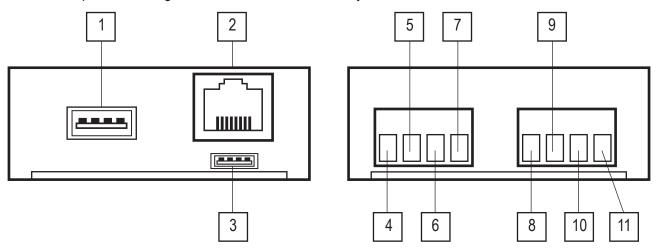
Video Servers of the "Tral 5" series

Operation Manual

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Video servers of the "Tral 5" series are intended for one-channel recording of video signal onto the external USB-HDD, USB-Flash and NAS (Network Attached Storage) through NFS or SMB protocol. H.264 compression of video steaming makes it possible to save large amounts of information (704x576 pxl) with frequency rate up to 25 frames per second on a hard disc. The recording can be permanently active or respond to the signal of built-in or external activity sensor.



1. Connectors: types and purpose.

- 1.1 USB 2.0 Interface connects the external USB-HDD or USB-Flash drive or any other compatible devices.
- 1.2 Ethernet 10/100 Base-T Interface connects local area network, PC and other network devices.
- 1.3 Service Interface serves the purposes of manufacture.
- 1.4 Audio input.
- 1.5 Video input connects the source of video signal in PAL or NTSC standards.
- 1.6 Video and Audio "ground".
- 1.7 Power supply for video recorder and microphone +12 VDC.
- 1.8 Positive side of opto-isolated input.
- 1.9 Negative side of opto-isolated input.
- 1.10 Power ground board.
- 1.11 Power +12 VDC.

2. Start-up Guide

- 2.1 Open the package box and take out the video recorder.
- 2.2 Connect the sources of video and audio signals, external sensor and power supply to the connector blocks.

Attention: Don't connect any external sources if they are turned on, otherwise the video recorder's inputs may malfunction due to the effect of static electricity. This disrepair won't be covered by the guarantee repairs.

2.3 If the recording will be carried out onto the external USB Flash Drive, connect it to the USB connector of the recorder.

- 2.4 Connect the video recorder to the computer or existing local area network via UTP-5 cable (twisted-pair wire) using the following drafting patterns:
- when connecting directly to the network interface of the computer crossover cable is used (see Figure 1);
- when connecting via network commutator straight cable is used. There are two equivalent drafting patterns: T568A and T568B (Figure 2, 3).

Note: the majority of modern network interface cards and commutators support automatic recognition and MDI/MDIX mode switching. If you connect to this type of interface, you can choose any type of pattern from the figure below.

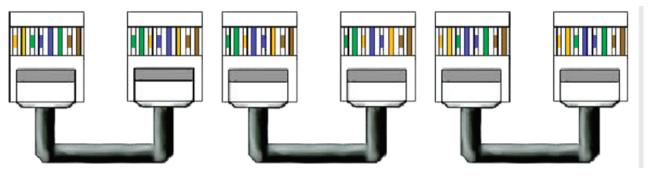


Figure 1: Crossover Cable

Figure 2: Straight Cable in T568A pattern

Figure 3: Straight Cable in T568B pattern

- 2.5 Install software package to start operating the device:
- 2.5.1 Enter the administrator system. It's recommended to close all running programs before installation.

Note: when installing the program on the operating system Windows Vista it's strongly recommended to inactivate UAC (User Account Control) and restart the computer.

- 2.5.2 Launch the Tral 5.1.0.xxx.Installer.exe program (xxx specifies the number of version);
- 2.5.3 when installing follow the instructions of the program and if necessary restart your computer.
- 2.5.4 The following programs will be installed on your computer:
- 2.5.4.1 Tral 5 Launcher (Multivision Launcher): software for automatic search of servers available in the network as well as for launching the programs Tral 5 Setup, Tral 5 NetViewer, Tral 5 FilePlayer providing connection to the selected server.
- 2.5.4.2 **Tral 5 NetViewer:** software for on-line viewing from connected servers. The Interface allows to view up to 9 video channels simultaneously as well as to switch any channel to full-screen mode. When calling the program from Tral 5 Launcher the connection to the selected server in full-screen mode is performed automatically.
- 2.5.4.3 **Tral 5 FilePlayer:** software allowing synchronous viewing of archives of the server. Makes it possible to get the access to the archive via network connection to the server and view both the archive (directly from USB Flash drive) and saved fragments in *.msn3. format. When calling the program from Tral 5 Launcher the connection to the selected server is performed automatically.
- 2.5.4.4 **Tral 5 Setup:** setup access software. The program is called from Tral 5 Launcher only.

- 2.5.4.5 **Tral 5 MsnToAvi** utility for conversion of video fragments from *.msn3 to commonly used *.avi format with the application of codecs installed in the operating system.
- 2.5.4.6 **Tral 5 Options:** software for setting parameters of the program's interface.
- 2.5.5 After the installation is over, all the programs except for Tral 5 Setup become available in the Start Menu of the operating system.
- 2.5.6 Detailed operation manual for each of the programs from the package is located in the corresponding chapter of the document.
- 2.6 Servers of the "**Tral 5**" series use two virtual network interfaces and therefore two different IP addresses.
- 2.6.1 Service interface address is always located within the range of 169.254.0.1 and 169.254.254 (network 169.254.0.0 with address mask 255.255.0.0). This address can't be set by the user. It is selected automatically when turning the server on in the way to avoid address conflicts. This interface is recommended when connecting to the server for the first time or in the case user interface address is lost.
- 2.6.2 User interface available for adjustment in the **Tral 5 Setup** program (Menu "System" → "Network"). Factory settings of this interface provide automatic assignment of the address from DHCP server.

If both computer and the server are connected to the network with automatic assignment of address, go to 2.8

- 2.7 Change TCP/IP parameters of network interface which is used to connect to the server.
- 2.7.1 Open "Network Connection" component.
- 2.7.2 Select the connection which is to be adjusted and then in "Typical Network Configurations" click on "Change connection parameters".
- 2.7.3 Choose "Internet protocol (TCP/IP)" in the list "Selected components are used by the connection" and click on "Properties".
- 2.7.4 Set the statistic IP address 169.254.0.1.
- 2.7.5 Set the mask 255.255.0.0.
- 2.7.6 Clear the addresses off the default gateway and DNS servers.
- 2.7.7 Click on "OK" and if necessary restart your computer.
- 2.8 Power the server and wait till it's active. The process of loading the server is usually no more than 20-30 seconds.
- 2.9 Launch the **Tral 5 Launcher** program and click on "Search".

The program will search for servers in the local segment of the network and add the found devices to the list.

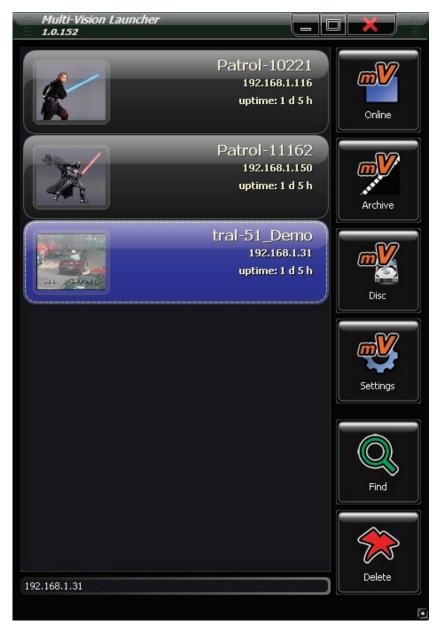


- 2.10 Select the required device out of the list and click on "**Settings**". **Tral 5 Setup** will start to connect automatically to the selected server. Adjust operating parameters of the device.
- 2.10.1 Adjust actual time and date in the Tab "System \rightarrow Time".
- 2.10.2 Check it and if necessary change the parameters of user network interface in the Tab "System → Network". New network settings become operational after you restart the device.
- 2.10.3 If the archive is recorded onto USB-Flash drive, carry out its formatting in the file system of the server in the Tab "Archive" → "Discs" → "USB". Disc formatting is a long process, which may last up to 1 hour depending on the capacity. During formatting the server is unavailable via network.
- 2.10.4 If the archive is recorded onto an external network disc, permit recording and specify the path to the archive in the Tab "Archive" → "Discs" → "Network 1" (or "Network 2").

- 2.10.5 Adjust record settings in the Tab "Video".
- 2.10.6 Set the recording mode in the Tab "Sensors".
- 2.10.7 To prevent unauthorized access to the server it is recommended to activate authorization in the Tab "System" → "Access" and specify the list of users and access rights. Factory settings recognize the following types of users: admin, user and guest with blank password and access rights on settings, archive and viewing respectively.

3. Using the Tral 5 Launcher program

- 3.1 The program is intended for creating and operating the "Tral 5" list, as well as for quick switching to setup program, on-line viewing of video or the archive selected in the server's list.
- 3.2 After **Tral 5.1.0.xxx.Installer.exe** package has been installed the link to the program will be added to the selected folder of the Start Menu.



- In order to start searching for the servers available press the button "Search". The program will search for new devices and then add it to the list.
- To add a video server to the list manually use the IP address input field. Enter the address of the device or its domain name and press "Enter". If the server is adjusted for user port connection, the numbers must be typed with colons. For example:
- 3.4.1 **192.168.0.2** connection to the server through standard 5049 port.
- 3.4.2 **192.168.0.2:6000** connection to the server through 6000 port.
- 3.4.3 **mytral.ru** connection to the server through domain name or standard 5049 port.
- 3.4.4 **mytral.ru:6001** connection to the server through domain name for 6001 port.
- 3.5 "Viewing" press to launch the Tral 5 NetViewer program. The program connects to the devices selected out of the list and goes to full-screen mode.
 - 3.6 **"Archive"** press to launch the archive operation program Tral 5 FilePlayer program archive. The program connects to the device selected out of the list.
 - 3.7 "Settings" press to go to the settings of the device selected out of the list.
 - 3.8 "Delete" press to delete the selected device from the list.

4. Changing server's settings

To change the Tral 5 server's settings the **Tral 5 – Setup** program is used which is included into the standard **Tral 5.1.0.xxx.Installer.exe** package.

The program is called after the required device is selected out of the **Tral 5 – Launcher** list. Then the button "**Settings**" is pressed.

Server's settings are divided into several tabs. The switch to the required tab is performed by a single left click on the Tab with the corresponding name. The current active Tab is color marked.

To apply the changes and quit the program press the button "Save and Quit".

To guit without saving settings press the button "Cancel".

Note: the button "Save and Quit" saves the changes that were introduced on all the Tabs of the program.

4.1 "Video" Tab



- 4.1.1 The current picture is displayed on the left side of the window with decreased resolution and fewer frames per second.
- 4.1.2 "Camera's Name" the name of the camera to be displayed in the viewers Tral 5 FilePlayer and Tral 5 NetViewer.
- 4.1.3 "**Type of Usage**" drop-down list of typical applications of the server. When selecting one of the application types, some video parameters are adjusted. If necessary you can change them manually.
- 4.1.4 **"Additional Channel"** untick if you don't use additional channel. By default the video server digitizes the video with two resolutions:
- 4.1.4.1 **"Main Channel"** 704x288, up to 25 frames per second, bitrate up to 5000 kb/s. The settings of this channel are available in the Tab "Video".
- 4.1.4.2 "Additional channel" 320x240, 6 frames per second, bitrate 400 Kb/s. Parameter settings are fixed. The channel is intended for low bit-rate connection. You can increase the archive's depth by turning off the additional channel.

- 4.1.5 **"Framing Rate"** selects framing rate out of the drop-down list. The following levels are available: 1, 5, 6.25, 8.3, 12.5 and 25 frames per second. When decreasing the number of frames the archive's depth is increased. The set framing rate level is active both when recording the archive and viewing of current video.
- 4.1.6 "Brightness", "Contrast", "Saturation", "Hue", "Sharpness" adjust the required parameters with the help of a slider box or directly through entering the figures into the corresponding fields.
- 4.1.7 "Compression Algorithm" selects the coding mode for video: H.264 or MPEG-4.
- 4.1.8 "Compression Quality" selects bitrate (kilobits per second). The level ranges from 0 to 5000. Decreased bitrate leads to increased archive's depth, but reduces the quality of picture. Increased bitrate leads to lesser archive's depth, but enhances the quality of picture. The set bitrate level is on both when recording the archive and when viewing current video.
- 4.1.9 **Noise Reduction** select the type of noise reduction out of the list. Noise Reduction restricts framing rate.

4.2 "Sensors" Tab

The Tab allows you to set the required record mode.



- 4.2.1 "Record Mode" sets record mode: permanent or by sensor. When turning on the "by sensor" mode you can select either one or several sensors that turn on the recording.
- 4.2.2 **"Event's Name at contact closure"**: text message to be recorded into the stream when closing contacts of the external sensor.
- 4.2.3 **"Event's Name at contact breaking"** text message to be recorded into the stream when breaking contacts of the external sensor.

Note: while the sensor is connected text messages are recorded into the archive regardless of the recording mode and when viewing they are displayed in the list of events.

- 4.2.4 **"Event"** selects the mode of the external sensor that starts the recording. Video server records more than 5 seconds that precede the activation of sensor.
- 4.2.5 "Recording by Contact" turns off external sensor recording mode. Available for change only at recording mode "by sensor".
- 4.2.6 "**Recording by Motion**" turns on the recording by built-in activity sensor.
- 4.2.7 **"Sensor's Threshold"** specifies operation threshold of motion sensor. Operation threshold of sensor is stated as percentage. Lesser threshold corresponds to higher sensitivity; bigger value corresponds to lower sensitivity.
- 4.2.8 **"Event's Name"** text message to be recorder into the stream at the activation of motion sensor. Symbols %d will be replaced by the order number of the event starting from the last server's restarting.

Note: while the sensor is connected text messages are recorded into the archive regardless of the recording mode and when viewing they are displayed in the list of events. To turn off recording of messages switch the sensor's threshold to "turned off".

- 4.2.9 "Post recording Time" time stated as seconds during which the recording will be performed after the activity in the frame will go down the set threshold. Regardless of the value of this parameter Video server records more than 5 seconds that precede the activation of sensor.
- 4.2.10 "Setting Masking Zone" excludes the random frame field from the processing by the activity sensor. For more convenient setting the current picture divided into cells is displayed at the right part of the window.

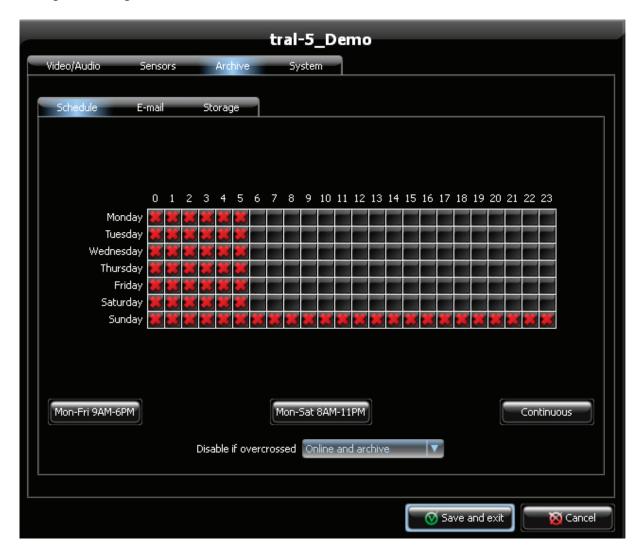
Attention: Motion sensor doesn't function in shadowed cells.

4.2.10.1 To tick off the cell place cursor on the cell itself and press on the left mouse button.

Use right click to untick the cell.

- 4.2.10.2 To tick off/untick a cell cluster drag the cursor holding the corresponding button.
- 4.2.10.3 To select a time-table you can use the n buttons "Clear All" and "Fill All". Further you can edit the masking zone manually.
- 4.2.11 "Recording by Sound sensor" turns on the recording mode when the built-in program sound sensor is activated.
- 4.2.12 **"Sensor's Threshold"** specifies operation threshold of sound sensor. Lesser threshold corresponds to higher sensitivity; bigger value corresponds to lower sensitivity.
- 4.2.13 **"Event's Name"** text message to be recordered into the stream at the activation of motion sensor. Symbols will be replaced by the order number of the event starting from the last server's restarting.

Note: while the sensor is connected text messages are recorded into the archive regardless of the recording mode and when viewing they are displayed in the list of events. To turn off recording of messages switch the sensor's threshold to "turned off".



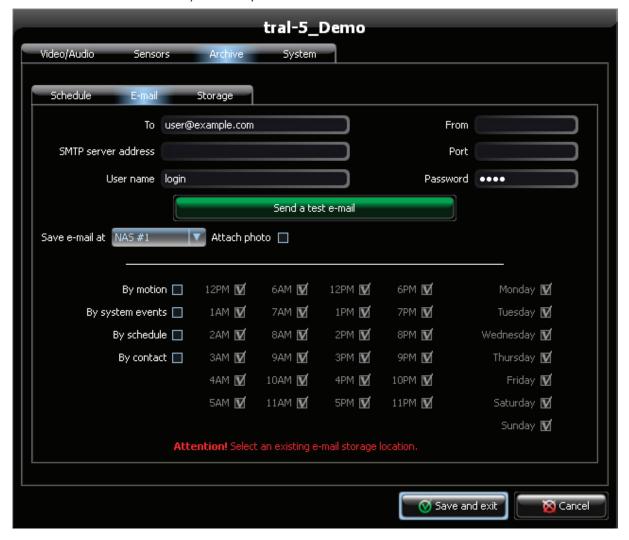
- 4.2.14 "Post recording Time" time stated as seconds during which the recording will be performed after the activity in the frame will go down the set threshold. Regardless of the value of this parameter Video server records more than 5 seconds that precede the activation of sensor.
- 4.3 "Timetable" Tab sets the timetable of the recorder's operation.
- 4.3.1 The current timetable is displayed in the Table. Hours (from 0 to 23) are stated across, and days are stated down.The rule selected out of the list "If crossed out, then forbidden" covers only those hours that are marked by a red cross in the Table.
- 4.3.2 In order to mark a cell with a cross, set the cursor on this cell and make a left click. Use the right click to remove the cross.
- 4.3.3 To tick off/untick a cell cluster drag the cursor holding the corresponding button.
- 4.3.4 To select a timetable you can also use the buttons "Mo-Fr 9-18", "Mo-Sa 8-23", "Mo-Su 0-23". In this case the hours specified in the template are marked. Further you can edit the timetable manually.
- 4.3.5 "**If crossed out, then forbidden**" may acquire the following meanings:
- 4.3.5.1 "**Recording**" forbids recording into the archive at the hours marked by a red cross. Viewing of current video remains available.
- 4.3.5.2 **"Observing and recording"** forbids recording into the archive as well as current video viewing at the marked hours.

Note: The server's operation timetable is of top priority for the system. Therefore, the recording is NOT be performed at the marked hours regardless of the settings in the Tab "Sensors".

4.4. "Mail" Tab

- 4.4.1 "**To**" enter the receiver's name.
- 4.4.2 **"From"** enter the sender's name.
- 4.4.3 "SMPT-server's address" enter the SMPT-address for delivering your mail.

 Both forms of address (either domain name with set DNS-servers in the Tab "Network" or IP-address) are acceptable.



4.4.4 "**Port**" – enter the number of the port for SMPT server. Port 25 is commonly used, but other values are also possible.

Specify the number of SMPT-port from the administrator of your mail server.

- 4.4.5 "Login" enter the name of mail server user. In most cases it coincides with the sender's address.
- 4.4.6 "Password" enter the password to get the access to the mail server.
- 4.4.7 **"Save Mail on"** select the storage device that is used for temporary storage of your outbox.

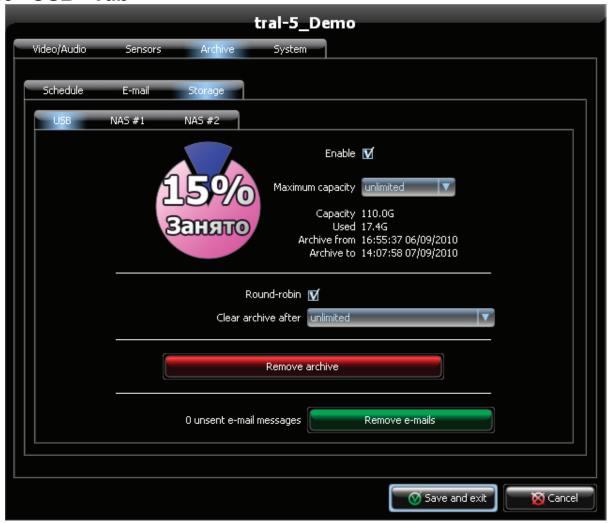
Attention: mail delivery isn't performed if there are no storages available for recording in the server's settings.

- 4.4.8 "Attach Photo" tick off to attach a photo made in course of creating the e-mail.
- 4.4.9 "Attach Video" tick off to attach a video extract.
- 4.4.10 **"Send A Trial Message"** press to check the possibility of mail delivery. A trial message with the above mentioned settings will be sent.

Attention: Before sending a trial message, you must save the settings!

- 4.4.11 "By Motion" sends mail at motion sensor actuation.
- 4.4.12 **"By System Events"** set to send mail by system events. These events include appearance/disappearance of camera signal, turning on of the server.
- 4.4.13 **"By Time"** set to deliver mail according to the timetable. After this function has been activated specify days and hours that the mail is to be sent.
- 4.4.14 "By Contact" set to send mail according to external sensor actuation.

4.5 "USB" Tab



This Tab sets parameters of recording the archive onto the external USB-drive.

- 4.5.1 "Permit Recording" tick off if you want to use external USB-drive for recording.
- 4.5.2 A circular diagram shows the amount of free and occupied disc space stated as percentage. While estimating the value of "**Maximum capacity**" parameter is used.
- 4.5.3 "Maximum Capacity" specify disc capacity to use for saving the archive. Select "unlimited" if the whole free disc space can be used.
- 4.5.4 "Overall Size" shows disc capacity after formatting. The value is usually 10% less than the capacity set by the drive's manufacturer. That is connected with the peculiarities of file system.
- 4.5.5 "Occupied" occupied disc capacity.
- 4.5.6 **"Archive's Start Time"** shows start time and date of the archive saved on the disc. When the mode "Circular Recording" is turned on, time is shown with account of deleted fragments.
- 4.5.7 "Archive's End Time" time and date of the last record in the archive.
- 4.5.8 **"Circular Recording"** untick if you want to turn off circular recording. In this case recording stops, when the archive goes beyond the parameter "Maximum capacity".
- 4.5.9 **"Save no more than"** specifies archive's maximum depth.
- 4.5.10 "Format the Disc" press to format the disc. Formatting may take quite a long time that depends on the drive's capacity. During formatting the recording of the archive stops and the server isn't available in network.

NOTE: the drive is formatted in the ext3 file system. When connecting such disc to the computer with Windows operating system it is unavailable for direct reading. To work with such disc use Tral 5- FilePlayer.

- 4.5.11 "Unsent Messages" the number of unsent messages in you e-mail. The reason for the accumulation of messages may be the inaccessibility of mail server or error in the mail delivery settings. When connection to the server is restored mail will be delivered.
- 4.5.12 "Clear Messages" press to delete all unsent messages.

4.6 "Network" Tab

The Tabs "**Network 1**" an "**Network 2**" are intended for setting external NAS (Network Attached Storge) parameters. "Tral 5" server enables to record the archive simultaneously onto two network drives and onto the external USB-drive.

However, there is one peculiarity when working with the server's archives. The connection can be performed only to one storage of the archive that is permitted by the settings. The access is available for the first permitted storage in the following order: "Network 2", "Network 1" and "USB".



- 4.6.1 "Permit Recording" tick off if you want to use external network storage for recording.
- 4.6.2 A circular diagram shows the amount of free and occupied disc space stated as percentage. While estimating the value of "Maximum capacity" parameter is used.
- 4.6.3 "Maximum Capacity" specify disc capacity to use for saving archive. Select "unlimited" if the whole free disc space can be used.

- 4.6.4 "Overall Size" shows network drive capacity.
- 4.6.5 **"Occupied"** occupied disc capacity. When estimating all the information saved on the drive is accounted (including user's files and other servers' archives).
- 4.6.6 "Archive's Start Time" shows start time and date of the archive saved on the disc.
- 4.6.7 "Archive's End Time" time and date of the last record in the archive.
- 4.6.8 "Network Path" specifies the full path to the folder of network drive.
- 4.6.9 "Circular Recording" untick if you want to turn off circular recording. In this case recording stops, when the archive goes beyond the parameter "Maximum capacity".
- 4.6.10 "Save no more than" specifies archive's maximum depth.
- 4.6.11 "Clear all Data from the Disc" press to clear the server's archive.

NOTE: Only the archive of this server is deleted. User's information or other devices' archives are not deleted.

- 4.6.12 "Unsent Messages" the number of unsent messages in you e-mail. The reason for the accumulation of messages may be the inaccessibility of mail server or error in the mail delivery settings. When connection to the server is restored, mail will be delivered.
- 4.6.13 "Clear Messages" press to delete all unsent messages.

4.7. "Access" Tab

To prevent unauthorized access to the server it is recommended to activate authorization. In the factory settings authorization is turned off.

- 4.7.1 There are three access levels in the system:
- 4.7.1.1 "**settings**" full access to the system.
- 4.7.1.2 "archive" access to the archive and on-line viewing.
- 4.7.1.3 "viewing"- only the access to on-line viewing is permitted.



- 4.7.1.4 "Use Authorization" press to use authorization of access to video server.

 The list of user accounts and access rights are displayed in the list. Users admin, user, guest are created by default with blank passwords and such access rights as "settings", "archive" and "viewing" respectively.
- 4.7.1.5 "Add" press to add a new user account to the list. After you have specified user's name, password and access rights press "OK" to save the new user in the list.

Attention: the password must contain numbers and Latin letters only.



- 4.7.1.6 "Change" changes the parameters of the selected user account.
- 4.7.1.7 "Delete" deletes the user account selected out of the list.
- 4.7.1.8 All the changes performed in the Tab "Access" become active only after the settings have been saved. ("Save and quit" button).
- 4.7.1.9 Pay attention to entering user's name and password. The lost access to video server through user's fault isn't a guarantee event, the reset can be carried out only in our service center on a paid basis.

4.8 "Network" Tab

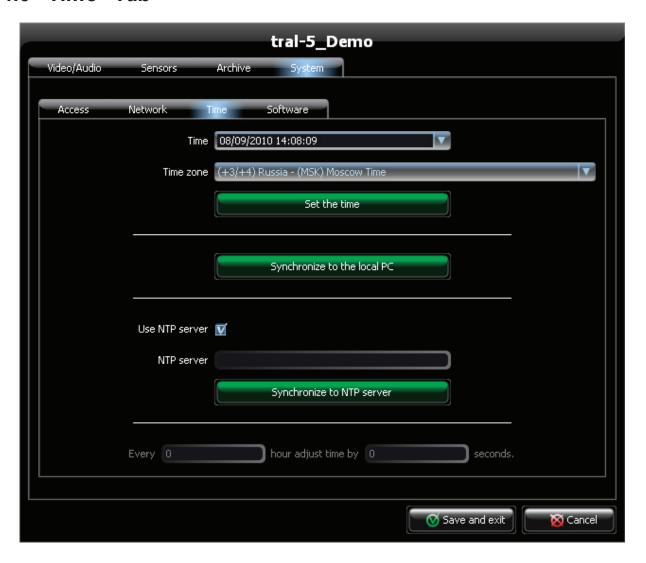


- 4.8.1 "Net Name"- specifies server's name to identify it in the net.
- 4.8.2 "Domain Name" domain name that video server belongs to.
- 4.8.3 **"External port"** the number of an additional port that is used for access to the server. Port5049 is used for connection by default. If you use a non standard port its number should be entered with colons h after IP address of the video server.
- 4.8.4 "Use DHCP" untick if video server is used in the network with static addresses.
- 4.8.5 "IP address" specifies fixed server's address.
- 4.8.6 "Mask" set the subnet mask.
- 4.8.7 "**Default Gateway**" specify the new address of the default gateway.
- 4.8.8 **"Main Server of names"** and **"Additional server of names"** specify the addresses of DNS servers.
- 4.8.9 **"MAC address"** MAC address of network interface is used to identify the device in the server.

Attention: All the settings in the Tab "Network" are applied to the video server's user interface only. Service interface settings aren't displayed in the program.

4.8.10 The changing of network settings will be performed after they have been saved and the device has been restarted.

4.9 "Time" Tab



- 4.9.1 **"Time"** the field displays the current time and date set in the video server. The time is accounted from the moment of connecting to the device and doesn't change during sessions of settings.
- 4.9.2 "Time Zone" current time zone value.
- 4.9.3 **"Set the Time"** sets time in video server in accordance with the fields "Time" and "Time Zone".
- 4.9.4 **"Synchronize with Computer"** synchronizes time, date and time zone with the computer's clock.
- 4.9.5 "Use NTP server" tick off if you use synchronization of time with NTP server.
- 4.9.6 "NTP server" the field to enter the address of NTP server. Both IP-address and domain name are acceptable. If the field isn't filled synchronization will not be performed.
- 4.9.7 **"Synchronize with NTP server"** immediate synchronization of time with specified NTP server.
- 4.9.8 **"Every 0 hours put the clock ahead 0 seconds"** specify parameters for automatic time accuracy. It is available only if synchronization with NTP server is turned off.

4.10 "Software" Tab



- 4.10.1 The list displays the current information about the version of internal software as well as the names and versions of additional packages.
- 4.10.2 "Delete" deletes the selected package out of the system.
- 4.10.3 "Reset Settings" restores factory settings of video server.
- 4.10.4 "Save Settings" press to save the settings of video server onto a local computer. You will choose the destination folder and the name of file. Saved settings may be needed when applying to technical support service or when loading "Tral 5" series to other video server.
- 4.10.5 "Restore settings" loads the saved settings into the server. You should choose the file with saved settings.
- 4.10.6 "Restart the Device" restarts video server.
- 4.10.7 **"Save the Report"** saves the system report onto the local computer. System report may be needed when applying to technical support service.
- 4.10.8 "Select" selects additional package to be installed on the server.
- 4.10.9 **"Install the Package"** installs the selected package onto the server. After installation the package appears in the list.