TTA Monitor

Network parameter monitoring system
Digital Devices

User Manual

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1. Conventions and Abbreviations

1.1. Designations

The document uses conventional symbols (icons) located on the left side of the page to highlight critical information. The list of the conventional symbols used in this document can be found below:

Table 1. Graphical symbol

	Indicates a warning that special attention should be paid to a particular section of the document.
	Indicates a warning about critical information to which special attention should be paid.
	Indicates a note or a piece of explanatory information.
	Indicates an example text from the system console, report or other source.
	Indicates a tip that saves time and helps the user to work more efficiently.
	Indicates a reference to an external document (e.g., specification or other resource) where more detailed information or description can be found.
	Indicates a screenshot demonstrating a respective part of a text.

1.2. Reductions

Table 2. Reductions

Reduction	Description
SIP	The Session Initiation Protocol (SIP) is a communications protocol for signaling, for the purpose of controlling multimedia communication sessions. Internet telephony, business IP telephone systems, service providers and all of the carriers use SIP
VoIP	Voice over Internet is a methodology and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet
TDM	Time-division multiplexing (TDM) is a method of transmitting and receiving independent signals over a common signal path by means of synchronized switches at each end of the transmission line so that each signal appears on the line only a fraction of time in an alternating pattern. It is used when the data rate of the transmission medium exceeds that of signal to be

Reduction	Description
	transmitted
E1	Standard of digital transmission of data
D-Channel	D channel (delta channel) is a telecommunications term which refers to the ISDN channel in which the control and signaling information is carried
PSTN	The public switched telephone network (PSTN) is the aggregate of the world's circuit-switched telephone networks that are operated by national, regional, or local telephone operators, providing infrastructure and services for public telecommunication. The PSTN consists of telephone lines, fiber optic cables, microwave transmission links, cellular networks, communications satellites, and undersea telephone cables, all interconnected by switching centers, thus allowing most telephones to communicate with each other
SNMP	Simple Network Management Protocol
CDR	Call Detail Record
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Service
HTTP	Hypertext Transfer Protocol. Refer to IETF RFC 1945 and RFC 2068
IP	Internet Protocol. An Internet network-layer protocol
MG	Media Gateway. Provides the bearer circuit interfaces to the PSTN and transcodes the media stream
RADIUS	Remote Authentication Dial-In User Service. An internet protocol (IETF RFC 2865 and RFC 2866) originally designed for allowing users dial-in access to the internet through remote servers. Its flexible design has allowed it to be extended well beyond its original intended use
RTP	Real-time Transport Protocol. A protocol for encapsulating encoded voice and video streams. Refer to IETF RFC 1889
RTCP	Real-Time Control Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol. A connectionless protocol built upon Internet Protocol (IP)

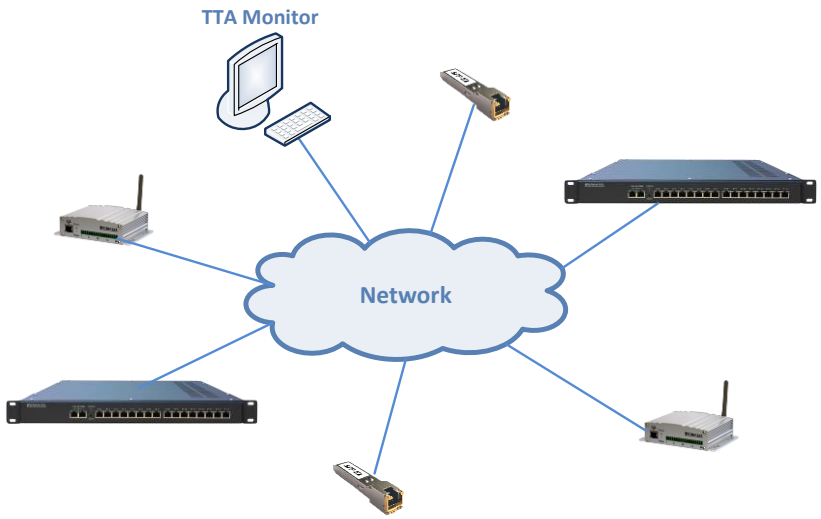
2. Copyright

3. Introduction

The network system for monitoring the parameters of digital devices from the TERRATEL Company, hereinafter referred to as the specialized software "TTA Monitor", allows you to control and timely inform about the key parameters of the operation of digital devices, including availability, bandwidth, as well as inform about the occurrence of emergency events.

TTA Monitor software is a specialized network monitoring system for servicing up to 500 digital devices (network elements) manufactured by TERRATEL.
It supports the following network elements:

- SIP/E1 Media Gateway;
- iDLU Gateway;
- SFP VoIP Converter;
- TTA-08.



TTA Monitor uses the SNMP protocol to work on the network.

SNMP (or Simple Network Management Protocol) consists of three key components: managed devices, agents, and network management systems (NMS). SNMP is a set of standards for communicating with devices on a TCP/IP network.

TTA Monitor software allows:
when administering

- creating and editing network elements;
- automatic completion of information related to network elements;

with remote maintenance and monitoring of network elements

- display system information of the device;

- display the status of a network element;
- display the status of interfaces E1, Ethernet and SIP channels;
- software version control;
- logging of emergency events or changes in device status to the database file.

This guide will introduce you to the basics of working with TTA Monitor software. The information contained in it is enough to immediately begin work.

Quickly read the manual before starting work, and then refer to the necessary sections for reference information using the table of contents.

4. Installing, Removing Software

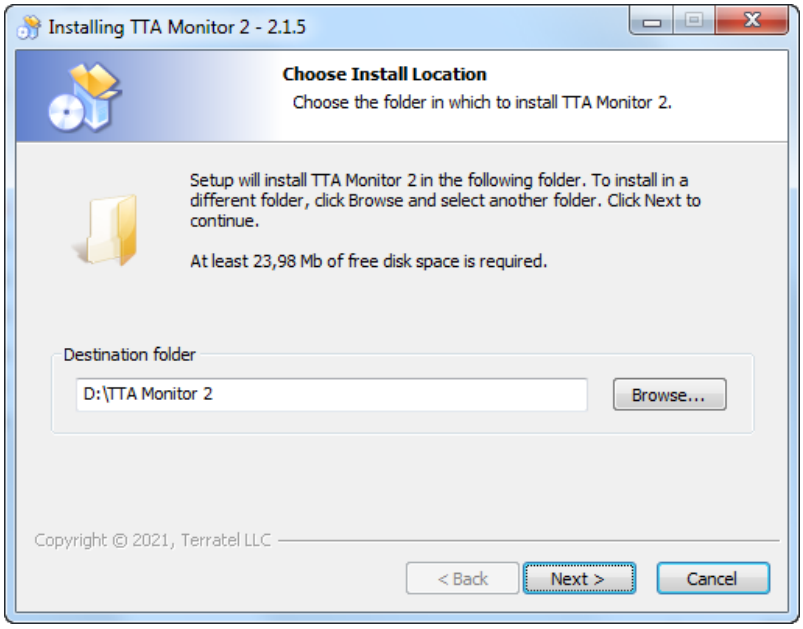
4.1. Install software

To start the process of installing the TTA Monitor software, use the **Setup.exe** file.

The installation process is implemented as an installation wizard with a sequence of dialog boxes that contain a series of clearly defined installation steps. Follow the instructions of the installation wizard.

To continue the installation and go to the next step, click the «Next» button, to return to the previous step, use the «Back» button, and to cancel the installation and complete the wizard, click the «Cancel» button (Figure 1).

Figure 1. Software Installer - Start Installation



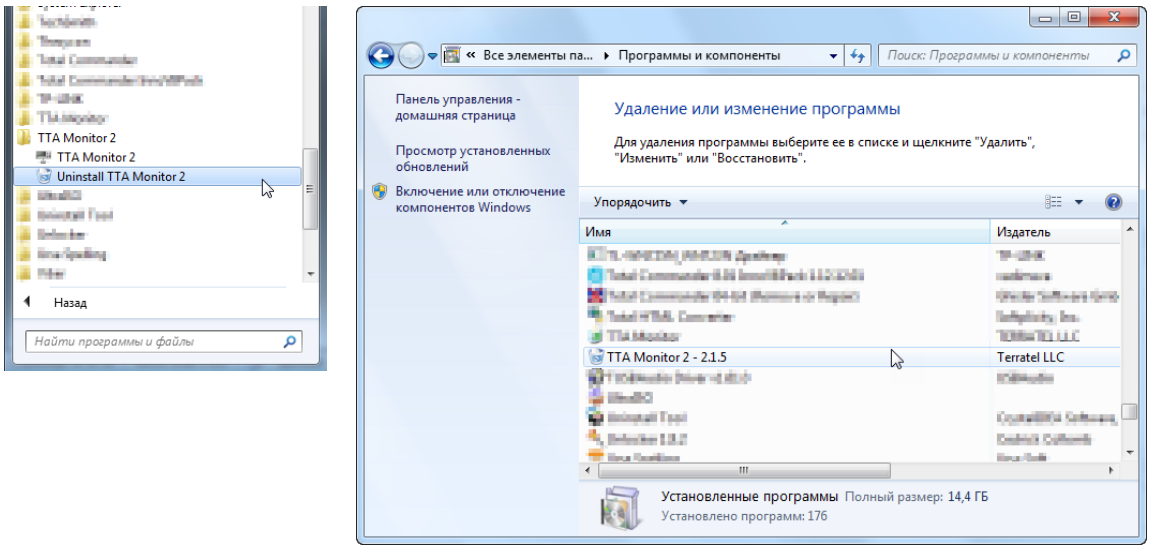
Upon completion of the installation wizard, click «Finish» (Figure 2).

Figure 2. Software Installer - Complete Installation

4.2. Removing software

To uninstall a program, use the operating system component in the control panel - «Programs and components» or the «Uninstall Gateway Monitor» shortcut in the start menu, if one was created when installing the software (Figure 3).

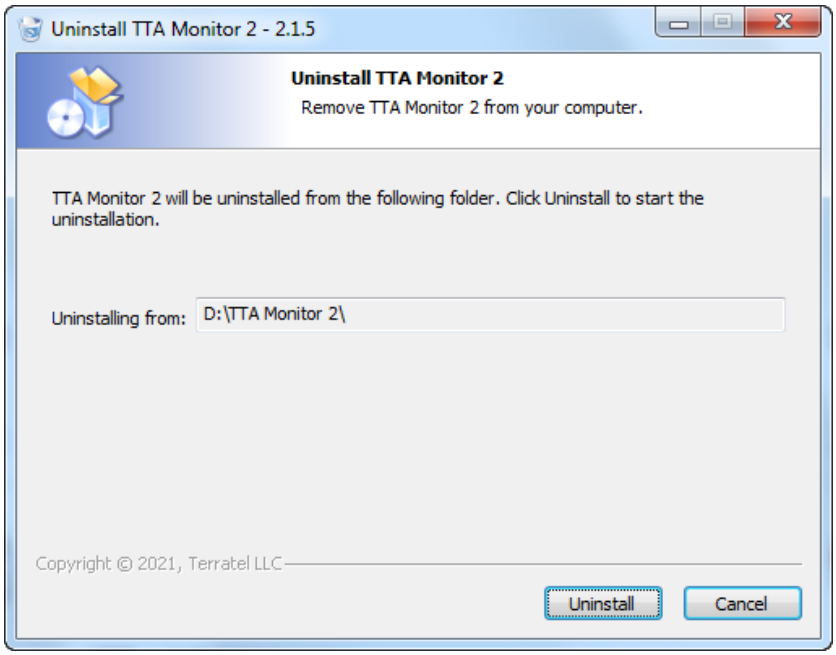
Figure 3. Uninstalling a program - shortcuts



The software removal process is also implemented as a wizard with a series of dialog boxes.

To start the uninstall process, click the «Uninstall» button, and to cancel the uninstallation and complete the wizard, click the «Cancel» button (Figure 4).

Figure 4. Uninstalling software



Not all data from the software directory is deleted. At least the database file is not deleted - **database.db3**.
The decision to delete or leave this data is made by the responsible person.

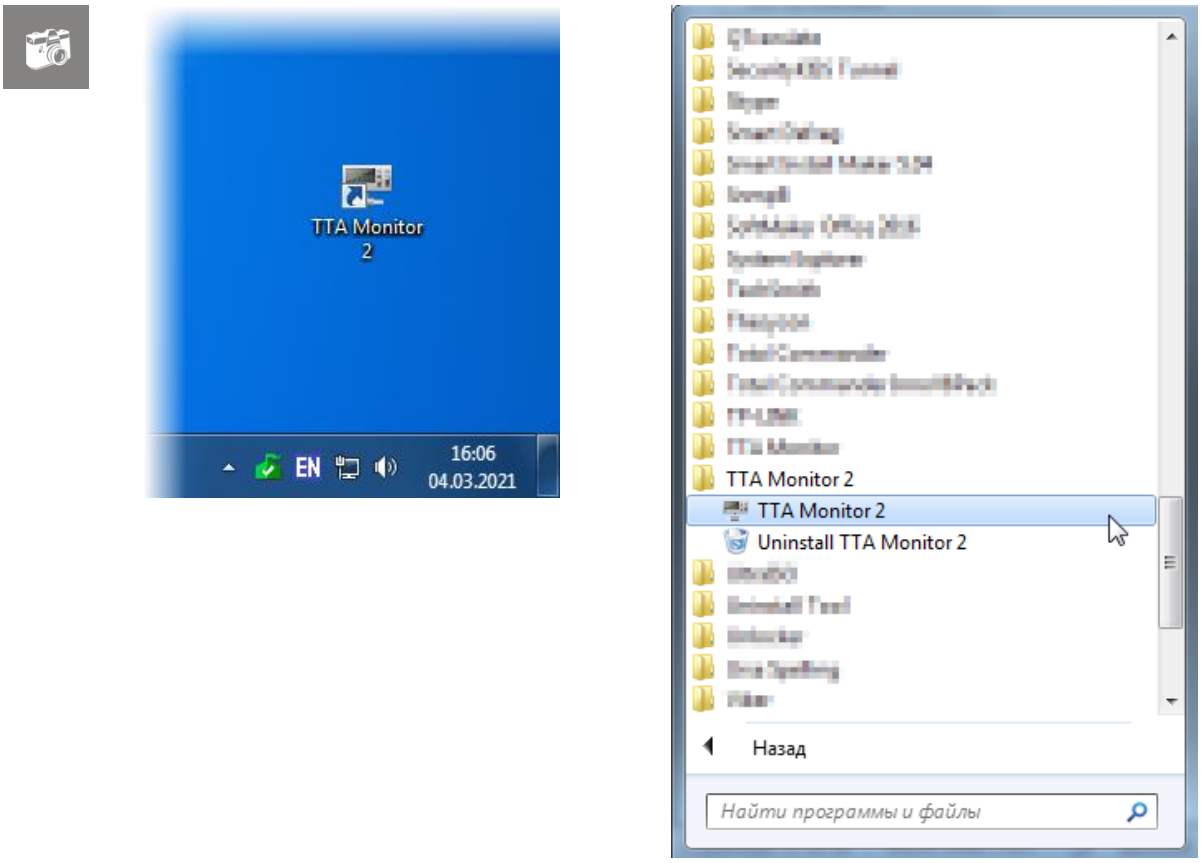
5. The basics of working with software

After installing the software, according to the path specified during the installation, a directory is placed on the disk of the personal computer, for example: **D:\TTA Monitor 2**, which contains subdirectories, executables, dynamic libraries, and configuration files.

5.1. Start of the program

An executable **TTA Monitor 2.exe** file is used to start the program, which is located in the specified, during installation, directory, shortcut on the desktop or in the «Start» menu (Figure 5).

Figure 5. Shortcuts to launch the software

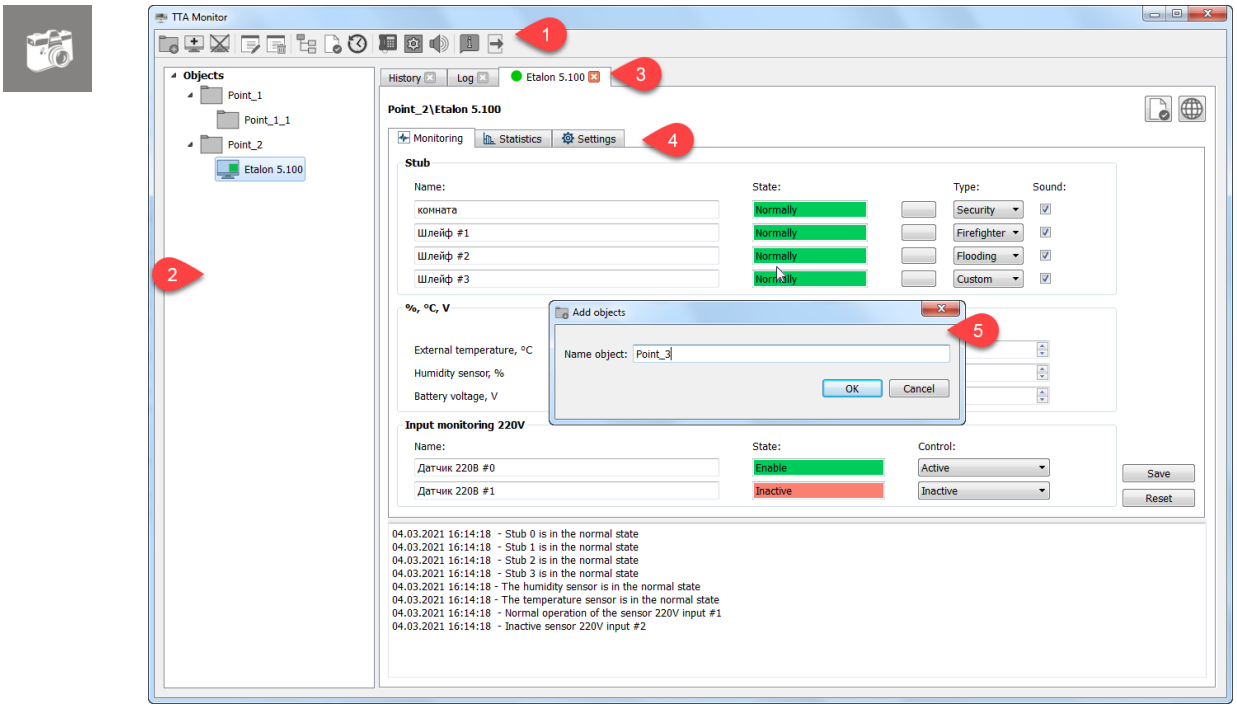


Note. At the first start of the program, additional files and directories necessary for the operation of the software can be automatically created.

5.2. Interface description

The «TTA Monitor» software has a standard single-window interface, which is the main form, divided into several functional areas, with openable child forms (Figure 6).

Figure 6. The program interface «TTA Monitor»



The following interface elements are labeled in the figure:

1. Toolbar («1»)
2. Group of monitoring devices («tree» objects – «2»)
3. Tabs of open devices («3»)
4. Tabs of the monitoring sections relative to the selected device («4»)
5. Child forms of setting up and informing («5»).

5.3. Menu panel items

The main action with the «TTA Monitor» software is carried out using the menu bar items (Figure 7).

Figure 7. Elements of the menu bar

The following buttons are located on the menu bar - Table 3.

Table 3. Elements of the menu bar

Menu item	Tooltip	Short description
	**Add new object**	In the "tree" of objects creates a new group (directory) for grouping devices

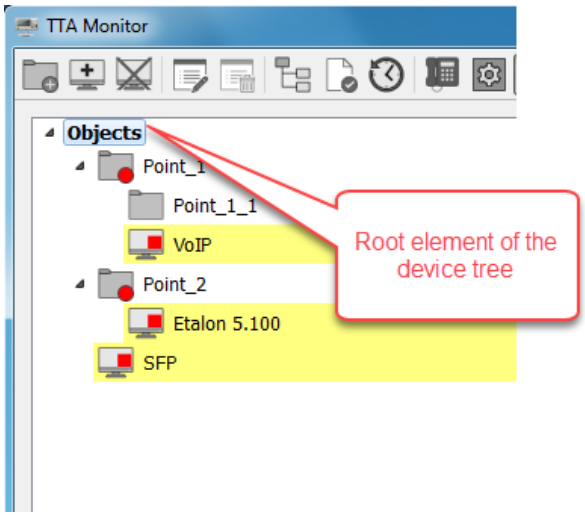
Menu item	Tooltip	Short description
	**Add new device**	Creates a new device in the "tree" of objects relative to the selected group or outside the group
	**Stop / Star Communicating**	Stop / Resume monitoring for the selected device
	**Edit device or object**	For a group - editing the group name, for a device - editing all parameters of the selected device (if editing parameters is provided for the selected device)
	**Remove device or object**	Removes the selected device or device group with all content
	**Collapse or expand all branches**	Collapses or expands the contents of the "tree" of objects
	**Confirm all notification events**	Confirmation of familiarization with all, at the moment, service messages about the events that have occurred on all monitored devices
	**History**	Opening the history tab and searching for information by the specified parameters
	**Notification**	Configuring an external modem and parameters for sending voice, SMS and E-mail notifications about events
	**Mute**	Enabling / Disabling the sound signal when an emergency event occurs or the device states change
	**About**	Information about the current software version and technical support
	**Exit**	Shutting down the software

5.4. Device group

All monitored devices in the main program window are presented in the form of a «tree».

The tree displays the monitored devices that can be placed to the «root» of the tree or in groups (folders) (Figure 8).

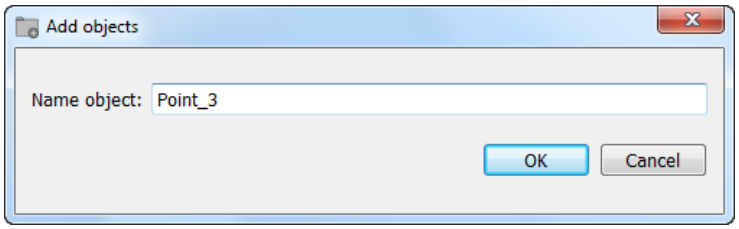
Figure 8. Device tree



To add a group, use the menu bar button – «Add new object». In the existing tree, select any previously created element or root element of the tree relative to which a new group will be created and click «Add new object».

On the add form, indicate the name of the group to be created (Figure 9).

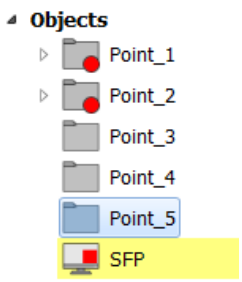
Figure 9. Form for adding a new group



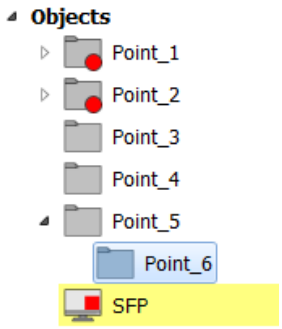
To save a new group, click «OK». To cancel saving - click the «Cancel» button or the standard button to close the window  .

The created group is immediately displayed in the device tree.

For example. Before adding a new group, the group «Point_5" is selected in the element tree. Added a new group «Point_6».



The created group "Point_6" will be placed inside the group «Point_5».

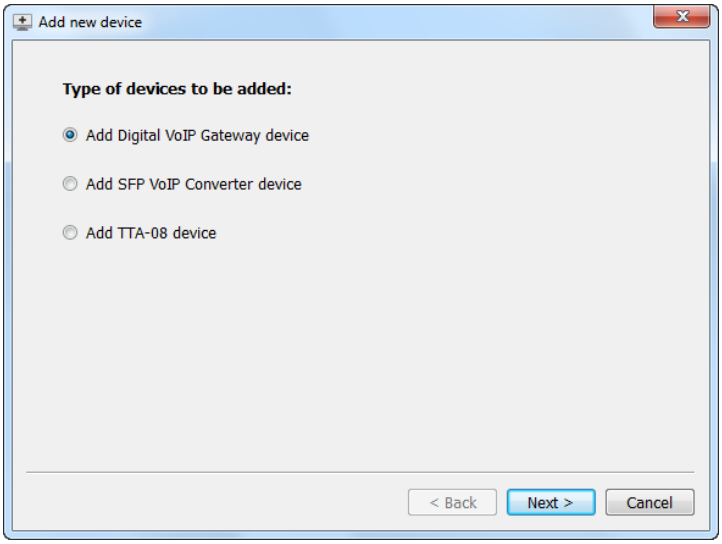


All group names, including the root element, can be renamed using the button on the menu bar – «Edit device or object».

5.5. Adding a new device

To add a new device to the monitoring program, use the button on the menu bar - "Add new device".

Figure 10. Adding a new device - equipment type

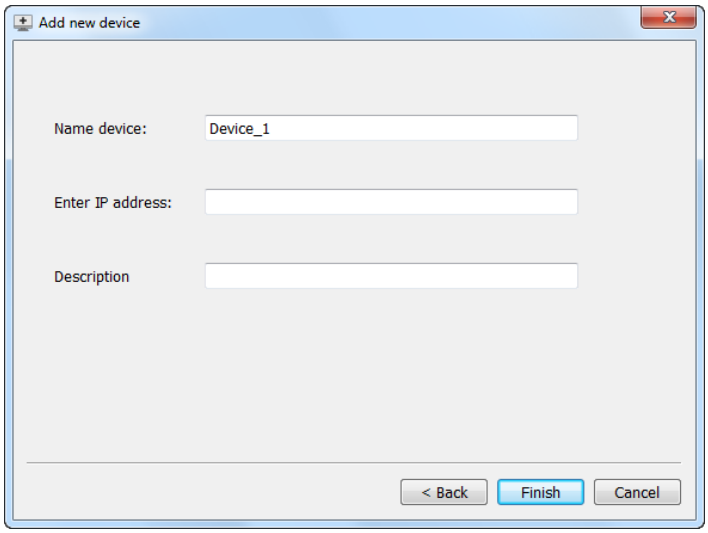


On the open form, select the type of device to add (Figure 10) and to go to the next step - click the "Next" button. To cancel adding - click the "Cancel" button or the standard button to close the window .

5.5.1. Add VoIP Gateway Device

When adding a VoIP gateway device, specify the device name, its IP address and a short description (Figure 11).

Figure 11. Adding VoIP gateway device



To save the device, click the "Finish" button, to return to the previous step, use the "Back" button, and to cancel the addition, click the "Cancel" button or the standard window close button  .

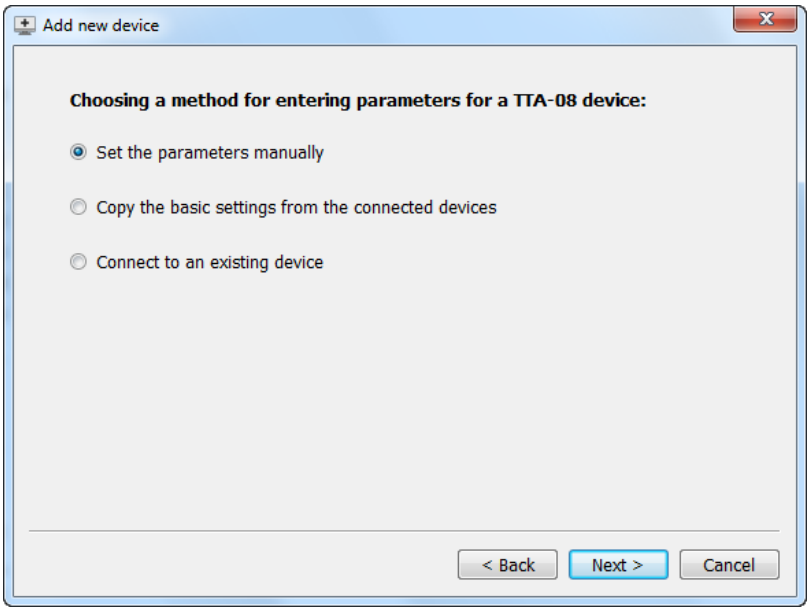
After saving the data, the new device is displayed in the "tree" of devices and is connected to the device.

5.5.2. Adding a TTA-08 device

When adding a TTA-08 device, you are offered to choose one of three options for adding (Figure 12):

1) Set the parameters manually;
2) Copy the basic settings from the connected devices;
3) Connect to an existing device.

Figure 12. Adding a TTA-08 device - options for adding



To go to the next step, click the "Next" button, to return to the previous step, use the "Back" button, and to cancel the addition, click the "Cancel" button or the standard window close button .

To save the device, use the "Finish" button.

5.5.2.1. Adding a device with all parameters set

When adding a TTA-08 device with all the parameters set, after clicking on the "Finish" button, a new configuration (monitoring) window opens with various tabs:

- Monitoring;
- Statistics;
- Settings.

Directly to configure a new device used "Monitoring" Tab (Figure 13) and "Settings" Tab (Figure 14).

Figure 13. Adding a TTA-08 device - "Monitoring" tab

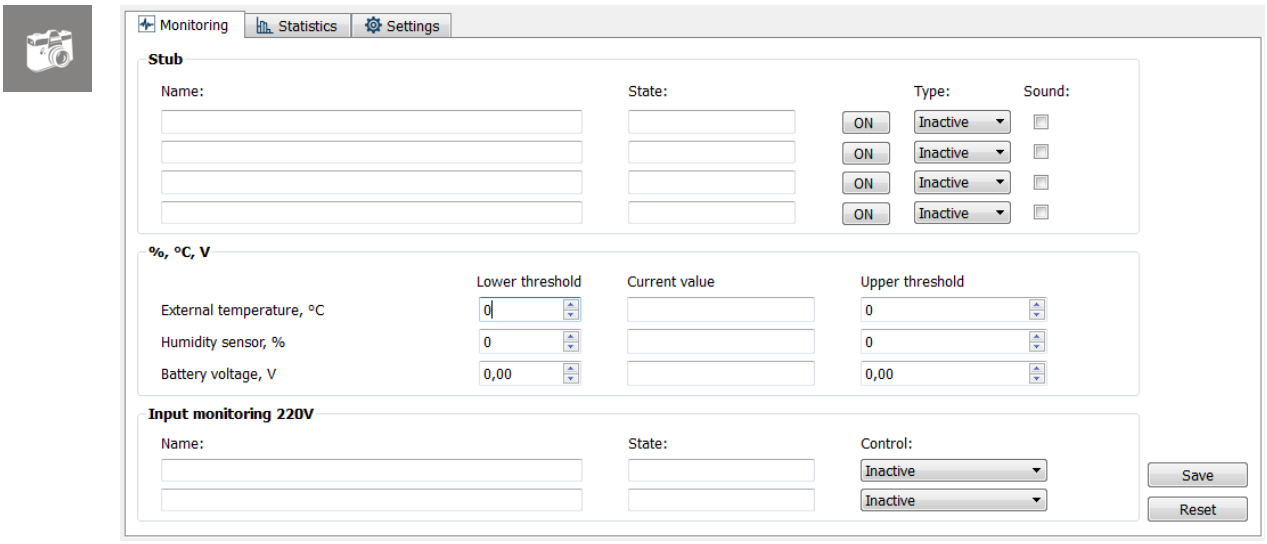
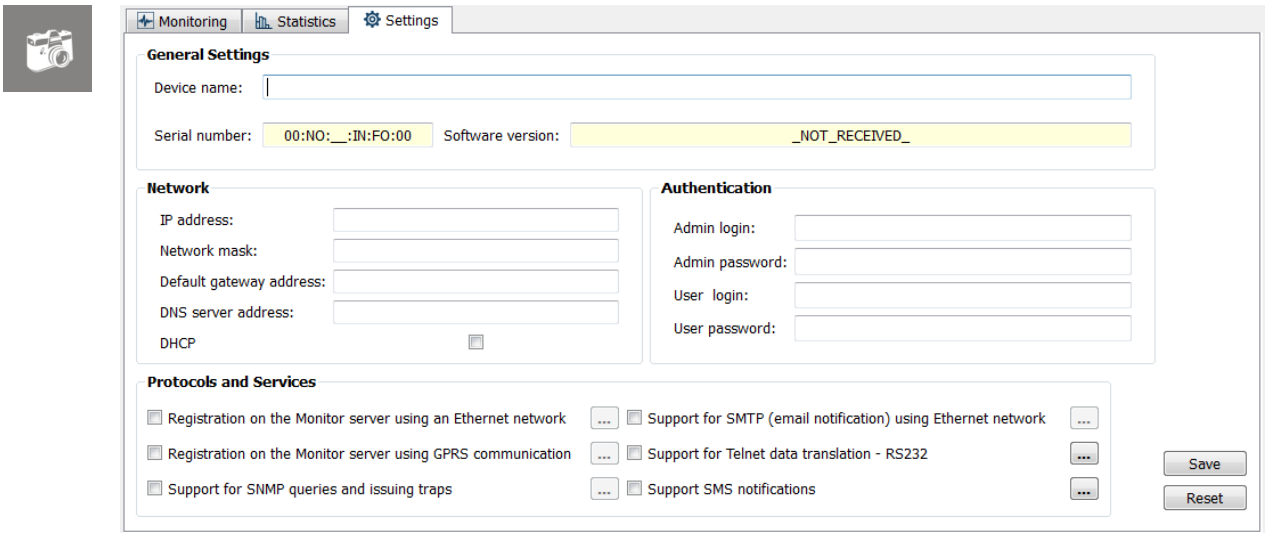


Figure 14. Adding a TTA-08 device - "Settings" tab



On the indicated tabs, configure the sensors and the device according to real operating conditions.

At a minimum, you must specify the name of the added device (Device name) in order to quickly find the device in the future and complete its full configuration.

To save the changes made, use the "Save" button.

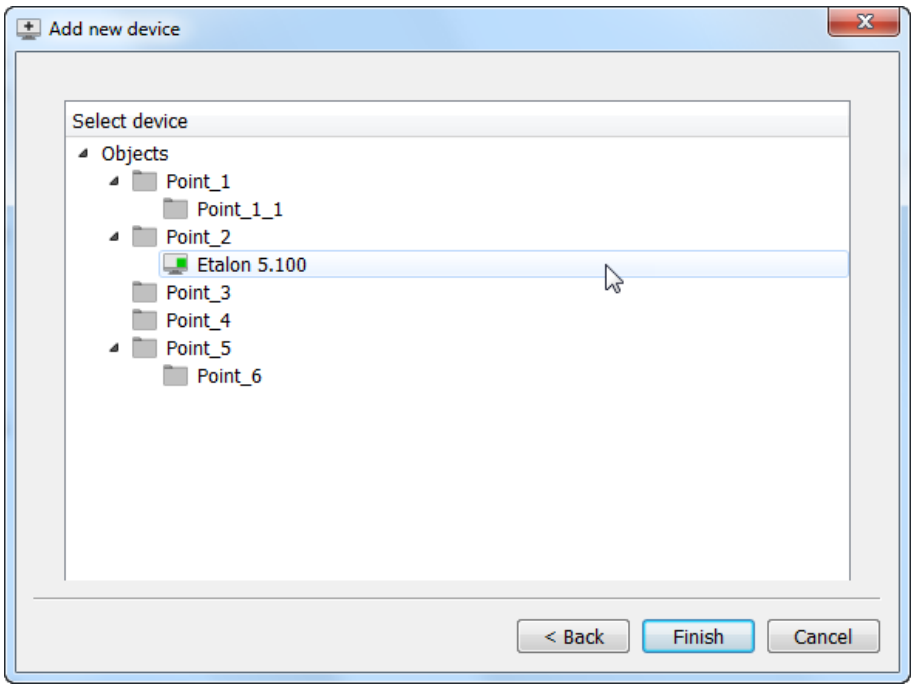
When saving data, if the values of the network parameters are specified correctly and there is a connection with the added device, the changed data is saved in the device, and also saved in the configuration file of the "TTA Monitor" software.

The parameters on all tabs of the selected device correspond to the parameters on the tabs of the web interface.

5.5.2.2. Adding a device and copying parameters

To add a new TTA-08 device based on the existing one, use the method of adding with copying the parameters. In this case, the tree of monitoring objects becomes available (Figure 15).

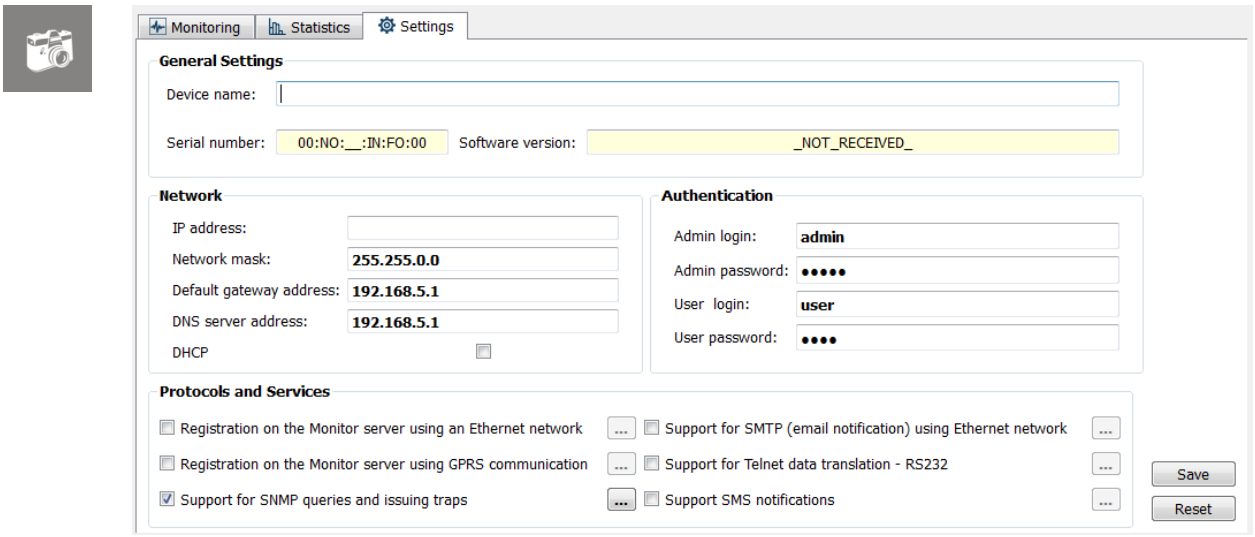
Figure 15. Adding a TTA-08 device - selecting a device for copying



In the device tree, select the connected device from which you want to copy all the parameters and click the "Finish" button.

After clicking the "Finish" button, a new form with device parameters opens (Figure 16). It is necessary to specify the real IP address of the added device, edit the name of the device and, if necessary, correct other parameters of the device and sensors.

Figure 16. Adding a TTA-08 device - parameters

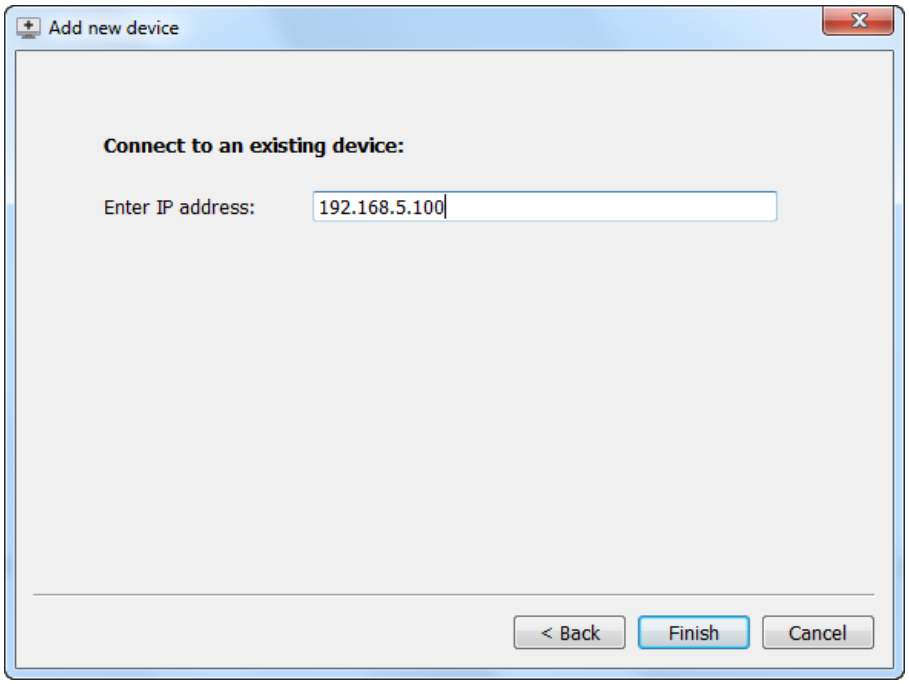


5.5.2.3. Adding a configured device

For the case when you need to add an existing, configured and working device to the monitoring program, use the "Connect to an existing device" addition method.

When adding, enter the IP address of the device to be added and click the "Finish" button (Figure 17). The added device will be displayed in the monitoring device tree.

Figure 17. Adding a TTA-08 device - IP address of an existing device



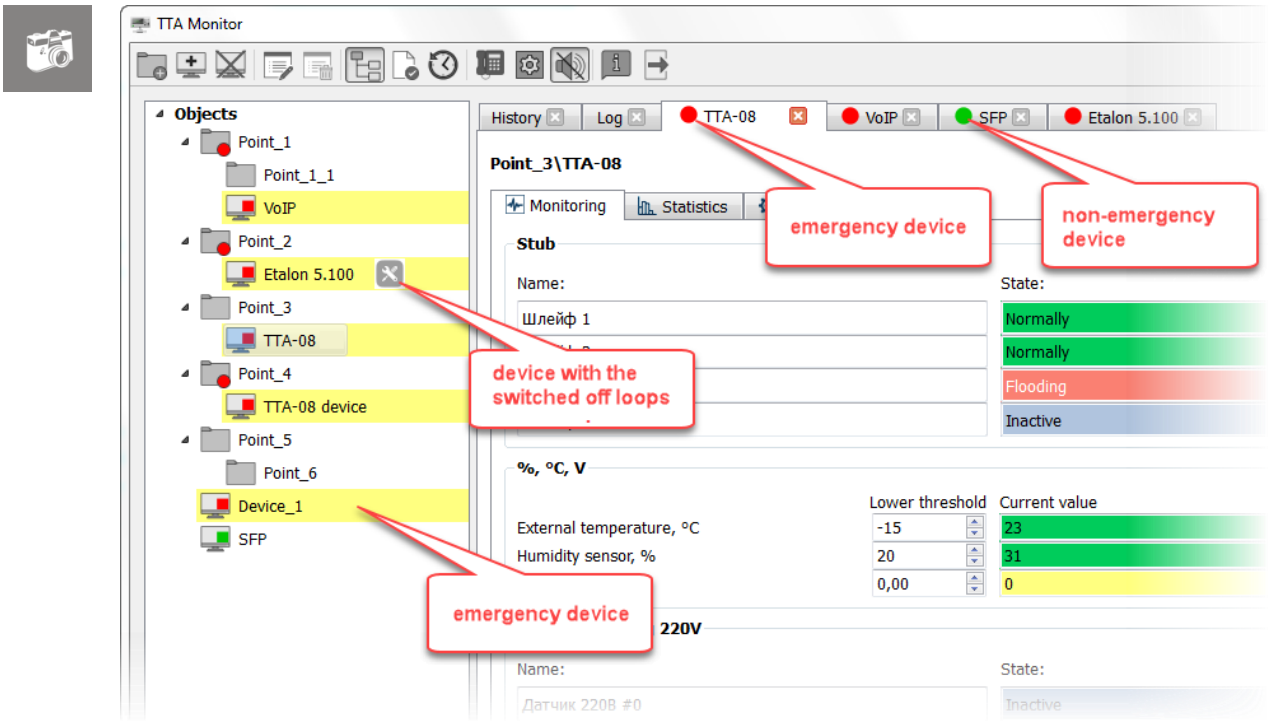
6. Monitoring

When the TTA Monitor software is running, regardless of the type of device, when an "emergency" event occurs, when the states of a device or loops change, the main program window can "pop up" on top of other running programs, "blink" with the application icon in the taskbar.

In the main window, in the "tree" of monitored devices, those devices on which "emergency" events are recorded are highlighted (Figure 18). A sound signal is sent to the sound card of a personal computer, the name of the tab of an open device is blinking in "red" color.

All actions described above are intended to draw the attention of technical personnel to the situation that has arisen.

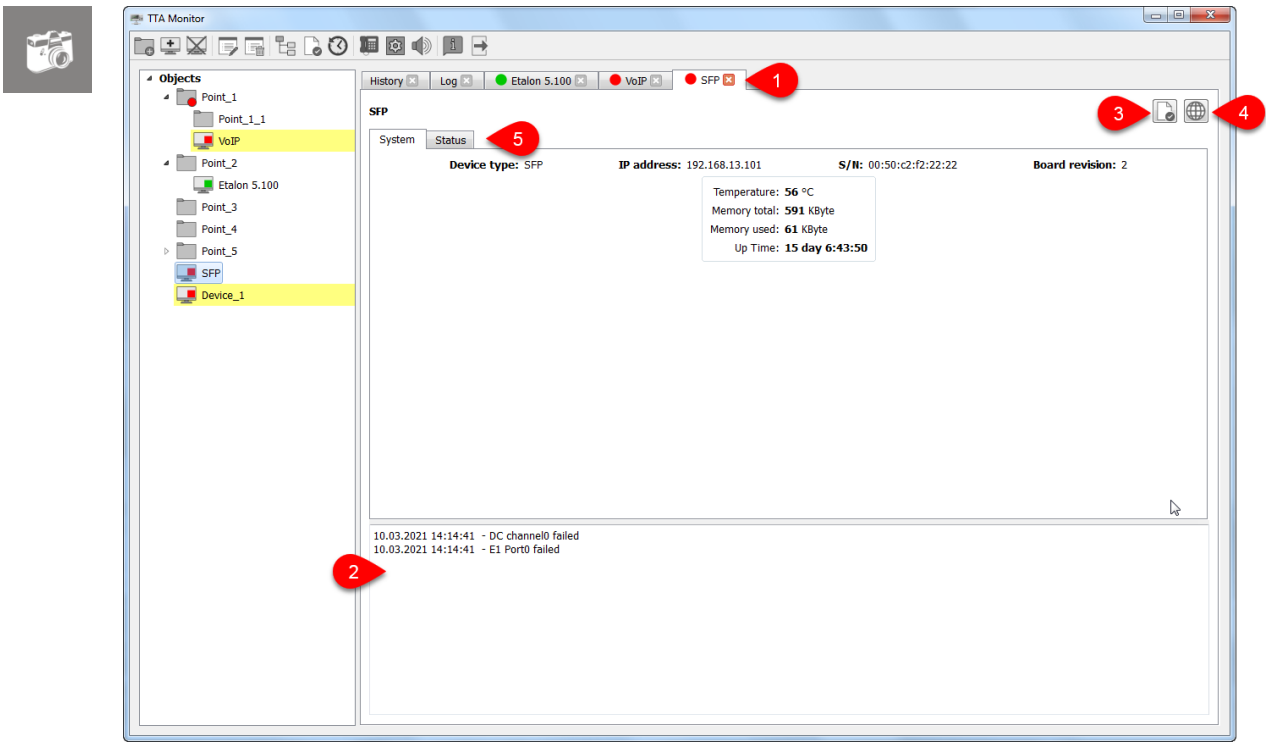
Figure 18. Informing - devices with an "emergency" situation



The technical personnel should familiarize themselves with the information received and, if necessary, take measures to eliminate the situations that have arisen for each device.

To obtain information on the selected device, you need to move the mouse pointer in the "tree" of devices to the position of interest and double-click the left mouse button to open the monitoring tab of the selected device.

Figure 19. Monitoring tab of the selected device



The main tab (Figure 19) - “1” of the selected device contains additional tabs:

- information area - “2” with a text description of the events that have occurred;
- button to turn off the sound signal for the current device - “3” – «Disable alarm»;
- button to go to the WEB-interface of the selected device – “4”.

The sound signal will stop being given and the color highlighting in the “tree” of devices will be removed when the maintenance (technical) personnel press the button "Disable alarm" - “3”. Thereby confirming that the personnel are aware of this event.
The sound signal and color highlighting of the device in the device "tree" will resume when the next event occurs.

It is possible to simultaneously confirm familiarization with all messages for all monitored devices. In this case, the button of the main menu bar is used "Confirm all notification events" - .

Note. The number and content of additional tabs of the selected device (Figure 19) -“5”, depends on the type of the selected device. A brief

description is given below.

6.1. Digital VoIP Gateway

This section provides a brief description of the Digital VoIP Gateway device tabs (called Digital VoIP Gateway can be SIP \ E1 Gateway, iDLU Gateway, PCM-30 Multiplexer, Signaling and Protocol Converter).
For details, refer to the appropriate device documentation.
To configure the device, use the WEB interface, and to go to the WEB interface of the selected device, use the transition button - .

6.1.1. Device Parameters

The "Device Parameters" tab displays real-time system status, call statistics (Statistics), device IP address, serial number, firmware version, memory status, temperature and media processor status (Temperature, Mediacore), Ethernet status (Figure 20).

Figure 20. Tab – "Device Parameters"

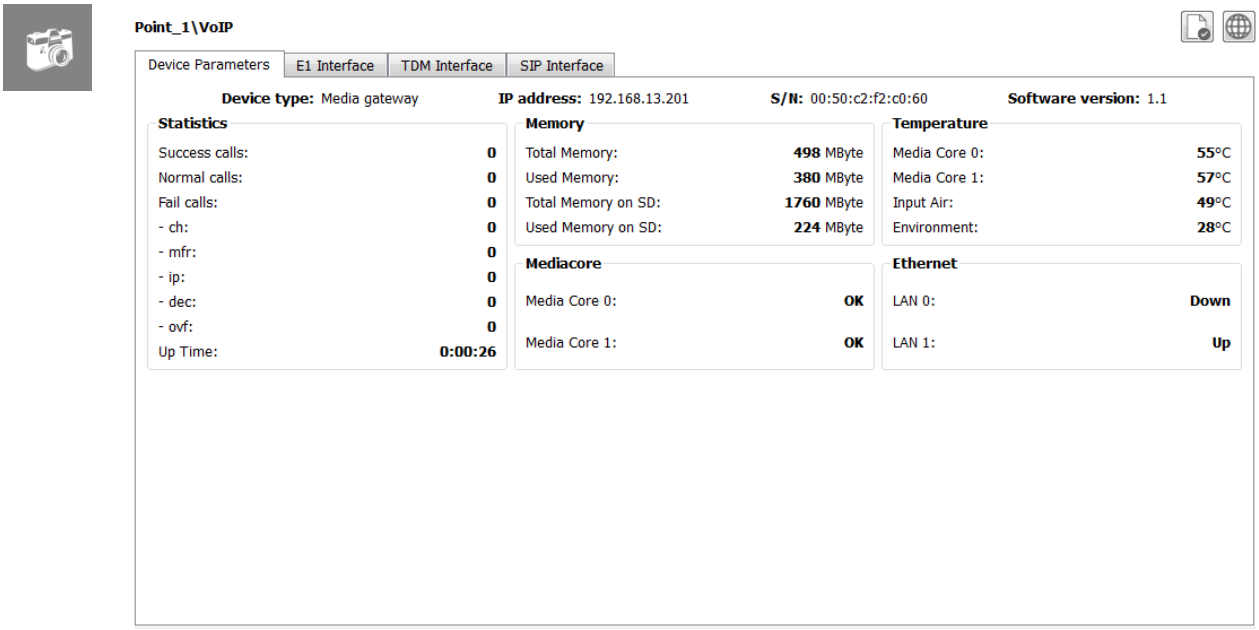


Table 4. Call statistics

Success calls	Successful Conversation Calls
Normal calls	Successful dialers without speaking
Fail calls	Failed calls due to:

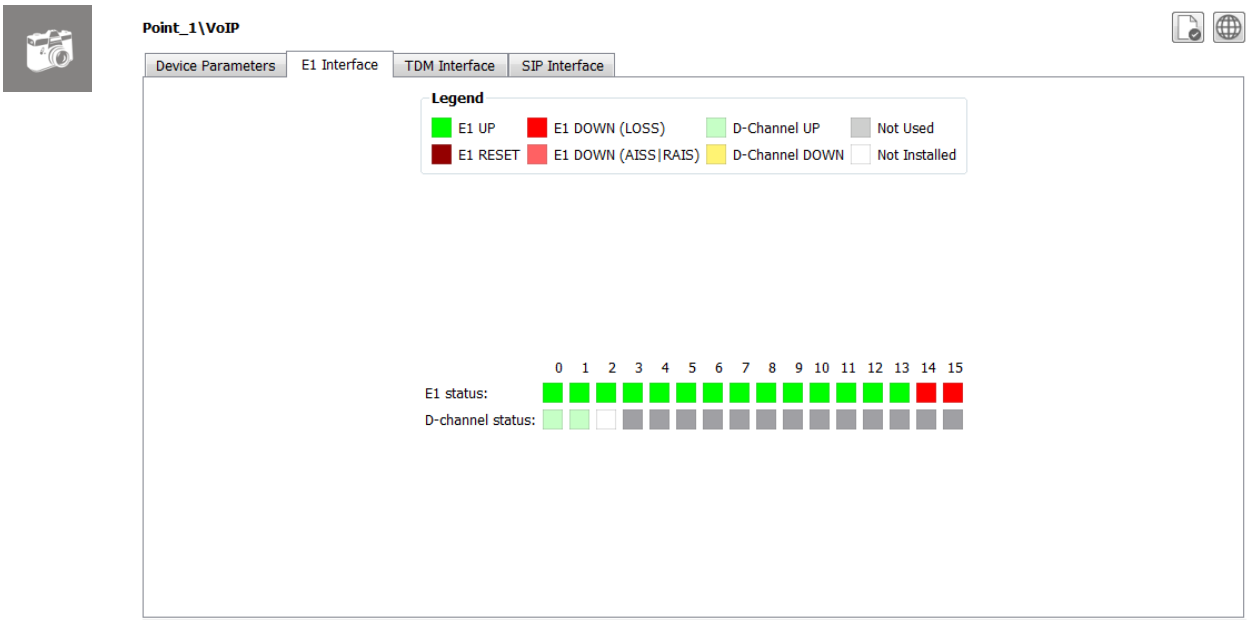
	-ch (channel error) -mfr/-ip (frequency exchange error) -dec (decade set error) -ovf (overflow or insufficient memory)

6.1.2. E1 Interface

The "E1 Interface" tab displays a map of E1 ports and the current state.

An explanation of the possible states of the E1 interfaces is given in the "Legends" block.

Figure 21. Tab - "E1 Interface"

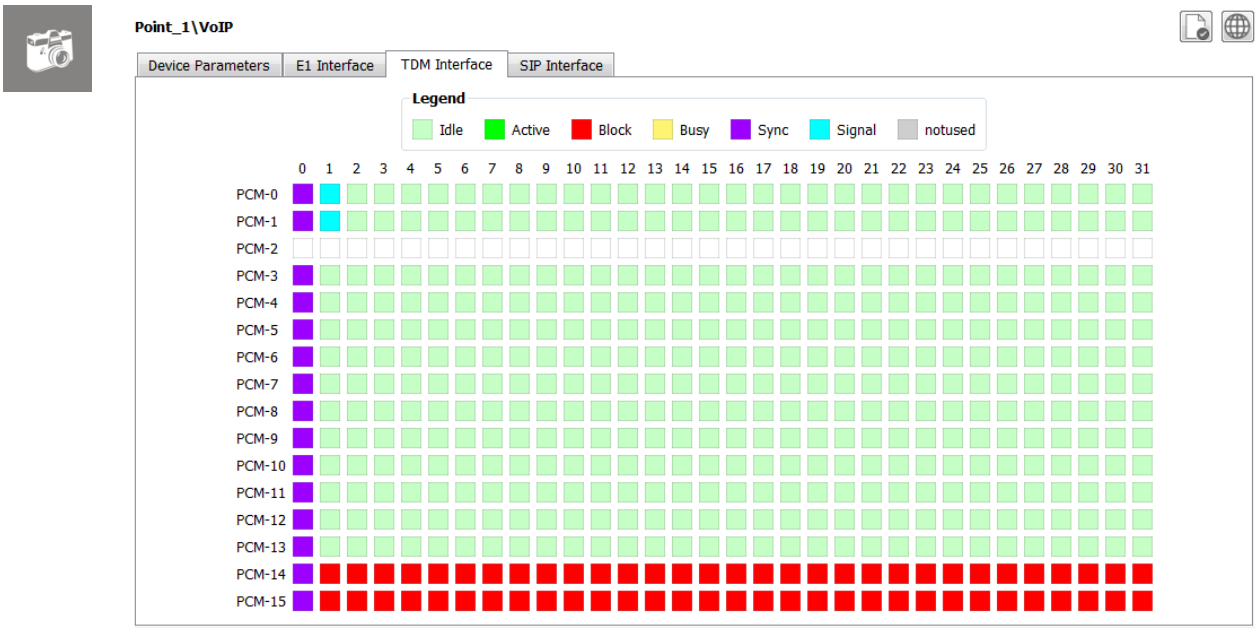


6.1.3. TDM Interface

The "TDM Interface" tab displays the TDM channel map and current status (Figure 22).

An explanation of the possible states of TDM channels is given in the "Legends" block.

Figure 22. Tab – "TDM Interface"

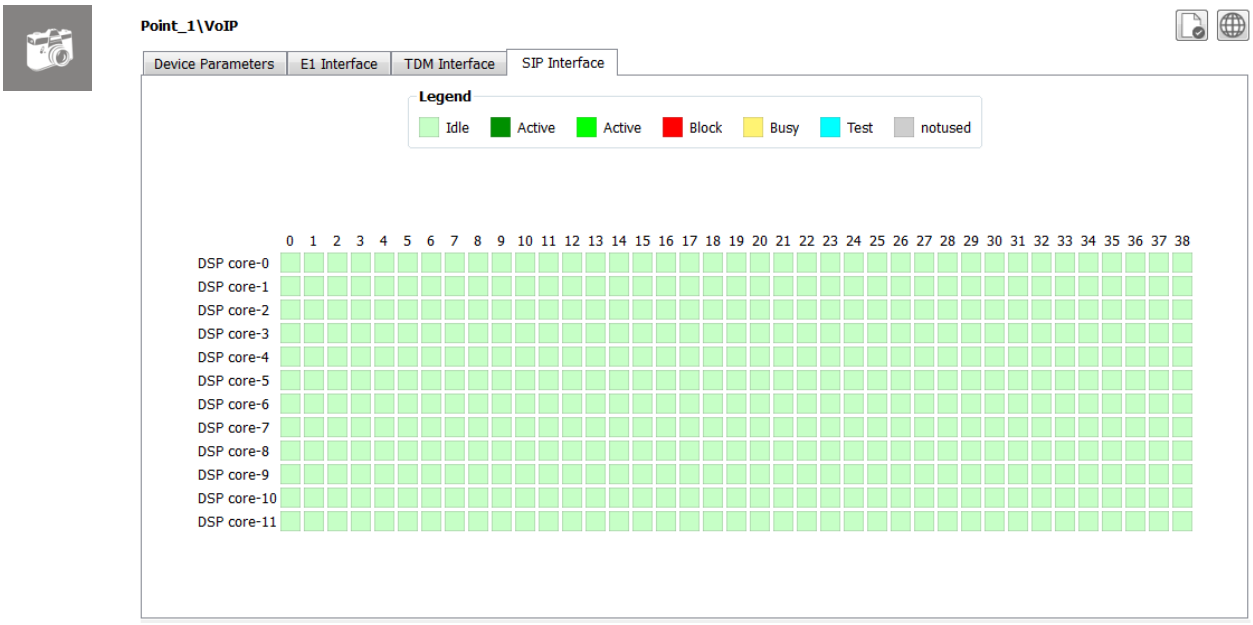


6.1.4. SIP Interface

The "SIP Interface" tab displays the SIP channel map and current status (Figure 23).

An explanation of the possible states of SIP channels is given in the "Legends" block.

Figure 23. Tab – "SIP Interface"



6.2. SFP VoIP Converter

This section provides a brief description of the SFP VoIP Converter device tabs. For details, refer to the appropriate device documentation.
To configure the device, use the WEB interface, and to go to the WEB interface of the selected device, use the go button - .

6.2.1. System

The "System" tab displays the device type and IP address, serial number, firmware version, memory state, media processor temperature, device operation time since power on or last reboot (Figure 24).

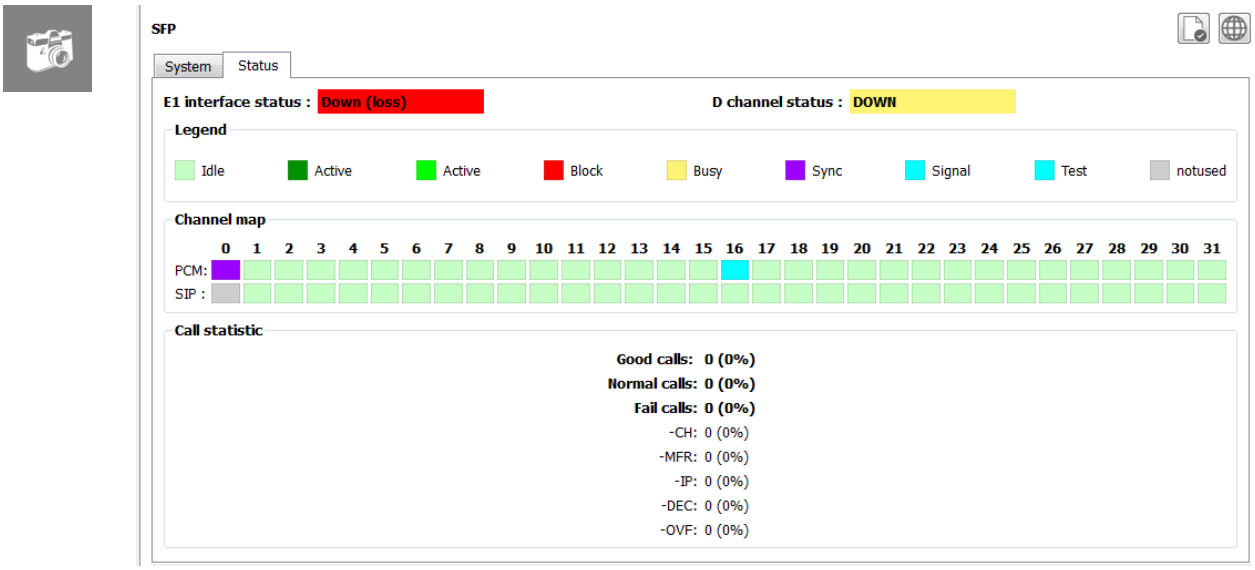
Figure 24. Tab – "System"

6.2.2. Status

The "Status" tab (Figure 25) displays:

- the current state of the E1 port (E1 interface status) and the signaling channel (D channel status);
- PCM / SIP channel map and current state;
- call statistics.

Figure 25. Tab – "Status"



6.3. TTA-08

This section provides a brief description of the TTA-08 device tabs. For details, refer to the appropriate device documentation.
To configure the device, use the "Monitoring", "Settings" or WEB-interface tabs. To go to the WEB-interface of the selected device, use the go button - .

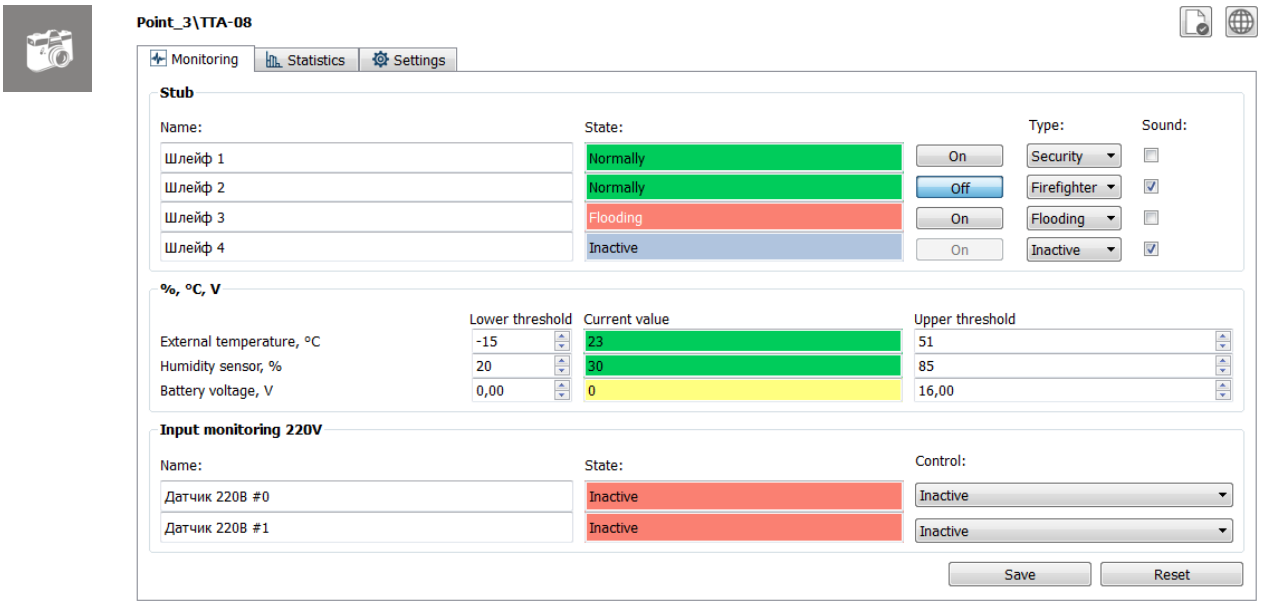
6.3.1. Monitoring

Using the "Monitoring" tab (Figure 26) you can monitor in real time the current state of all sensors connected to the device and configure the parameters of the connected sensors, namely:

- indicate the name and set the loop type (Type):
  - Inactive;
  - Security;
  - Firefighter;
  - Flooding;
  - Custom.
- enable / disable (Off / On) a survey of the selected device loop;
- check the box to send a sound alert to an external sound alarm source (Sound);
- configure the threshold values (Lower / Upper threshold) of the external sensor of temperature, humidity, DC voltage meter;

- activate/deactivate the use of sensors for the presence of alternating voltage 220V (Inactive/Active).

Figure 26. Tab – "Monitoring"



Off – is used to temporarily disable the selected device loop. When the loop is disconnected, the recorded event on the loop is not considered a "trouble".

6.3.2. Statistics

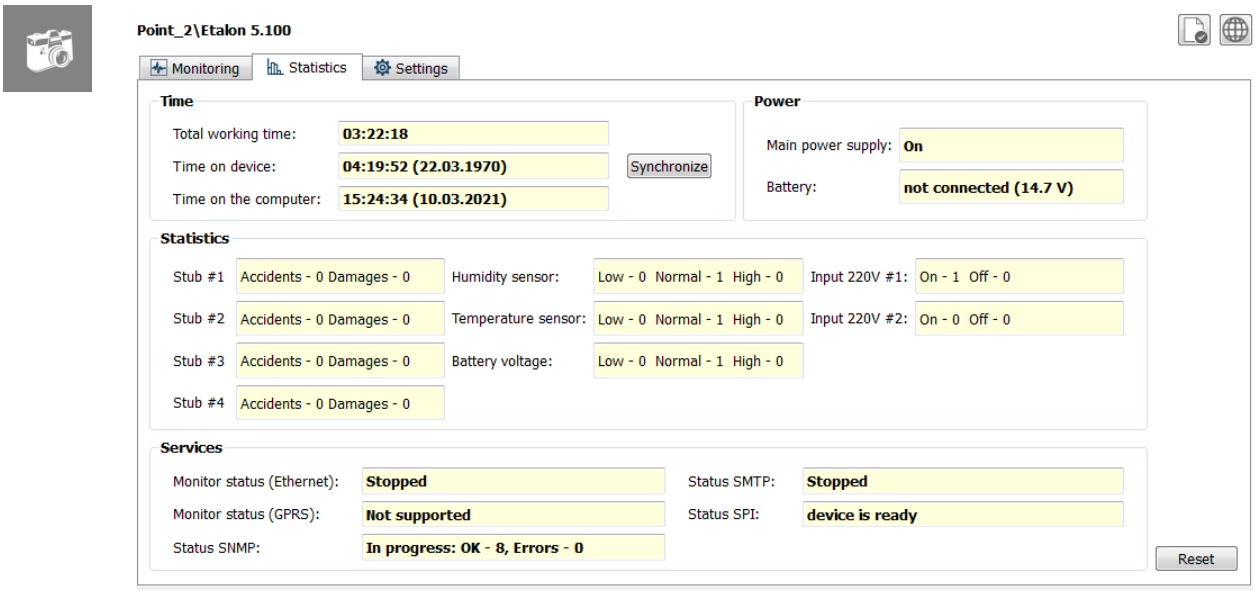
Use the "Statistics" tab to get statistics on device operation (Figure 27).

The “Statistics” tab displays the statuses of the device's software services and protocols, displays statistical information about the status of loops and connected sensors, information about the device's power supply.

In addition, this tab displays the data of the internal clock of the device and provides an opportunity to synchronize with the clock of the user's personal computer. To synchronize the time, use the "Synchronize" button.

If necessary, it is possible to reset the statistics using the "Reset" button.

Figure 27. Tab – "Statistics"



6.3.3. Settings

The "Settings" tab (Figure 28) is used to configure the device parameters.

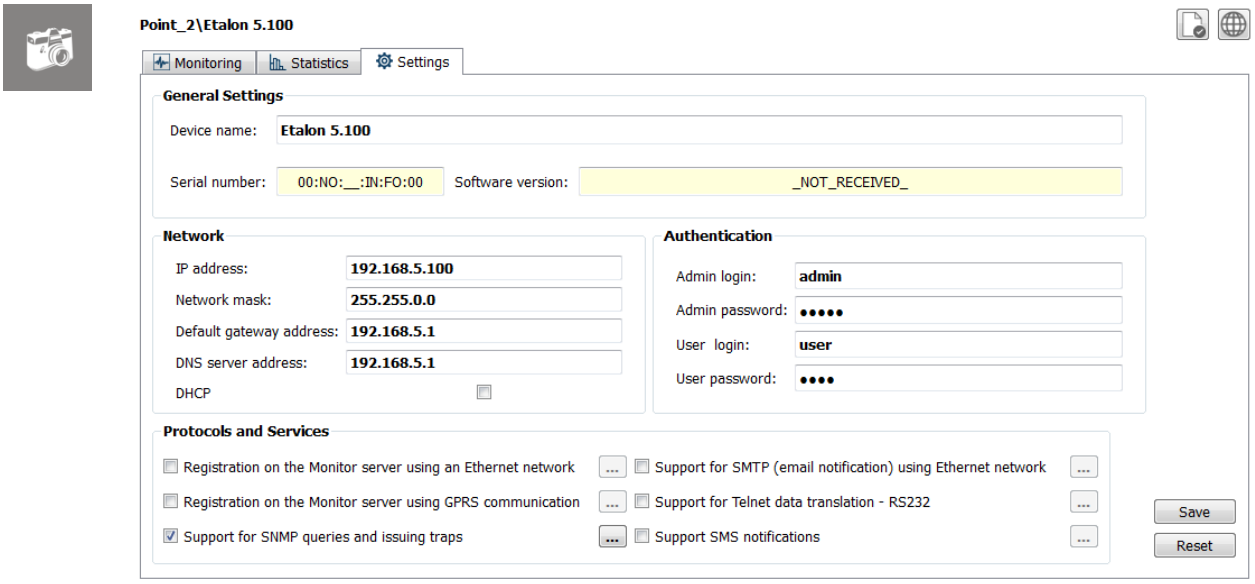
On the tab that opens, you can change the following parameters:

- **Device Name** - a string identifier (16 characters) that can indicate location or any other information that helps personnel identify the device.
- **Authentication** - changing the username and password for accessing the WEB-interface of the device. Distinguish between an administrator and a common user.
- **Network** - configuration of parameters of work in the Ethernet network.
- **Protocols and Services** - the ability to control the operation of protocols and services, as well as configure the parameters of the involved software modules:
  - **Registration on the Monitor server using an Ethernet network.** Registration of the device via Ethernet on a personal computer (server) with installed software "TTA Monitor" for monitoring the status.
  - **Registration on the Monitor server using GPRS communication**. Registration of the device via GPRS on a personal computer (server) with installed software "TTA Monitor" for monitoring the status (GSM module is required).
  - **Support for SNMP queries and issuing traps**. Creation and sending (SNMP-trap) signals about the occurrence of critical events to the specified IP address.

- **Support for SNMP (email notification) using Ethernet network**. Sending alarm notifications to specified e-mail addresses using SMTP protocol.
- **Support for Telnet data translation – RS232**. Allows you to convert asynchronous serial RS-232 signals to Ethernet network interface signals. This provides secure access through a network connection to serial devices.
- **Support SMS notifications**. Sending a message to the specified phone number about a critical event on the selected loop or sensor (GSM module is required).

To save the changes made, click the "Save" button. To restore the "factory" values of the parameters, use the "Reset" button.

Figure 28. Tab – "Settings"



7. External 3G / 4G USB modem

An external USB modem operating in 3G and 4G LTE networks can be used as an additional means of informing about the onset of "emergency" events, changes in the states of a device or loops.

Before using this functionality, the 3G / 4G USB modem is pre-configured in the Windows / Linux environment. In the context of this document, connection, modem configuration is not considered.

During the operation of the TTA Monitor software using an external 3G / 4G USB modem, when an "emergency" event occurs, when the states of the device or loops change, an SMS message of a certain format can be sent to the specified phone

numbers, a pre-recorded voice message can be sounded or sent E-mail message to the specified e-mail address.

To configure the parameters of the software using an external modem or send E-mail messages, use the "Notification" form (Figure 29). To open the form, use the "Notification" menu bar item.

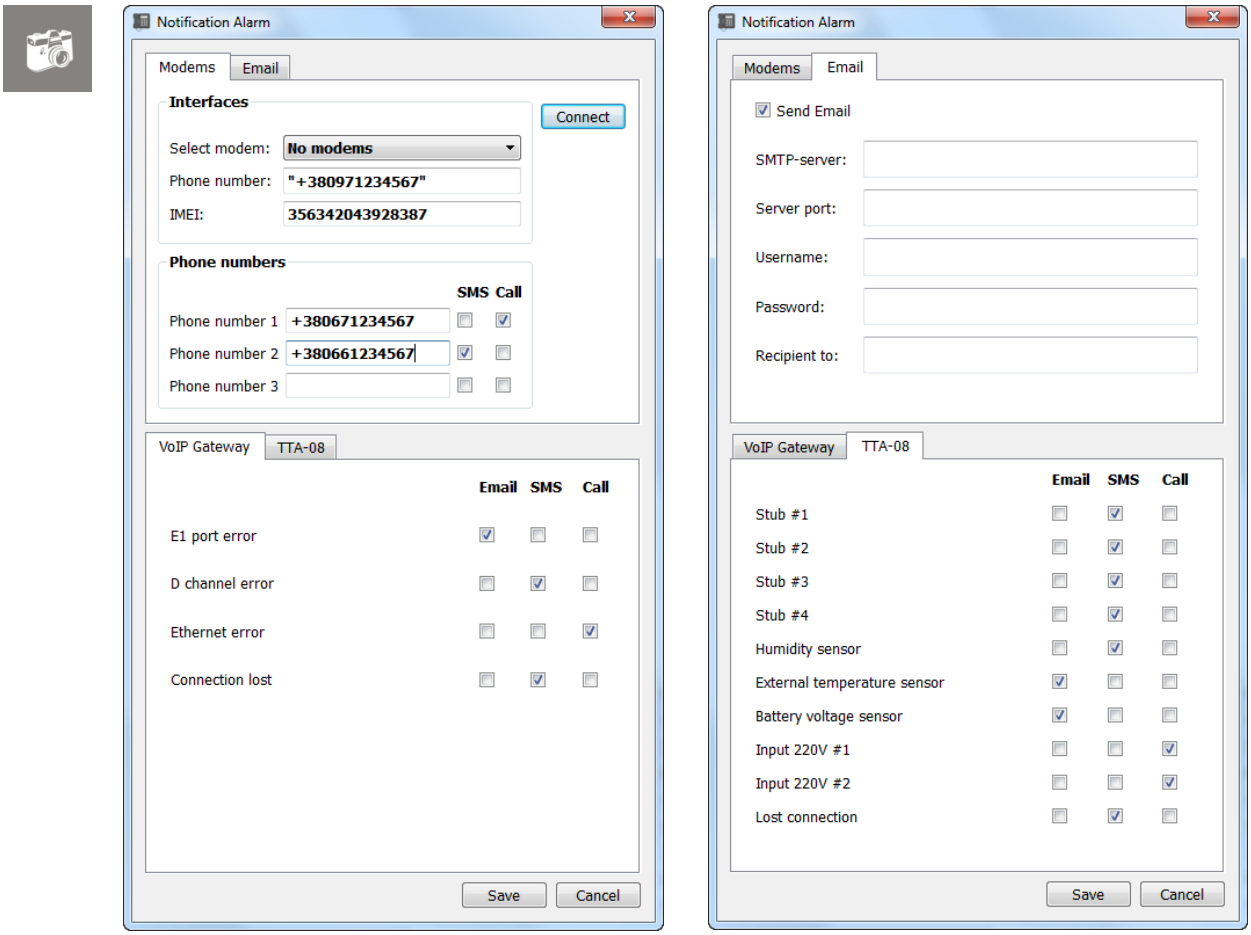
Sending E-mail messages works without using a 3G / 4G USB modem.

To configure the parameters, select the connected and configured modem from the drop-down list. After selecting the modem, the phone number of the SIM-card of the current mobile operator installed in the modem and the IMEI of the modem will be displayed.

Further, the number (or numbers) of the phone is indicated to which notifications of fixed "emergency" events will be sent. To send E-mail messages, you must enable sending E-mail (the "Send Email" option), configure the sending parameters and specify the address of the recipient of E-mail messages.

With the help of ticks "SMS" and / or "Call" (in the group "Phone Numbers" settings), specify which type of notification will be sent to a specified number.

Figure 29. Form "Notification"



Also, using the checkboxes "Email", "SMS" and / or "Call" (on the tabs of parameters for various types of devices "Digital VoIP Gateway" / "SFP VoIP Converter", "TTA-08") events are selected, when notifications are sent to the selected number (numbers) or the specified recipient's E-mail.

To save the changes made and close the "Modem operation" form, use the "Save" button. To close the form without saving changes, use the Cancel button or the standard window close button (Figure 29).

To activate sending notifications via an external modem, use the "Connect" button.

In working state, the taskbar button "Notification" takes the following form -  . If the connection to the modem is not established, or sending E-mail is not used - the appearance of the button will remain unchanged -  and the mailing does not happen.

SMS and E-mail text messages.

When an "emergency" event occurs, a change in the states of a device or loops, a message is generated in "Latin". The generated message has a specific format:

ALARM [device name] [event], where

[**device name**] – the name of the device on which the "emergency" event or change in the state of the device occurred, relative to the "tree" of devices;

[**event**] – event name for information.

Sound file.

For voice information to the specified phone numbers in the event of an "emergency" event or a change in the state of the device, it is necessary to use a specially recorded sound file.

The sound file used contains a number of requirements:

- File format: **Wave (PCM)**;
- File quality: **8000 Hz, 16-bit, Mono**;
- Duration: **до 30 sec.**;
- File name: **tel_out.wav**.

Created a sound file to be placed in the same directory as the executable file is located to start the software "TTA Monitor" - **TTA Monitor 2.exe**

8. History and logging

Section «History and Log» software designed for viewing and further analysis of the recorded events during the controlled devices.

The view form is called through the menu bar with the "History and Log" button.

After clicking on the button, two tabs "History" and "Log" become available, using which you can select the information saved in the database that meets certain search parameters or see a list of all saved events.

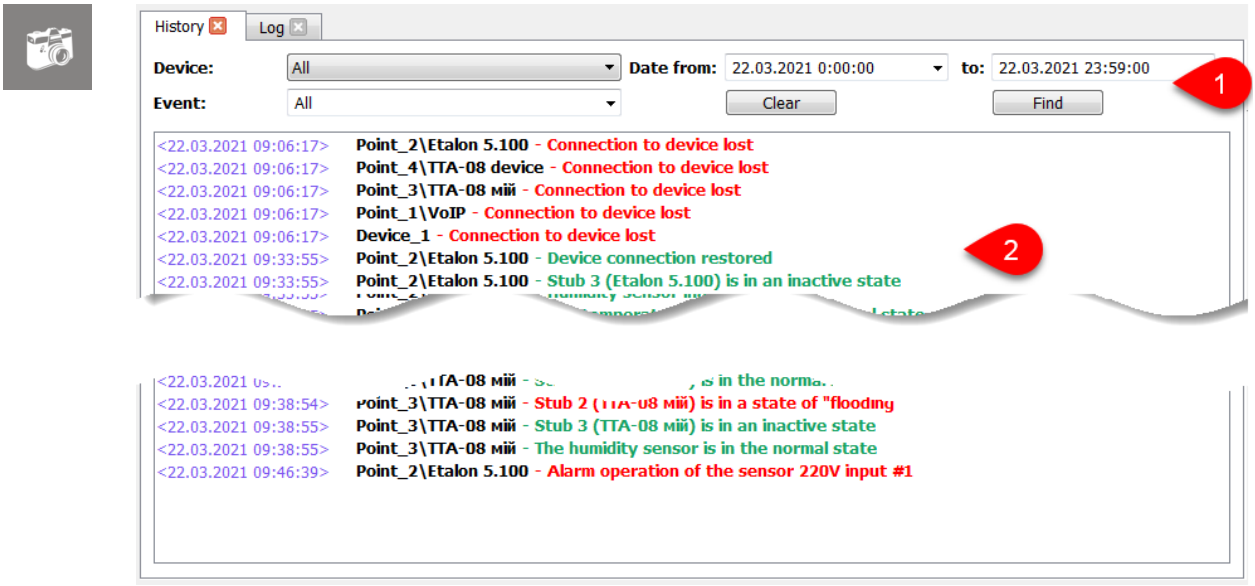
"History" tab consists of two areas (Figure 30):

- Filter setting items («1»);
- Data display area («2»).

To view all saved events is enough to choose the time interval "Date from" and "Date to" and press button "Find".

The found entries will be displayed in the display area.

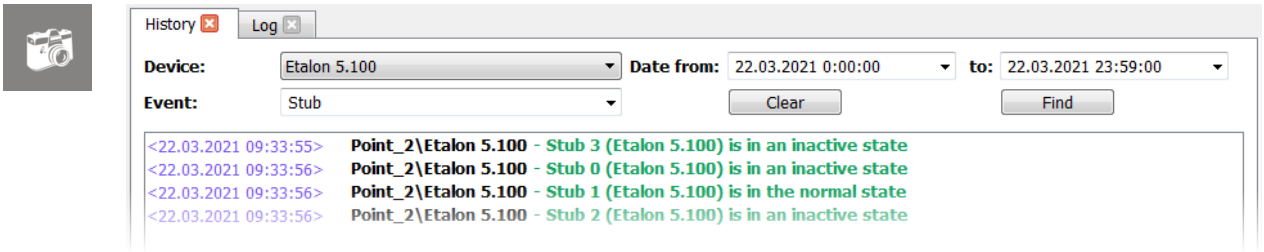
Figure 30. Tab - "History"



To search the saved data in the context of monitored devices and events, use the drop-down lists "Device" and "Event".

After selecting the search parameters and specifying the time interval, click the "Find" button (Figure 31).

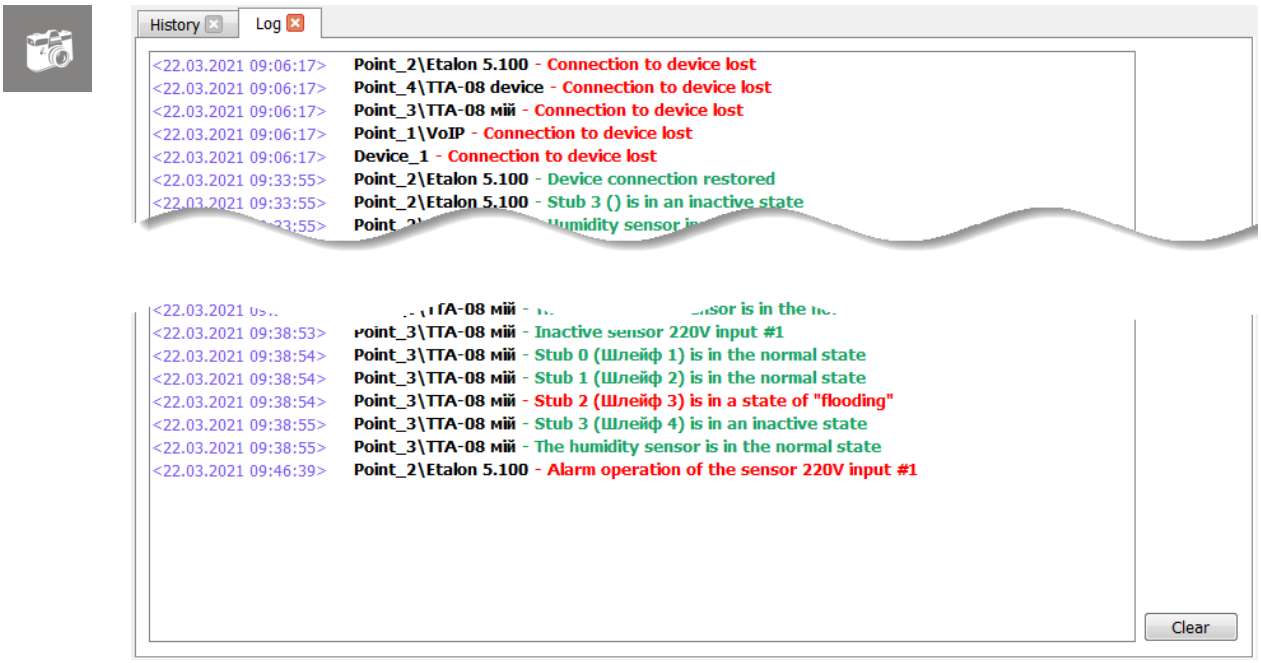
Figure 31. Tab - "History" - Using Search Options



To clear the display area, use the "Clear" button.

The "Log" tab (Figure 32) displays all saved events on all monitored devices from the moment the software was started or from the moment the logged events display area was cleared. To clear the display area, use the "Clear" button.

Figure 32. Tab - "Log"



9. Settings

To open the "Settings" form, use the corresponding button on the menu bar.

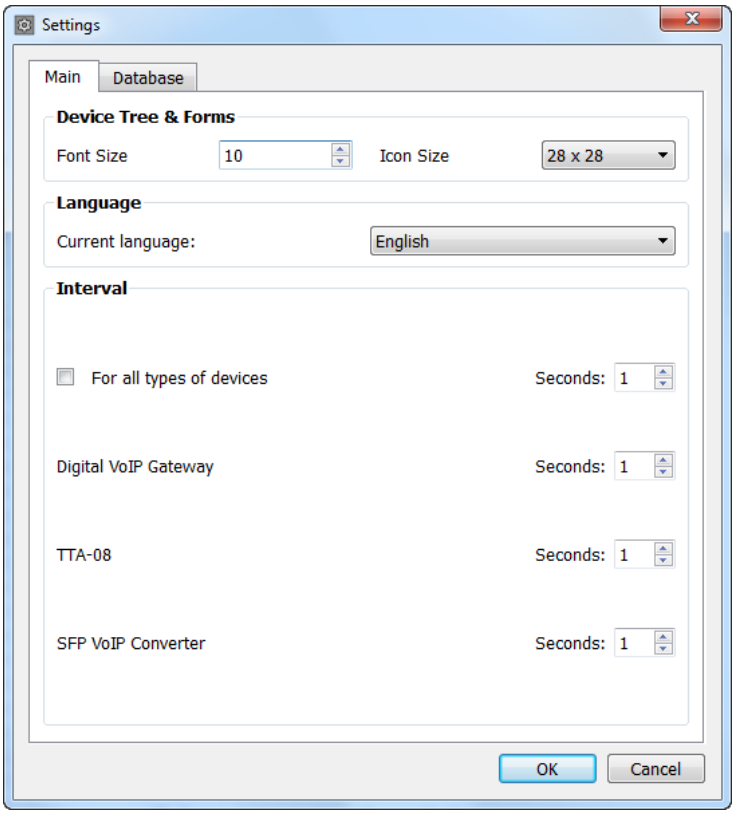
The form consists of two tabs: "Main" and "Database".

Using the parameters of the "Main" tab (Figure 33) you can:

- change the font size and the size of the icons of the "TTA Monitor" program;
- change the language of the application interface;
- configure the polling interval of devices depending on the type or use one interval for all types of devices.

Changes the user interface language will take effect after a reboot «TTA Monitor» software.

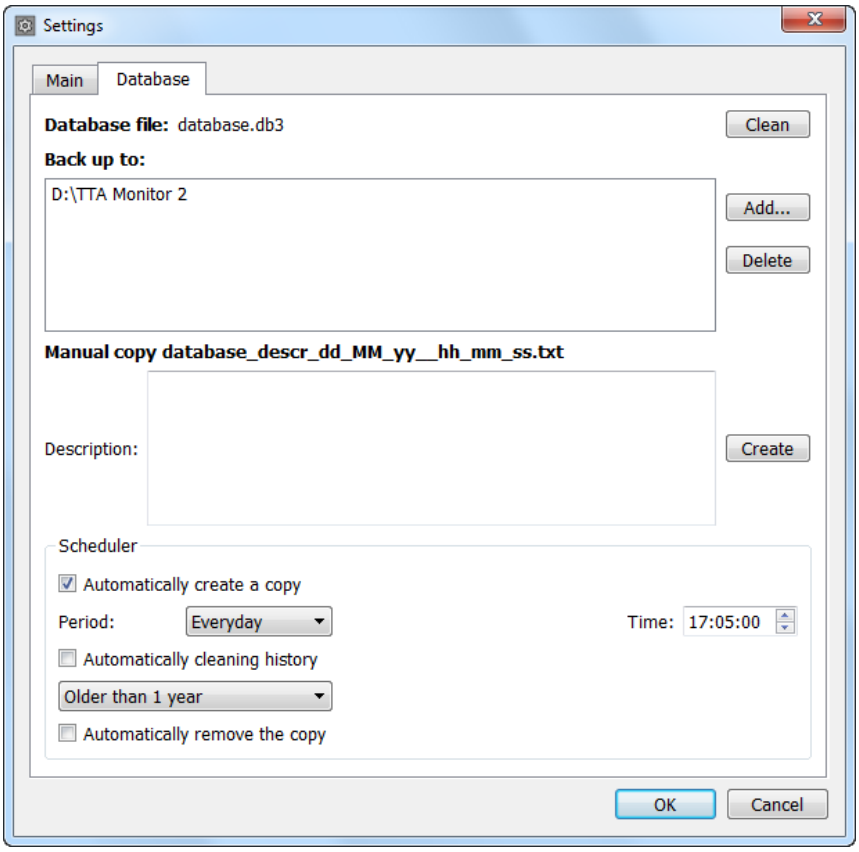
Figure 33. Form "Settings" - tab "Main"



Using the parameters of the "Database" tab (Figure 34) you can:

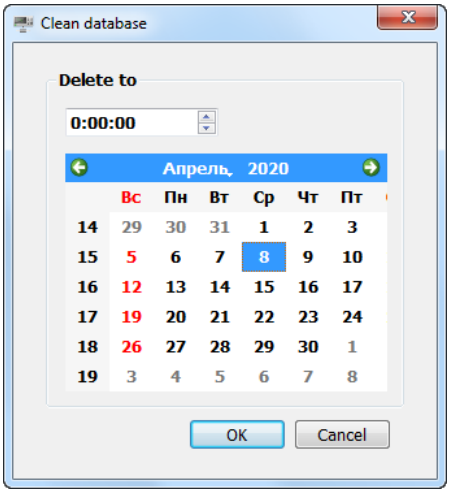
- clear the database of obsolete data (Clean);
- configure directories for backing up the database file (Back Up To);
- create a copy of the database in "manual" mode (Manual Copy);
- configure automatic creation of a database copy on a schedule (Scheduler);
- configure automatic history cleaning (Automatically cleaning history);
- enable / disable automatic deletion of the old copy of the database when creating a new copy.

Figure 34. Form "Settings" - tab "Database"



To clean the database from obsolete data, use the "Clean" button (Figure 34).

Figure 35. Database cleaning



On the presented form (Figure 35) you must select the date and specify the time. Click the "OK" button to delete the entries. To close the form without clearing the database, use the "Cancel" button or the standard window close button.

When clearing the database, all previously saved records are deleted up to the selected date and time.

When deleting a device or a group of devices using the button on the menu bar “Remove device or object”, all records associated with the deleted device will be deleted from the database.

Several directories can be used to save a database backup. A list of configured directories is displayed in the "Back up to" settings area.

To add a directory use the "Add ..." button and to delete an unused directory - select it and press the "Delete" button.

Note! There must be at least one directory for backing up the database file.

To "manually" create a database copy, in the "Description" field, specify a short description for the created copy and click the "Create" button. In the configured directories, copies of the database will be created with the date of creation and a text file with a description.

On the same tab, you can configure the automatic creation of database copies. Select the "Automatically create a copy" checkbox to enable automatic creation of database copies. Select the creation period - "Everyday", "By days", "Once a month" and specify the time of the database copy creation.

For automatic deletion of previous copies of the database, set the "Automatically remove the copy" checkbox. In this case, when creating a new copy of the database, the previous copy is deleted.

Note. Copies of the database with descriptions created in "manual" mode are not automatically deleted!

You can also configure automatic cleaning of the database file from obsolete records.

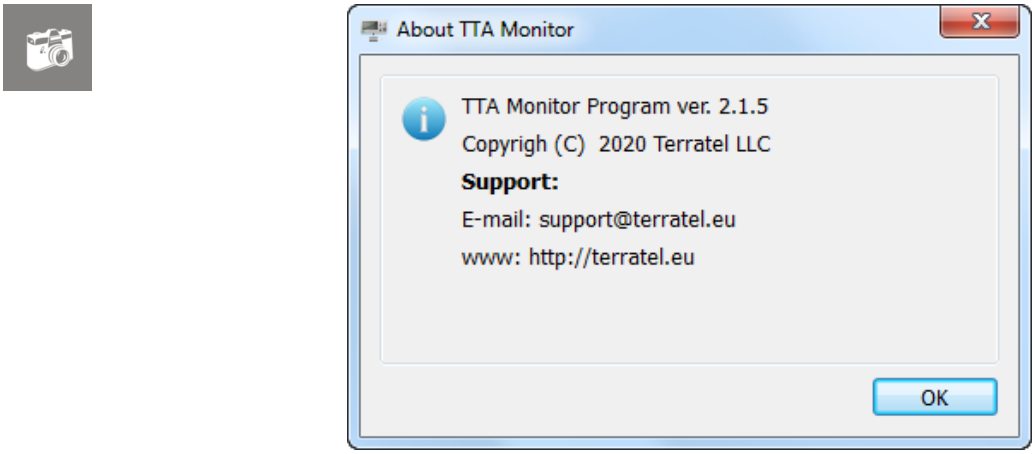
Check the box to enable automatic cleaning of the database - "Automatically cleaning history". And select from the list, older than what period to clear the data - "Older than 1 week", "Older than 1 month", "Older than 3 month", "Older than 6 month" and «Older than 1 year".

To save the changed parameters on the "Settings" form, click the "OK" button. To close the window without saving - use the "Cancel" button or the standard window close button.

10. About the program

The «About» menu bar item displays information about the current software version and product support (Figure 36).

Figure 36. About TTA Monitor



11. Contact Information

For technical support regarding the operation of equipment and software, please contact TERRATEL:

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TERRATEL llc
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Khmelnitsky, 29000, Ukraine

Phone/Fax: +380382 652333

E-mail: support@terratel.eu

Skype: terratel.support

12. Change history

Table 5. Version control

Date	Version	Description of Changes
05.03.2021	1.	First edition