam protection is enabled, TrueConf Group software identifies such calls by their characteristic features and ignores them.
3. Choose the protocol to stream **content to be shared** in the **BFCP transport** menu: UDP or TCP.
4. If necessary, enable **SRTP encryption**.
5. In the **NAT traversal** menu, you can set how to use ICE and TURN protocols and indicate the NAT server address and its authorization data.
6. You can register TrueConf Group with the external SIP server in the **Registration** menu where you can indicate the registration data and transport protocol to be used.

5.3. NAT Settings

To configure NAT traversal, go to the **Configuration → Network → NAT** section:

1. Specify the public (external) address of your TrueConf Group, for example, WAN IP of the router to which the endpoint is connected.
2. Set the ranges for RTP, H.245, and BFCP ports.
3. For the sake of convenience, we have also added the options for the quick access to NAT settings of **SIP** and **H.323**.

When factory settings of TrueConf Group are restored, the port ranges will take the values set for TrueConf Server by default.

5.4. RTP Settings

In **Configuration → Network → RTP** section, you can set:

- Limited size of MTU data to be transmitted (RTP packet size excluding UDP and IP headers)
- Method of network traffic prioritizing (QoS) and QoS marks settings for audio and video

6. Getting Started for Video Conferences

6.1. General video settings

In **Configuration → Video → Streams** section, you can:

1. Limit the video bitrate.
2. Track the bandwidth load balancing.
3. Set adaptive video quality control depending on the channel bandwidth.
4. Automatically recover lost packets. This will be helpful when making SIP calls if there are regular packet losses that are not caused by the channel overflow. This method can restore up to 10 percent of the lost packets.
5. The encoding quality of the primary stream (video) and secondary stream (content) depends on the selected profile: the endpoint will find the best balance between the frame rate and video resolution.
6. Set the percentage of the channel bandwidth for additional streams (for content streaming).

6.2. Layout settings

To configure layout settings, go to the **Configuration → Video → Layout** section where you can:

- Choose if your self-view should be displayed during a call (in the **Hide selfview** section)
- Enable the display of the volume indicator in each video window
- Choose the video scaling mode on the screen:
 - **Scale to fit**: scale the displayed layout while keeping proportions intact to make sure the video feed fits the screen
 - **Crop to fill**: display the layout so that the feed on the screen is aligned vertically
- Enable **overlay layout mode** in which one of the video windows is maximized to the full screen while the video slots of other participants will be displayed on top of it. Below, you can specify the overlap percentage.

The layouts created on the side of TrueConf Group, check the "[Layout management](#)" section.

6.3. Call settings

In the **Configuration → Call** section, you can configure the following general video call settings:

1. The display name shown in the layout window created for the endpoint. It will also be shown in the list of available devices in the [address book](#) of other TrueConf Group endpoints.
2. Call queue.
3. The order of protocols used when [making calls](#).
4. Permission to remotely control the camera connected to TrueConf Group.
5. Using H.239/BFCP stream to [share content](#).
6. Sharing slides with a button or upon connecting to the source.

In the **Configuration → Call → Answer settings** menu, you can set up additional parameters for incoming calls:

1. Configure the settings for receiving the first incoming call and all further calls (if [MCU is used](#)): **Auto**, **Ask**, or **Do not disturb** to automatically decline the call.
2. Receive calls only from the contacts in the [address book](#).
3. Mute the microphone and disable the camera during incoming calls.
4. Protect from SIP spam; it is similar to the [Configuration → Network → SIP](#) section.
5. Block incoming SIP calls.
6. Block all incoming calls if the endpoint is [recording](#) or [streaming](#).

6.4. Enabling MCU Mode

By default, TrueConf Group operates in **point-to-point** mode. During the video call, both participants can see and hear each other. If another user calls the endpoint during the video call, this user will not be able to join the call; instead, a notification that the device is busy will be displayed.

On the customer's request, the endpoint can be equipped with a built-in MCU server. When TrueConf Group operates in this mode, the video call can be escalated in a [group video conference](#). In this case, users who are calling the endpoint automatically join the meeting (if the number of external connections does not exceed the MCU license).

Take the following steps to enable this feature:

1. Go to the **Configuration → Call → MCU settings** section.
2. In **MCU support**, choose **On**.
3. Configure **Answer mode: Auto, Ask or Do not disturb**.
4. Indicate **Mixing mode** for video streams:
 - **All on screen**: All conference attendees can see and hear each other
 - **Video lecture** – all participants can see only the moderator (in this case, the person using the endpoint), but everyone can hear each other
 - **Voice activated**: All on screen conference layout, the active speaker is displayed in the main video window.
4. If necessary, enable the display of the volume indicator in each video window.
5. If you do not want to create a separate window for [slides](#) or [content](#) shared by meeting attendees, enable **Reject incoming presentation**.

6.5. Codecs

Learn more about all codecs supported by the endpoint in the [Supported protocols and codecs](#) section.

Go to **Configuration → Video → Codecs** and enable only those video codecs which are supported by all conference devices.

Repeat this process for audio codecs in the **Configuration → Audio → Codecs** section.



G.711 audio codec cannot be disabled.

6.6. Stream Settings

To make sure that your conference can be viewed by larger audiences, you don't need to add them as attendees. It is possible to configure streaming to third-party services via RTMP or SAP and to the local network via NDI:

1. Go to the **Configuration → Recording and streaming** section.
2. You can configure RTMP streaming in the **RTMP** menu and set the necessary parameters: server address, RTMP application, stream name/key, login, and password.
3. Streaming via SAP protocol can be configured in the **SAP** menu. You will be able to indicate the address and port.
4. To stream an event via NDI, go to the **NDI** menu and specify the stream name.

For any of the streaming methods you can enable automatic start and ending of broadcasting (when the meeting starts and ends).

6.7. Recording

To enable conference recording, use the **Configuration → Recording and streaming → Record to disk** section. Moreover, there you can check available disk space.

If you enable **Cycle recording**, new conference videos will be recorded and saved to replace the oldest recordings when the device runs out of free disc space. Recording will be permanent, and you will not need to worry about how much disk space is left.

By enabling **Auto start**, you can automatically start video call recording when it launches. Accordingly, **Auto stop** automatically stops recording when the call ends.

In the **Configuration → Recording and streaming → Layout configuration** section, you can specify:


1. Recording layout: All video windows according to the [selected layout](#), only incoming video streams, only endpoint camera feed, or voice activated layout.

2. **Content** recording: Disabled, content displayed in a separate window, or content displayed in full screen instead of all video windows.
3. Video resolution in the recording.

If the **Space saving** option is activated, the recording bitrate will be reduced by about 40 percent. So, the file size will also be reduced at the expense of video quality.

6.8. Assigning PTZ Camera Presets

You can set typical PTZ camera presets to enable users to switch between them during a call by pressing one button. To that end:

1. Go to the upper menu.
2. Press **the back button on the remote control** to hide the menu. After that, you will be able to control the camera using the arrows in the center of the remote control and **zoom buttons**.
3. Set the desired camera position.
4. Press the  **button on the remote control** and choose **Assign camera position** in the pop-up menu.
5. Press any number on the numeric keypad. The current position will be fixed under the corresponding number. Repeat the process for all the positions you need.

If multiple cameras are connected to TrueConf Group, you can create presets for any of them by preliminary selecting the camera in the **video capture settings**. Then, if you select a preset (either with a remote control or in the control panel) during a conference or call, the endpoint will automatically switch to the corresponding camera and put it in the configured position.



For more information on how to use saved presets, check the section **"During a conference → PTZ camera control"**.

7. Integration with services

TrueConf Group supports integration with various services and provides additional features when connecting to other TrueConf solutions.



In the **Settings** section of the [control panel](#), one can check when the endpoint was last synchronized with a third-party service. Besides, there is the button for forcefully updating data.

In addition to [LDAP integration](#), discussed in the section "Working with the address book", the following options are also available.

7.1. Email

Integration with a mail service makes it possible for TrueConf Group to receive invitations to the conferences scheduled on TrueConf Server and display them in the [calendar on the device screen](#).

At first, it is necessary to configure the reception of invitation emails:

1. Use the remote control to go to the **Configuration → Services → EMAIL** section.
2. In **Enable**, choose **On**.
3. Enter the following information in the mail service connection fields:
 - Email box address to which conference invitations will be directed
 - Mail service address
 - Username (login) and password for the email box
 - The protocol used for receiving the invitation emails from the mail service (additional configurations may be needed on the side of the mail service)
 - The time interval for checking if new email invitations have been received.

When the first invitation is successfully received from the mailbox, you will see the list of upcoming meetings in the [TrueConf Group calendar](#).

7.2. TrueConf MCU

Integration with the mixing video conferencing server TrueConf MCU makes it possible to import the list of [MCU contacts](#) to the [address book of TrueConf Group](#).

To do it:

1. Use the remote control to access the **Configuration → Services → TrueConf MCU** section.
2. In **Enable**, choose **On**.
3. Specify the following information in TrueConf MCU connection fields:
 - Its address (IP or domain name)
 - Administrator login and password needed for connecting from the endpoint and downloading the address book.
4. To apply changes click **Update address book**.

If synchronization is disabled, the contacts imported from TrueConf MCU will be deleted from the endpoint address book. To bring them back, one should enable synchronization again, and update the address book.

7.3. TrueConf Server

If integration with TrueConf Server is enabled, you can import the contacts of the specified server user to the [TrueConf Group address book](#).

1. Go to **Configuration → Services → TrueConf Server** section.
2. In **Enable**, choose **On**.
3. Specify the following information in the server connection fields:
 - Its address (IP or domain name)

- TrueConf ID (username) of the person whose address book should be imported
- User password.

4. To apply changes click **Update address book**.

When the required fields are filled out, the address book of the selected user will be imported to the **Address book → TrueConf Server** section of the endpoint.

If synchronization is disabled, the contacts imported from TrueConf Server will be deleted from the endpoint address book. To bring them back, one should enable synchronization again, and update the address book.

8. Receiving and making calls


Outside video sessions, the endpoint can have one of the following statuses:

- [Sleep mode](#)
- Displaying [main screen with a self-view](#)
- Playing content from [HDMI sources](#)

Any incoming video call disables such statuses.

8.1. Processing Incoming Calls

If [automatic reception of calls](#) is configured, the TrueConf Group endpoint will accept the call automatically. However, if **Do not disturb** mode is activated, the call will be declined automatically.

But if **Ask** mode is selected, a call notification will be displayed on the main monitor. You can answer the call by pressing the [button](#)  on the remote control or reply in the [control panel](#).


The endpoint, where [MCU features](#) are activated, can also be used for accepting subsequent calls. This will allow you to turn a one-on-one call into a conference. To do it, accept incoming calls with the remote control or in the control panel just as you answered the first call.

8.2. How to call another endpoint/device

8.2.1. How to make calls via SIP, H.323, RTSP, VNC and NDI




Use the [address book](#) to call frequently used numbers.

1. In the [main menu](#) choose **Dial** (or press the [button](#)  on the remote control).
2. Enter the address of the device you want to call, e.g., `111@10.120.1.10`.

You do not have to specify the protocol for an SIP or H.323 endpoint. TrueConf Group will try to detect the protocol automatically.

To connect to an RTSP stream (IP camera, online stream etc.), VNC or NDI source, add the prefix in the correct format to the beginning of the address, e.g., `rtsp://10.120.1.10` or select the format in the drop-down list.

3. Press **Dial** on the screen or the button  on the remote control.

Then you can call the same device using the [call history](#).

8.2.2. Call a user or conference hosted on TrueConf Server

To call a TrueConf Server user, use one of the following formats:

- `<TrueConf_ID>@<server>`
- `<TrueConf_ID>@<server>:<port>`

where:

- `<TrueConf_ID>` : user's [TrueConf ID](#)
- `<server>` : server IP address or name that you need to call
- `<port>` : connection port (if it differs from standard `5060` for SIP and `1720` for H.323). Read more about SIP/H.323 connection settings on TrueConf Server in [our documentation](#).

For example:

```
james78@video.company.com
```

```
james78@video.company.com:5070
```

To join to a video conference on TrueConf Server, use a call string in one of the following formats:

- `00<Conference_ID>@<server>`

- `00<Conference_ID>@<server>:<port>`
- `<Conference_ID>@<server>`
- `<Conference_ID>@<server>:<port>`

, where:

- `<Conference_ID>` : [Conference ID](#)
- `<server>` : Server IP address or name
- `<port>` : Connection port (if different from the standard one)

For example:

```
001949195144@video.company.com
```


```
001949195144@video.company.com:1730
```

```
\c\1949195144@video.company.com
```

```
\c\1949195144@video.company.com:1730
```

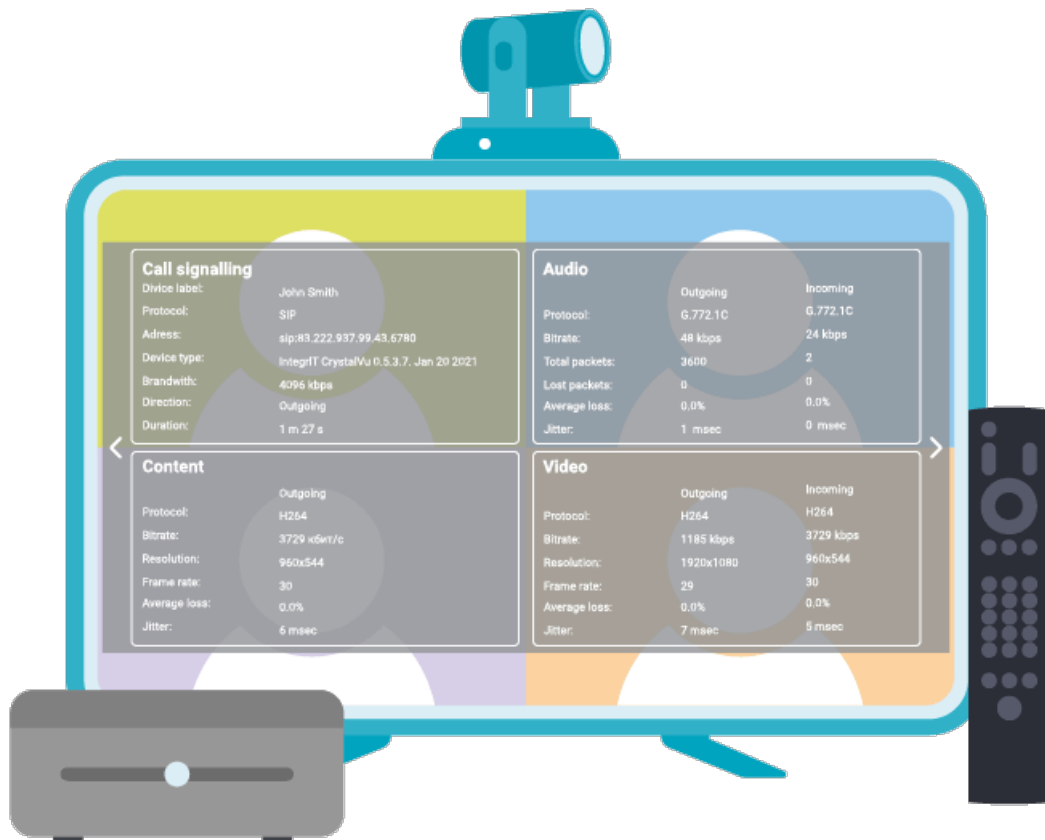
If necessary, you can explicitly specify the call protocol (SIP or H.323) to the left of the address input field.

8.2.3. Viewing Call Information

You can view technical details right during a video call. To that end, press [the button](#)  [on the remote control](#) and select **Connection details**. At the bottom of the screen, you will see a list of your ongoing call parameters:

- User's address
- Call duration
- Used codecs
- Video resolution and speed
- Packet loss statistics for audio and video streams. In this case, the last 10 seconds rather than the entire call are used to calculate the loss percentage.

In [MCU mode](#) you can switch between connection information windows for each participant with [“left” and “right” buttons](#) on the remote control:



8.3. How to Set Up a Group Conference

i Make sure [multipoint connections are enabled](#) for the endpoint. This feature is available only with the MCU module built in the endpoint.

To set up a conference, you need to call any user [following the above instructions](#) and then add other participants one by one.

8.3.1. Adding users during a session

***** To learn how users can be added to a conference in the control panel, check the section ["Call to a user and address book"](#).

Go to the conference menu by pressing the **OK button** or **main menu**. You can now add a participant using one of three methods.


8.3.1.1. By indicating the call string:

1. Go to the **Dial** menu.
2. In the pop-up window, enter the user's address and make a call, e.g., when [making a regular video call](#).

8.3.1.2. Using the [address book](#):

1. Go to the **Address book** menu.
2. In the contact list that opens, use [navigation buttons](#) on the remote control to choose the required user and press **OK** or .

8.3.1.3. From [call history](#):

1. Go to the **Call history** menu.
2. Choose the required user and press **OK** or .

8.3.2. Connection Data

You can check the connection data for each participant with a remote control [go to the Connection details section](#) or in the [web interface](#).

8.4. Calendar

To view the list of conferences hosted on TrueConf Server to which the endpoint was invited, go to the **Calendar** section in the main menu. There you will find the list of upcoming conferences and if this event has already started, you can join it by clicking on the **Join** button.



To make sure that TrueConf Group can receive invitations, you will need to:

1. Configure [integration with the email server](#). The endpoint will check the email address for new invitations.
2. When creating a public conference (webinar), you need to specify the email address from step 1. If an invitation to a private conference should be sent, the endpoint should be authorized on TrueConf Server as one of the invited participants whose profile includes the email address from step 1.

When a scheduled conference from this list is started, the reminder window will be displayed on the TrueConf Group screen. The window will also include a button for joining the conference. This may be helpful if the endpoint was invited to the public conference (webinar) via email, but did not receive the invitation call.

9. Layout Management

9.1. During a point-to-point call

In [video call](#) mode, a user connected to TrueConf Group can see only one window with the endpoint camera video. Both video windows are displayed on the endpoint screen by default, but you can disable the self-view. To do it, press the [remote control button](#)  and select the **Hide selfview** option in the pop-up window. In this case only the second participant's window will be displayed on the TrueConf Group screen. To bring the self-view back to the layout, press the [button](#)  and select the **Show selfview** option in the pop-up window.

With selfview enabled, you can switch layouts using the  [button \(Layout\)](#) on the remote control. You can use the following schemes where the video window of a user who joins a call is highlighted in turquoise:

- when the layout without overlapping (default option) is created:



- when [overlay mode](#) is activated:



9.2. During a group conference

During a conference, [video layouts](#) are set depending on the video stream mixing mode when [setting up your MCU module](#):

- **All on screen:** All video streams from the endpoint and other participants are included in the layout.
- **Video lecture:** All users receive video and audio signals only from the endpoint that acts as the only conference owner while all video windows are displayed for the endpoint.


- **Voice activated:** All video streams from the endpoint and other participants are included in the layout, while only the speaker will be displayed in the main video window

In all on screen and voice activation modes, you can choose one of the following layout types with the **larger video window** highlighted in turquoise:



When [overlay mode](#) is activated, the arrangement of video windows will not change; the only difference is that the main window will be maximized to the full screen while other windows will be displayed on top of it [check a point-to-point call](#).

The larger video window can be set using one of the following methods:

- For the first user you've called (when [creating a conference](#) from the endpoint)
- For the first user that has connected (for [incoming calls](#))
- During a conference:
 - Using the remote control: Press the  button, go to the **Conference control** menu item, and choose the user you need
 - In the [Conference control section](#) of the control panel.

Below, there is an example of an "all on screen" layout: in this mode, all video windows will be equal in size and the spotlighted window will be displayed in the upper left corner:





When using a layout with a larger video window displayed on the left side, you will have the following view:




Below you can find a diagram and an example of the layout with a larger window displayed in the upper part of the screen:





You can switch layouts by using the  button (**Layout**) on the remote control or by going to the **Conference control** section in the control panel. When it is changed, the participant's name is displayed at the bottom of each video window for a few seconds.

To enable/disable the display of local video (video feed from the camera used by the endpoint) in the layout created for the endpoint, press the  button on the remote control and select **Hide selfview**. In this case, it will continue to be present in the layout shown to the rest of users.

If you want to remove the endpoint's video from all layouts, press the  button on the remote control and select **Mute local video**.


10. Working with the endpoint during a conference

10.1. Changing devices

During a meeting you can quickly change the video devices used for sending video from TrueConf Group to the conference layout. To do it, press the [remote control button](#)  and select the **Select camera device** option. It is possible to select either the second web camera connected to the endpoint or one of the capture card inputs. To change the microphone and speakers used by the endpoint, press the [button](#)  [on the remote control](#) and select the devices in the **Configuration → Audio** section.


10.2. PTZ Camera Control

10.2.1. Camera connected to the endpoint

During a call, press the [button](#)  [\(Far/Near\)](#) on the remote control in order to switch control to your own PTZ camera (you will see **Near-end camera** message at the top of the screen). Then you can control the camera by using the arrows in the center of the remote control and [zoom buttons](#).


i To control a PTZ camera please make sure to specify the correct method in [the Configuration → Video → Video inputs → PTZ control section of the endpoint menu](#) or the web interface.

To use saved camera positions during a video session, do the following:

1. Switch to controlling your camera using the [button](#)  [\(Far/Near\)](#) on the remote control.
2. Switch between presets by pressing their numbers on the numeric keypad.

***** Read how to set numbered PTZ camera presets in the [Setting Up](#) section.

10.2.2. Other participant's camera

Use the [button](#)  [\(Far/Near\)](#) on the remote control to switch to the other user's camera (the message **Far-end camera & DTMF** will appear at the top of the screen). After that, you can control it like your own camera. Saving presets is unavailable to far-end PTZ cameras.





***** To control other users' PTZ cameras using the control panel, go to [Conference control](#).

10.3. Content Sharing

You can use TrueConf Group to:

- Share content from the devices connected with an HDMI cable (unavailable in certain [configurations](#))
- Share content from USB drives: images in the **PNG, JPG, TIFF** formats, **PDF** documents, and **MKV, MP4, TS** videos (audio is not streamed)
- Show content from the second [web camera connected to the endpoint](#). This may be necessary if you are using a PTZ camera to send video from the meeting room and you have also connected the document camera for capturing content.
- Send an NDI stream available in the local network (detected automatically similar to the [corresponding section of the address book](#))
- Stream an RTSP or VNC source – the list of sources will include the contacts from the local address book with an RTSP or VNC call string.



To share content during a [video call](#) or [conference](#):

1. Select a content source by pressing the [remote control button PC](#) .
2. When choosing to play a file from a USB drive, you will see its contents. Here you can choose your file with the navigation buttons.
3. If **By button** mode is selected in the **Configuration → Call → Send presentation** menu, a new content preview video window will be displayed on the endpoint screen and you will need to return to Step 4. Otherwise, content will be immediately streamed to the conference.
4. To start content sharing, press the remote control button **PC**  and select **Presentation start**. All conference participants will see the content in a separate video window. By default, the content will be displayed in a full-screen video window; moreover, the layout will not change when a new participant will join the meeting. You can change the layout by pressing the remote control button  or going to the [Conference control tab](#) section of the control panel.
5. When sharing, use the following buttons on the remote control:
 - [Navigation buttons](#): Switch between pages of a PDF file or move around a zoomed image
 - [Zoom buttons](#): Control the size of the content you've shared.
6. To end content sharing, press the remote control button **PC**  and select **Presentation stop**.







You can share content in the [Conference control](#) section of the control panel.

10.4. Recording


To start recording an ongoing conference, press the [button on the remote control](#)  and select **Record → Record to disk**. In this case,  icon will be displayed at the bottom of the endpoint's screen. To stop recording, press  button again and select **Record → Record to disk**.

10.5. Streaming

During a video call, you can start streaming to third-party streaming services via one of the [pre-configured protocols](#): RTMP, SAP, and MPEG-TS. To do that, press the  button on the remote control, go to **Record** in the pop-up menu, and choose the item you need. If you have successfully started streaming, the corresponding icon will be displayed at the bottom of the endpoint screen:  for RTMP,  for SAP, or  for MPEG-TS.

10.5.1. Changing devices

During a meeting you can quickly change the video devices used for sending video from TrueConf Group to the conference layout. To do it, press the [remote control button](#)  and select the **Select camera device** option. It is possible to select either the second web camera connected to the endpoint or one of the capture card inputs.

To change the microphone and speakers used by the endpoint, press the [button](#)  [on the remote control](#) and select the devices in the **Configuration → Audio** section.

11. Working with the address book

TrueConf Group endpoint provides the address book which makes it easier to make calls. The list of contacts can be divided into groups. Integration with LDAP is also supported.


11.1. LDAP integration

TrueConf Group allows you to use LDAP H.350 directory service compatible with Polycom.

You can configure integration with the LDAP server in the **Configuration → Services → LDAP** section.

Click **Update address book** to apply changes.

11.2. Address Book

To configure the contact list, select **Address book** in the [main menu](#) or press the [button](#)  on the remote control.


The address book can have multiple lists of users:

- **Local** – the local list stored on the endpoint
- **NDI** – NDI streams available in the local network (the streams are searched for automatically when they are selected)
- **TrueConf MCU** – the contacts imported when running the endpoint [in integration with TrueConf MCU](#)
- **LDAP** – the contacts imported when [integrating with an LDAP service](#)
- **TrueConf Server** – the contacts imported from TrueConf Server when the endpoint was run in [integration with it](#)
- **TrueConf Group** – other TrueConf Group endpoints available in the local network. If this option is selected, the search will start automatically. Each of the endpoints will have a display name specified in the **Call → Display name** section of the endpoint settings.

11.2.1. How to change the view and call a user

Any list except **TrueConf Group** can be displayed in a general way (default view) or by groups. To select the second option, click the **Display by groups** button which is under the search field. To restore the general view, click the **Hide groups** button. To view the contacts in any group, click the [OK button](#).

If the group display is selected for the **NDI** list, there will be three categories: all NDI streams, offline streams (these streams were detected earlier and are unavailable now) and online streams.

To call a user, select this person in the correct list (and in the group, if necessary) and click the [OK button](#) or the [call button](#)  on the remote control. If there are many users on the list, start typing the name and the list will be automatically filtered. When a call is made, the port for each protocol will be added automatically if it had not been specified explicitly in the call string.

11.2.2. Edit the list

In the local address list, one can add a new contact or edit the contact that had been saved previously.

To edit a saved contact, click **Edit** opposite the contact's name. You will see this user's profile where one can change the name as well as SIP, H.323, RTSP, VNC, NDI or email addresses. It will also be possible to restrict bitrate when connecting with this contact. Each user may have up to 5 addresses (the protocols do not have to be unique).



In the [Conference control → Address book](#) section, you can specify the preferred call string for each contact. In this case TrueConf Group will first make a call to the specified address.

To add a new contact to the list, click on the **Add new entry** button which is under the search field.




You can transfer address books between the endpoints using [import/export in the Maintenance section](#) of the control panel.

11.3. Call History

Choose **Call history** in the [main menu](#). You will see the list of calls and the following information:

- Username
- Call direction: incoming **>**, outgoing **<**, and failed or missed **!**
- Time (for today's calls) and date (for earlier calls).

To call a user, choose the user in the list and press **OK** or the  button.

When switching to each line in the list, you will see additional information:

- User's address and communication protocol
- Call date and time
- Call duration

You can add a user from the history to the address book by pressing **Add** button and then filling in additional fields.

11.4. Calendar

To view the list of conferences hosted on TrueConf Server to which the endpoint was invited, go to the **Calendar** section in the main menu. There you will find the list of upcoming conferences and if this event has already started, you can join it by clicking on the **Join** button.

To make sure that TrueConf Group can receive invitations, you will need to:

1. Configure [integration with the email server](#). The endpoint will check the email address for new invitations.
2. When creating a public conference (webinar), you need to specify the email address from step 1. If an invitation to a private conference should be sent, the endpoint should be authorized on TrueConf Server as one of the invited participants whose profile includes the email address from step 1.

When a scheduled conference from this list is started, the reminder window will be displayed on the TrueConf Group screen. The window will also include a button for joining the conference. This may be helpful if the endpoint was invited to the public conference (webinar) via email, but did not receive the invitation call.

12. Description of control panel

The settings available in the control panel are almost identical to the settings that can be configured directly on the endpoint. To review all features and check the recommended order of configuration, read the corresponding documentation sections:

- ["Getting started"](#)
- ["Device settings"](#)
- ["Protocol settings"](#)
- ["Getting ready for conferences"](#).

Web-based management brings several advantages:

- Configure and use the endpoint remotely outside the meeting room
- Enjoy advanced conference management features
- View and download conference recordings
- View detailed technical information
- Manage the endpoint from the convenience of the keyboard and mouse (as compared to remote control management).

To access the control panel, enter the IP address displayed at the top of the screen into the browser's address bar.

i To control the endpoint using the control panel, you should first [configure HTTP access](#).

For the sake of better user experiences, the control panel offers an adaptive UI which is optimized for mobile devices (smartphones and tablets).

12.1. Quick Access Toolbar

To quickly access audio device settings, send messages to the conference layout, and open the on-screen remote control, you can use a special panel displayed in the lower part of each page in the web interface.

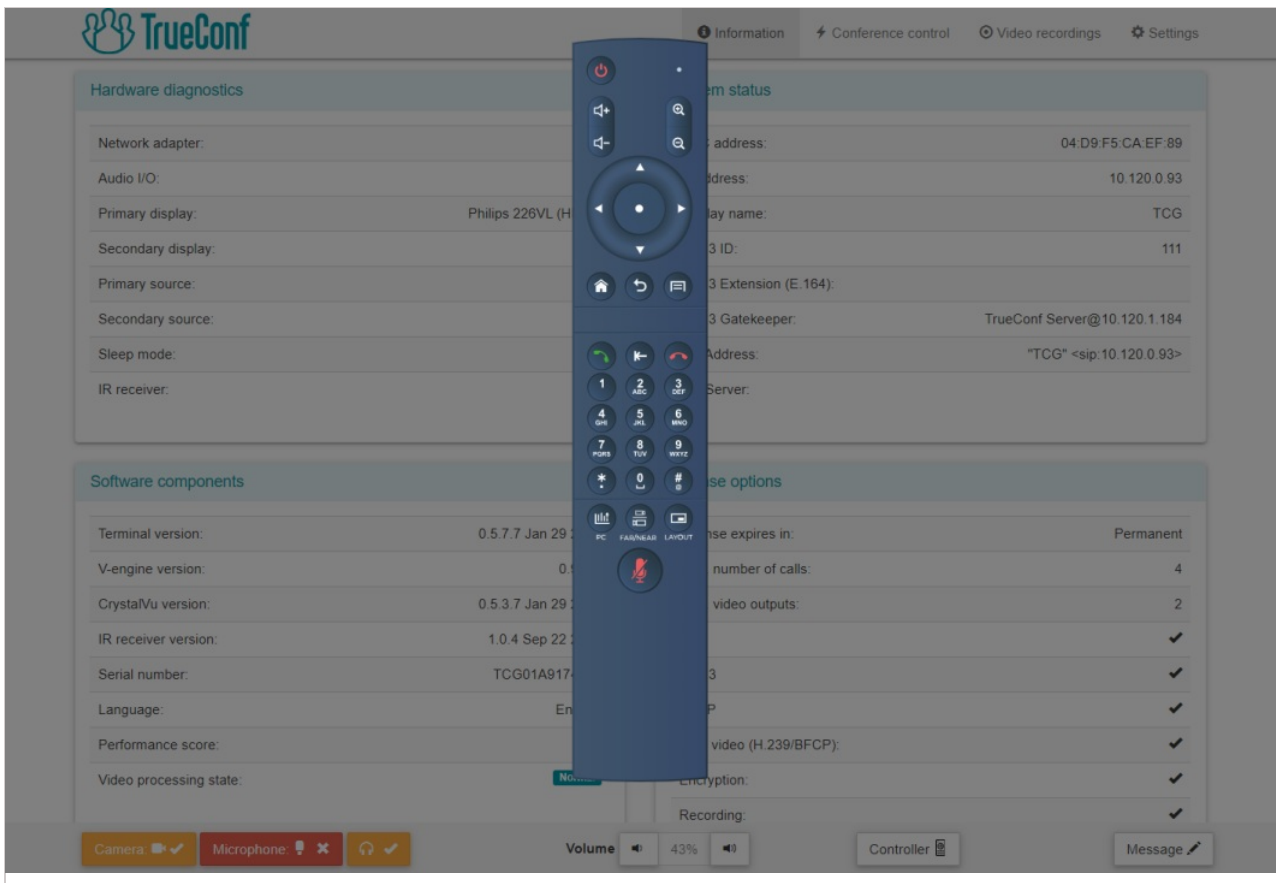
- **Camera:** : Disable/enable camera
- **Microphone:** : Mute/unmute microphone
- : Disable/enable speakers
- and : Decrease/increase speaker volume
- **Controller** : Open on-screen controller
- **Message** – send a message to the conference layout. After clicking this button, type a message (up to 257 characters) and click **Send**. The text will be displayed in the conference layout of the endpoint and all other participants for up to 15 seconds. Please note that TrueConf Group makes it possible to display messages in private and group chats sent from TrueConf client applications during group conferences created on TrueConf Server.

***** You can manage audio devices connected to the endpoint in the [Settings → Audio section](#) as well.

12.2. On-screen controller

You can find a remote control emulation in the control panel, which can be useful (e.g. when entering the control panel from the mobile device).

To open the on-screen controller, press the button **Controller** in the quick access toolbar. Here you have access to all management features as if you are using a real remote control, as described in the [How to control TrueConf Group section](#).



12.3. Information

In this section you can check the current settings of the endpoint and test if it is ready for work:

- Network connection and connected devices status in the **Hardware diagnostics** section
- IP, MAC, and SIP/H.323 addresses in the **System status** section
- Software data in the **Software components** section
- Information about the license and available features in the **License options** section.

13. Managing Calls through the Web Interface

To access the settings of the camera connected to the endpoint and view active video session parameters, go to the **Conference control** tab.

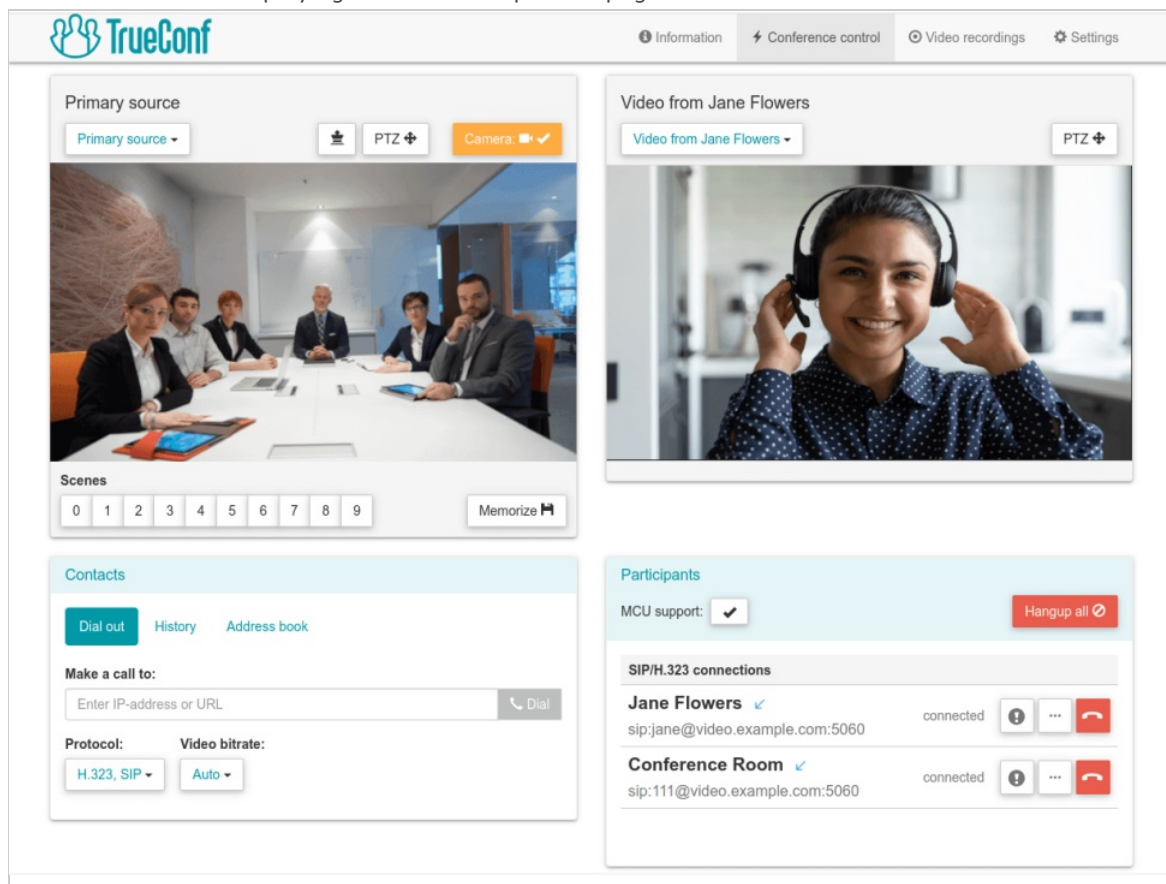
i

Depending on the parameters of the network that is used to connect the endpoint to your device, the video from your camera, as well as conference feed may be delayed.


If the **PTZ camera image** is freezing or if **changing video layout** takes longer than it should, it does not mean that the system is malfunctioning. Most likely, other meeting participants do not experience any issues.

13.1. Camera Settings

There are two blocks for displaying feeds at the top of the page:




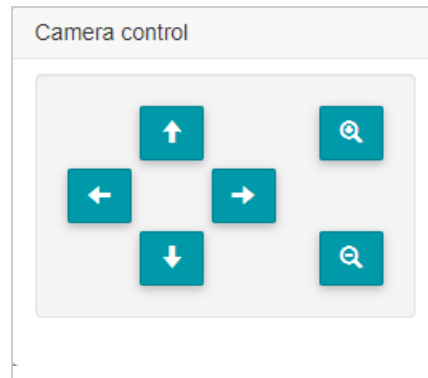
In each block, you can choose the following options in the drop-down list:

- **Primary source** – preview of the video from the camera connected to TrueConf Group (self-view). It is also possible to [control this device \(available for compatible PTZ cameras\)](#). A user can also enlarge his/her video window in the layout with the  button (only during a conference) and turn off the camera.
- **Presentation source:** Preview [content to be shared](#)
- **Conference layout:** Choose the current layout and [control mixing settings](#) for group conferences (available only when [MCU module](#) is enabled)
- **Main display:** Display the layout on the screen connected to the endpoint and control the video feed from the endpoint camera
- **Video from <participant name>** – display the selected user's video feed and [control their PTZ camera](#)
- **Disable preview** – clear the selected preview window.

You can also control the PTZ camera connected to the endpoint and configure its presets in this section:

1. Choose **Primary source** in one of the drop-down lists.

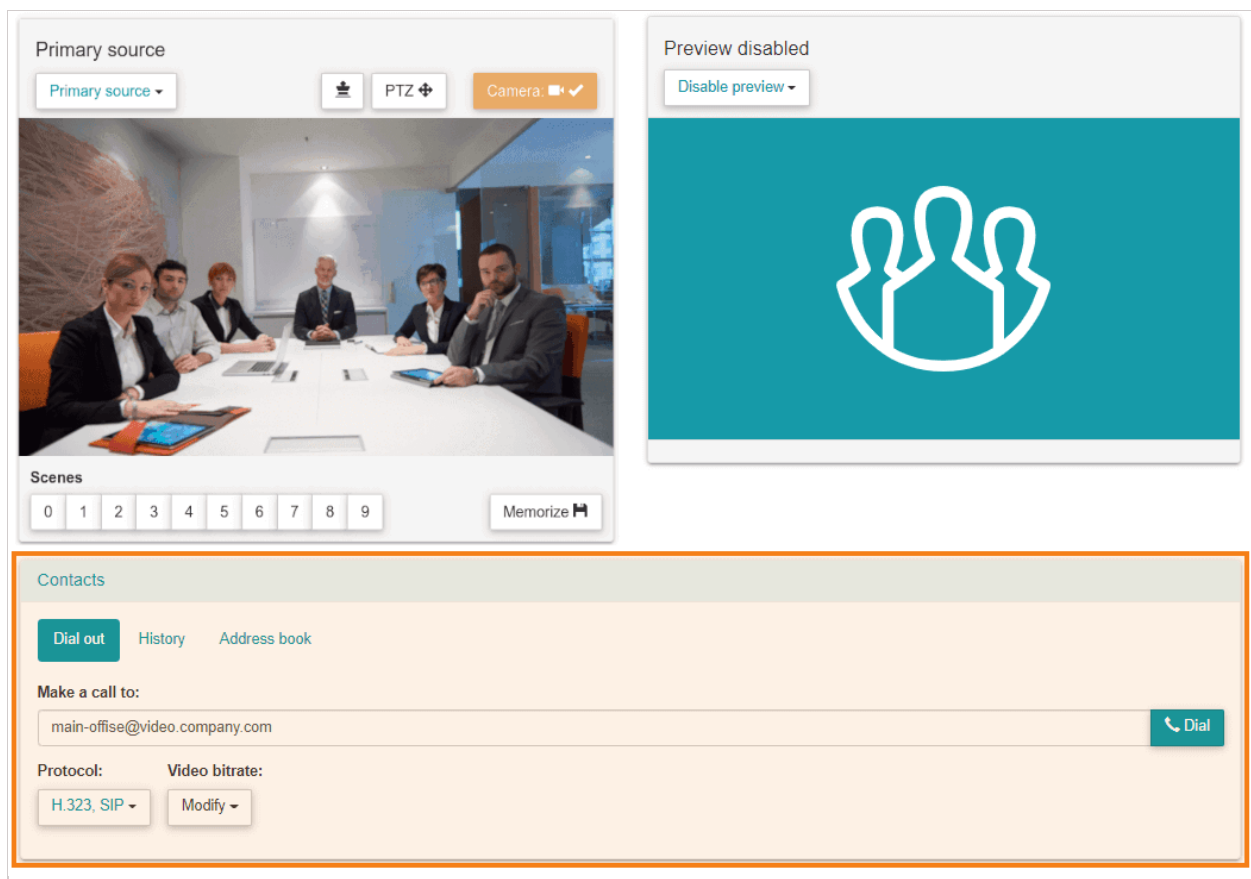
- Click the camera control button **PTZ** .
- In the control panel that opens, you can adjust the camera position and image scaling using the corresponding buttons:



- To switch to the preset saving mode, click **Memorize**.
 - In **Scenes** list click any number to save the chosen camera settings under this number.
- It is possible to [save presets for different cameras](#) if multiple cameras are connected to the endpoint.

13.2. Call to a user

To call a user (or for this user to join ongoing [group conference](#)), use **Dial out**, **History** and **Address book** tabs in **Contacts** block:




On the **Address book** tab you can:



- Select the list of users in the drop-down list:
 - Local** – the local list stored on the endpoint
 - NDI** – NDI streams available in the local network (the streams are searched for automatically when they are selected)
 - TrueConf MCU** – the contacts imported when running the endpoint [in integration with TrueConf MCU](#)


- **LDAP** – the contacts imported when [integrating with an LDAP service](#)
- **TrueConf Server** – the contacts imported from TrueConf Server when the endpoint was run in [integration with it](#)
- **TrueConf Group** – other TrueConf Group endpoints available in the local network (if this option is selected, such endpoints will be searched for automatically).

2. Switch to the group display of contacts from the selected list. Group editing will be available only for the local address book.

3. If the contact list imported from an external service is selected (for example, when integrating with TrueConf Server), you can save any contact to the local address book of the endpoint by using the  button.

13.3. Edit the address book

If the endpoint address book is selected, it will be possible to create, edit  and delete  users. Similarly, after activating the switcher **Display by groups** you will be able add, edit, and delete groups of contacts.

Any contact can be given up to 5 addresses of any type; it is also possible to specify the preferred call address (the call will be directed to this address by default when the button  is clicked).

There will be up to 10 contacts on a page; if the number of contacts is more than 10, one can use the buttons below for navigating the list.

13.4. Content Sharing

To stream a PDF document, image, video file or HDMI content to the conference:

1. Choose **Presentation source** in the list above.
2. Specify the content source in the **Presentation source** list:
 - To select a file previously uploaded on the endpoint, select the **View file** option in the list.
 - To upload a new file, click the **Change** button and select the **Upload...** option. Next, select a file in the opened window.
 - To stream content from a source connected to the capture card, select one of the HDMI inputs.
 - To stream via RTSP or VNC, select a stream from the list (this list is generated on the basis of the local address book of the endpoint).
 - To send an NDI source available in the network, select it from the list that will be generated automatically (similar to the address book).
 - To show content from the second camera, select it from the list.



If there are multiple connected cameras, you can specify which one should be used for sending video when [configuring video capture devices](#). In this case any of the remaining cameras will be used for content sharing.

Now you can show the selected content to other meeting participants by clicking on the **Share** button. If the content sharing option was selected for the cases when a source is connected (check [call settings](#)), streaming will start as soon as the content is selected.

To scale and move around the image, click  above the preview window. In the control panel that opens, you can scale and move the image using the corresponding buttons.

It is possible to view the content from any source both inside and outside video meetings.

13.5. Switching Layouts

In the group conference mode, you can manage users' video layouts. To do it choose **Conference layout** or **Main display** in one of the [feed displaying blocks](#) in the drop-down list.

In the preview unit that appears, you will see a preview of the current video layout. To choose a new layout, click

Change layout and choose one of the layouts in the list.



For more details on the types of layouts, read the section ["Layout management"](#).

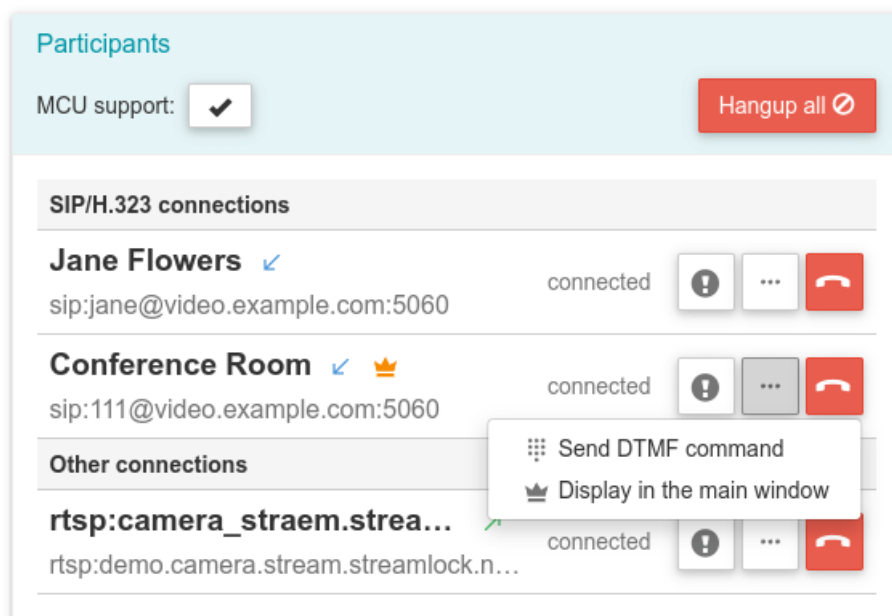
13.6. Mixing settings

When using the [MCU module](#), you can adjust the mixing settings of the video streams on the go during a video call. To do it, choose **Conference layout** in one of the [feed displaying blocks](#). There are several available options in the **MCU setup** drop-down list:

- Restrict receiving presentations
- Control the volume indicators displayed in users' video windows
- Change mixing mode

13.7. List of Participants

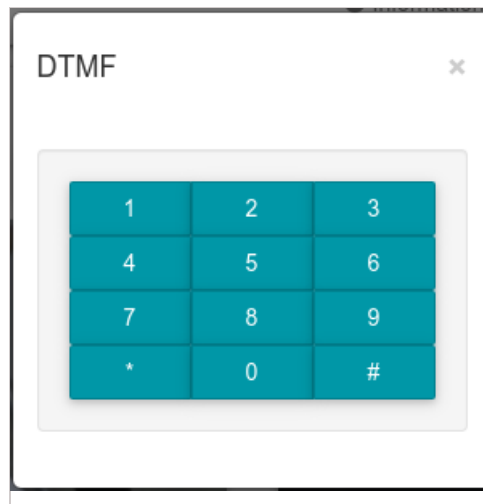
You can view the list of users connected to the endpoint in the **Participants** block on the **Conference control** tab. This list automatically appears during a video call. To end a call for all, use the **Hangup all** button. You can also disable the MCU module in this section (if it was activated earlier).





You will see the following information about each video call participant:

- Username
- Call direction (arrows are used to indicate incoming and outgoing calls)
- Address (may be SIP, H.323, RTSP, VNC, NDI)
- Icon if a participant is displayed in a spotlighted window
- Buttons for managing a participant (disconnect, view connection information, dial, and display in the spotlighted window).


To send a DTMF command to a participant, go to the additional menu by clicking the button and select the **Send DTMF command** option. Next, enter the command in the virtual keyboard.



To view detailed information about how to connect to a user, click . **Connection information** will appear at the bottom of the page with detailed data on the connection protocols used, as well as incoming and outgoing video and audio streams. To hide this information, click  again.

At any moment during a conference, you can manually [spotlight the video window](#) of the selected participant. To do it, select the **Display in the main window** option in the additional menu which is next to the participant's name.




To assign the larger video window to the endpoint, choose **Primary source** and press the button  in one of the feed displaying blocks in the drop-down list.


To disconnect a specific user from the video call, press the button .

13.8. PTZ Camera Control

To control a PTZ camera connected to the endpoint:

1. To switch to previously saved camera preset, choose **Primary source** and press the corresponding number in the **Scenes** list in one of the [feed displaying blocks](#) in the drop-down list.
2. Otherwise, take the following steps to set a new position:
 - Click **PTZ**  in the **Primary source** unit
 - In the camera control window you can pan, zoom in, and zoom out the image using the corresponding buttons.

To control the PTZ camera of a user connected to TrueConf Group take these steps:

1. In one of the [feed displaying blocks](#) choose the user you need from the drop-down list.
2. Press the **PTZ**  button above the video window of that user.
3. In the camera control window that opens, you can adjust the camera position and scale the image using the corresponding buttons.

13.9. Recording and streaming

At the bottom of the **Conference control** page you can see the buttons to control recording and streaming:

The screenshot displays the TrueConf interface with three main sections:

- Contacts:** Includes tabs for "Dial out", "History", and "Address book". A "Make a call to:" section has a text input "Enter IP-address or URL" and a "Dial" button. Below are "Protocol:" (set to "H.323, SIP") and "Video bitrate:" (set to "Auto").
- Participants:** Shows "MCU support:" as checked and a "Hangup all" button. Under "SIP/H.323 connections", two participants are listed: "TrueConfRoom" (sip:123@video.example.com:5060) and "Jane Flowers" (sip:jane@video.example.com:5060), both marked as "connected". Each has icons for status, menu, and hangup.
- Recording and streaming:** A highlighted orange box containing four buttons: "Start record", "Start RTMP streaming", "Start NDI streaming", and "Start SAP announcement".

At the bottom, there are status indicators for "Camera:" and "Microphone:" (both with checkmarks), a "Volume" slider at 100%, a "Controller" button, and a "Message" button.

Use these buttons to start or stop video recording or streaming via RTMP, SAP, and NDI protocols. In this case, you can only use those streaming options that were previously [configured using the remote control](#) or in the **Settings → Recording and streaming** menu of the control panel.

In this case, you can start recording or streaming not only during video meetings. You can also start streaming or recording video from the camera connected to the endpoint before the video meeting (for example, for preliminary testing of video and audio quality, recording any video message, etc.).


14. Video Recordings

Video recordings tab stores conference recordings and brief information about each file: creation date, duration, and size.

* At the bottom of the page, you will also find a [set of buttons for controlling recording and streaming](#) , similar to the **Conference control** tab.

14.1. View recordings

To watch the recording, click on a row in the table. To hide the video window, click on that recording in the list again.

One can open the additional menu by clicking on the button  when the video is played. You can also move the media player to a separate window, by selecting the **Picture in picture** option. This will allow you to use the control panel while watching the video. It will also be possible to increase the video playback speed.

14.2. Managing the list of recordings

To download or delete a recording, use  and  buttons respectively.

This list also offers bulk actions: you can check several boxes and download all of them at once or delete them using the corresponding buttons above the list.

* Refer to the section "[Getting ready for a conference](#)" to learn how video recording of conferences can be configured.

15. Configuration in the web interface

15.1. Configuring HTTP/HTTPS connection

By default, the TrueConf Group endpoint cannot be managed in the web interface. So, you need to [activate HTTP access](#) in the on-screen menu. Similar HTTP settings will also be available in the control panel at the path **Settings → HTTP → HTTP settings**:

There is also the link **Video recordings browser URL** which is needed for providing direct access to the conference recordings stored on the endpoint.

To enable access to the control panel via HTTPS, go to the **Settings → HTTP → HTTPS settings** section:

1. Download a certificate file with an **.crt** extension. If your certificate format is different, you can [convert it](#).
2. Download a private key file in **.key** format.
3. Specify the password if it was set when generating the key.
4. If you need to set up an HTTPS port which is different from the standard **443** port, click on the **Apply** button.
5. Click the button to the right of the **Use HTTPS:** line to apply the settings.

There are three ways to generate a certificate file:

- Create a self-signed certificate.
- Generate a free Let's Encrypt certificate on a [Windows](#) or [Linux](#) PC.
- Buy a commercial certificate.




You can add certificate and key files only via the web interface; however, it is also possible to enable or disable HTTPS access with a remote control. To do it, go to the [Configuration → Network → HTTP](#) section of the endpoint menu and change the required parameter.

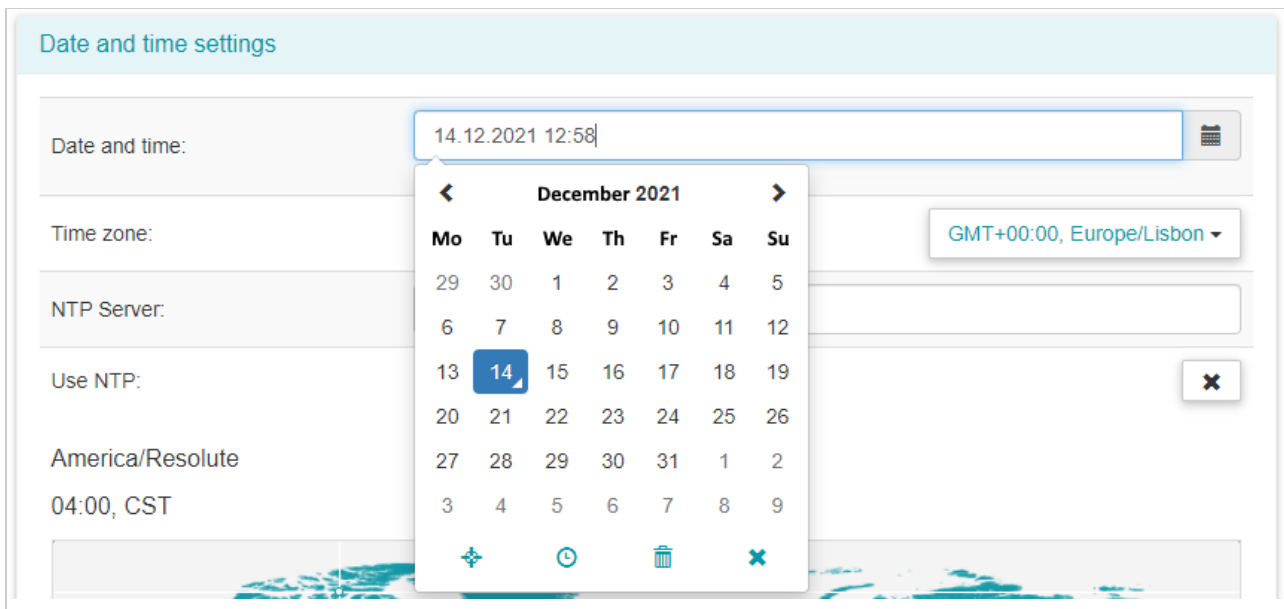
15.2. Settings

To access endpoint settings, go to the **Settings** tab at the top. Almost all sections match the sections of the interface accessible via the remote control.





Here are several sections that are specific to the web interface or offer advanced features.

15.2.1. Date and Time Settings

In the **Date and time** section of the control panel, in addition to the [settings you can configure using the remote control](#), you can use a convenient calendar widget. It can be displayed by pressing the  button:



Use the widget buttons to:

-  : Choose current date
-  : Go to the time settings
-  : Delete current date and time
-  : Close the calendar widget

The widget also offers an interactive time zone map where, by hovering the mouse over each of the city circles, you can see its current time. To choose the desired time zone, simply left-click on the city:

To save settings, click on the **Apply** button.

15.2.2. Power Control

In the **Power supply** section, you can set up sleep mode (similar to [remote control settings](#)).

Power control also offers additional options:

- Put the endpoint into sleep mode
- Complete shutdown
- Restart the endpoint
- Restart video conferencing software without rebooting the OS.

15.2.3. Software Administration and Upgrades

In the **Maintenance** section you can:

- Set [an endpoint interface language](#)
- Set [a password to access the settings menu](#)
- Set the [password for accessing the API \(SSH control\)](#)
- Upgrade firmware and license
- Export/import settings



NTP settings are not exported to the configuration file.

- Go back to default settings.

To upgrade your firmware, you need to obtain the update file by contacting [TrueConf managers](#). Choose this file in the **Upgrade software**. You will see a warning about restarting the video conferencing system, and in a few seconds you will be able to work with the new software version.



Before updating the software, make sure that TrueConf Group is connected to a reliable power source so that the device does not suddenly shut down during the update. Please check that you have a stable network connection to the endpoint so that the control panel access is active.

To renew your license:

1. In the **Licensing** unit, click **Download** in **Export hardware info**.
2. Contact the [TrueConf managers](#) and provide the saved configuration file. In response, you will receive your license file.
3. Choose it in the **Upload license**.

In the **Maintenance** unit you also can:

- Export/import TrueConf Group configuration and its address book, e.g., to transfer data between several endpoints
- Upload the call history in JSON format (this can be useful when analyzing data using third-party utilities)
- Clear the call history or the address book (please note that this action is **irreversible**).

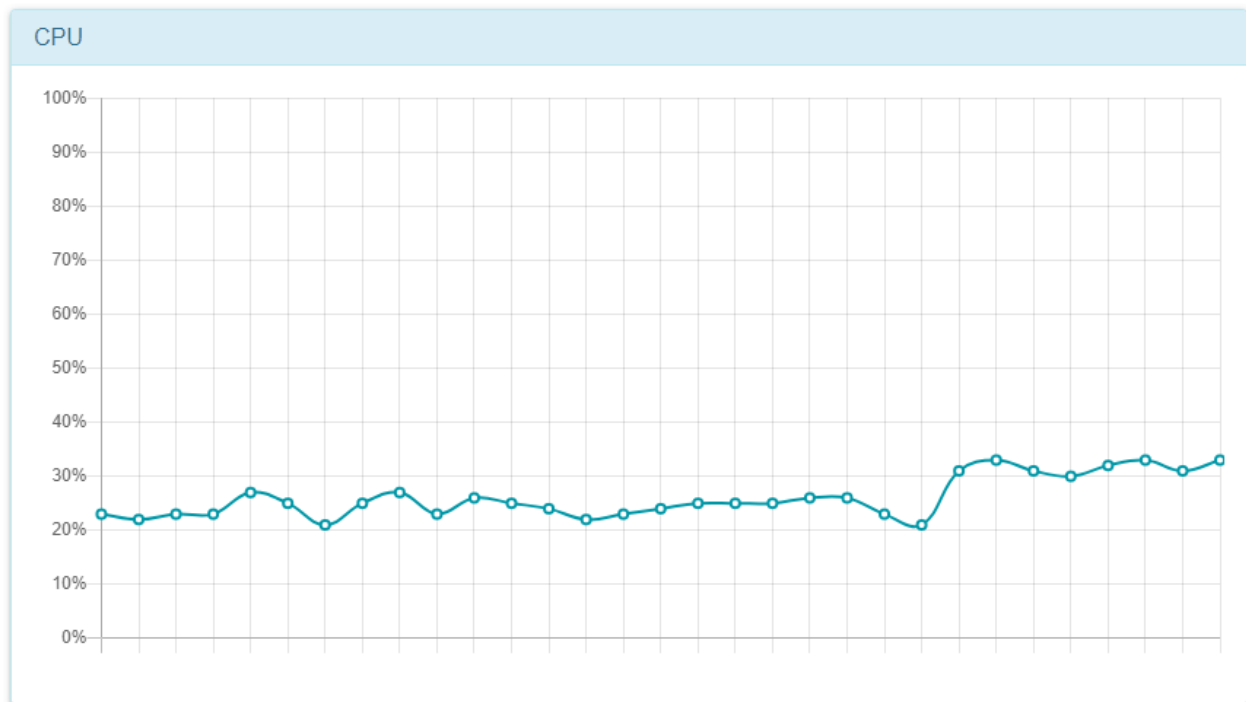
15.2.4. Performance Diagnostics

To check the status of the endpoint subsystems and view operation log files, go to the **Diagnostics** section.

1. **Subsystems state** section displays detailed statistics on TrueConf Group resource usage:

Subsystems state	
Active calls:	2
Regular queue memory usage:	0 / 288767
Urgent queue memory usage:	0 / 2255
Regular queue messages:	0 / 255
Urgent queue messages:	0 / 1
Scheduler job queue:	12 / 1024
Worker thread count:	4
Worker thread occupancy:	19 %
Worker thread overhead:	0 %
Current resource usage (enc/dec):	18 / 9
Required resources (enc/dec):	18 / 9

2. **CPU**block displays the endpoint CPU load graph in real time:



3. **System log** block contains endpoint log files. Please provide them when contacting [TrueConf technical support](#).
4. In the **Ping** block, you can check whether a specific video conferencing server is available via IP and SIP/H.323 protocols. To that end, enter its IP address or DNS name (without specifying the protocol, e.g., `video.company.com`) in the **Address** field and click the **Check** button:

Ping

Address: **Check**

Available by IP:	10.120.1.141	✓
Available by SIP:	10.120.1.141	✓
Available by H323:	10.120.1.141	✓
Average ping time:	3 msec	

5. To check the route of packets directed to a particular server or the endpoint, specify the server IP address or DNS and click **Check** in the **Traceroute** section.
6. In the **Network log** unit you can record network traffic passing through the endpoint and analyze it using [Wireshark](#). Also, you should provide traffic recording files when [contacting TrueConf technical support](#).

16. Management from the command line

TrueConf Group endpoint can be managed not only with a remote control or via the web interface, but also with the command line interface (CLI). To use the command line, connect with any SSH application like PuTTY or OpenSSH.

This feature also makes it easy to integrate TrueConf Group into meeting room management systems and display the endpoint control buttons in the tablet interface.


16.1. How to connect



By default, ability to authorize in the CLI of TrueConf Group via SSH is limited by the settings of the endpoint operating system. After three unsuccessful authorization attempts (entering an incorrect password), the ability to connect is blocked. To unblock it, you need to [restart the endpoint or its OS](#).

Step 1. To connect to the endpoint from the command line, you should first set the access password:

The screenshot shows the TrueConf web interface. On the left sidebar, the 'Maintenance' tab is selected and highlighted with a red box and a red circle with the number 1. The main content area shows the 'Licensing' section with 'Export hardware info' and 'Upload license' buttons. Below that is the 'Localization settings' section with a 'Language' dropdown set to 'English'. The 'UI settings password' section has a 'Password' field and 'Undo' and 'Apply' buttons. The 'API password' section has a 'Password' field, an 'Undo' button, and an 'Apply' button. The 'API password' section is highlighted with a red box and a red circle with the number 2. The 'Apply' button in the 'API password' section is highlighted with a red box and a red circle with the number 3.

1. In the [control panel](#), go to the **Configuration → Maintenance** section.
2. Specify the password needed for accessing the endpoint via SSH in the **Password** field of the **API password** section.
3. Click the **Apply** button to save the password. Due to security reasons the password will be hidden. However, you can always view it by clicking on the button .

Step 2. Now you will need to connect from an SSH client. The `admin` login is used:

1. Install (if you have not done it before) and run an SSH client; for example, you can use the OpenSSH package or any other. In many operating systems, it is available out of the box; for example, on Windows 10, you just need to run the following command:

```
ssh admin@[group_ip]
```


where `[group_ip]` is the IP address of your endpoint.

2. Enter the password created at step 1.

3. You will see the greeting text in the CLI of TrueConf Group. Now you can run any [supported commands](#):

```
user@debian:~$ ssh admin@10.160.2.55
admin@10.160.2.55's password:
Welcome to TrueConf Group Management Shell 1.1.0.470
(tcg cli)
```



The commands are case-insensitive, but all letters should be in the same case. For example, you can enter either `HELP` or `help`, but not `Help`.

To view the list of commands, type `HELP`.

To view information about the specific command `[command]`, run `[command] HELP`.

The parameters (if they are present) have to be specified separated by a whitespace, for example, the command

```
CALLHISTORY 10
```

will list 10 most recent entries from the call history.

16.2. Commands

16.2.1. ANSWER

Accept an incoming call

Parameter	Description
VIDEO	Accept an incoming call (if automatic reception has not been configured for it). You can do it in the Configuration → Call → Auto answer options section of the control panel.

16.2.2. AUDIOCODEC

Enable or disable the audio codec.

Parameter	Description
[CODEC] ON	Enable the audio codec [CODEC]
[CODEC] OFF	Disable the audio codec [CODEC]
[CODEC] GET	Get the current state of the codec [CODEC]
GET	Get the current state of all audio codecs



To view the list of all codecs supported by the endpoint, check the section ["TrueConf Group features"](#).

16.2.3. AUDIOMUTE

Microphone control.

Parameter	Description
ON	Mute microphone
OFF	Unmute microphone
GET	Get the current state of the microphone
REGISTER	Receive notifications about the changes in the microphone state. If the moderator mutes/unmutes the microphone, the corresponding notifications will be displayed in the console. These messages will be displayed only in the current SSH connection until they are disabled with the command <code>UNREGISTER</code> .
UNREGISTER	Disable microphone state notifications

16.2.4. AUTOANSWER

Settings for automatic call pick-up.

Parameter	Description
YES	Automatically receive the first incoming call. It is similar to selecting the option Auto answer for the parameter Settings → Call → Auto answer options → Answer first call
NO	Disable automatic call pick-up. It is similar to selecting the option Manual for the parameter Settings → Call → Auto answer options → Answer first call
DND	Incoming calls are prohibited; all of them will be automatically declined. It is similar to selecting the option Do not disturb for the parameter Settings → Calls → Auto answer options → Answer first call
GET	Get the current value of the parameter for the call pick-up

16.2.5. CALLINFO

Get information about the current call

The command will display information about one or multiple connections (if the [MCU feature](#) is used). The `CallID` parameter is the identifier of a call and is used in other commands. Here is how this command works:

```
TCG console>CALLINFO
Active calls:
CallID:"8"
    Direction:Outgoing
    Contact URI:"sip:admin@demoi.trueconf.com"
    User agent:"TrueConf Server 5.0.0.1586"
    Duration:230 sec
    Bitrate:"1008"
Audio in: Compression:"G.722.1C (32 kbit/s)", Bitrate:"32", Packets:"11304", Lost
packets:"0", Loss rate:"0%", Jitter:"30"
Audio out: Compression:"G.722.1C (48 kbit/s)", Bitrate:"48", Packets:"11301", Lost
packets:"0", Loss rate:"0%", Jitter:"10"
Video in: Codec:"H264", Bitrate:"960", Resolution:"1280x720", Frame rate:"27",
Packets:"35495", Lost packets:"0", Lossrate:"0%", Jitter:"11%"
Video out: Codec:"H264", Bitrate:"960", Resolution:"1280x720", Frame rate:"30",
Packets:"39959", Lost packets:"0", Lossrate:"0%", Jitter:"2%
```

16.2.6. CALLHISTORY

Get call history

Parameter	Description
N	The number of the most recent calls to be displayed; by default, N is equal to 5

16.2.7. CAMERA

PTZ camera control

Parameter	Description
LEFT, RIGHT, UP, DOWN	Rotate the camera left, right, up and down respectively
ZOOM+, ZOOM-	Zoom in or out
STOP	Stop the camera movement
POSITION SAVE [n]	Save the current camera position (preset) under the number [n]
POSITION LOAD [n]	Move the camera to position (preset) number [n]
POSITION CLEAR [n]	Delete camera position (preset) number [n]



You can check if the camera was configured correctly in the **Settings → Video → Capture** section of the endpoint control panel.

16.2.8. CAMERAMUTE

Camera video stream control

Parameter	Description
ON	Disable the video stream from the camera

OFF	Enable the video stream from the camera
GET	Get the current camera state
REGISTER	Subscribe for notifications about the changes in the camera state (on/off): corresponding notifications will be displayed in the console. These messages will be displayed only in the current SSH connections up until the moment when they are disabled with the command <code>UNREGISTER</code> .
UNREGISTER	Disable camera state notifications

16.2.9. CONTENT

Content sharing control. The content source has to be selected in advance with the [remote control](#) or in the [Conference control tab of the control panel](#).

Parameter	Description
GET	Display the current status of content sharing
PREVIEW	Enable content preview without sending content to the conference
REGISTER	Receive notifications about the changes in the state of content sharing on the endpoint side
SHARE	Start content sharing during a conference
STOP	Stop content sharing

16.2.10. CORETEMP

Get the endpoint CPU temperature.

Command and response example:

```
(tcg cli) CORETEMP
CPU temperature: +50.0°C
```

16.2.11. DIAL

Call to a user

Parameter	Description
URI	Make a call to the specified URI

Then, depending on your actions, the following notifications will be displayed:

- [Incoming call](#)
- [Outgoing call](#)
- [Hangup call](#)
- [Dial failed](#)

16.2.12. DTMF

Send a DTMF code `CODE` to the user with ID [CallID]. The code consists of digits and usually ends with `*`.

Parameter	Description
[CallID]	The call identifier needed for sending the command. If at the moment, when the command is sent there is only one connection with the endpoint, this parameter can be omitted.
CODE	A sequence of DTMF characters that should be sent to a user. The special `P` character adds a 100ms pause.

When the code has been sent, the corresponding notification will be displayed, for example, the code `111#` has been sent to the user with the ID `272` :

```
(tcg cli) DTMF 272 111
DTMF code passed successfully
```

16.2.13. HANGUP

End a call.

Parameter	Description
VIDEO [CallID]	End connection with the ID <code>[CallID]</code> . The value of the call identifier <code>[CallID]</code> is displayed when connection is established, for example, check this notification: Outgoing call
ALL	End all connections

Command result example:

```
TCG console>hangup video 266
Hangup the video call [266] passed
TCG console>
Hangup call [266]:
  Name:"Room"
  Contact URI:"h323:room@video.company.com:1720"
  Protocol:"H.323"
```

16.2.14. HOSTNAME

Get or set the system name.

Parameter	Description
SET [NAME]	Set the system name. When you set the name, the corresponding message will be displayed.
GET	Display the system name

How to get the name or set a new one:

```
(tcg cli) hostname get
System hostname:"TrueConf Group"
(tcg cli) hostname set New name
Hostname "New name" set successfully
```

16.2.15. IP

Get the IP address of TrueConf Group.

Parameter	Description
ADDRESS	Display the IP address of TrueConf Group
ROUTE	Display the routing table

The result of the `IP ADDRESS` command:

```
(tcg cli) ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether fc:34:97:67:62:5f brd ff:ff:ff:ff:ff:ff
    inet 10.160.2.55/22 brd 10.160.3.255 scope global noprefixroute dynamic eth0
        valid_lft 22589sec preferred_lft 22589sec
    inet6 fe80::d2c4:ad3a:e4f8:b569/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

The result of the `IP ROUTE` command:

```
(tcg cli) ip route
default via 10.160.0.1 dev eth0 proto dhcp metric 100
10.160.0.0/22 dev eth0 proto kernel scope link src 10.160.2.55 metric 100
```

16.2.16. LAYOUT

Layout management during a group conference in [MCU mode](#) or in a point-to-point call when the self-view is displayed (there are two video windows in the layout). To learn more about layouts, read the section "[Layout management](#)".

Parameter	Description
EQUAL	Set the layout with video windows that are equal in size
TOP	Set the layout with an enlarged video window displayed on top
BOTTOM	Set the layout with an enlarged video window displayed in the bottom
LEFT	Set the layout with an enlarged video window displayed on the left
RIGHT	Set the layout with an enlarged video window displayed on the right
AUTO	Set an automatic layout
GET	Get the type of the current layout

16.2.17. LISTDEVICE

Get the list of available audio and video devices connected to the endpoint.

Parameter	Description
Without any parameters	Display information about all audio and video devices
AUDIO	Get the list of all audio devices connected to the endpoint
AUDIO CAPTURE	Get the list of all audio capture devices connected to the endpoint
AUDIO RENDER	Get the list of all audio playback devices connected to the endpoint
VIDEO	Get the list of all video devices connected to the endpoint
VIDEO CAPTURE	Get the list of all video capture devices connected to the endpoint
VIDEO RENDER	Get the list of all video playback devices (monitors) connected to the endpoint
SERIAL	Get the list of connected serial ports. It can be used for identifying external USB-RS232 adapters connected to the endpoint

If any of the commands is used, the identifier will be displayed for each of the devices in the `id` parameter. One can use it to run other commands needed for working with devices, for example, when it is necessary to [select a device](#) `SETDEVICE`.

How to get the list of all audio and video devices:

```
(tcg cli) listdevice
```

Available audio capture devices:

```
id="1", "Line in", active:False, default:False, level:100%, boost:0, aec:0,
agc:False, noise suppressor:False
id="2", "HDMI1", active:False, default:False, level:100%, boost:0, aec:0,
agc:False, noise suppressor:False
id="3", "HDMI2", active:False, default:False, level:100%, boost:0, aec:0,
agc:False, noise suppressor:False
id="4", "eMeet M2 [USB Audio]", active:True, default:False, level:100%, boost:0,
aec:0, agc:False, noise suppressor:False
```

Available audio render devices:

```
id="1": "Display port", active:False, default:False, level:86%
id="2": "HDMI", active:False, default:False, level:52%
id="3": "Line out", active:False, default:False, level:17%
id="4": "eMeet M2 [USB Audio]", active:True, default:False, level:4%
id="5": "All outputs", active:False, default:False, level:50%
```

Available video capture devices:

```
id="1": "Clevermic 1212U/HD Camera", video:1280x720@60.01
id="2": "HDMI1/MZ0380:RAW 00.00 12abf55f", video:1920x1080@0.0
id="3": "HDMI2/MZ0380:RAW 01.00 12abf55f", video:1920x1080@0.0
id="4": "USB/file", video:1920x1080@25.0
```

Available video render devices:

```
id="1": "BenQ GL2460", port: HDMI, active:True
```

16.2.18. MENU

Menu display on the endpoint screen.

Parameter	Description
Without a parameter	When the command <code>MENU</code> is run without any parameter, the main menu will be displayed on the endpoint screen
ABOOK	Display the address book menu
HISTORY	Display the call history menu
INFO	If the command is run during a meeting, information about current connections will be displayed on the screen; otherwise, there will be information about the system

16.2.19. MULTIPOINT

[MCU functionality](#) settings.

Parameter	Description
ON	Enable MCU functionality
OFF	Disable MCU functionality
GET	Display the current status of MCU functionality

16.2.20. PROTOCOL

SIP and H.323 settings.

Parameter	Description
PROTOCOL SIP [ON/OFF]	Enable/disable SIP
PROTOCOL H323 [ON/OFF]	Enable/disable H.323
PROTOCOL SIP SRTP [ON/OFF/MANDATORY]	SRTP encryption settings for SIP calls: <code>ON</code> — encryption is recommended, but not required; <code>OFF</code> — encryption is not used; <code>MANDATORY</code> — the endpoint will not be connected to the endpoints that do not support SRTP
PROTOCOL H323 H235 [ON/OFF/MANDATORY]	H.235 encryption settings for H.323 calls: <code>ON</code> — encryption is recommended but required; <code>OFF</code> — encryption is disabled; <code>MANDATORY</code> — the endpoint will not be connected to the endpoints that do not support H.235
PROTOCOL SIP GET	Display the current status of SIP protocol
PROTOCOL H323 GET	Display the current status of H.323 protocol
PROTOCOL SIP SRTP GET	Display the current status of SRTP encryption for SIP calls
PROTOCOL H323 H235 GET	Display the current status of H.235 encryption for H.323 calls



It is impossible to disable both SIP and H.323 at the same time. If one of them is disabled, and a user tries to disable the second one, the former will be automatically activated.

16.2.21. REBOOT

Restart TrueConf Group.

This command is similar to clicking the **Restart** button in the **Settings → Power supply → Power control** section of the endpoint control panel.



This command is executed right after being sent without any preliminary confirmation request (unlike a similar action in the control panel).

16.2.22. RCKEY

Send the code of the button on the remote control to execute the corresponding command as if the button were physically pressed.

Parameter	Description
KEY	Remote control button key. Possible values: 0..9, *, , HOME, BACK, MENU, OK, LEFT, RIGHT, UP, DOWN, DIAL, BACKSPACE, HANGUP, PC, FARNEAR, LAYOUT, ZOOM+, ZOOM-, VOL+, VOL-, POWER

Example of the command for zooming in the image from the PTZ camera connected to the endpoint:

```
(tcg cli) rkey zoom-
RCKEY passed successfully
```

16.2.23. SELFVIEW

Set the mode for displaying the self-view on the endpoint screen (this configuration will not affect the way in which the self-view will be displayed in the layout).

Parameter	Description
ON	Display the local self-view
OFF	Hide the local self-view
TOGGLE	Toggle the self-view (hide when visible or display when hidden)
GET	Get the self-view state

16.2.24. SETDEVICE

Select the device for capturing or playing media streams and content sharing.

The commands listed below use the `DeviceId` parameter which is the device identifier. This identifier can be obtained with the [command](#) `LISTDEVICE`.

Parameter	Description
-----------	-------------

AUDIO CAPTURE [DeviceId]	Select the audio capture device <code>DeviceId</code>
AUDIO RENDER [DeviceId]	Select the audio playback device <code>DeviceId</code>
VIDEO CAMERA [DeviceId]	Select the device <code>DeviceId</code> for capturing the primary video stream (as a camera)
VIDEO PRESENTATION [DeviceId]	Select the device <code>DeviceId</code> for capturing the secondary video stream (content)
SETDEVICE VIDEO PRIMARY [DeviceId]	Select the monitor for displaying the primary video stream
SETDEVICE VIDEO SECONDARY [DeviceId]	Select the monitor for displaying the secondary video stream
VIDEODUAL ALL	Turn on the second monitor
VIDEODUAL OFF	Turn off the second display
VIDEODUAL MIRROR	Duplicate the video from the main display on the second monitor
VIDEODUAL PRESENTATION	Display the secondary stream (shared content) on the second monitor

16.2.25. SHUTDOWN

Shutdown TrueConf Group.

This command is similar to clicking the **Shutdown** button in the **Settings → Power supply → Power control** section of the endpoint control panel.



This command is executed right after being sent without any preliminary confirmation request (unlike a similar action in the control panel).

16.2.26. SPEAKERMUTE

Audio playback settings.

Parameter	Description
ON	Turn off audio playback
OFF	Turn on audio playback
GET	Get the audio playback state
REGISTER	Subscribe for notifications about the changes in the state of audio playback (on or off): corresponding notifications will be displayed in the console. These notifications will be received only in the current SSH connection up until the moment when they are turned off with the command <code>UNREGISTER</code> .
UNREGISTER	Disable notifications about the changes in the state of audio playback

16.2.27. VIDEOCODEC

Enable or disable the video codec.

Parameter	Description
[CODEC] ON	Enable the video codec [CODEC]
[CODEC] OFF	Disable the video codec [CODEC]
[CODEC] GET	Get the current state of the codec [CODEC]
GET	Get the current state of all video codecs



To view the list of all codecs supported by the endpoint, check the section ["TrueConf Group features"](#).

16.2.28. VIDEOMIXER

Set the stream mixing mode for a [multi-point connection \(MCU\)](#).

Parameter	Description
VIDEOLESSON	The video lesson mode in which the participants can see and hear only the moderator (the person using the endpoint is acting as the moderator). In the meantime, the participants can hear each other.
ALL	"All on screen" mode in which all participants can see and hear each other
ACTIVESPEAKER	Voice activation mode in which everyone can see and hear each other and the participant, speaking at the moment is displayed in the spotlighted window

16.2.29. VOLUME

Volume settings

Parameter	Description
UP	Increase volume
DOWN	Decrease volume
GET	Display the current volume level in the console (specified as a percentage)
REGISTER	Subscribe for notifications about the changes in the volume level (up or down): the notifications <code>event: volume up</code> and <code>event: volume down</code> will be displayed in the console. These notifications will be displayed only in the current SSH connection up until the moment they are disabled with the command <code>UNREGISTER</code> .
UNREGISTER	Disable notification about the changes in the volume level



It is also possible to change the volume level with the commands `RCKEY VOL+` and `RCKEY VOL-`.

16.2.30. WHOAMI

Display information about TrueConf Group.

Command result example:

```
(tcg cli) whoami
Information about the system:
  Display Name:"TrueConf Group"
  Serial Number:"TCG01B9209863"
  License Type:"permanent"
  Software version:"1.1.0.470"
  IP address:"10.160.2.55"
  MAC:"FC:34:97:67:62:5F"
  SIP:"sip:10.160.2.55"
  H323:"h323:10.160.2.55"
  H323 Gatekeeper:""
  SIP Server:""
  H323 Name:""
  H323 Extension:""
  Display information:
    Name:""
    Connected:"True"
    Active:"True"
    Mode:"3840x2160@30.0 [30.0]"
```

16.3. Notifications

16.3.1. audiomute off

The microphone has been unmuted.

16.3.2. audiomute on

The microphone has been muted.

16.3.3. cameramute off

The camera has been turned on.

16.3.4. cameramute on

The camera has been turned off.

16.3.5. outgoing content stream started

TrueConf Group has started content sharing in the secondary stream during a call or conference.

16.3.6. outgoing content stream stopped

TrueConf Group has ended content sharing.

16.3.7. Dial failed

The call has ended before it could be received (e.g., by timeout).

16.3.8. Hangup call

The notification displayed when the call with a certain user is ended. Please note that ID [259] is the value of the call identifier [CallID] displayed when running commands [CALLINFO](#) and [HANGUP](#). It is also displayed in the notification [Incoming call](#), [Outgoing call](#).

For example:

```
Hangup call [259]:  
  Name:"Jhon Doe"  
  Contact URI:"h323:doe@10.110.2.240:1720"  
  Protocol:"H.323"
```

16.3.9. Incoming call

The notification displayed when:

- An incoming call is made (in this case, the word `ringing` will also be included)
- An incoming call is answered (in this case, the word `confirmed` will be included).

Please note that ID `[260]` in the examples below is the value of the call identifier `[CallID]`. This ID will also be displayed when running commands `CALLINFO` and `HANGUP`. Additionally, it will be displayed in the notifications: [Outgoing call](#), [Hangup call](#).

Example of a notification about an incoming call that has not been answered yet:

```
Incoming call [260], ringing:  
  Name:"Joe Smith"  
  Contact URI:"h323:111@video.example.com:1720"  
  Protocol:"H.323"  
  User agent:"TrueConf Gateway 4.3"
```

An example of a notification displayed when a call is answered:

```
Incoming call [260] confirmed:  
  Name:"Joe Smith"  
  Contact URI:"h323:111@video.example.com:1720"  
  Protocol:"H.323"  
  User agent:"TrueConf Gateway 4.3"
```

16.3.10. Outgoing call

The notification displayed when:

- When a call is made from the endpoint, the word `ringing` will be included;
- When a user answers a call from the endpoint, the word `confirmed` will be included.

Please note that ID `[259]` in the examples below is the value of the call identifier `[CallID]`. This ID will be displayed when running commands `CALLINFO` and `HANGUP`. It will also be displayed in the notifications [Incoming call](#), [Hangup call](#).

Example of a notification about an outgoing call that has not been answered yet:

```
Outgoing call [259], ringing:  
  Name:"111"  
  Contact URI:"h323:111@10.110.2.240:1720"  
  Protocol:"H.323"  
  User agent:""
```

An example of a notification displayed when a call is answered:

```
Outgoing call [259] confirmed:  
  Name:"111"  
  Contact URI:"h323:111@10.110.2.240:1720"  
  Protocol:"H.323"  
  User agent:"TrueConf Gateway 4.3"
```

16.3.11. speakermute off

The audio playback device has been turned on.

16.3.12. speakermute on

The audio playback device has been turned off.

17. TrueConf Group Features

17.1. Supported protocols and codecs

17.1.1. Protocols

- Video calls via H.323 protocol, including support for H.221, H.225, H.231, H.235, H.239, H.241, H.242, H.243, H.245, H.281, H.283, H.350, H.460, H.460.18, H.460.19, and tone dialing control signals
- Video calls via SIP protocol, including ICE, TURN, BFCP, and RFC 2833
- Video calls via RTSP protocol
- Video calls via VNC protocol
- Video calls via NDI protocol
- Far-end camera control: FECC, H.224, H.281
- TCP/IP, Static IP, DHCP, IPv4, IPv6, DNS, MDNS, NTP, IEEE 802.1X, IEEE 802.1Q
- Management through SSH, WEB (HTTP, HTTPS)
- Date and time support via NTP
- Resizable MTU
- QoS support: DSCP, DiffServ
- Bandwidth control (RFC 8298)
- Adaptive Bandwidth Management
- Lost packet recovery (RFC6865)

17.1.2. Video codecs

- H.261, H.263, H.263+/++, H.264 Baseline Profile, H.264 High Profile, H.264 SVC **(under a license)**

17.1.3. Audio Codecs

- G.711, G.719 (Siren22), G.722, G.722.1 (Siren7), G.722.1 Annex C (Siren14), G.723.1, G.726, G.728, G.729, AAC-LD (MPEG4 64 kbit/s), OPUS

17.1.4. Video resolutions

- QCIF@15, CIF@30, NHD 360p@30, w408p@30, 4CIF@30, SD 480p@30, SD 480p@60, FWVGA 480p@30, FWVGA 480p@60, HD 720p@30, HD 720p@60, FullHD 1080p@30, FullHD 1080p@60 **(may be different depending on configuration)**, 4K 2160p@30 **(under a licence)**

17.2. Connection Interfaces

- HDMI input **(optional depending on the model)**
- HDMI output
- DisplayPort output
- USB 3.0
- USB 2.0
- Line out
- Mic in
- COM port
- RJ-45

17.3. Network Interfaces

- LAN/Ethernet (RJ-45) 10/100/1000 Mbit (1Gbit) supporting IEEE 802.1x and IEEE 802.1q
- Second network interface **(may be different depending on configuration)**:
 - Grouping between Ethernet network adapters (NIC Teaming)

- Simultaneous connection to two different networks

17.4. Endpoint Features

17.4.1. General Features

- Up to 2160p for the main and second feed streams
- Built-in MCU module that allows transcoding and mixing video streams into one stream via SIP, H.323, RTSP, VNC and NDI protocols
- Send multi page documents in PDF and upload PNG, JPEG, TIFF images from the USB drive, which can be panned, zoomed, and flicked using remote control
- Availability of a local address book with support for contact groups and the ability to select the preferred communication protocol
- View and edit the address book
- Availability of a network address book integrated via LDAP, H.350
- Integration with the POP3 or IMAP email service to receive conference invitations scheduled on TrueConf Server at the specified email address
- Integration with iCalendar format calendar
- Viewing upcoming events
- Reminder of an upcoming conference with the option to join
- Call log
- IR remote control
- Plug&Play connection of multiple cameras and microphones via USB
- Connecting up to 2 additional video sources via HDMI input (**optional depending on the model**)
- Connect a second screen or projector to play presentations or mirror main screen
- Continuous presence mode
- Configurable main stream coding profiles (Auto, Balance, Detail, Motion, Speaker)
- Configurable H.239 stream coding profiles (Auto, Balance, Presentation, Video Film, Documents)
- Record 1080p video streams (both primary and secondary streams)
- Record conferences to local storage and download them via FTP/FTPS
- Connect IP cameras and view IP streaming sessions via RTSP protocol
- Automatically detect NDI sources in the local network and display them in the address book of the endpoint
- Stream conferences via RTMP and SAP
- Stream conference video to the local network via NDI
- Volume indicator for the outgoing video stream
- Sleep mode, in which PTZ cameras automatically turn away, and connected displays enter standby mode (if supported on their end).
- Built-in H.323/SIP security module that protects against unauthorized attacks
- Integration with TrueConf Server and TrueConf MCU for downloading their address book
- Automatically detect other TrueConf Group endpoints in the local network and display them in the address book

17.4.2. Control Features

- Manage the endpoint locally with a IR remote control
- Control the endpoint remotely via HTTP, HTTPS, and SSH
- Web interface (HTTP / HTTPS):
 - View and control the main camera, including saving and restoring camera settings (presets)

- View and control the additional camera (presentation)
- View and control far-end users' cameras
- View and change MCU layouts
- Send DTMF commands
- View previously created video recordings
- View the current streaming session
- View the current video recording
- View detailed stats on media streams, including bitrate, jitter, packet loss, protocols, and codecs
- Incoming call notification
- Conference control
- View and edit the local address book
- Display the contacts from TrueConf Server and TrueConf MCU as well as automatically-detected NDI streams and other TrueConf Group endpoints in the address book
- View and edit the call log
- Send messages to the endpoint screen
- Send messages to the conference layout
- Volume control:
 - Enable/disable the microphone
 - Enable/disable the speakers
 - Increase/decrease speaker volume
 - Increase/decrease microphone sensitivity
- On-screen controller
- Camera feed settings
- Transfer files for content sharing
- PTZ Camera Control:
 - Far-end camera control (FECC H.281)
 - Control via RS232:
 - VISCA
 - VISCA over IP
 - PELCO-P
 - PELCO-D
 - Control via USB
 - Control via the web interface

17.4.3. Diagnostic Features (Control panel)

- System log: OS log, user action log, video conferencing module log
- Network packet log:
 - Record and save network traffic data to files
 - Download previously recorded files with network traffic data
 - Delete previously recorded files with network traffic data
- Self-test system for the connected audio devices
- Self-test system for connected display devices
- View the current CPU load
- View your camera feed

- View other participants' video
- View conference layout
- View screen layout
- View slides

17.4.4. Administration Capabilities (Control panel)

- Upgrade software
- Import configuration
- Import address book in CSV format
- Export configuration
- Export address book in CSV format
- Export call log
- Equipment management: turning off the camera, microphone, and speakers; adjusting volume; controlling your own and remote camera
- All the above-mentioned meeting management features

17.4.5. Remote Control Features

- Adjust volume
- Control your camera and far-end cameras
- Mute microphone with a single button
- Disable playback with a single button
- Disable your camera with a single button
- Switch layouts with a single button
- Enable/disable your camera's video feed on the screen with a single button
- Panning, zooming, and scrolling through shared presentations/files
- Control using touch monitors and mobile devices with the on-screen controller
- Support for scenes (presets): quick switching between cameras using remote control buttons
- Turn on/off the device

17.4.6. Processing Incoming Calls

- Control the first and subsequent call pickup settings separately
- Ability to enable automatic call acceptance or block incoming calls
- Disable the microphone automatically during incoming calls
- Disable the camera automatically during incoming call
- Block incoming calls when recording or streaming a conference
- Block incoming SIP calls
- Smart SIP spam protection

17.4.7. Built-in MCU Features



The availability of an embedded MCU and the corresponding functionality listed below depends on the TrueConf Group codec model.

- Built-in MCU module that allows transcoding and mixing video streams into one stream via SIP, H.323, RTSP, VNC and NDI protocols
- Enable/disable the built-in MCU module

- Display volume indicators
- Video lecture mode: everyone can see the local camera feed and hear each other
- Symmetric conference mode: everyone can see everyone in the common layout and hear each other, while the layout is set using the remote control
- Voice activation mode: everyone can see everyone in the common layout and hear each other, while the layout switches when an active speaker is detected
- View and change MCU layouts
- Disallow/allow receiving presentations from far-end users
- Customizable Video Layouts
- Overlapping video layouts
- Adjustable overlap factor for video layouts
- The number of multipoint connections should be at least 4

17.4.8. Power Control

- Turn on/off the device
- Restarting the endpoint OS
- Quickly restart video conferencing system
- Sleep Mode:
 - Enter sleep mode after a specified period of inactivity
 - Disable screens
 - Disable cameras

17.5. Security

- SRTP/TLS and H.235 support
- Passwords for various sections and interfaces
- Management through SSH, WEB (HTTP, HTTPS)
- Disable IP services
- Network settings protection

Available on request:

- List of IP addresses allowed for remote access
- Management through Telnet

17.6. Operating, transportation and storage conditions

1. Operate your devices under the following climatic conditions:
 - Ambient temperature: 25 ± 10 °C
 - Relative humidity: 45 ~ 80 %
 - Atmospheric pressure: 84.0–106.7 kPa (630–800 mmHg)
2. Packaged endpoints can be transported by all transport modes according to the category 5 conditions of GOST 15150-69, except for unpressurized aircraft compartments and open decks of ships and vessels.
Endpoints can be transported by rail in containers according to GOST 18477-79.
When transported in freezing temperatures, keep endpoints in normal climatic conditions for at least 24 hours before unboxing.
3. At supplier and consumer's warehouses, video conferencing endpoints must be kept under storage conditions 1 according to GOST 15150-69 with no acidic, alkaline and other aggressive impurities in the air.
4. According to the manufacturer, the device's service life is 5 years if the consumer sticks to the rules and conditions of operation, transportation and storage.

Given that the device is a high-quality and reliable product, the actual service life may exceed the labeled one.


18. Guidelines for Meeting Rooms

The address of your TrueConf Group terminal:

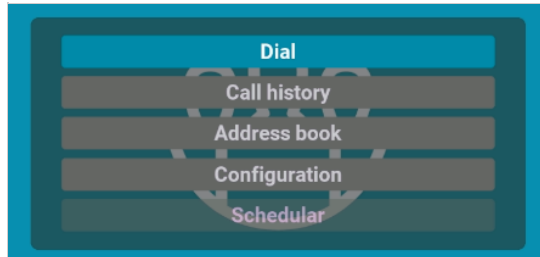
SIP-address:


H.323-address:

18.1. Turn on the endpoint

To start using the terminal, turn it on using the button on the remote control .

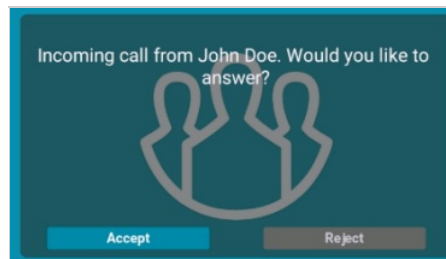
Go to the main menu




To return to the main menu from any section, use the  button.

18.2. Incoming call

When receiving an incoming call, you will see a window displaying the caller's name or the conference title:



You can use the call menu buttons or the remote control buttons **Accept**  and **Decline** .


18.3. How to make a call from a terminal

For calling participants in a conference and users who are not in the address book or call log:



1. Go to the **Dial** menu.
2. Select the required protocol (**H.323** or **SIP**).
3. Enter the ID and server address in the following format:
 - for the conference – `00conference_ID@server_address` ;
 - for the user – `user_ID@server_address` ;
 - for another **SIP/H.323** terminal – `device_address@server_address` .
4. Click **Dial**.

Later, you will be able to repeat this call from the call log.

18.4. Call from address book

1. In the main menu, go to the **Address book** tab.
2. Select the required contact group, for example, **Local** (on the terminal).
3. Select the desired contact and click the  button.

18.5. Presentation sharing

1. Select the content source by clicking the **PC** button .
2. When choosing to play a file from a USB drive, you will see its contents. Here you can choose your file with the navigation buttons.
3. To start the broadcast, press the **PC** button on the remote control  and select **Send presentation**.

18.6. Capabilities during a call



– turn the microphone on or off.



– adjust the speaker volume level of the terminal.



– to zoom in on the image from the PTZ camera or the presentation.



– switching control (arrows and zoom buttons) between different content sources: your PTZ camera, the interlocutor's PTZ camera, and content.



– managing the content source.