

Forward Sports Titles



System for Information and
Graphic Design of Live
Streaming of Sports Events

*Revision as of:
October 31, 2023*

General Information

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Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

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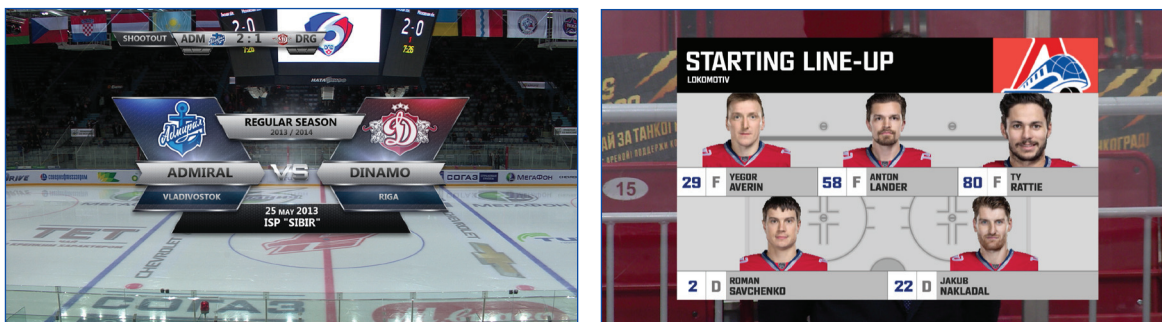
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Introduction

Forward Sports Titles is a software and hardware complex for graphic design of live broadcasts of sports competitions.



The Forward Sports Titles system includes the FDExt board (SD/HD/3G-SDI) and software. The system allows you to overlay graphics on passthrough video on the server or output a signal in Fill+Key mode to overlay graphics using an external mixer.

Graphics meets the requirements of sport leagues (KHL, FIBA, etc.). Personal design can be also used.

Each type of sport has its own version of the system that meets the requirements of corresponding league in terms of content and scope of information, rules of competitions, design of graphics, etc.

The system operates in a real-time mode. The following functions are available:

1. Control over output of graphics on air:
 - output of static information:
 - information about championship: title, league logotype, coach full name; name of stadium;
 - information about teams: title, logotype, full name of coach;
 - information about players: number, full name, photo, statistics, etc.;
 - output of dynamic information about course of game: score, play time, period number, goals, bullits, removals, etc.;
 - preview of graphics before output on air;
 - 2 modes of graphics stop – usual mode (with animation) and emergent mode.
2. Completion of database tables with information about game:
 - interaction with websites of sport leagues (for example, KHL) for completing teams database;

-
- input of information about game and teams from prepared CSV files;
 - input of information manually.
3. Input of information about course of game in a real-time mode:
- integration with game board (game controller) in a real-time mode – automatical output of dynamic information about game;
 - input of dynamic information about game by sports graphics operator manually;
 - configuration of start/stop of play time timer by external GPI event. Information in graphics is updated if some data is modified in it.

General Information

General Description of System

1. Installation

The Forward Sport Titles software set is delivered to customer as a «turnkey» video server equipped and configured for a specific sport and stadium (championship).

2. Software Set and Purpose of Programs

The Forward Sport Titles software set includes the following components:

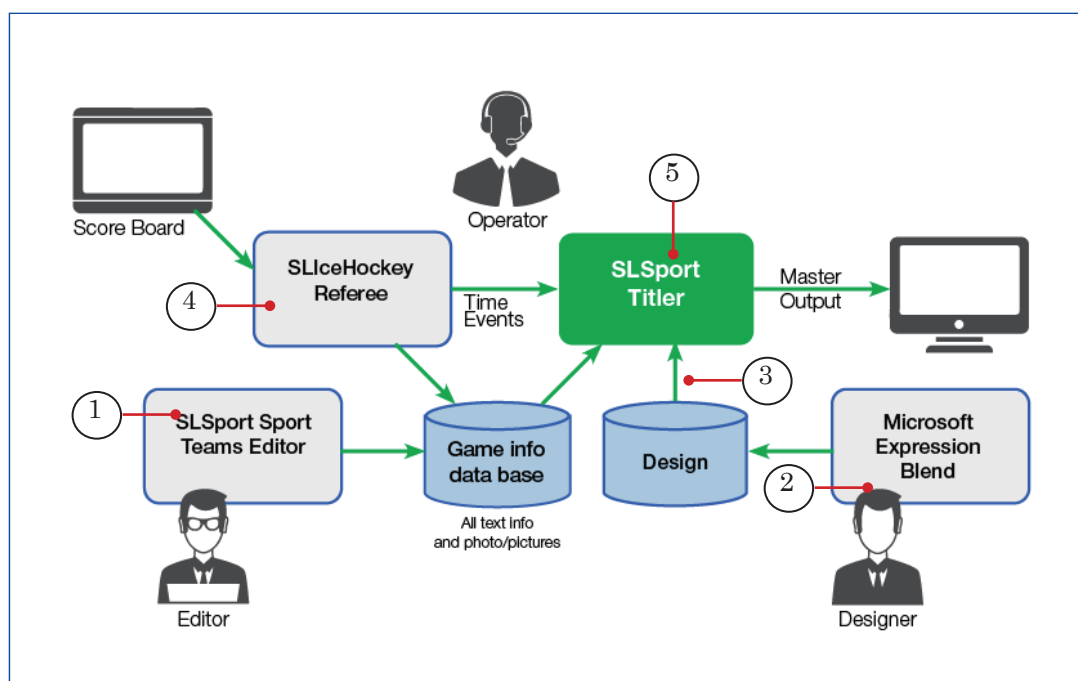
1. SLSportDataBaseService – a server that ensures work with database.
2. SLSportTeamsEditor – an editor of database (work with static information – text, photo).
3. SLIceHockeyReferee / SLBasketballFIBAReferee / SLFootballReferee / SLHandballReferee / SLVolleyballReferee (depending on sport) – programs for integration with a game board or for input dynamic information manually (play time, goals, removals, bullits). Hereinafter referred to as SL***Referee.
4. SLSportTitler is a program designed to control a display of sports graphics.

3. Scheme of Work

The Forward Sport Titles system has 3 work places:

- work place for editor: editing database with text and graphic information;
- work place for referee: input of information about game;
- work place for sport graphic operator (CG assistant): display of titles.

1. Complete database in the SLSportTeamsEditor editor (1) at stage of preparation for streaming. Database (*.TitleDB file) is used for storing information about players, referees, teams, etc. Data can be input automatically or captured from KHL website and other leagues or extracted from prepared CSV files or entered by editor manually. Images can be stored in database besides text information, for example, photos of players.



2. Set of graphic files with graphic design is created in the Microsoft Expression Blend program (2) in advance. As a rule experts of the SoftLab-NSK company are responsible for development and support of graphics up to date. Design is created for specific games season of a specific sport meeting all requirements of corresponding league (association, championship, etc.).

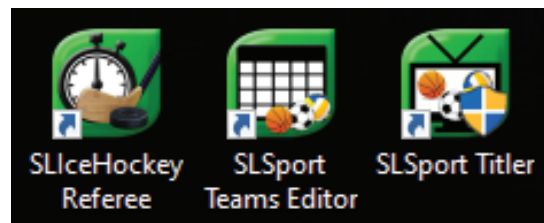
User creates project in the SLSportTitler program:

*.SLSportTitleCfg (3) where he specifies all paths to design and database configuration files.

-
3. The SL***Referee plugins (4) (for each type of sport its own: SLIceHockeyReferee / SLBasketballFIBAReferee / SLFootballReferee / SLHandballReferee / SLVolleyballReferee) are program modules used to input information about course of game to system in a real-time mode. The modules ensure integration with game board (game controller) on stadium or input of dynamic information manually (play time, number of period, goals, removals, bullits).

Description and parameters of game (quantity of periods and their duration, maximal quantity of removals, fouls, timeouts) are specified in advance in xml file of game description. For example, the IceHockey.xml file is file for hockey. Path to file is specified in a command string of the SLIceHockeyReferee.exe program.

4. Control over input of graphics on screen is executed in the SLSportTitler main program window (5). File of the *.SLSportTitleCfg project has a set of buttons used for display of specific graphics with information from database and from program for input of dynamic data about game.
5. Sources of data for output sports graphics:
 - database prepared in advance for a specific championship and specific game;
 - information from game board.
6. There are 3 shortcuts on a desktop for each sport:
 - SLSportTeamsEditor is database of game with corresponding configuration files,
 - SLIceHockeyReferee / SLBasketballReferee / SLFootballReferee / SLHandballReferee / SLVolleyballReferee contains description of periods for specified sport,
 - SLSportTitler is used to control output of graphics for specified sport.



Work Order With Forward Sport Titles Software

1. Completion of Database in SLSportTeamsEditor

The major part of information is stored in database. Completion and editing of database are executed in the SLSportTeamsEditor in advance before game streaming.

1.1. Modes of Work With Database

There are 2 modes of database completion:

- manual – information about teams and players is taken from *.csv configuration files and is entered to tables of the SLSportTeamsEditor program:
 - Game;
 - Translations;
 - Information about the first/second teams;
 - Players of the first/second teams.
- automatical – information is taken from websites of sport leagues (KHL, etc.) by clicking KHL in menu of the Information about the first/second teams tables. For a correct work of the KHL button configure login and password to get an access to KHL website.

1.2. Database Structure

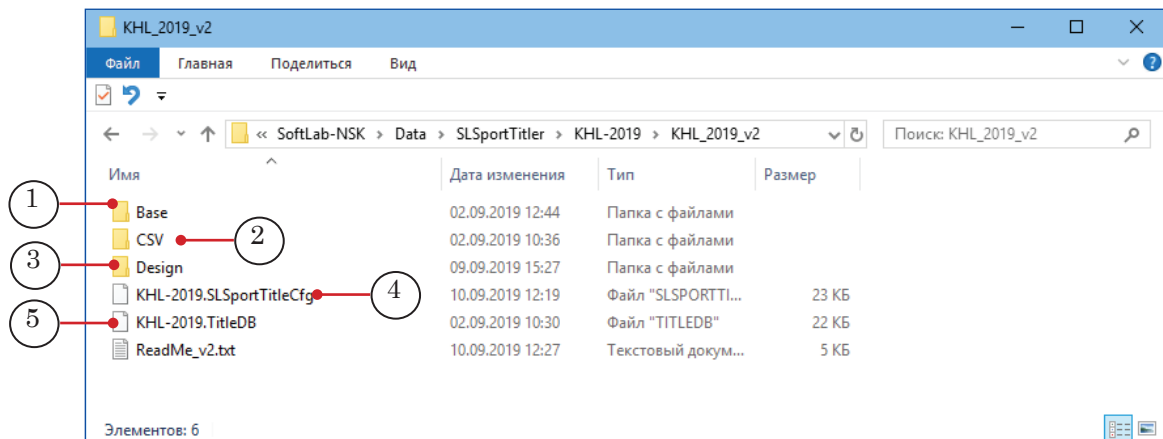
Tree with folders on disk is the following: there is a general folder with name of future game or championship (for example, KHL-2019) that includes the following subfolders:

- Base (1) subfolder with all files of game database and information about players:
 - Colors;
 - Flags;
 - Logo;
 - Photo;
 - PhotoCOACHES;
 - PhotoPLAYERS;
 - Weather;
- CSV (2) subfolder with configuration files with data tables:
 - Game Event.csv;
 - GameInfo.csv;
 - TranslateEng.csv;

- TranslateRus.csv;
- TeamInfo.csv;
- TeamPlayers.csv;
- Design (3) subfolder with set of fonts Font and subfolders with files of graphics:
 - Coach;
 - Countdown;
 - DownScore;
 - Font;
 - GeoTitle;
 - Player;
 - Referees;
 - RefereesNoPhoto;
 - Sostav;
 - Starting;
 - TotalScore;
 - UpScore.

Root of the general folder with title of game must store *.SL-SportTitlerCfg project files (4) and *.TitleBD file of game (5) and teams database.

✓ **Important:** File with database (*.TitleDB) and file with project (*.SLSportTitleCfg) must be stored in one folder for a correct work with images.



1.3. Launch of SLSportTeamsEditor

There is one current database for a concrete game and sport in the system. If sport is changed then user must change current database.

For this create new database in a corresponding folder or open earlier created database and save it obligatory (select File > Save or File > Save As Menu commands). Only after saving database user can launch SL***Referee or SLSportTitler.exe programs.

At further opening of current database it is not obligatory to save it. It is enough to open database and close the program.



Important: If there is the Font subfolder in the Design folder with design then user must install all fonts from this folder on PC in advance.

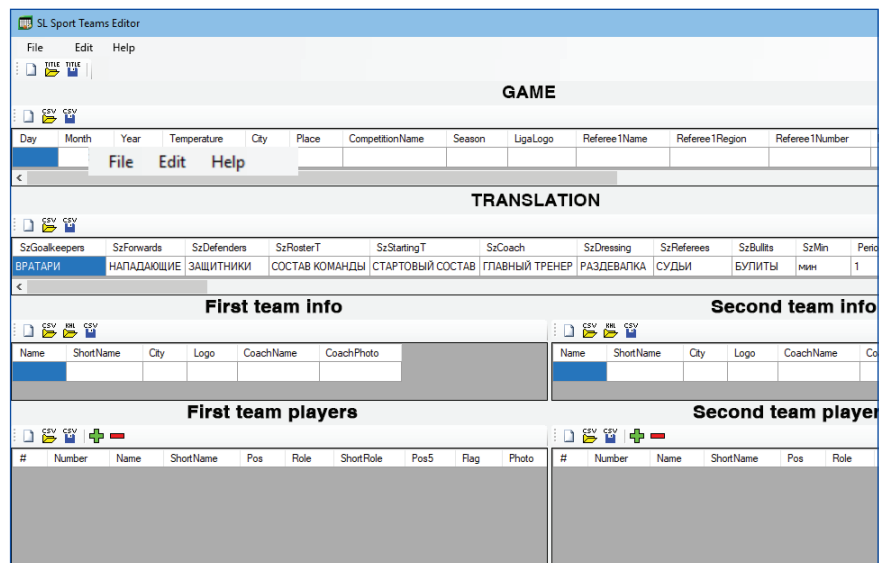
File for program execution is:

~\ForwardT Software\Plugins\SLSportTitler\bin\DBEditorSLSBInfo.exe, where ~ is a full path to folder with software. Use the Start Menu command to launch the program: ForwardT Software > SL Sport Teams Editor or shortcut located on a desktop.



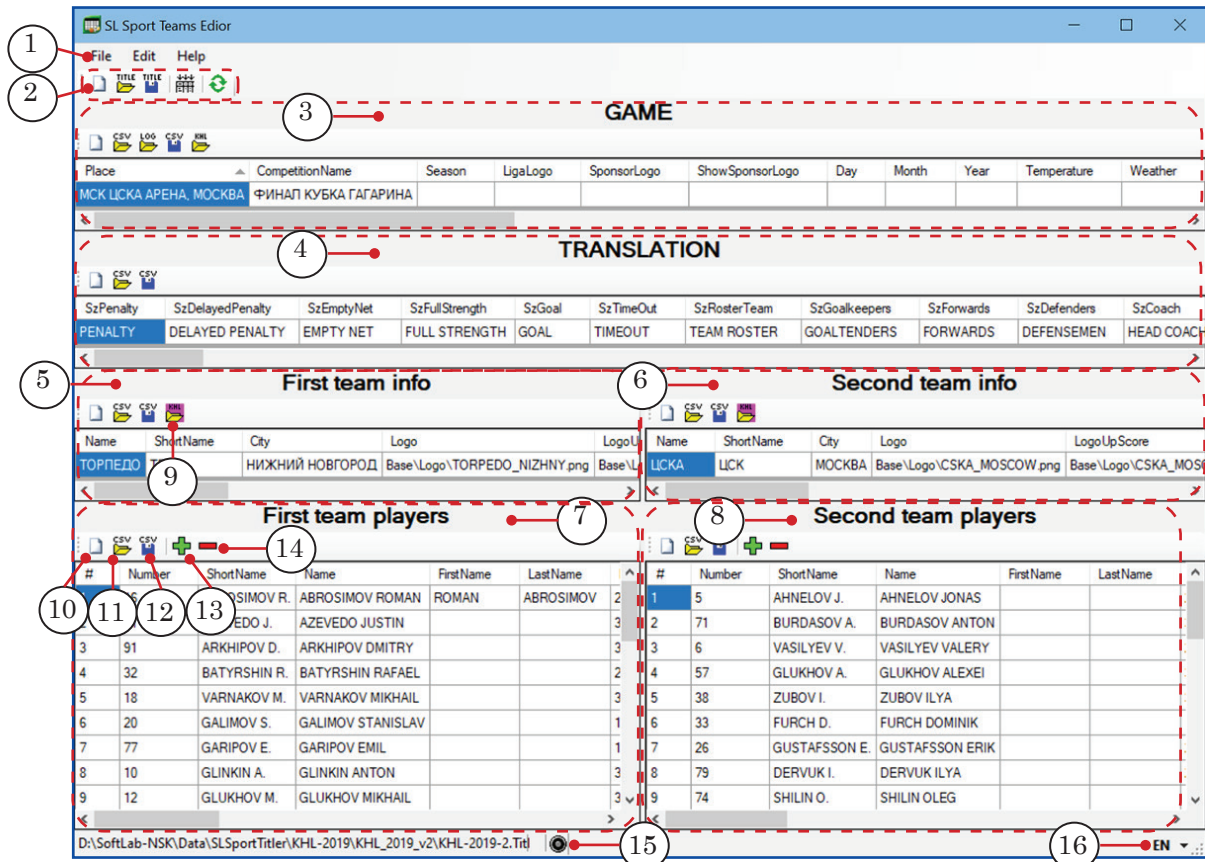
Tip: Specify a unique string in shortcut configuration window, for example, title of sport in order for program to remember path to the last project. It simplifies operating if user works with one system for different sports. Each sport has its own path to project.

The main SLSportTeamsEditor program window with empty tables at the first program launch appears:



1.4. SLSportTimesEditor Main Program Window

At restart of the program database of the previous game appears.



Main program window. Control elements:

1 – main menu; 2 – buttons used for a quick activation of database commands; 3 – table with general information about game; 4 – table with translation of text captions that are invariable depending on team or stadium; 5 – table with information about team 1; 6 – table with information about team 2; 7 – table with information about players of team 1; 8 – table with information about players of team 2; 9 – button used to load information about teams from database of KHL website; 10 – button used to clear information in table; 11 – import of information from *.CSV configuration file; 12 – export of information to *.CSV configuration file; 13 – add new player to team; 14 – delete selected player from team; 15 – indicator of work with FIBA statistics; 16 – change language of program interface.

1.5. CSV Configuration Files

The SLSportTimesEditor program deals with *.csv configuration files where columns of different tables are described:

- GAME – contains fields that are independent from player or team. It stores information about championship, stadium, season, outside temperature, league logotype, etc. Configuration file is GameInfo.csv;
- TRANSLATIONS – contains fields with all text captions presented in different designs that are invariable depending on player, team or stadium. Captions in graphics must be translated into Russian or English.

All the captions are stored in the CSV subfolder. Text in Russian is specified in TranslateRus.csv file, text in English is specified in TranslateEng.csv file. Table is updated from corresponding file automatically if the program is restarted or if user changes language;

- Information about team 1 – contains information about team 1 (on the left): title, logotype, referee full name, etc. Configuration file is TeamInfo.csv;
- Information about team 2 – contains information about team 2 (on the right). Configuration file is TeamInfo.csv;
- Players of team 1 – contains information about players from team 1: number, name and surname, photo, weight, height, etc. Configuration file is TeamPlayers.csv;
- Players of team 2 – contains information about team 2. Configuration file is TeamPlayers.csv.

✓ **Important:** We recommend making all captions in capital letters.

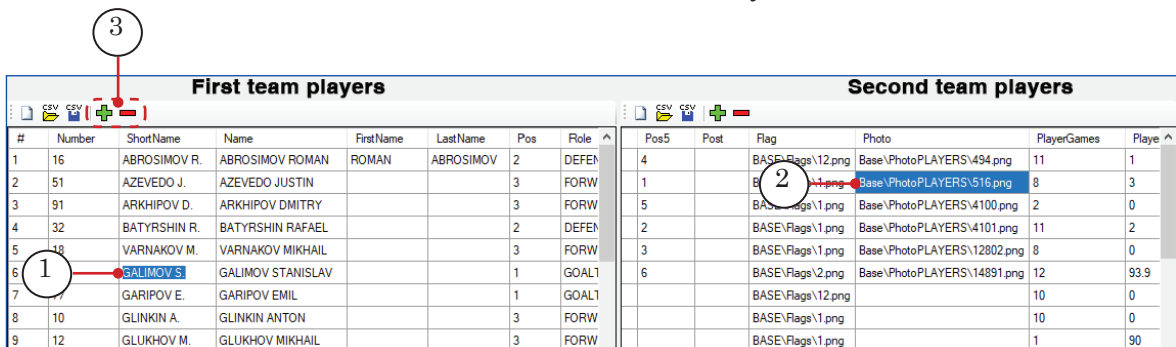
1.6. Editing Data in Database

Click  in SLSportTeamsEditor tables or use the Edit > Import from CSV command of the main program menu to work with





*.csv configuration files. Click  or use the Edit > Export to CSV command of the main program menu to save data after editing.

Data in tables can be edited in program window by double-clicking table cell. Text data is edited by integrated text editor in table cell (1).

Click corresponding cell (2) to replace image. Standard dialog window for selecting file appears. Relative path to file is registered after cell selecting. Path is specified relatively current file of database. So, right after creation of new database user must save it to disk and only then edit data from database.




First team players								Second team players					
#	Number	ShortName	Name	FirstName	LastName	Pos	Role	Pos5	Post	Flag	Photo	PlayerGames	Playe
1	16	ABROSIMOV R.	ABROSIMOV ROMAN	ROMAN	ABROSIMOV	2	DEFEN	4		BASE\Flags\12.png	Base\PhotoPLAYERS\494.png	11	1
2	51	AZEVEDO J.	AZEVEDO JUSTIN			3	FORW	1		BASE\Flags\1.png	Base\PhotoPLAYERS\516.png	8	3
3	91	ARKHIPOV D.	ARKHIPOV DMITRY			3	FORW	5		BASE\Flags\1.png	Base\PhotoPLAYERS\4100.png	2	0
4	32	BATYRSHIN R.	BATYRSHIN RAFAEL			2	DEFEN	2		BASE\Flags\1.png	Base\PhotoPLAYERS\4101.png	11	2
5	18	VARNAKOV M.	VARNAKOV MIKHAIL			3	FORW	3		BASE\Flags\1.png	Base\PhotoPLAYERS\12802.png	8	0
6		GALIMOV S.	GALIMOV STANISLAV			1	GOAL1	6		BASE\Flags\2.png	Base\PhotoPLAYERS\14891.png	12	93.9
7		GARIPOV E.	GARIPOV EMIL			1	GOAL1			BASE\Flags\12.png		10	0
8	10	GLINKIN A.	GLINKIN ANTON			3	FORW			BASE\Flags\1.png		10	0
9	12	GLUKHOV M.	GLUKHOV MIKHAIL			3	FORW			BASE\Flags\1.png		1	90


Table with information about players has the  and  buttons (3). The  button is used to create new string in table. The  button is used to delete string from table. The first «#» column sets order by which players in the SLSportTitler program are loaded.



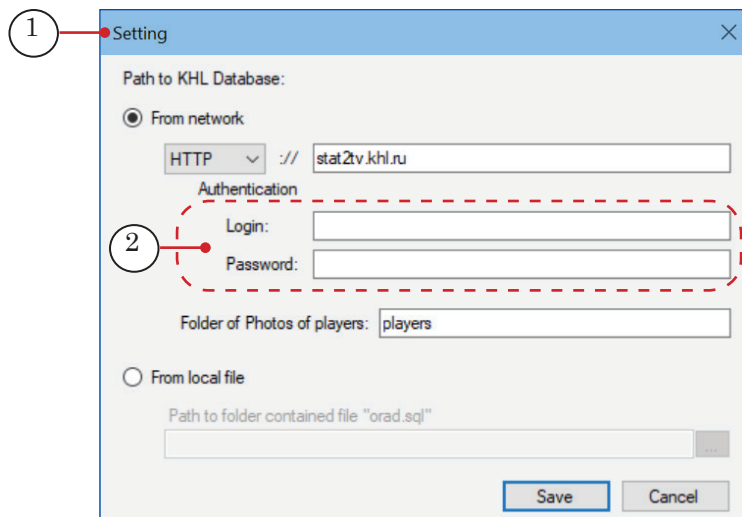
Important:

User must click the  button each time after editing data to save it to database (File > Save menu). User must click any other cell of table after editing *text* data for integrated editor to enter edited data to database cell.


1.7. Loading Data From KHL Database

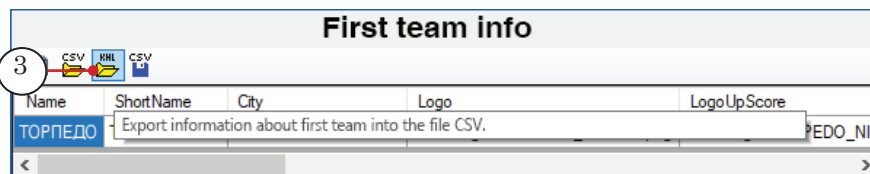
The  button in Information about the first/second team tables is used to import statistics for selected team. Complete the following for this:

1. Configure access to server with KHL statistics. Execute the Edit > Settings command of the main window. The Settings window (1) appears.

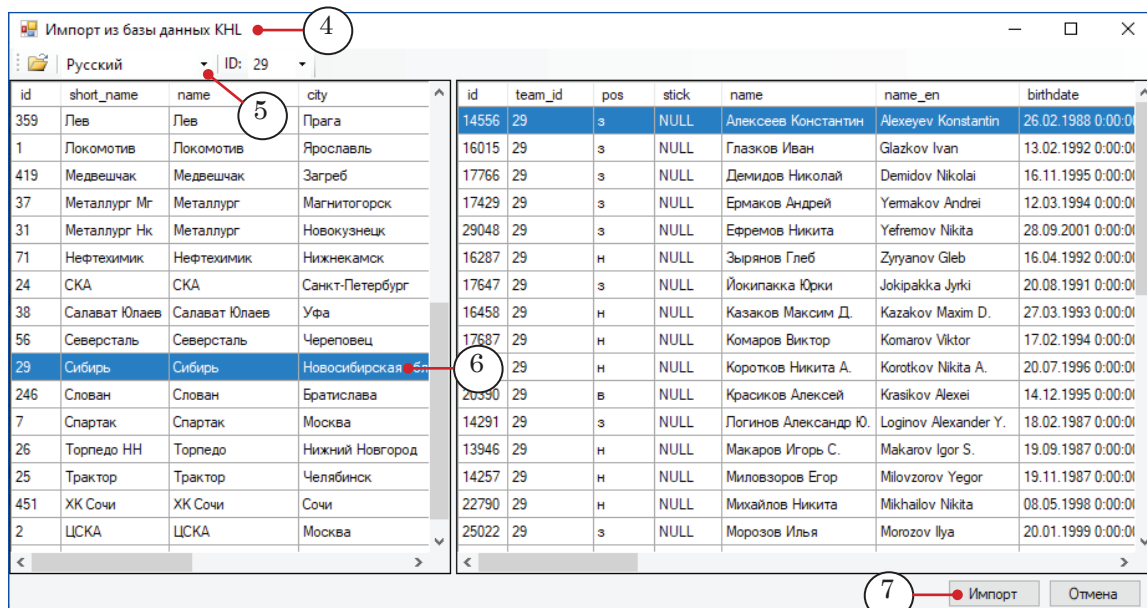


2. Specify login and password in the User and Password fields (2) to get access to website with statistics http://stat2tv.khl.ru (user gets data at KHL individually). It is enough to specify the settings once.

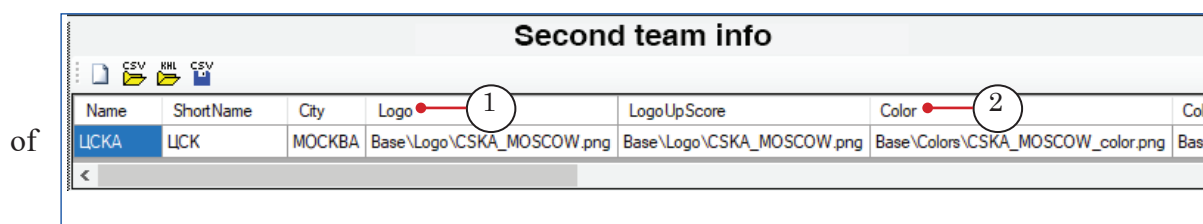
3. Click the  button in the Information about team 1 table (3).



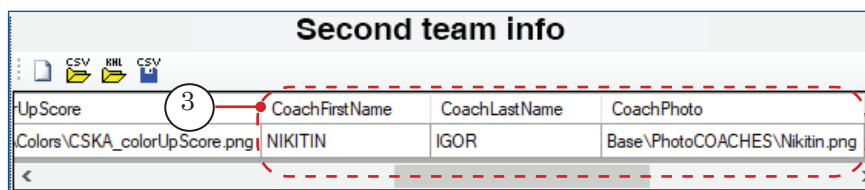
4. The Import from KHL Database command (4) in window appears. Select language for display of database information from (5) drop-down list. Then select command to load statistics (6). Click Import (7).



5. Complete the following after importing:
1. Select logotype of team from the Base\Logo folder (1).
 2. Select colours for teams (colour background for logotype) from the Base\Colors folder (2).



3. Specify name and surname of team coach (in capital letters) (3).



4. Delete «unregistered» players from list (players that do not participate game).

5. Specify starting five in the Pos5 column (4). Left forward is specified under 1, center forward is specified under 2, right forward is specified under 3, left back is specified under 4, right back is specified under 5, goal-keeper is specified under 6.

First team players							
Name	FirstName	LastName	Pos	Role	ShortRole	Pos5	Post
ABROSIMOV ROMAN	ROMAN	ABROSIMOV	2	DEFENSEMEN	D	4	
AZEVEDO JUSTIN			3	FORWARD	F	1	A
ARKHIPOV DMITRY			3	FORWARD	F	2	
BATYRSHIN RAFAEL			2	DEFENSEMEN	D	5	
VARNAKOV MIKHAIL			3	FORWARD	F	3	
GALIMOV STANISLAV			1	GOALTENDER	G	6	
GARIPOV EMIL			1	GOALTENDER	G		

6. Save database by clicking  or via the File > Save menu command.

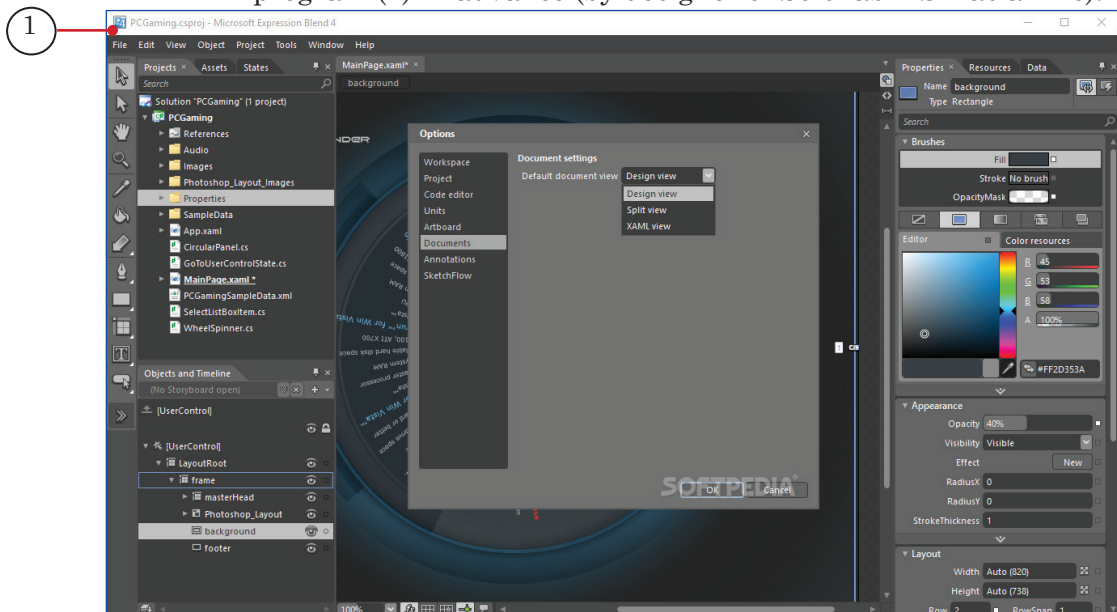
7. It is necessary to complete information about teams statistics (5) during game in First team info and Second team info tables in Shots, Faceoffs, Penalty, Powerplay and Shorthanded columns (this information is displayed in the «StatGame» graphics) or do not display the «StatGame» graphics at all.

First team info						
GAA	GoalsT	Shots	Faceoffs	Penalty	Powerplay	Shorthanded
GAA	Г	ПЕРЕДАЧИ	СБРАСЫВАНИЕ	ПЕНАЛЬТИ (МИН)	ИГРОВЫЕ ГОЛЫ	ДОПОЛНИТЕЛЬНЫЕ ГОЛЫ

6. KHL design suppose use of photos of players and coach. The program loads photos of players to the Base\PhotoPLAYERS folder from KHL website at when information about team is added. Images of players are stored in JPG format (without transparency) on website. That's why display of such photos in graphics is not likely. So, we recommend converting all photos to PNG format with transparency (with cut background behind player) and replacing JPG photos in the same folder. All photos must be 400 pixels high and not more than 400 pixels wide (for example, 320x400). User loads photos of players on <http://stat2tv.khl.ru> site strictly. Photo of coach is loaded automatically. It must be loaded separately. CSV file with title of team is generated together with completing database with photos.

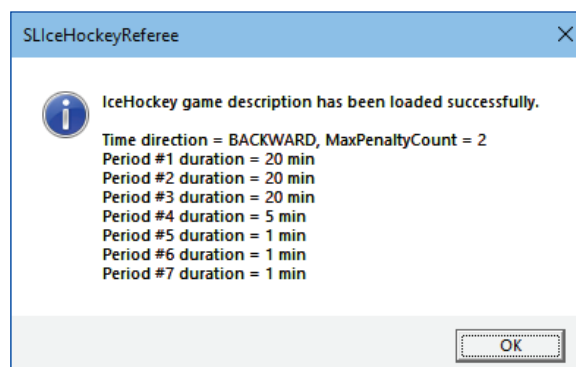
2. Design and Animation of Graphics

Design of graphics is created in the Microsoft Expression Blend program (1) in advance (by designer of SoftLab-NSK as a rule).



3. Description of Game in XML File

Description of periods (quantity of periods and their duration) is specified in XML file similar to file with description of game specified in command string. File and the SL***Referee.exe application must be stored in the same folder. For example, IceHockey.xml is a file for hockey that is stored with SLIceHockey-Referee.exe module. When SLIceHockeyReferee.exe file is loaded a notification with information that description file is found appears:



Format of file with description of game (IceHockey.xml, for example) has the following format:

```
<GameDesc PeriodsCount="7" ReverseTime="true" MaxPenaltyCnt="2">  
<Period Duration="20"/>  
<Period Duration="20"/>
```

```
<Period Duration="20"/>
```

```
<Period Duration="5"/>
```

```
<Period Duration="1"/>
```

```
</GameDesc>
```

where:

- GameDesc are game parameters:
 - PeriodsCount is parameter that displays quantity of periods in game;
 - Reverse Time is parameter that displays time (in minutes): "true" denotes that time is counted downwards (from 20:00 up to 00:00);
 - MaxPenaltyCnt is parameter that displays maximal quantity of simultaneous removals during game;
- Period Duration is parameter that displays duration of periods in minutes. There are 7 periods in game in the given example. The first 3 periods last 20 minutes each, the fourth period is 5 minutes, the fifth and the sixth periods are 1 minute each. The last, the seventh period is needed to display captions at the end of the game only.

Files with description of games in other sports differ by parameters (another quantity of periods and their duration, direct counting or downwards, quantity of timeouts, etc.).

4. Work in the SL***Referee Program

All programs for input of referee information are – SLIceHockeyReferee, SLFootballReferee, SLBasketballReferee, SLVolleyballReferee, SLHandballReferee. The programs have the following functional set:

- input of dynamic information – play time, number of period, score, foul shots, removals, etc.;
- interaction with game board (game controller) in a real-time mode;
- automatical start/stop of play time by external GPI event.

Interface of SL***Referee programs for different sports is different.

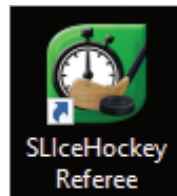
Let us consider order of work on example of the SLIceHockeyReferee program.

Note: The SLIceHockeyReferee program is used for input of referee information for hockey and handball sports.

4.1. Program Launch

File for program execution is: ~\ForwardT Software\Plugins\SLSportTitler\bin\IceHockeyReferee\SLIceHockeyReferee.exe, where ~ is a full path to folder where software is installed.

Use the Start Menu command to launch the program: ForwardT Software > SLIceHockey Referee:

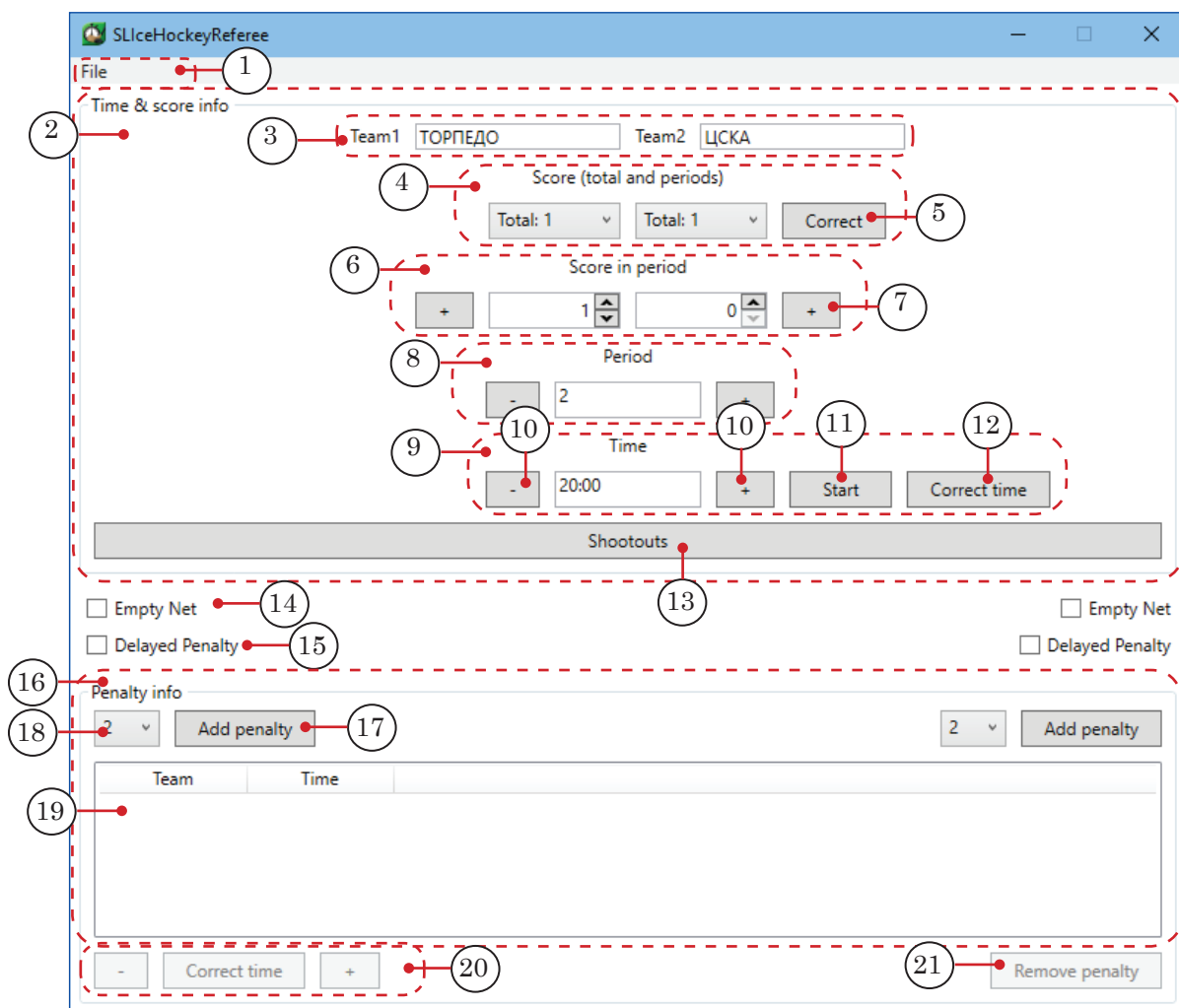


At program start titles of teams are imported from current database last time saved by SLSportTeamsEditor.

4.2. Main Program Window

The SLIceHockeyReferee main program window has blocks of elements for control dynamic information:

- Time&Score info block (2) is used to control input of data about time and score (total and by periods);
- Penalty info block (16) is used to control penalties.

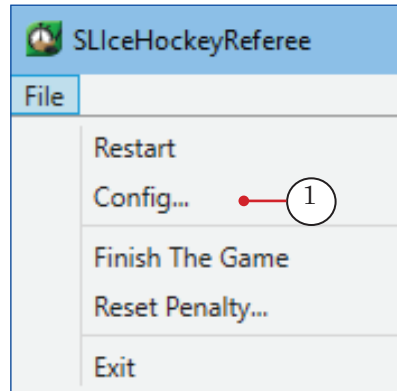


Main program window. Control elements:

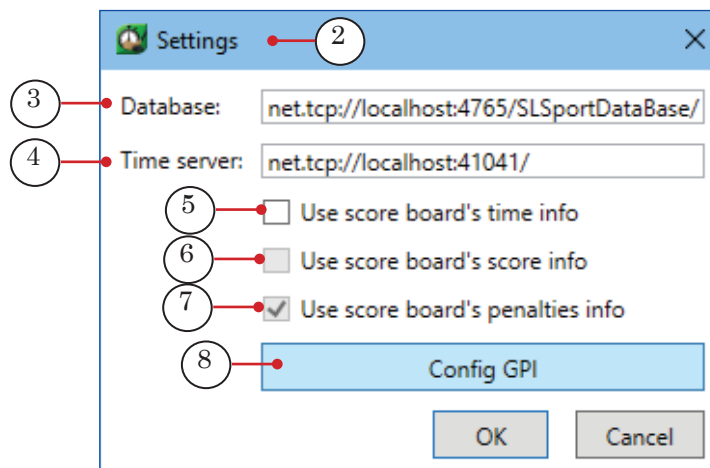
1 – main menu; 2 – **Time&score info** area displays information about time and score; 3 – fields with titles of teams **Team1** and **Team2**; 4 – area with game score **Score (total and period)**, **Total** drop-down lists: display distribution of goals by periods and total score for each team; 5 – correct score in finished periods; 6 – area with score in current period; 7 – two buttons + left and right – increase score (for both teams); 8 – number of current period; 9 – countdown of period time (timing can be direct in some sport); 10 – increase/decrease play time in 1 sec.; 11 – start/stop period timing; 12 – correct period time (available only when game is stopped); 13 – open the **Shootouts** window (window for input of shootouts); 14 – put the **Empty Net** mark – to replace goalkeeper by field player; 15 – put the **Delayed Penalty** – to delay time of penalty; 16 – area with information about penalties; 17 – two buttons **Add Penalty** – add another penalty for corresponding team; 18 – time of penalty in minutes; 19 – table with list of removed players (**Team** and **Time** – rest penalty time); 20 – buttons used to correct time of penalty selected in table; 21 – delete selected penalty.

4.3. Settings

1. The File > Config menu command (1) is used to open the Settings window (2) to configure automatic control over time and other parameters.

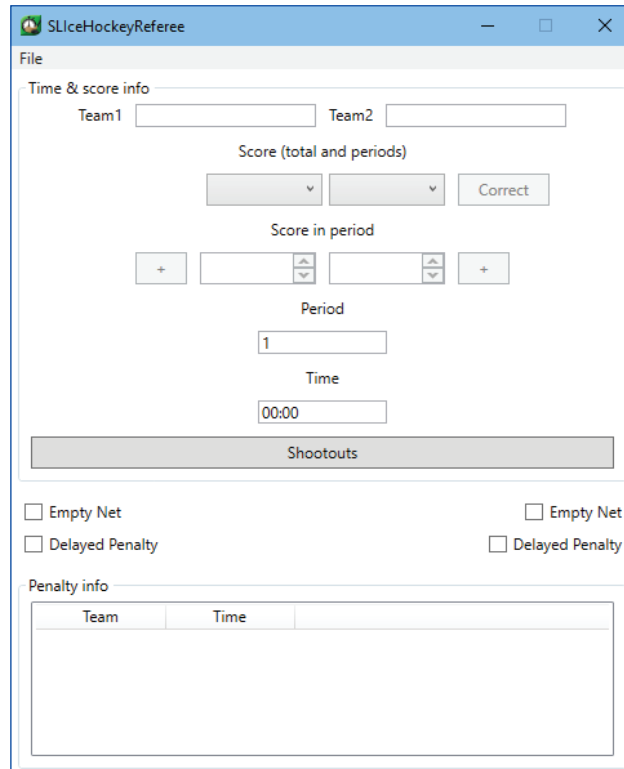


Location of database and time server are specified in the Database (3) and Time server fields (4). It is not recommended to change them.



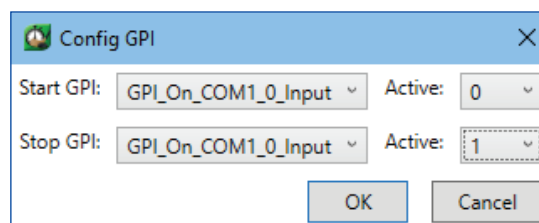
2. User can put checkboxes if the system is configured to connect to game board:
 - Use score-board's time info (5) – use information about time from game board;
 - Use score-board's score info (6) – use information about score from game board;
 - Use score-board's penalties info (7) – use information about penalty time from game board.

Putting these checkboxes denote enabling automatic import of information from game board. It simplifies interface of the main program window:



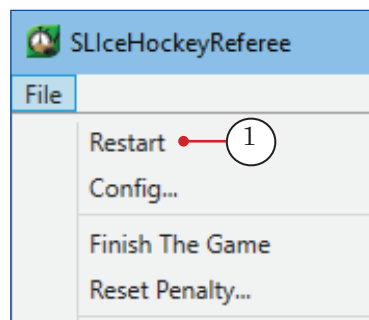
Tip: Appeal to SoftLab-NSK technical support to connect to game board.

3. User can configure start/stop of play time timer by GPI events via the Config GPI button (8) in the Settings window.



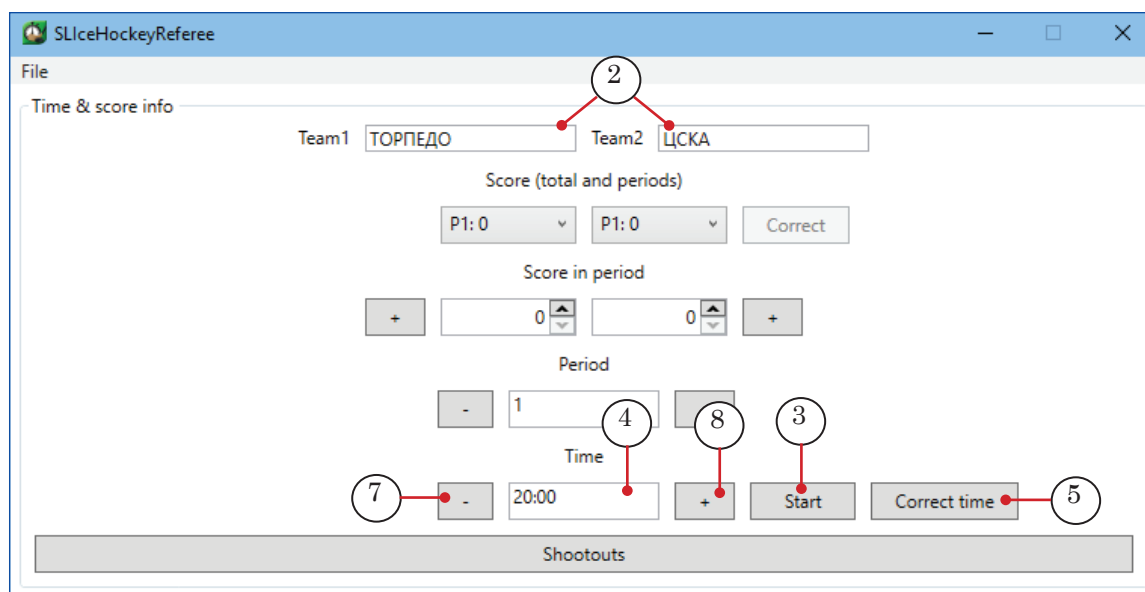
4.4. Work in Program

1. Complete the File > Restart command (1) to restart game.

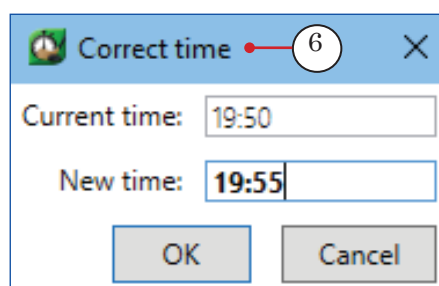


Work of operator who inputs information manually is described below.

- At program start titles of teams are imported from current database last time saved by SLSportTeamsEditor. Team1 and Team2 teams titles (2) appear in the main program window automatically.
- Click Start (3) to start play time – the button is displayed as Stop during timing. Downwards timing of current period in the Time field starts (4).

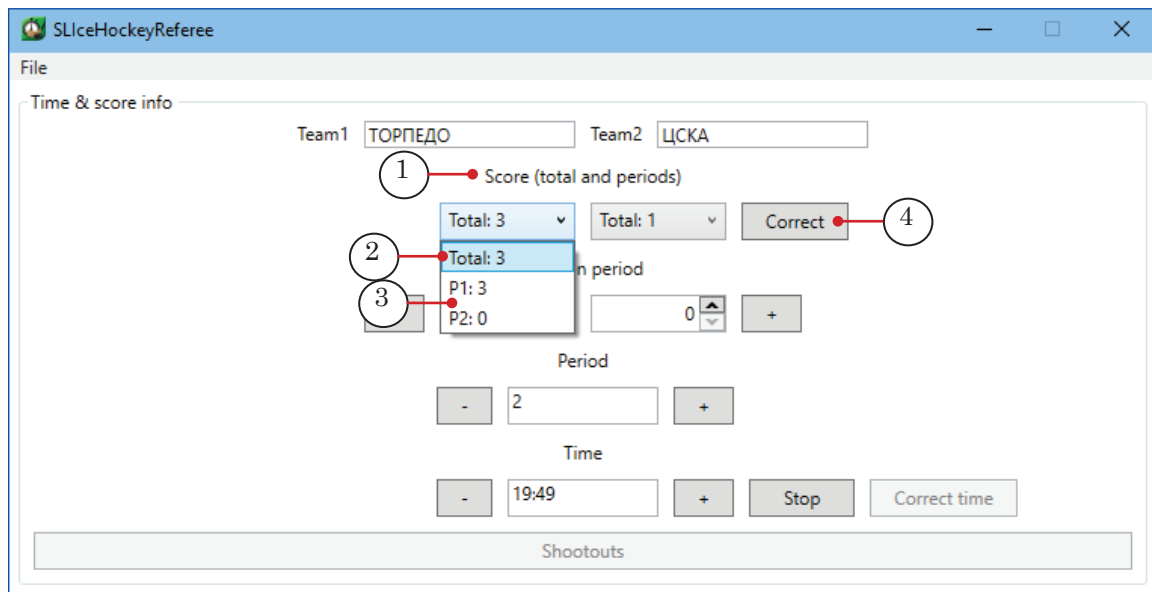


Click Correct time (5) to correct play time. The Correct time window (6) appears:

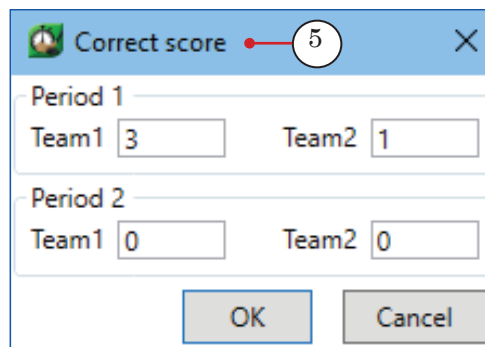


In this window user can change time only when game is stopped. The buttons (7) and + (8) to the left and to the right of the current time allow user decreasing/increasing current time by one second right during the game.

4. The Score (total and periods) area (1) has Total (2) and P1, P2, P3 (3) drop-down lists used to display total score and distribution of goals by periods in each team.



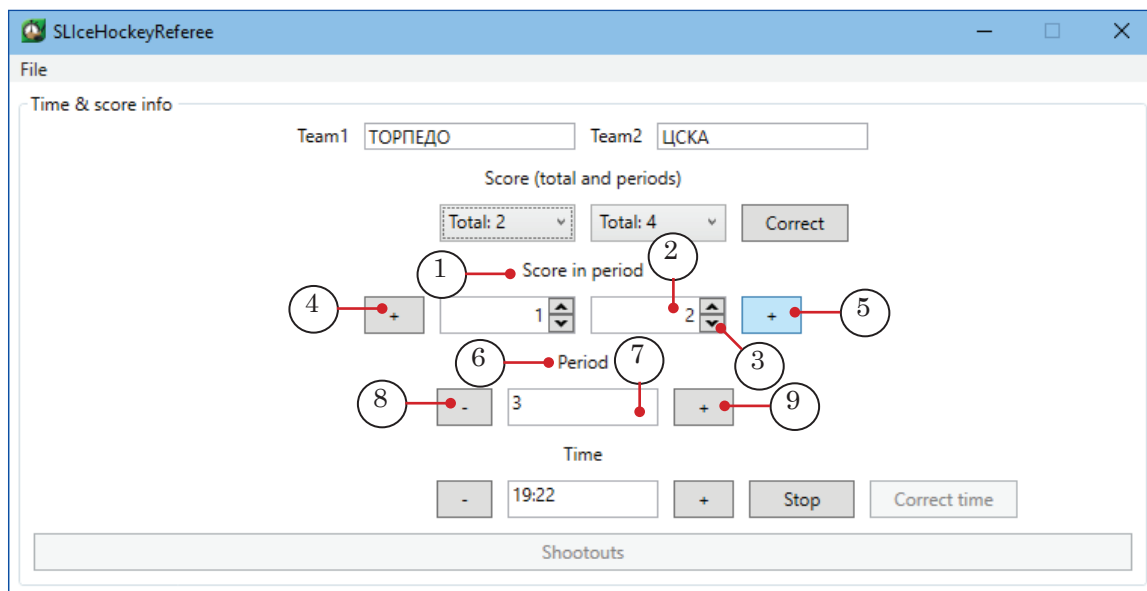
Click Correct (4) to correct score. The Correct score window appears (5):



Correct current score in Team1 and Team2 fields in current period. Then click OK.

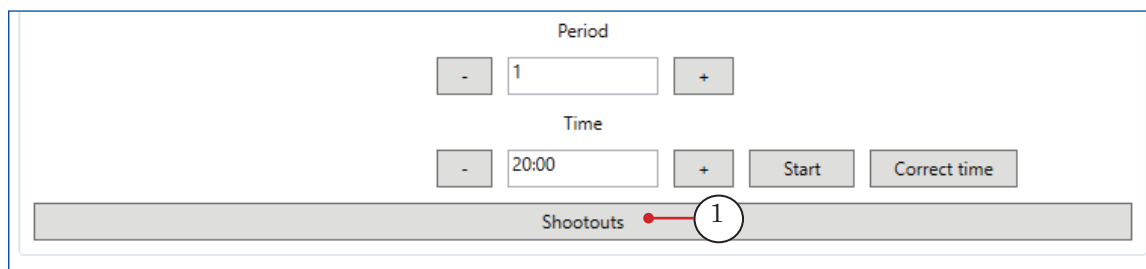
- Specify score in current period via check-boxes (3) or buttons (4) or + (5) in Score in period area (1) in fields (2).

✓ **Important:** Note that this score is a score of current period only, not a total score.

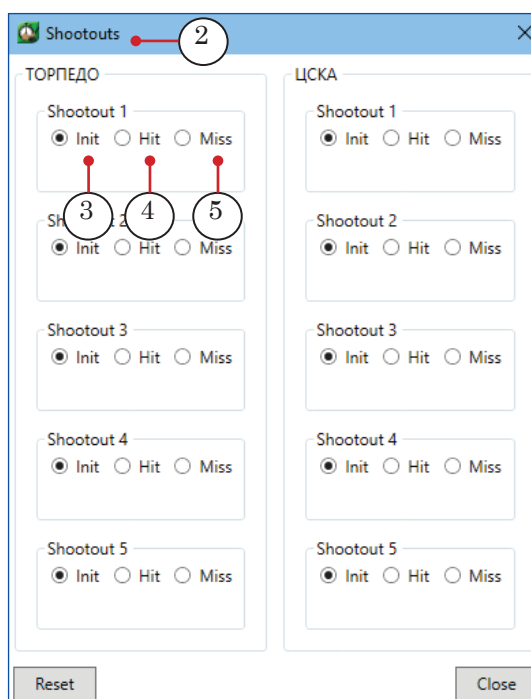


- Specify number of current period via buttons (8) or + (9) in Period area (6) in field (7).

7. Click the Shootouts button (1) to enable dialog of control shootouts.




The Shootouts window (2) appears.





Specify results in each shootout at completion of tables for each team in Shootout 1***5 fields:

- Init (3) – shootout is not executed yet;
- Hit (4) – shootout is hit;
- Miss (5) – shootout is missed.

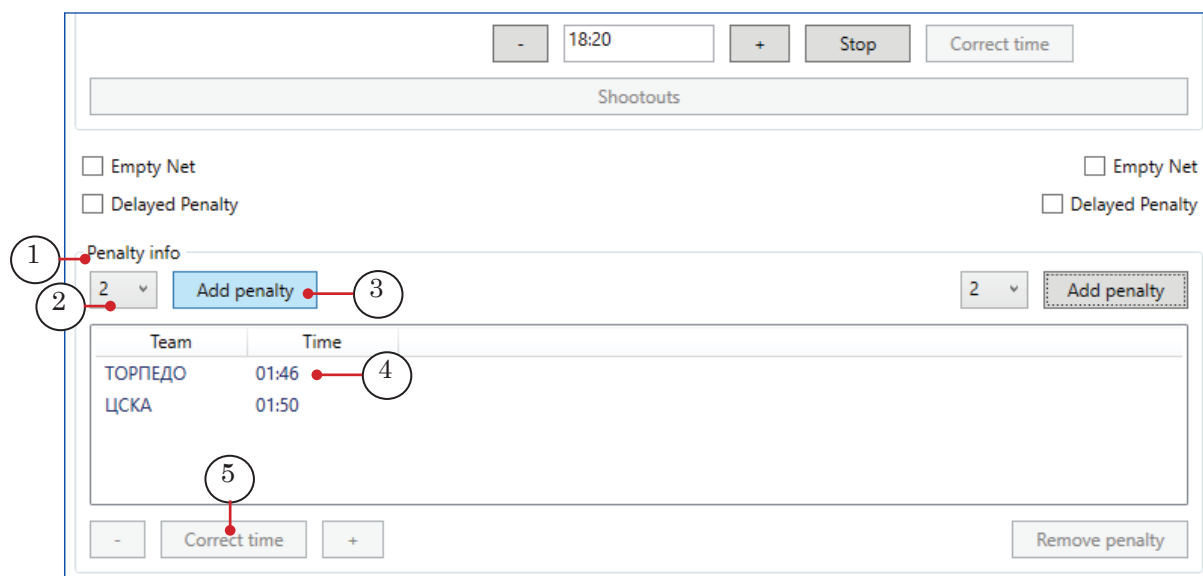
The Init –  marks (3) are output in graphics before making shootouts.



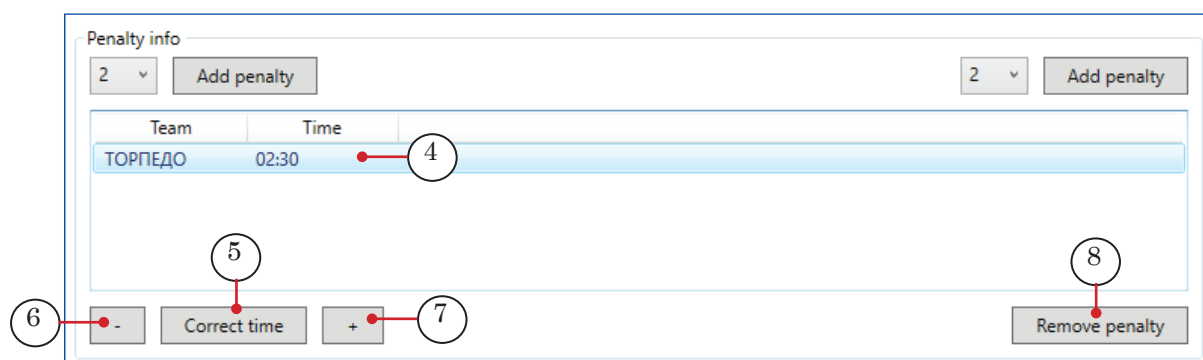
The Hit –  mark (4) is displayed if shootout is hit, the  mark (5) is displayed if shootout is missed.



- Specify penalty period (2, 4 or 10 minutes) in the drop-down list of the Penalty info block with elements (1) for control penalties. Then click Add penalty (3) for corresponding team. String with title of team and penalty time (4) in table below appears. Downwards timing starts.



Select string in table (4) to correct penalty time. The Correct time button (5) and corresponding - (6) and + buttons (7) on the left and on the right become enabled:



Correct time of player removal via the (6) or + buttons (7).

Select necessary time and click Remove penalty (8) to delete string with penalty time in table.

In hockey the UpScore and Bullits graphics update data in current image automatically if play time, number of period, quantity of goals, removals, penalties or bullits (shootouts) are modified. Remaining graphics do not update image if corresponding data in SLIceHockeyReferee is modified. So, to display updated data user must remove graphics from streaming and restream it with updated data again.

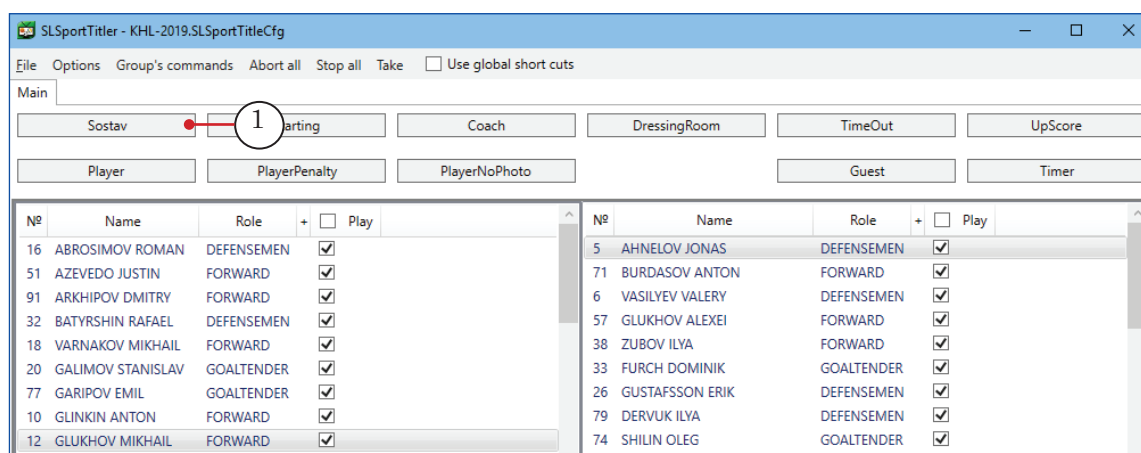
5. Work in the SLSportTitler Program

5.1. General Informaiton About Program

Control of graphics display is executed in the SLSportTitler program. To streram game the *.SLSportTitleCfg project with all described above settings is saved:

- in database (SLSportTeamsEditor);
- in the SL***Referee program designed for input of dynamic information (time, score, goals, penalties, etc.);
- paths to folders with graphics design are specified.

Interface of program allows user displaying prepared screen field (graphics) by one button or double clicking. Project with a specified set of buttons and design is prepared for each sport. For example, for hockey:



Each button displays a specific graphics (one screen form) where necessary strings are completed by current data imported from database or by information extracted from program for input of dynamic information. The button can be in one of the followig states:

- Grey – graphics is off (1);
- Red – graphics is prepared for putput (2) and is displayed in preview window (3);

SLSportTitler - KHL-2019.SLSportTitleCfg

File Options Group's commands Abort all Stop all Take Use global short cuts

Main

Sostav **2** ing Coach DressingRoom TimeOut UpScore

Player PlayerPenalty PlayerNoPhoto Guest Timer

Nº	Name	Role	+ <input type="checkbox"/> Play	Nº	Name	Role	+ <input type="checkbox"/> Play
16	ABROSIMOV ROMAN	DEFENSEMEN	<input checked="" type="checkbox"/>	5	AHNELOV JONAS	DEFENSEMEN	<input checked="" type="checkbox"/>
51	AZEVEDO JUSTIN	FORWARD	<input checked="" type="checkbox"/>	71	BURDASOV ANTON	FORWARD	<input checked="" type="checkbox"/>
91	ARKHIPOV DMITRY	FORWARD	<input checked="" type="checkbox"/>	6	VASILYEV VALERY	DEFENSEMEN	<input checked="" type="checkbox"/>
32	BATYRSHIN RAFAEL	DEFENSEMEN	<input checked="" type="checkbox"/>	57	GLUKHOV ALEXEI	FORWARD	<input checked="" type="checkbox"/>
18	VARNAKOV MIKHAIL	FORWARD	<input checked="" type="checkbox"/>	38	ZUBOV ILYA	FORWARD	<input checked="" type="checkbox"/>
20	GALIMOV STANISLAV	GOALTENDER	<input checked="" type="checkbox"/>	33	FURCH DOMINIK	GOALTENDER	<input checked="" type="checkbox"/>
77	GARIPOV EMIL	GOALTENDER	<input checked="" type="checkbox"/>	26	GUSTAFSSON ERIK	DEFENSEMEN	<input checked="" type="checkbox"/>
10	GLINKIN ANTON	FORWARD	<input checked="" type="checkbox"/>	79	DERVUK ILYA	DEFENSEMEN	<input checked="" type="checkbox"/>
12	GLUKHOV MIKHAIL	FORWARD	<input checked="" type="checkbox"/>	74	SHILIN OLEG	GOALTENDER	<input checked="" type="checkbox"/>
28	GOLUBEV DENIS	FORWARD	<input checked="" type="checkbox"/>	44	KULIK EVGENY	DEFENSEMEN	<input checked="" type="checkbox"/>
11	ZHUKOV MIKHAIL	FORWARD	<input checked="" type="checkbox"/>	45	KUTEKIN ANDREI	DEFENSEMEN	<input checked="" type="checkbox"/>
7	ZAKHARCHUK STEPAN	DEFENSEMEN	<input checked="" type="checkbox"/>	15	KUCHERYAVENKO ALEXANDER	FORWARD	<input checked="" type="checkbox"/>

Update data

3

TEAM ROSTER

TORPEDO

HEAD COACH
ANDREI RAZIN

GOALTENDERS

20 GALIMOV STANISLAV
77 GARIPOV EMIL

DEFENSEMEN

16 ABROSIMOV ROMAN
32 BATYRSHIN RAFAEL
7 ZAKHARCHUK STEPAN
33 YARULLIN ALBERT
64 MUSIN DAMIR
52 OHTAMAA ATTE

FORWARDS

51 AZEVEDO JUSTIN
91 ARKHIPOV DMITRY
18 VARNAKOV MIKHAIL
10 GLINKIN ANTON
12 GLUKHOV MIKHAIL
28 GOLUBEV DENIS
11 ZHUKOV MIKHAIL
45 LAZAREV MAXIM
89 LUKOYANOV ARTYOM
98 MALYKHIN FYODOR
34 OBUKHOV DMITRY
55 АЛИШАУСКАС. НЕРИЮС

A

K

DownScore

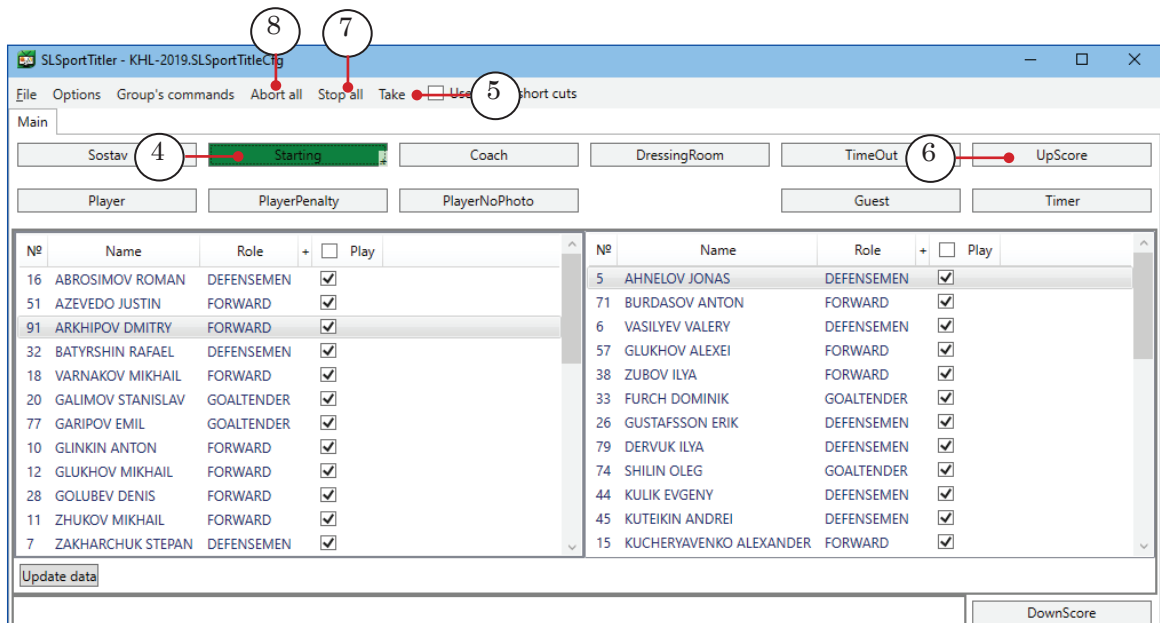
GeoTitle

Referees

Referees No Photo

TotlaScore

- Green – graphics is ready for streaming or has already streamed (4).



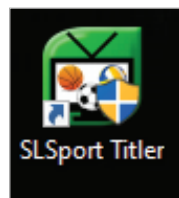
Usual state of button is grey. At first click it becomes red and displays graphics in preview window. When animation is finished the button usually becomes green in preview window. It denotes that graphics is ready to be streamed and user can click the Take button (5) to broadcast graphics on air. User can output graphics on air automatically without preview via some buttons, for example, the UpScore button (6) (displays upper score in hockey). Graphics disappears when user clicks the button again (or by the Stop all command (7)). By the Abort all command (8) graphics is aborted (FadeOut without final animation).

5.2. Program Launch

File for program execution is:

~\ForwardT Software\Plugins\SLSportTitler\bin\Titler\SLSportTitler.exe

where ~ is a full path to folder with software. User must specify path to *.SLSportTitleCfg title project in command string. Use the Start Menu command to launch the program: ForwardT Software > SL Sport Teams Editor or shortcut located on a desktop:

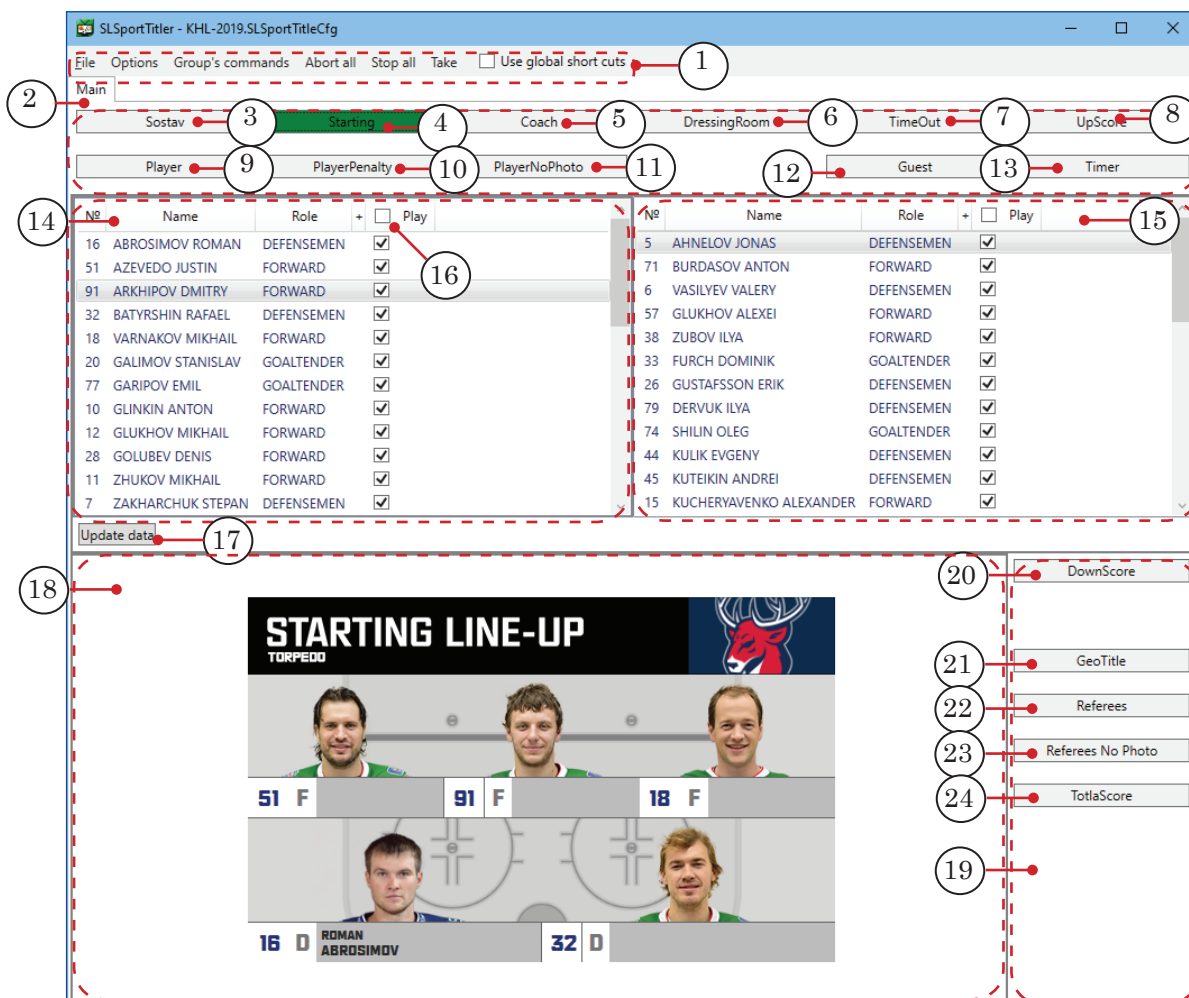


At program start titles of teams are imported from current database last time saved by SLSportTeamsEditor.

5.3. Main Program Window

Interface of the main program window has a set of graphics buttons generated depending database with information about game, players and settings completed in the SL***Referee program in advance.

Example of the SLSportTitler main program window for broadcasting KHL hockey is given below.



Main program window. Control elements:

1 – main menu; 2 – the Main tab with buttons to control graphics for each team; 3 – display the Sostav graphics – list of players of one of the teams; 4 – display the Starting graphics – starting five of one of the teams; 5 – display the Coach graphics – head coach of one of the teams; 6 – display the Dressing room graphics – dressing room of one of the teams; 7 – display the TimeOut graphics – game timeout; 8 – display the UpScore graphics – score in current period; 9 – display the Player graphics – photo and name of player; 10 – display the PlayerPenalty graphics – photo and name of player who makes penalty; 11 – display the PlayerNoPhoto graphics – name of player without photo; 12 – display the Guest graphics – name of guest at game; 13 – display the Timer graphics – time of current period; 14 – table with list of players of team 1; 15 – table with list of players of team 2; 16 – the Play check box – select all players (in each team) who participate game; 17 – Update data – update information in teams table (if changes in SLSpotrTimesEditor Database are made); 18 – preview window of graphics selected for streaming; 19 – area with graphics buttons with general information about game; 20 – display the DownScore graphics – score of game is at the bottom of screen; 21 – GeoTitle – graphics with name of championship, teams, cities and logotypes; 22 – Referees – graphics with referees of game (names, photos); 23 – RefereesNoPhoto – graphics with referees of game without photo; 24 – display the TotalScore graphics – total score of game.

5.4. Commands of the Main Menu

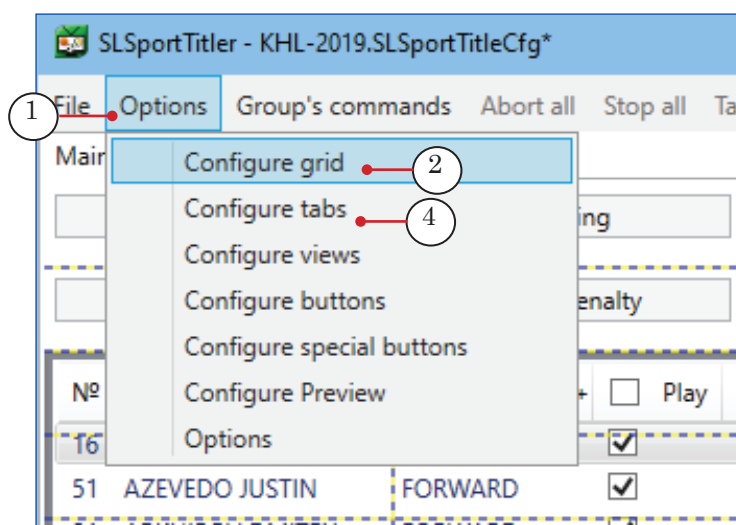
Table. Main menu commands

Menu command	Action
1. File – commands used to create and save graphics display project file	
New	Create new project (the *.SLSportTitleCfg file).
Load	Load earlier created project.
Save (Ctrl+S)	Save current project to the same file.
Save as***	Save current project to new file.
Start	Start graphics display.
Stop	Stop graphics display.
Exit (Alt+F4)	Finish work with program.
2. Options – commands used to configure interface of graphics display	
Grid configurations	Open the Grid configuration window – specify grid parameters to locate interface buttons: Rows count – quantity of horizontal rows; Columns count – quantity of columns.
Configure tabs	Open the Tab configurations window to create/delete tabs with a set of graphics buttons used for games streaming.
Configure views	Open the View plug-ins config window to configure tables with set of teams.
Configure buttons	Open the Title plug-ins config window to configure set of graphics buttons on tab (Sostav, Coach, DressingRoom, TimeOut, UpScore, Bullits, Player, etc.)
Configure special buttons	Open the Special buttons config window to configure hot keys and GPI events for commands of control output of prepared graphics buttons on air: StopAll – stop display of all graphics; AbortAll – Escape – graphics fades out quickly (FadeOut) without animation; Take – F1 – output graphics on air.
Configure preview	Open the Preview configuration window to configure size of graphics preview window.
Options	Open the Options configuration window to configure colours of displayed graphics status and to select output device in the Board type list (select available FDExt board).
3. Group's commands – commands used to display group of graphics	
Stop default group	Stop display of current graphics in group of graphics by default.
Stop group 1	Stop display of current graphics from group 1.
Stop group 2	Stop display of current graphics from group 2.
Stop group 3	Stop display of current graphics from group 3.
Abort all	Stop display of graphics without animation, via FadeOut.
Stop all	Stop display of graphics.

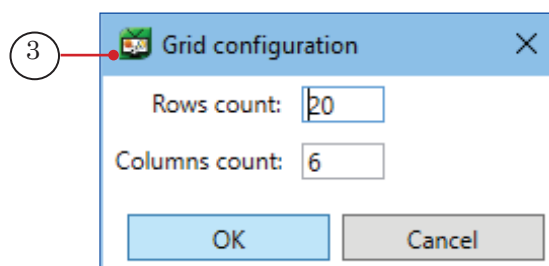
Menu command	Action
Take	Start output of graphics on air.
Use global short cuts	Enables mode of synchronous operation of hot keys for all programs of system.

5.5. Configuration of Program Interface

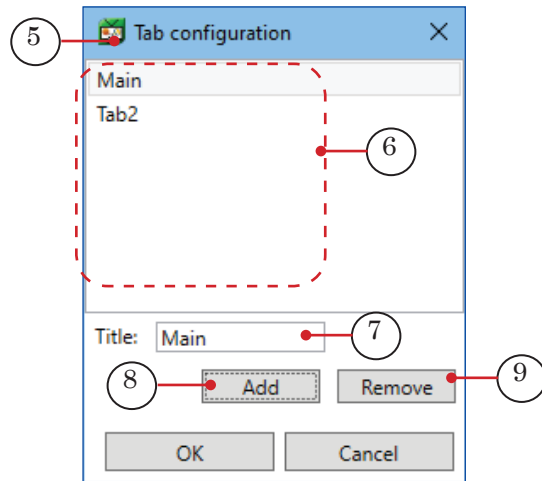
1. Complete the File > Stop menu command to change interface of the SLSportTitler program. The system is provided with ready settings as a rule.



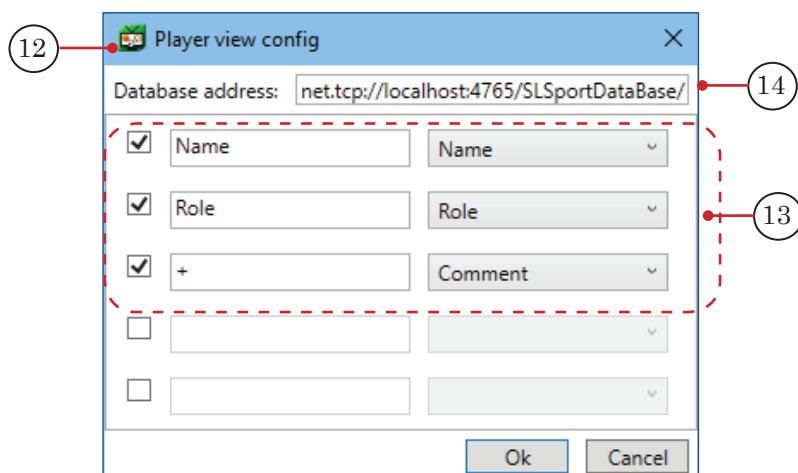
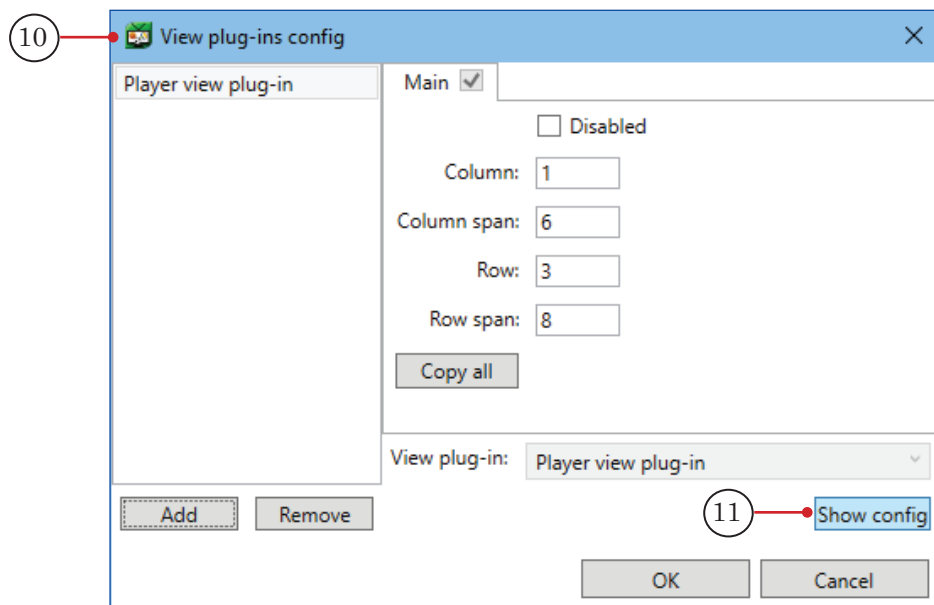
2. The Configure grid command (2) activates the Grid configuration window (3) to customize grid to locate graphics buttons there. Default size of grid is 20x6. Rows count is quantity of horizontal rows, Columns count is a quantity of vertical columns.



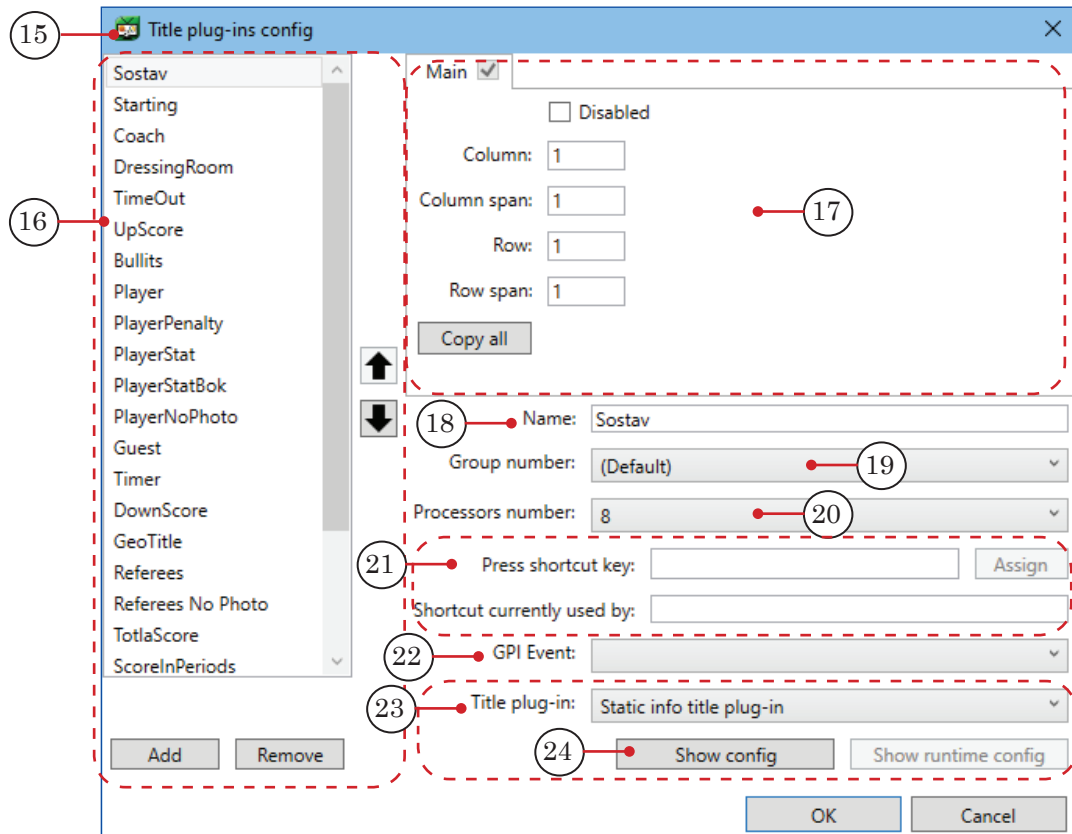
3. The Configure tabs button (4) activates the Tab configuration window (5) to create/delete (Add (8) and Remove buttons (9)) tabs with a set of graphics buttons. Specify name of tab in the Title field (7). All tabs are displayed in the (6) list.



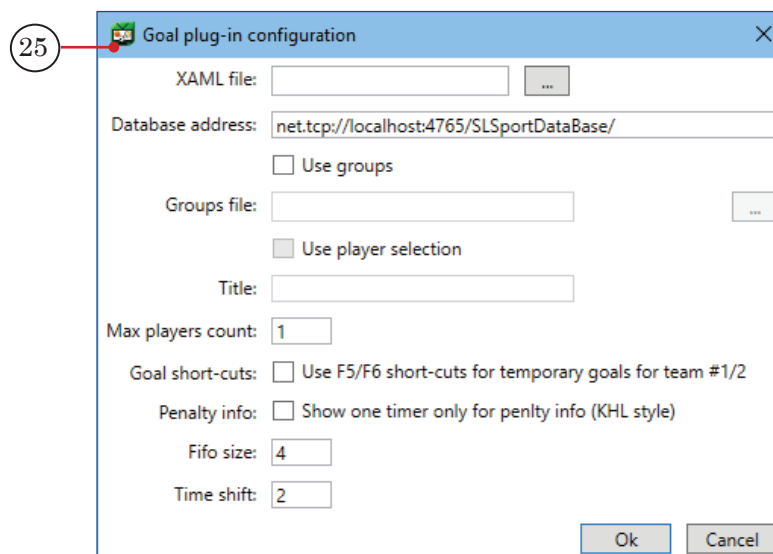
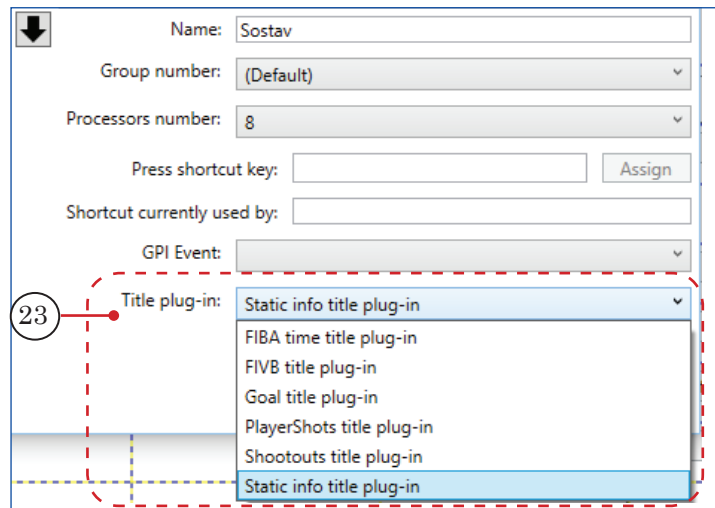
- The Options > Configure views menu command activates the View plug-ins config window (10) to configure interposition of elements of window interface by grid. The Show config button (11) activates the Player view config window (12) to customize configuration of tables with lists of teams (Name, Role, +)(13) and path to game database (14).



- The Options > Configure button menu command activates the Title plug-ins config window (15) to configure graphics buttons: list of buttons (16), location on program tab (17), graphics of Name button (18), number of Group number (19), Processors number (20) – quantity of processor cores used for generation of graphics, configuration of hot keys (21), configuration of GPI events (22), list of graphics types Title plug-in (23) – more often Static info title Plug-in displays state of data when button is released.

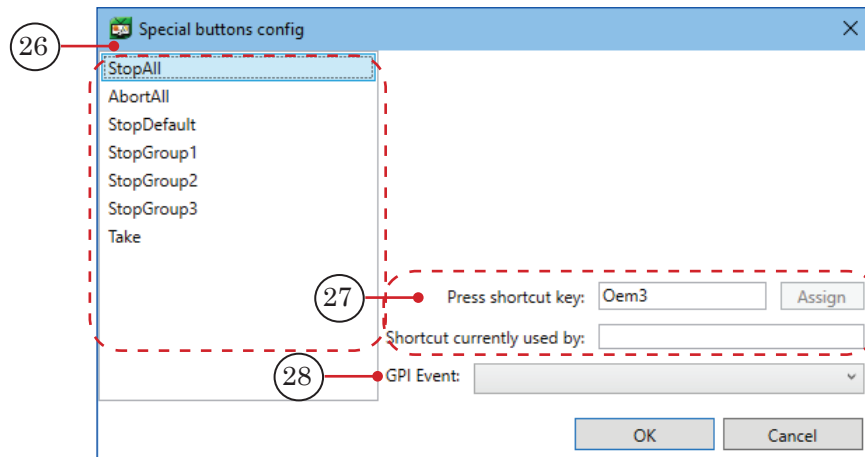


Click Show config (24). Different windows for configuration in the Title plug-in list (23) open depending on type of graphics. For example, Goal plug-in configuration (25).

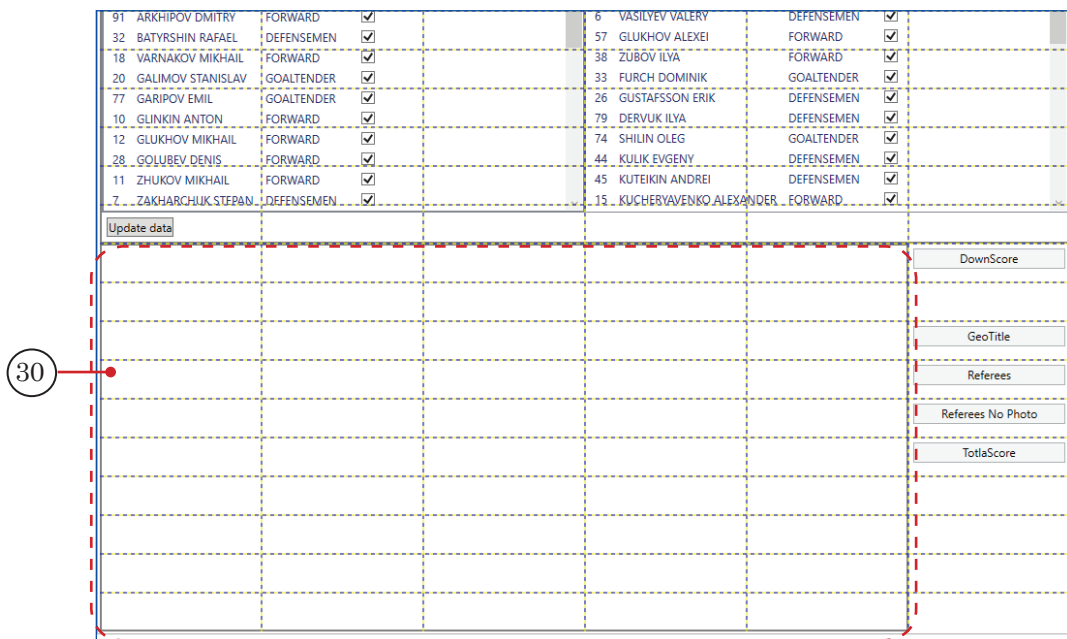
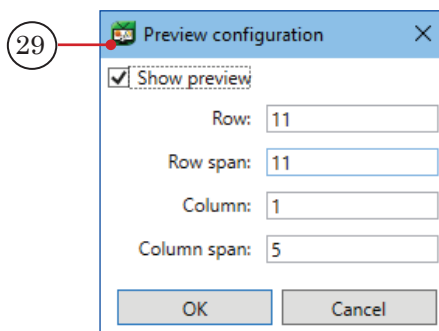


- FIBA time title plug-in – display of dynamic information in basketball;
- FIVB title plug-in – display of dynamic information in volleyball;
- Goal title plug-in – display of dynamic information in hockey/handball;
- PlayerShots title plug-in – display of field for shoots with FIBA design;
- Shootouts title plug-in – display of shootouts in hockey;
- Static info title plug-in – configuration of any parameters in static format (data is imported when the button is released and remains unchanged at its display).

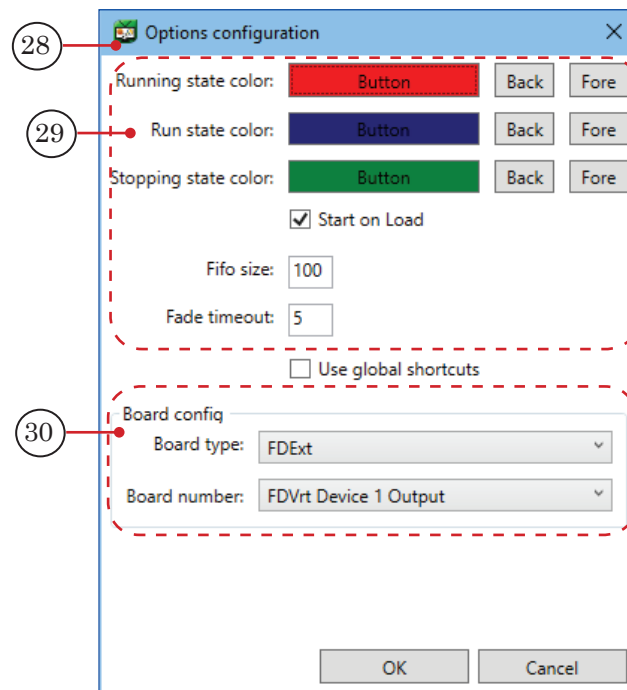
6. The Options > Configure special buttons menu command activates the Special buttons config window (26) to configure hot keys for commands of the main menu (27): StopAll, AbortAll, StopDefault, StopGroup1***3, Take and GPI Event (28).



- The Options > Configure preview menu command activates the Preview configuration window (29) to configure aspect ratio of graphics preview window (30). Span is a quantity of rows/ columns assigned to one button. Row is a coordinate of the left upper corner of window above (number of the upper row), Row span is a height of window, Column is a coordinate of the left upper corner on the left (number of column on the left), Column span is width of window.



8. The Options > Options main menu command activates the Options configuration window (28) to configure colours for different states of graphics buttons (29) and to select device for displaying Board config (30) – FDEExt input-output board.
 - Red Running state color – graphics is generated to start displaying (is not ready to be displayed);
 - Green Stopping state color – graphics is finished to be generated (is ready for display) and it generates data for end of display;
 - Blue Run state color – dynamic graphics, it has passed the Running step but hasn't start the Stopping step yet.

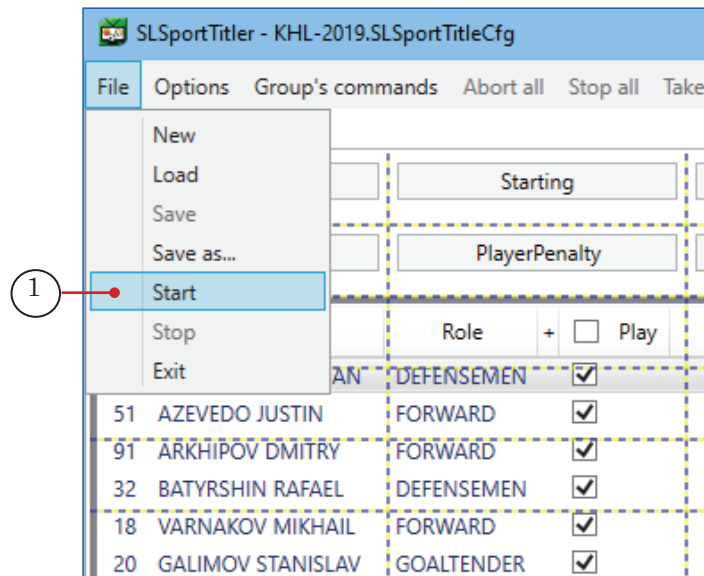


5.6. Control Over Titles Display

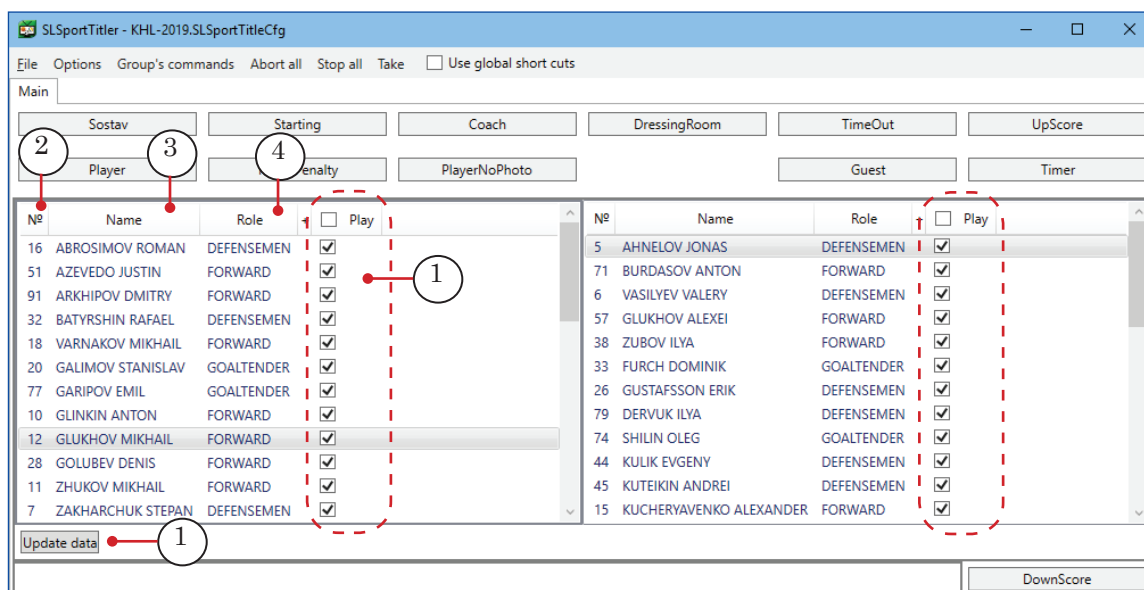
1. At start of the SLSportTitler program earlier created *.SLSportTitlerCfg graphics project in the SLSportTeamsEditor and SLIceHockeyReferee programs is opened. Also user can work with the File > Load command of the main program menu to open necessary project there.

№	Name	Role	+	Play
16	ABROSIMOV ROMAN	DEFENSEMEN		<input checked="" type="checkbox"/>
51	AZEVEDO JUSTIN	FORWARD		<input checked="" type="checkbox"/>
91	ARKHIPOV DMITRY	FORWARD		<input checked="" type="checkbox"/>
32	BATYRSHIN RAFAEL	DEFENSEMEN		<input checked="" type="checkbox"/>
18	VARNAKOV MIKHAIL	FORWARD		<input checked="" type="checkbox"/>
20	GALIMOV STANISLAV	GOALTENDER		<input checked="" type="checkbox"/>
77	GARIPOV EMIL	GOALTENDER		<input checked="" type="checkbox"/>
10	GLINKIN ANTON	FORWARD		<input checked="" type="checkbox"/>
12	GLUKHOV MIKHAIL	FORWARD		<input checked="" type="checkbox"/>
28	GOLUBEV DENIS	FORWARD		<input checked="" type="checkbox"/>
11	ZHUKOV MIKHAIL	FORWARD		<input checked="" type="checkbox"/>
7	ZAKHARCHUK STEPAN	DEFENSEMEN		<input checked="" type="checkbox"/>

- Execute the File > Start command (1) from the main program menu to start display of graphics.



- Update lists of players who participate game in tables with teams. For this put/remove players check boxes (1) in Play column.

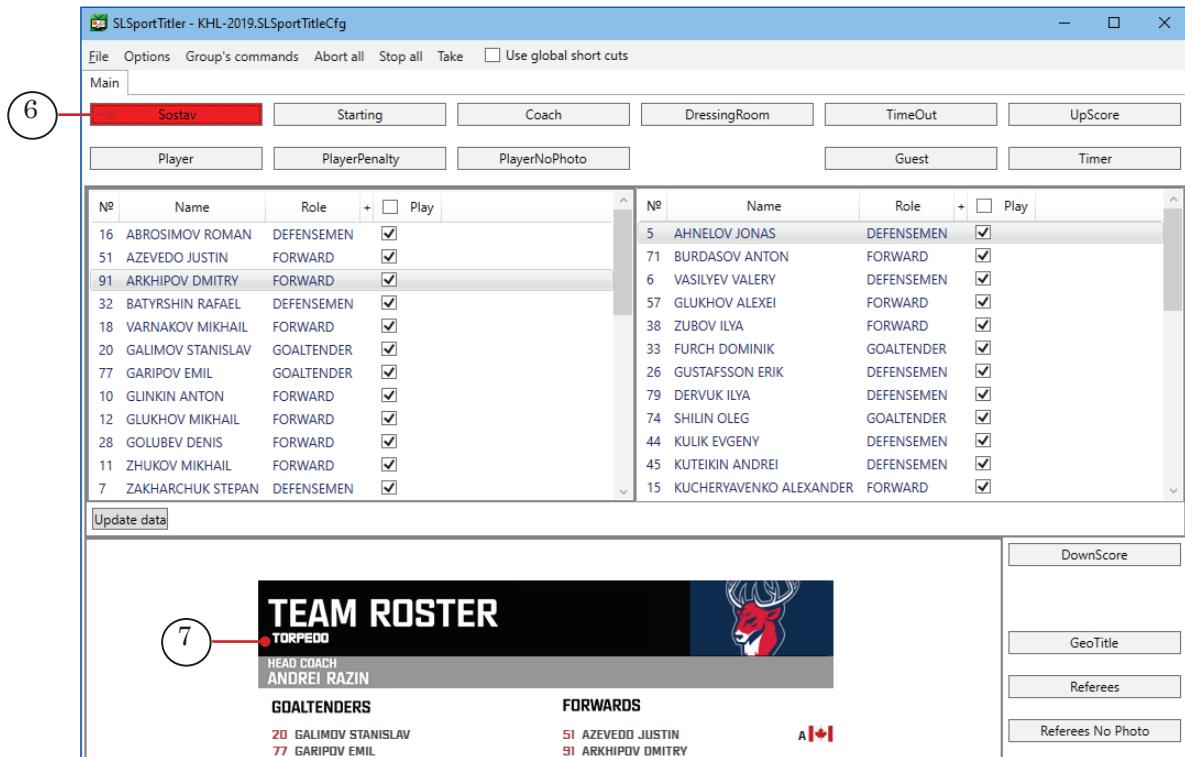


Use the following buttons to sort lists display:

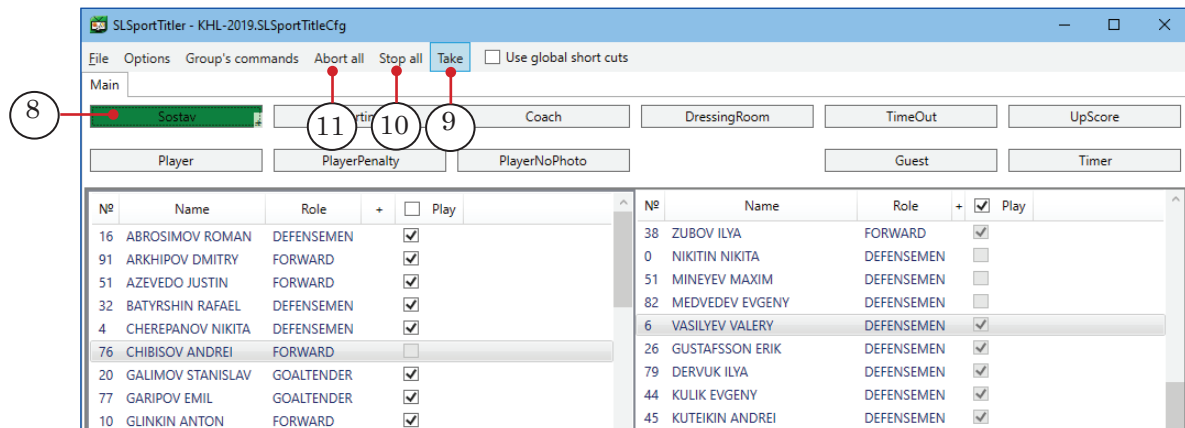
- № (2) – sorting list of players by numbers in ascending order;
- Name (3) – sorting list of players by names in alphabetical order;
- Role (4) – sorting list of players by role – goalkeepers (GOALTENDER), forwards (FORWARD), defenders (DEFENSEMEN).

Click Update data (5) to update data.

- Click corresponding graphics button (6) to output Sos-tav graphics on air. Red colour denotes that graphics is prepared for broadcasting and is displayed in preview window (7) with specified animation.



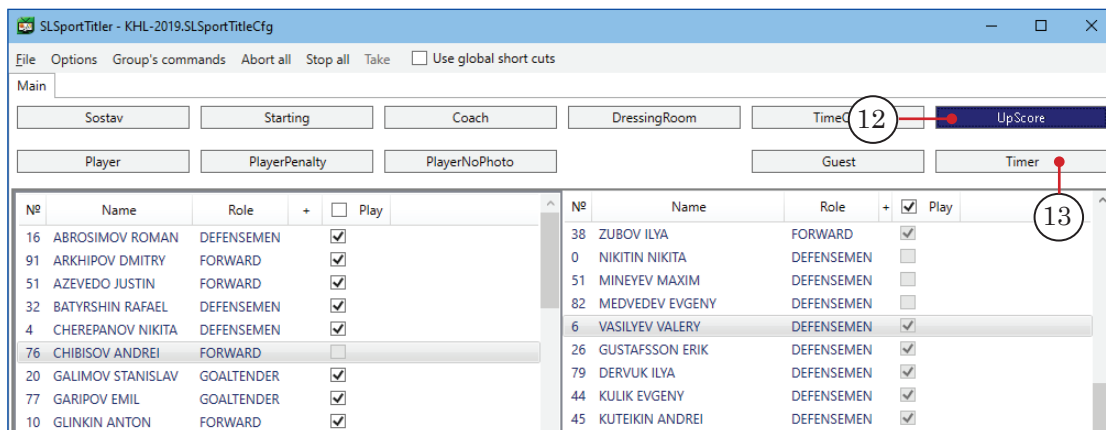
The Sostav button becomes green (8) in preview window when animation is finished. It denotes that graphics is ready to be displayed.



Click the Take button (9) from the main button to output graphics on air.

- User can stop display of graphics in several ways:
 - by clicking graphics button again;
 - by executing the Stop all command (10) of the main program menu – graphics disappears with final animation;

- by executing the Abort all command (11) of the main program menu – graphics fades out quickly (via the FadeOut without final animation).
6. Via some buttons user can output graphics on air without preview automatically. For example, display of upper score – the UpScore button (12) or Timer (13).



























Interface of Forward Sport Titles Software






Commnads of SLSportTeamsEditor Database Editor

Configuration and control over completion of tables with database of game is executed via commands of the main program menu or buttons located on toolbar of each table editor.

Table. Program commands

Menu command	Button on toolbar/in window	Action
1. File – commands used to create and save game database.		
New		Create new game.
Open		Load information from database (*.TitleDB file).
Save (Ctrl+S)		Save information to database.
Save as***		Save information to database in new file.
		Monitor state of FIBA game.
Exit (Alt+F4)		Finish work with program.
2. Edit – commands used to complete tables with information about game, teams, players.		
GAME table		
Clear		Clear information about game.
Import from CSV		Import information about game from *.csv file.
		Import information about teams and players from FIBA log file.
Export to CSV		Export information about game to *.csv file.

Menu command	Button on toolbar/in window	Action
TRANSLATIONS table		
Clear		Clear information by default.
Import from CSV		Import translations from *.csv file.
Export to CSV		Export translations to *.csv file.
First team info table		
Clear		Clear information about the first team.
Import from CSV		Import information about the first team from *.csv file.
Import from KHL database		Import information about team and players from the first team from KHL database.
Export to CSV		Export information about the first team to *.csv file.
Second team info table		
Clear		Clear information about the second team.
Import from CSV		Import information about the second team from *.csv file.
Import from KHL database		Import information about team and players from the second team from KHL database.
Export to CSV		Export information about the second team to *.csv file.
First team players table		
Clear		Clear information about players from the first team.
Import from CSV		Import information about players from the first team from *.csv file.
Export to CSV		Export information about players from the first team to *.csv file.
		Add new player to the first team.
		Delete selected player from the first team.

Menu command	Button on toolbar/in window	Action
Second team players table		
Clear		Clear information about players from the second team.
Import from CSV		Import information about players from the second team from *.csv file.
Export to CSV		Export information about players from the second team to *.csv file.
		Add new player to the second team.
		Delete selected player from the second team.
Settings		Open the Settings window to provide access to statistics on KHL website (http://stat2tv.khl.ru).
3. Help – information about program.		
About program***		Open window with a service data including information about version of Forward Sport Titles software version.

Useful Links

SoftLab-NSK products: description, download, documentation

<https://www.softlab.tv/en/>

Support

e-mail: forward@sl.iae.nsk.su

forward@softlab-nsk.com

forward@softlab.tv

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