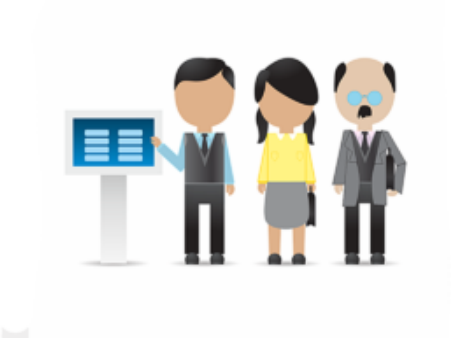
SUO ZKR QUEUE SYSTEM
INTERNATIONAL

INFORMATION SYSTEM

Queue Management System SUO ZKR



Operating manual

Version 3.0

www.suo.systems www.zkr.systems

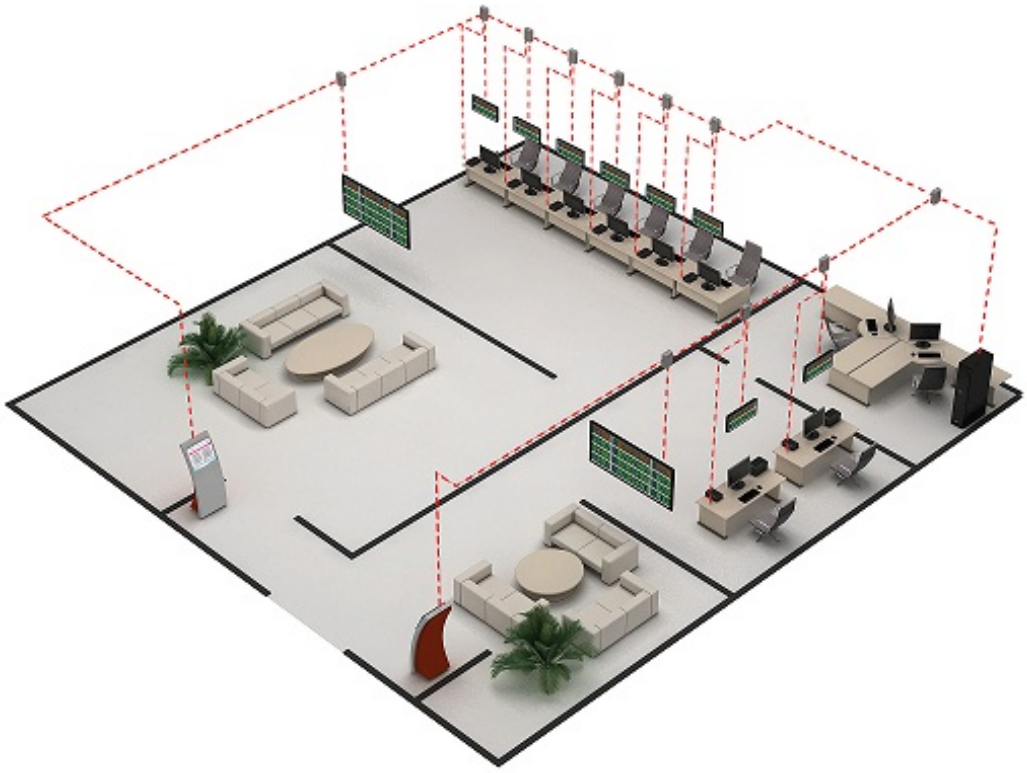
2020

This operating manual is intended to familiarize with the composition and operation of the information system of the electronic queue management (hereinafter SUO), perform the deployment procedure; configure the system, for the personnel performing operational support of the system, performing maintenance and routine repair of the system.

To make changes to the algorithm of the software, the system of sound alerts, to adapt the system to the customer's conditions, contact the manufacturer of the software.

It is necessary to have qualified personnel who configure and control the operation of the software and the system for the operational support of the system:

- You need staff with the qualifications of a system administrator who has the skills to deploy a local network and install system software to install the software, configure and test the functioning of the system.
- You need staff with the qualifications of a PC user with skills to run programs, work with a mouse, keyboard, familiarity with the Windows operating system to work with the program.



Description and operation of the system

1.1. Queue management system is designed to organize the work of the reception or ticket hall.

1.2. Queue management system provides:

1.2.1. Registration of visitors in queues (services) and calling the next visitors to a certain place of reception with the formation of voice and visual messages.

1.2.2. Operational audio and visual information of visitors about the reception of visitors. Synthesis of voice messages.

1.2.3. Call preferential categories of visitors, taking into account the priority.

1.2.4. Reception of visitors by appointment with the PIN.

1.2.5. Posting a visitor to the cabinets.

1.2.6. Limiting the reception of visitors by the time of reception and the number of visitors.

1.2.7. Storing and analyzing the statistics of visitors.

1.2.8. Administrative access to the current state of reception, warning of emergency situations.

1.2.9. Access to the current status of the electronic queue, analysis and adjustment of the load, tracking the work of operators.

1.2.10. Connection with the WEB service to display the status of the queue and the organization of pre-recording.

1.3. Information system consists of a control computer (server), computer operators, set displays, warning systems and software.

1.4. List of system equipment. Delivery of the equipment is made according to the specification. Below is a list of supported hardware.

1.4.1. Control computer (server).

1.4.2. Terminal registration (touch kiosk).

1.4.3. Terminal registration (touch kiosk) combined with the server.

1.4.4. Main LED board call customers.

1.4.5. Set of LED display operators.

1.4.6. Computer operators.

1.4.7. Computer administrator / controller

1.4.8. Operator Call Panel

1.4.9. Multimedia computer with LCD monitor.

1.4.10. Set of audio amplifiers and speakers of the warning system.

1.4.11. Set of network switches and bridges.

2. Description and operation of system components.

2.1. Control computer (server).

2.1.1. The server is a computer on which a database is deployed and a server program is launched that provides connection to the database and the functioning of all system components.

2.1.2. The server can be any computer on the network that is always on when system operation is required.

2.1.3. The server can be combined with any other computer in the system. Most often, the server is installed on the registration terminal computer.

2.1.4. Windows 7/8/10 operating system must be installed on the computer.

2.1.5. The server must have a fixed IPv4 address if there are LED boards or physical consoles in the system.

2.2. Registration (terminal).

2.2.1. The registration terminal is a computer running SuoTerminal. The registration ticket printer is connected to the computer of the registration terminal.

2.2.2. The registration terminal most often has a touchscreen display and is designed as an information kiosk.

2.2.3. It is necessary to install several registration terminals, each of which must have a separate copy of the SuoTerminal program running to organize service areas.

2.2.4. If the terminal is used as an audible alert source, a sound system must be connected to the audio output of the terminal. To provide a sound alert function, SuoSpeaker (Gong) must be running on the terminal.

2.2.5. The Windows 7/8/10 operating system must be installed on the computer.

2.2.6. If the registration terminal is used as a server, it must have a fixed IPv4 address if there are LED boards or physical panels in the system.

2.3. Operator's computer.

2.3.1. The operator's computer is a computer running SuoOperFull or SuoOperLite (Operator) - a virtual console. A physical console can be connected to the operator’s computer to quickly call visitors.

2.3.2. An operator's LED display and a quality of service evaluation panel can be connected to the operator’s computer. USB port is used for connection.

2.3.3. An operator’s LCD can be connected to the operator’s computer. LCD displays connected to the auxiliary video output. To display the operator's board, the SuoPanel program must be running on the operator’s computer.

2.3.4. The Windows 7/8/10 operating system must be installed on the computer.

2.3.5. The operator can be run on any smartphone/tablet in a standard browser.

2.4. Administrator / controller computer.

2.4.1. The administrator's computer is any computer on the local network where SuoAdmin (Administrator) is running.

2.4.2. The controller's computer is any computer on the local network where SuoSupervisor (Controller) is running.

2.4.3. Any other program of the set can be run on the administrator/controller computer and a receipt printer can be connected for manual registration of visitors.

2.4.4. Windows 7/8/10 operating system must be installed on the computer.

2.5. **Multimedia computer.**

2.5.1. A multimedia computer is a computer on a local network that runs the SuoPanel program (Operator's Main Display or Display) and to which an LCD monitor or television is connected to emulate the customer's main display board or the operator's individual display.

2.5.2. The program SuoPanel can be run on any computer system. To connect the LCD monitor, an additional video card can be installed. To ensure the operation of several LCD monitors, SuoPanel can be run on several computers on a network, or monitors can be connected via video splitters.

2.5.3. It is necessary to install several LCD monitors to organize service areas, each of which must be serviced by a computer on the network with its own copy of the SuoPanel program.

2.5.4. Sound alerts can be made through the speakers of a connected multimedia LCD monitor. SuoSpeaker must be running on the computer to provide an audio alert function.

2.5.5. Sound notification also has a zoning function.

2.5.6. Windows 7/8/10 operating system must be installed on the computer.

2.5.7. The role of a multimedia computer can be performed by a specialized microcomputer running the Linux operating system.

2.6. **Set of LED boards.**

2.6.1. LED boards are designed to visually inform visitors about the call. LED boards can be individual (operator boards) or group (main boards). Depending on the design, the following information can be displayed on the LED board:

2.6.1.1. Called Visitor Ticket Number

2.6.1.2. Alphabetic prefix of the number of the called visitor

2.6.1.3. Workplace number

2.6.1.4. Arrow - direction of travel to the call place

2.6.2. At the time of the call, the information on the display may flash or change color.

2.6.3. LED displays are connected to a computer network via an Ethernet bridge - RS485 or USB - RS485. All boards are connected to the RS485 line in parallel (common bus).

2.6.4. LED boards can be connected to a local network by a group via one bridge, several groups or each separately using several bridges. Use an Ethernet bridge - RS485 to connect to the network directly. To connect to the network via the nearest computer, a USB - RS485 bridge is used.

2.6.5. To ensure the operation of the Ethernet bridge - RS485 as a client on the network, configuration is required in accordance with the bridge description and clause 8 of the present description.

2.6.6. You need to install the SuoBridge program (Bridge) and the virtual COM port driver on this computer to ensure the operation of the computer with the USB-RS485 adapter installed as a bridge. The computer must have a fixed IPv4 address.

2.7. **Personal Operator Console.**

2.7.1. Personal operator consoles are used to operate operators who do not have a computer, or it is not possible to install additional software on the computer. The personal remote control is supplied as a device with buttons (push-button remote control) or for operation on an operator's tablet/smartphone (remote control on a tablet).

2.7.2. Push-button operator consoles are connected to the computer network via an Ethernet bridge - RS485 or USB - RS485. All consoles are connected to the RS485 line in parallel (common bus).

2.7.3. Operator push-button consoles can be connected to the local network by a group via one bridge, several groups or each separately using several bridges. Use an Ethernet bridge - RS485 to connect to the network directly. To connect to the network via the nearest computer, a USB - RS485 bridge is used.

2.7.4. Remote controls on the tablet are connected to the system via WiFi. No additional software is required to install the console; the work is done using the built-in WEB browser.

2.7.5. It is necessary the configuration in accordance with the description of the bridge and p.8 of the present description for the operation of the Ethernet bridge - RS485 as a client on the network.

2.7.6. You need to install the SuoBridge program (Bridge) and the driver of the virtual COM port on this computer in order to ensure that the computer with the USB-RS485 adapter is installed as a bridge. The computer must have a fixed IPv4 address.

2.8. **Console quality assessment.**

2.8.1. The panels for assessing the quality of the service provide an assessment of the work of the operator on a 3-5-point scale.

2.8.2. Quality control panels are connected to a computer network via an Ethernet bridge - RS485 or USB - RS485. All consoles are connected to the RS485 line in parallel (common bus).

2.8.3. Quality control panels can be connected to a local network by a group via one bridge, several groups or each separately using several bridges. To connect to the network directly, use an Ethernet bridge - RS485. To connect to the network via the nearest computer, a USB - RS485 bridge is used.

2.8.4. Configuration is required in accordance with the bridge description and clause 8 of the present description to ensure the operation of the Ethernet bridge - RS485 as a client on the network.

2.8.5. To ensure the operation of the computer with the USB-RS485 adapter installed as a bridge, you need to install the SuoBridge program (Bridge) and the virtual COM port driver on this computer. The computer must have a fixed IPv4 address.

2.9. **Software.**

2.9.1.1. The program runs on each computer system in accordance with the functional load.

2.9.1.2. The software consists of the following modules:

2.9.1.3. "Server" (SuoServer) is a database support program, the formation of characters on the scoreboard, WEB server.

2.9.1.4. "Operator" is a program of the operator's virtual console that allows you to make a call to the next visitor, as well as a number of service operations. Available in two

versions - “Full Operator” (SuoOperFull) and “Light Operator” (SuoOperLite). Programs differ in a set of service capabilities.

2.9.1.5. “Terminal” (SuoTerminal) is a program for registering visitors on a touch screen.

2.9.1.6. “HTML Terminal” (SuoBrowser) is a visitor registration program on the touch screen, the image of which can be fully customized by the administrator.

2.9.1.7. “LCD Panel” (SuoPanel) is a program that forms on the LCD monitor the main display board for calling visitors.

2.9.1.8. “Announcer” (SuoSpeaker) is a program that forms sound melodic and voice alerts.

2.9.1.9. “Administrator” (SuoAdmin) is a program that allows configuring the queue system, adding, deleting and renaming the list of services, configuring operators, terminals, LCD panels, LED boards, remote controls, setting up sound alerts.

2.9.1.10. "Controller" (SuoSupervisor) is a program that allows you to monitor the reception of visitors, the work of operators.

2.9.1.11. “Statistics” (SuoStats) is a program that allows you to display statistics on the operation of the system and export statistics to other programs.

2.9.1.12. “Bridge” (SuoBridge) is a program that allows you to connect LED boards, personal push-button consoles and quality control panels to any computer in the local network.

2.9.1.13. “Synchronization” (SuoSync) is a program that performs the interaction of an electronic queue system with a company site, synchronizes a set of services, downloads preliminary records from the site, and uploads the queue status to the site.

2.9.1.14. Set of utility tools.

2.9.2. Software Algorithm.

2.9.2.1. Algorithm service. The system creates a list of services that is formed on the touch screen of the visitor registration terminal as a multi-level navigation menu. Each service or set of services is determined by the operator’s workplace or several operators for maintenance.

2.9.2.2. When registering at the terminal, the visitor receives a ticket indicating the service, queue numbers, queue time, number of waiting visitors and approximate waiting time, as well as additional information. The numbering of tickets is pass-through, one for all services, or separate with an alphabetic prefix.

2.9.2.3. Visitor calling can be made with a delay that allows the visitor to walk from the place of registration to the place of reception.

2.9.2.4. Operators make calls using virtual or personal operator consoles. Calls are made in a visual way (on the main scoreboard and scoreboard of operators) and are repeated by voice (or accompanied by a gong). When the function of posting to the offices is turned on, after the reception is over, the visitor automatically moves to the queue for the next service. The administrator can set the mode of regulated service, when the time of service, the break between services and the time of rest breaks is controlled by the administrator. The operator can call several visitors at the same time and redirect the visitor to another operator.

2.9.2.5. Operational boards help visitors navigate the office. When you call, the main display shows the number of the called visitor and the direction of the arrow to the place of reception. The operator's board shows the number of the coupon, which first flashes to attract attention.

2.9.2.6. The visitor has the opportunity to assess the quality of service using the keypad at the end of the reception. Evaluation results are available in the system statistics viewer.

2.9.2.7. Evaluation of the quality of service/questioning at the registration terminal allows you to conduct a survey of visitors on the list of prepared questions. Questionnaires may vary depending on the type of service received.

2.9.2.8. The system administrator has the ability to intervene in the operation of the system. Most of the settings, including changing the list of services, assigning services to workplaces (operators) immediately affect the operation of the system without restarting it. The administrator controls the reception of visitors, the load on the operators directly on your computer. The statistics of the system allows to estimate the capacity of the office, the load on certain operators, the hours of maximum and minimum load and optimize both the list of services, the time of service, and the number and schedule of operators.

2.9.2.9. Service areas. If there are several main boards in the system, it is possible to create service zones, while calls to a certain group of workplaces will be made only on their main board. Voice alert can also be tied to a group of jobs. If there are several registration terminals, several completely independent service areas can be created, in which both registration and call is carried out only to a certain group of workplaces.

2.9.2.10. Categories. The system has the concept of a category. The category can be defined as individual visitors (coupons), and all visitors registering with a particular service. The category allows you to add a prefix letter to the coupon number, set the range of coupon numbers and determine the priority of service.

2.9.2.11. The priority of service determines the order of servicing visitors. The higher the priority, the earlier the visitor will be called for service. The priority is set automatically when registering visitors in the services defined in the settings, or manually by the administrator.

2.9.2.12. Receiving priority visitors postpones the service of visitors with a lower priority for a later time. With a large flow of priority visitors, it is possible to introduce alternation of reception of priority and ordinary visitors.

2.9.2.13. The system supports the reception of visitors by appointment. Pre-registration is performed for a specific time and for a specific service. Coupons for visitors with pre-registration are issued with an indication of the recording time when entering a PIN code. The system allows you to get a ticket by appointment only up to the point in time at which the recording was made. The system queues the ticket in such a way as to place the call no later than the designated time. However, if the order of servicing other visitors allows you to call the ticket before the appointed time, the ticket is called in the order of the usual queue. Pre-registration of visitors in the queue is carried out on an additional service, for example, on the organization's website and data about the records are loaded into the system at the beginning of the day. Pre-registration can be done by the administrator.

2.9.2.14. Algorithm for sorting visitors in the queue. Visitors are served by operators in the order determined by the time of queuing (registration). If there are priority coupons in the queue, they are moved forward in the queue, depending on the priority. For tickets that have a pre-recording time, 10 minutes before the scheduled time, an additional sorting factor is activated — the recording time. From this point on, the ticket is placed in the queue taking into account the pre-recording time, but only within the same priority. Tickets with no pre-recording time and coupons whose pre-recording

time has not arrived are placed in the queue behind the tickets with the active recording time within the same priority. With the current interlace, each call specified in the setup is made without taking into account the priority and pre-recording, if it is specified in the settings.

2.9.2.15. System time. When installing the program, the time zone is read from the operating system and the DBMS time is set in accordance with this setting. When changing the time zone of the operating system after installing the program, you need to change the time zone in the database in accordance with Addition F (section 10).

3. System deployment

3.1. **Switching and electrical connections.**

3.1.1. All computers must be connected to the local network, preferably in the same network segment for the system to function properly. Routers must be configured according to the application when connecting computers to different network segments.

3.1.2. Bridges for connecting LED boards must be connected to the local network.

3.1.3. Sound system must be connected to the sound output of the computer on which SuoSpeaker will be installed.

3.1.4. LED boards, personal push-button consoles, quality control consoles must be connected to the bridges with an RS485 line. No more than 31 devices should be connected to each bridge (Important: a multi-line scoreboard is equivalent in the number of inputs to the number of lines in the display).

3.1.5. Personal operator consoles on the tablet must be connected to a WiFi network

3.1.6. Server must have a fixed IP address if there are LED boards or personal remotes in the system. To ensure the operation of the computer with the USB - RS485 adapter installed as a bridge, the computer must have a fixed IP address.

3.1.7. LCD TV used as the main display of the system can be connected to any computer on the local network if there is an additional video card. The sound can also be transmitted through the speakers of the LCD TV.

3.1.8. LCD TVs for operators are connected to the operator's computer through an additional video card, several workplaces located nearby can be shown on one LCD TV.

3.1.9. All enclosures and remote power supplies must be grounded using appropriate grounding contacts.

3.2. **Software installation.**

3.2.1. Check the network protocols TCP / IPv4 and TCP / IPv6, if necessary, install the missing protocols. In the TCP / IPv4 protocol, it is desirable to set up fixed IP addresses, and in the TCP / IPv6 protocol, they are automatically assigned.

3.2.2. If there are LED boards, personal push-button consoles, quality assessment consoles in the system, configure the Ethernet bridges - RS485 in accordance with the bridge description and clause 8 of the present description.

3.2.3. When connecting LED displays or remotes via an operator / terminal computer, a USB-RS-485 adapter must be connected to the computer's USB port and a virtual COM port driver must be installed (USB-RS-485).

3.2.4. Receipt printer on the terminal must be selected by the printer "by default". If you need to connect the ticket printer to the administrator's computer on which there is already another printer, you need to configure the printer in accordance with section 3.8.3.

3.2.5. When connecting the main panel on the LCD panel to the additional output of the video card of the registration terminal, an additional monitor (LCD TV) must be configured in the operating system to work as an extension of the desktop.

3.2.6. For correct installation of programs, it is necessary to configure the local network so that a computer - server can be accessible from all computers on which a set of programs is installed. To check availability, type in the command line:

ping <network name or IPv4 address>

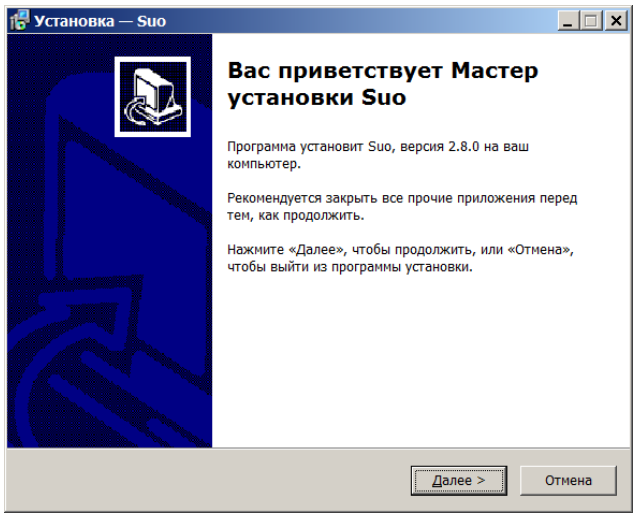
3.2.7. TCP port 80, 50360, 50350, 50355 should be available on the computer, the SuoServer service, POSTGRESQL or PSQL DBMS should be started on a computer with the Server program installed. To ensure operability, you need to disable blocking of specified ports, for which in most cases it is enough to disable Windows Firewall and allow “access to files and printers” (and enable network detection in Windows 7). The procedure for configuring a firewall is described in Addition A, p.5.

3.2.8. Check the current time and time zone on all computers. Update KB2570791 (time zone update package for available Windows systems) must be installed on all computers. Install KB2570791 (can be downloaded from the support page) or perform a Windows update.

3.2.9. Remove the previous version of the program. The installer automatically removes previous versions only if these versions are higher than 2.0.

3.2.10. To install the program on the terminal and multimedia unit, they must be equipped with a keyboard and mouse for the installation period.

3.2.11. Software is delivered as a single executable file SuoSetup.exe

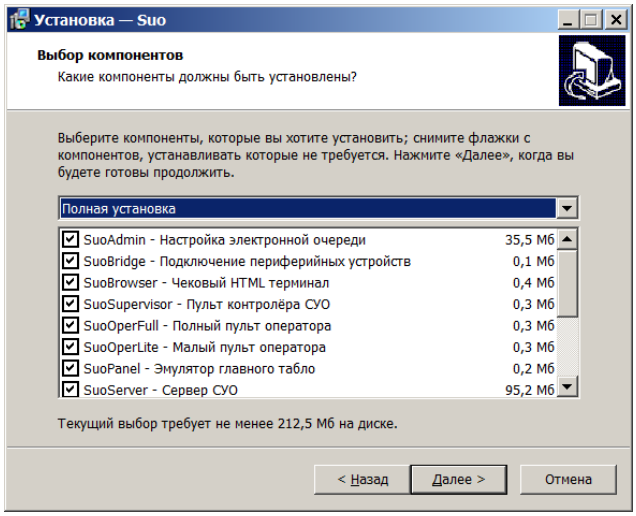


3.2.12. It must be run the installation program SuoSetup.exe for the system to work correctly on each computer, starting with the server. The installation program can be run either from portable media or over the network.

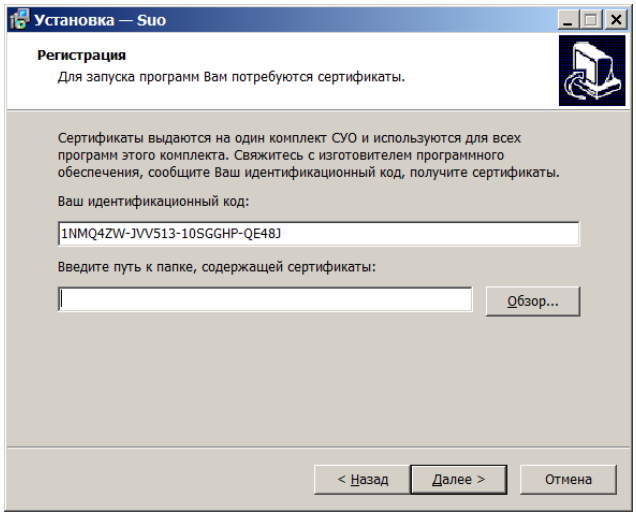
3.2.13. Read and agree to the terms of the license agreement.

3.2.14. Select a folder to install the program. It is usually sufficient to confirm the proposed path.

3.2.15. Select the components to install. SuoServer needs to be installed on only one computer. All other programs can be installed on any computer system in various combinations. Installation of all system modules on one computer is allowed. The number of simultaneously working workstations with the operator’s program running or with the operator’s physical console installed may be limited by the delivery option and the license key.



3.2.16. Next, the installation program will ask you to specify the path to the folder with certificates. To obtain a set of certificates, you need to write down the identification code of the computer on which the server is installed, inform the manufacturer and obtain a set of certificates. A set of certificates is required once during the system installation, the installer copies the necessary certificates to the system area during the installation process.



3.2.17. The system uses one set of certificates for all modules of the system. When installing modules on other computers of the system, the installation program will try to find the server automatically, but the path to the folder with certificates must be specified manually. If the server is not found automatically, enter the network name of the server or its IPv4 address as the server. If computers on the network receive addresses via DHCP, you must specify the network name of the computer; otherwise, specify IPv4.

3.2.18. Select the programs that you want to run when you turn on the computer without the participation of staff.

3.2.19. Check the installation settings and click Install.

3.2.20. After completing the installation of the program, the installer will request a list of programs that can be launched immediately after the installation is completed.

3.2.21. After completing the installation of a set of programs on the server, you must install the necessary programs on all computers of the system. Install the SuoServer program on only one computer in the system.

3.2.22. The program SuoOperLight or SuoOperFull is installed on workstations computers. If an LED board or a remote control is connected to the operator's computer, the SuoBridge program is also installed. If an LCD TV is connected to the operator's computer, the SuoPanel program and, if necessary, SuoSpeaker are installed.

3.2.23. It is necessary to perform the configuration after completing the installation of programs on all computers of the system.

3.3. **Configuring the system.**

3.3.1. Make sure the computer with installed SuoServer is turned on and connected to the network.

3.3.2. Run the SuoOperFull (SuoOperLite) programs on each operator's computer.

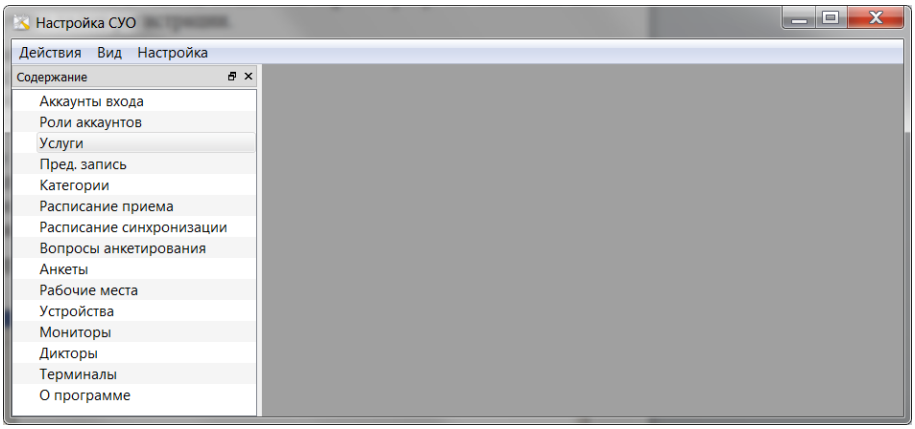
3.3.3. Run the SuoPanel program on a multimedia computer. In the configuration, when the LCD monitor of the main display is connected to a separate output of the registration terminal, set the desktop extension mode for the second monitor, drag the SuoPanel window onto the corresponding screen and press Ctrl-F to switch to full screen.

3.3.4. Run the SuoTerminal program. In the configuration, when the monitor of the registration terminal is connected to a separate video card output, set the desktop extension mode for the second monitor and drag the SuoTerminal window onto the appropriate screen. Press Ctrl-F to switch the program to full screen. The program comes with one pre-established service. Click on the services button and get a registration coupon.

3.3.5. To fix the full-screen mode for the main board and the registration terminal in the properties of the program's shortcut in the Startup folder, it must be checked or configured the program startup parameters (for example, SuoPanel.exe -fullscreen -screen N, where N is the monitor number in the system).

3.3.6. Make sure that the sound system is connected to the alert computer, and SuoSpeaker is running on this computer. Check for sound. To do this, open the program window SuoSpeaker, it is in the system tray. Press the "Gong" button, the signal should sound.

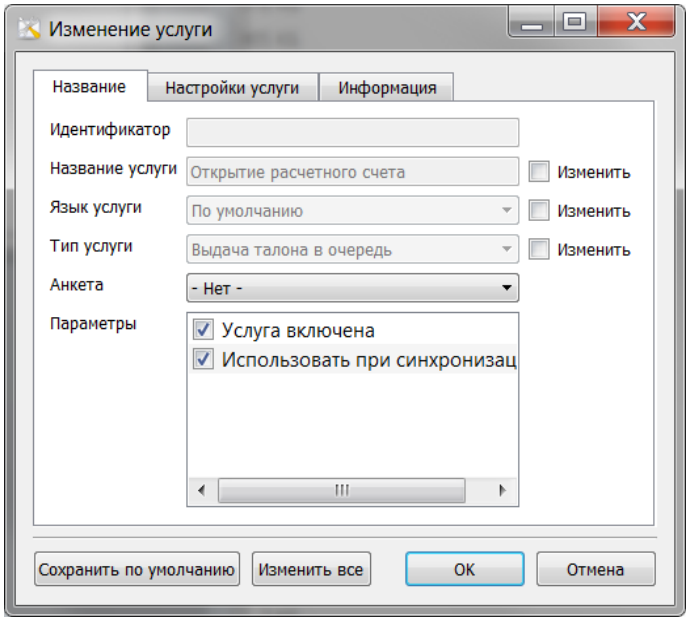
3.3.7. To configure the system, run the SuoAdmin program on one of the computers.



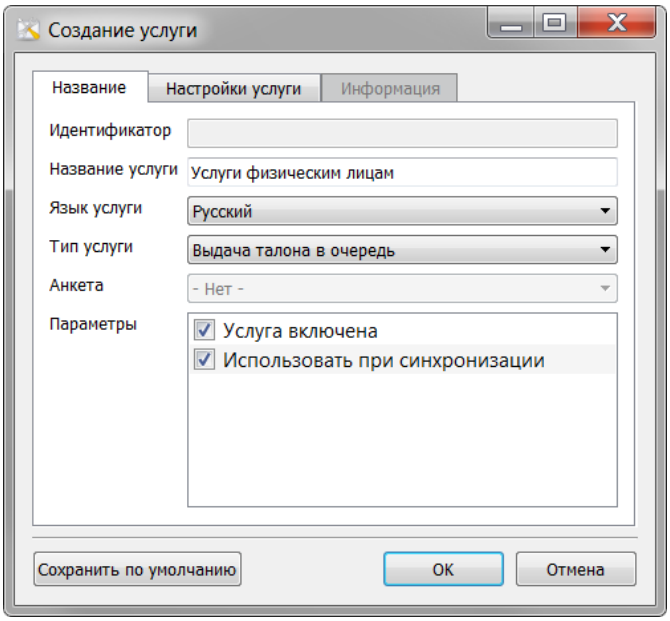
3.3.8. On the left is the navigation window, on the right - the tabs with the settings in the program window. Tabs are opened by double clicking on an item in the navigation window. Each open tab accesses a database for updating parameters. With a low network performance and a large number of clients, the server may delay the processing of requests, so it is advisable to close unused tabs in the SuoAdmin program.

3.3.9. In the majority of property windows, component parameters in SuoAdmin there is a “Save by default” button. This allows you to create similar items with parameters already filled in by the administrator.

3.3.10. Most of the table elements in SuoAdmin can be edited in groups. For this, it is necessary to select several elements of the same type and to enter edit mode with the right mouse button. Then you can tick on the right to select which properties of the whole group should be changed.



3.3.11. **Open the [Services] tab** and create the required number of services (queues). Creation of a service is performed through the “Actions” menu or via the context menu available by clicking the right mouse button in the services window.



3.3.12. Name of the service will be displayed on the registration terminal in large print, the description of the service - in small. The information is displayed on the registration terminal when specifying the type of information “Reference information”, “Data entry and ticket issuance” and “Ticket issuance after confirmation”.

3.3.13. Service language - informs the system in which language to print a registration ticket and call a visitor

3.3.14. Service type configures item properties in the registration menu:

3.3.14.1. “No” - is the absence of a ticket issuance, this type is assigned to hierarchical types of services for organizing page display of buttons on the registration terminal (submenu).

3.3.14.2. “Ticket issuing to a queue” is a standard operation for issuing a coupon.

3.3.14.3. "Entering data and ticket issuing" - entering visitor data using the virtual keyboard and ticket issuing to a queue.

3.3.14.4. “Ticket issue after confirmation” - output of text information with confirmation and subsequent issuance of the ticket to the queue.

3.3.14.5. "Reference information" - the output of textual information.

3.3.14.6. “Ticket issuance by appointment” - a window of issuing a coupon with a PIN-pre-registration request.

3.3.14.7. "Questioning" - a button to survey visitors.

3.3.14.8. Settings tab allows you to configure the service settings:

3.3.14.9. Waiting restriction - waiting time of queue for this service for statistics.

3.3.14.10. Service time is the average service delivery time for forecasting the time of reception.

3.3.14.11. Limit service - service time for this service for statistics.

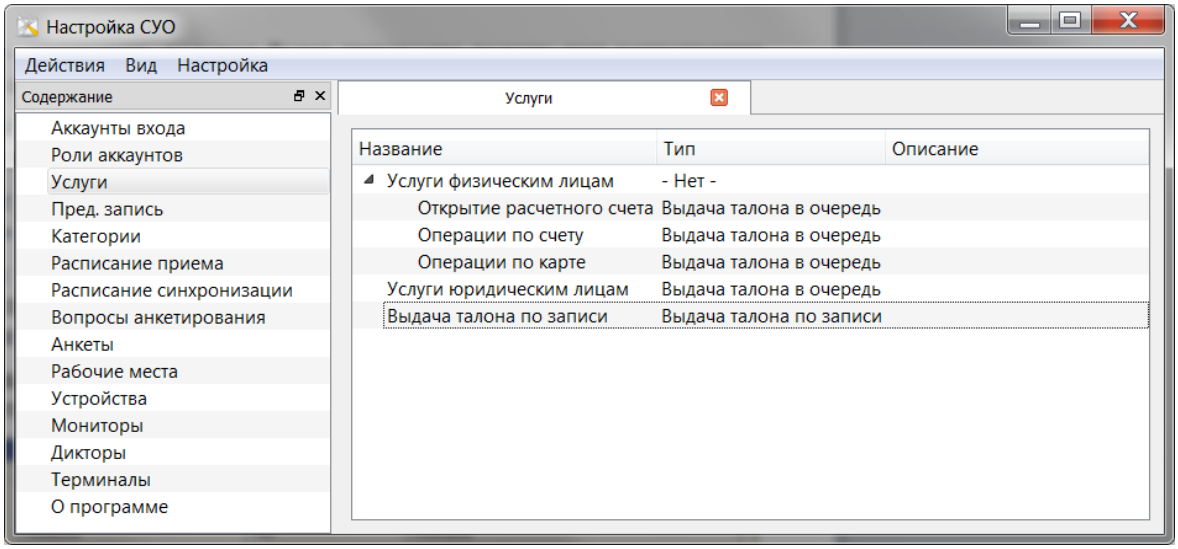
3.3.14.12. Category - a category that will be assigned to the coupon when registering a visitor to the service in accordance with the settings in the "Categories" tab of SuoAdmin.

3.3.15. Next service - the name of the next service when forming the order of service provision (posting to the offices).

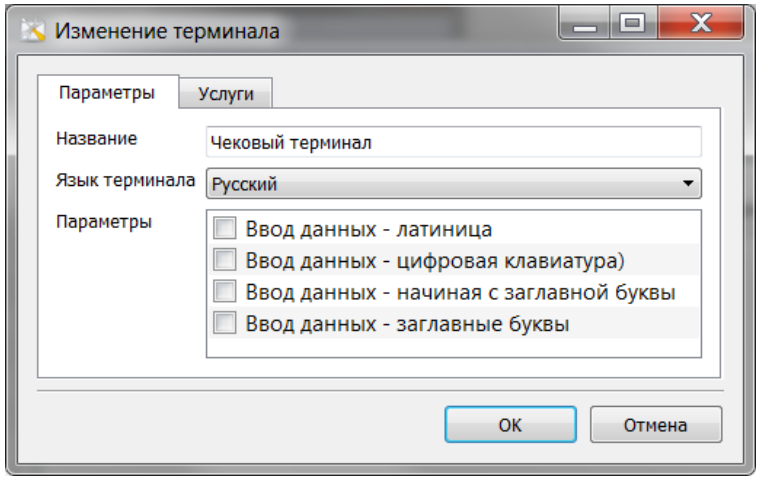
3.3.16. Work schedule - schedule in accordance with the settings in the tab "Schedule admission» SuoAdmin.

3.3.17. Service parameters are “service enabled” (present in the form of a button on the terminal) and “use when synchronizing” (when synchronizing with the site, the system changes or deletes only services with the checkbox selected).

3.3.18. To form a submenu on the registration terminal, drag the services to the corresponding types of top-level services with the mouse.



3.3.19. **Open the [Terminals] tab.** Verify that SuoTerminal is running. A line should appear in the window with the name and address of the connected terminal. The state must be - connected.



3.3.20. Select each terminal, click the [Change] button. The tab “Parameters” indicates the name of the terminal, the language of the auxiliary text, the parameters of the on-screen keyboard.

3.3.21. It can be specified the names of the services that should be displayed on this terminal in the “Services” tab. If no specific queues are assigned to the terminal, it shows them all. To clear the queue, specify the desired queue again. Click [OK] and the buttons with the name of the queues will appear on the terminal.

3.3.22. When using the base terminal view, the design of the upper part of the image, and the buttons can be changed as described in section 3.5 of this document.

3.3.23. Terminal can be configured either in the SuoAdmin program or in the SuoTerminal program itself. Calling the settings window in the SuoTerminal program is made by the combination Ctrl + S.

3.3.24. HTML terminals (SuoBrowser) are not displayed in the [Terminals] tab.

3.3.25. **Open the [Devices] tab.** Enter each operator panel, operator panel, quality control panel and each main LED panel. In the properties of the scoreboard, enter the name, type and address of the device, as well as the addresses of the main LED call board (each line of the scoreboard has its own address, addresses are entered each on its own line).

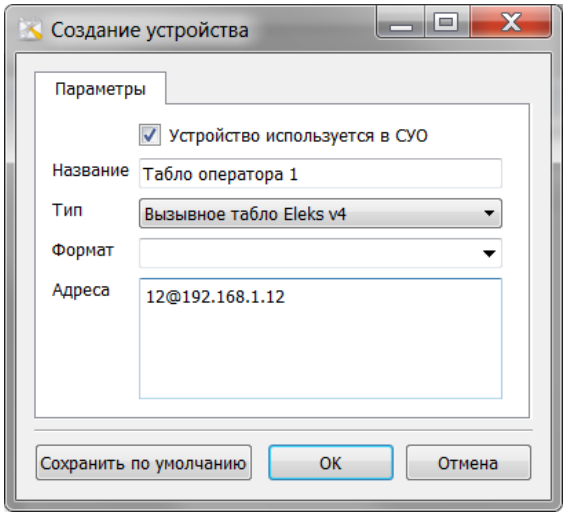
3.3.25.1. Board address is indicated as: AA@192.168.1.1, where AA is the address of the board, then after the ‘@’ sign, the IPv4 address of the bridge or computer through which the board is connected is indicated.

3.3.25.2. When connecting LED displays through operator computers, a virtual COM port driver (USB - RS-485) must be installed on these computers and SuoBridge must be running. If the scoreboard is connected to the server, enter the address of the scoreboard in the form: AA@127.0.0.1.

3.3.25.3. It is possible to specify the address of the board without the IP address of the bridge, if there is only one bridge.

3.3.25.4. If in the “SuoServer” program (in the tray) in the “bridges” tab, the bridge address is displayed as [:: 192.168.1.1], enter the IPv6 address with square brackets instead of the IPv4 address.

3.3.25.5. Check that SuoBridge is on and the correct COM port is selected. The addresses of the scoreboard are highlighted on the scoreboard after power is turned on.



3.3.26. Device type - indicate in accordance with the device type and delivery version.

3.3.27. Format - is the format of the LED display. In this line, if specified upon delivery, you must specify the output format string specified in the documentation on the scoreboard, if the scoreboard has a non-standard configuration. Specifies the number of characters to display the window number, the number of characters to display the queue number, the position of the arrow, and the blinking options. Examples of format strings:

<html><ticketRankIndex fieldWidth='3' fillChar='0' /></html>

<html><deskIndex fieldWidth='3' /><blinkBegin/><ticketRankIndex fieldWidth='3' /> <blinkEnd/></html>

ticketRankIndex – queue number

deskIndex – window number

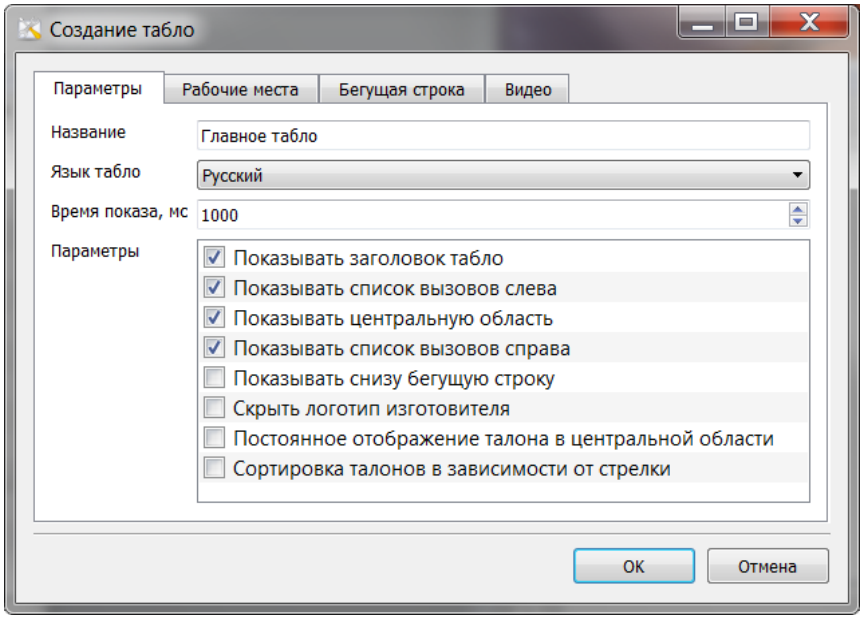
fieldWidth – field character in signs

fillChar – space character on the board

blinkBegin, blinkEnd – determines the area of blinking information when calling.

3.3.28. **Open the [Monitors] tab.** This tab is used to set up the main scoreboards and operator's panels on the LCD panel. Ensure that the SuoPanel program is running. The table should list all connected monitors. Select in turn each one.нитор.

3.3.29. Specify the name of the scoreboard (LCD panel), the configuration of the scoreboard. The title is shown at the top of the board, the list of calls to the left and right is the call history, the central area is the area to display the current calls, picture or video file, the crawler is the message at the bottom of the board. In the central area, the current calls are shown in pop-up mode.

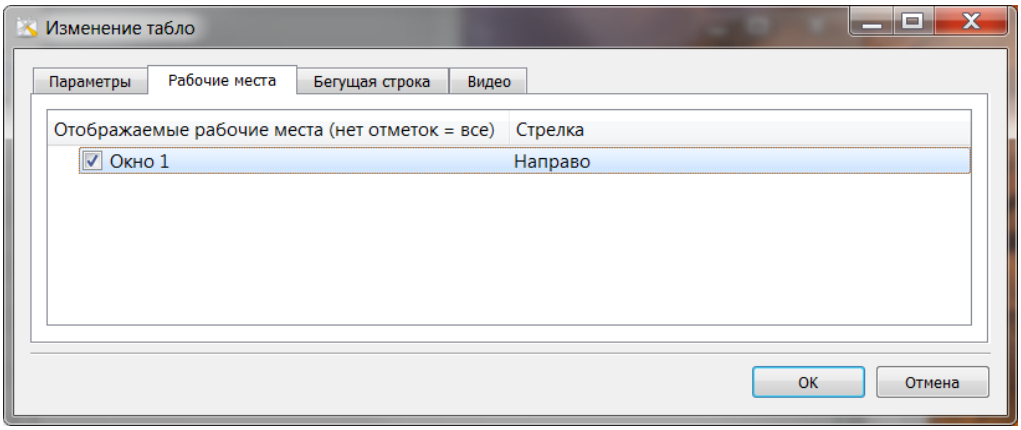


3.3.30. Board language determines the language of the auxiliary inscriptions on the scoreboard.

3.3.31. Central window can be fixed by ticking the item “constant display of the coupon in the central area”.

3.3.32. Display time - is the minimum guaranteed time to display the coupon on the TV screen in milliseconds.

3.3.33. Specify the calls in the “Jobs” tab to which jobs should be displayed on this monitor. If no specific jobs are assigned to the monitor, it shows them all. If you want to show arrows indicating the direction to the place of service on the board, select the arrow option.



3.3.34. Specify the text, the speed of the running line and the names of the files to be displayed in the central area in the “Running line” and “Video” tabs (not supported by all versions of the program).

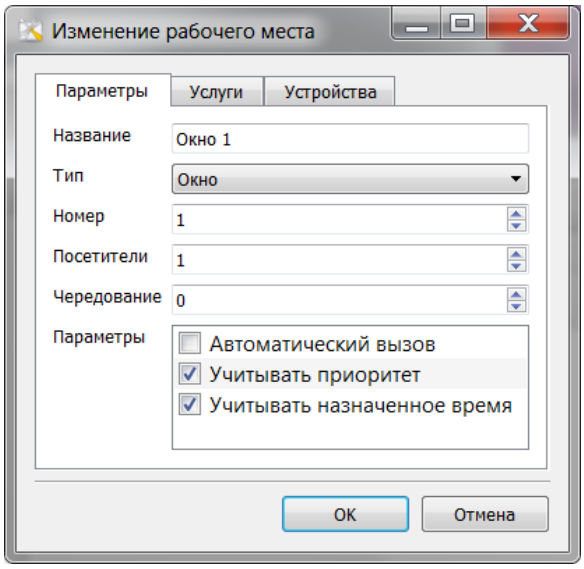
3.3.35. Setup of the main display can be made both in the SuoAdmin program and in the SuoPanel program itself. Calling the settings window in the SuoPanel program is made by the combination Ctrl + S.

3.3.36. **Open the [Jobs] tab**. The program window should display all computers running SuoOperFull (SuoOperLite).

3.3.37. Change the properties of each workplace by clicking the [Edit] button

3.3.38. Specify the correct name of the operator's workplace. This name will be displayed on the main display (LCD monitor of the multimedia unit). It is better to indicate the number or the number with the letter (2, 2A) in order for the information to be read

correctly on the LCD monitor. If the name is long, you need to change the font size on the main display in accordance with the application.



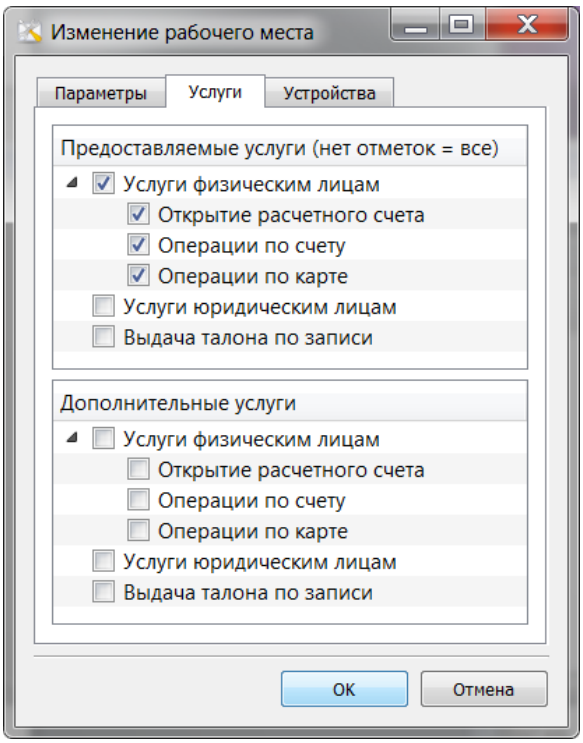
3.3.39. Specify the type and number of the cabinet (window, box office). This data will be used by the program to generate voice messages and be displayed on the LCD monitor.

3.3.40. If the operator can simultaneously serve several visitors, in the “Visitors” line specify the number limit.

3.3.41. To organize the service of priority visitors, specify whether it is necessary to take into account the priority, the appointed reception time and apply alternation of priority and regular visitors in a queue to this workplace.

3.3.42. It must be selected the check box "Automatic call" for the introduction of a regulated mode of operation of the operator.

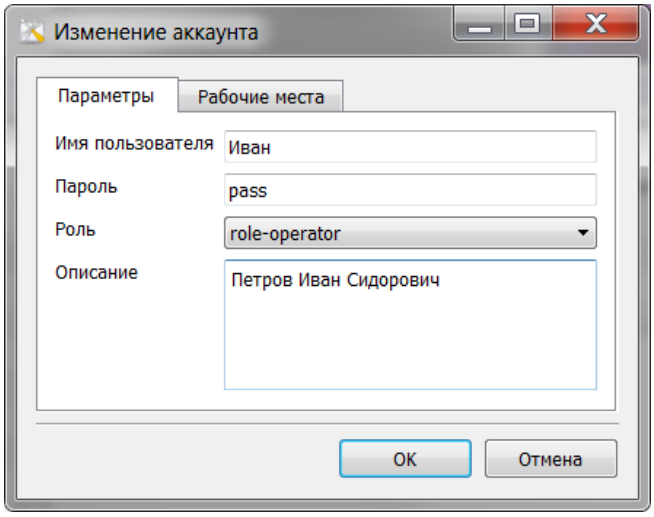
3.3.43. In the "Services" tab, specify the services that are provided by the operator at this workplace. Additional services are shown in the SuoOperFull program in an additional window.



3.3.44. In the “Devices” tab, specify the names of the operator’s boards connected to the system (the main LED boards) on which calls to this workplace should be displayed. The names of the scoreboards are configured in the [Devices] tab of the SuoAdmin program.

3.3.45. Select an operator console and a quality control console. The names of the consoles are configured in the [Devices] tab of the SuoAdmin program.

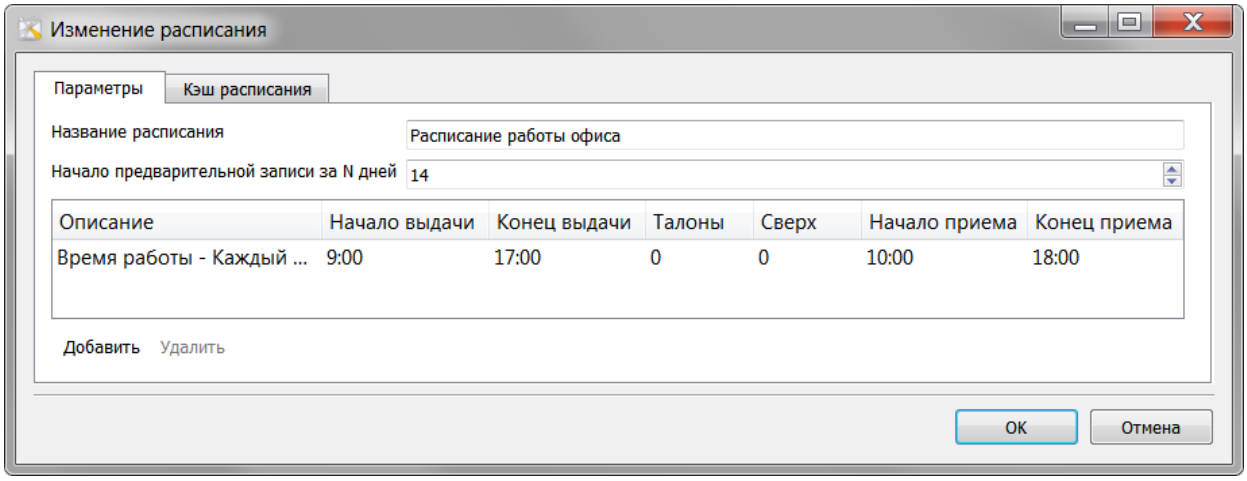
3.3.46. **Open the [Login Accounts] tab.** Set correct names for all operators for easy display of statistics. If you need password protection, enter the password.



3.3.47. Specify the role of the account, access restrictions for roles are configured on the [Account Roles] tab.

3.3.48. On the “Jobs” tab, you can limit the ability to log in from certain jobs.

3.3.49. **Open the [Reception Schedule] tab.** To set a limit on the issuance of coupons in terms of time and quantity, create a schedule and specify the service opening time, the start date of issuing coupons, the end time of issuing coupons, the number of coupons that can be issued during this time. If you want to distribute the load, you can create several time ranges in one schedule with an indication of the limit on the number of coupons. In this case, you can limit the issuance of coupons at the end of the day or during the transfer.



3.3.50. If you need to enter a different schedule for the days of the week, the “every day” line will be valid for all days except those specified. If it is necessary to forbid reception on one of the days, the lines “every day” should not be in the schedule.

3.3.51. In services, you must specify a schedule for each service for which a restriction is required. If there is a limit, the button on the registration terminal will be inactive when a time or quantity limit is reached.

3.3.52. The start time of the reception and the time of the end of the reception only affect the work statistics and are not taken into account when issuing coupons.

3.3.53. The tab “Schedule cache” is intended for checking and shows the work time for the next week with the parameters specified in the schedule.

3.3.54. The queue reset time is set at 4:00 am. Forcibly, you can reset the queue with the button "Reset QMS". Wherein:

3.3.54.1. The numbering of coupons is reset.

3.3.54.2. All registered visitors are deleted.

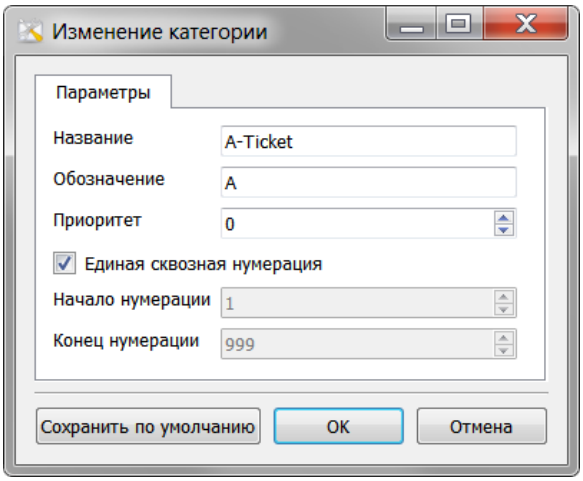
3.3.54.3. All services are completed

3.3.54.4. All pre-entries are removed for the time before the reset.

3.3.54.5. Record is made indicating the time, cause and IP address in the work statistics (in the case of a manual reset).

3.3.54.6. Job statistics are transferred to the archive, which can be investigated by the SuoStats program.

3.3.55. **Open the [Categories] tab.** Categories determine the sorting order of visitors in queues and the method of calling. Categories have priority. The higher the priority, the earlier the visitor will be received. With a large flow of preferential visitors, you can set the alternation in the parameters of workplaces, in which the reception of preferential visitors will alternate with the reception of ordinary visitors.



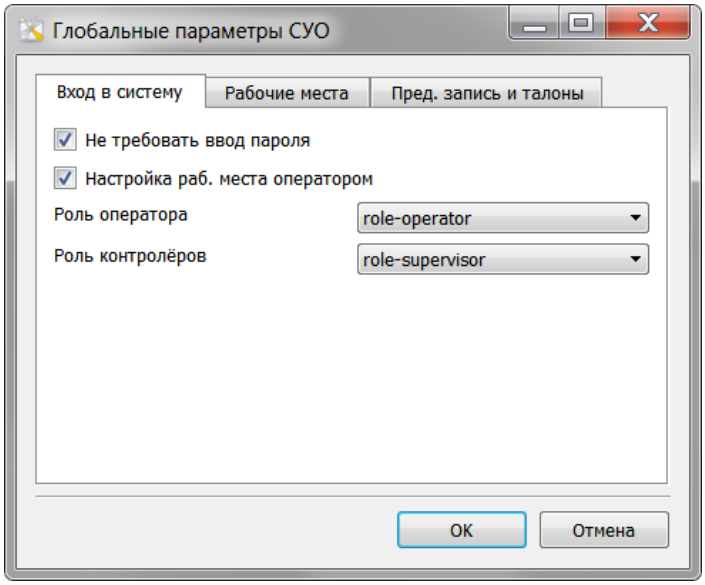
3.3.56. System creates three categories that you can change or add new ones on delivery. In the properties of the category, specify its name, designation (prefix letter to display on the ticket and scoreboard), priority and numbering method of coupons.

3.3.57. “Settings” button of the SuoAdmin program allows you to configure some general parameters of the electronic queue.

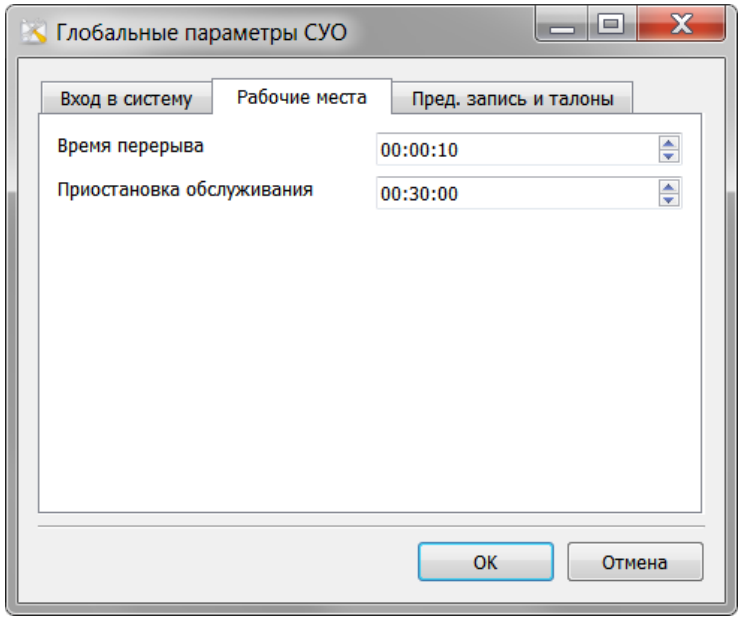
3.3.58. Global parameters of the QMS.

3.3.58.1. “Login” tab configures the roles of accounts created by the system automatically when the operator and controller programs are started, the checkbox “do not require a password” except the password allows automatic registration of accounts.

3.3.58.2. Checkbox “Configure slave”. Operator Seats permits the setting of the workplace parameters by the operator in the SuoOperFull program.



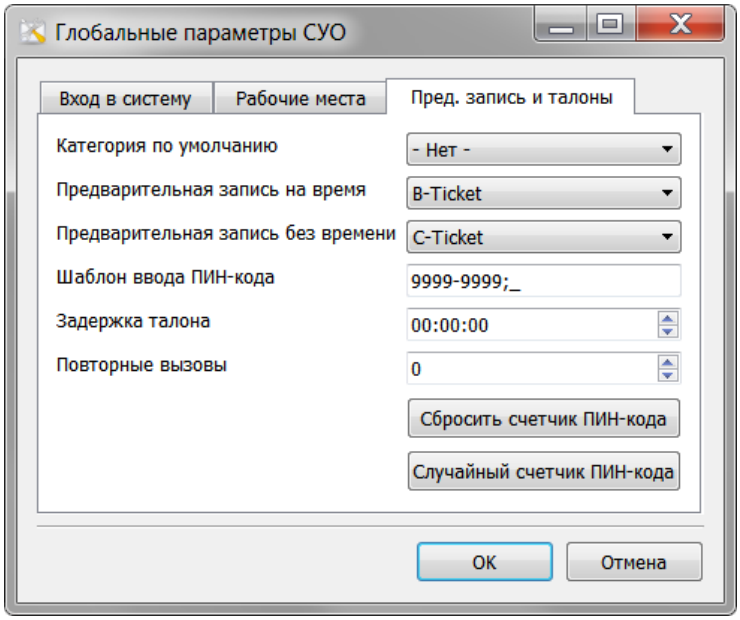
3.3.58.3. “Jobs” tab allows you to adjust the break time (pauses between the calls of visitors when the visitors are automatically called) and the time of suspending the service (pauses in serving visitors, the total time per day is indicated).



3.3.58.4. Tab "tickets" allows you to configure:

- Default category - assigned to all coupons to services for which the category is not specified.
- Pre-registration for a time - a category that is assigned to coupons received by appointment with the input of a PIN-code issued for a specific time.
- Pre-recording without time - a category that is assigned to coupons received by prior appointment with the input of a PIN code issued without specifying a specific time (VIP).
- PIN entry template - the number of digits in the PIN code and additional characters, such as a dash. The template must end with a fill character, for example; _ means filling in a familiarity for entering a PIN code with underscores, * - asterisks, etc.

- Ticket delay - the delay time of the ticket queue after registering at the terminal, allowing the visitor to reach the reception site.



- Repeated calls – is the number of repeated calls that an operator can make with the "no-show" button before the ticket is removed from the system due to a no-show.
- The buttons "Reset PIN-code counter" and "Random PIN-code counter" set up a pseudo random PIN-value generator.

3.3.59. **Setting - setting statistics.** Setting statistics allows you to reduce the effect of random parameters on the analysis of reception statistics in the SuoStats program.

3.3.60. It can be specified the minimum and maximum waiting time, the minimum and maximum maintenance time to remove from the analysis the values obtained when the operator forgets to exit the program, press the end of maintenance button or makes a random call.

3.3.61. Since the moment of clicking on the quality assessment button sometimes does not coincide with the visitor service period, the assessment button can be pressed when the next visitor has already been called. For the correct binding, you can specify the time elapsed since the end of the service, when the quality assessment will be considered correct.

3.3.62. This completes the configuration. Reboot the server to save the full-screen modes of the main board and the registration terminal. To close windows, use the Alt + F4 key combination. Check the ability of the system to deploy when powering down.

3.4. **Check system performance.**

3.4.1. Register several visitors in each of the queues. Check the correctness of the information on registration tickets.

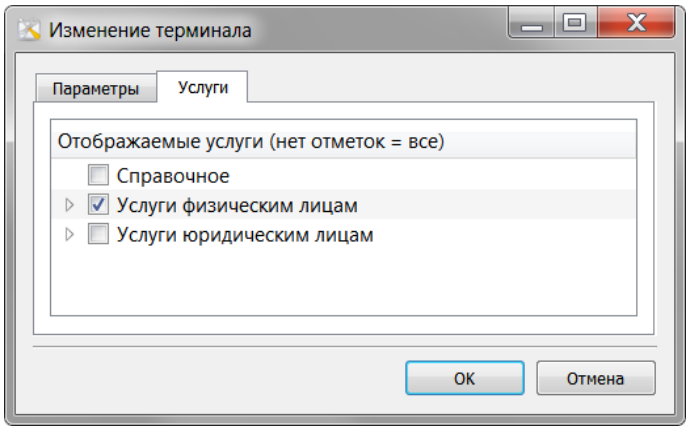
3.4.2. Call the visitors from each computer operator. Make sure that the scoreboard and sound system are operational.

3.5. **Setting service areas**

3.5.1. System supports the configuration of service areas, up to the complete separation of service offices. Configure service areas in the program SuoAdmin. The service area is not present in the system as a separate object; several workplaces can be grouped so

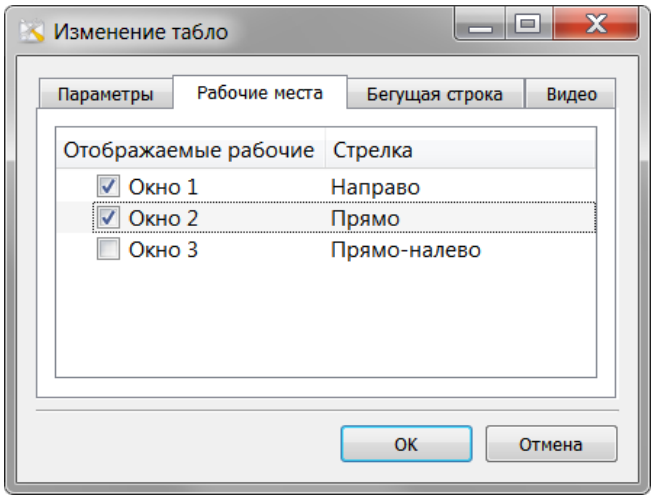
that the registration terminal, main panel and sound notification belong only to this limited group of workplaces.

3.5.2. Registration terminal can be configured to display certain services. Open the “Terminals” tab in SuoAdmin, open the required terminal for editing. Check the necessary services box if these services are provided only at workplaces of a particular zone.

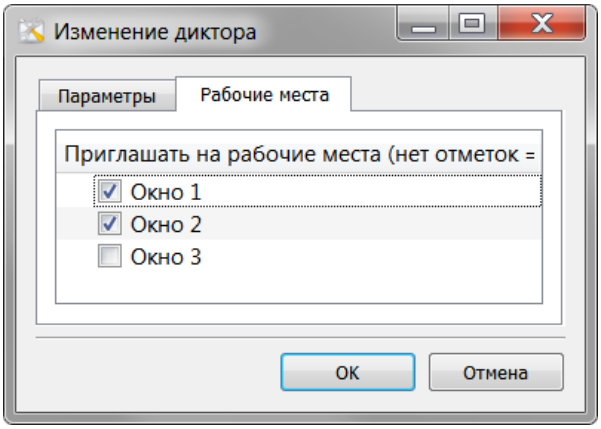


3.5.3. In the settings of workstations of a particular zone, you can specify the list of services provided by a separate group (see clause 3.3.36).

3.5.4. Main board can be configured to show calls only to certain jobs. Open the “Monitors” tab in SuoAdmin, open the required monitor for editing. Select the checkboxes for which calls should be shown on this monitor.



3.5.5. Sound notification can be configured to call only to certain jobs. Open the tab "Speakers" in SuoAdmin, open the required monitor for editing. Select the checkboxes for which calls should be shown on this monitor.



3.6. **Setting individual system parameters.**

3.6.1. Appearance and structure of the registration terminal, the main board on the LCD TV, the registration coupon, and the sound signal can be changed by the user in accordance with the requirements of the corporate style. Most of the possibilities for the modification of appearance require skills from the staff in the field of programming, html, sss, JavaScript.

3.6.2. Registration terminal has fixed fields that the user can change at his discretion.

3.6.3. After installing the SuoTerminal program, the installation directory contains the \ files, \ files \ ru, \ files \ en directory, which contains the files SuoTerminalHeader.html, SuoTerminalButton.html, SuoTerminal.qss, in which you can change the text, pictures and style using html . Thus, you can arrange the title page of the registration of visitors at its discretion. Additional information is provided in Addition E.

3.6.4. Appearance of the registration terminal can be changed completely by editing the files in the \ htdocs directory. To start the terminal, use the program SuoBrowser.

3.6.5. If you need to replace the sound of the gong - a melodic call, replace the file:

...\Program Files\Eleks\Suo\speech\ru\gong.wav

3.6.6. You can change the registration ticket appearance by editing the SuoTerminalTicket.html file.

3.6.7. Appearance of the main display on the LCD monitor can be changed by editing the files SuoPanelHeader.html (top), SuoPanelLeftHeader.html (top of the left window), SuoPanelLeftItem.html (information part of the left window), SuoPanelRightHeader.html (SuoPanelRightHeader.html (SucPanelLeftItem.html) (the informational part of the left window), SuoPanelRightHeader.html (SuoPanelRightHeader.html) .html (informational part of the right window), SuoPanelPopup.html (current call) and SuoPanel.qss (styles).

3.6.8. Before you start changing files, you must back up the source files.

3.7. **Information base support and WEB.**

3.7.1. User receives the opportunity to display information on the reception of visitors on the pages of the official web site of the organization, and, if necessary, register in the queue via the Internet. Also available is the notification of visitors about the approach of the queue via SMS. A set of tools and description is provided when purchasing the full version of the program.

3.7.2. It is possible to add information on the current status of visitors' reception (number of queues, number of waiting visitors, number of tickets left, etc.) to the company's website. To execute queries to the system database, scripts are supplied.

3.7.3. To implement transitions from the registration terminal to the company's website, in particular for pre-registration, a set of scripts is provided.

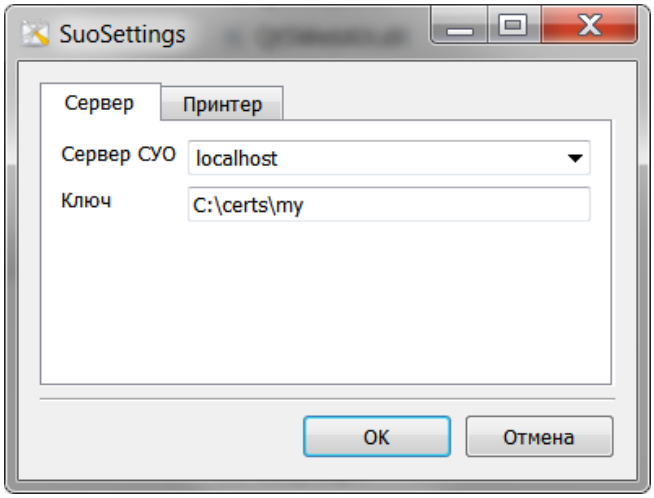
3.7.4. To download a list of pre-registered visitors for the current day, a list of services for the current day, the SuoUpdate software module is installed. A description module is provided when the full version of the program is delivered.

3.8. **System modification.**

3.8.1. To change the system configuration, which consists in changing the names and number of queues, use the program SuoAdmin, according to the user's manual (Administrator's Workplace, clause 4.3).

3.8.2. To change the system configuration, which consists in installing additional terminals and operators within a license, it is necessary to additionally install the program on the required number of new computers.

3.8.3. When changing the IP address or the network name of the server, all system components must be configured using the SuoSettings.exe utility. The utility is located in the installation directory. The utility allows to show the program key, enter a new key, change the server address and select and configure a printer for printing tickets if there are several printers installed on the computer. The utility allows you to configure settings related only to the computer on which it is running.

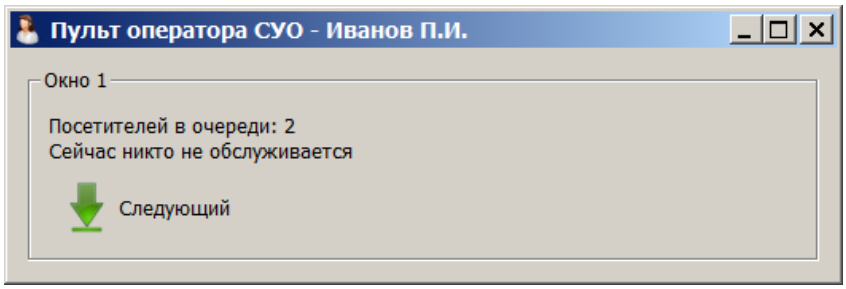


3.8.4. A new license key is required to transfer the SuoServer program to another computer.

4. Operator's manual

4.1. Operator's workplace. SuoOperLite program.

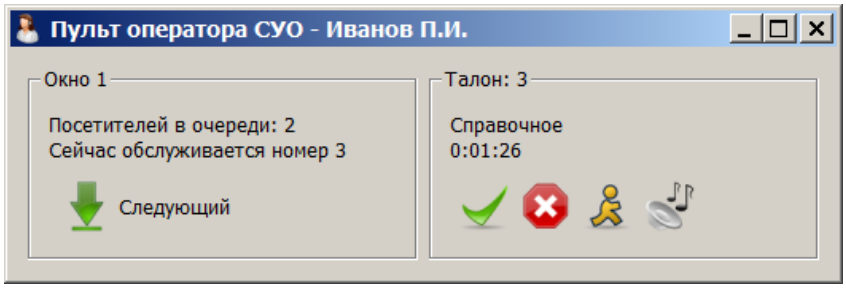
4.1.1. SuoOperLite program runs on the operator's computer. If the password entry mode is set (see § 3.3.51.1), it is required to enter the login and password specified in the account settings (see § 3.3.39).



4.1.2. To identify different operators working in the same workplace, each operator must have their own account (Login Account) and run the program only from their own account. This is recorded in the database and displayed in the statistics of the operators.

4.1.3. SuoOperLite program is an abbreviated version of the virtual operator console program. The program has one button calling the next visitor "next". After the call, four additional buttons appear in the program window: "Invitation" to be recalled, "Serviced", "Out of Service", "Non-appearance" to complete the service process, "Pause" for a pause in service (active only in automatic mode. must be completed to correctly record statistics.

4.1.4. Algorithm of the program operation depends on the mode of work of the workplace selected by the administrator - "automatic call" (see § 3.3.35).



4.1.5. Operation mode - a normal call.

4.1.5.1. Inviting the next visitor by clicking the "Next" button automatically completes the visitor's service or transfers it to the next service according to the settings in the service properties in the SuoAdmin program.

4.1.5.2. Clicking on the "Served" button, unlike the "Next" button, does not lead to the invitation of the next visitor. The coupon is removed from the queue or transferred to the next service according to the setting, the next visitor is not invited. If the operator is distracted from the work of receiving visitors, he must click on the button completed maintenance "Served", "Out of Service" or "Non-appearance" to correctly record in the statistics of work.

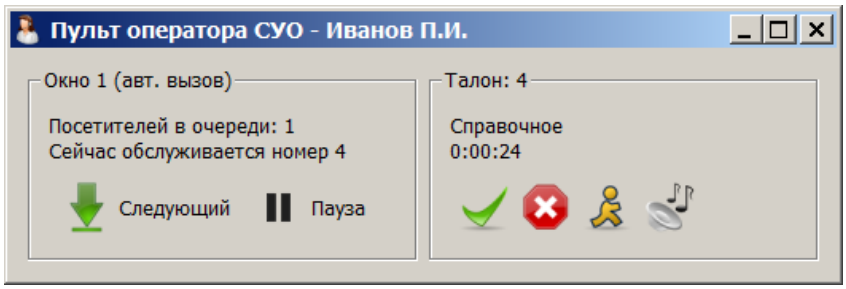
4.1.5.3. Pressing the "Unserved" button informs the system that the visitor cannot be serviced due to an error in the queue selection, unavailability of documents, etc. as a

result, the visitor service at this operator (and all subsequent services in the queue) cannot be completed. The ticket is removed from the queue; the next visitor is not invited.

4.1.5.4. Pressing the “No-show” button informs the system that the visitor is not served due to a no-show. The ticket is moved back in the queue several positions back if repeated calls are configured. If you re-appear, depending on the quantity setting (see § 3.3.51.4), the ticket is removed from the queue, the next visitor is not invited.

4.1.6. Pressing the **"Invite"** button repeats the invitation of the visitor by voice and on the display. The number of invitations is not regulated.

4.1.7. Operation mode - automatic call.



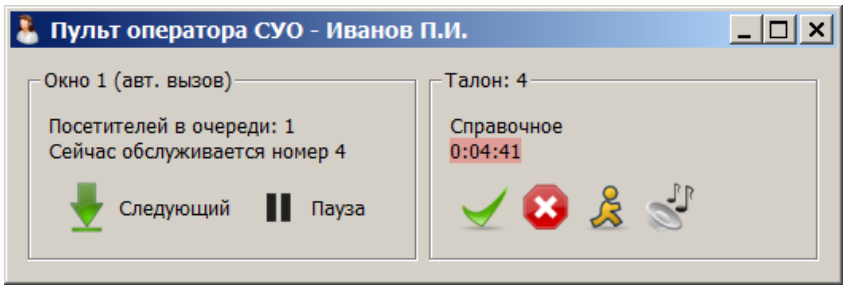
4.1.7.1. Next visitor invite occurs automatically after a pause time set by the administrator (see p.3.3.51.3).

4.1.7.2. Completing the service with the buttons “Serviced”, “Out of Service” and “No-show” leads to the launch of a new service cycle after the pause time set by the administrator.

4.1.7.3. Pressing the "Pause" button locks the automatic call mode. The service interruption timer starts working at the end of service with the buttons “Serviced”, “Out of Service” or “Non-appearance”. Service interruptions are allowed an unlimited number of times, however, the total time of interruptions per day is limited by the administrator (see section 3.3.51.3) and the timeout for the break is displayed in the program window of the SuoSupervisor controller.

4.1.7.4. Pressing the “Next” button in automatic mode will complete the maintenance and call the next pause without counting the time set by the administrator.

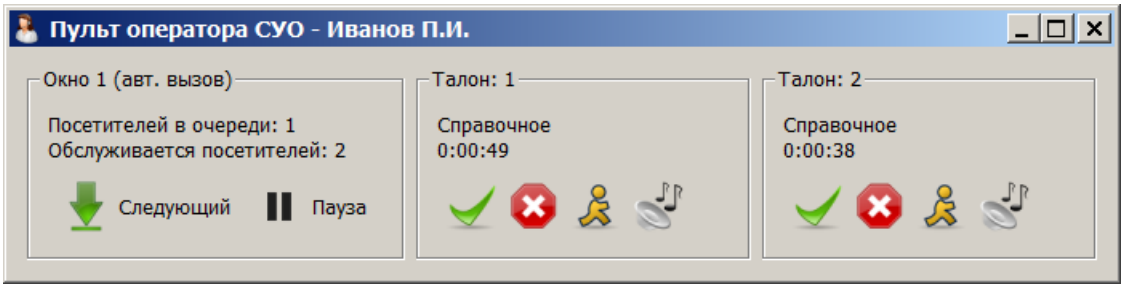
4.1.7.5. If the service time set by the administrator is exceeded (see p. 3.3.12.3), the service time lights up in red.



4.1.8. List of services provided is configured in the program SuoAdmin (Section 3.3.36).

4.1.9. Program window above the operational buttons shows information about the services provided, the number of visitors in the queue (summed up for each service) and information about the serviced visitor (coupon number, service time and additional information, if any).

4.1.10. If the “Visitors” parameter is more than one in the workplace properties, the operator can simultaneously call several visitors.



4.1.11. Remember that the number of the called visitor is on the board until the next visitor is called or the service is completed. In order to correctly record reception statistics, the “Serviced”, “Non-appearance” or “Out of Service” button must be pressed even if there is no one in the queue.

4.1.12. At the end of the work, when changing the operator, close the program. This moment, as well as the moment of launch of the program is recorded in the database and displayed in the statistics of the operators. In order to correctly record reception statistics, the “Serviced”, “No-show” or “Out-of-Service” button must be pressed before exiting the program.

4.1.13. To exit the program in automatic call mode, the program will close only if the next call is completed. If the break time is very short, then to prevent another call, it is recommended to press the “Pause” button, end the service and exit the program.

4.2. **Operator's workplace. SuoOperFull program.**

4.2.1. The program SuoOperFull has two windows for ease of operation and tools for calling visitors, redirects and settings.

4.2.2. The parameters of the workplace, the settings of the operator’s board, the choice of services provided and the parameters of the operator are configured in the SuoAdmin program. The program SuoOperFull has the ability to change some settings.

4.2.3. To configure the workplace settings, click the [Settings] - [Workplace] button. Perform settings similar to the program SuoAdmin according to paragraph 3.3.29. The administrator can disable the configuration (see § 3.3.51.2).

4.2.4. There are operational buttons in the upper part of the program window, the call for visitors is made by operational buttons similarly to the SuoOperLite program (see clause 4.1).

4.2.5. At the top of the program window, over the operational buttons, information is displayed about the number of visitors in the queue (summed up for each service) and information about the serviced visitor (coupon number, service time and additional information, if any)

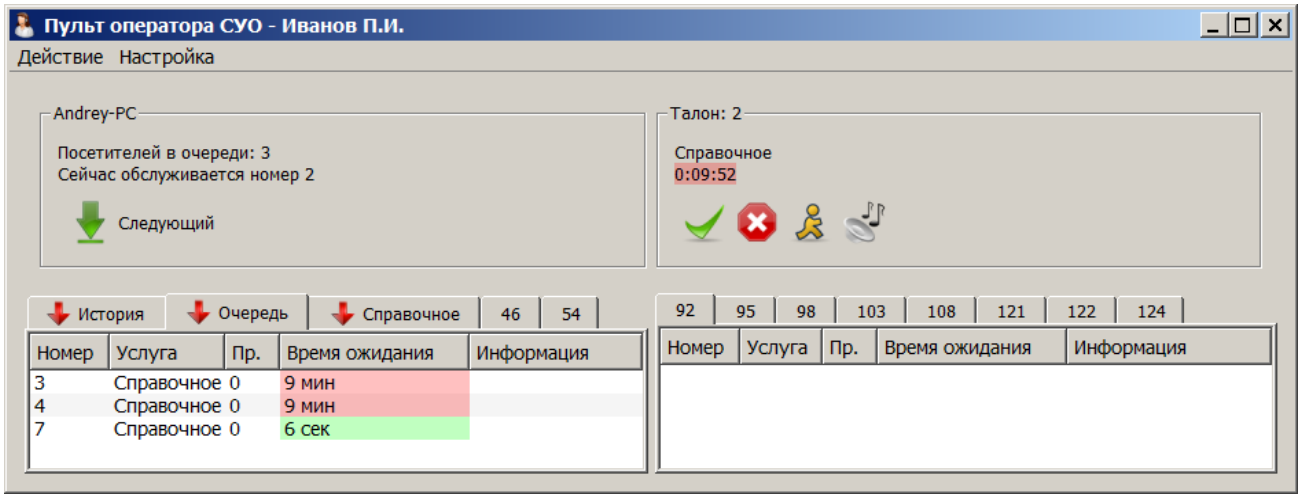
4.2.6. The main services are displayed in the left window, visitors for these services are considered a queue to this workplace. Operational buttons control the calls of visitors to basic services. Information on the number of visitors is also indicated for the main list of services.

4.2.7. Additional services are displayed in the right window and enable the operator to transfer visitors to other services, as well as to take (call in) visitors from other services. The call is made by dragging the ticket with the mouse to the service area, or from the context menu.

4.2.8. “Archive” tab and the “Queue” tab are always present in the left window of the program.

4.2.9. "Queue" tab - is the main tab of the program. It shows a table with a list of visitors for all basic services, additional information and waiting time. From this tab, a call is made to the visitors by operating buttons. Visitors are sorted by the time of registration in the queue and taking into account the priority set in the categories. The first visitor in the queue is shown at the top of the table.

4.2.10. Waiting time for the visitor to receive has a color. If the waiting time set by the administrator (see p. 3.3.12.1) is exceeded, the color changes from green to red.



4.2.11. “Archive” tab contains already accepted coupons. You can restore a ticket in the queue by dragging it to another window or call it again.

4.2.12. The operator has the ability to drag and drop visitors from one window to another, as well as drag the current call to any window. To move a visitor from one service to another, in the left window open the tab of the queue, archive or desired service, in the right window the tab of the next service and drag the visitor while holding the left mouse button. The visitor will be moved to the end of the queue or to the position determined by the priority. You cannot drag visitors to the “archive” and “queue” tabs.

4.2.13. If there is a need to call a specific visitor, drag it to the current call area, or call it from the context menu using the right mouse button.

4.2.14. To enter explanations, each visitor can enter comments. To enter comments, double click on the line with the number of the visitor. In the window that opens, enter or edit comments. If the visitor has come by appointment, or during registration he enters data (last name, TIN, passport number, etc.), then this data is also shown in the comment field.

4.2.15. Visitor priority can be changed. To change the priority, double click on the line with the number of the visitor. In the window that opens, change the priority of the coupon. The higher the number, the higher the priority.

4.2.16. Operator is available context menu. To open the context menu in the right or left window of the program, click the right mouse button. The following menu items are available:

4.2.16.1. [Create] ticket. A new queue number is created. When creating a ticket, it is proposed to choose a printer for printing the ticket. The default printer can be

configured in SuoSettings without changing the default system printer. The choice of printer when creating a ticket is remembered by the system.

4.2.16.2. [Change] ticket. You can change the priority for the selected ticket.

4.2.16.3. [Print] ticket. A previously generated queue number is printed. When creating a ticket, it is proposed to choose a printer for printing the ticket.

4.2.16.4. [Call]. The selected visitor is called.

4.2.16.5. [Delete]. Removes the marked visitor.

4.2.17. Remember that the number of the called visitor is on the board until the next visitor is called or the service is completed. To correctly record reception statistics, the “Next”, “Serviced”, “Failure” or “Out of Service” button must be pressed, even if there is no one left in the queue.

4.2.18. At the end of the work, when changing the operator or when a break occurs, close the program. This moment, as well as the moment of launch of the program is recorded in the database and displayed in the statistics of the operators. In order to correctly record reception statistics, the “Serviced”, “No-show” or “Out-of-Service” button must be pressed before exiting the program.

4.2.19. To exit the program in automatic call mode, the program will close only if the next call is completed. If the break time is very short, then to prevent another call, it is recommended to press the “Pause” button, end the service and exit the program.

4.2.20. To identify different operators working in the same workplace, each operator must have their own account (login account) and run the program only from their own account. This is recorded in the database and displayed in the statistics of the operators.

4.3. **Administrator workplace.**

4.3.1. Main functions of the SuoAdmin program are discussed above in the configuration section. In addition to the considered, there are additional features of the program SuoAdmin.

4.3.2. [Pre-recording] tab is used to view, create and edit pre-recorded visitors.

4.3.2.1. Each pre-registration must have a unique PIN code, the start and end time of the action and the name of the service. Having a PIN code, a visitor can independently receive a service ticket by appointment. However, the procedure for receiving will depend on the time of arrival (receipt of a coupon by PIN code) and the time of recording. For more details on the procedure for processing preliminary records, see p.2.7.3.13.

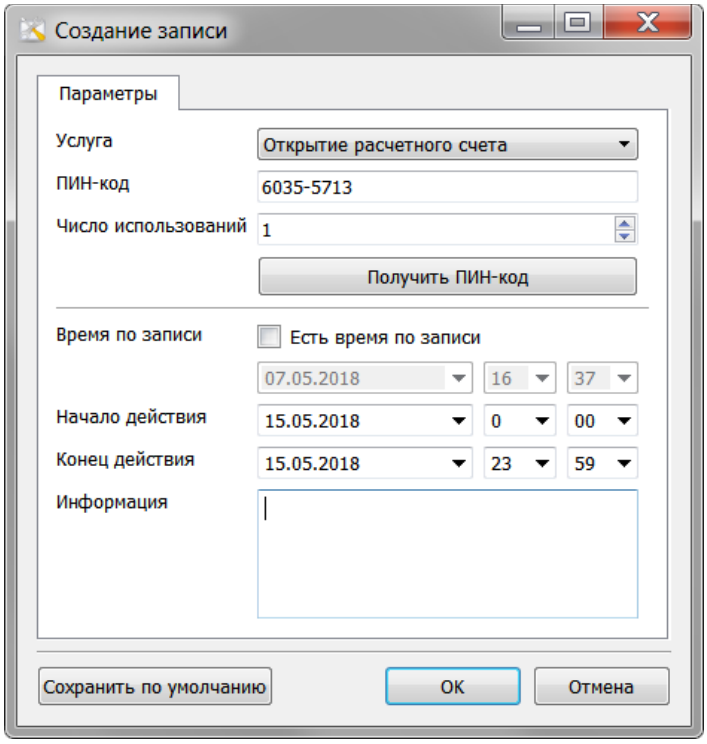
4.3.2.2. Recording time is indicated for pre-recording at a time. Such records are processed in a special order - if the visitor enters a PIN code within 10 minutes before and after the specified time, the system tries to receive it at the appointed time. If a visitor arrives earlier, he waits for a queue on general conditions, taking into account the category, and if the visitor is not accepted before the recording, the system tries to receive it at the appointed time. If the visitor arrives later, the ticket is not issued to him and he can receive the ticket on a common basis.

4.3.2.3. Pre-registration without specifying the time allows you to issue a ticket for the service with the category specified in the LMS global settings for the entire validity period of the entry, for VIP persons or priority, preferential visitors.

4.3.2.4. Number of uses - the number of tickets that the system creates using a single PIN code.

4.3.2.5. “Get PIN” button generates a new pseudo random PIN.

4.3.2.6. Additional information can be any and will be shown in the notes field of the SuoOperLite and SuoOperFull programs.



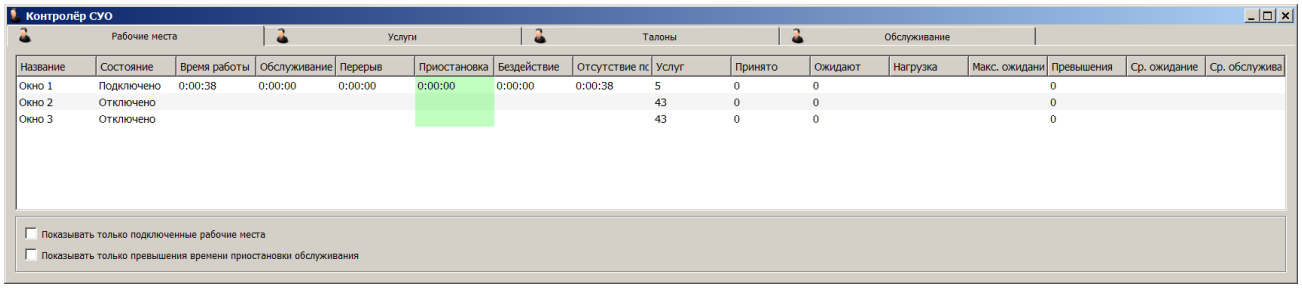
4.3.2.7. Visitor who received the ticket by appointment cannot always be served at the appointed time. Reception time depends on the number of visitors by appointment with an equal priority recorded at an earlier time and visitors with a higher priority who will be put in front of this visitor by the system.

4.3.2.8. Visitors by appointment receive coupons with a priority of service, defined by the category specified in the setting as “Pre-registration”. If you set the priority of pre-recording above regular visitors, then visitors by appointment will be moved to the top of the queue in accordance with the priority, even if they arrived earlier than the designated deadline.

4.3.2.9. If there is a resource for pre-registration of visitors (the site), the list of pre-recorded visitors is loaded using a special protocol. Protocol description and pre-recording algorithm is provided within the full version of the program.

4.4. Controller workplace

4.4.1. Workplace running SuoSupervisor is designed to work as an electronic queue system controller.



4.4.1.1. The program contains four tabs.

4.4.1.2. [Jobs] tab. All operator workplaces are shown. Filters are available - “Show only connected workstations” and Show only exceeding the time of service suspension. Indicators are shown for jobs:

- **Status -** connected / disconnected
- **Working time -** total working time per day, includes service time, delay time between services, idle time in the absence of visitors.
- **Service -** total service time per day.
- **Break -** total time delay between services, in the automatic mode, the next visitor’s call is delayed after the previous one is completed, configured in SuoAdmin, see section 3.3.51.3.
- **Suspension -** total time of service interruption per day. The service interruption mode is activated by an operator operating in automatic mode when the “Pause” button is pressed. The total break time is regulated by the administrator in the SuoAdmin program, see section 3.3.51.3. When exceeded, it turns red.
- **Inactivity -** total time of inactivity of the operator in the normal mode of reception, begins to go when the operator does not perform the next call in the presence of visitors after the time delay between services.
- **Lack of visitors -** total time of inactivity of the operator per day due to the absence of visitors.
- **Services -** number of assigned services.
- **Approved -** number of visitors with completed service.
- **Expect -** number of visitors in the queue for all services assigned to this workplace.
- **Load -** number of visitors in the queue for all services assigned to this workplace, divided by the number of operators providing similar services.
- **Max. Waiting -** visitor waits for the service, the maximum for the current moment
- **Exceeds -** number of visitors exceeding the timeout limit, is configured in the SuoAdmin program, see § 3.3.12.1.
- **Average waiting -** average waiting time per day.
- **Average service -** average service time per day.

4.4.1.3. [Services] tab. All services are shown in the form of an expanded table. Only for the lowest in the hierarchy of services, the parameters are shown:

- **Jobs -** number of jobs connected to the service. If the workplace is working, it is shown in green, if the workplace is not working, but there are visitors to it, it is shown in red.
- **Approved -** number of visitors with completed service.
- **Expect -** number of visitors in the queue for the service.
- **Load -** number of visitors in the service queue divided by the number of operators providing this service.
- **Max. Waiting -** visitor waits for the service, the maximum for the current moment.
- **Excess -** number of visitors exceeding the timeout limit, is configured in the program SuoAdmin, see § 3.3.12.1.
- **Average waiting** - average waiting time per day.
- **Average service** - average service time per day.

4.4.1.4. Tab [Tickets]. Shows all tickets in the form of a detailed table. Separately shows a table of preliminary records. Filtering is available - show only waiting tickets and show only timeouts. The parameters are shown for pre-registration tickets:

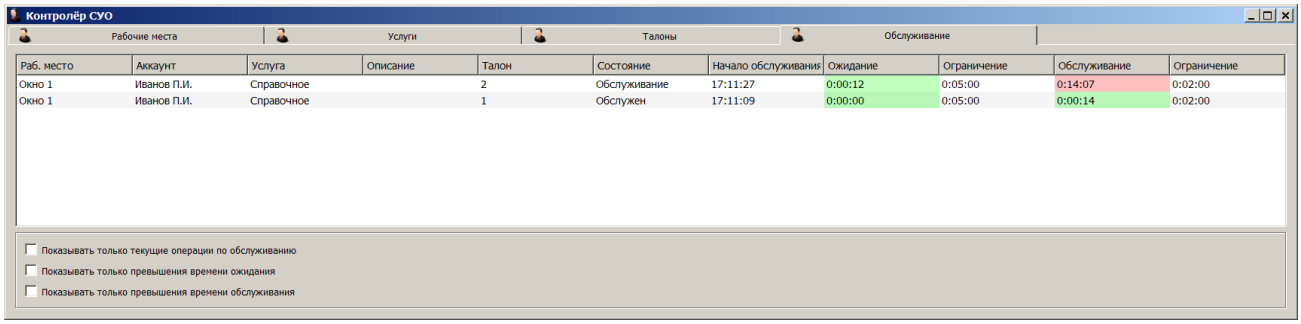
- **Time -** appointment time.
- **Service -** name of the service.
- **Description -** description of the service.
- **Information -** visitor data
- **Ticket -** ticket number after entering the PIN code
- **Status -** waiting / serviced / serviced / no-show.

All queues parameters are shown for tickets:

- **Issued -** time of issue.
- **Service -** name of the service.
- **Description -** description of the service.
- **Information -** visitor data
- **Ticket -** ticket number
- **Status -** waiting / serviced / serviced / no-show.
- **Recording time -** scheduled reception time
- **Waiting -** waiting time.

4.4.1.5. [Maintenance] tab. All service operations are shown in an expanded table. Filtering is available — show only current maintenance operations, show only latencies, and only show maintenance times. The parameters are shown for maintenance operations:

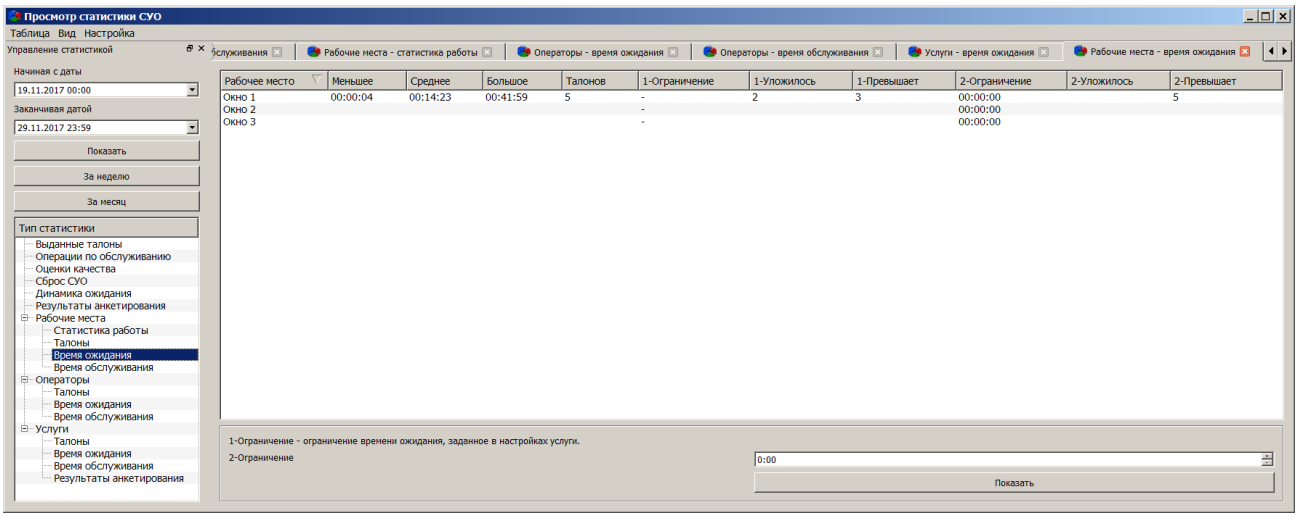
- **Workplace - …**
- **Account - …**
- **Service -** name of the service.
- **Description -** description of the service.
- **Ticket -** ticket number.
- **Status -** result of service.
- **Service start -** call time.
- **Waiting -** waiting time to receive the service. Lights up red when the timeout limit specified by the administrator is exceeded (see § 3.3.12.1).
- **Limit -** timeout limit set by the administrator (see § 3.3.12.1).
- **Service -** service time. Lights up red when the administrator has exceeded the service time limit (see section 3.3.12.3).
- **Restriction -** time limit for service set by the administrator (see § 3.3.12.3).



4.5. **Work statistics. SuoStats program.**

4.5.1. Run the program SuoStats to view and export statistics of the system.

4.5.2. Set a limit for service time and wait time in the setup menu. All data will be filtered with restrictions and won't be shown.



4.5.3. Select a period and a display option from the left. Statistics in the specified period will be displayed in the right window.

4.5.4. Analysis uses the values of the limitations of service time and latency.

4.5.5. Moreover, the limit can be set for each service (restriction 1) and for all data in the table (restriction 2). Setting limit 1 is performed in the service properties of the SuoSdmin program.

4.5.6. To export data to another program, create a table of necessary data for the period you need and copy it to the clipboard using the "Table" menu. It is also possible to write data to a file.

4.5.7. In the program of statistics interpretation, for example, Excel, perform an insert.

5. Addition A. Windows 7 settings.

5.1. Configuring the Windows 7 firewall on a PC with an installed QMS server

5.2. Create a new rule for the firewall. To do this, go to the firewall configuration program.

Control Panel -> Windows Firewall -> Advanced Options.
Select the section "Rules for incoming connections"
Create a new rule ("Create a rule" in the menu on the right):
Rule type: for port
TCP protocol
Specific local ports: 50350, 50360

Action: Allow Connection
Rule applies to all profiles.
Name and description of the rule is at your discretion, for example, “Incoming connections of the QMS server”.

5.3. The device availability test is often used with the ping command to test network connections. By default, after installing Windows 7, the computer does not respond to the ping command. Allow/deny PC definition by ping:

5.3.1. The network settings:

Control Panel -> Network and Sharing Center -> Change advanced sharing options -> Enable file and printer sharing.

5.3.2. Or in the firewall settings:

Control Panel -> Windows Firewall -> Advanced Settings -> Inbound Rules
We find and include in the list of rules:
File and Printer Sharing (ICMPv4 Ping)
File and Printer Sharing (ICMPv6 Ping)

6. Addition B. Installation of the operator's board on the local computer.

6.1. When installing the operator's board on the operator's computer via the USB port, a virtual COM port driver is required:

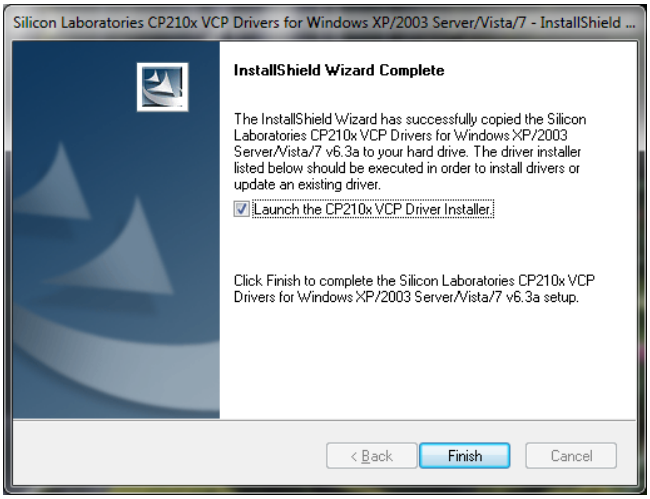
https://suo.systems/download/cp210x_vcp_windows/

6.2. Install the Electronic Queuing software on the server and client computers. At a minimum, the installation of SuoAdmin, SuoOperFull, SuoServer, SuoSpeaker components on the network is required. We install SuoBridge on the operator’s computer. When installing, specify for SuoBridge “Run at computer startup”.

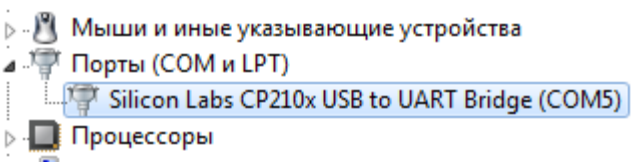
6.3. Installing the board on the computers of operators (the computer must have a fixed IP address):

6.3.1. Install the virtual COM port driver (before completing the installation, check that the item “Launch the CP210x VCP Driver Installer" is checked.

6.3.2. We connect the board to the computer. Just installed drivers catch up automatically



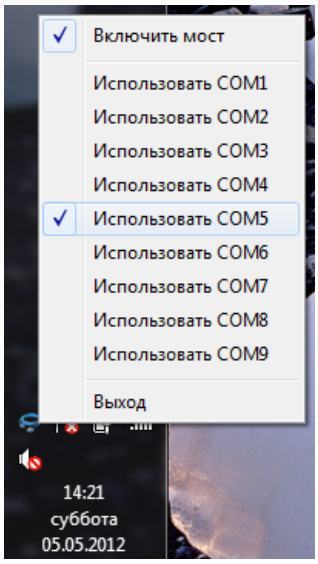
and a new COM port will be created in the system. We recognize his number in the



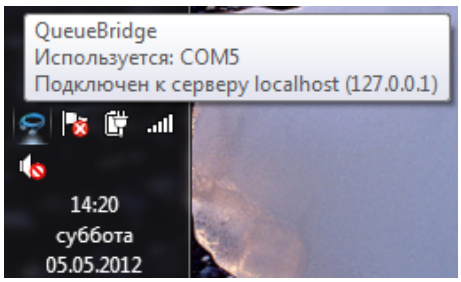
device manager.

6.3.3. The SuoBridge program has no windows, only an icon in the system tray. In the context menu of SuoBridge, select "Enable bridge" and specify the COM port number, as well as the transfer rate (usually - 9600).

6.3.4. When you hover the cursor displays the status, check that the connection to the server

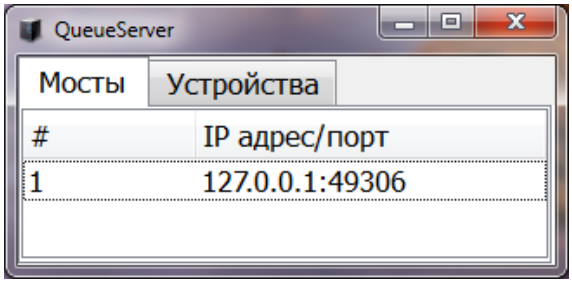


is established.



6.4. Setting up the server.

6.4.1. Open SuoServer, on the tab “Bridges” we check that the connection with the operator’s computer is established.



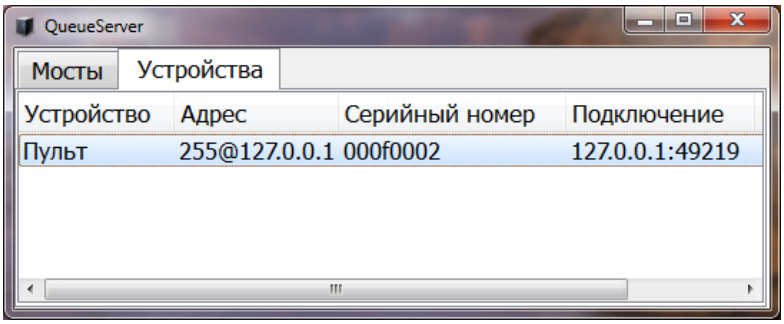
6.4.2. Open SuoAdmin, create the necessary queues. Each scoreboard requires a separate workplace on the “Jobs” tab and a separate operator on the “Operators” tab.

6.4.3. When creating a workplace, you should specify the queue that the console serves, and also set the address of the board. The address of the board is a number from 1 to 254, this address is displayed when the power is turned on: 25@127.0.0.1, where 127.0.0.1 is the IP address of the computer to which the console is connected. The address 255 is a common address; do not indicate the address 255 if more than one board is connected to the computer. The address 127.0.0.1 is the own address of the computer (not supported by all operating systems).

6.5. Check the connection of the scoreboard to the server in SuoServer on the “Devices” tab.

6.6. Operation check

6.6.1. Open SuoOperFull, select the served queue and create several tickets in it (it is not necessary to print).



6.6.2. When calling a visitor, the ticket number is shown on the board.

7. Addition C. Connection of physical consoles.

7.1. To work with the panels is required:

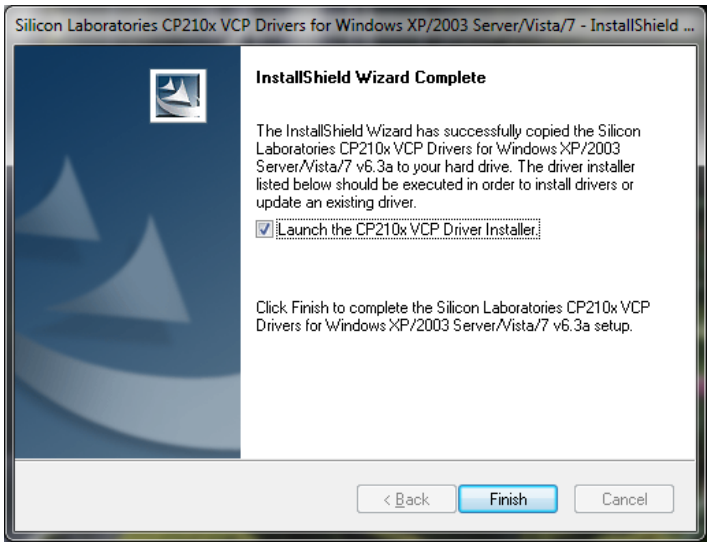
Virtual COM port driver:
https://suo.systems/download/cp210x_vcp_windows/
Queue management software version 2.2 or higher.
Before installation, the old version of the queue management system should be removed from all computers.

7.2. Install the QMS server. It is better to install a complete set of programs. At a minimum, the installation of SuoAdmin, SuoOperFull, SuoServer, SuoSpeaker components is required.

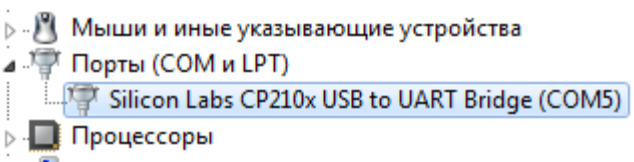
7.3. Installing remotes on operator computers (the computer must have a fixed IP address):

7.3.1. Install the virtual COM port driver (before completing the installation, check that the item “Launch the CP210x VCP Driver Installer" is checked.

7.3.2. Connect the remote to the computer. The newly installed drivers will pick up



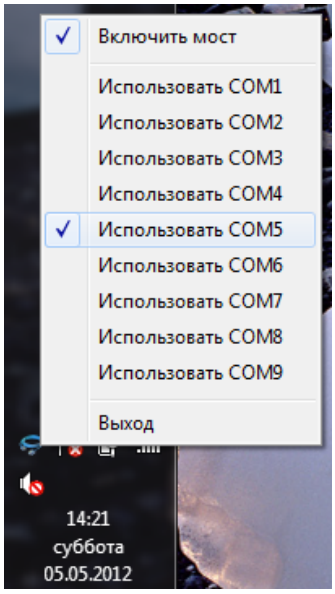
automatically and a new COM port will be created in the system. Find out his number



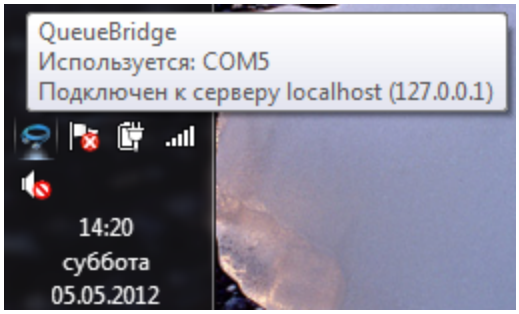
in the device manager.

7.3.3. We install SuoBridge (it is also possible to install other programs, if required) from the QMS distribution set. The SuoBridge program has no windows, only an icon in the system tray. In the context menu of SuoBridge, select “Enable bridge” and specify the COM port number and its speed (usually 9600).

7.3.4. When you hover the cursor displays the status, check that the connection to the server

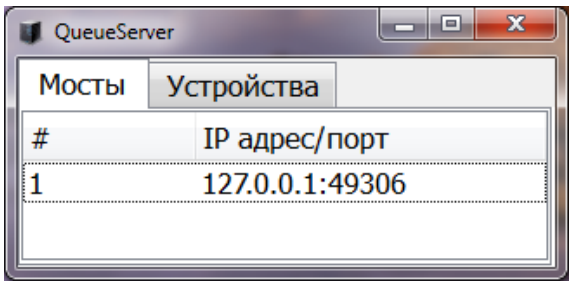


is established.



7.4. QMS setting on the server

7.4.1. We open SuoServer, on the tab “Bridges” we check that the connection with the operator’s computer is established.



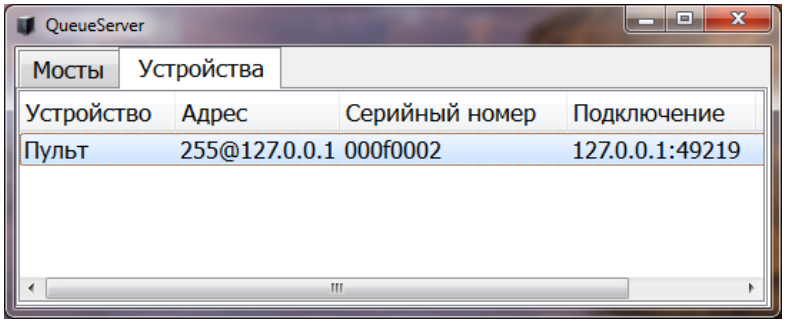
7.4.2. Open SuoAdmin, create the necessary queues. It is required to create a separate workplace on the “Workplaces” tab and a separate operator on the “Operators” tab for each console.

7.4.3. When creating a workplace, you should specify the queue that the console serves, as well as specify the address of the console. The console address is a number from 1 to 254, if the address is unknown, enter 255@127.0.0.1, where 127.0.0.1 is the IP address of the computer to which the console is connected. Address 255 is a shared address, do not specify address 255 if more than one remote control unit is connected

to the computer. The address 127.0.0.1 is the own address of the computer (not supported by all operating systems).

7.4.4. Each operator should be assigned a unique PIN code (no more than 4 digits) when creating operators.

7.4.5. Check the connection of the console to the server in SuoServer, on the “Devices” tab. Also, it will be indicated that the corresponding workstation is connected in SuoAdmin on the “Jobs” tab.



7.4.6. Operation check

7.4.7. Open SuoOperFull, select the queue served from the console, and create several tickets in it (it is not necessary to print).

7.4.8. Remote control is in the PIN code input mode; P is displayed on the left of the screen.

7.4.9. We enter the operator on the remote by dialing 00NNNN Enter, where NNNN is the operator's PIN (you must enter all six digits before pressing Enter).

7.4.10. The remote will enter maintenance mode. The center of the screen displays the number of visitors in the queue, on the right - the number of the service ticket. Also in SuoAdmin on the "Operators" tab it will be indicated that the corresponding operator is connected.

7.4.11. Remote key.

7.4.12. "Del" - Completion of the service of the current coupon and the challenge of the next.

7.4.13. "Enter" - Transfer the current ticket to the next queue and call the next one.

7.4.14. "+" - Return the current ticket to the end of its turn.

7.4.15. "-¬" - Transfer the current ticket to the next turn.

7.4.16. Sequential pressing "NumLock" + "*" - operator’s exit. The output of the operator is recorded in the database. If the operator has not completed the exit, it is considered that he is at the workplace, however, the service time of the last client will increase, which will be reflected in the work statistics.

8. Addition D. Ethernet bridge connection - RS485.

8.1. Use the program BridgeConfig.exe to set the bridge parameters

8.2. The bridge must be configured in TCP client mode with a connection to the server with the IP address of the server running SuoServer. It is necessary to set the IP address of the bridge, the subnet mask, the main gateway corresponding to the network segment.

8.3. Set bridge parameters:

- Server data port 50350,
- server command port = 50351 (not used),

- bridge command port = 5001 (not used),
- Bridge 5000 data port (not used).
- TCP client mode (permanent connection).
- packaged size 0,
- 0d packetization symbol
- packetization timeout = 10,
- TCP connection timeout 5000.
- Configure UART to work with the board. Speed 9600, 8 bits, 1 stop, no parity.

9. Addition E. Style modification.

9.1. After installing the program, there are files in the installation directory that determine the appearance of the registration coupon, registration terminal and the main display of the electronic queue. These files are:

panel.qss - style sheet of the main board
panelHeader.html - description of the top of the main board
panelPopup.html - description of the pop-up part of the main board
terminal.qss - table of styles of the registration terminal
terminalButton.html - description of the registration button of the registration terminal
terminalHeader.html - description of the upper part of the registration terminal
terminalTicket.html - description of the registration coupon
operFullTicket.html - description of the appearance of the registration coupon issued by the operator

9.2. All of these files follow the rules of the HTML5 page description language, with some digressions. A full description of the capabilities and tags of the description language can be found on the developer's website http: // qt-project. org / doc / qt-4.8 / stylesheet-reference. html

9.3. Style and description files contain comments that help you navigate the structure of these files.

9.4. An example of modifying the appearance of registration buttons on a registration terminal with the receipt of blue buttons with a gradient fill. In the section "Service selection buttons" we create an additional section CTreeButton:

```
/* Service selection buttons */
CTreeButton, CTreeButton * {
    color: white;  // label text color
    font-size:12pt;  // font size of the labels
}

CTreeButton {
   background-color: qlineargradient(x1:0, y1:0, x2:1, y2:1,
            stop:0 white, stop: 0.4 steelblue, stop:1 navi);  // background color and gradient
   border-width: 2px; // thickness of the stroke
   border-color: steelblue; // stroke color
   border-style: solid; // stroke type
   border-radius: 25; // label text color
   margin-top: 20; // indent from above
   margin-bottom: 20;  // bottom indent
   max-width: 200ex; // horizontal button size
```

```
}
```

10. Addition F. Setting the database time zone.

10.1. The time zone in the database is set in the postgresql.conf file only on the computer where the server is installed. The time zone is set automatically when the program is installed. Changing the time zone is required only after changing the time zone in the operating system after installing the program.

10.2. postgresql.conf file is located:
Window XP: C:\Documents and Settings\All Users\Application Data\Eleks\Suo\data\postgresql.conf
Windows 7: C:\ProgramData\Eleks\Suo\data\postgresql.conf

10.3. Example of setting the time zone:
Moscow time: timezone = 'Europe/Moscow'
Kazakhstan - Almaty: timezone = 'Asia/Almaty'

10.4. A complete list of parameters can be viewed as the name of the folder/file in C:\Program Files\Eleks\Suo\base\share\timezone

10.5. After changing the file, a computer restart is required.