



Equipment for outdoor laser tag

NETRONIC platform

**User's
manual**

Part 3

**SETTING UP AND USING
SOFTWARE**

Last update
21.08.2023

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The company has developed several programs for use in outdoor laser tag. First of all, it is the Lasertag Operator program. It is designed to configure and control equipment and it is installed on devices with the Android operating system.

This manual is a description of the logic of the Lasertag Operator program starting from version 2.3.431 - with a modified interface and extended functionality. Below there are the minimum firmware numbers for hardware microcontrollers compatible with this program:

- Tager - 19.4.9257
- Headband/Vest – 5.2
- SIRIUS – 5.1.15
- Multistation – 5.3.15
- Smart Domination box – 4.4.56
- Shock-band SCORPION – 6.1
- Laser tag bomb Supernova – 1.9

1. Setting up and controlling equipment using the Lasertag Operator program

The program is designed to set up the equipment, control the game and record statistics using devices supporting the Android operating system (smartphones, tablets). The program interface language is automatically selected depending on the device settings.

Minimum device requirements:

Snapdragon 450 chipset
RAM 4 GB
ROM 16 GB
Android operating system version 7.0

The connection of the Android device with the laser tag equipment is carried out via a router.

1.1. Connecting Android device



1. Download and install the Lasertag Operator program on the device - available at:

<https://play.google.com/store/apps/details?id=net.lasertag.operator>
or <https://lasertag.net/support/>



2. Install the program.

3. Turn on a router configured for a specific hotspot. At factory settings, the hotspot name is LASERTAG, the password is 2015LT2015.

Note: the system supports 5 more names:

LASERTAG-NET, password - 2018LTN2018

MGO, password - 2018MGO2018

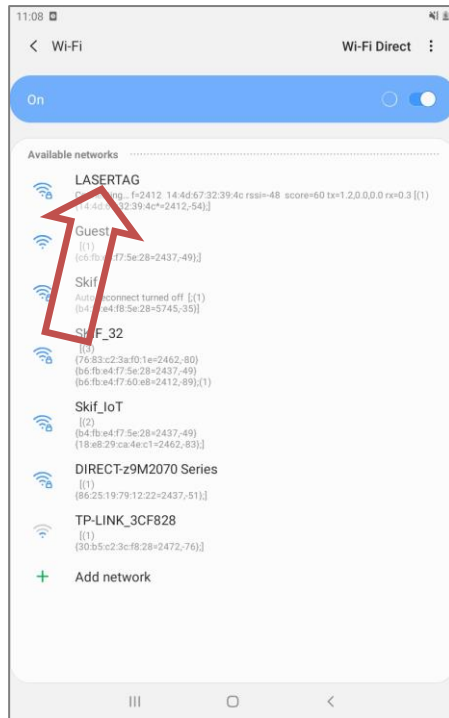
Test mode, password - 2018TM2018

OTK, password - 2018OTK2018

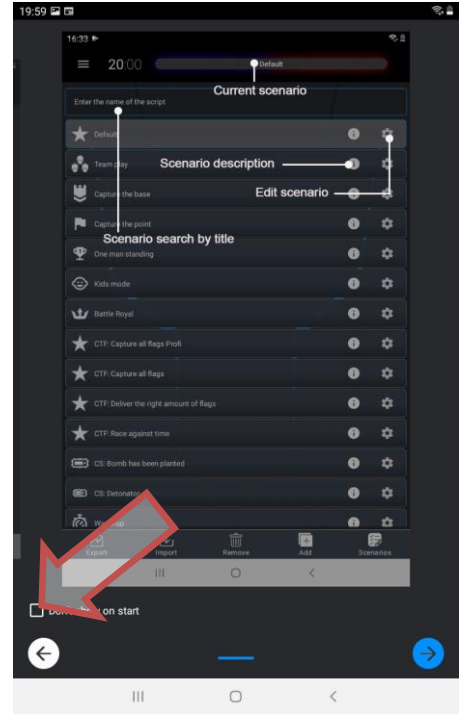
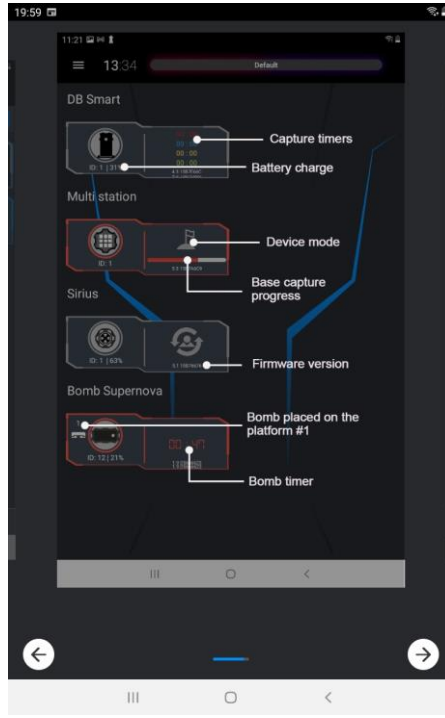
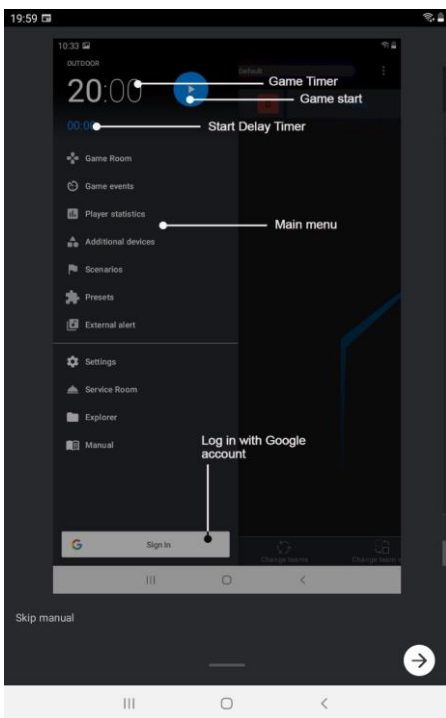
TechSupport, password - 2018TS2018

In these cases, the hotspot, as well as all the laser tag equipment used at one site, should be configured in accordance with the selected name and password.

4. On your Android-device, turn on the Wi-Fi network connection mode (Settings/ Connections/ Wi-Fi) and search for the Hotspot. (The setup procedure may differ depending on the version of the operating system and device model).
5. After finding the LASERTAG Hotspot, select it and enter the password 2015LT2015 in the window that appears.
6. Touch the CONNECT button. A connection entry should appear under the LASERTAG inscription, marked NO INTERNET ACCESS.

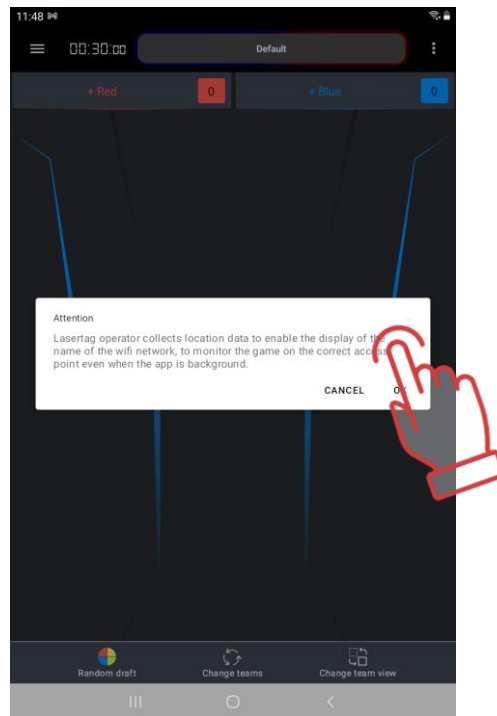


7. Launch Lasertag Operator program. The first time you open the app, the quick user start guide is shown

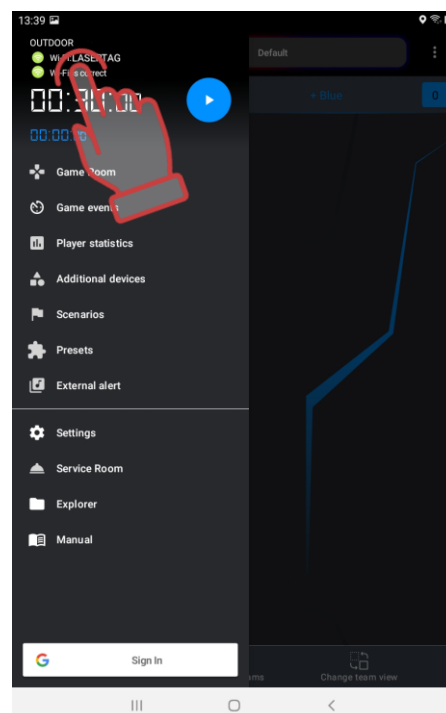
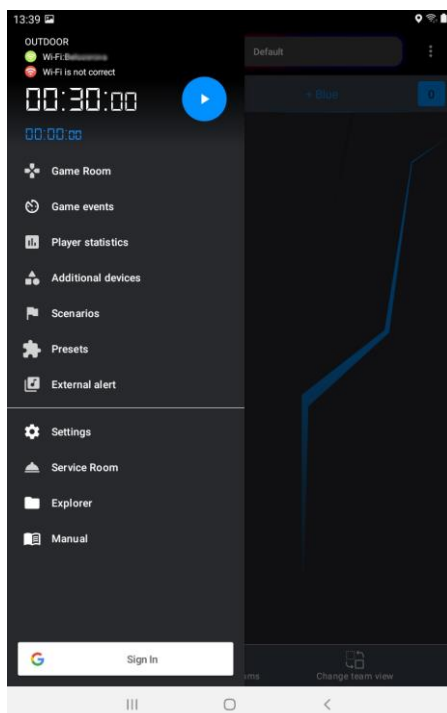



If desired, you can select the SKIP TRAINING item. On the last slide of the displayed instruction, you can check the DO NOT SHOW AT START option. If you want it to be shown again, in the settings click ALLOW TRAINING.

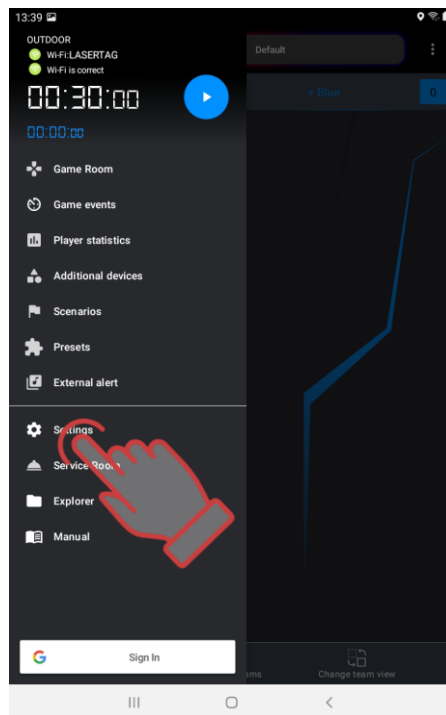
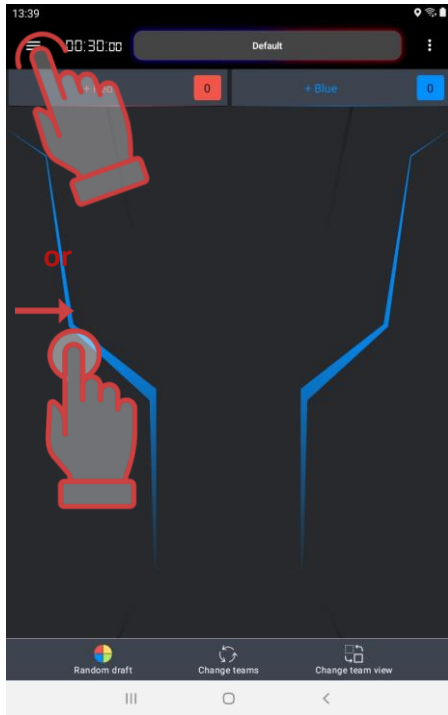
8. First of all, the application will request access to the device's location, files, and so on. It should be noted that access to location data is needed to control Wi-Fi network data and correctly display the game network, which will be indicated in the corresponding pop-up notification.



9. After that you need to make sure that the device is connected to the correct network. At the top of the main menu screen, you should see two stylized green Wi-Fi icons, the name of the network, and a message that the network is correct. If one of the icons is red, the device is connected to an Internet Wi-Fi network, and not to one of the local networks intended for laser tag games. In this case, you need to reconnect to one of these networks - Lasertag, Lasertag.net, etc.



10. In the start window press the MAIN MENU button  , or swipe to the right and go to the main menu screen.
11. On the main menu screen, click on SETTINGS.

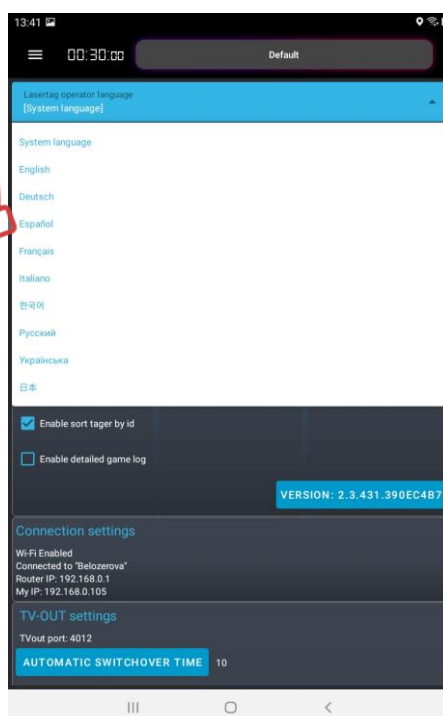


1.2. Settings menu

Before starting the gameplay, you need to go to the SETTINGS menu.

The window is divided into six sections.

The top section contains the choice of application language. Clicking on the checkbox will bring up a list of available languages. By default, the application opens in the same language that the operating system is currently running in. When you change the language, the application restarts.



Below section contains the information about the club. These data will be shown on the forms for printing statistics.

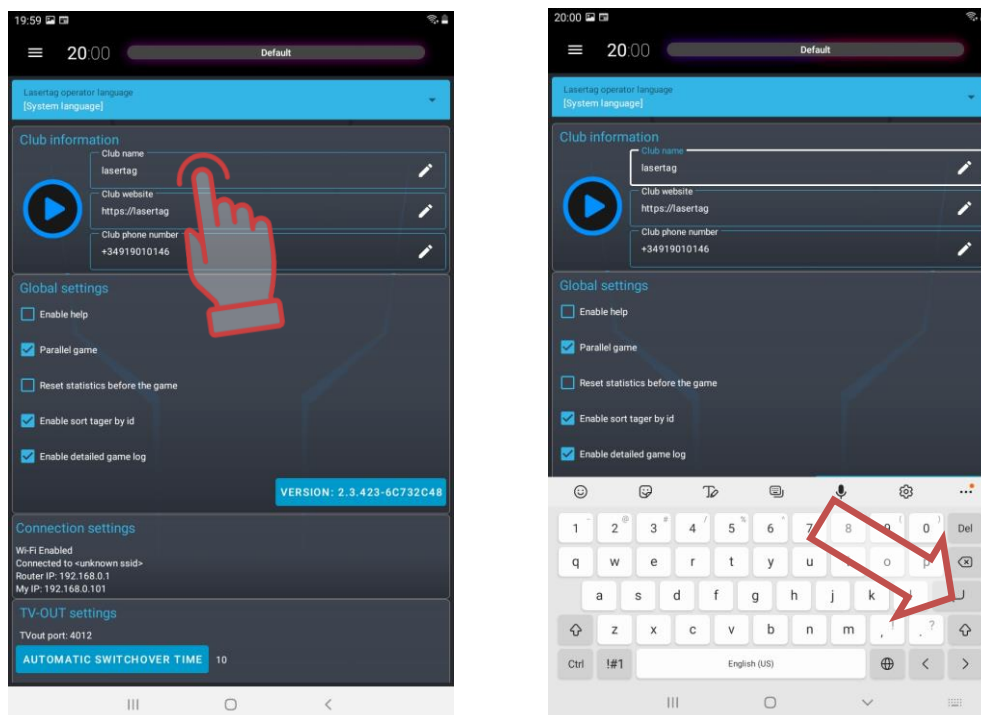
To enter up-to-date information on the club, you must touch the corresponding line and, using the keyboard that appears, enter the name, website address and phone number of the club. To hide the keyboard after editing - click on the checkmark button at the bottom of the screen.

In the same way, you can change the image of the club logo - click on the current logo and select the desired image in the opened window of the file system of the tablet or phone. The recommended logo size is 200x200 pixels. When uploading a larger image, the image will be automatically adjusted to the specified size. It is not recommended to load a smaller logo, because the picture is stretched and the image will be of poor quality.

The GLOBAL SETTINGS section has five items: ALLOW TRAINING, PARALLEL GAME, RESET STATISTICS BEFORE THE GAME and TURN ON SORTING OF TAGERS BY ID, TURN ON DETAILED GAME LOGGING.

If the ALLOW TRAINING checkbox is checked, training slides are shown when the application starts. If the item is not checked, the tutorial is not shown.

The PARALLEL GAME item is necessary when games are played simultaneously on several playgrounds, bounded by each other, for example, only by nets. In this case, a player participating in the game on another ground may be hit from a tager.



Control over the observance of the parallelism of games is possible only when the settings and management of games are performed from different servers. In this case, the PARALLEL GAME item (Main menu/Settings) must be checked on the control tablets. The algorithm for conducting parallel games is as follows:

1. When the game starts, the server resets the identified numbers of the kits participating in the round to the tagers.
2. After the IR-signal of the opponent's tager hits the player's kit sensor, the ID number is compared with the list of numbers participating in the game on this site.
3. If the number is on the list, the hit counts. If not, it is ignored.

It is possible that the kits on one of the parallel games are not connected to the server, but are controlled with the Remote Control. In this case, these kits cannot hit kits connected to a server at another ground. This is due to the fact that the IDs of the kits controlled from the Remote Control will not be included in the list of kits that take part in the game with the server, reset at the start. At the same time, kits controlled from the Remote Control can be affected by kits connected to the server, so they are not told about the numbers that should be ignored.

The marked item RESET STATISTICS BEFORE THE GAME allows you to automatically reset game statistics before each round.

If you check the box ENABLE SORTING OF TAGERS BY ID, then in the Game room window the tiles of the players will be arranged in order - numbers in ascending order from top to bottom. Otherwise, the tiles will be arranged in random order.

The marked menu item TURN ON DETAILED GAME LOGGING allows user to display the maximum number of game events. If the item is not checked, in the sub-item of the main menu "Game events" during the game, only the main events in the game are displayed - the start and end of the game, the base capture, the capture of the Domination Box, etc. If the item is checked, this submenu displays all game events, including all hits and defeats of players against each other.

The next section is CONNECTIONS SETTINGS. Here you should check the availability of a Wi-Fi connection, the correctness of the selected network name (LASERTAG), the IP of the router (192.168.0.1) and the device (My IP).

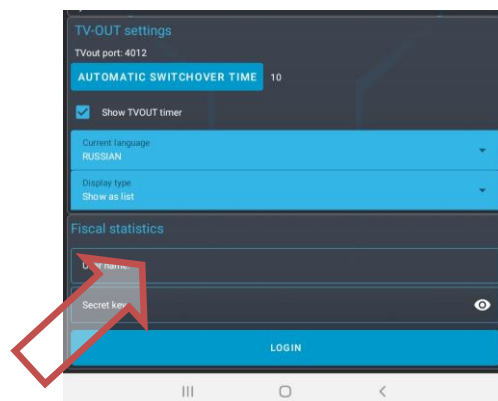
Next is the TV OUT SETTINGS section. The parameter of the TV OUT port is indicated here - this number, like IP devices, is required to configure the display of statistics on an external screen (the LaserTagStatistic program is used - see Ch.2).

During a game round, statistics can be displayed both in the form of player tiles and in the form of a table. In the next section, you can select DISPLAY TYPE. In a tiled view, it may turn out that all of the players' tiles cannot fit on the screen. In this case, the program splits the display into pages and the frequency of page turning in seconds is set by the TIME OF AUTOMATIC PLAYER CHANGE parameter.

User can select the display language as one more item - the language in which the information is displayed on the external screen. Currently there are 5 languages available - Russian, English, Spanish, French and German. To select a language, shortly click on the selected current language and, if necessary, select another one from the drop-down list.

Also in this section you can select the interface language of the statistics display program and show/hide the game timer on the screen.


The last section of the "Settings" menu is FISCAL STATISTICS. It has two fields for entering a username and a secret key. If the data is entered correctly and the LOGIN button is pressed, the club administrator gets access to the statistics of the games played to the server. Detailed – see ch. 1.12.



1.3. SCENARIOS Menu

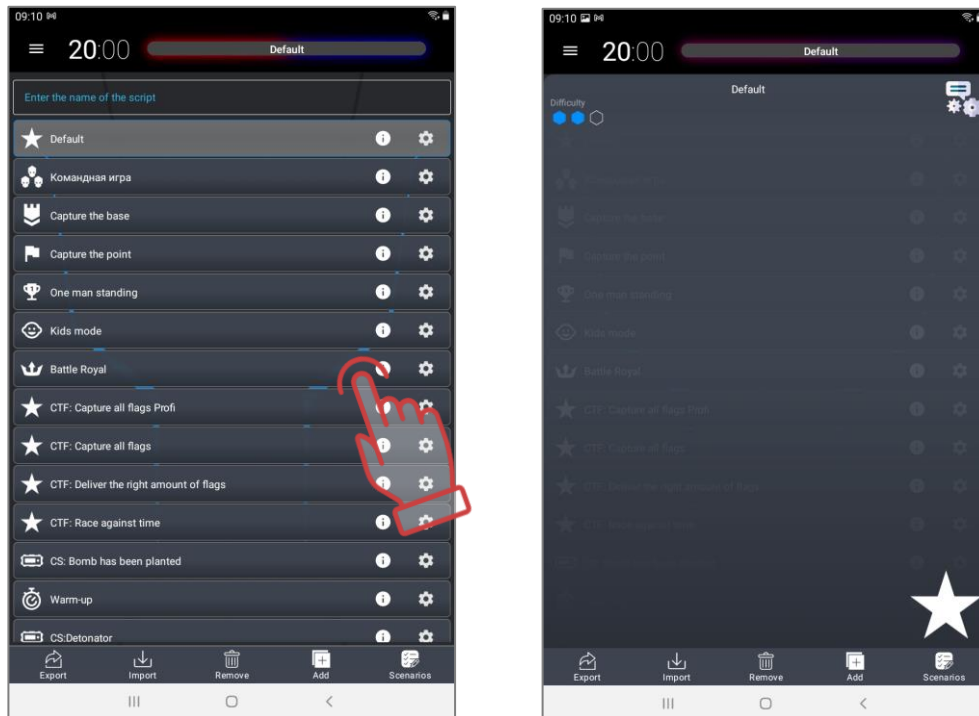
A number of ready-made scenarios are built into the Lasertag Operator program (see chapter 1.3.4). All of them have been tested in real conditions, but, as a rule, depending on the size and configuration of the site, the set of additional devices, the number and composition of players, they require adjustment. The program has such an opportunity, as well as the ability to create your own original scenarios.

Clicking in the main menu on the inscription SCENARIOS opens the list of scenarios in the form of tiles.

Clicking on the icon  on the scenario tile opens information with data on the difficulty level of the scenario and its brief description.


To speed up the search for the desired scenario, you can click on the line ENTER THE NAME OF THE SCENARIO and type the first letters of the name on the keyboard that appears. Scenarios starting with these letters will appear. Now you need to click on the required tile - it will take the top position in the list.

In order for the game to use the selected scenario, you need to press on the tile.

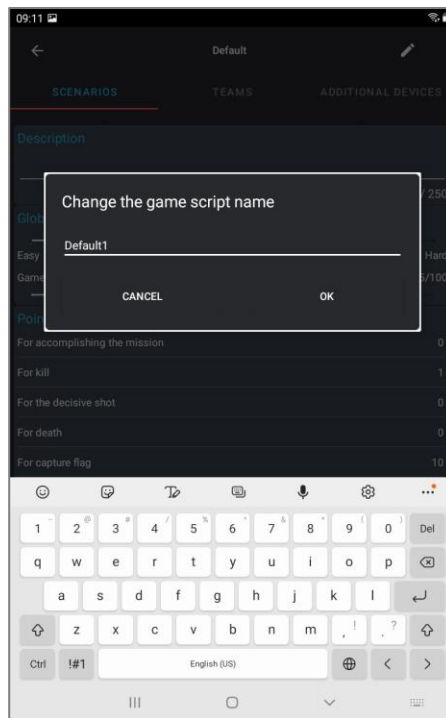
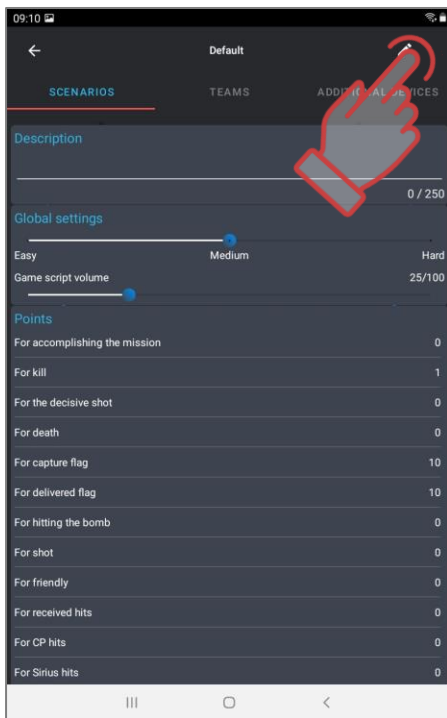


The scenarios tab can also be called directly from the Game Room tab - when you click on the display of the name of the current scenario, a window with scenario tiles will open.

Built-in scenarios can be edited, but not deleted.

The scenario editor is called by clicking on the button with an image of a gear .

First of all, the editor window allows you to change the name of the scenario - for this, you need to click on the button in the form of a pencil to the right of the name.



The window has 3 tabs: SCENARIOS, TEAMS and ADDITIONAL DEVICES

1.3.1. Scenarios tab

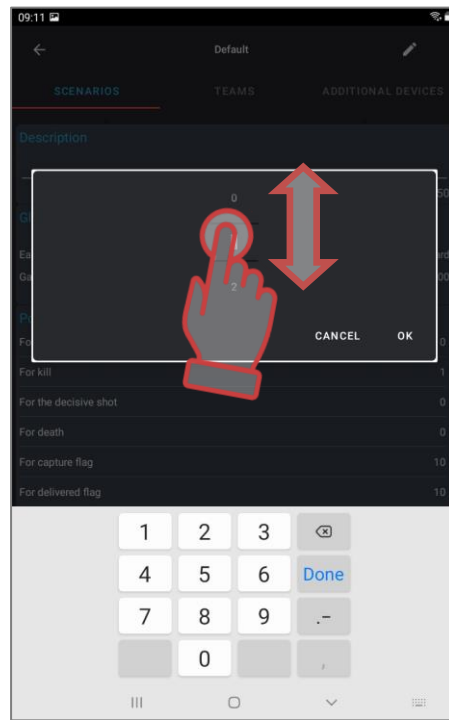
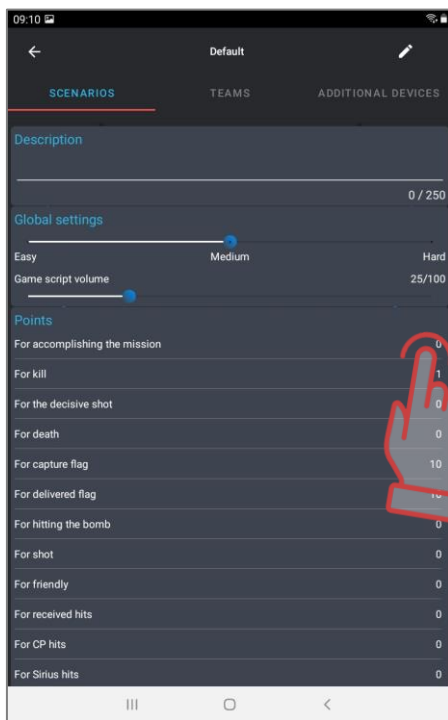
The tab is divided into 5 sections.

The DESCRIPTION section contains textual information that helps to identify the scenario by specific features. The length of the text is up to 250 characters.

In the GLOBAL SETTINGS section, the difficulty level of the scenario and the volume of the sound reproduced by the tager's speaker are set.

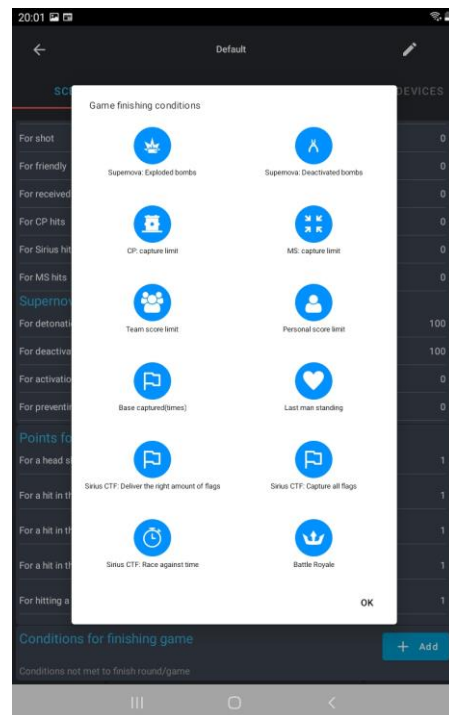
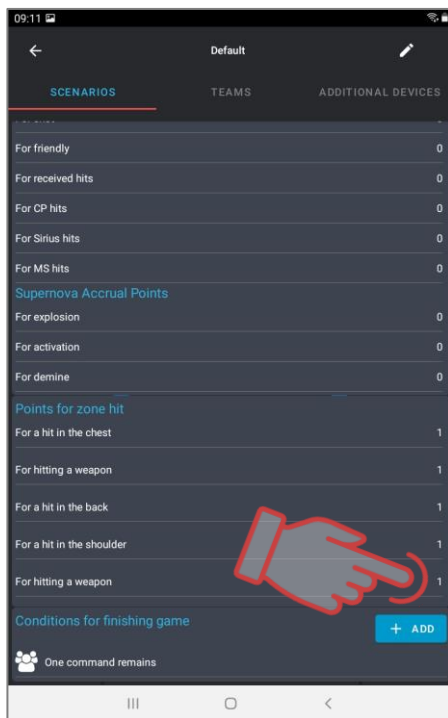
Next comes the POINTS section. It displays the number of points awarded or deducted for various events in the game - for a victory, deactivation of an opponent, a flag delivered, capture of a Domination Box, etc.

To change the numerical value, you must click on the parameter line and in the window that appears, scrolling vertically or using the numeric keyboard (appears if you tap on a number) set the desired value. Some parameters, for example, FOR HITTING A TEAM-MATE or FOR A SHOT, can have negative values - that is, points for these actions are deducted, not added.



If the design and equipment of the kit allows it, you can set differential damage, i.e. the number of points for hitting different zones of the kit - in the back, in the arm, head or chest. The setting is made in the section POINTS FOR THE DEFEAT OF THE ZONE.

The last section is GAME END CONDITIONS. When you click on the + ADD button, a window appears in which you can select the condition for early (not by timer) completion of the game round.




To add a condition, you need to click on the icon above the name. You can select several conditions at once - then the game will end if any of the given ones are fulfilled. To confirm, click on the inscription OK.

The selected conditions will be displayed at the bottom line of the section.


Some of the conditions have their own parameters, the numerical values of which are displayed on the right side of the condition line. To edit a number, click on it and change the value in the window that appears.

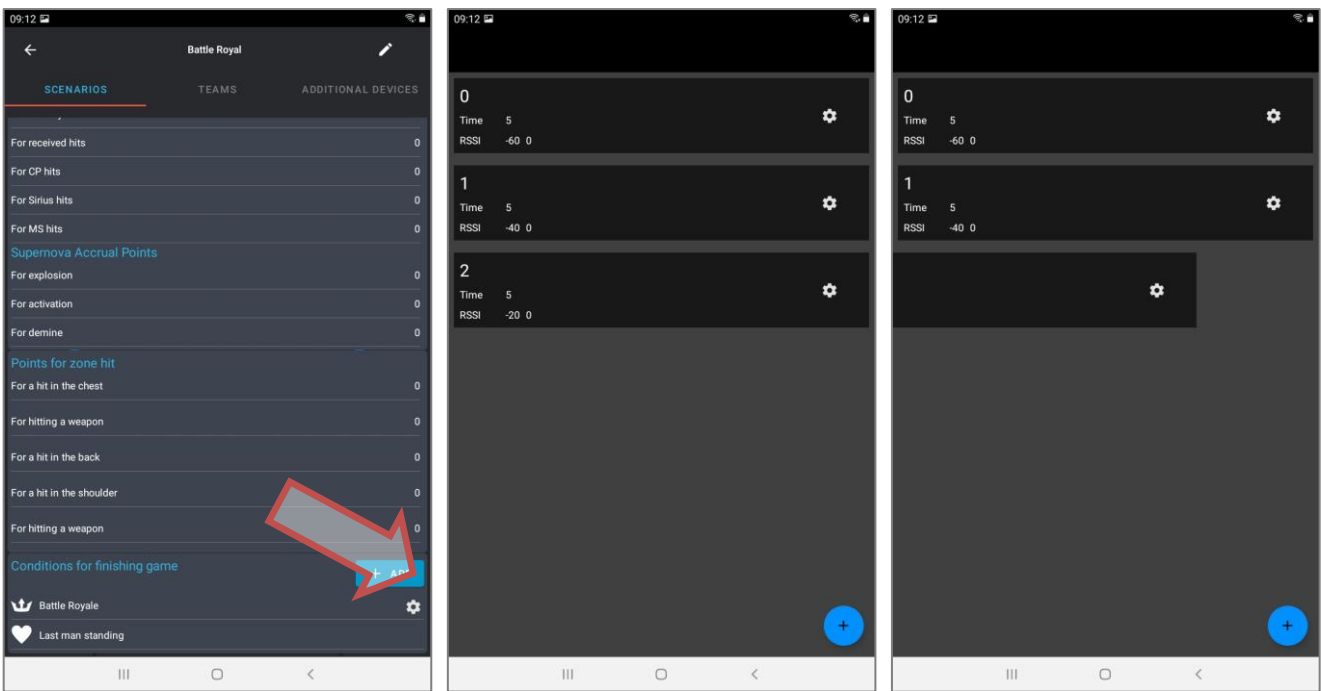
The ROYALE BATTLE condition has an advanced setting. This is due to the principles of the game, borrowed from the genre of the same name of computer games: the players are minimally armed and the safe zone in which the players can be is constantly decreasing during the round. The last survivor wins.

The principle of zone narrowing is implemented using RSSI control (the level of the received Wi-Fi signal from the router). At determined intervals, a player, whose game kit has RSSI less than the value defined in the scenario, starts with "bleeding" - a constant decrease in health units. To stop the bleeding, the player needs to approach the router.

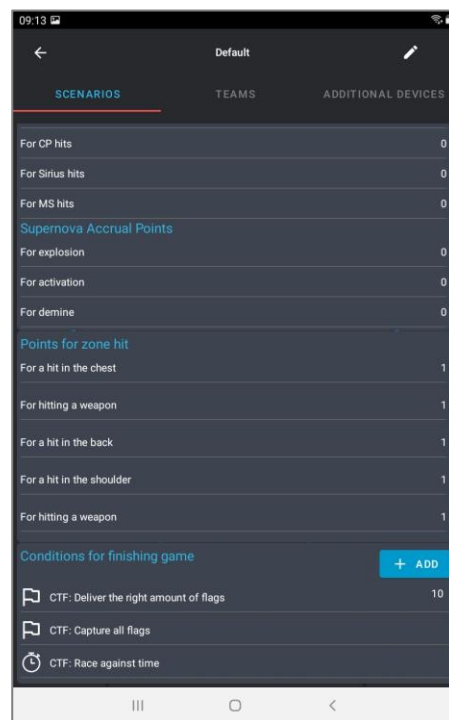
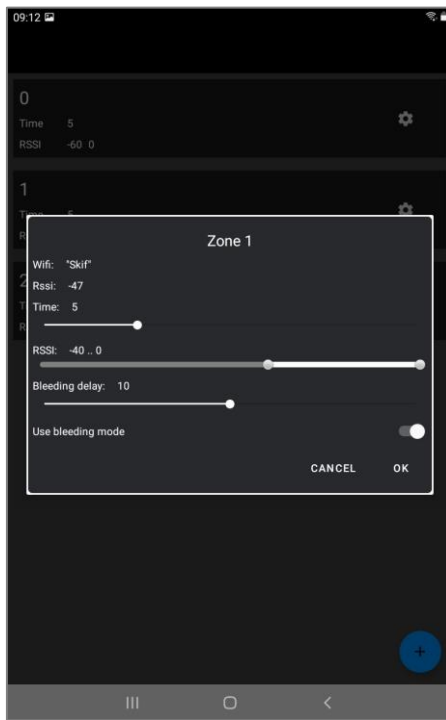
Entering the setting mode for this round completion condition is the button  on the right side of the line. A window opens in which you can add the desired number of zones - click on the blue plus button in the lower right corner of the screen.

If it is necessary to delete a zone, its line must be shifted from the screen to the left.

The button  in the zone parameters field opens a window in which you can set the RSSI level, the time of a safe stay within the zone and the time of delay in bleeding after a message about the need to move to the next zone.

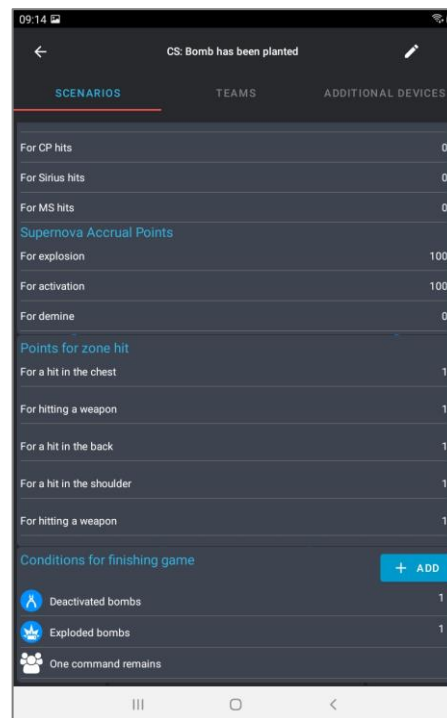
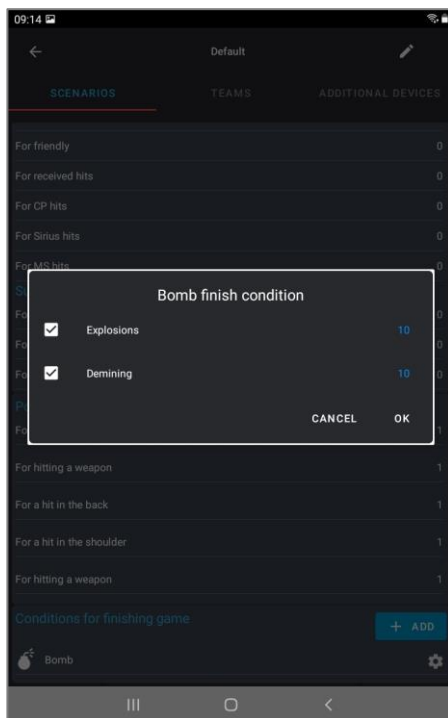


Three conditions for ending the game relate to a series of CAPTURE THE FLAG (CTF) scenarios: CTF: DELIVER THE RIGHT AMOUNT OF FLAGS, CTF: CAPTURE ALL FLAGS, and CTF: RACE AGAINST THE CLOCK.

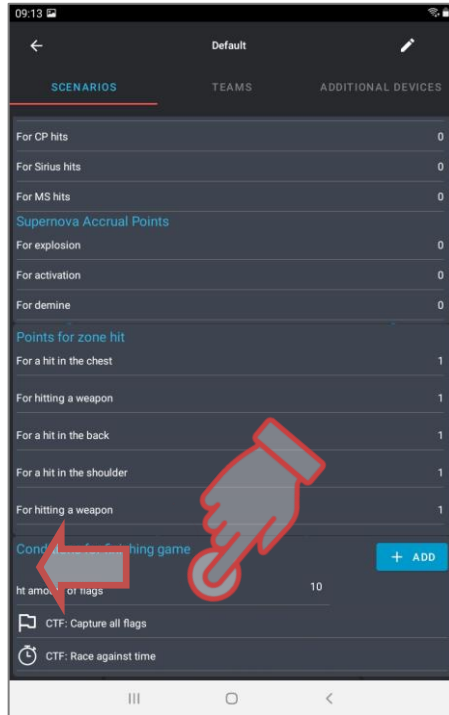


Has its own setting and condition "Bomb MS". You can set how many times you need to detonate a bomb and/or how many times to defuse it to win a round.

The conditions when using the Supernova bomb in the scenario are set up in the same way - they are rendered separately: "Clear bombs" and "Detonate bombs".



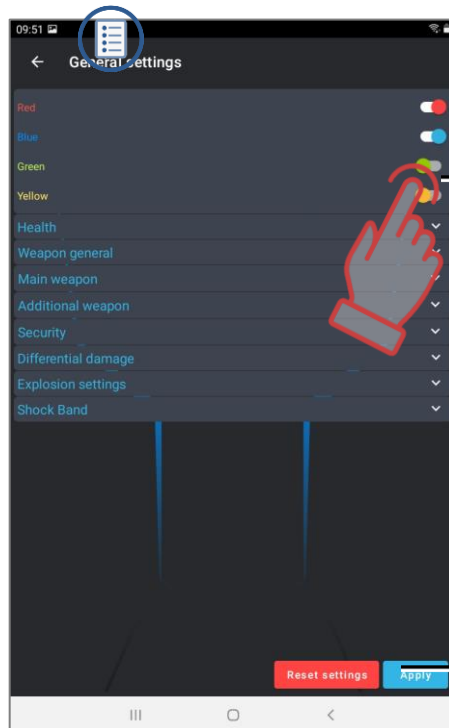
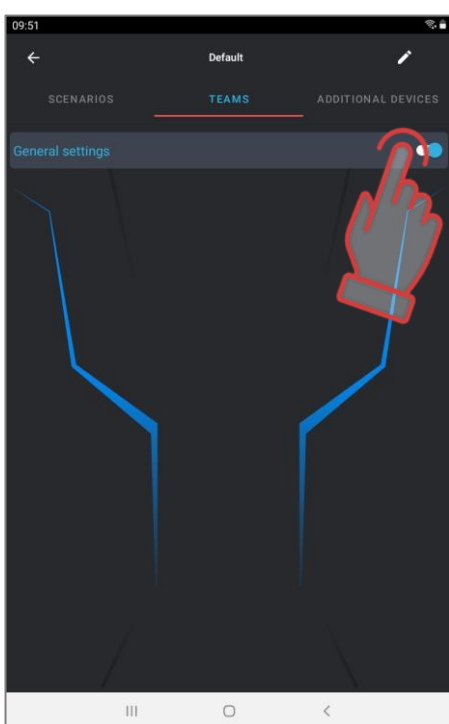
. To remove the game end condition from the scenario, the line with the name must be moved to the left to the end of the screen.



1.3.2. Teams tab

In a scenario, kit of players from different teams can have either the same settings or different ones. Common settings for all teams are called by touching the line GENERAL SETTINGS.

On the tab, by moving the slider to the right or simply tapping on it, you can select the number and colors of the teams involved in the scenario.



Team selection

APPLY CHANGES button

By scrolling down the window, you can configure more than 40 kit parameters. All of them are divided into groups: HEALTH, GENERAL WEAPON, MAIN WEAPON, SECONDARY WEAPON, DIFFERENTIAL DAMAGE, EXPLOSION SETTINGS, SHOCK BAND. Each tab expands into sub-items when you click on on a line or on the white checkmark opposite its title.

The table of configurable parameters is almost the same for general settings as well as for team or individual settings.

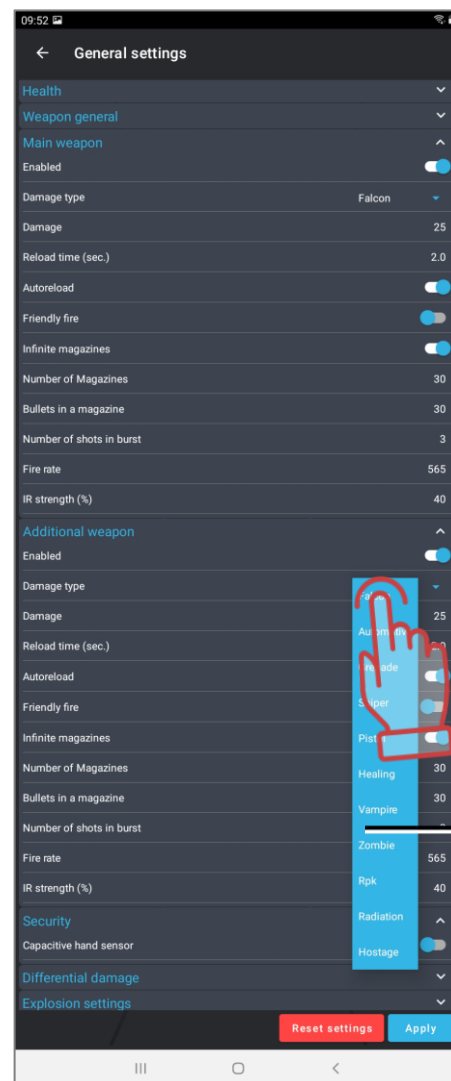
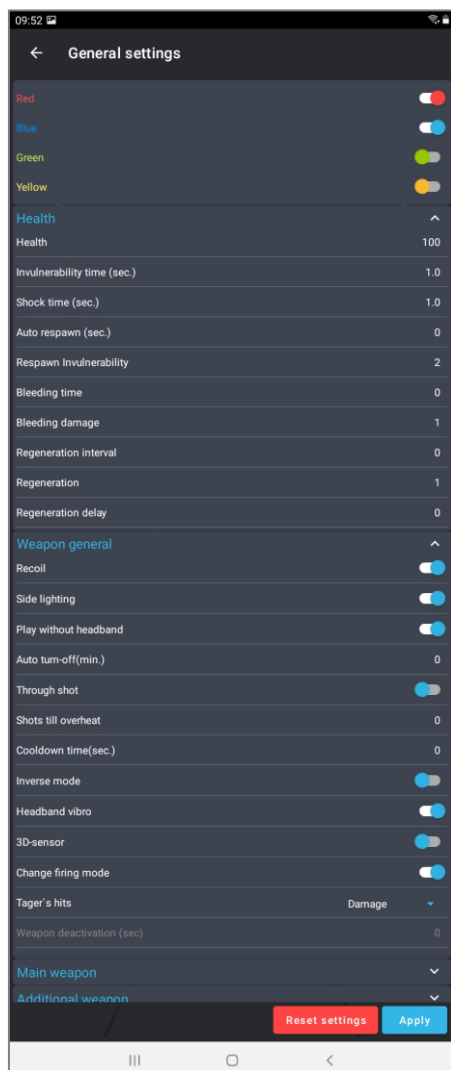
To change each specific parameter inside the tabs, you must click on its title - a corresponding window will appear, with the help of which either the change is made, or the switch changes its state.

To confirm changes, click on the blue checkmark at the bottom of the screen.

To return to the factory settings, click on the RESET SETTINGS inscription at the very end of the parameter list.

To collapse a group, click on the title line of the group, or on an inverted white checkmark in the same line.

To exit the window, click on an arrow in the upper left corner of the window.



Choose the type of damage

Below is a description of the parameters.

Section HEALTH:

- Health units - the starting amount of health units (0-999 units).
- Invulnerability time - the period during which the player cannot be damaged after being hit (0-25.4 sec, in increments of 0.1). In this case, the player is prevented from being deactivated by one burst of shots.
- Shock time - the period of inactivity of the weapon after the opponent's beam hits the kit (0-25.4 sec, in increments of 0.1).
- Auto-respawn - the time after which the deactivated player automatically re-enters the game (0-254 sec, 0 - off).
- Respawn invulnerability - the time during which the kit cannot be hit after the respawn (0-100 sec). The parameter was introduced to prevent players from being "pinched" on their bases.
- Bleeding period - the frequency with which health units are taken away after exposure to the kit of the opponent's tager's beam or the Radiation command of additional devices (0-255 sec, 0-disabled).
- Bleeding damage is the number of health units taken during the bleeding period (1-100 units). I.e. with a bleeding period of 5 seconds and damage of 10, after being included in the kit, the player's health will worsen by 10 units every 5 seconds. Bleeding can be stopped only after exposure to an accessory operating in the MEDKIT mode.
- Regeneration interval - the frequency of automatic addition of health units (0-100 sec, 0-disabled).
- Regeneration - the number of health units restored during the regeneration period (1-100 units).
- Regeneration delay - delay time before the start of regeneration (0-100 sec). Thus, setting, for example, an interval of 2 seconds, a regeneration of 5 points and a delay of 10 seconds, we get the following game situation: a player, having received damage, can hide behind a shelter and after 10 seconds, 5 health units will be automatically added to him every 2 seconds.

Section GENERAL WEAPONS:

- Recoil - permission to use impulse recoil on the tager (yes/no).
- Side lighting - turn on/turn off side lighting on the tager (yes/no). The setting is relevant only when using the Falcon LUX tager.
- Game without headband - permission to play without a headband if hit sensors are installed on the tager (yes/no).
- Auto turn off - the period after which the kit will automatically shut down in the absence of any game actions (0-720 min).
- Through shot - permission to activate the function of through wound, when, when hitting a headband or a vest, the sensors of these devices hit standing players behind with their IR emitters (yes/no).
- Shots before overheating - the number of shots in a continuous burst, after which the BARREL OVERHEATING mode is activated for the tager and it stops shooting (0-255, 0 - off).
- Weapon cooling time - the time after which the tager resumes firing after the barrel overheats (0-255 sec).
- Inverse mode - turning on the inverse mode of the headband or vest indication, when the indicators are constantly lit, and when they are hit, they stop glowing

(yes/no). The mode is used when playing games in the dark, or in darkened indoor areas (arenas).

- Headband vibration - permission to enable the function of vibration of the headband or vest sensors when the opponent's tager beam hits them or after receiving the RADIATION command from additional devices (yes/no). The function is turned off, as a rule, for young children.
- Change weapon mode - permission to change the firing mode of a weapon from a single shot to a fixed or endless burst and back (yes/no). The mode change is carried out by double pressing the tager recharge button with an interval of less than 1 second.
- Defeat in weapon - selection of the kit's reaction to the hit of the opponent's beam on the sensors of the player's tager hit (Damage/Ignore/Deactivate). When you select the DAMAGE parameter, the damage is counted in the same way as hitting the sensors of a headband or vest. If you select IGNORE, then hitting the tager is not counted. The selected parameter DEACTIVATE disables the weapon for the time set in the next parameter - DEACTIVATE WEAPON.
- Weapon deactivation - the time of inactivity of the weapon after the opponent's beam hits it with the selected parameter DEFEAT WEAPON - Deactivate (0-100 sec).

Section MAIN WEAPON:

- Turned on - permission to use the main weapon in the kit (yes/no).
- Damage type - the type of virtual weapon that is selected when configuring the player's kit presets. (Falcon/ Assault rifle/ Grenade/ Sniper/ Gun/ Heal/ Vampire/ Zombie/ RPK/ Radiation/ Hostage). When choosing a type of damage, the following parameters are automatically set by default for this particular type of weapon. But each of them can be changed later. Only the icon on the tager screen and the sound reproduced by the tager speaker when fired remain unchanged.

FALCON, ASSAULT RIFLE, SNIPER, GUN and RPK actually differ only in the amount of damage, rate of fire, power of the IR-beam and ammunition.

The GRENADE type (underbarrel grenade launcher) allows you to "explode the player" when, after hitting the player, the sensors of his kit, with their emitters, affect the nearby players of their team.

The type HEAL (Medkit) does not take away, but adds units of health when it hits the player. However, this does not apply to players with the ZOMBIE and VAMPIRE presets - the opposite effect is performed on them.

Damage VAMPIRE (Bite) not only takes away health units from the opposing player, but also adds them to itself. The damage can only be selected for the basic Vampire preset.

When a ray with damage ZOMBIE (Claw) hits the player, the kit loses half of the health units available at that moment, besides, even if the player is defeated, the player also becomes a zombie.

The specificity of the damage RADIATION is that it takes away units of health from all players, and heals players in the roles of Zombies and Vampires.

HOSTAGE damage has not yet been implemented in current hardware firmware versions.

! To change weapons, you must hold down the reload button for about 3 seconds until the sound signal starts to play.

- Damage - the number of health units that are taken away from the opponent's kit when the player's tager ray hits it (1-100 units).

- Reload time - a pause during which the weapon cannot fire after pressing the reload button on the tager (0.1-25.4 sec, in 0.1 increments). As a rule, the value is set close to the reload time of real samples of small arms.
- Auto-reload - permission to automatically reload the weapon magazine without pressing the corresponding tager button (yes/no). A useful feature for children's scenarios.
- Friendly fire - permission to turn on the mode when the kit can be hit by the players of their team (yes/no). The parameter is turned on in the games of the "DEATH MATCH" series, as well as for adding spice to the gameplay of any scenario.
- Infinite magazines - a parameter that removes the limitation in the starting number of magazines with cartridges (yes/no). Most often used in games with young children who have difficulty using the recharge button.
- Number of magazines - the numerical value of the number of magazines given to the player (1-254).
- The number of cartridges in the clip is the value of the magazine capacity at the start or after reloading (1-254). May correspond to the number of cartridges in the magazine of real weapon.
- Shots in a burst - the number of shots fired by the tager after the trigger is pressed in the FIXED BURST mode (1-254).
- Rate of fire - the frequency of rounds per minute, with which the tager shoots when the trigger is pressed, if the weapon provides for and automatic firing is allowed (1- 999). The optimal value for small arms is 565 rounds per minute.
- IR-beam power - the percentage of IR-radiation power when the tager shots (1-100%). The range of the shot and the active spot depend on the power. It also affects the ricochet from walls and obstacles on the playground. In sunny weather, in an open area, it is recommended to set the power of the IR-beam to a high level, when using kits in arenas, 20-40% is enough.

Section ADDITIONAL WEAPONS:

The parameters are the same as in the MAIN WEAPON section. To activate it, you also need to allow it to be used in the ENABLED parameter.

SECURITY section

- Capacitive hand sensor - permission to use an induction sensor that reacts to the player's wrist grip on the tager's forearm (yes/no). Activating the parameter is necessary to prevent waving weapons and shooting from behind shelter if hit sensors on the tager are absent.

Section DIFFERENTIAL DAMAGE:

- Head (0-300%, 0 - the parameter is disabled).
- Chest (0-300%, 0 - the parameter is disabled).
- Back (0-300%, 0 - the parameter is disabled).
- Shoulder (0-300%, 0 - the parameter is disabled).
- Weapon (0-300%, 0 - the parameter is disabled) - coefficients by which the received damage in a certain zone is multiplied. For example, if the selected value of differential damage is 50% in the back and the beam hits this zone with 90 units of damage, the actual damage will be 45. But at 300% the same hit will deal damage of 270 health units.

The presence of differentiated damage depends on the composition and type of equipment included in the player's kit. The maximum kit is a headband, a vest with shoulder sensors and a tager with hit sensors. The absence of, for example, shoulder sensors on the vest accordingly excludes the SHOULDER zone.

EXPLOSION SETTING section

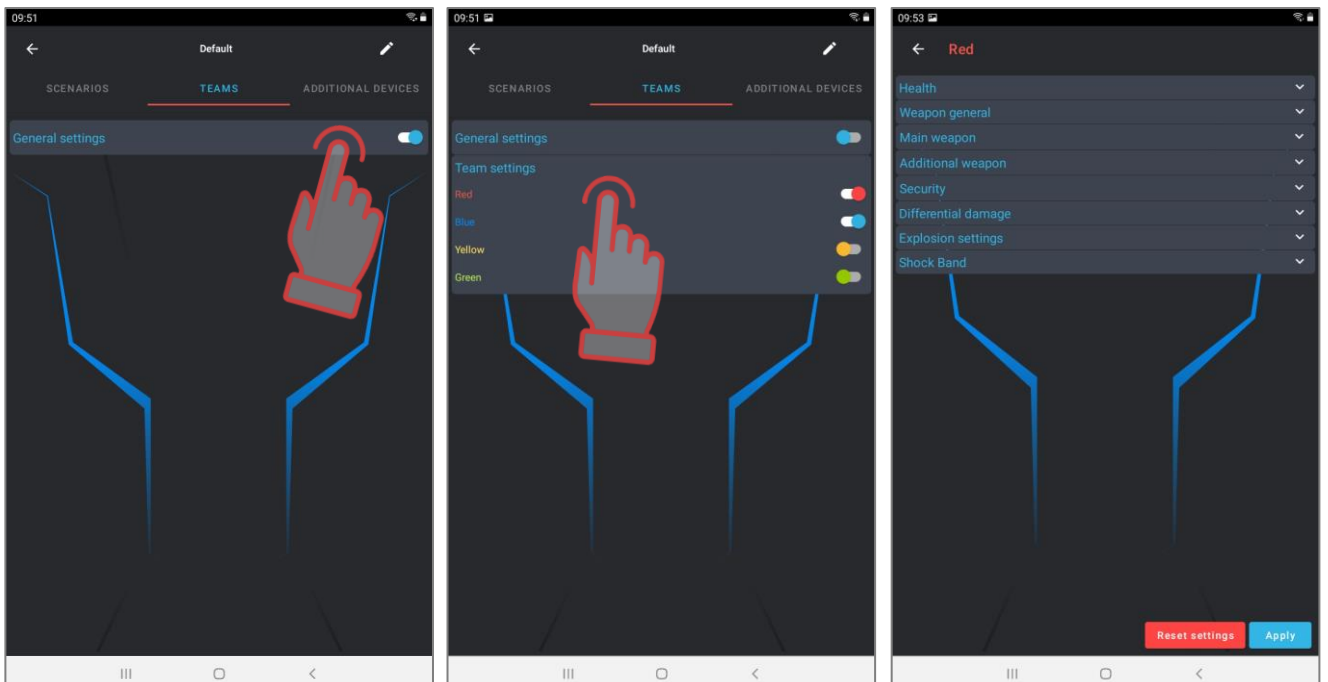
- Explosion - permission to use the function, when after hitting a player with a beam with the Grenade type of damage, his kit with emitters built into the sensors, hits the nearby players of his team (yes/no).
- The explosion radius is actually the power of the IR-pulse emitted by the sensors of the headband or vest when receiving damage with the Grenade type (0-100%). The radius of damage when the player explodes depends on this value.
- Explosion wave length is a parameter that determines the repeatability of the explosion wave (1-16). When the value is 1, the blast wave affects only those players who are in the zone of influence of the headband emitters of the player hit by the grenade. With a value of 2, players hit by the blast wave hit the next players with their emitters, if they are in the zone of their radiation, etc.

Section SHOCK BAND

- Multiple hit - permission to use three vibro- or electrical impulses when a player is hit. By default, the shock bracelet vibrates once or emits one impulse (yes/no).
- Change mode via device - to allow the player to independently change the shock band mode using the buttons on the device (yes/no).
- Mode - to choose the mode of impact on the player after getting into his kit (1 - 5). The device has 5 indication modes: vibration and 4 levels of electrical pulses power.

If the game assumes different settings for teams (this may be due to different missions or compensation for a different number or composition of teams), in the TEAMS tab, move the switch to the left on the GENERAL SETTINGS line. After that, the team settings will become active.

By switches, you can select teams, which will participate in the scenario. When you click on the line with the team name, a window for team settings of the kits opens, which is similar in content to the general ones.



1.3.3. Additional devices Tab

To add a SMART Domination Box, SIRIUS, Multistation or laser tag bomb Supernova to a scenario, go to the ADDITIONAL DEVICES tab and click on the corresponding button at the bottom of the window.

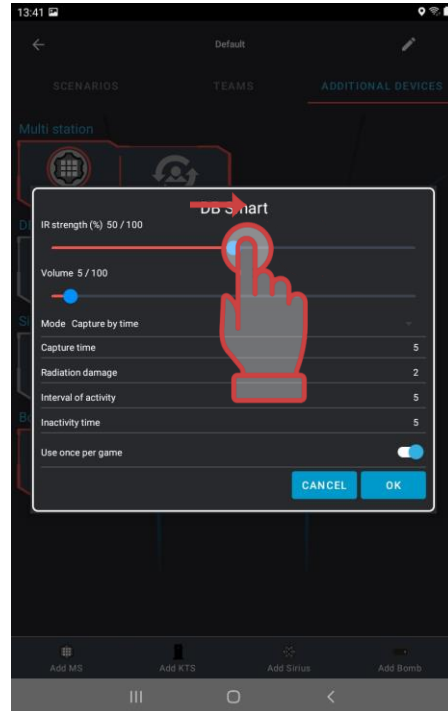
The number of each device is limited to 14 units, but this is quite enough to implement the most complex scenario.

The added devices will appear in the window. To configure them, you need to click on the tile.



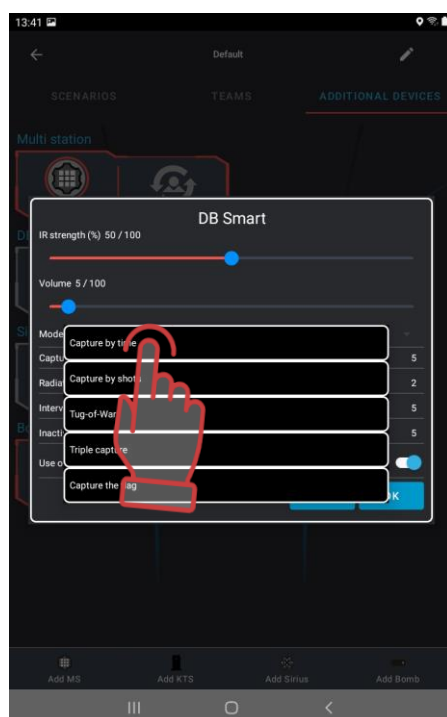
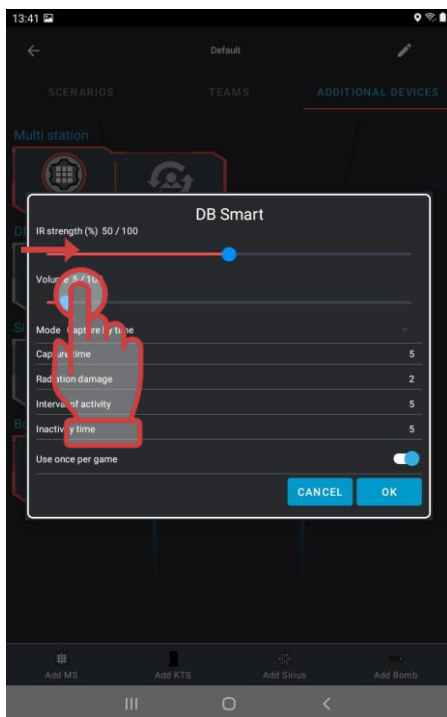
In the window that appears, it is proposed to exclude the device from the game, configure it and change the ID (from 1 to 20). When setting the device ID in the scenario settings, make sure that it matches the ID number of the real device used in the game. You can check compliance from the "Additional Devices" tab of the main menu after connecting the kits and devices to the network. The IDs of all connected devices will be displayed there.

Exit the window - tap on an empty space on the screen. To change the parameters of devices, touch the SETTINGS label.



In the window that appears, depending on the device being configured, you can use the slider to change the power of the IR-beam of the emitters, the volume of the reproduced sounds (for DB SMART and Multistation), and also select the mode of operation of the device. To do this, click on the line labeled MODE.

For each of the modes there is an individual setting for both numerical values (damage for deactivation, interval of activity, time of inactivity, etc.), and the ability to affect all or certain teams.

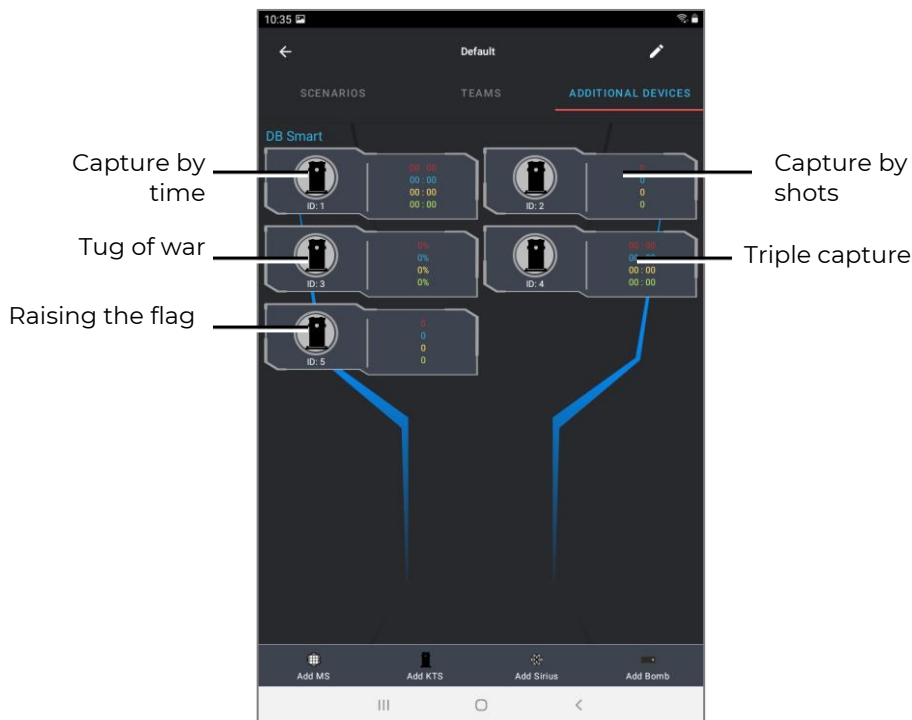


The SMART domination box is configurable to one of five available modes:



- CAPTURE BY TIME - the classic mode, in which the device controls the holding time of the point of each of the teams. The indication in all columns is the same. Up to 4 teams can participate.
- CAPTURE BY SHOTS - capture occurs by the number of shots fired by players into the DB receiver. In game, only from 2 to 4 teams are allowed to participate.
- TUG OF WAR is a capture by time, but the indication shows the percentage balance of the hold. 2 teams are participating.
- TRIPLE CAPTURE is also a capture by time, in which the degree of capture is displayed for each of the teams in different indicator columns. 2-3 teams can participate..
- RAISING THE FLAG - a mode for 2 teams, in which the capture occurs according to the number of hits in the receiver of the device. The indication is made according to the following principle - one team raises the LED column with shots, and the second tries to lower it.

After confirming the setting, the tiles of the Domination Boxes involved in the scenario will appear on the screen with counters of time, shots or percentages, depending on the selected capture and hold mode.

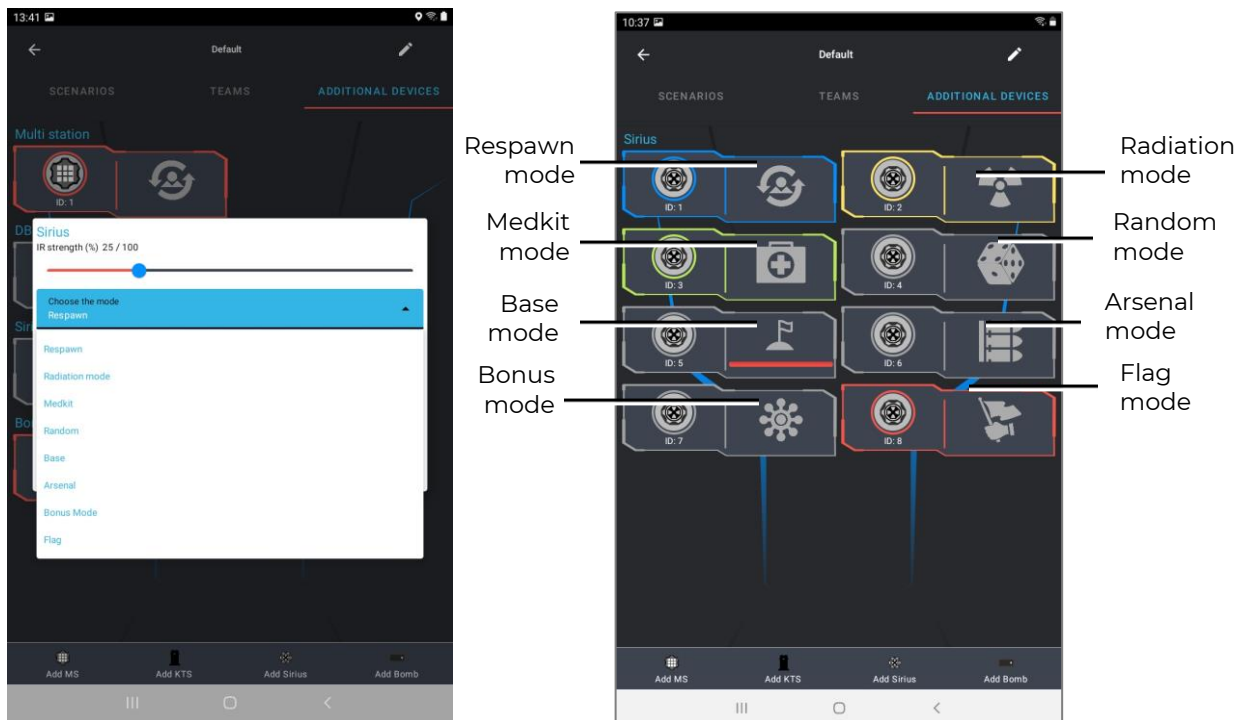


The SIRIUS station can be used in eight modes:

- RESPAWN - during its activity, the station restores the starting value of health and ammunition units of deactivated players, as well as the starting type and firing mode of the weapon. When impacting on a player who still has health units, only the last clip and only the main weapon are replenished.
- RADIATION - the station at regular intervals reduces the supply of units of health for ordinary players, and in the roles of Zombie and Vampire, it increases.
- MEDKIT - the device periodically replenishes the players' health units (but no more than the value at the start of the game). Another function is to stop "bleeding" in kits that have this parameter enabled by software. It worsens health for Zombie or Vampire.

- ARSENAL - the device adds to the player the number of cartridges or clips set in the program (but not more than the starting value).
- RANDOM - when activated, one of the three game commands is distributed in random order: "Double lives", "Arsenal" or "Radiation".
- BONUS - after firing a shot at the device, all kits within the range of influence of the SIRIUS IR-emitters double their health units (up to 999 units). There is no automatic distribution.
- BASE - when triggered, the device sends out two game commands at once - Respawn for its players and Radiation for opponents.
- FLAG is a new mode that allows you to play "Capture the Flag" (CTF) scenarios. During the game, SIRIUS generates virtual flags which players of the opposing team can capture by shooting several times at the device. After receiving confirmation of the capture, the player becomes a flag carrier. and then he must fetch the flag to his base. To surrender the flag, the flag carrier must also fire at his SIRIUS before receiving the FLAG ACCEPTED confirmation.

To confirm the settings, press the OK button, if you reject changes, press the Cancel button. Tiles of the devices involved in the scenario with icons of the configured mode will appear on the screen.



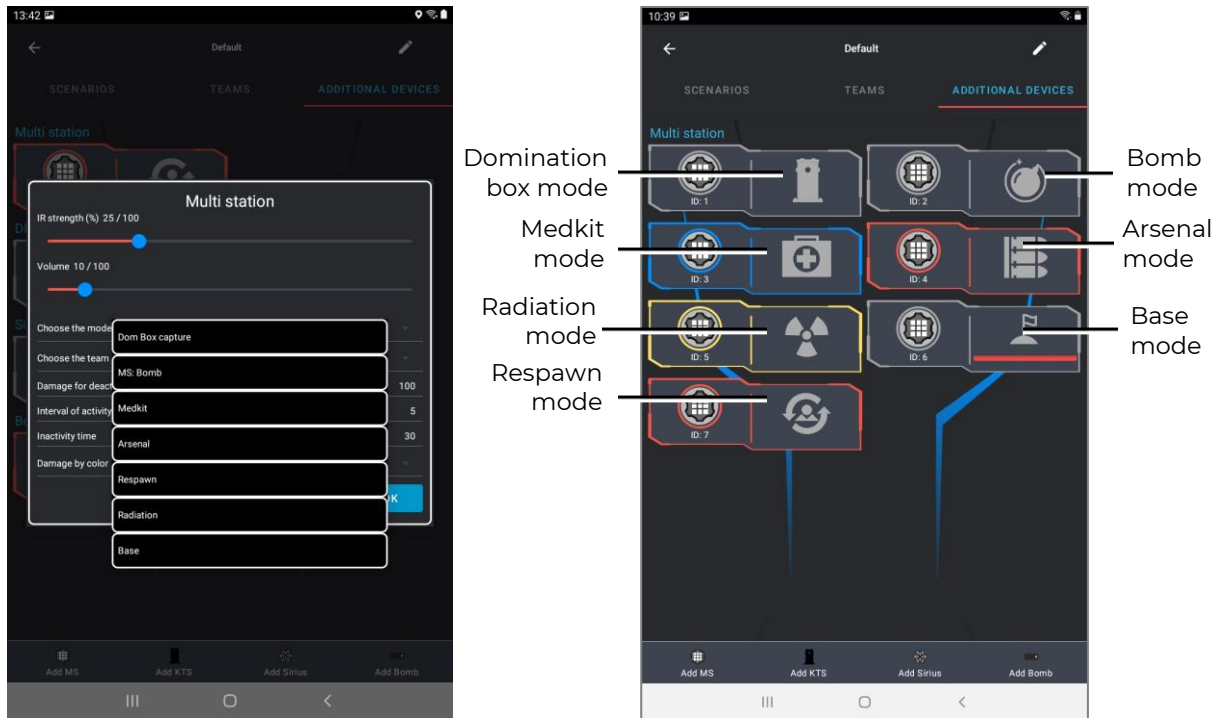
The SIRIUS tile in the Base mode is distinguished by the presence of a progress bar, which in real time displays the state of the Base when it is deactivated by an opponent.

The multistation in scenarios can operate in seven game modes. The functions of the device in the modes MEDKIT, ARSENAL, RADIATION, BASE and RESPAWN are similar to the functions of the same modes in the SIRIUS station.

Besides, Multistation has two more game modes:

- DOMINATION BOX is an analogue of the Domination box, but with its own specifics. The capture is made by shots, and points are awarded for holding the box.
- BOMB - the mode allows to conduct scenarios reminiscent of an episode of the PC game "Counter-Strike", namely, "Laying the bomb". Initially, the players are divided

into two teams - miners, who plant a bomb with shots at the device and sappers who must defuse it.



Also, like SIRIUS, the tile in the Base mode has a progress bar indicating the state of the Base.

The SUPERNOVA laser tag bomb also has its own settings:

The game mode is laser tag or paintball. For the "laser tag" mode, the algorithm for using the device corresponds to that described in part 2 of this manual. The "paintball" mode does not provide for confirming the activity of the player's kit with a shot from a tagger before planting and demining a bomb. Also, there is no need to start with the Remote Control button - after its turning on, the bomb is ready to be installed on the platform.

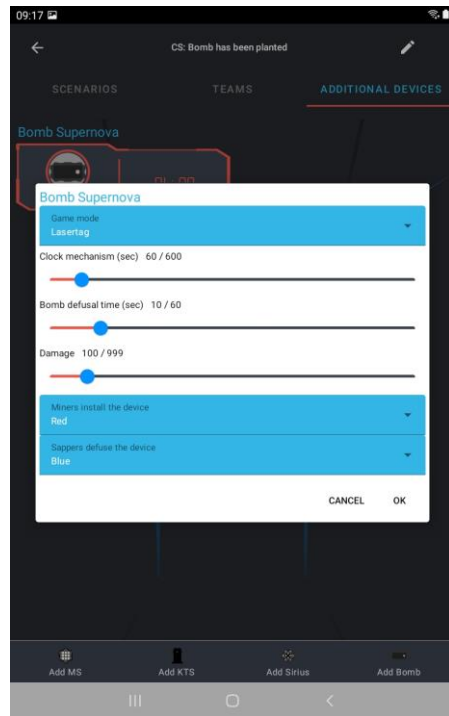
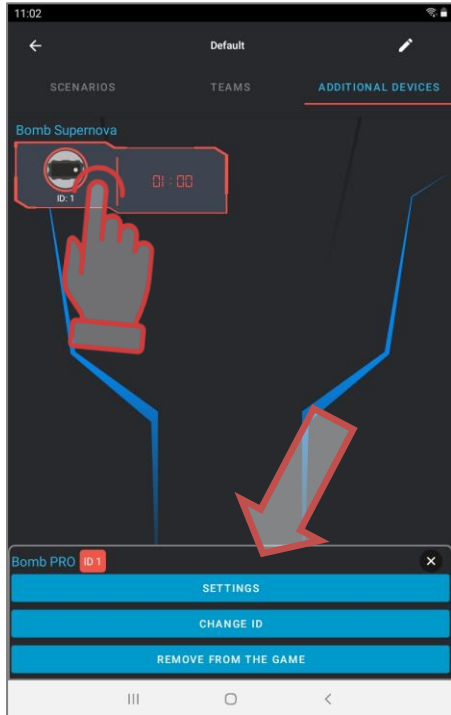
Clockwork (180-600 s) - the time during which the sapper team needs to deactivate (clear) the bomb after it was activated by the miners team.

Demining time (10-60 sec) - holding time of the control button to deactivate the bomb.

Miner team - you can choose the color of the team that plants the bomb.

Sapper team - select the color of the team that clears the bomb.

Damage on defeat (100-999 health points) - the number of health points taken from players of all teams when a bomb explodes.



! The damage is done via Wi-Fi and this function is supported only by kits with the tager's firmware 19.4 and higher.

To read about modes in which the accessories work and how to set up them, see Netronic platform equipment user manual for working with WiFi router Part 2 "Additional devices", "Instructions for using the Multistation "Bomb" mode" <https://lasertag.net/manuals/>.



1.3.4. Description of built-in scenarios

Any of the scenarios built into the program can be corrected, and it is also possible to return to the factory settings. To do this, in the scenario editor in the team settings, click on the RESET item - it is located at the very bottom of the table.

The tables below show the standard parameters for general/team settings and scoring for a particular game action.

Scenario default settings table (Teams tab)

Specification	Units of measurement	Quantity/ Indication
Health units	Health units	100
Invulnerability time	Sec	1
Shock duration	Sec	1
Respawn invulnerability	Sec	2
Bleeding damage		No
Regeneration		No
Recoil		Yes
Side lighting (Falcon Lux only)		
Game without headband		Yes
Through wound		No
Weapon cooling time	Sec	0
Inverse mode		No
Headband vibration		Yes
Change weapon mode		No
Defeat in weapon		Damage
Enabled Main weapon / Additional weapon		Yes/No
Damage type		Falcon
Damage	Health units	25
Recharging time	Sec	0,4
Autoreload		Yes
Friendly fire		No
Endless magazines		Yes
Number of magazines	pcs	30
Amount of cartridges in a clip	pcs	30
Shots in a burst	pcs	3
Rate of fire	shots/min.	565
IR-beam power	%	40
Capacitive hand sensor		No
Differential damage: Head	%	100
Chest	%	100
Back	%	100
Shoulder	%	100
Weapon	%	100
Player explosion		No
Explosion radius (IR-power of the headband)	%	40
Number of blast waves	pcs	1
Shock band: Multiple hit		No
Shock band: Change mode via device		Yes
Shock band: Mode		1

Scoring table (Scenarios tab)

Action	Points
For deactivating an opponent	1
For capture the flag	10
For the fetched flag	10
For the headshot	1
For the shot in the chest	1
For the shot in the back	1
For the shot in the shoulder	1
For hitting a weapon	1

These settings are basic and are loaded by default when scenarios are created based on the default.

The current version of Lasertag Operator comes with 14 ready-made scenarios:

- The default scenario is based on basic settings. The default settings for this scenario are good for beginners or for starting warm-up - there are two teams playing in it, there are no additional devices and there is no condition for completing the scenario. The deactivated player is restored after 5 seconds. Points are awarded (one at a time) for hitting a player or for deactivating him after 4 hits. The game ends on timer and the team with the biggest amount of points wins.
- Team play primarily involves confrontation between several teams. There are also no additional devices, but a condition for the completion of the scenario - ONE TEAM LEFT has been added. Players have 100 health units, for each hit of the opponent, 25 units are removed, and there is no possibility of respawn. I.e. to deactivate a player, you need to hit him 4 times. By default, in this scenario, 1 point is awarded for hitting and deactivating an opponent. The goal of the game is to hit as many opponents of the opposing team as possible. The team with at least one player left wins. If not, the game is stopped by the timer and the winner is determined by points. The points gained are taken into account, firstly, at the end of the game by the timer (if the end of the game is not met), secondly, for assigning nominations to the players at the end of the round, and thirdly, for accounting in multi-round games. To complicate and accordingly lengthen the scenario, you can enable respawn for players (Teams/Team settings/Health). With the set regeneration interval equal to 1 (i.e. every second), the regeneration in 2 health units, and the regeneration delay in 5 seconds, the player has the opportunity, hiding behind a shelter, to fully restore his health units in a certain time. One of the options for the development of this scenario is to enable friendly fire (Teams/Team settings/Main weapons) - this is when the player can be hit by allies. This change makes the player more responsible for each trigger pull of the tager.
- The scenario Capture base involves the capture of the opponent team's base by shots. By default, 2 SIRIUS are used in the game, for which the "Base" mode is selected. Both devices for red and blue teams have the same settings: every 5 seconds they respawn the players of their team and, with the same frequency, affect the opponent players with radiation with damage of 30 points. SIRIUSES are installed on opposite sides of the ground - on the bases of both teams. Devices each have 100 health units, i.e. with 25 weapon damage, to capture a foreign base, you need to hit it 4 times, and not necessarily by one player. A condition for the completion of the "Base captured" scenario has been added to the scenario. This condition has its own setting - the number of captures. In the

scenario, this value is 1 by default, i.e. after one capture, the game stops. Accordingly, points are awarded only for hitting and deactivating players of the opposite team (1 each).

For each hit in SIRIUS 10 points are awarded.

The basic settings of the kits are standard, the same for all teams. Since under certain conditions it is possible that none of the teams can capture the opponent's base, it is recommended to limit the round in time. Then the winning team is determined by the points scored.

Further development of the scenario may consist in increasing the number of captures to determine the winner. In this case, after capturing, SIRIUS will be deactivated, but after 30 seconds it will be automatically restored. With a value, for example, 3, after the third capture of any base, the game stops.

This scenario can be played by three or four teams, accordingly, adding SIRIUS. In addition, Multistation can also be a Base.

- The Domination Box capture scenario basically has a similar principle, only the Domination Box is used as an additional device. The main task of the teams is to capture it with shots and hold it for a total of 5 minutes. The Domination box in this case works in the "Timed capture" mode. The degree of capture can be controlled by the LED scale on the device itself. When the player hits the DB for the first time, the timer of his team starts and the lower LED starts to glow with the color of his team. If there is no recapture by another team, after about 20 seconds (300/16) the second LED lights up and so on until the entire scale is filled. If another team captures the box, then the timer of this team is turned on and the scale shows its time.

To respawn deactivated players, the scenario uses two SIRIUS devices located at the team bases and configured for the RESPAWN mode. These devices restore the starting values of health and ammunition to the players of their team every 5 seconds.

In the scenario, the condition of the end of the game is chosen - LIMIT OF DOMINATION BOX CAPTURE. The condition also can be set, and in this case it has the value 1. Therefore, when the Domination box scale is completely filled with the color of one of the teams, the game stops. This team is declared the winner.

One of the options for changing the scenario would be to disable the USED ONCE PER GAME switch in the Domination box settings. If, at the same time, the condition of the end of the game is removed in the scenario, then after holding one of the teams, after 5 seconds the timers are reset and the game resumes. It is also necessary to set the accrual of points for the capture - then after the end of the round, the winner will be determined by points.

- The tactics in this game correspond to the name of the scenario: Death match. All players on the same team are red. "Friendly fire" enabled - so players of the same team can hit each other. Each player has 200 health units, after each hit, 25 is taken away. In the conditions of completion - ONLY ONE REMAINS, that is, the last survivor wins. For each hit, the player receives one point, and this indicator will be taken into account in the distribution of nominations at the end of the game.

This scenario is well suited for warm-up, for beginners - it will allow you to get acquainted with the ground, learn how to handle the game weapon, hide behind shelters, etc. This scenario is also suitable for a small number of players. In addition, this scenario is recommended for young children who may not always appreciate the need for team tactics.

As a development of this scenario, you can use the following option: disable the condition for completing the scenario ONLY ONE REMAINS, but enable the condition PERSONAL POINTS LIMIT with the current limit for this ground and the given number of players (up to 400). Then the player with the maximum number of points will receive the victory - the game will end either by the timer or when it reaches the specified value. For a change, you can conditionally recruit players to

different teams, but include "Friendly fire", because team statistics will not be counted.

- Kids mode is designed for children and beginners. Here, by default, auto-respawn is enabled, which is triggered 5 seconds after deactivation, as well as auto-reload and endless magazines. Headband vibration is disabled, hitting the weapon is also not counted. The scenario does not involve the use of additional devices and termination conditions. The rest of the parameters are configured by default, including 100 health and damage 25. This scenario is easy for both the players and the instructor. The game is downloaded on a timer and at the end of the game, players can receive printed sheets with comic nominations depending on the points scored or the actions performed in the game.

It is necessary to adjust the scenario depending on the game situation. For example, if a round turns into a pointless firefight, you can increase the auto-respawn time or enable such a parameter as weapon damage - DEACTIVATE. In the latter case, it is necessary to set the period during which the weapon will be inactive after the opponent's beam hits it (0-100 sec).

- The Battle royale scenario involves playing in an ever-shrinking zone over time. The principle of zone narrowing is implemented using RSSI control (the level of the received Wi-Fi signal from the router). At set intervals, a player, whose game kit has RSSI less than the value defined in the scenario, "bleeding" starts - a constant decrease in health units. To stop this process, the player needs to get closer to the router by going to the next zone.

The last survivor wins. As a result, the players during the game need not only to try to hit the opponents, but also to monitor the virtual change in the playground configuration.

Conventionally, the zones are circles of various diameters with a router in the center. But it must be taken into account that the Wi-Fi signal coverage can be heterogeneous and largely depend on the geometry of the playground, the presence of natural or artificial obstacles.

For each zone in the program, its own RSSI level is selected (from 0 - to 100 dbm) and the time spent inside the zone when it is safe to be there. When the time spent inside a certain zone is running short, the kits give an audible signal that it is time to move on to the next zone. The player is given time (10 seconds set) to move to an area with a higher signal level from the router.

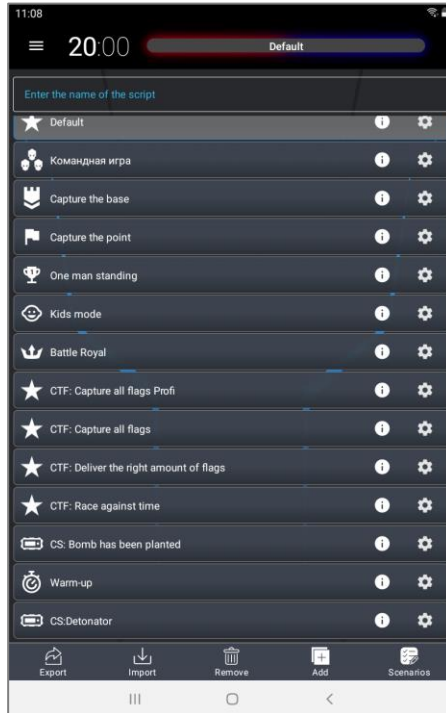
There are three zones in the firmware - Zone 0 with an RSSI limit of -60, zone 1 with a range of 0...-40 and zone 2 with values 0...-20. The time spent in each of the zones is 5 minutes. The third zone is located very close to the router, and it has no time limit - all players in this zone will have "bleeding", and if several players remain on the playground, the winner will be the one who runs out of health units later than others.

By default, friendly fire is turned on (players, regardless of the color of the kit, hit each other), the player has 100 health units, damage is 25%, autorespawn is disabled. Ammunition is limited - 10 clips of 30 rounds.

The scenario can be greatly complicated and varied. For example, you can make it for a team, i.e. set the condition ONE TEAM LEFT. This option is more suitable for a game with quite large number of players - divide it, for example, into 4 small teams. In this case, players will be able to work out team interaction.

The next scenario may be the use of additional devices, in particular SIRIUS stations. By configuring the devices for the Arsenal mode, placing them at the edges of the playing area and making the minimal starting ammo for players, you can radically change the tactics of players. Now, in addition to everything else, they will have to "get cartridges" in order to deactivate their opponents later.

Depending on the size and configuration of the site, it may be necessary to adjust the parameters of the zones. You can do it in the setting for the end condition of the Battle Royale game, which has an advanced setting.



The next group of scenarios built into the program belongs to the CTF format - "Capture the Flag". The players' task is to "capture" the opponent's flag and fetch it to their base.

The basic principles of these scenarios are as follows:

- The flags are generated by SIRIUS stations, which are installed either at the team bases or in separate sections of the playground.
- To capture the flag, it is necessary to shoot from the tagger several times in the SIRIUS of the alien team at close range until the sound confirmation of the capture is received - "The flag is captured".
- At this point, the player becomes the Flag Bearer - the headband LEDs glow alternately purple and the color of his team.
- When the flag is fetched to his base, the player who still has health units must surrender the flag - shoot at his team's SIRIUS also until the confirmation "Flag accepted" is received.

- Scenario objective of "CTF: Capture all flags" is to capture the opponent's flags. You can fetch them to your base - additional points are awarded for this, but this is not a mandatory condition. In addition, without getting rid of the flag, the player will not be able to capture the next one.

The scenario uses 2 SIRIUS in the FLAG mode and 2 more - in the Respawn mode. The number of flags in the SIRIUS settings is 5, the time for generating a new flag after capture is 30 seconds. SIRIUS stations working in Respawn mode issue a command to respawn their players with an interval of 5 seconds.

The condition for the end of the game - CTF: CAPTURE THE FLAGS.

The kit settings are standard.

For capturing the flag, 10 points are awarded, for fetching it to your base - another 10. For hitting and deactivating an opponent - one point each.

The game ends when 5 flags are captured from the opponent, or by timer. In the latter case, the winner is determined by points.

- "CTF: Capture all flags Profi" is a more difficult version of the previous scenario to play. It is also necessary to capture 5 opponent's flags to win, but there are only 2 SIRIUS and they are located at the teams' bases. The devices simultaneously generate flags and respawn their deactivated players every 50 seconds. The

increased pause between respawns gives more chances for the players of another team to capture the flag at the opponent's base.

Flag recovery time has been reduced to 10 seconds, it makes the game more active and dynamic. The conditions for completing the game and setting up the kits are similar to the previous scenario.

For capturing the flag and for fetching it to your base, 10 points are awarded. For hitting and deactivating an opponent - one point each.

The game ends when 5 flags are captured from the opponent, or by timer. In the latter case, the winner is determined by points.

- In the scenario "CTF: Deliver the required number of flags", 3 SIRIUS stations are used in the "Flag" mode. One flag is set on the bases of the red and blue teams, the third, set to the color of the non-playing team, in this case yellow, is in the center of the playground. All devices can generate 255 flags with a recovery time of 30 seconds after capturing. The only difference is that the SIRIUS on the bases respawn the players of their team every 15 seconds.

Scenario completion condition CTF: DELIVER THE REQUIRED NUMBER OF FLAGS. The condition has a setting - in this case, the value is 10.

The main task in the game is to capture and be sure to deliver 10 flags to your base. You can take flags either at the opponent's base or at a neutral base. Points are awarded for capturing and delivering the flag - 10 each, and for hitting and deactivating an opponent - 1 each.

The kit settings are standard, they are the same for both teams.

- In the scenario "CTF: Race against time", the condition for the end of the game is set: CTF: RACE AGAINST TIME. Also, as in the previous scenario, 3 SIRIUS stations are involved in the FLAG mode - two for the blue and red teams with the respawn function and one, configured for the yellow non-playing team, only generating flags for any of the teams participating in the game. The number of flags for each device is 255, the recovery time for the flag is 30 seconds, the period between the respawn of the players is 15 seconds.

In fact, the task of teams is to fetch the maximum number of flags from the opponent's base or from the central SIRIUS in a fixed time (it is recommended to set 15 minutes). Which team fetched the most flags is the winner.

The kit settings are standard, they are the same for both teams.

Points are awarded only for the fetched flag (10) and for hitting or deactivating an opponent (1 each). Points are taken into account to determine the winner if the main indicators are equal.

For details, see "Instructions for using the "Battle Royale" scenario in laser tag games", "Instructions for using the "Capture the Flag" scenario in laser tag games" (<https://lasertag.net/manuals/>).



- The Warm Up scenario is another lite version of game for younger players and beginners. The game includes auto-respawn of players for 5 seconds, auto-reloading and endless magazines. The second hand sensor is turned off. The kit settings are standard, they are the same for both teams. There is no scenario termination condition. The game ends on a timer. The team that scores the highest number of rating points wins.
- With the advent of SUPERNOVA bombs in the line of additional devices produced by the company, it became possible to implement in laser tag the "Bomb/Defuse" scenario from the computer game Half-Life: Counter-Strike. As in CS, in the "CS: Bomb has been Planted" scenario, a team of miners (by default it is a red team) must plant a bomb on one of two platforms located in different places of the playing area and activate it within the round. The task of the sapper team (blue team) is to prevent the planting, and if it was not done, to clear the bomb. This scenario is set up as close as possible to its computer original:

- both teams have the same settings (100 health points, 25 weapon damage, unlimited cartridges);
- the one of the additional devices used is only the Supernova laser tag bomb;
- bomb planting time - 3 s (not adjustable);
- clockwork timer - 1 minute (can be increased up to 10 minutes);
- clearance time - 10 s (can be increased up to 60 s).
- there is no respawn and treatment - the affected players leave the playing area;
- points for hitting an opponent are not counted.

The round time is set to the maximum (60 minutes), but since there is no respawn or treatment of players, the games of this scenario usually end quite quickly.

The game ends when one of the specified conditions is met:

- "Detonate the bomb" - the team of miners wins;
- "Clear the bomb" - the sapper team wins;
- "One team left" - the team that deactivated all the opponents wins.

To use this scenario with the default settings (controlled by the Remote Control) - see Ch.6. Laser tag bomb SUPERNOVA part 2 of this manual.

- Another one, more complex scenario from the Counter-Strike series "CS: Detonator" reveals the possibilities of configuring and controlling the SUPERNOVA laser tag bomb using a computer program. The differences from the "CS: Bomb has been planted" scenario are:
 - teams have different settings, such that a team of miners has a starting amount of health points of 75, and sappers have - 100. But those miners who are at the SIRIUS bases are the first to respawn every 5 seconds, and the sappers - every 15 seconds;
 - after planting a bomb, the time for mine clearance for sappers is increased - 180 s;
 - players have 2 weapons each - an assault rifle and a pistol (with a reduced range).

The recommended round duration is 15 minutes.

The game ends when one of the specified conditions is met:

- "Detonate the bomb" - the team of miners wins;
- "Clear the bomb" - the sapper team wins;
- "One team left" - the team that deactivated all the opponents wins.

Due to the fact that players have the opportunity to re-join the game after deactivation, it is possible that the miners are not able to plant the bomb and start the clockwork until the end of the round. In this case, the instructor must declare the team of sappers the winner.

- The Portal Assault scenario can be used for games with quest elements. There are two teams in the game: blue - "Earthlings", and green - "Demons". The task of the blue team is to capture the Domination Box - "Portal". According to the legend, reinforcements can come to aliens through this portal. The task of the green team is to hold the Portal until the end of the round. For completing the game mission, the winning team is awarded 100 points. The conditions for ending the game "One team left" and "Domination Box capture limit (1)" are turned on.

Team settings are different. Blue (people) have more standard: 100 health points, weapons - Falcon, damage 25.

Green have settings closer to the "Vampire" preset: 200 health points, the main weapon is the Vampire, the damage is also 25, but the rate of fire is reduced to 300 (instead of the standard 565).

Additional devices are used in the game - Domination Box in the "Capture shots" mode (200 shots to capture, radiation damage - 25 points with an interval of 5 seconds), three SIRIUSes in the "Radiation" mode (radiation damage 25 points with an interval of 5 seconds). Since the green in this scenario play in the status of vampires, they replenish health points from these devices, unlike the blue team.

Earthlings can deactivate SIRIUS with 30 shots, after which the device is inactive for 60 seconds. The game also uses another SIRIUS, which restores the affected earthlings.

It is recommended that the devices on the site be located so that the Domination Box is located almost in the center of the playground, but closer to the Greens' base. Three SIRIUSes in the "Radiation" mode protect the approach to the portal from different sides, and SIRIUS in the "Respawn" mode is based at the blues'.

The blue team wins if they capture the Domination Box or if they completely deactivate the green team. The green team win if they don't allow the DB to be captured.

After the first rentals, you can find out which advantage – the ability to respawn the team of blue, or an increased number of health points and the presence of three SIRIUSes replenishing their team of green, - is more powerful, and, if necessary, adjust the number of players in teams and other parameters to ensure that the game is not unbalanced.

- The main feature of the "Red Cross" scenario is that when a player is hit he bleeds (5 health points every 5 seconds), which can only be stopped by SIRIUS operating in the "First Aid Kit" mode.

There are two teams in the game with the same settings – red and blue.

Players have 100 health points, auto-respawn in 15 seconds.

For deactivation of the opponent 5 points are awarded, for hit - one.

The main weapon is the Falcon with a large stock of ammunition, the damage is reduced to 10 points, friendly fire is on, IR power is reduced to 20%.

Each team on the base has one SIRIUS operating in the "First Aid Kit" mode, which adds 30 health points every 5 seconds. SIRIUS opponents can be deactivated with 30 shots – in this case it will be inactive for 60 seconds.

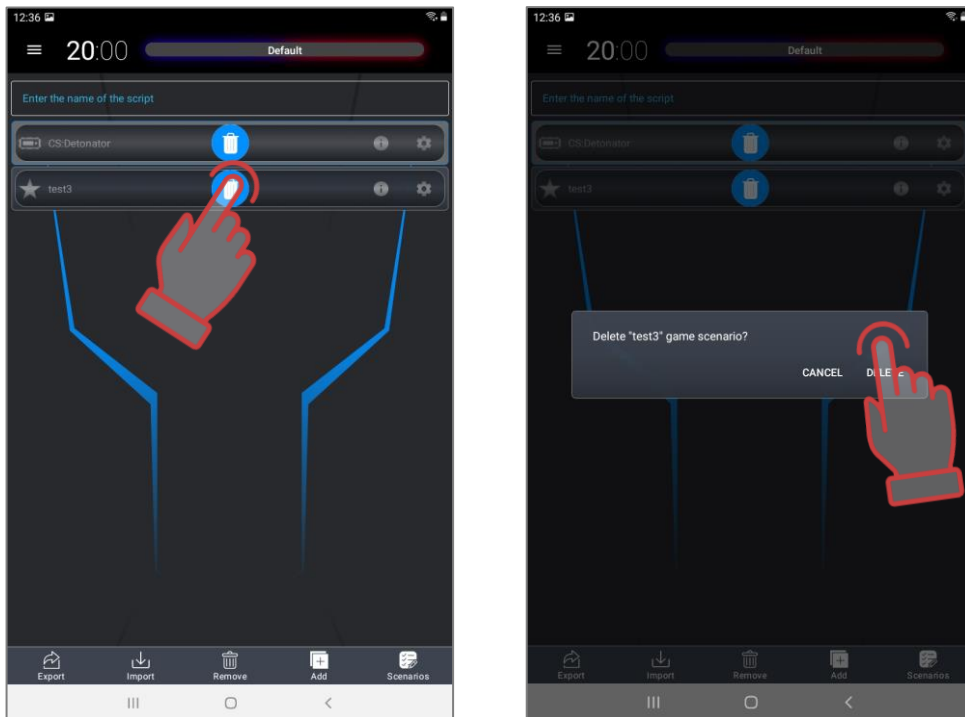
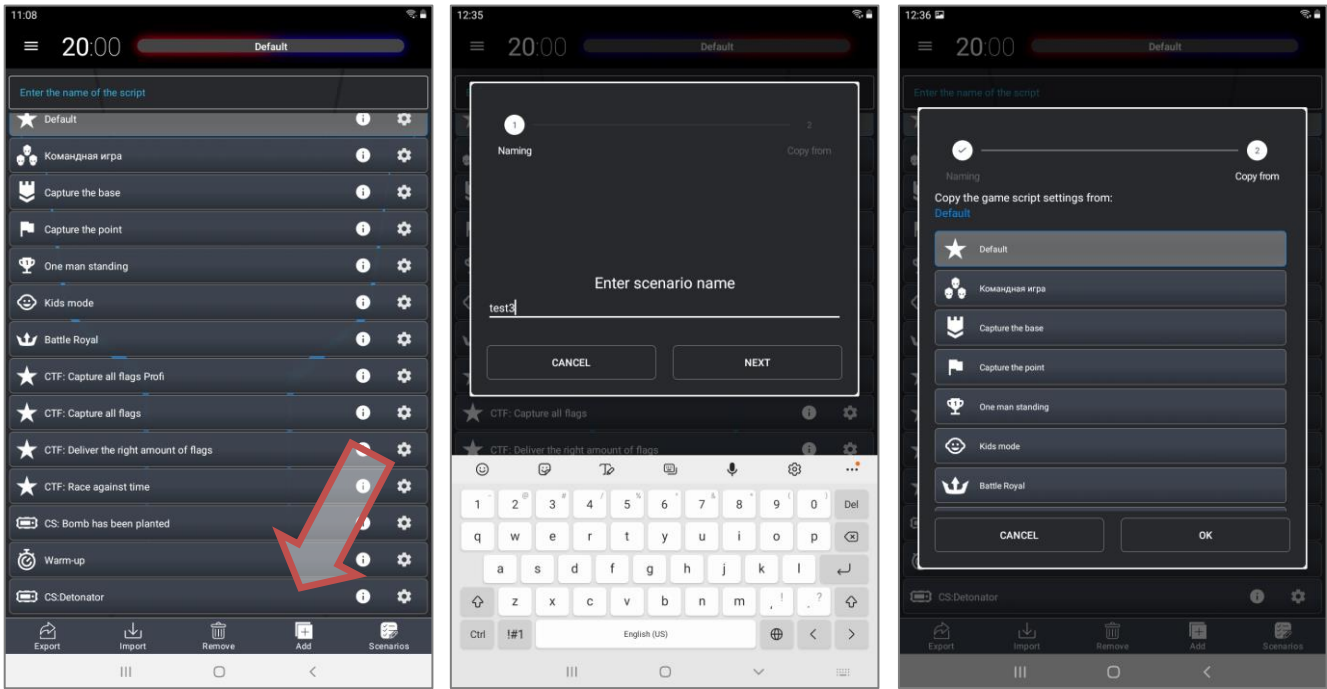
The game ends on a timer. The team that scores the highest number of points wins.

In the development of the scenario, you can remove the auto-respawn and add the condition for ending the game "One team left". In this case, players need to be careful and replenish health points in time – "killed" players leave the playground. And the game can end after all players of one of the teams are deactivated.

1.3.5. Creating custom scenario

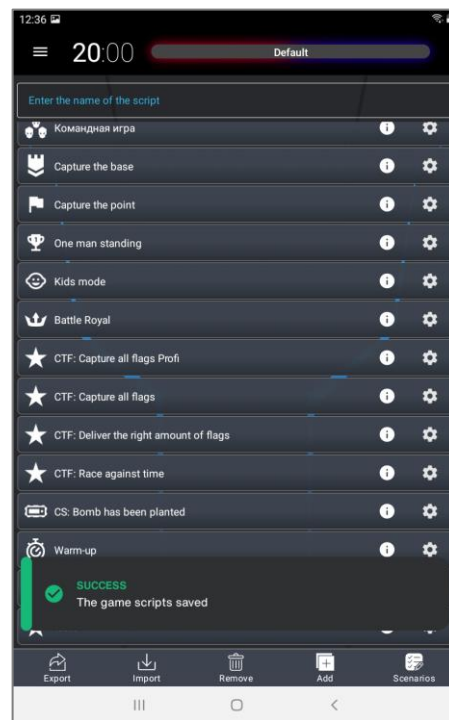
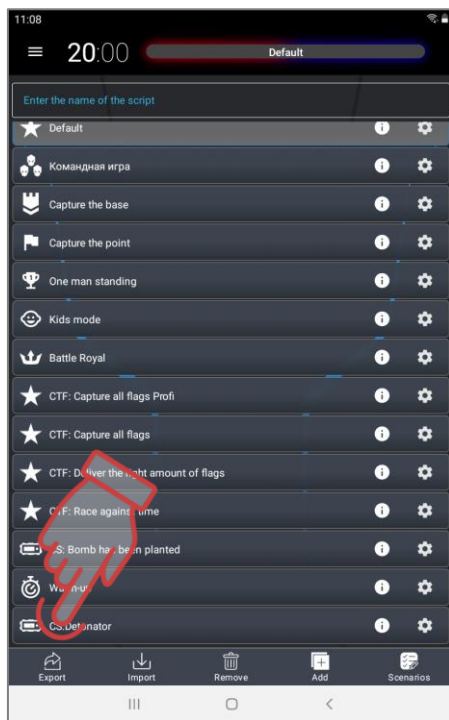
To create your own scenario, you need to click on the ADD button in the bottom of the screen. At the first step, the program offers to enter the name of the new scenario, at the second step it offers to select a template based on which a new scenario will be created, i.e. copy settings from existing scenarios in the program. After confirmation by clicking on the OK button, the scenario editor window opens. Here you can give a short description of the scenario and set the necessary parameters of the equipment and the scenario itself.

Unlike built-in scenarios, custom scenarios can be deleted - click on the menu item - delete (the delete icon will appear on all custom scenarios), then select the scenario that requires deletion, confirm the deletion.



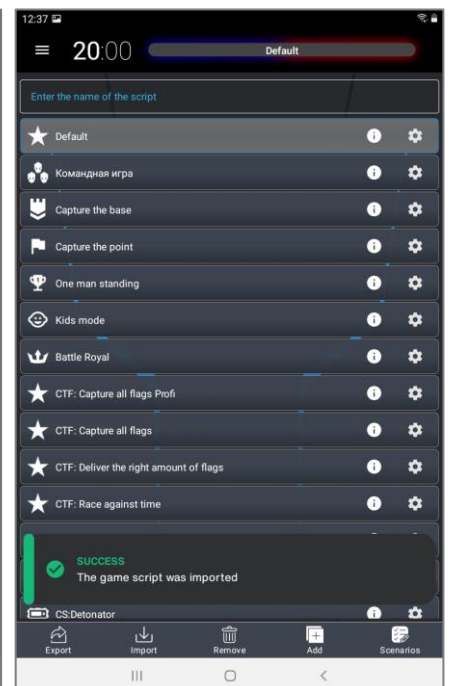
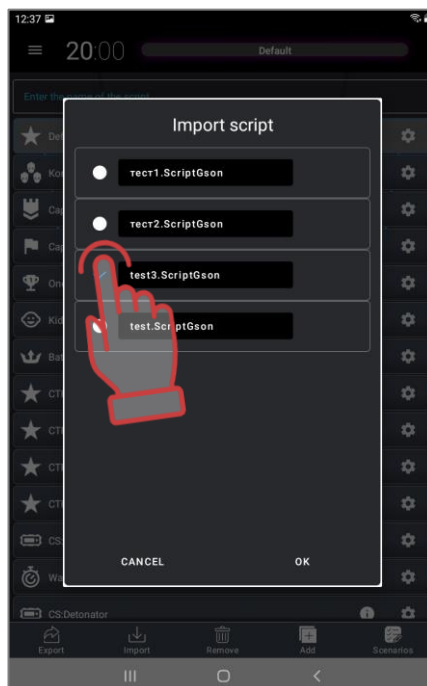
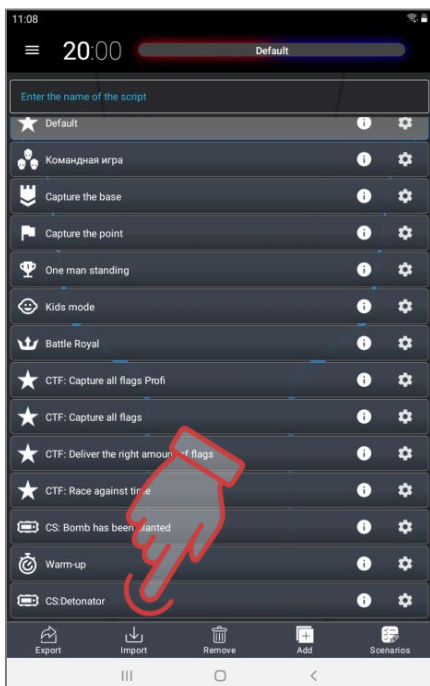
In order to immediately return to the scenarios window after deleting a scenario, you must click on the SCENARIOS button in the lower right corner of the screen.

To back up the scenario, the program has the ability to export and import them. It concerns only scenarios generated by user. To export in the scenario editor (Main menu/Scenario), press the "Export" button. The program saves the scenario to the device memory.




When you click on the "Import" button, a window with the names of the saved or imported scenarios opens. You should also click on the white circle to the left of the scenario name, which should turn into a checkmark. Press the OK button.

To find files of saved scenarios on the device, click on the "Explorer" main menu item, and then selecting the "Scenarios" tab. Scenarios files will have a .ScriptGson extension.

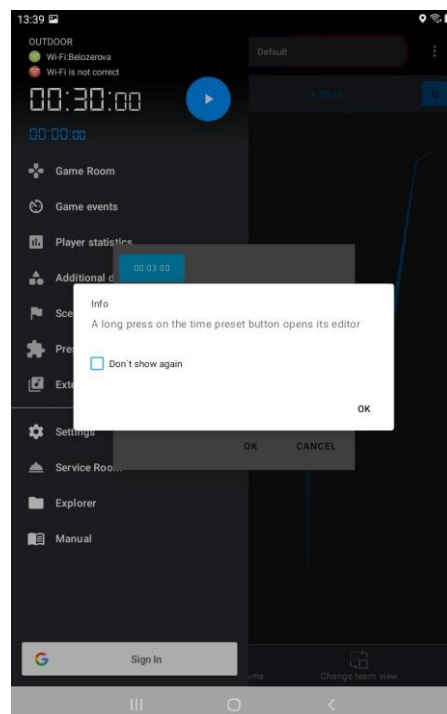
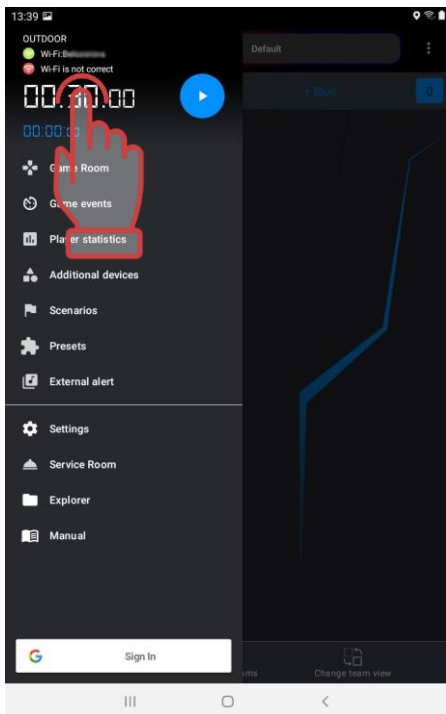


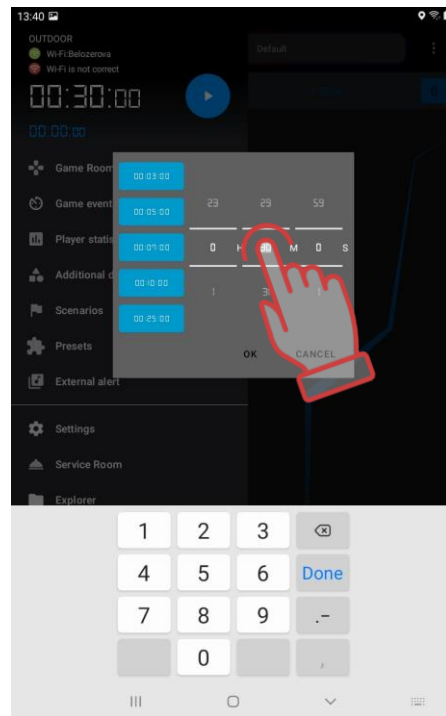
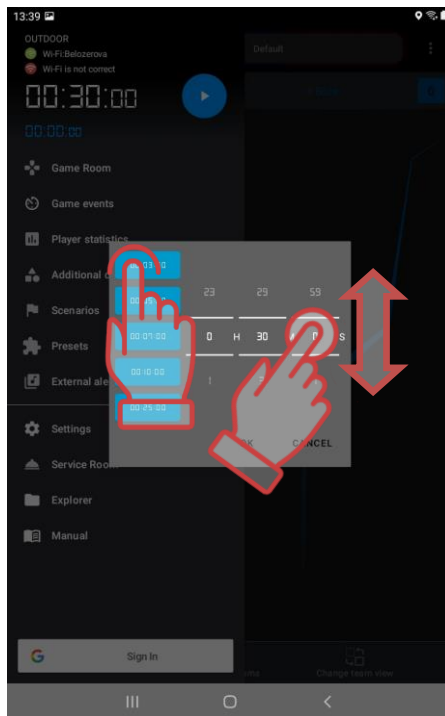
1.3.6. Setting the round time

The duration of the round is chosen depending on the scenario and the availability of conditions for the end of the game. If the goal of the game is specific, for example, to knock out all the players of the opposing team, the maximum time can be set (99 minutes).

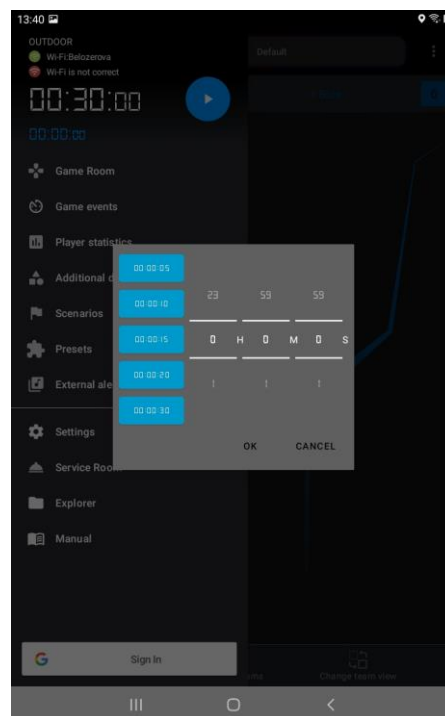
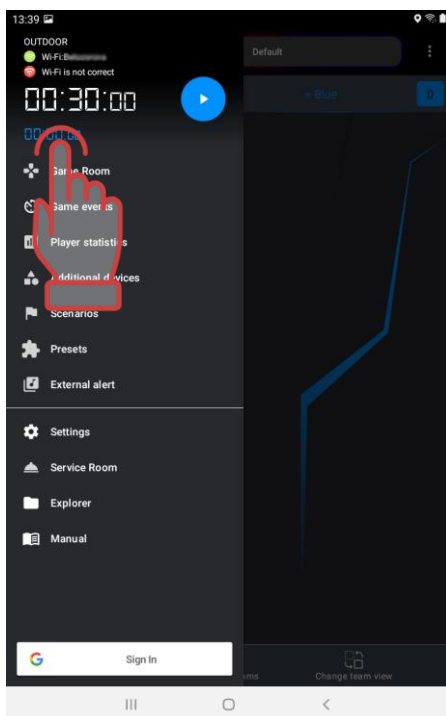
To set the scenario time, you need to go to the main menu (swipe to the right or press the button ):

1. Tap on the big white numbers at the top of the menu. The window that appears allows you to set the time of the game round.
2. There are three ways to choose the game time. The first way is to choose one of the preset options (presets) of the round time in the leftmost column - 3, 5, 7, 10, 25 minutes. Time presets can be edited after a long press on the tiles..
3. The second method involves manually selecting the time in the corresponding hours (0-23 h), minutes (0-59 min) and seconds (0-59 s) by shifting the numbers vertically.
4. The third way - setting the time can be done using the numeric keypad, which appears when you click on the number that needs to be corrected.
5. Confirm changes - click on the inscription OK, if you refuse to change - click on the inscription CANCEL.





- The start delay is set in the same way. The delay timer is displayed in small blue numbers under the main timer. When you click on them, the time setting window is also called. The only difference is that the preset time options are given here in seconds - 5, 10, 15, 20, 30 seconds, respectively.

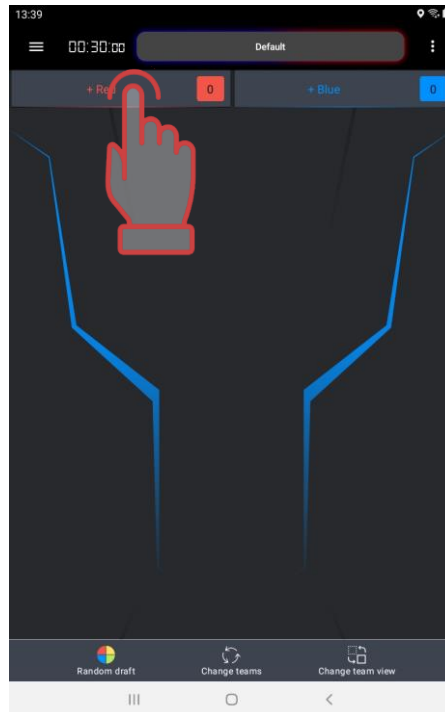
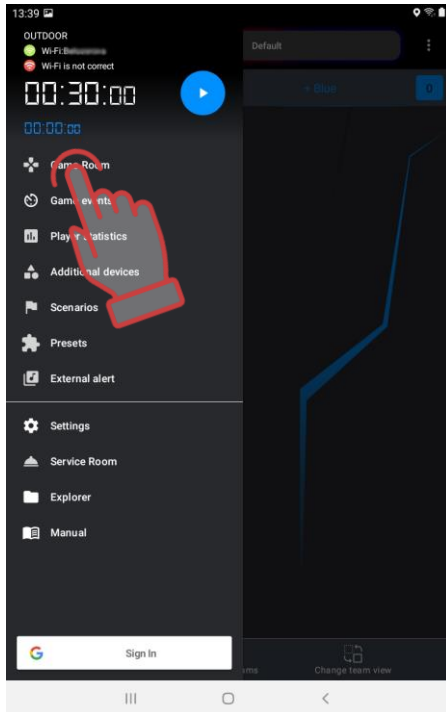


1.4. Forming teams

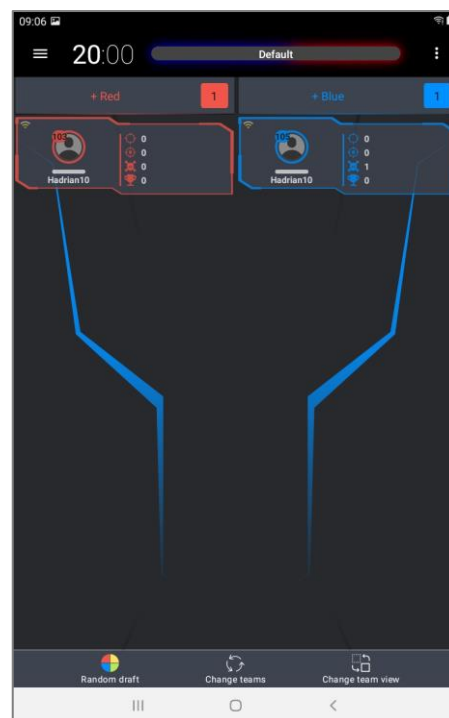
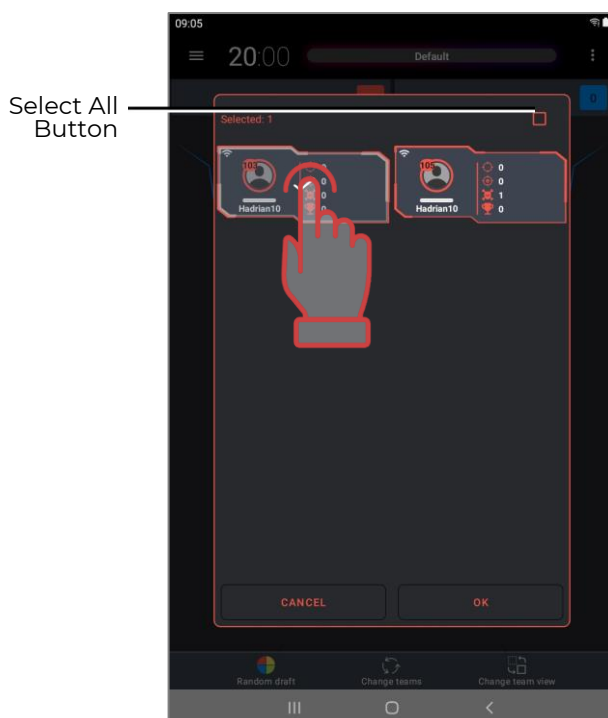
After choosing and configuring the scenario, you need to divide the players into teams. Even if the scenario is carried out according to the principle "death match", it is

recommended to assign different colors to the kits to improve the visibility of statistics and add color to the game. The sequence is as follows:

1. Turn on all the kits that will participate in the game.
2. In the main menu, click on "Game Room".
3. In the screen that appears, click on the button with the name of the team color.



4. If the device is on an incorrect Wi-Fi network, the program will prompt you to check the access point or network connection, if necessary, change it. Only after that it will allow you to enter the kit distribution menu.
5. In the player selection window, mark the cards of the kits connected to the server for the selected team or tick the box in the upper right corner to select all. Confirm your selection by clicking on the OK button.
6. Click on the button with the name of the team of another color. Mark cards of the remaining players. Check the equipment for teams.

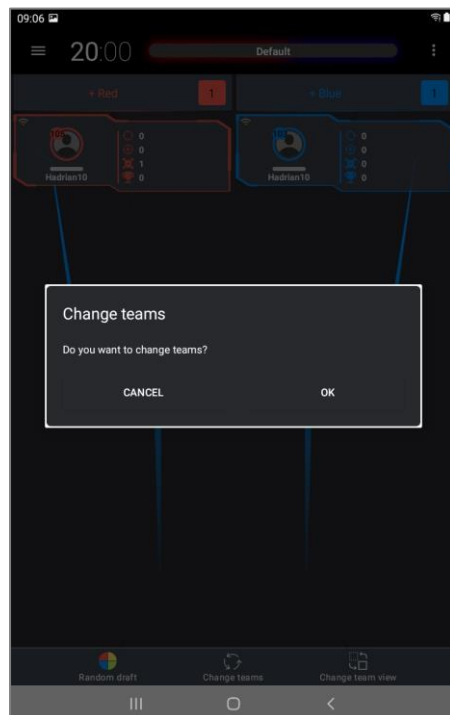


If necessary, players can be assigned to teams automatically. To do this, in an empty game room, click on the "Auto-distribution" item at the bottom of the screen - a window appears with all the kits connected to the server.

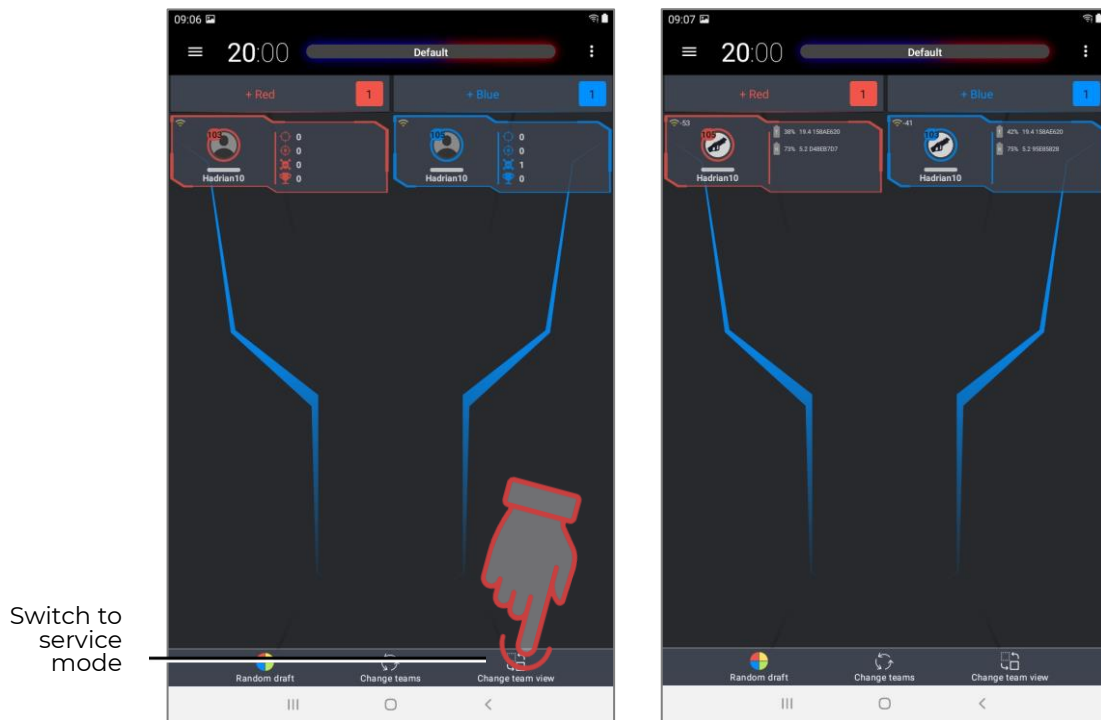


When you click on the Auto-distribution button in the menu, players are automatically assigned to teams within a few seconds. The process is graphically displayed by scrolling a multi-colored circle consisting of four segments in the center of the screen. To refuse auto-distribution, click on the Cancel button.

The program provides one more opportunity for editing the distribution by teams - pressing the Change teams button changes the color of the teams. If there are more than two teams, the color change is performed "circle wise".




- The program has two types of displaying the player card. In the main view (STATISTICS), the ID of the kit, the name of the player or kit, the number of hits, kills and defeats, efficiency are displayed.
- In an additional form (SERVICE), in addition to the ID and the name of the kit, the screen displays the state of charge of the headband and tager batteries, the firmware version of the HFD (tager, headband or vest), the level of the Wi-Fi signal received from the router.
- The color of the frame and icons in both views matches the color of the team.
- Switching between modes is done by clicking on the CHANGE DISPLAY TYPE button at the bottom of the screen.



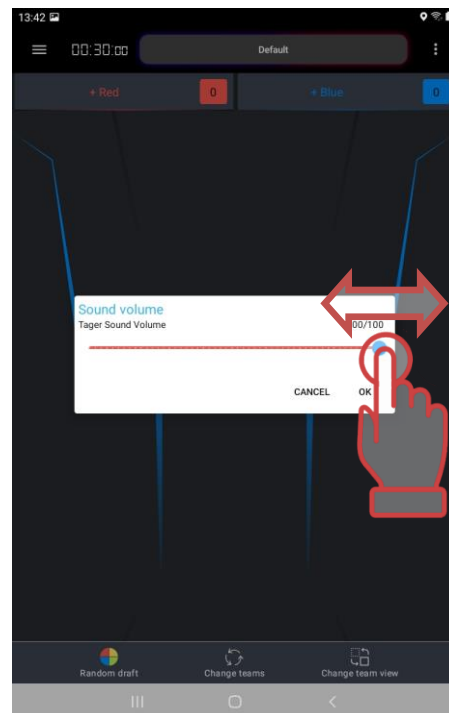
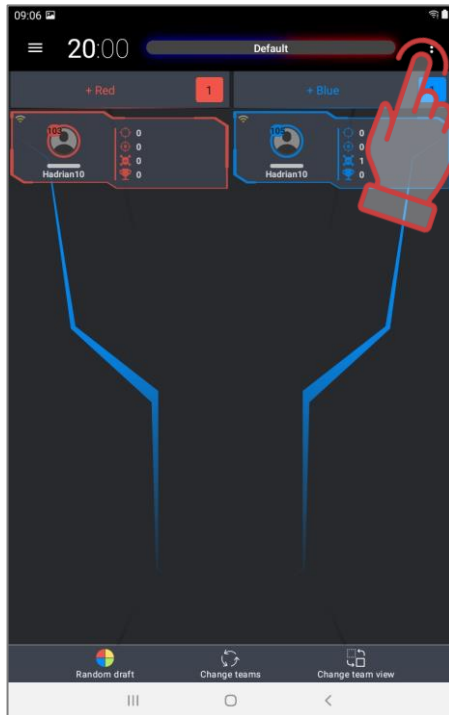
7. You can edit the distribution if necessary. To do this, select the card with a long press and, without releasing your finger, move it to the field of another team.



8. The program provides one more opportunity for editing the distribution by teams - pressing the CHANGE TEAMS button changes the color of the commands. If there are more than two teams, the color change is performed circle wise.

Pressing the button  in the upper right corner of the game window brings up a window with five items: SOUND VOLUME, REMOVE ALL, TURN OFF ALL DEVICES, SEND LOGS, RESET PLAYER NAMES.

- By clicking on the item SOUND VOLUME, you can set the sound volume level of the speakers of all the tagers participating in the game. In the window that appears, move the slider with your finger to increase the volume to the right, to decrease it to the left. Save changes - click the OK button. Listen to the system sound, change the volume if necessary.
- The item REMOVE ALL clears the team fields from all cards.
- The TURN OFF ALL DEVICES item allows you to remotely turn off the kits.
- The SEND LOGS item sends all existing program error messages to the company's technical support address (after connecting the device to the Internet).
- The item RESET PLAYER NAMES allows you to reset the player names to standard ones.



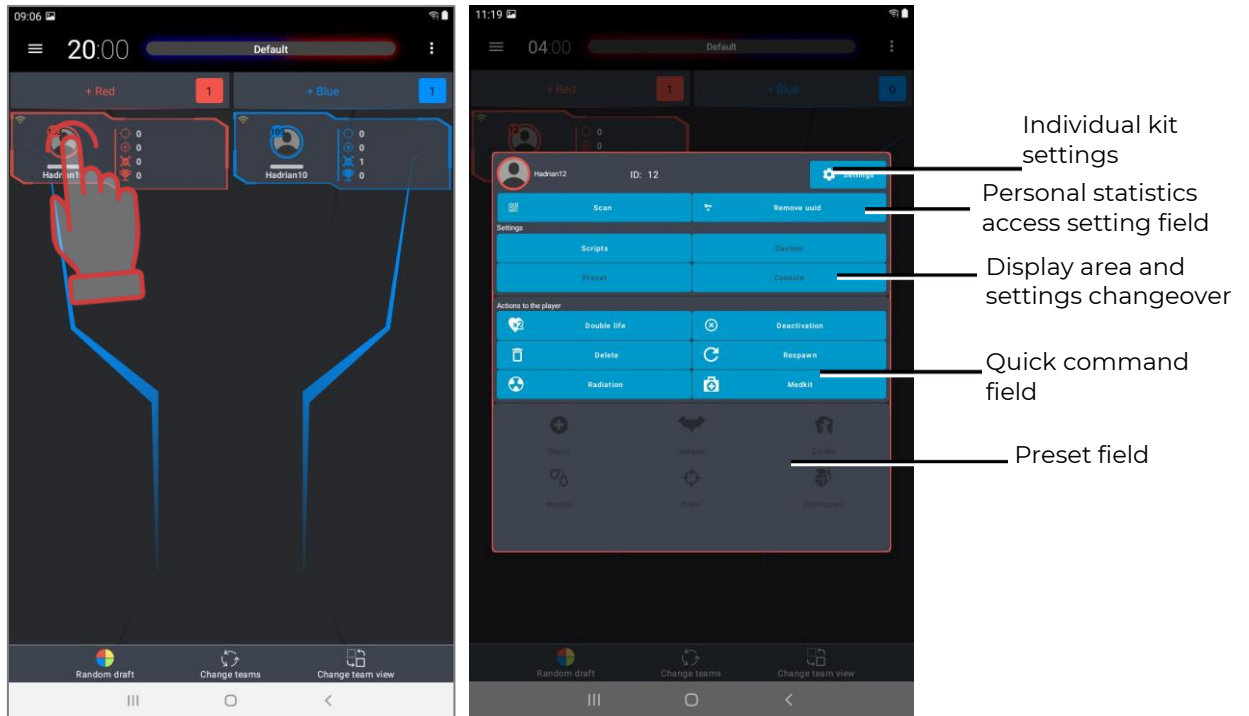
1.5. Individual kits settings

As a rule, in the scenario, the kits of players are assigned either general settings that are the same for everyone, or team settings that are different for different teams, but the same within the team. But there is a need to single out individual players, endowing them with specific abilities and capabilities. It can be both the birthday person and the animator participating in the game. It is useful to designate some players as medics or snipers.

In the program, in addition to using scenario settings, there are three options for assigning specific abilities to a player - individual settings, presets (pre-formed preset settings) or settings from the remote control.

Individual kit settings are called only after the kits are connected to the server, and they will be selected in one of the teams:

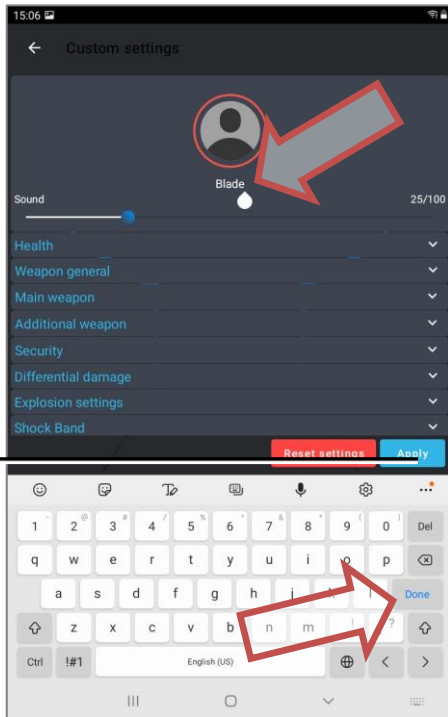
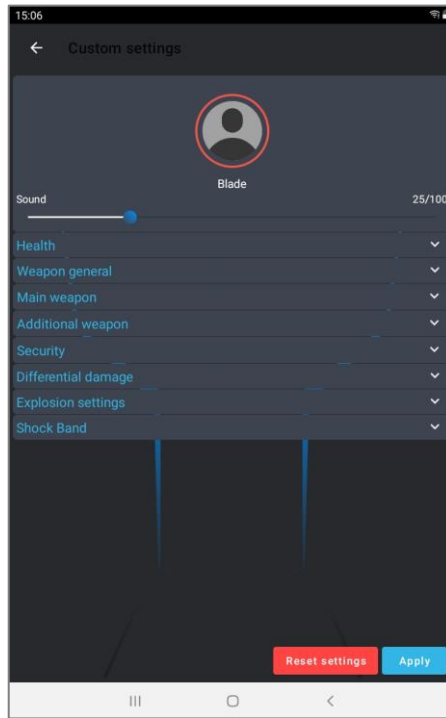
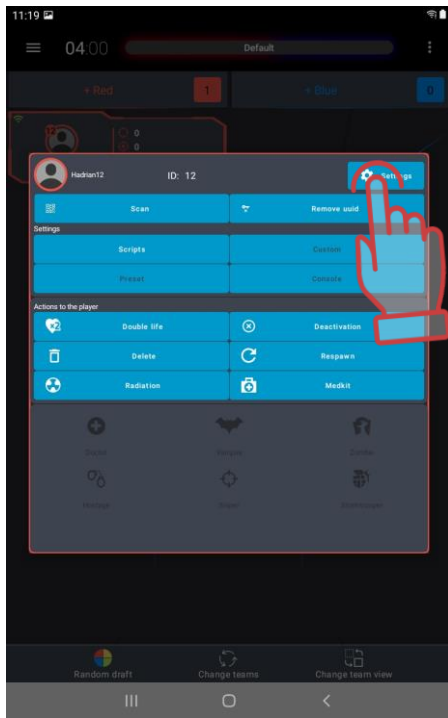
In the "Game room", when you click on a player's card, a window for quick commands and kit settings opens.



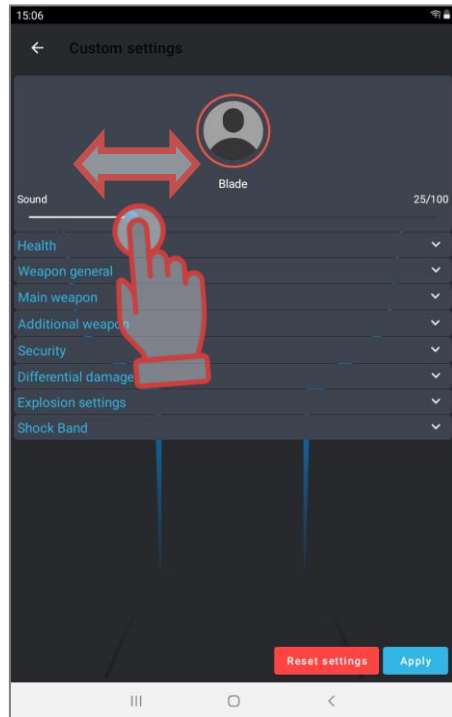
If you click on the ID number, the window for changing the identification number of the kit is called up.

Clicking on the SETTINGS icon opens the kit settings window. In this window, touching the name activates the keyboard, with which you can edit the player's name (up to 10 characters are allowed, except for #, ! and a tab character). The change must be confirmed by clicking on the SAVE CHANGES button. Exit from the name editor - press the OK button on the keyboard.

In the window it is possible to adjust the volume of sounds reproduced by the tager speaker. Holding the blue circle on the slider and moving it to the right increases the volume, moving to the left decreases it.



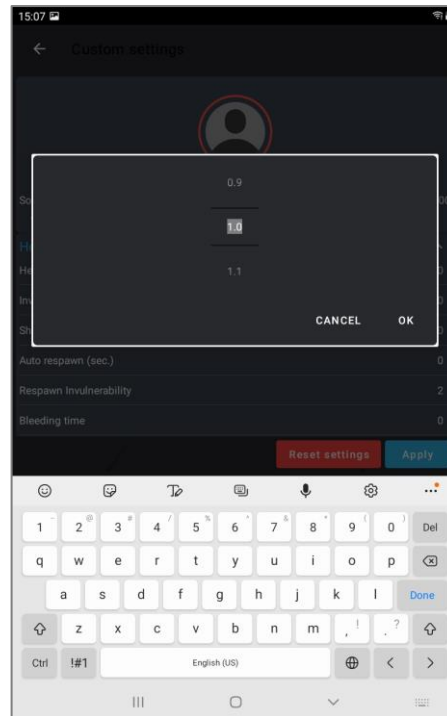
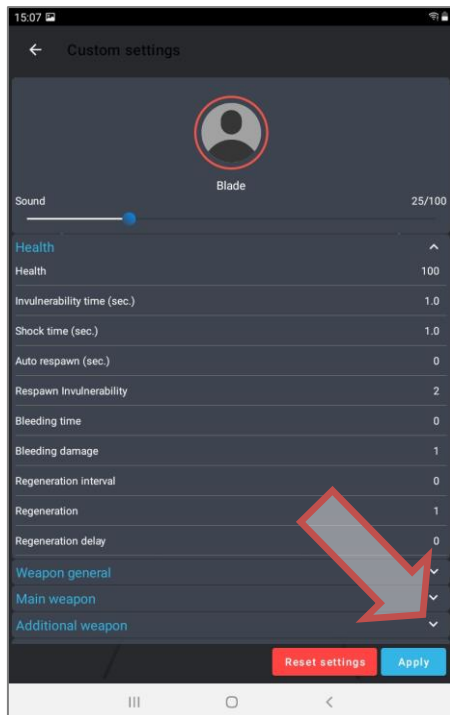
Save changes button



There is the kit settings table below the slider. It is possible to change about 40 parameters, such as the number of health units, rate of fire, shock time, enabling/disabling "friendly fire" (when players of the same team can hit each other), etc. The parameters, just like in the scenario editor, are organized by groups.

To change any of the parameters, you must click on its name - a window will appear with which the setting is made. Changes are confirmed by clicking on the APPLY button.

When you click on the bottom line in the table - "Reset settings", the factory settings are returned. To exit the window, click on an arrow in the upper left corner of the window.



The field for setting access to personal statistics allows the instructor to synchronize the kit with the player's personal UUID registered in the personal statistics display application for the duration of the game:

1. On the player's smartphone, open the previously installed and configured program for displaying personal statistics.
2. Open individual QR code of the player.
3. In the Lasertag Operator program, in the field for setting access to personal statistics, press the "Scan" button and the tablet camera turns on.
4. Scan the player's QR code.
5. Now the player's UUID is synchronized with their kit ID, and a QR code icon appears on the player's card in the upper left corner.



The field of quick commands allows you to send a protocol command to the selected kit directly from the server. By clicking on the corresponding button, you can send the following commands: DOUBLE LIVES (double the number of health units), DEACTIVATION (deactivate the player, but keep in the game), DELETE (remove the player from the game), RESPAWN (return to the player starting kit settings), MEDKIT and RADIATION (add or subtract health units).

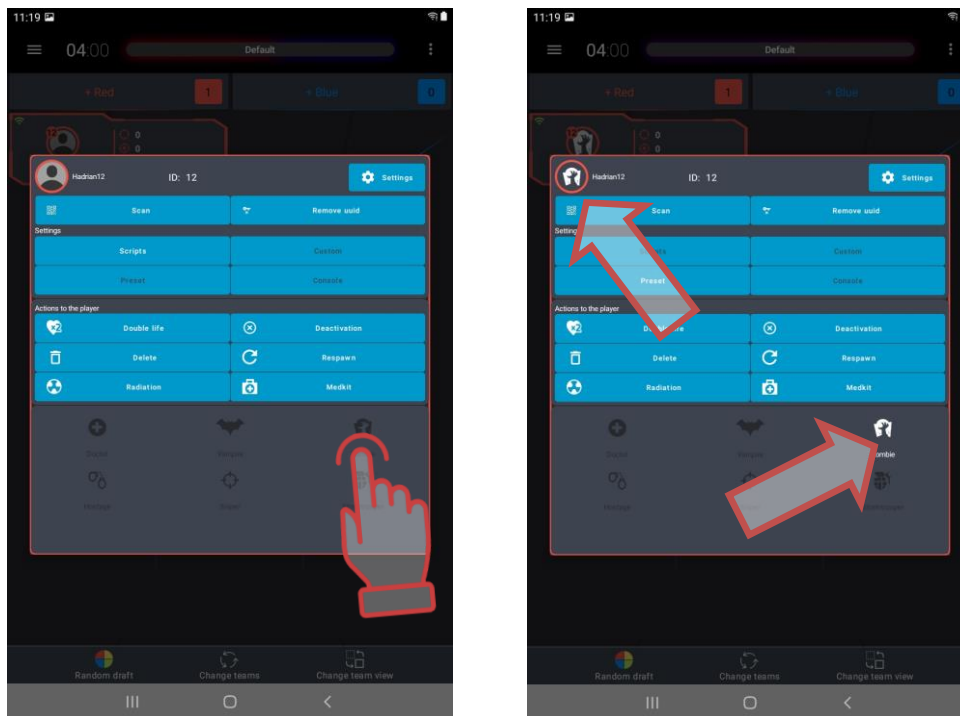
1.5.1. Presets

In fact, presets are pre-prepared individual kit settings that can be quickly assigned to individual player kits after they are connected to the server.


In the lower part of the individual kit settings window, there are six preset icons - kit settings that give the kit its specific abilities. By clicking on the corresponding icon, the player can get one of the roles: MEDIC, VAMPIRE, ZOMBIE, HOSTAGE, SNIPER or


STORMTROOPER. In this case, the selected icon becomes brighter, and its image will appear in the icon and on the player's card. After swiping on the second page of the individual card, the user presets will open - if any.


Return to the default role (SPECIAL FORCES) - click on the item SCENARIO SETTINGS or CUSTOM SETTINGS (if the set was configured individually) in the field of indication and switching of settings.





There are the factory preset parameters below:


- 

Doctor. Number of health units - 100. It has two weapons - a Medkit, which, when only its own team hits a player, replenishes him 25 health units, and an assault rifle (damage 25 units).
- 

Vampire. Number of health units - 250. It has one weapon - a bite, which not only takes 10 health units from the opponent player, but also attaches them to itself. The peculiarity of this preset is that during the game the kit loses 1 unit of health every 5 seconds (the so-called "thirst"), as well as the fact that radiation adds units of health to it, and the Medkit takes away.
- 

Zombie. Number of health units - 200. Has one weapon - a claw. Double hitting the opponent turns the latter into a zombie too, i.e. "repaints" in its own color (unless configured otherwise). It has an inverse glow of the kit - the headband or vest is constantly glowing. Doesn't respawn. Doesn't hit zombies. Just like a vampire, radiation adds health units, and a Medkit takes away. In firmware version 19.4 and higher zombies have the ability to kill zombies in the opponent team. However, the damage done and received in the statistics may not be displayed correctly.
- 

Hostage. Number of health units - 300. The weapon is a recorder, with which the hostage is marked upon reaching the final point of the route. The glow color of the kit is purple. Can be hit and healed (with kits as a Medic) by players of any team.
- 

Sniper. Number of health units - 100. Has two weapons - a sniper rifle (damage 100 units) and a gun (damage 25 units). Strikes players of any team, including own one.
- 


Stormtrooper. Number of health units - 100. Only affects players of other teams. Has two weapons - an assault rifle (damage 25 units), which shoots

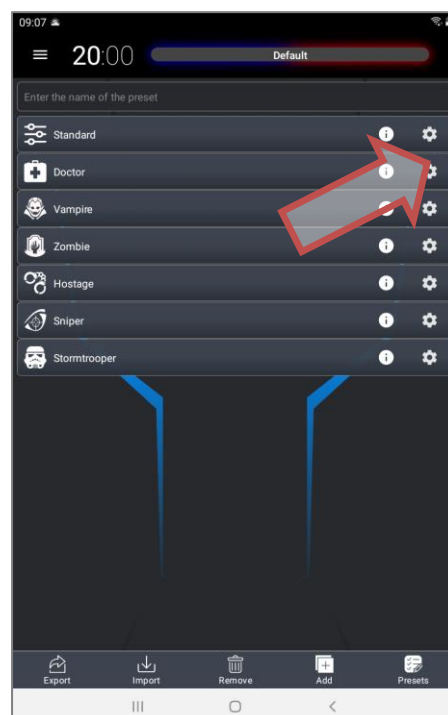
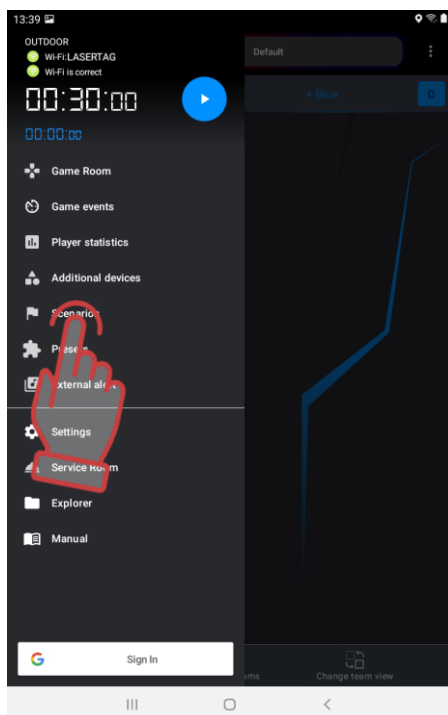
in bursts, and an under-barrel grenade launcher, which has 6 sec. of recharge, but damage is 100 units.

If the game is controlled from a PC, the kits connected to the server receive the settings set in the Lasertag Operator program. By default, the factory settings are also used, but the program has the ability to edit and create your own presets. Moreover, it is possible to do this without kits connected to the server.

! If a preset is assigned to a kit from the remote control, the "Remote control" icon becomes active in the field of indication and switching settings. To play with preset settings from the program, you must restart the game and select one of the presets in the program.

1.5.2. Editing built-in presets

For editing, in the Main menu you need to tap on the PRESETS section. A window with tiles of presets installed in the program will appear. The tile contains the preset logo and its name. On the side, there is an icon with a gear  that opens the preset editor.



More than 50 different parameters can be configured in the editor window.

The top line is a brief description of the preset.

The settings table is similar to the individual settings table.

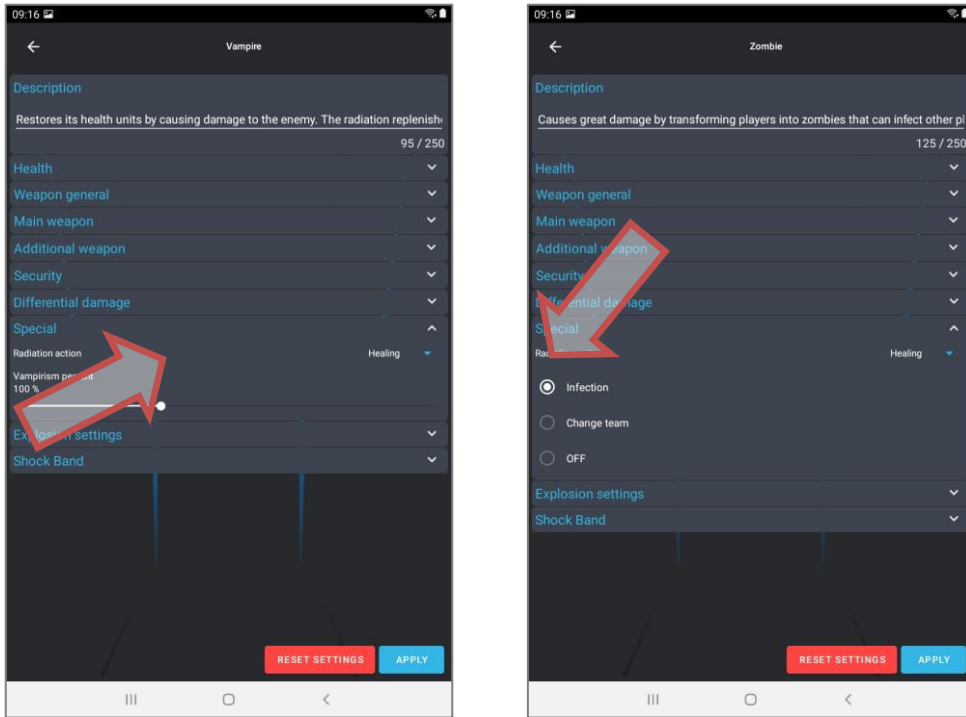
The only difference is that the "Special" section has been added.

For all presets, it displays the item "Effect of radiation" (None/Healing/Damage).

For the "Vampire" role, you can set the Percentage of Vampirism - the percentage of health units relative to your own damage settings, which the player attaches to himself after hitting the opponent's kit (0-300%). For example, the opponent currently has 75 health units. Vampire weapon damage (bite) - 25 units. The percentage of vampirism is set to 50%. When the opponent enters the kit, 25 units are taken away from him (50 remains), and only 12 units join the Vampire (rounding down). At the same time, the total number of health units of the Vampire cannot exceed the starting value. This parameter was introduced to equalize the gaming capabilities of players with different roles.

For "Zombies" in the "Special" section, you can select one of the following options:

- Change team - permission for a player to change a team after receiving a ZOMBIE protocol command (yes/no). After changing the team color, the player's preset remains the same as it was.
- Infection - permission for the player to change the role from the starting role to the Zombie after receiving the protocol command ZOMBIE (yes/no). In this case, the player also goes to the zombie team.
- Turn off - in fact, only the sound of a shot (growling) remains from the properties of a zombie.

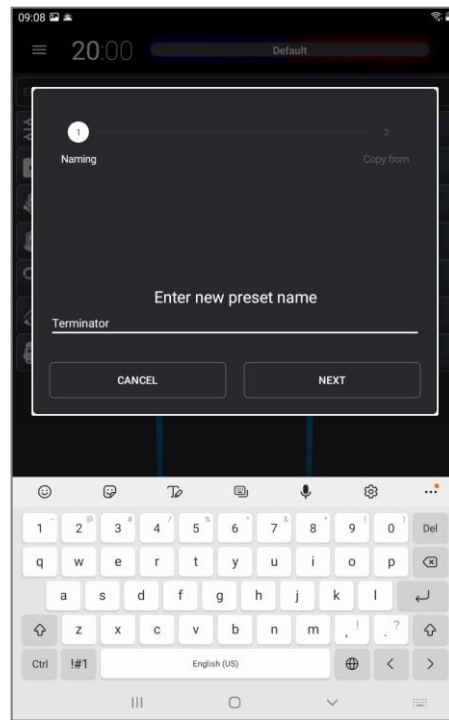
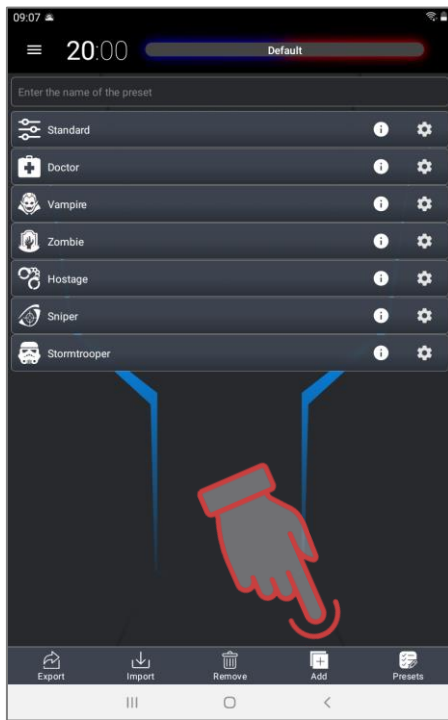


1.5.3. Creating custom presets

In addition to the fact that the settings of each built-in preset can be edited, the program provides the ability to create custom presets.

To do this, in the preset editor window, click on the ADD button at the bottom of the window. A window opens asking you to specify a name for the new preset.

After entering the name, click the "Next" button and copy the preset settings from the existing ones, click "OK". The kit settings window opens, similar to the pre-installed preset settings window.

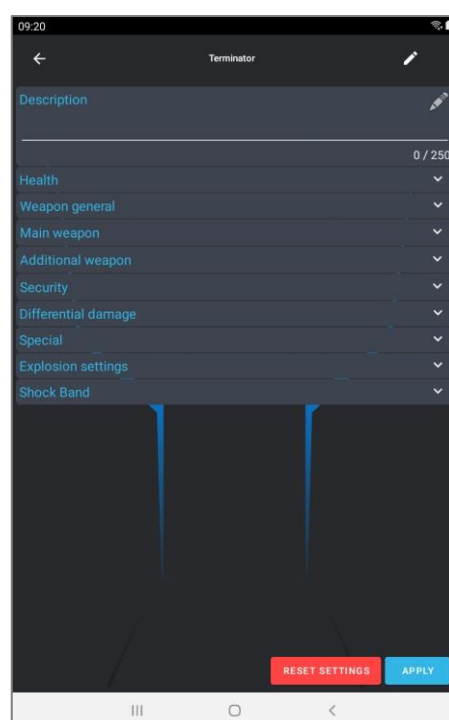
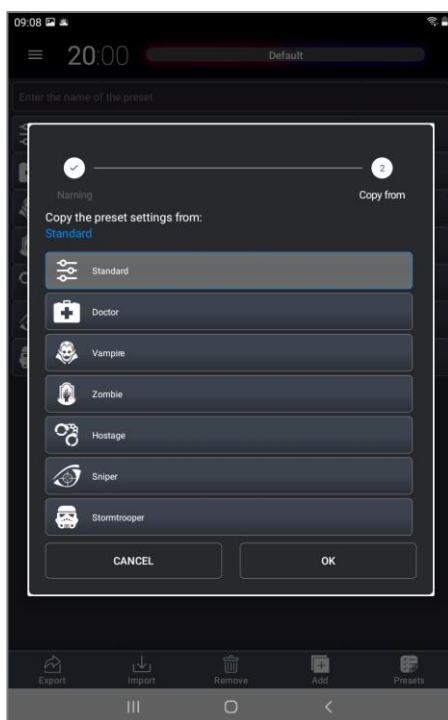


The SHOOTER role is the main one, on the basis of which you can create presets of field players.

The fundamental difference between the basic settings of VAMPIRE and ZOMBIE is that for them, by default, the opposite effect of the protocol commands MEDKIT and RADIATION is set. Also, the Vampire has "thirst" enabled for the entire game period (after certain intervals he automatically loses health units). If the damage type is set not to "Vampire", but to another for this preset, then the player has so-called "thirst", but the units of life taken from the opponent will not be added to the player. Zombie has the ability to "repaint" the opponent in his own color.

The basic HOSTAGE setting does not imply any damage.

Each preset can be assigned 2 virtual weapons.



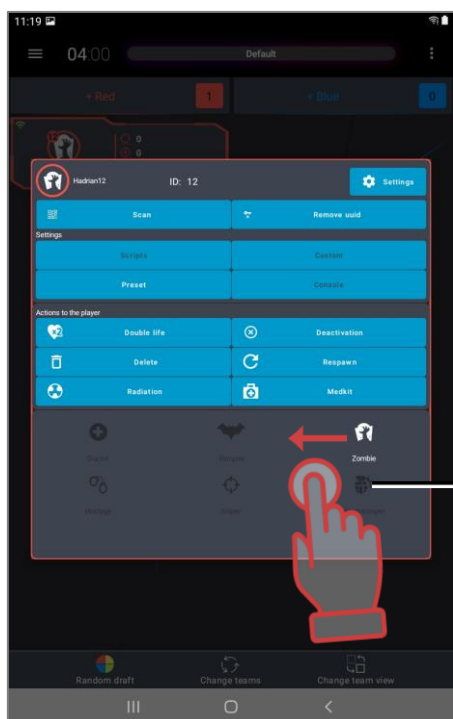
! If a player has two types of weapons in the preset, to switch them, you need to hold down the reload button of the tager for 3 seconds until the sound signal plays.

In fact, the types of weapons differ in their impact (take away or add health units, "repaint", etc.) and the sounds accompanying the shot. Other parameters can be set at the desire.

The following settings are recommended for different types of weapons:

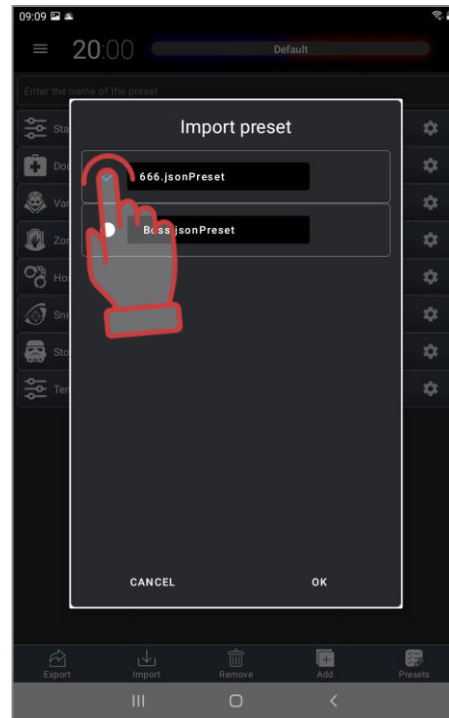
Damage type/Parameter	Damage, health units	Auto-reload	Recharging time, sec	Friendly fire	Endless magazines	Number of magazines, pcs.	Number of cartridges in magazine, pcs.	Shots in the burst, pcs.	Speed of fire, shots/min	IR-beam power, %
Falcon	25	-	2,0	-	-	10	30	3	565	40
Assault rifle	25	-	3.0	-	-	10	30	3	565	40
Grenade	100	-	6.0	-	-	3	1	1	100	30
Sniper	100	-	4.0	-	-	5	10	1	30	100
Gun	25	-	2.0	-	-	3	15	1	180	50
Healing	25	-	2.0	-	-	10	30	1	300	40
Vampire	25	-	2.0	-	-	10	30	1	300	40
Zombie	25	-	2.0	-	☐	10	30	1	300	40
RPK	50	-	3.0	-	-	10	45	3	565	40
Radiation	25	☐	2.0	-	☐	10	30	1	300	40
Hostage	0	☐	2.0	☐	☐	100	100	3	565	2

To save the settings, click on the checkmark button. After that, the tile with the new preset will appear on the second page of the individual kit settings window. To open the second page (or the next, if there are several of these pages), you need to swipe to the left of the presets section.



Export, import and deletion of presets is carried out by analogy with scenarios, using the corresponding buttons.

To find files of saved scenarios on the device, click on the "Explorer" main menu item, and then select the Scenarios tab. Preset files will have a jsonPreset extension.



Switching between options of individual settings is possible using special buttons in the window of quick commands and kit settings.

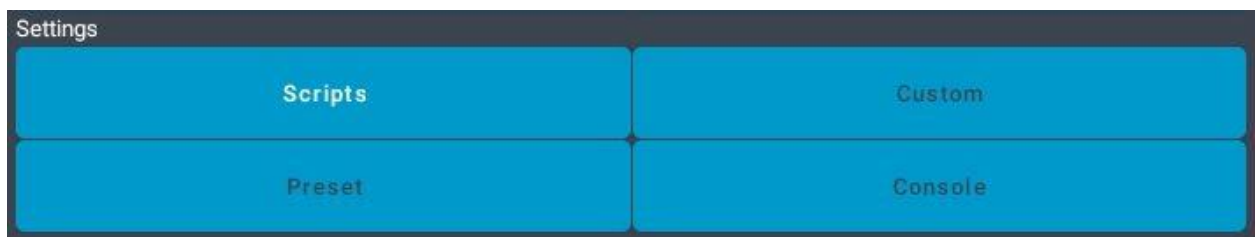
If the custom settings were changed before starting the game, the corresponding button will become active. When you click on it, the inscription CUSTOM SETTINGS becomes bright, thereby indicating that these settings have been applied.

If you click on one of the preset icons, including custom ones, the inscription on the PRESET SETTINGS button will become bright, indicating that the kits have received a setting using a preset.

The inscription "Remote" becomes active if any parameters of the kit were changed not through the program, but from the remote control.

Pressing the SCENARIO SETTINGS button returns the settings assigned by the scenario for all or for a specific team of the player.

Settings can be selected both before the round and changed during the running game. If the scenario does not change between rounds, then the individual settings are saved for the next game.



1.6. External alert

The equipment produced by the company uses two types of sound effects that are reproduced:

- tager's speakers;
- external acoustic system.

The tager speakers reproduce the sound of a weapon being used (a shot, radiation, a medkit, a zombie growl, etc.), a misfire, a ricochet sound, as well as some system signals (weapon breakage, barrel overheating, etc.).

You can change the sound scheme of the kit only during the flashing of the microcontrollers of the devices using a special program.

! For advice on updating the firmware of device microprocessors, contact the company's technical support service!

The external acoustic system of the playground plays background music, as well as more than 50 voice messages that automatically sound in accordance with emerging situations in the game.

An external speaker system is connected to the device used as a server either via an audio joint or via Bluetooth.

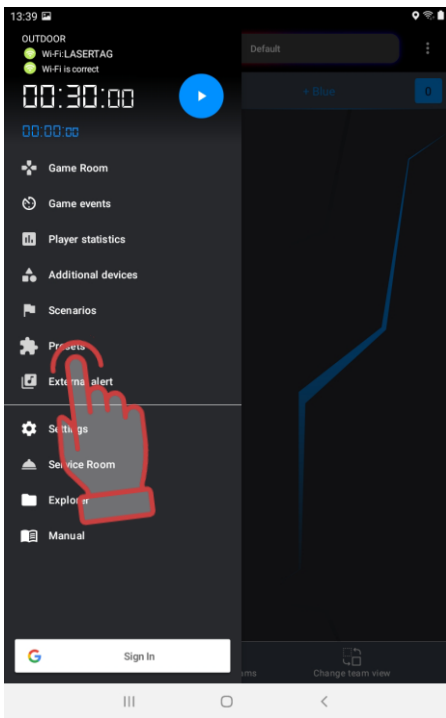
Lasertag Operator program allows you to listen to voice messages and, if necessary, play them in manual mode.

To do this, in the main menu, you need to click on the EXTERNAL ALERT item and in the "Events table" tab move the ON/OFF switcher to the ON position.

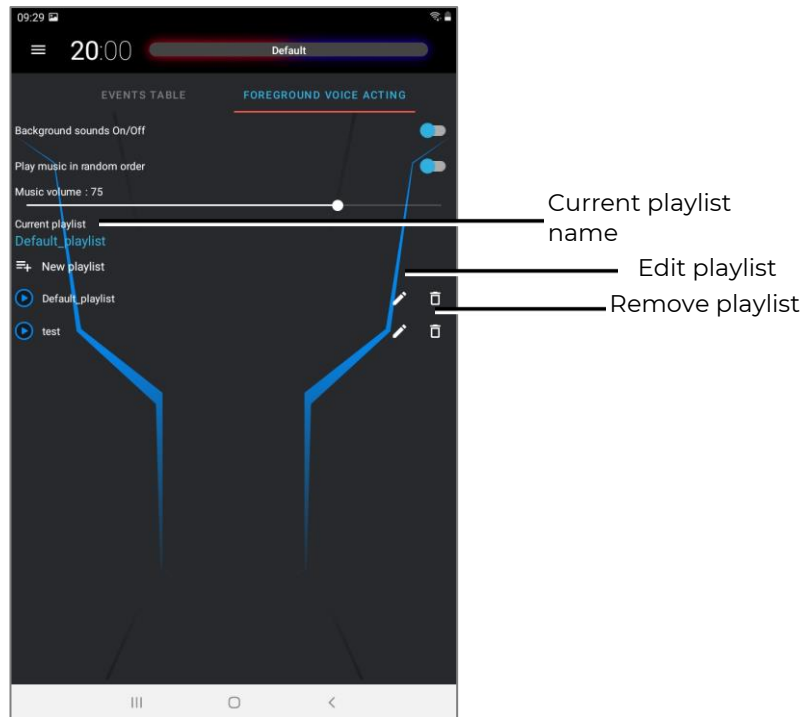
Below you can select the playback language. In this version of the application, English, Russian, Spanish, and French languages are available.


Next there is the volume control for music playback - by default it is set to the maximum - 100%. If necessary, the volume can be quickly adjusted.

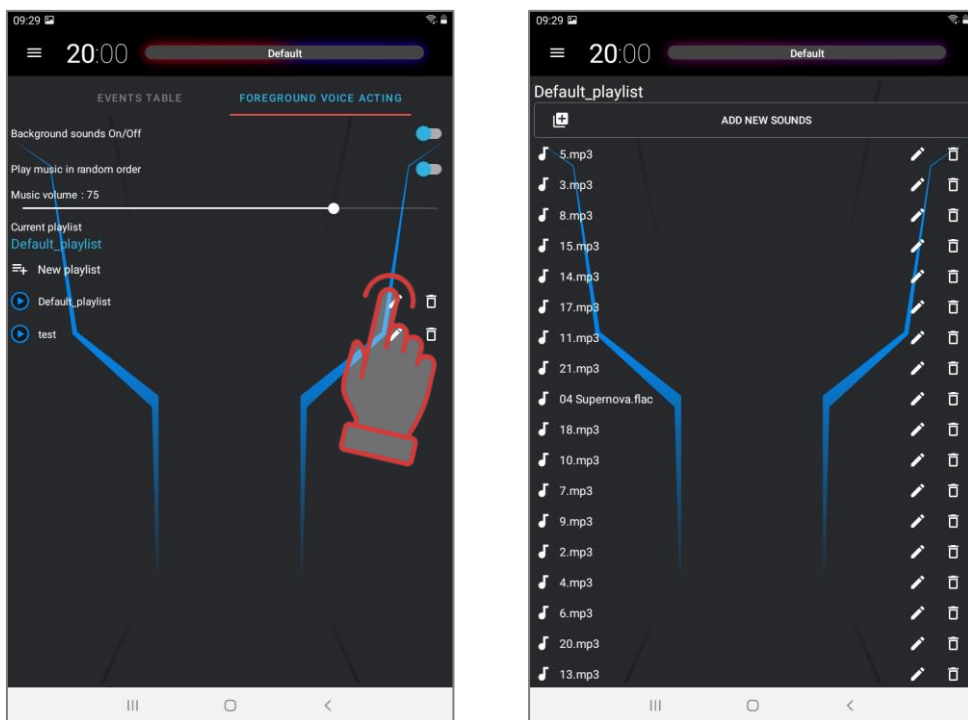
When you click on the selected line of the message, the sound is played in parallel by the speakers of the tablet and the external acoustic device.





In the BACKGROUND VOICE ACTION tab you can control the music that plays on the playground during a round. The program allows you to turn on/off music playback, Shuffle on/off, adjust volume, as well as select a pre-formed playlist (a list of played music) - for this you need to lick on the selected line.




When delivered, the program already has a built-in collection of musical compositions that may be suitable for scoring laser tag games. When clicking on the pencil  icon, an editable list opens.



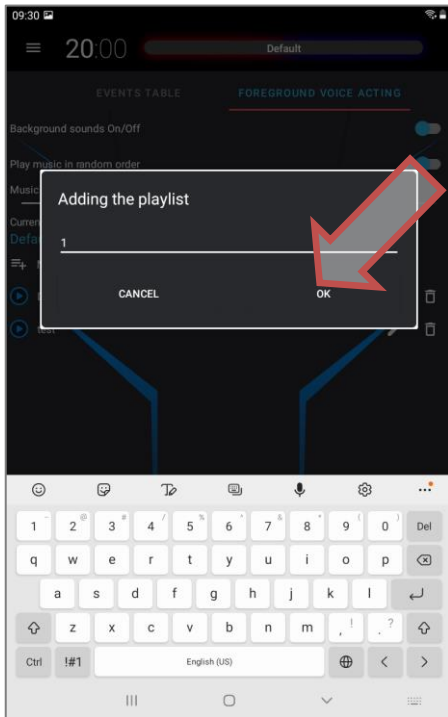
To change the order of playing melodies, you need to click on the song line, hold it and move it to the selected place. A short press on the song line plays it, a second press stops it.



If necessary, you can rename ( button) or delete the selected song ( button).

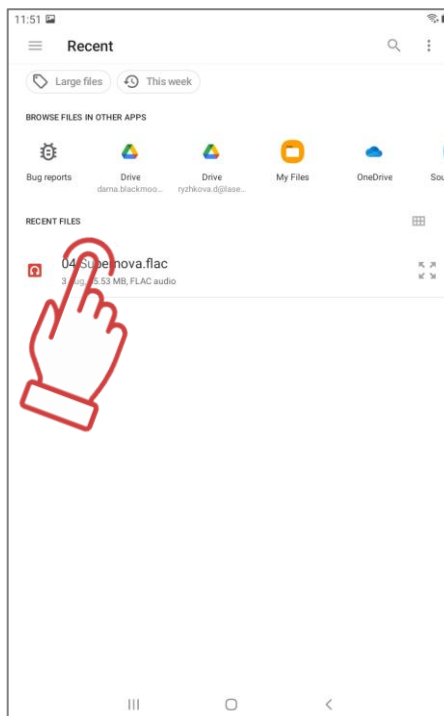
To create a new playlist, click on the NEW PLAYLIST button . The program first suggests you to name the playlist. The name can be connected with a specific scenario, the theme of the game, an event (for instance, birthday) or a category of players.

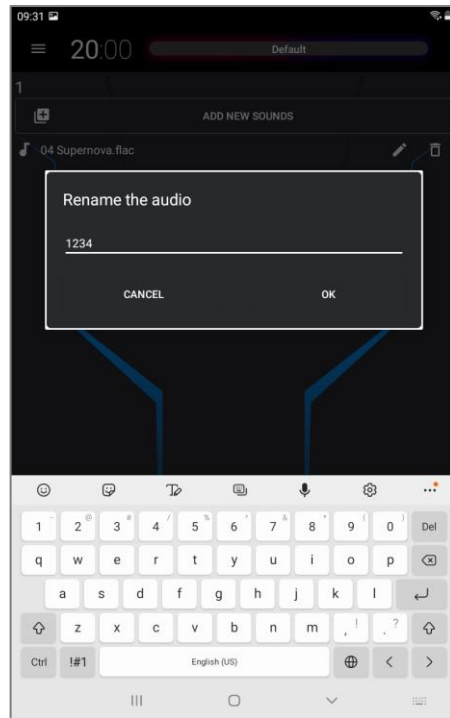
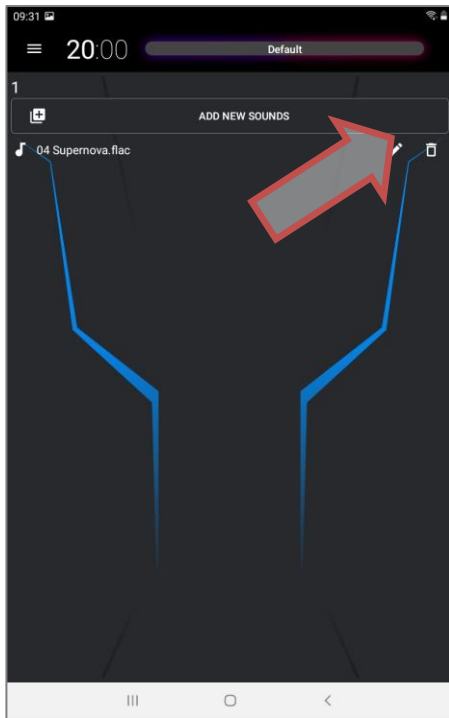
After confirmation with the OK button, the playlist name will appear in the general list. Now the playlist needs to be created:

1. Click on the button with the pencil image  .



2. In the window that opens, click on the line ADD NEW SOUNDS. The device file system window will open.
3. Select the required music compositions (files with the .wav and .mp3 extensions are supported). The file search order depends on the version of the tablet or smartphone operating system.
4. The file names appear in the song list. If desired, you can rename them - click on the button with a pencil .
5. The list can be supplemented (repeat the procedure for inclusion in the playlist) or shortened by clicking on the button with the trash can  image to the right of the file name.

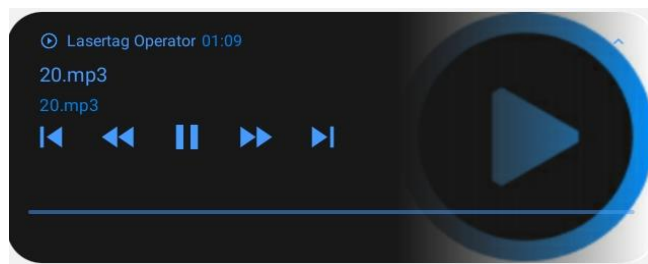




The playlist itself is deleted in the same way.

Now, when the switch ON/OFF BACKGROUND SOUND is turned on during the game, the melodies will be played depending on the selected playlist and in the order as they are located in the list. The playlist is controlled from the standard player of the operating system. Volume control - by controlling the volume of the device and speaker system.

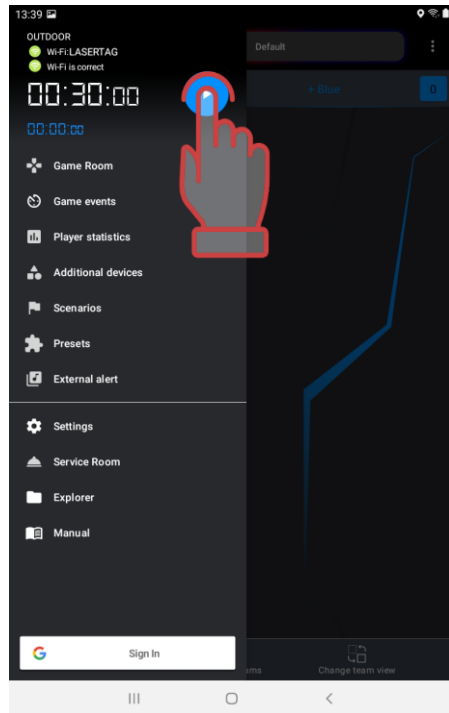
The playlist is controlled from the standard player of the operating system. Volume control - by controlling the volume of the device and speaker system.



1.7. Game control and monitoring

After choosing a scenario, if you need to customize the kits, soundtrack and round time, you can start playing the game directly.

To start, you must use the control button in the main menu.



After the start of the game, the timer in the main menu starts counting down (after a delay, if it was set).

The status bar on the player cards will show a green bar proportional to the remaining health points.

	<p>Kit in the game, 100% health</p>		<p>Kit in the game, 50% health</p>
	<p>Kit in the game, 25% health</p>		<p>The player suffers a defeat</p>
	<p>Player pending start or removed from game</p>		

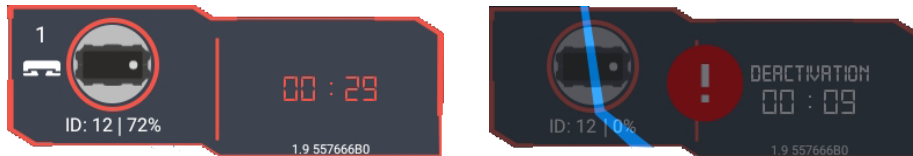
The status of additional devices used in the current game can be viewed in the "Additional devices" item of the main menu. If the tile of additional devices in this window is semi-transparent, it means that the device is connected to the server, but not involved in this scenario. By clicking on the card, you can add this device to the game from the menu that appears, or, on the contrary, exclude it from the game.



The tile for the SUPERNOVA laser tag bomb has its own features: when a portable bomb is placed on a platform, the platform icon and its number appears on the tile.

After activating the bomb by miners a countdown timer is activated on the tile, in sync with the timer on the bomb itself.

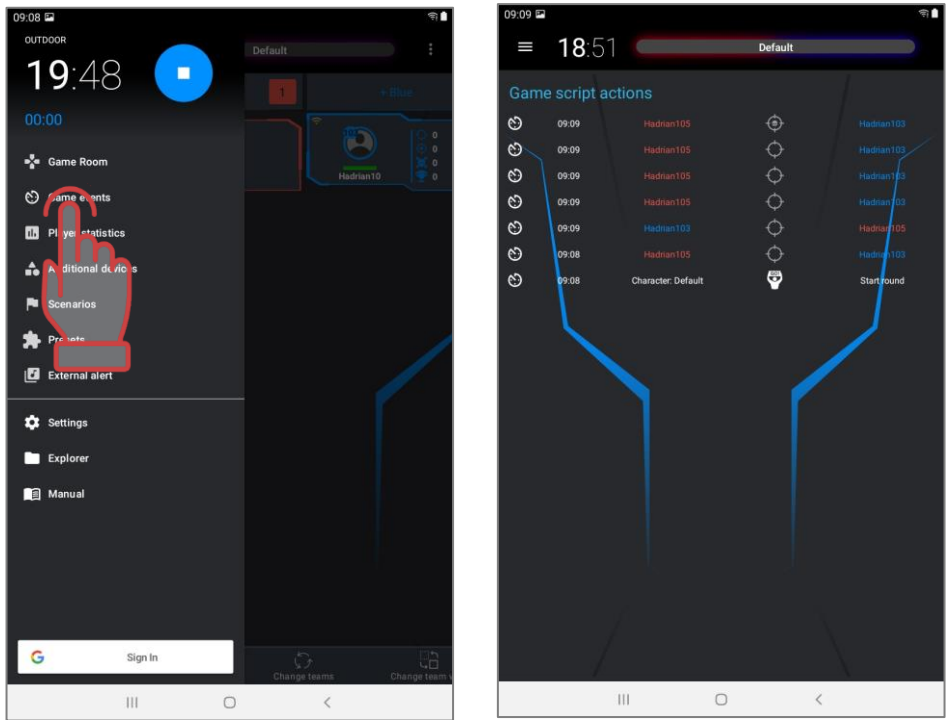
If you try to remove a bomb from the platform while the timer is running, in addition to the sound signal on the device itself, a warning appears on the bomb tile.



During the game, one can see a log on the screen - a report on the main events taking place on the playground. Moreover, the log can be viewed both in expanded and short display - just check/uncheck the "Turn on detailed game logging" item in the "Settings" menu.

In the expanded display, you can see all the events taking place in the game, including every hit of an opponent by all players. In the short display, you can see only key events, such as the beginning and end of a round, capture of a Domination Box, etc.

In order to show the log on the screen, you need to go to the main menu item "Game events" during the game.



Also, as in standby mode, during the game you can change players between teams - by long pressing on the card, first activate it, and then move it to the field of another team. However, keep in mind that statistics in this case may be displayed incorrectly.

1.8. Game statistics

Pressing the button GAME STATISTICS of the main menu (swap to the right) displays the corresponding window. There are 3 tabs in it, which are called by clicking on their name.

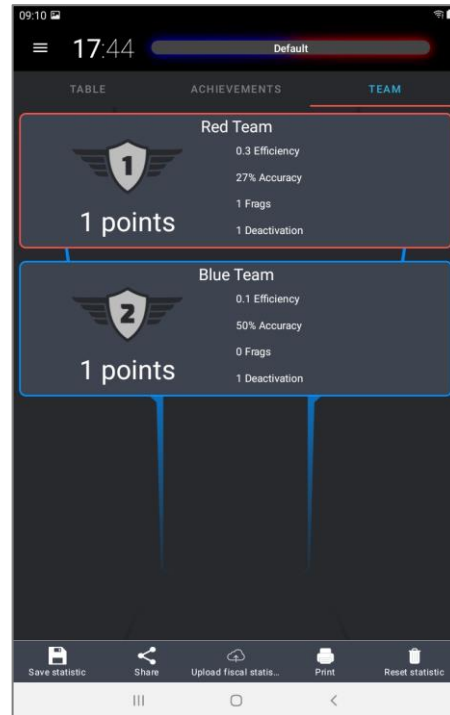
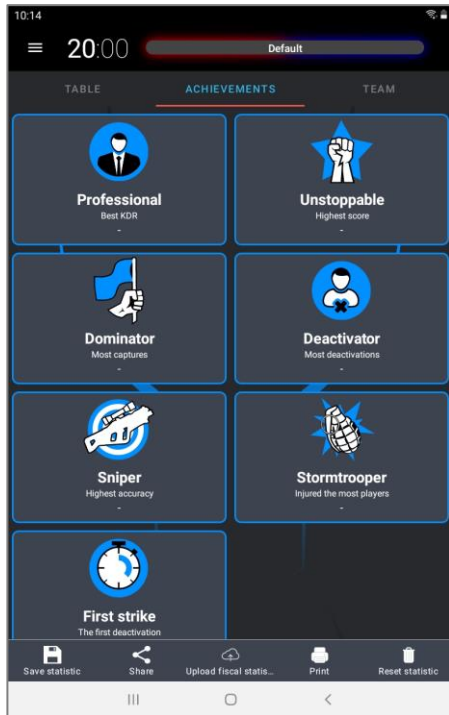
The TABLE tab in real time and at the end of the game shows for each kit participating in the game, the number of frags, shots fired, captures of Domination Boxes, points scored, damage done and received. The table also displays the number of captured, lost and fetched flags, bomb shots and differential damage.

ID	Name	Points	Kills	Deaths	Shots	Damage applied	Damage received	DB is captures	Flags delivered	Flags dropped
103	Hadrian103	1	0	1	2	25	100	0	0	0
105	Hadrian105	1	1	1	15	100	25	0	0	0

Flags taked	Bomb hits	Total	Shoulders	Head	Chest	Back	Weapon
0	0	1	0	1	0	0	0
0	0	4	0	0	0	0	4

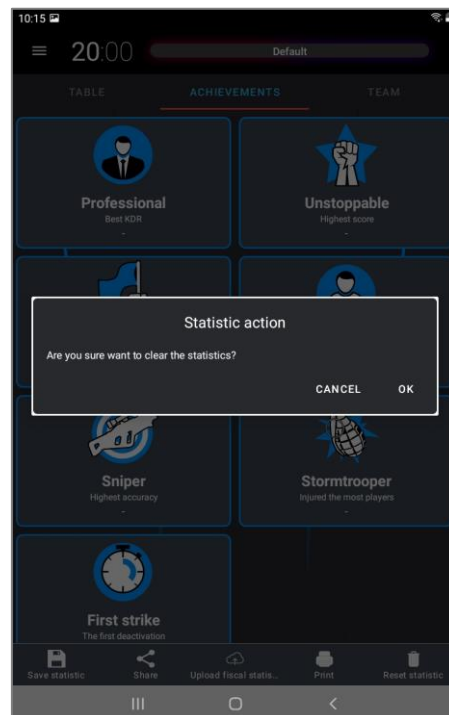
The ACHIVMENTS tab displays the current comic nominations depending on game indicators - accuracy, number of hits, number of points scored, etc.

The TEAMS tab displays team statistics.



Game statistics can be viewed not only at the end of the round, but also during the game.

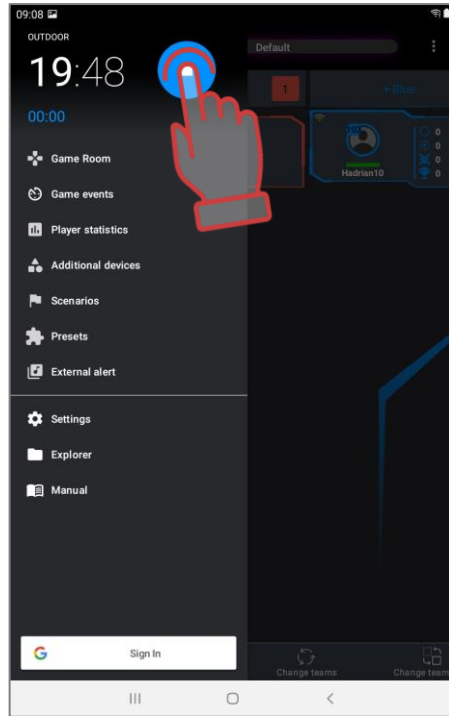
When the RESET STATISTICS BEFORE THE GAME option is enabled (Main menu/Settings/Global settings), all numerical indicators are reset before the start of the round. Otherwise, statistics will be accumulated until you turn off the RESET STATISTICS BEFORE GAME option. It is possible to forcibly reset statistics by clicking on the RESET STATISTICS button.



1.9. Finishing the game

The term GAME means a gameplay in which the same teams play a certain number of rounds. It can be either one or several rounds. ROUND is a gameplay with a certain scenario, limited either by time frames, or ending when a condition specified in the scenario occurs (capture of DB, reaching a specified level of points, etc.).

The round can also end forcibly - by pressing the STOP button in the main menu, which appears in place of the START button.



At the end of a round or game, the program has the ability to process statistics. So, in the GAME STATISTICS window after clicking the SAVE STATISTICS button, the program resets the current results to the device memory at the address: My files/Documents/pdf/ (the address may be different depending on the version of the operating system). At the same time, three graphic files of general statistics are saved: Game_statistic_XX: XX.pdf, Cross_statistic_XX: XX.pdf and Honor_desk__XX: XX.pdf, where XX: XX is the file saving time.

Individual statistics of all players who participated in the game are also saved there - files Player_statistic_XX: XX Nickname.pdf, where Nickname is the name or nickname of the player

1.10. Explorer

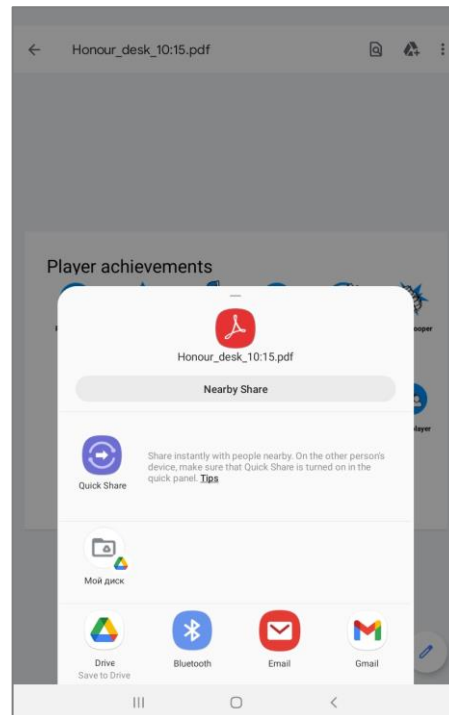
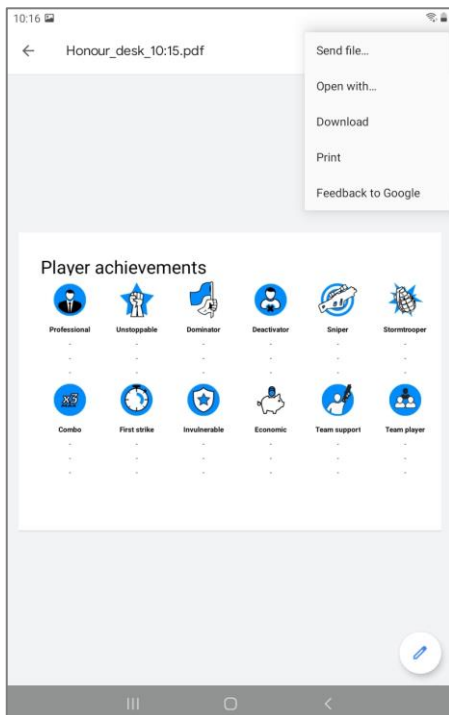
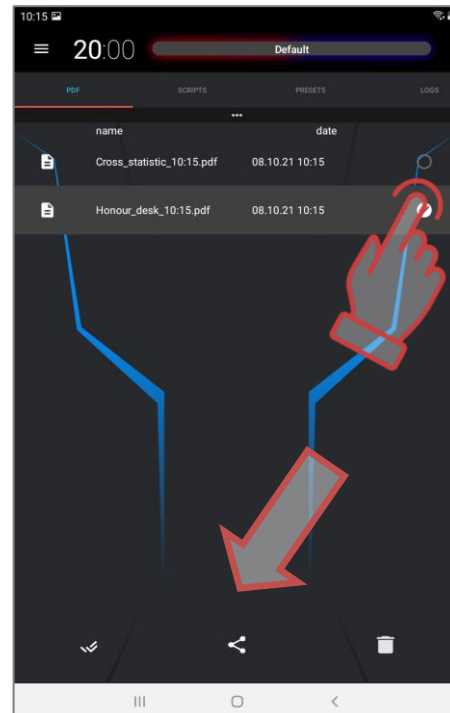
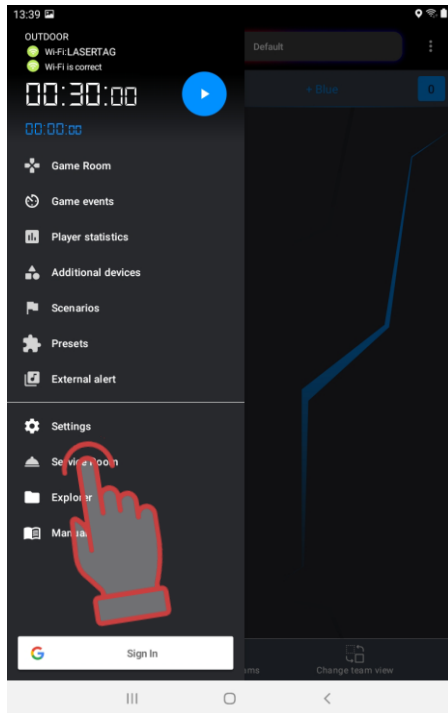
Statistics files, as well as files of game logs, saved scenarios, presets and instructions can be seen by going to the "Explorer" sub-item of the main menu. By selecting the "Pdf" tab (first from the left), you can open files by date, select all, delete all or specific files, print on a printer, share via mail or social networks.

The SHARE button opens a window in which the user is prompted to publish graphical statistics files via mail, Google Drive or social networks, depending on the programs installed on the device.

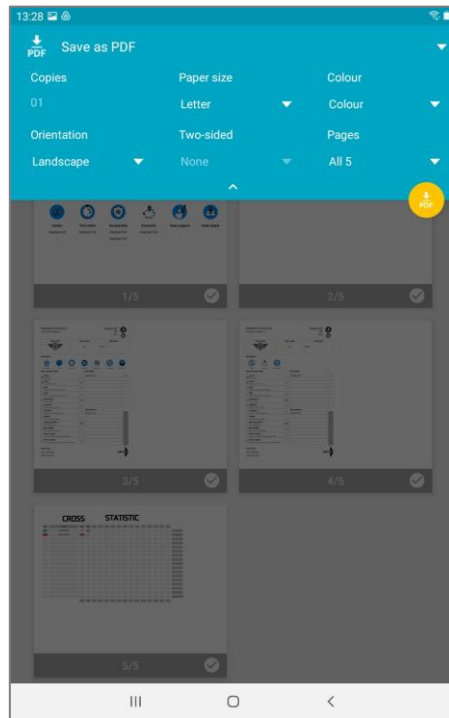
! You can share the result of the game after connecting the device to the Internet.

The "Scenarios" and "Presets" tabs also allow you to share saved custom presets or delete them.

The Logs tab stores messages about events in the program, and the Instructions tab contains pdf versions of the instructions downloaded from the company's website (by clicking the Instructions main menu item).

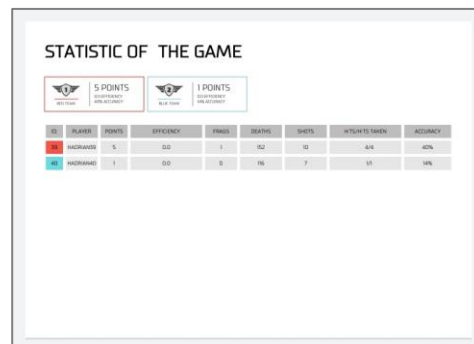
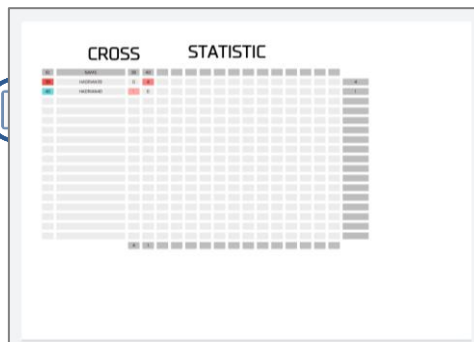
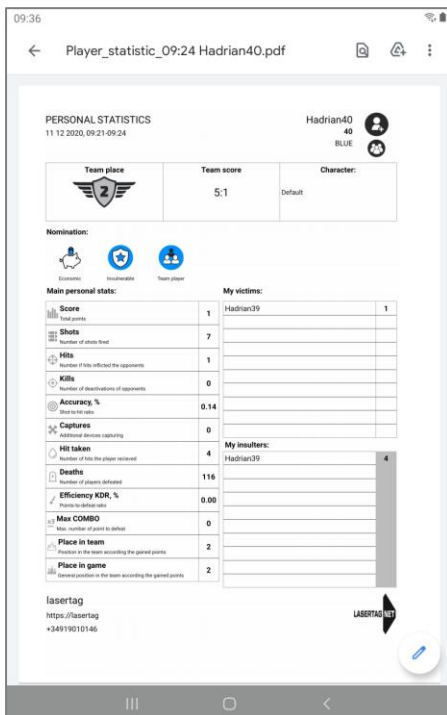


When you click on the PRINT button, a dialog box appears in which you can choose to save the report as pdf files specially prepared for printing.



If you select a printer connected via Wi-Fi to the device in the dialog box, report forms can be printed immediately. It is also possible to customize printing. The printing preferences dialog box depends on the version of the operating system installed on the device.

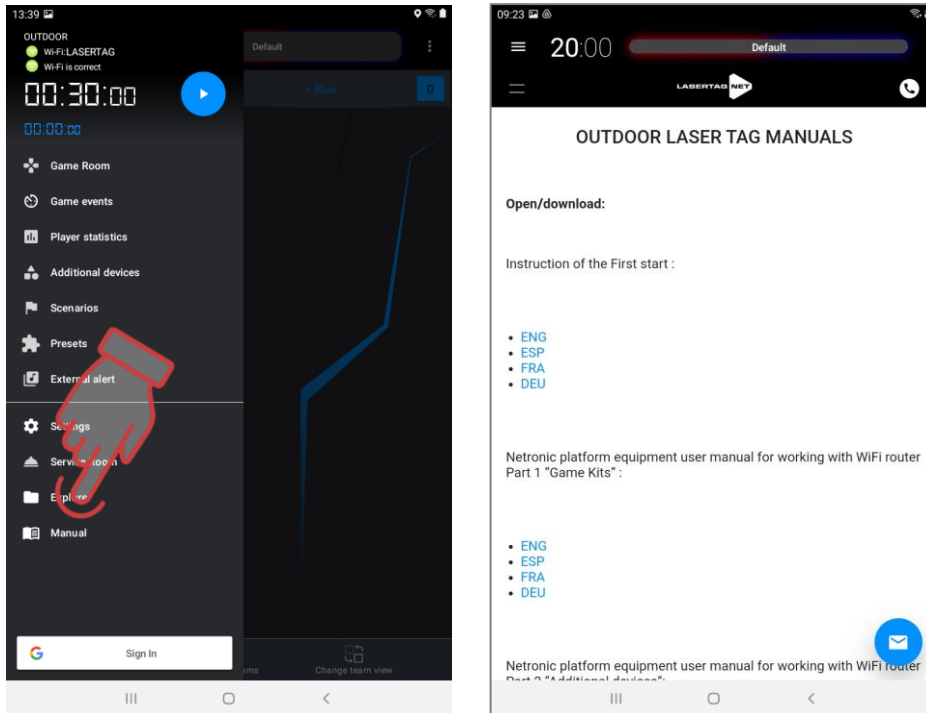
! The printer must be connected to the same network as the tablet or smartphone



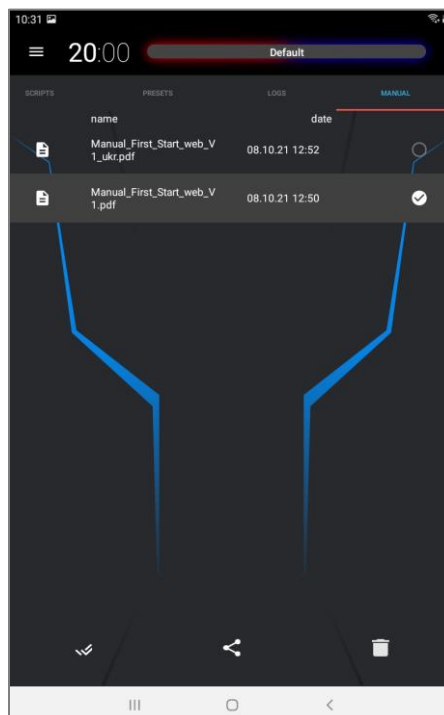
1.11. Manuals

The program provides an opportunity to download the Operating Instructions for laser tag equipment (including the current version of this one) directly from the company's website. To do this, in the Main Menu, select the "Instructions" item, in the window that appears, select the necessary instructions and click on the "Download" inscription.

! In this case, the device must have access to the Internet.



The saved instructions can be found in the "Instructions" tab of the "Explorer" item of the Main Menu (on the right side).

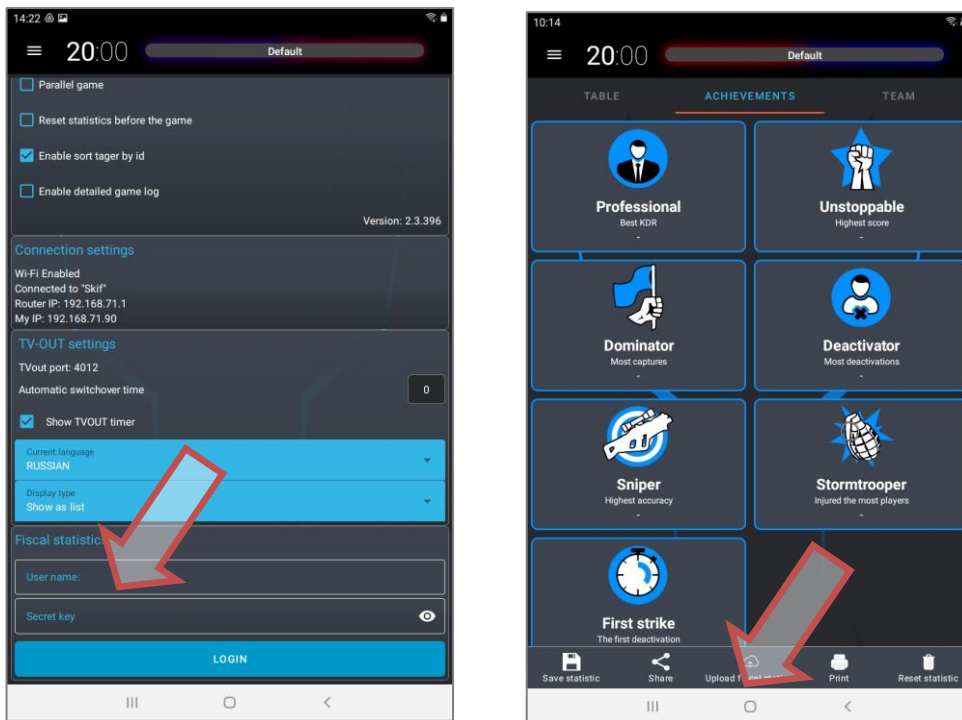


1.12. Fiscal statistics

The program allows you to keep server statistics, which allows the owner of the club to control the number of games played on the playground.

When sending the kits, the owner is given the address, login and password from the server, where he gets access to the statistics of his club. There he creates accounts for administrators, and reports the details of them to administrators.

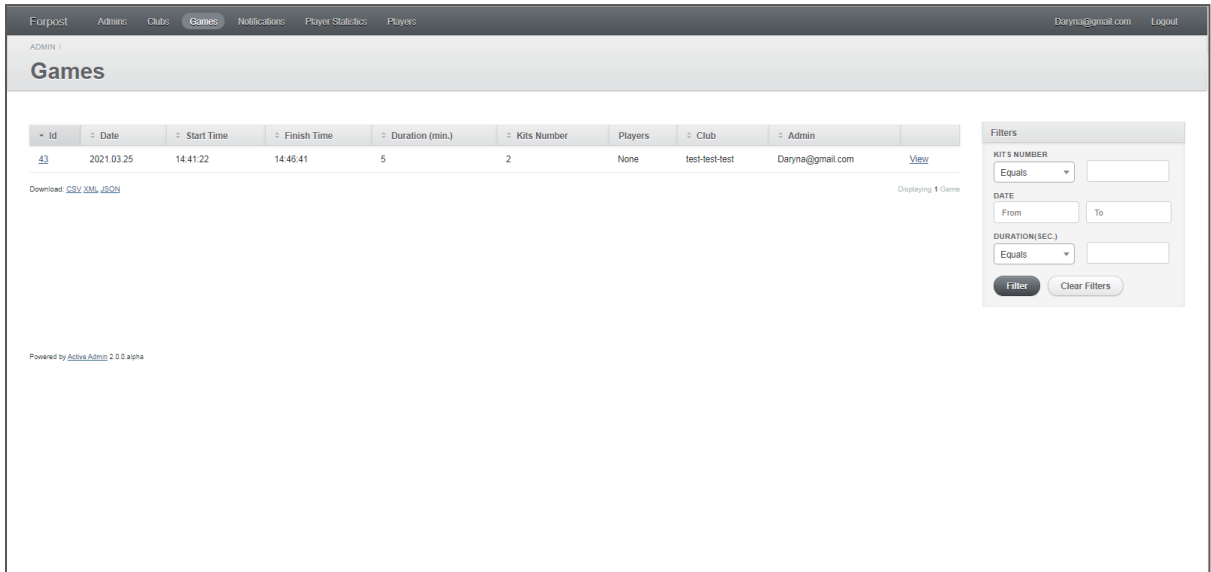
The username and password that the club owner provided to the user (administrator or instructor) must be entered in the FISCAL STATISTICS section (Main menu/Settings).



During all working hours, statistics will be accumulated in the background on the device until the button SEND FISCAL STATISTICS is pressed. The user (this can be both the administrator and the owner of the club, who logged in with his own name and password), after connecting the tablet or smartphone to the Internet, dumps statistics to the server. This clears the statistics on the device.

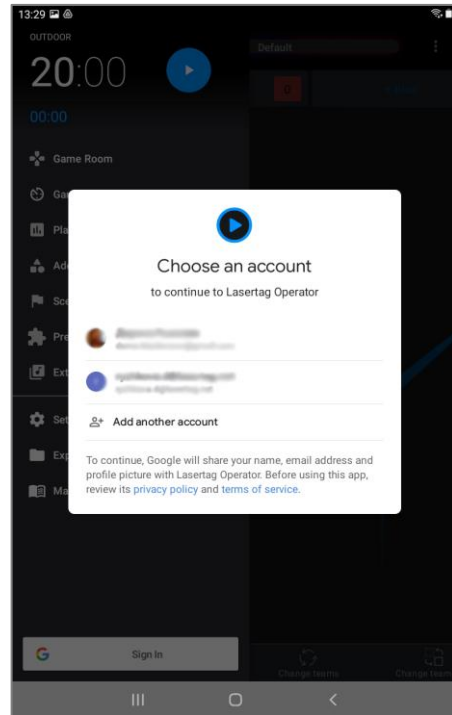
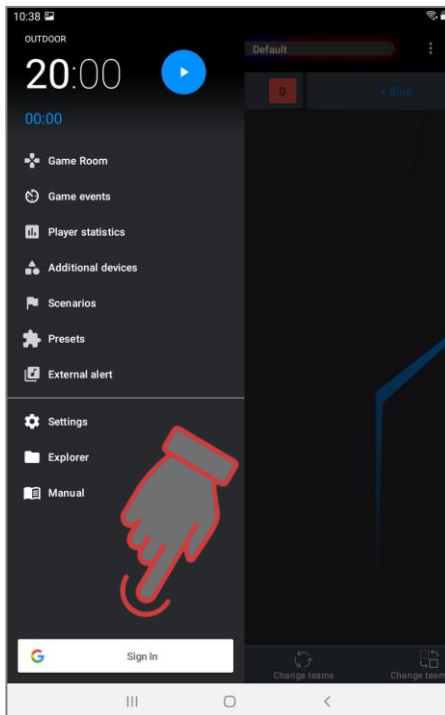
! **Uploading statistics to the server takes place for games from 3 minutes, so that short test and verification games are not taken into account.**

Now information about the games played (date, time of the start of the game and the end, duration and number of sets participating in the game) will be stored on the server and will be available only to the owner of the club.



1.13. Log in with Google account

The current version of the program now has an option for authorizing the program via Google account. To log in, click on the button with the Google icon "Login" in the main menu at the bottom of the screen, select an account and log in.



After successful authorization, the developer can receive authorized error notifications and backlog. And in the future (now this option is being developed) you will be able to receive notifications about updates in the program on your device, as well as join the customer loyalty program.

2. Broadcasting statistics on an external screen using the program LaserTagStatistic

Broadcasting operational and post-game statistics on a TV or projector screen installed in a non-game room (waiting room, administrator room, etc.) allows:

- during a game round, control individual statistics of players, mode and status of additional devices;
- by observing the operational changes in statistics, to involve in the gameplay the players waiting for their turn, as well as their fans;
- each player, immediately after the game, evaluate his own achievements and the achievements of the team;
- as one of the advertising elements - to attract new visitors.

For this purpose, the company has developed the LaserTagStatistic program included in the delivery set.

The program is installed on any device (smartphone, tablet, PC, Android TV, set-top box) with the installed Android operating system version no lower than 5.0

To install or update the program, you must:

1. Check for LaserTagStatistic software on the device. If an irrelevant version is installed, it must be removed.
2. Connect to a Wi-Fi network with Internet access.
3. Download the installation file of the program to the device (at the time the manual is being written the current version - LaserTag2.5.3.apk).
<https://lasertag.net/support/> See NETRONIC Outdoor platform using a Wi-Fi router/software for mobile devices with Android/LaserTagStatistic program for broadcasting statistics to an external screen or in the Play Market application – program Laser tag Scoreboard
<https://play.google.com/store/apps/details?id=ua.com.Netronic.TVOutLasterTagScoreboard>
4. Start the installation process by clicking on the installation file.
5. Wait for the program to install
6. Connect to the LASERTAG Wi-Fi network by entering the password 2015LT2015 (the access point name and password may be different, depending on the settings of the router).
7. Run the program.



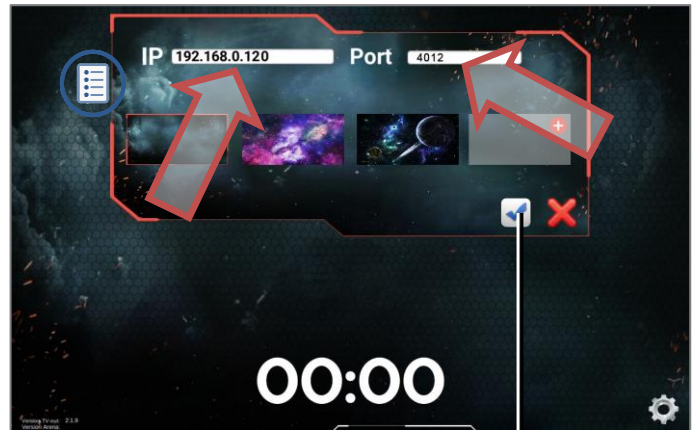
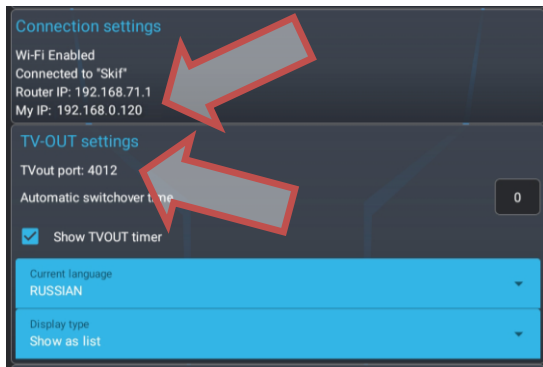
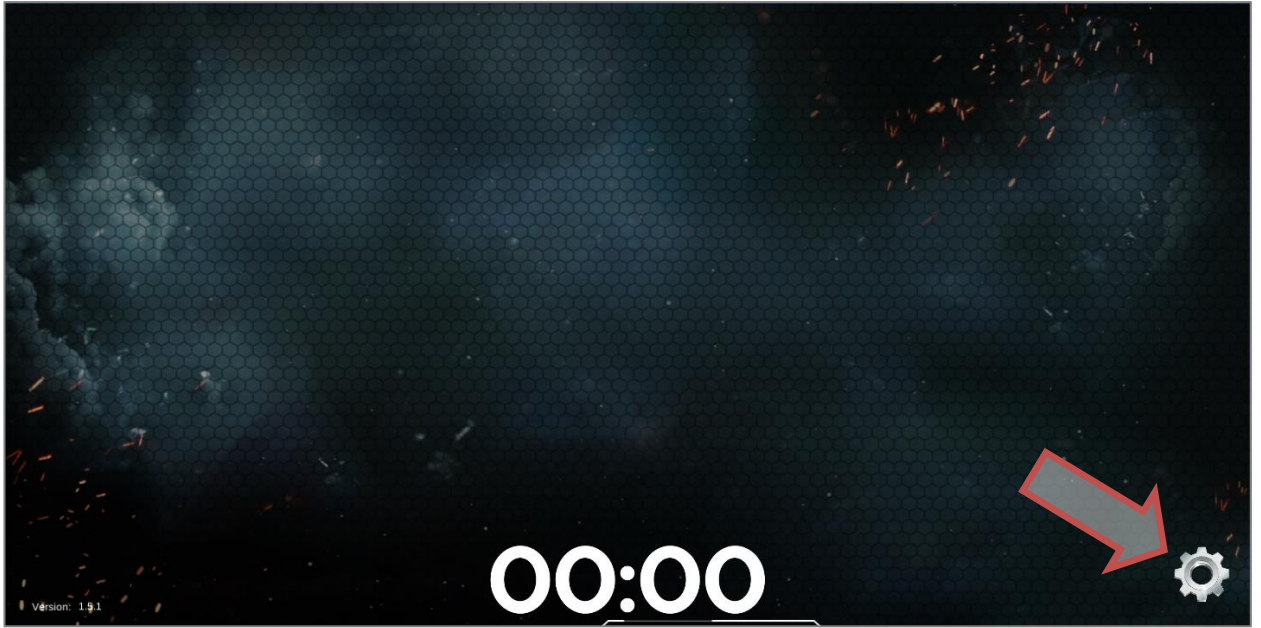
After opening the LaserTagStatistic program, click on the arrow in the lower right corner of the program launch window.

A gear icon will appear, you need to click on.

In the window that appears, check the compliance of tablet's or smartphone's IP and port number with the data specified in the Lasertag Operator program (Menu/Settings/TV OUT Settings). If different, change manually by clicking on the corresponding value.

It is also possible to select the background of the program, including the custom one.

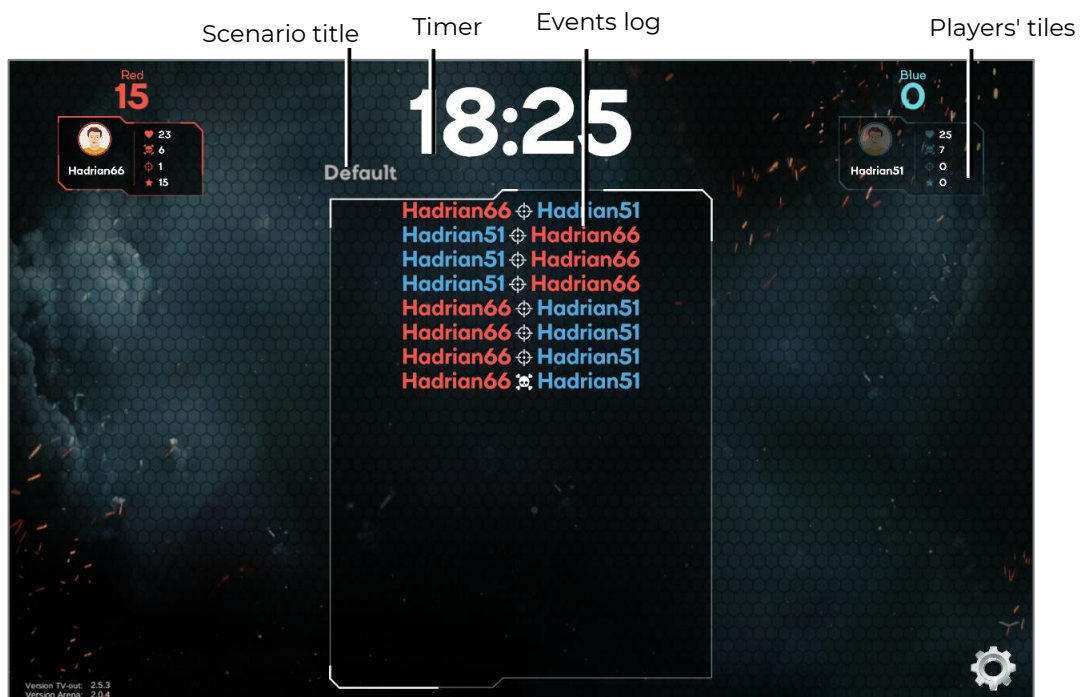
Save changes by clicking on the APPLY button.



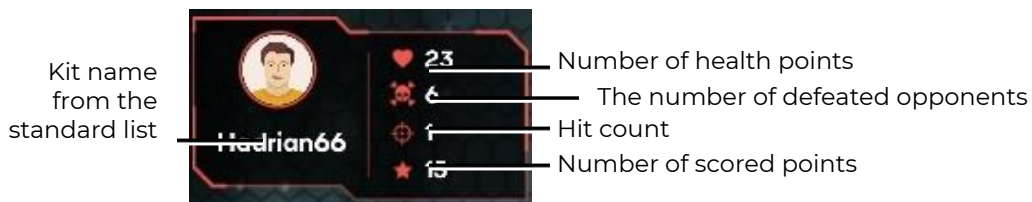
Apply button

Button Program Settings

Now after starting the game in the Lasertag Operator program, the game statistics will be displayed on the external screen.



When tiled statistics are displayed, images of tile sets are displayed on the screen. Each tile kit displays the individual characteristics of players in real time. .



In the same way, the tiles of additional devices are displayed on the screen, if they are involved in the scenario.

In the central part of the screen a log of events occurring on the playing field is displayed, with the latest events displayed on the top line, gradually moving the list down. Information on which player, which team (font color) hit or hit another player, capture of the base, exposure to radiation, etc. is displayed on the screen.



During a game round, statistics can be displayed both in the form of player tiles and in the form of a table. The display type is selected in the settings of the Lasertag Operator program (Main Menu/Settings/TV OUT settings).

During the broadcast of statistics, it may turn out that not all the tiles or lines of the players fit on the screen. In this case, the program splits the display into pages and the frequency of page turning in seconds is set by the TIME OF AUTOMATIC PLAYER CHANGE parameter (Main Menu/Settings/TV OUT settings).

At the end of the round, personal and team indicators are displayed on the screen: points scored, number of shots fired, damage done, number of opponents hit (frags), accuracy (ratio of shots fired to number of hits), number of captures of additional devices, damage received and number of defeats (deaths).

Team statistics tile

ID	Player	Score	Shots	Hits	Frag	Accuracy	Captures	Hits taken	Deaths
66	Hadrian66	15	40	100	1	10%	0	75	6
51	Hadrian51	0	7	75	0	42%	0	100	7

On the same screen tiles of team statistics with the current or final place, the number of points scored by all players of the team and average accuracy are displayed.

