

# Forward Goalkeeper



System for Preparing and Playback of  
Slow Motion Replays

*Revision as of  
December 16, 2013*

User's Guide

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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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## Introduction

The «Forward Goalkeeper» system is a hardware/software complex developed for organizing of instant replay of moments happened during sport game and other events. The system works in a real-time mode.

The system allows organizing multichannel recording of video and audio data into storages (up to 10 channels), preparing and replaying the most interesting events of match.

This guide is intended for operator who manages the «Forward Goalkeeper» slow motion replay system. The document describes workflows before, during and after match.



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## General Information

### 1. Set of Programs

The main set of needed programs includes the FDReplayCapture and FDReplayMachineConsole programs.

The FDReplayCapture program is used for capturing video and audio data from board inputs into storages. The program allows to customize capture lines, launch/stop capture into storages (more information on this issue you can find in the [«FDPostPlayCapture. Application for input of video and audio data into PostPlay storages, dealing with storages using the FD322, FD422, FD842 boards» user's guide](#)).

Note: Previous versions of the system are based on the FD300 board. In such versions FDReplayVideoIn program is used to capture signal into storages and control them. For more details see the [corresponding user's guide](#).

The FDReplayMachineConsole program is used to control instant replays. The program allows:

- marking the most interesting moments in recorded sport game in a real-time mode, during the game and when it is over;
- playback of replays during the game;
- preparing of a playlist and its playback in breaks;
- exporting of a video report from playlist.

Note: For solutions with a different quantity of capture lines different variants of programs are used: FDReplayMachineConsole (up to 4 capture lines) and FDReplayMachineConsole8ch (more than 4 capture lines).



## 2. General Scheme of Dealing with Programs

Before match	Operator: 1. Launches the FDReplayCapture program (or the FDReplayVideoIn program) and starts capturing of data into storages (up to 10 capture lines, depending on used solution); 2. Launches the FDReplayMachine Console program.
During match	1. The match is automatically recorded into storages by means of the FDReplayCapture program (or the FDReplayVideoIn program).  2. Operator deals with the FDReplayMachine Console program: – marks interesting events during match; – controls over replaying of marked events.
After match	Operator deals with the programs: 1. FDReplayCapture (or the FDReplayVideoIn program): <ul style="list-style-type: none"><li>● stops capturing of data into storages;</li><li>● stops work of the program.</li></ul> 2. FDReplayMachine Console: <ul style="list-style-type: none"><li>● creates video report with important events of the match;</li><li>● stops work of the program.</li></ul> 3. RPMStorageManager: <ul style="list-style-type: none"><li>● moves recording of the match from storages into archive;</li><li>● stops work of the program.</li></ul>

This document provides with a detailed description of operator actions given above.

A full scheme of dealing with the «Forward Goalkeeper» system you can find in the «Forward Goalkeeper System. Scheme of Use» guide (the document is currently under development).

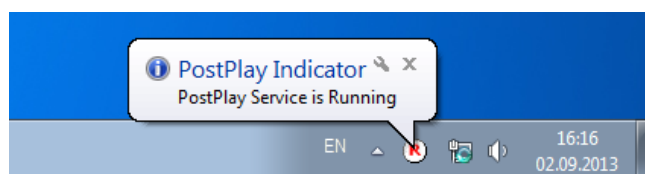


# Instruction

## Before a Game

### 1. Launch of the System

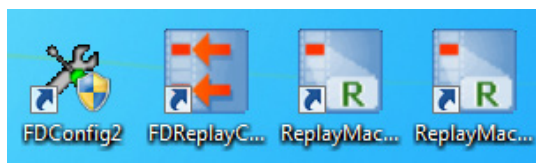
1. Turn PC on.
2. Wait till the pop-up message on launching of the PostPlay Service appears above the icon of PostPlay Indicator in the Windows taskbar notification area: PostPlay Service is Running.



- Note:
1. PostPlay Indicator is a program included in the «Forward Goalkeeper» software set. It is launched automatically when Windows is started.
  2. PostPlay Service is a service program of the «Forward Goalkeeper» system.  
The PostPlay Service and the PostPlay Indicator applications are components necessary for working of the «Forward Goalkeeper» system.
  3. Mentioned programs (1, 2) are launched automatically at starting of Windows if default settings are active.
3. Shortcuts of the main programs of the «Forward Goalkeeper» system are located on the desktop:
    - FDConfig2 is a program for customizing of boards for data input/output;
    - FDReplayCapture is a program for customizing and control capturing of video and audio data into storages;

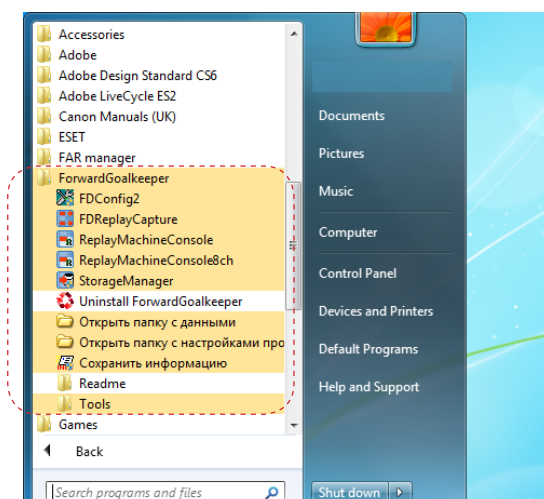


- ReplayMachineConsole (ReplayMachineConsole8ch) is a program to control replays.



Note: Deal with another programs if the solution is based on the FD300 boards: in this case FDConfiguration program is used for customizing of boards; FDVideoIn #1, FDVideoIn #2 are used for capturing of signal into storages.

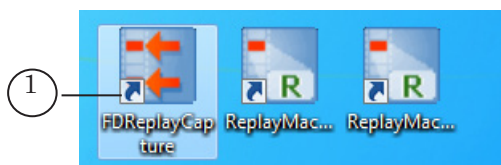
4. The Start > Programs > ForwardGoalkeeper menu has a set of commands to open programs included in the software set.



## 2. Start of Data Capturing Into Storages

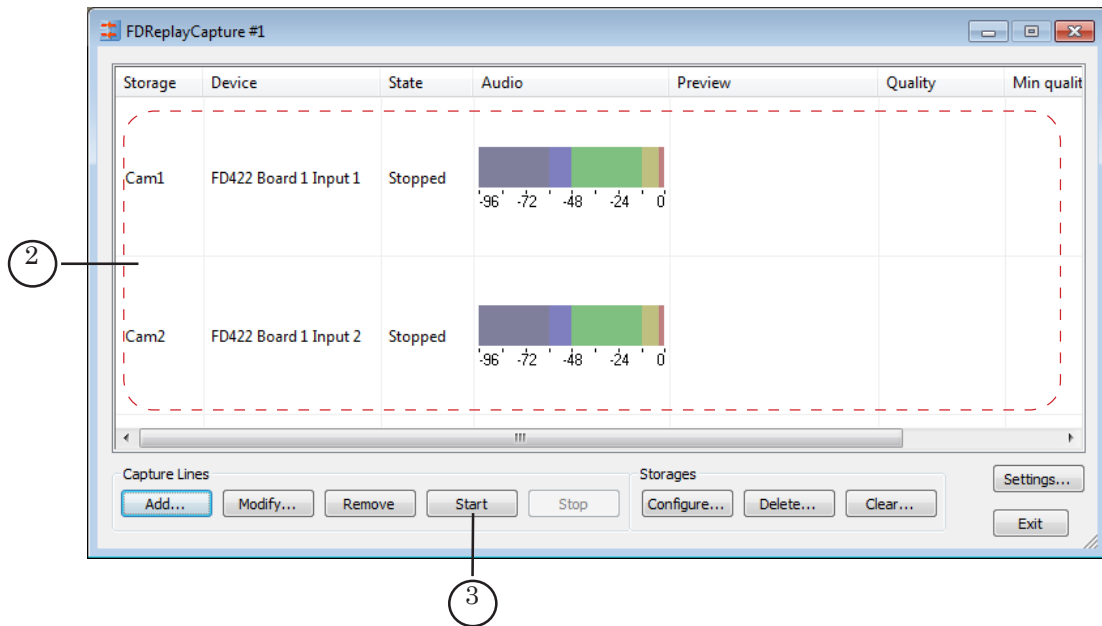
Note: The instruction is useful in cases when all preliminary settings are made, needed storages are created and capture lines are customized. If settings are not made or some parameters you wish to change then see corresponding sections of the present instruction. More information on dealing with the FDReplayCapture program you can find in the [«FDPostPlayCapture. Input of Audio and Video Data Into Storages, Dealing with Storages Using the FD322, FD422, FD842 Boards» user's guide.](#)

1. Double-click the FDReplayCapture shortcut (1).

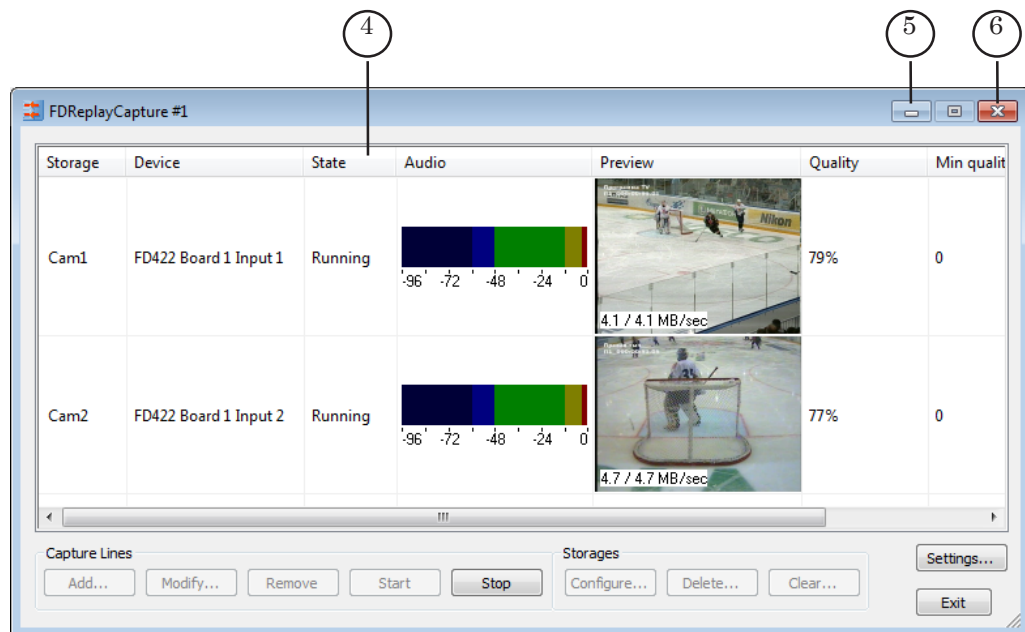




2. Program window with a list of customized capture lines appears (2). Click Start (3) to start capturing signal from cameras (connected to boards inputs) into storages.



3. Capturing is started. The Running status for each line in the State column (4) appears. Preview area displays frames of captured video (frames are updated several times per second).



4. Minimize the FDReplayCapture program window by clicking one of the buttons (5, 6).

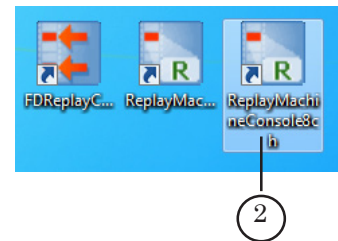
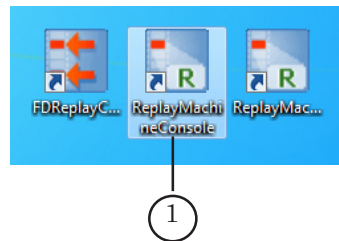


Capturing is not interrupted. The program continues working. The (7) program icon appears in Windows taskbar notification area.



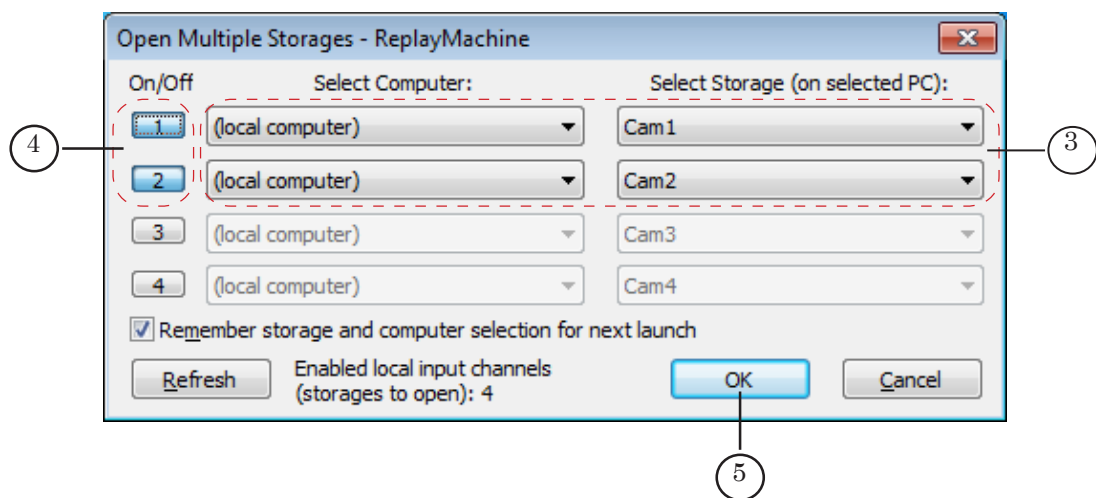
### 3. Launch of FDReplayMachine Console

1. Start one of the programs by double-clicking its shortcut located on desktop depending on quantity of capture lines:
  - 4 lines or less – ReplayMachineConsole (1);
  - more than 4 lines – ReplayMachineConsole8ch (2).



Note: The following information is given basing on example with 2 capture lines in the ReplayMachine Console program.

2. Be sure that you selected that storages where data is captured to (3). Data was started to capture into these storages at the previous step. You can use the On/Off buttons (4) that are active.

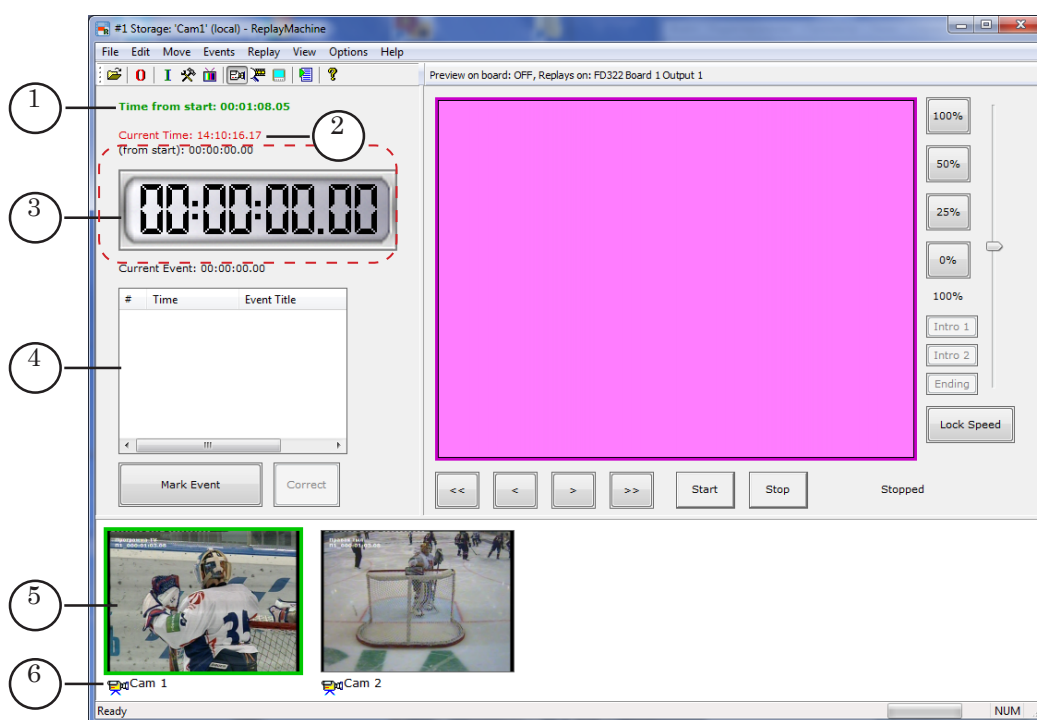


Selection of storages is usually made in advance. It is recommended not to change their selection. Click OK (5) to pass to the next step.



## 4. The FDReplayMachine Console Program Window After Launch and The First Steps

1. The following information is displayed in the program window before any actions are implemented:
  - time from start (1) is a time period from start of program launch;
  - Current Time indicator (2) displays time that corresponds to the current position of video previewing;
  - current previewing position is at the beginning of storage, it corresponds to the 00:00:00.00 mark (3);
  - list of events (4) is empty;
  - images in small preview windows (5) depend on current mode:
    - video from specified board (boards) inputs – in this case camera icon is in windows captions (6);
    - storages content that corresponds to a zero time value, there is no camera icon in this case.



Note: More information on control elements of the main program window you can find in the «FDReplayMachine Console. Program Interface» section.

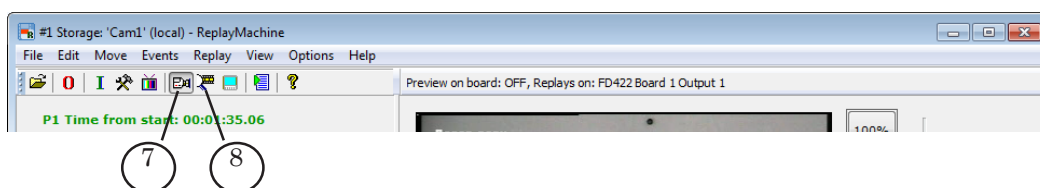




Name and mark on the picture	Purpose	State when program is launched
Time from start (1)	Indicates current period index (if mode of period counting is on) and playing time counted from start of period/game.	Counts time from the first program launch.
Indicators of the current position of video previewing:		
Current Time (2)	Displays time that corresponds to the current position of video previewing.	Displays time of program start (daily time).
(from start) (3):	There are 2 elements that duplicate each other here: line with small numbers and indicator with larger numbers. The elements display playing time (time from start) that corresponds to current position of video previewing.	Displays 00:00:00:00.
Current Event	Displays information on event selected as current in the list: serial index, time mark.	Displays 00:00:00:00.

2. If you want to change preview mode use one of the following ways:

1. To display video from input lines press the Ctrl+I combination or the (7) button located on toolbar (the same is the View > Switch to Input Preview command).



2. To display frames of video from storages press the Ctrl+T combination or the (8) button located on toolbar (the same is the View > Switch View Storages command).

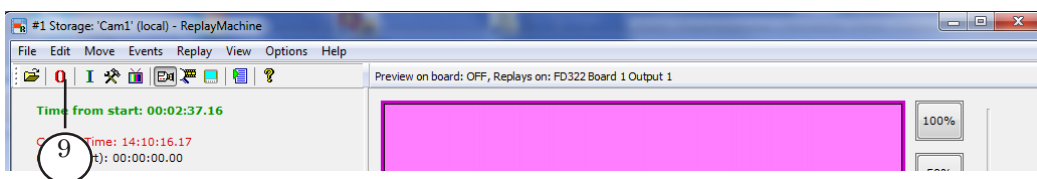


3. For a quick switching from one mode to another use the Tab key (the same is the View > Switch Between Input Preview/View Storages command).

3. Complete the following if it is necessary to start counting time from zero (reset it):

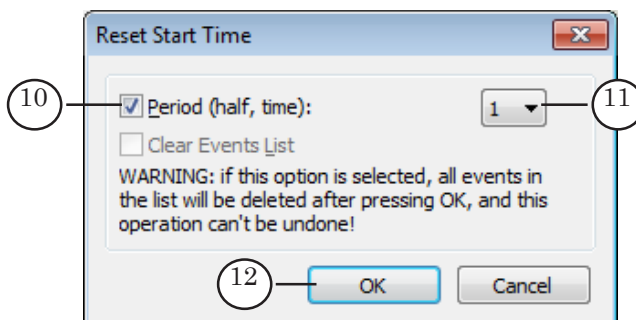
Note: We recommend to reset playing time before start of a game.

1. Click the Reset Start Time button (9) on toolbar (the same is the Edit > Reset Start Time command).



2. If it is necessary to take into account periods of game then put the Period (half, time) mark (10). Then select period in the list (11).

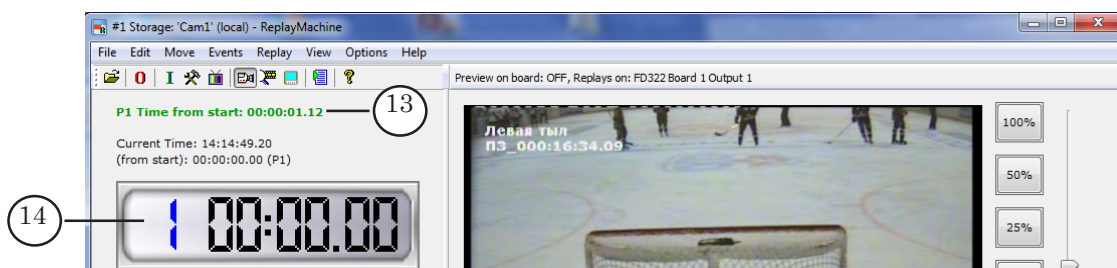
Note: You can specify number of period by pressing key with a corresponding number on keyboard (1–9). Press 0 to refuse periods counting.



3. Click OK (12).

4. Timer is reset.

Time is started again (13). If period is specified then its number is displayed on the current time indicator (14) (in the case if default settings are active).





## During Game: Main Operator Actions

### 1. General Information

Operator works in the FDReplayMachine Console program window (more information you can find in the subsequent sections):

1. Operator creates (marks) events during game in a real time mode.

Event is an important occurrence happened during the match that is specially marked by the operator. The event can be marked either directly after it has happened or later with the use of recorded material.

The application provides a possibility of marking the events and assigning them different types, for example, Goal or Violation. Events with types are marked with different colors (1). Parameters of marking are specified preliminary (see the «General Settings. Events» section).

All marked events are placed in the table. The table displays their characteristics: serial number, time and title.

2. Operator customizes moments to be replayed later basing on marked events (camera, start of the event, etc.). Then he replays interesting moments when needed.
3. Operator can customize playlist basing on marked events. Playlist is a set of interesting moments happened during the game. Operator can play this list operatively during break. Besides fragments of game he can also add some other video files to the list. More information on this issue see in the «FDReferee Workplace For Video Goal Judge. Record of match, mark and review of sport events» user's guide, pp. 30–48.

Different ways of marking events commands and control over replays are supported:

- via buttons and the main program menu:
  - using mouse;
  - touching buttons on the screen (if touch screen is used);
- via hot keys;
- via buttons, wheel and external console elements.



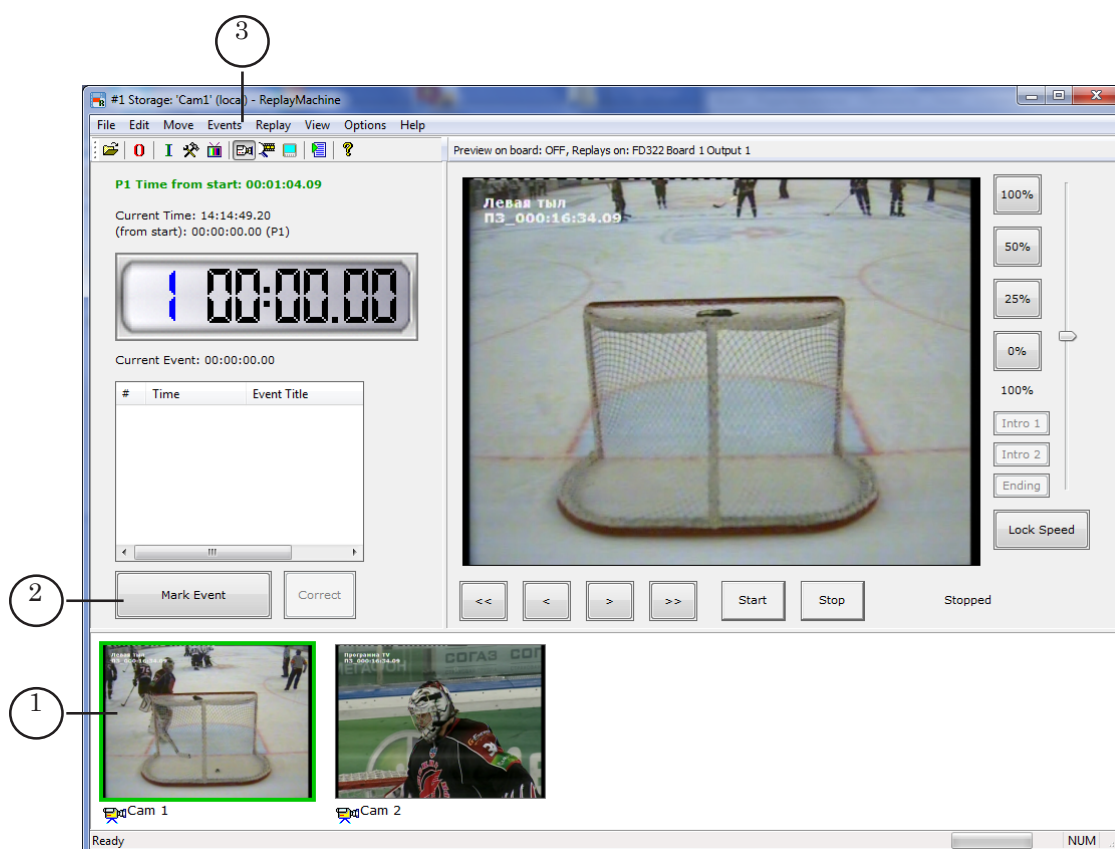
## 2. Marking of Event When It Happens

### 1. Marking Without Type Indication

Note: You can observe current game (live video) via preview windows of the main program window (1) when mode of input video is on (Ctrl+I).

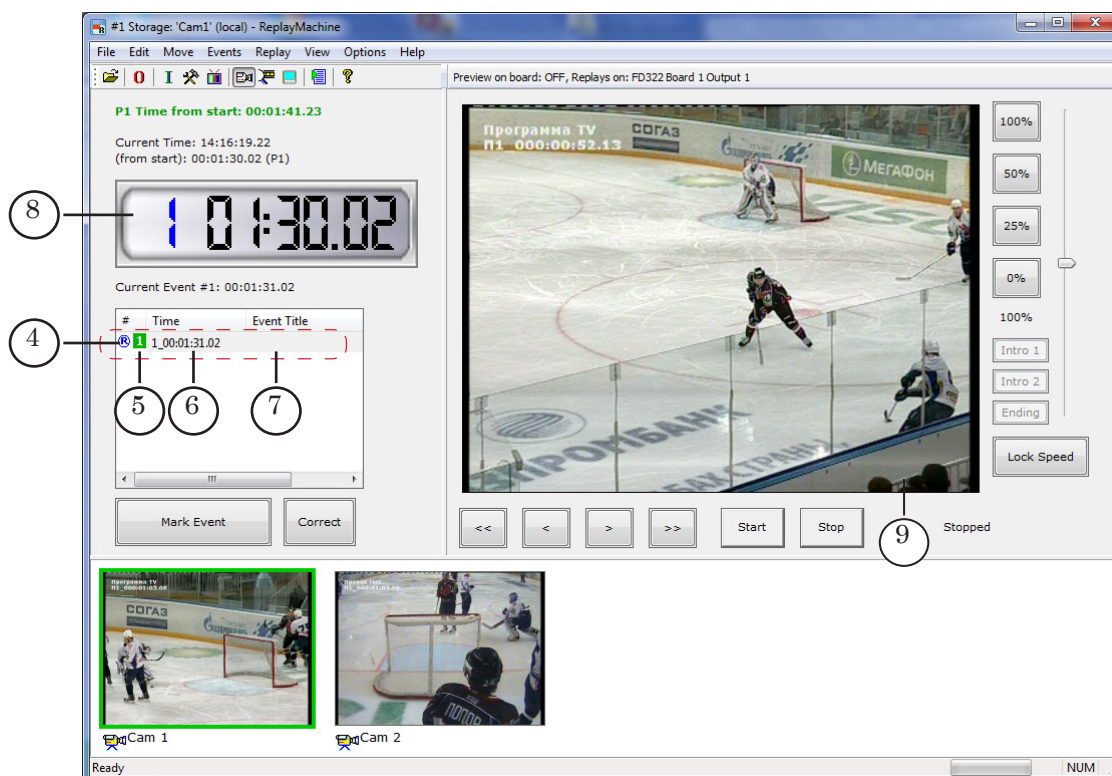
Use one of the ways to mark event in a real time without indicating its type:

- press Space on keyboard;
- click the Mark Event button (2) in the main program window;
- select the Events > Mark Event command in the (3) menu.



Line with a new event (4) is added to the list of events. When you marked event:

1. Its index is marked by green (5) as marked event becomes a current one.
2. Time when marked event has happened (6) is the same as playing time at the moment when the Mark Event command is executed.
3. Event is without name (7) as it is marked without type indicating.



4. Time of current preview position (8) is either the same as time when event has happened or some seconds back before it happens (from 0 up to 9 seconds, depending on current settings). If default settings are active then in 1 second before event is marked.

Note: Such automatic back shifting allows compensating time necessary for operator to mark event and find position the most close to start of interesting moment. It is useful for cases when necessary to broadcast repeat of event on air immediately. Besides it is convenient as the first frame is the frame that corresponds to current position. Shifting time is specified in the **General** window on the **Events** tab (see the «General Settings. Events» section). Default value is 1 second.

5. The main program window (9) displays frame of video from current storage that corresponds to current position.



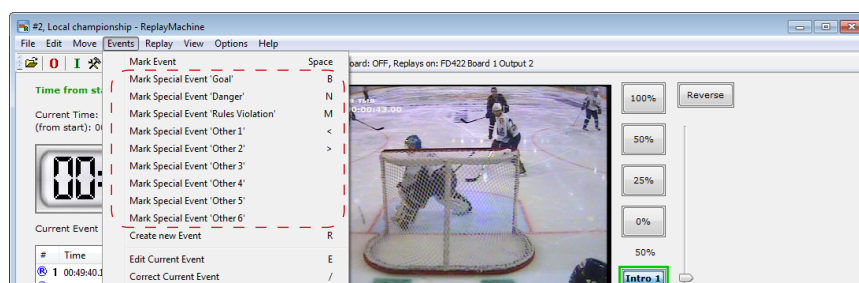
## 2. Marking With Type Indication (Special Event)

Use one of the following ways to mark event with indicating its type (special event):

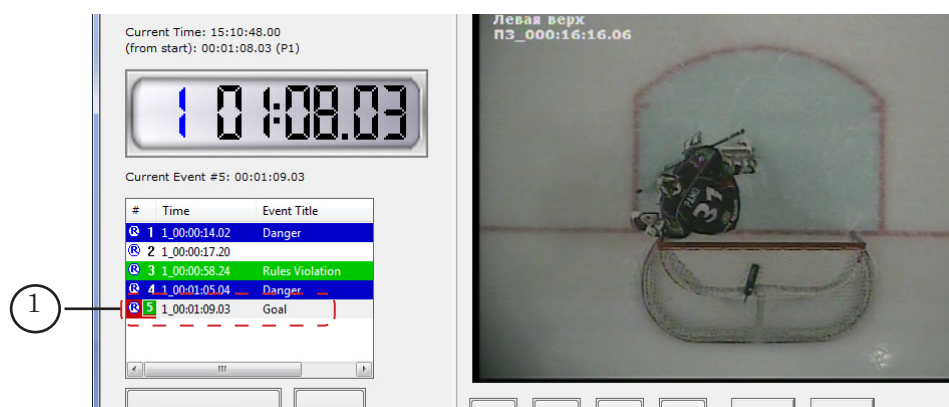
- press a corresponding button on a keyboard:
  - B – «Goal»;
  - N – «Danger»;
  - M – «Violation»;
  - < – special event «Other 1»;
  - > – special event «Other 2»;

Note: Names of events are given for cases when default settings are active. To change the names and other parameters use the **General Settings > Events** window.

- select the **Events > Mark Special Event 'Name'** command, where Name is name of event.



Line with a new event (1) is added to the list of events. Its specified type is in the Event Title column. All other aspects are the same as in cases of marking usual events (see the above given paragraph, items 1, 2, 4, 5).



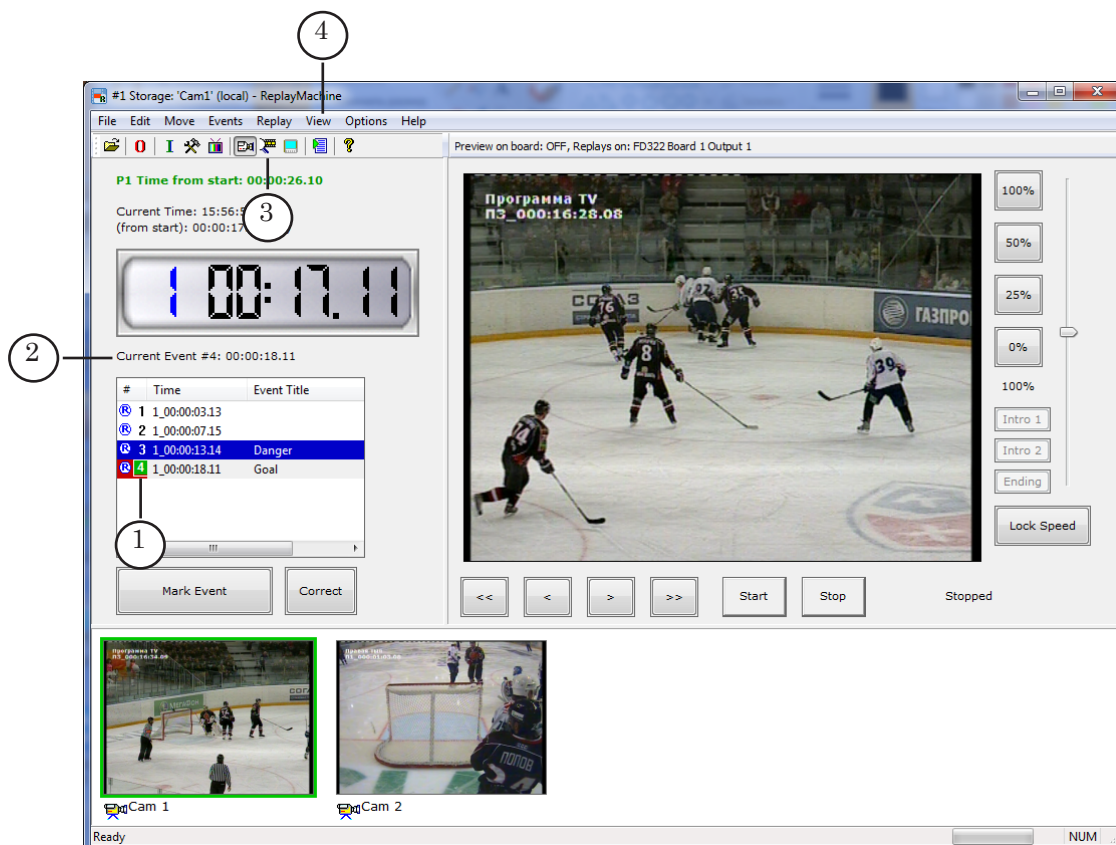




### 3. Correction of Events

#### 1. Correction of Current Event

1. Correcting allows changing time and/or type of current event.  
Current event indicator is an index with a green background (1). Index and time of current event are located in information field (2).



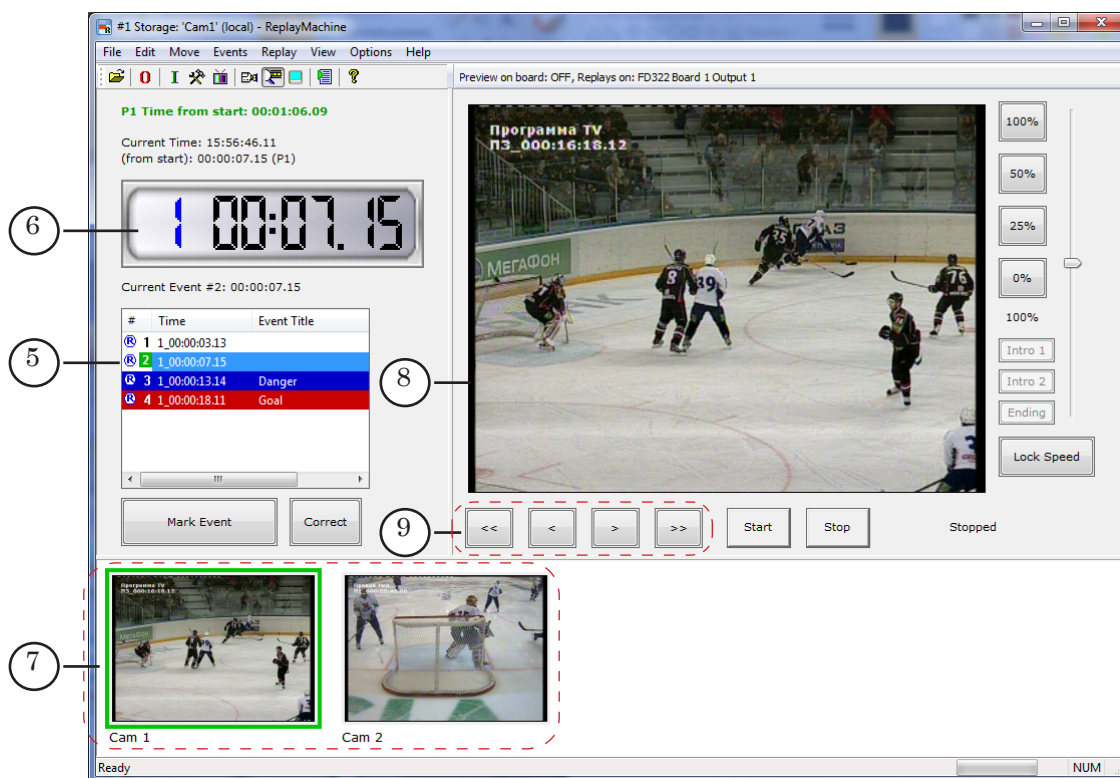
2. Switch to mode of previewing of current position storages frames in one of the following ways:
  - combination of the Ctrl+T buttons;
  - clicking the (3) toolbar icon;
  - via the View > Switch to View Storages menu command (4).
3. Double-click event line (5) in the list if event that you want to correct is not a current one.

Note: The recommendations are given for cases when default settings are active. You can change way of current event selection by single/double clicking in the Options > Events window.

4. Current position (6) is moved to the point that corresponds to event time. Preview windows (7, 8) display frames from storages. The frames correspond to current position of event



mark. Large preview window displays a current frame from the current storage.



5. Complete this step if you want to change time of current event. If you want to change only its type then pass to step 6.

Specify moment that corresponds to new event mark by navigating recorded video material. Watch frames displayed in preview windows.

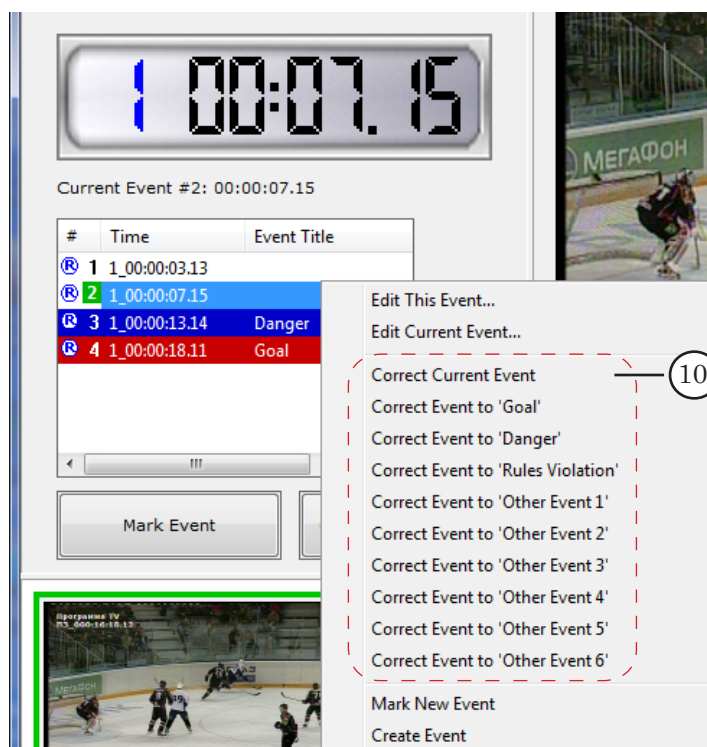
Navigation is implemented via the buttons (9), mouse wheel or ways given in the table below.



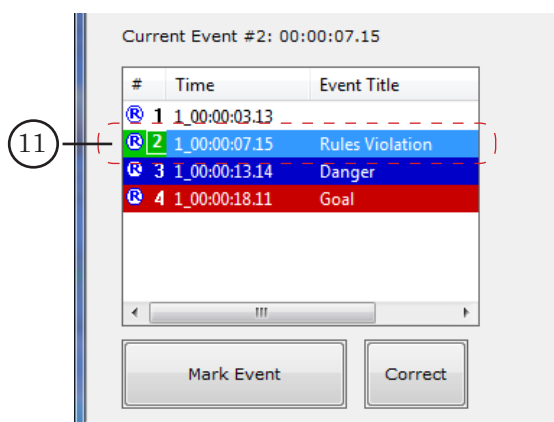


Move menu command	Keyboard key	Button in the main application window	Notes
Left one Step	←		Moving one step left/right. Step is equal to 1 frame by default.
Right one Step	→		Step is adjusted in the interface configuration window when necessary.
Left some Frames	↑		Moving some frames left/right. Dealing with default settings there is 5-frames moving.
Right some Frames	↓		Quantity of frames can be varied in the interface configuration window.
0 Seconds Back	0		<p>Moving specified number of seconds back from current event. There is no recurring moving when the button is pressed again.</p> <p>For example, when 3 is pressed the frame located 3 seconds back from the current event mark is displayed in preview windows. If 0 is pressed then another frame (corresponding to event mark) is displayed.</p> <p style="text-align: center;">t, c</p> <p style="text-align: center;">Event mark</p>
1 Second Back	1		
2 Seconds Back	2		
3 Seconds Back	3		
4 Seconds Back	4		
5 Seconds Back	5		
6 Seconds Back	6		
7 Seconds Back	7		
8 Seconds Back	8		
9 Seconds Back	9		

6. Select one of the commands in context menu (10) by right-clicking in events list:
  - if you need to correct only time of event – Correct Current Event, also:
    - pressing the «/» key on the keyboard;
    - clicking Correct in the main application window;
    - selecting Events > Correct Current Event menu command;
  - if you need to correct either type or type and time of event then – Correct Current Event to 'Name', Name denotes type of event. You can deal here with corresponding commands of the Event menu.



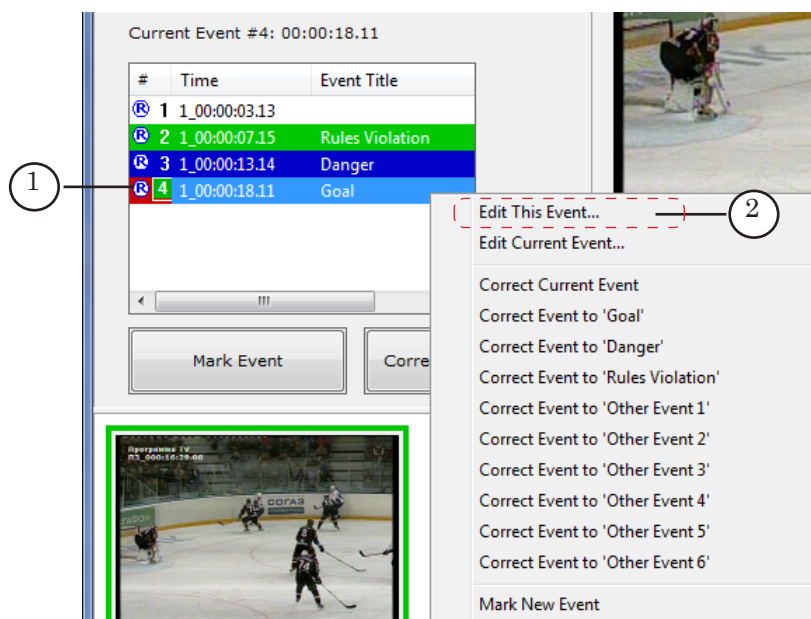
7. Time that corresponds to event is changed (11).



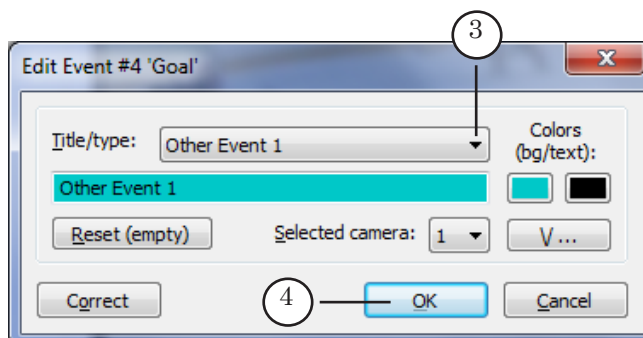
## 2. Changing Type of Any Event

Complete the following to change type of event if it is not a current one. Complete the following for this:

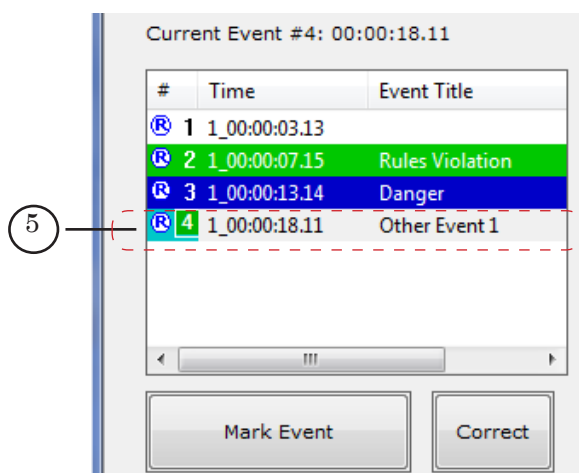
1. Right-click event (1). Select the Edit This Event... command in the appeared context menu (2).



2. Select necessary type of event in the Title/Type appeared drop-down list (3). Then click OK (4).



3. Type of event is changed.



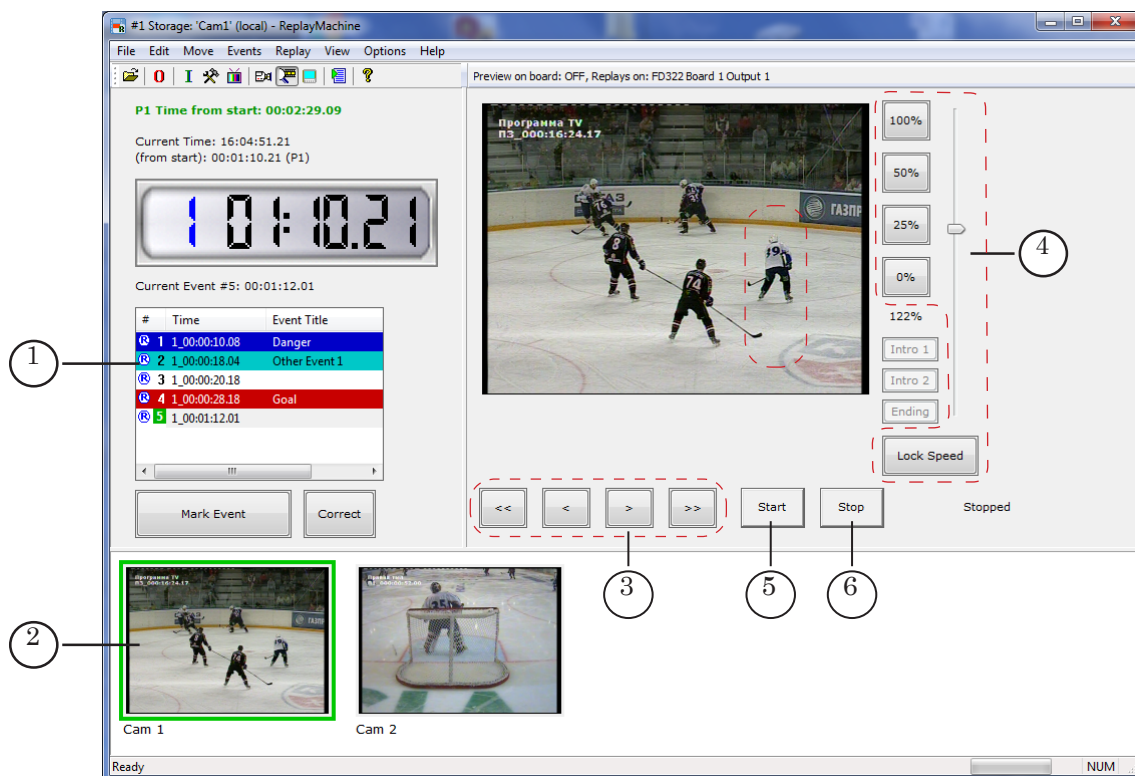


## 4. Adjusting and Launching of Replays

### 1. Brief Instruction

Complete the following to launch playback of replays (for more details see the subsequent section):

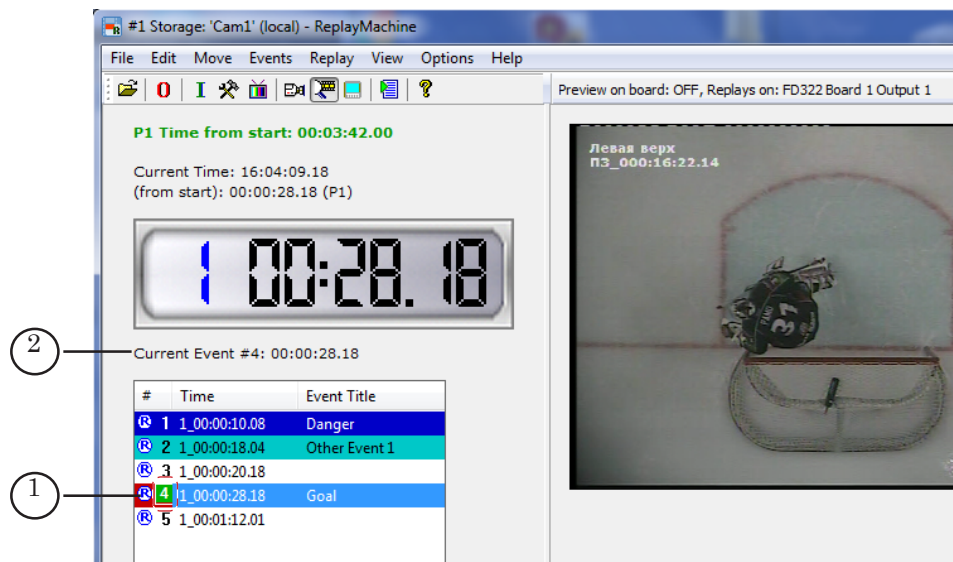
1. Select event necessary to be replayed. It can be the last marked event or event marked earlier.
2. Select storage which recorded material is to be replayed.
3. Select the first replay frame. It can be a frame that corresponds to time of event mark or some other – several seconds or frames earlier/later the mark.
4. Set playback speed of replay: from – 100% up to + 200% relatively real speed.
5. Start playback of replay via the Start button. There are 2 modes of replays playback: usual and delayed (via pause). When replay is playing you can prepare the next replay moment or mark other events.
6. Click Stop to stop replay and switch to input video viewing.



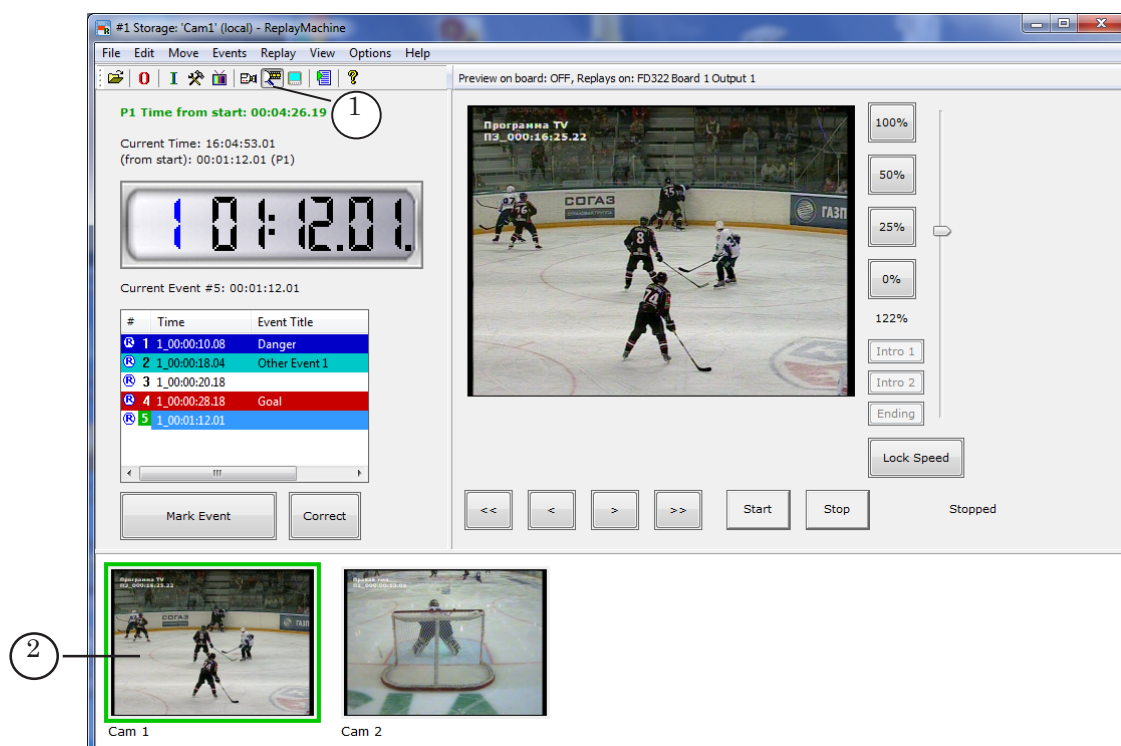


## 2. Detailed Instruction

Note: Adjusting and launching of replay typically are implemented for event that has a current status. Current event indicator is event serial number on a green background (1). Index and time of current event are displayed in information field (2).



1. Switch mode of storages navigation on by clicking the icon (1) located on a toolbar. Frames from storages (2) that correspond to current position are displayed in preview windows in this mode.

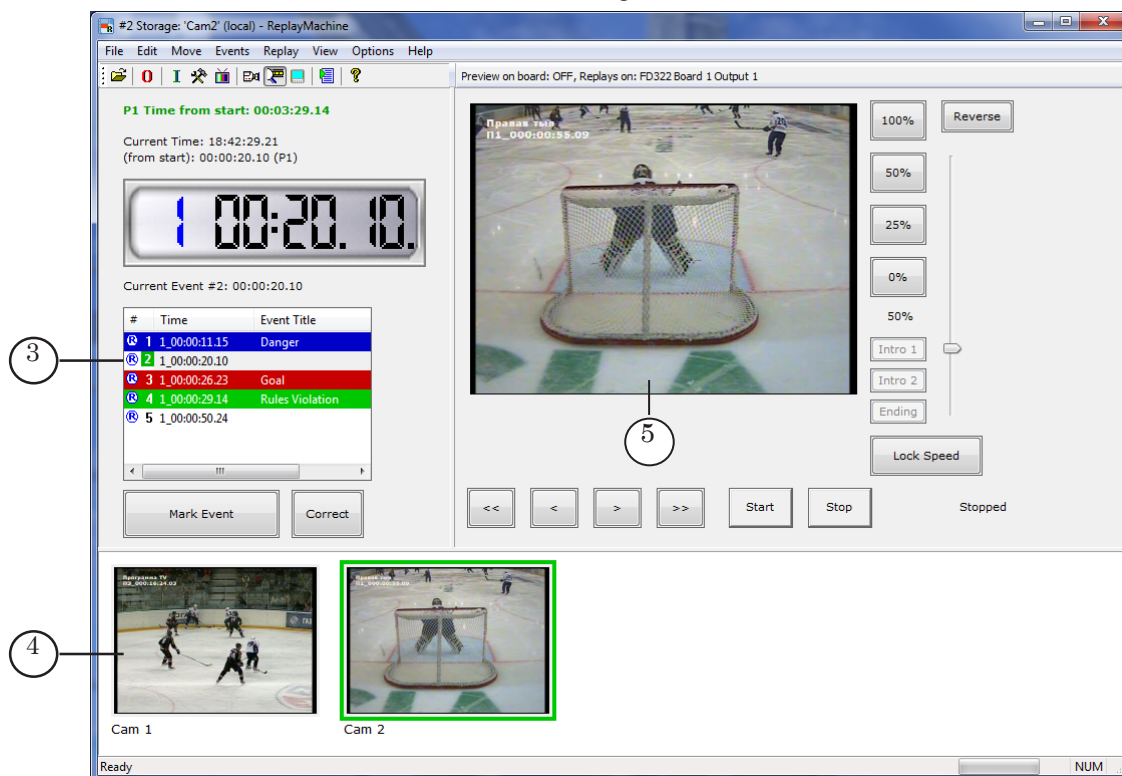


You can also switch to storages navigation by pressing Ctrl+T or via the View > Switch to View Storages command.



2. Select event to be replayed in the list with events by double-clicking it (3). The event becomes current. Current position becomes a point that corresponds to time of this event.

Note: The recommendations are given for cases when default settings are active. You can change way of current event selection by single/double clicking in the **General Settings > Events** window.



Note: You can also select events using hot keys:

PgUp is used to move to the previous event in the list and select it as current one;

PgDn is used to move to the next event in the list and select it as current one;

End is used to move to the last event in the list and select it as current one.

3. Green frame (4) denotes that corresponding storage (camera) is current. Recorded material of this storage is played at slow motion replay later.

Click storage preview window to select another storage.

Frames from current storage are displayed in a large preview window (5).

Note: You can also navigate storages using hot keys or via the **Edit** menu commands.





### Hot Keys



Hot key	Used to select...
Z	Camera 1
X	Camera 2
C	Camera 3
V	Camera 4
A	Camera 5
S	Camera 6
D	Camera 7
F	Camera 8
Q	Camera 9
W	Camera 10

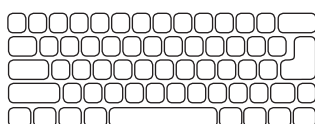
- Select the first frame of replay. It can be a frame that exactly corresponds to time of event mark or some other – several seconds or frames earlier/later the mark. Use buttons of the main program window to move several frames back/ forward (6).



Move some frames to the left (by default 5 frames)

Move some frames to the right (by default 5 frames)

**Note:** You can also move when selecting frame using hot keys or via the Move menu commands:

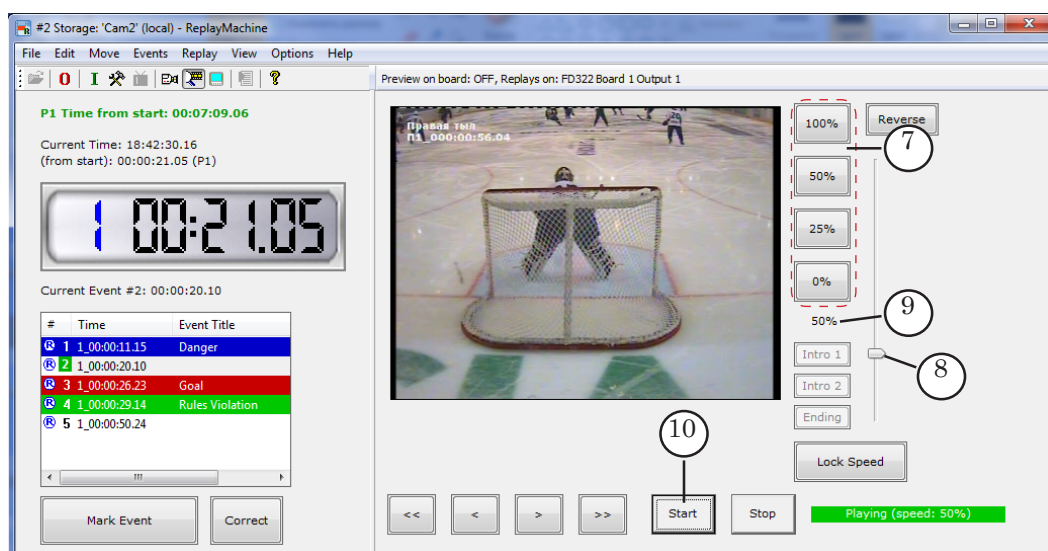


- – right 1 step;
- ← – left 1 step;
- ↑ – left some frames;
- ↓ – right some frames.

For more information on this issue see the «Navigating Storages» section below.



- Set speed of playback by clicking one of the buttons (7) or moving slider (8). Specified speed is displayed in information area (9). Click Reverse if you need to reverse playback.



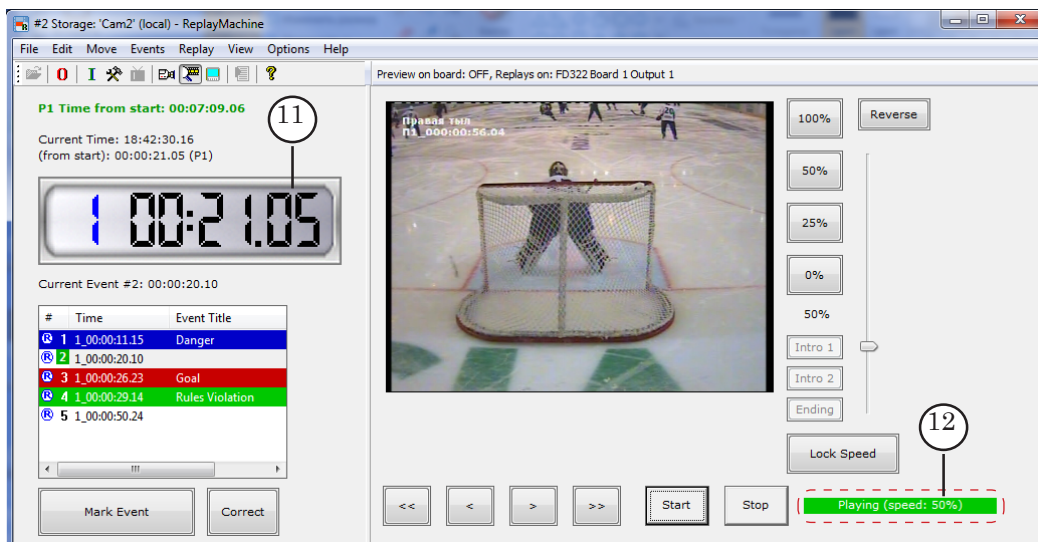
Note: You can specify speed of replay playback (from – 100% up to + 200%) relatively real speed by assigning it to control speed buttons.

- Launch playback of replay when needed by clicking Start (10).

Note: Recommendations are given for cases when default playback mode is active. If the Start Paused mode is on then you must click Start again to broadcast replay moment. You can switch the mode on/off by check/uncheck the Always Start Paused item of the Replay menu.

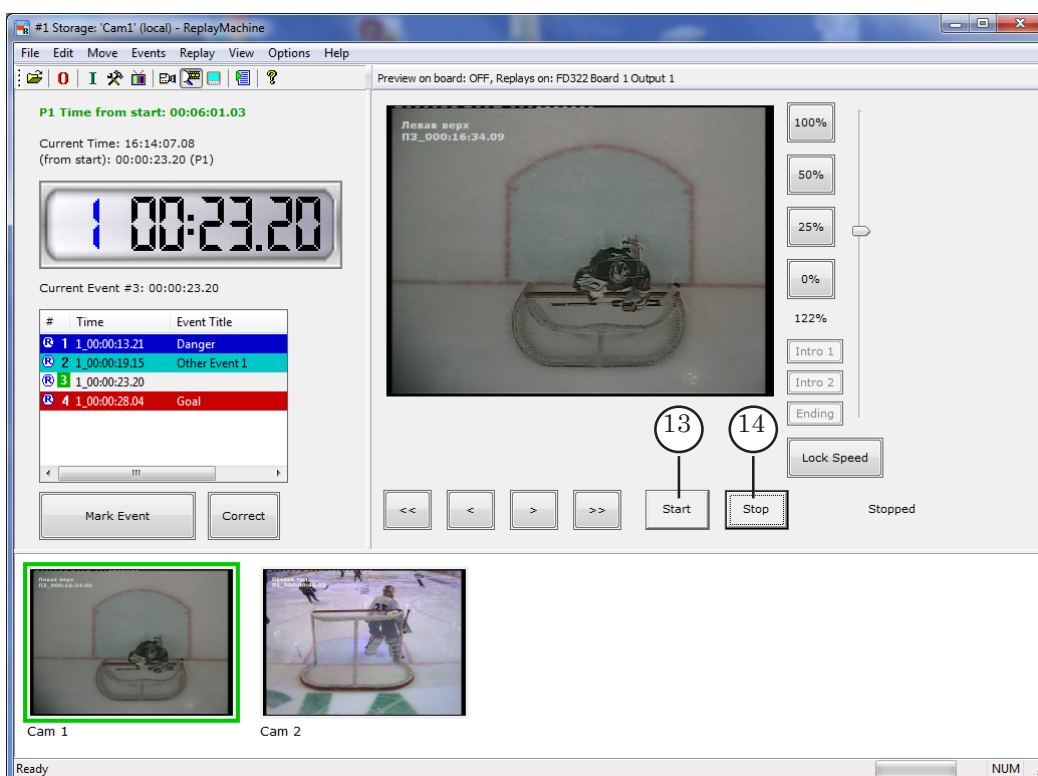
- Playback of video from specified storage with specified speed starts. The first frame of replay corresponds to current position (11). Indicators in the main program window (12) display current state of replay. At this time you can prepare the next replay to play (steps 2–4) and, for example, to select another camera to replay material from.
- You can change speed of playback at playing of material (if blocking of speed is off). You can prepare the next replay to playback by implementing steps 2–4 or, for example, select another camera.





9. Replay is broadcasted till one of the buttons is pressed:

- Start (13) is used to start playback of the next replay moment;
- Stop (14) is used to stop replay, a passthrough video is passed to the output in this case.





## After a Game

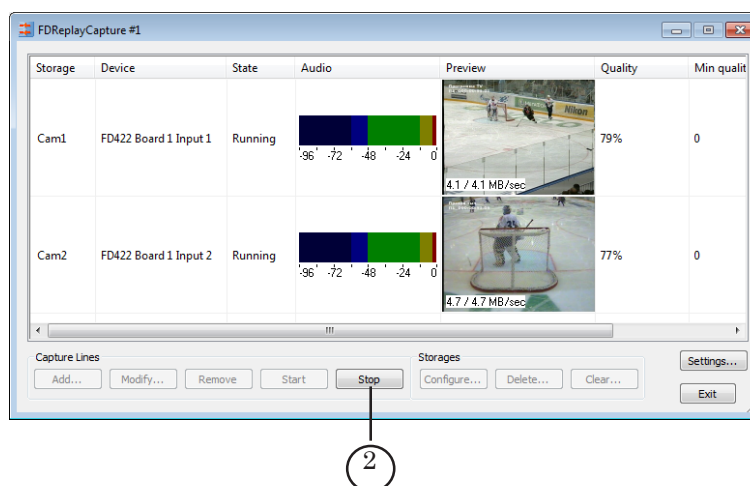
### 1. Stop of Game Recording

1. Click the FDReplayCapture program icon (1) in Windows taskbar notification area.

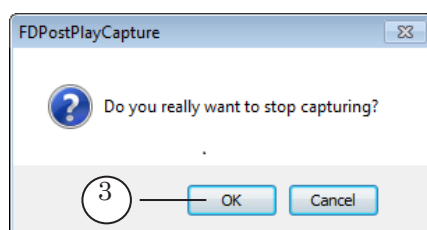


Note: If solution you deal with is based on FD300 boards then the FDReplay VideoIn program is used to capture signal into storages. Two instances of the program can be launched depending on quantity of signals (VideoIn #1 and VideoIn #2 shortcuts).

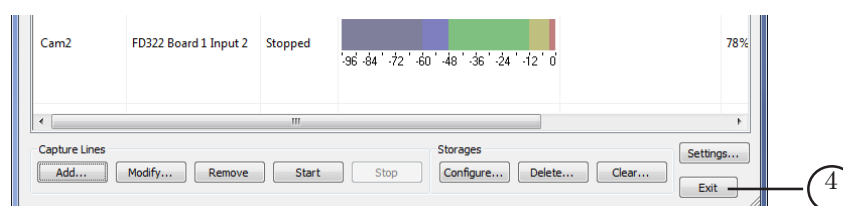
2. Click Stop (2) in the appeared window.



3. Click OK (3) in the appeared window.



4. Click Exit (4). Program window is closed.

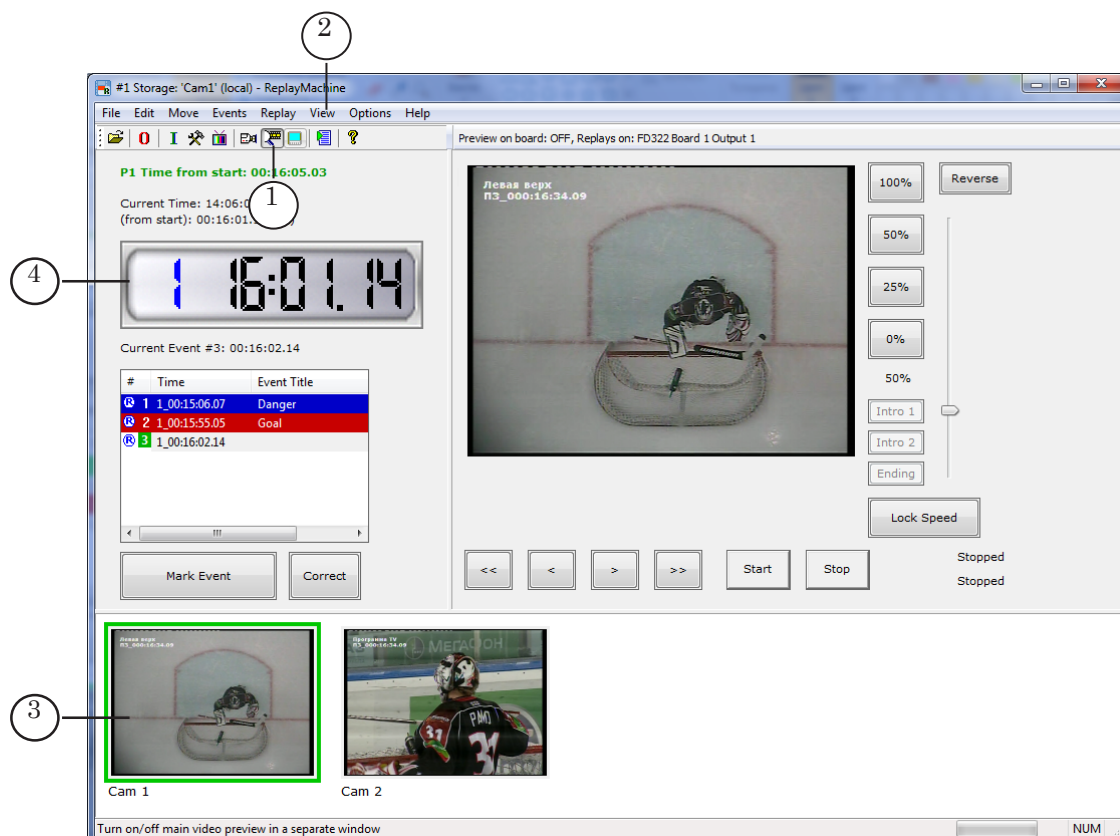




## 2. Adding of New Event Later Real Time

Complete the following to create event later when it has happened, for example, when game is finished:

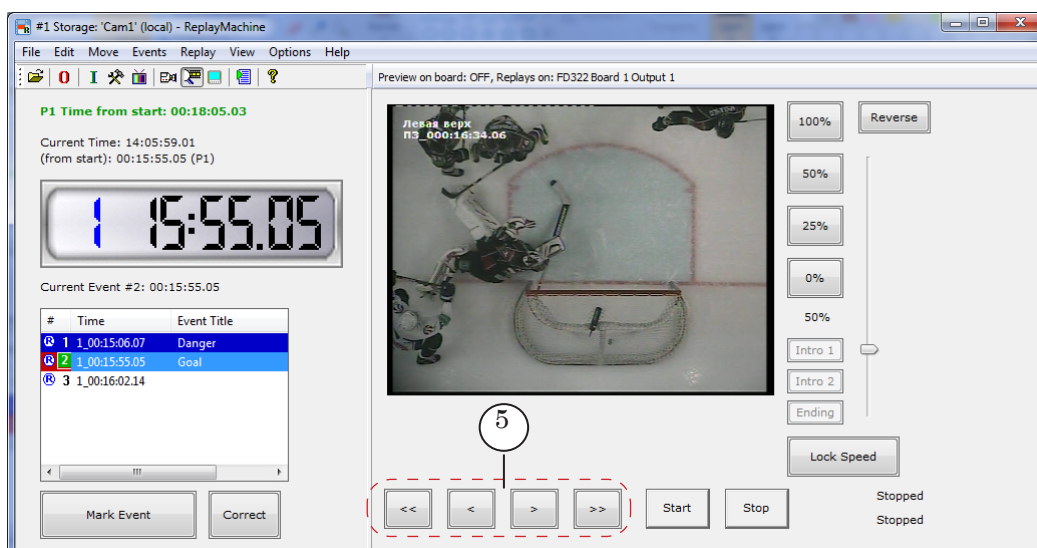
1. Switch to viewing of video from storages mode via one of the following ways:
  - using Ctrl+T;
  - clicking icon on toolbar (1);
  - the View (2) > Switch to View Storages command.



2. Preview windows (3) display frames that correspond to current position in storages. Indicator (4) displays time of current position with a frame accuracy.
3. Specify time position where to put mark for a new event navigating recorded material forward/back. Watch frames in preview windows.

For example, use the Move > Go to Time... (Ctrl+G) command or buttons of the main program window (5).

All ways of navigating storages you can find in the «Navigating Storages» section below.

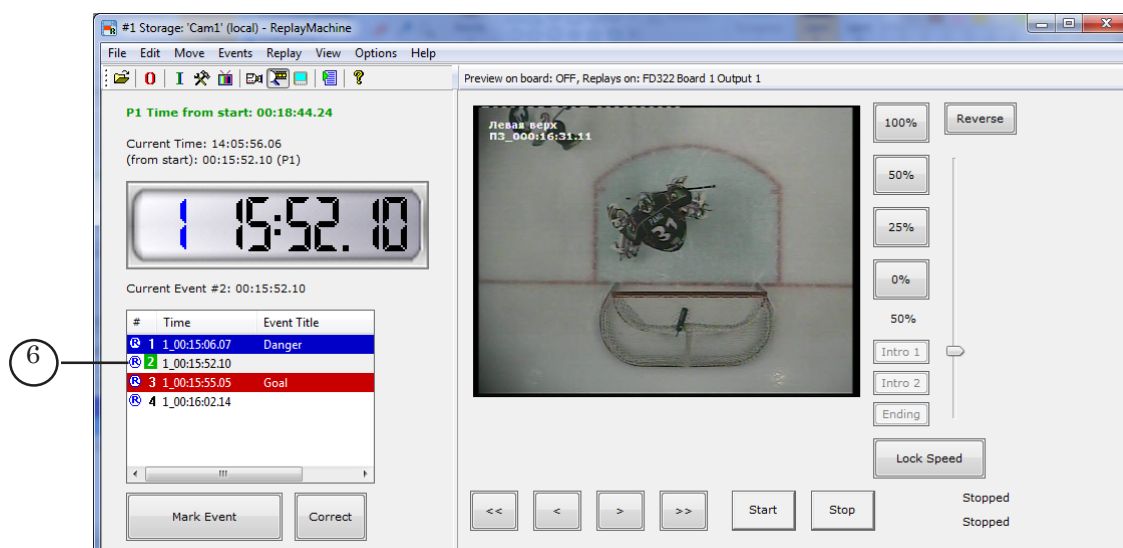


4. Complete one of the following actions when necessary to create new event:

- press Ctrl+R;
- use the Events > Create new Event command.

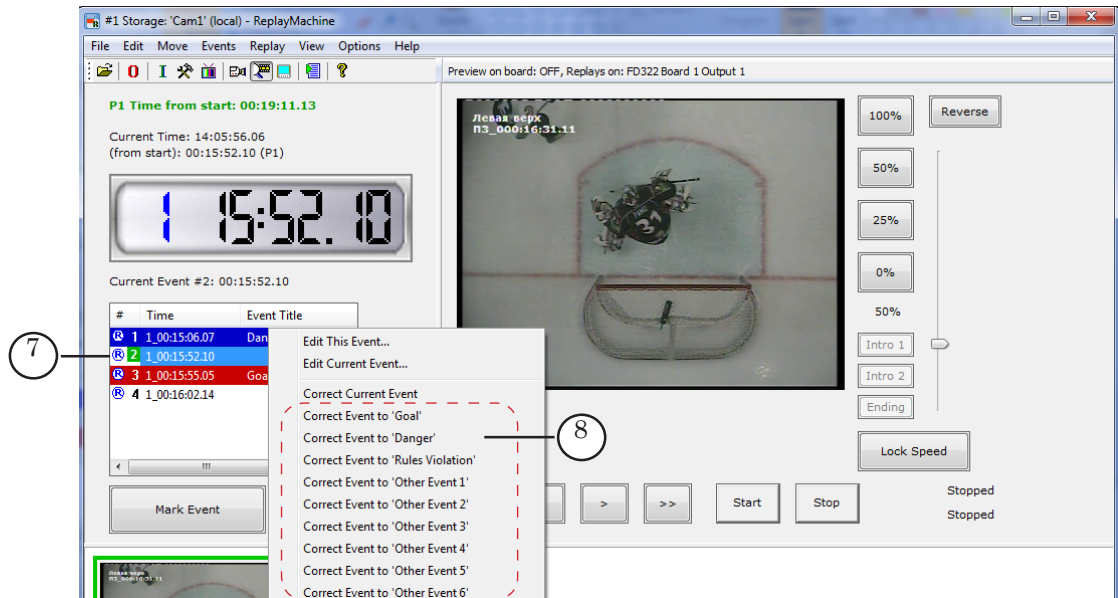
5. New event without type indication (6) is added to the list.

Note: Marks for several events (more than one) can not be put in one time position in storages. If event with the same time was already created a message on if you want to overwrite created event or not appears.

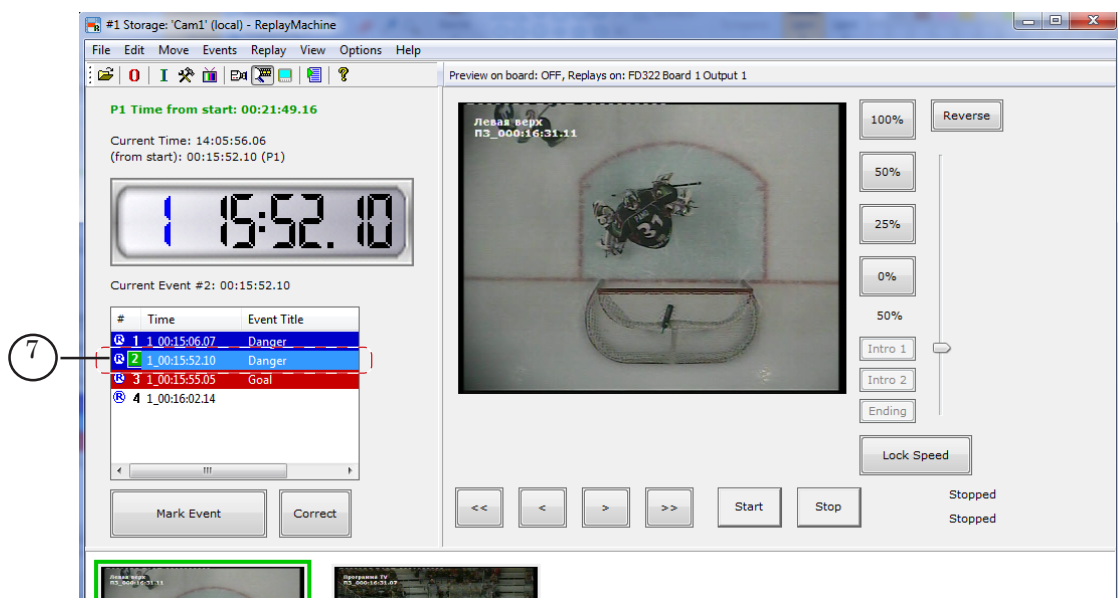




- Right-click event (7) to specify its type. Select the Correct Current Event to 'Name' command, Name is a name of event.



- Type of event is changed (9).



Note: You can also deal with the Edit this Event or Edit Current Event command to change type of event.



### 3. Creation of Video Report

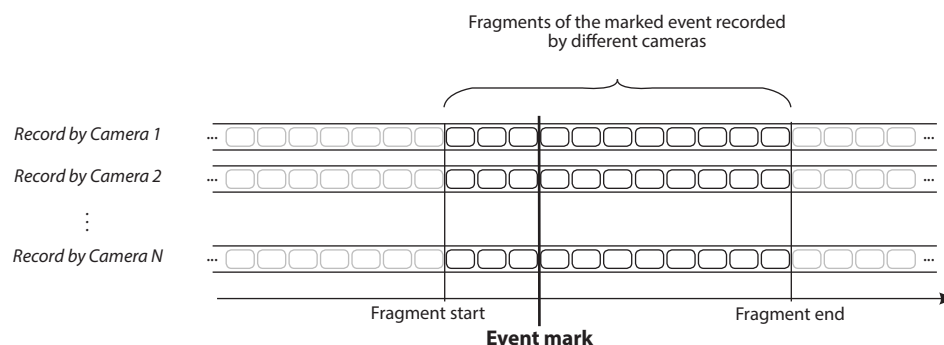
Video report is created via the FDReplayMachine Console program.



**Tip:** We recommend creating video report right after the match has finished.

Video report is a set of video files with recorded fragments of the match. The fragments correspond to marked events.

Every marked event is assigned to several different fragments recorded by every camera.



All fragments have equal duration by default. User specifies start and end of the fragment relatively event mark location. Duration of every fragment can be adjusted by changing its start and/or end.

You may output fragments in the following ways:

- every fragment is output into a separate video file;
- all fragments are output into one video file.

To adjust and record video report into file open the Playlist window using the Edit > Playlist Editor... command (Ctrl+P).

Prepare a list of fragments for recording, then click Export button in the Playlist window to adjust exporting parameters and record video report into file(s).

More information on working in the Playlist window see in the [«FDReferee Workplace For Video Goal Judge. Record of match, mark and review of sport events» user's guide, pp. 30–48.](#)


The section currently is under development.



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#### 4. Finish Working with the FDReplayMachine Console Program

The application can be closed in one of the following ways:

- using the File > Exit menu command;
- using the  button located on the application title bar.

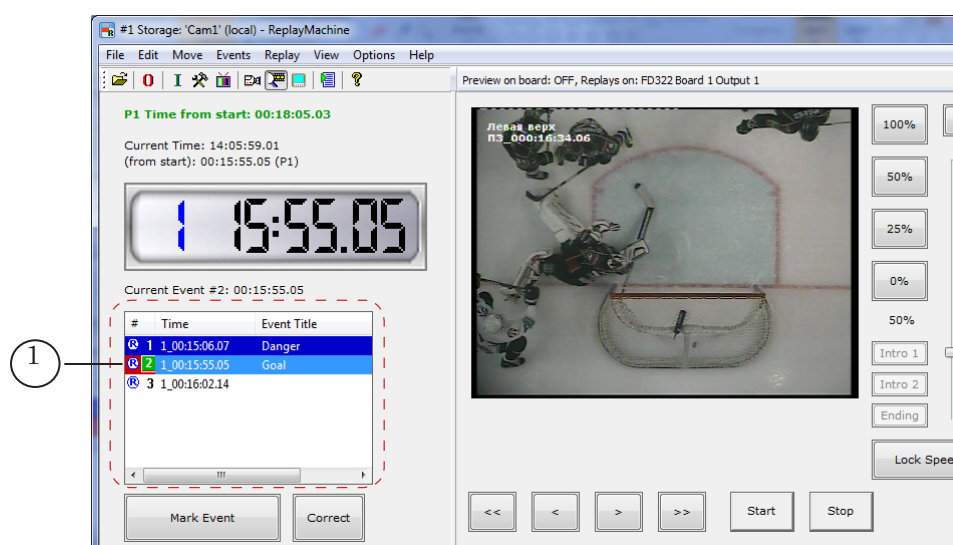




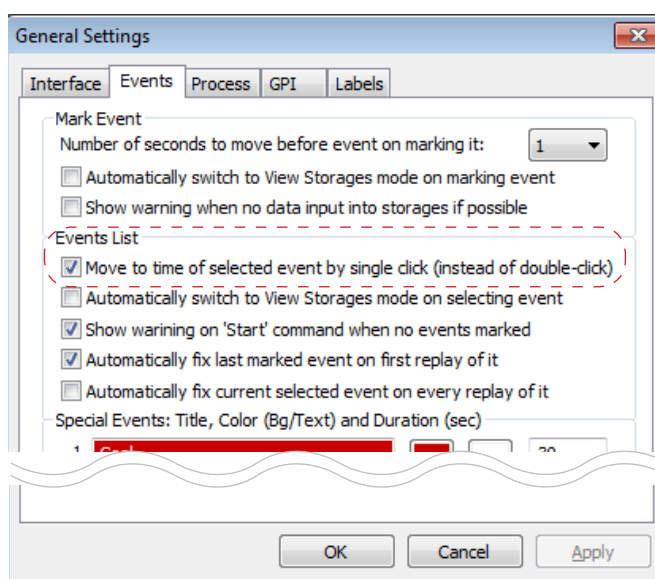
## Navigating Storages

### 1. Moving to Event

Double-click a corresponding line in events list (1) to move to necessary event. You can also use the Move menu commands or hot keys: Move to the last event (End), Move to the previous event (PgUp), Move to the next event (PgDown).



Note: Double-click is used for navigating to mark of event if default settings are active. To change way of event navigating from double click to single click put the corresponding mark in the General Settings window, the Events tab (the Options/General settings menu).

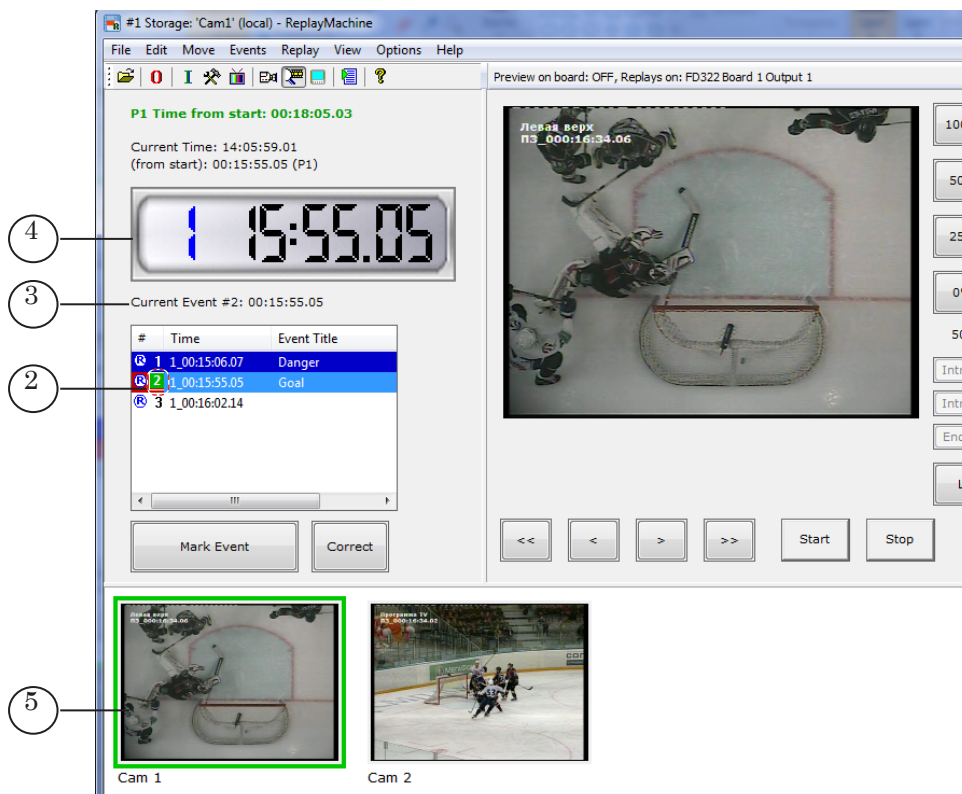






Moving to event time is implemented.

Current event is marked in the list by green (2). Information on current event (3) is displayed above the list: its serial number and time.

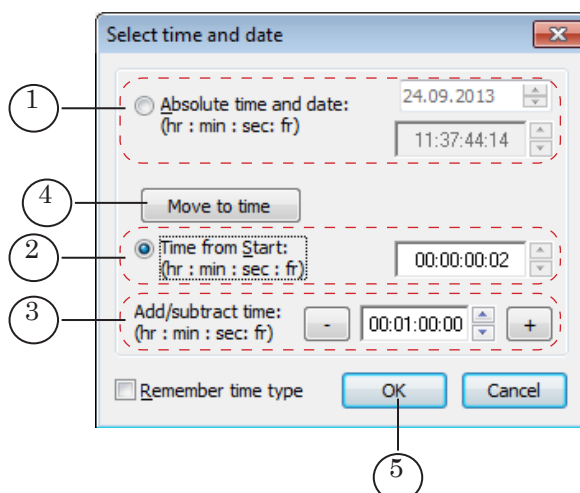


Indicator of current position displays time that corresponds to mark of selected event (4) (while some other moving is not implemented). Preview windows (5) display pictures from different cameras that correspond to current position of time (if view storages mode is on).

## 2. Moving to Necessary Time

To move to a desired time:

1. Execute the Move > Go to Time... menu command (Ctrl+G).
2. Select format of time presentation in the appeared window: absolute (daily) or playing (time from start) time using (1, 2) radio buttons.
3. If absolute time is selected then specify date (DD.MM.YYYY) and time (hr:min:sec:fr) in the fields (1).



4. If time from start (2) is selected then specify its value (hr:min:sec:fr).

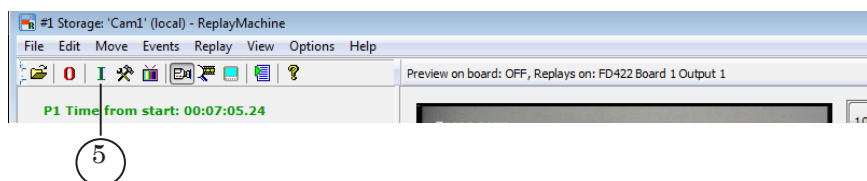
Colour of field displays state of data in current storage at the specified time position. Possible variants are:

- red – passed moment of time is specified, time moment is outside current limits of storage (data is absent);
  - green – passed moment of time is specified, data was recorded in storage, data is available for viewing and playback;
  - cyan – time has not come yet, will be in future, data will be recorded possibly.
5. To adjust value specified at steps 3 or 4 you can use control elements from the Add/Subtract Time group (3).
  6. To move current position to specified time without closing window use the Move to Time button (4).
  7. To move current position to specified time and close window click OK (5).

### 3. Moving to Storage Border

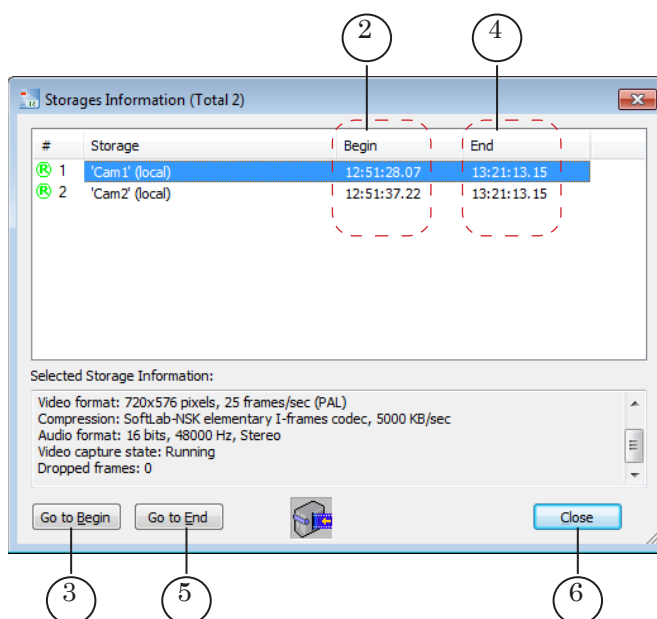
Complete the following to move current position to the beginning (frames of the earlier recorded material) or at the end of storages (frames of the last recorded material):

1. Open the Storages Information window by clicking the (1) button located on a toolbar or via the File > Storages Information... command.





- Click the Go to Begin button (3) to move to position with the oldest data in storage (2).  
Click the Go to End button (5) to move to position with the newest data in storage (4) .



- Current position is moved to corresponding border.
- Click Close (6) to return to the main program window.

#### 4. Moving to Period Start

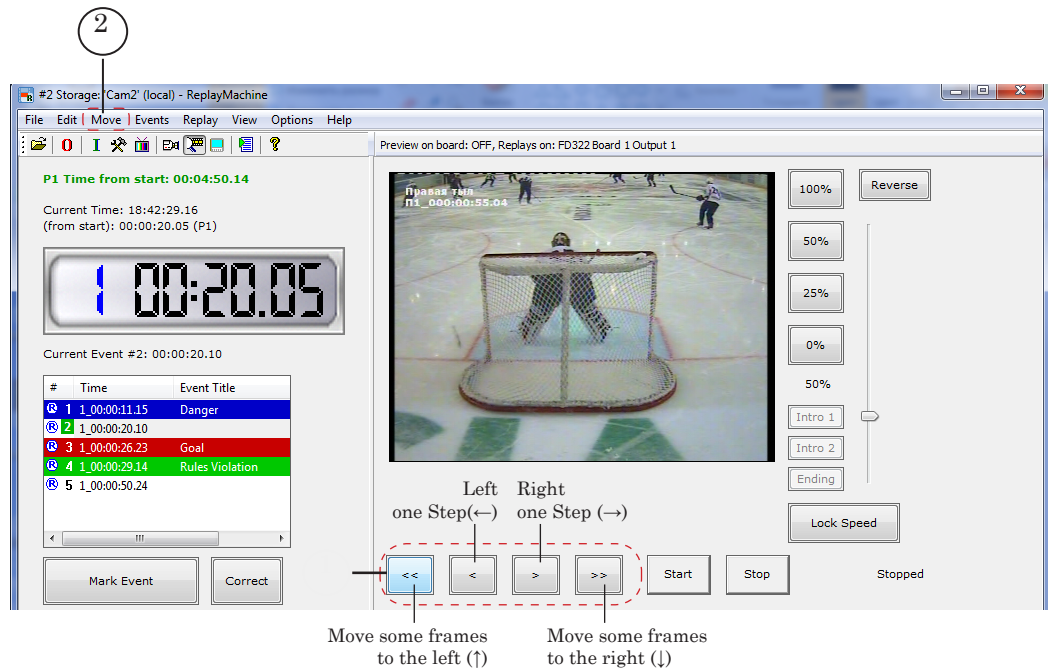
To move to start of period use the Move > Go to Period Begin > N command, where N is number of period (1–9) or corresponding buttons combinations – Ctrl+1, ..., Ctrl+9.

The commands are available if mode of game periods usage is on.

#### 5. Navigating Current Position Via Frames

To navigate frames use the Left one step/Right one step and Left some frames/Right some frames commands.

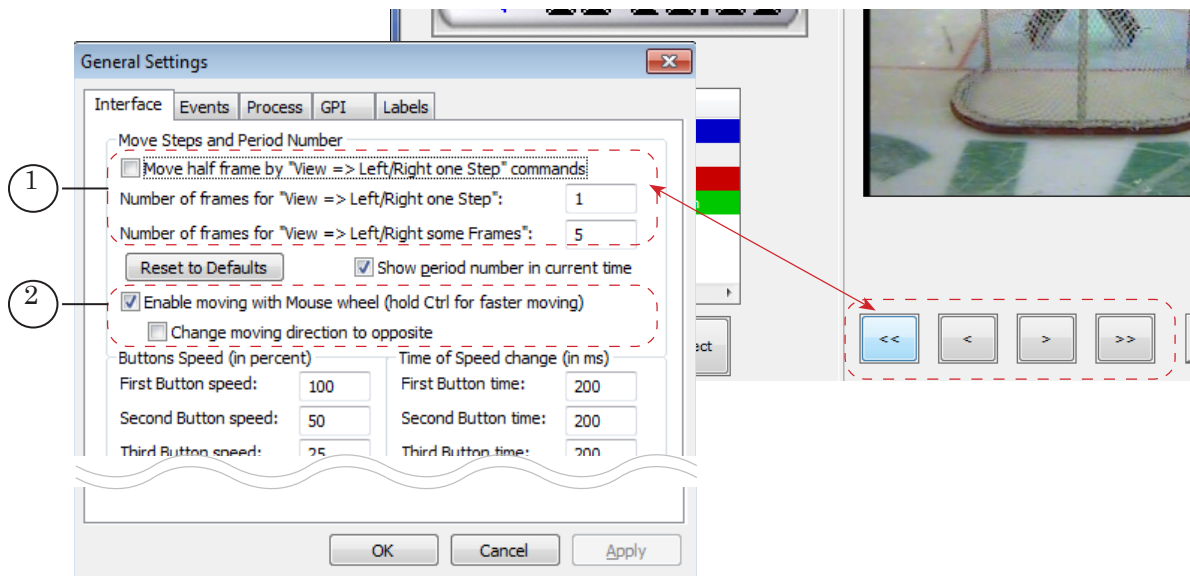
The commands are executed by clicking the (1) buttons, the Move menu commands (2) or via hot keys. You can also navigate storages using mouse wheel.



The following steps are specified by default:

- Left one step/Right one step – 1 frame;
- Left some frames/Right some frames – 5 frames.

Note: 1. Size of steps in corresponding fields (1) can be changed in the Options > General Settings... > Interface window (the Options/ General Settings menu).  
 2. To enable/disable navigation via mouse wheel and specify direction of wheel scrolling turn on/off marks (2).

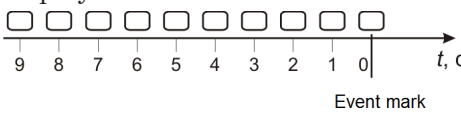




## 6. Navigating Several Seconds Back From Mark of Current Event

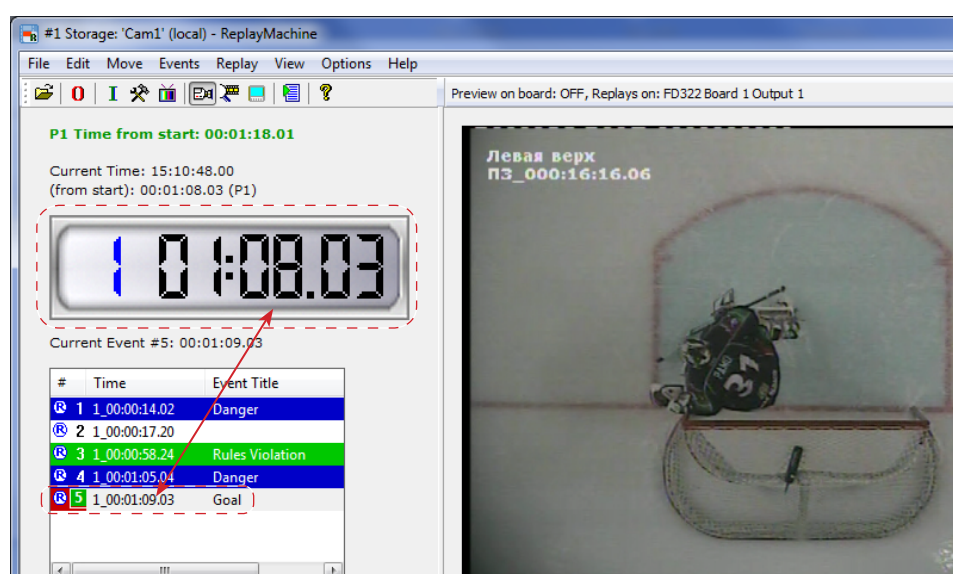
To navigate current position several seconds back (1–9) from mark of current event use the Move > X Seconds Back command (X is a number from 0 up to 9) or corresponding hot keys.

To return to position that corresponds to mark of current event use the 0 Seconds Back command.

Move menu command	Keyboard key	Notes
0 Seconds Back	0	Move specified number of seconds back. There won't be recurring moving when the button will be pressed again. For example, when 3 is pressed the frame located 3 seconds back from the current event mark will be displayed in preview windows. If you click 3 again current position is not changed. If you click 2 position is switched to frame located in 2 seconds from event mark. If 0 is pressed then, another frame (corresponding to current event mark) will be displayed. 
1 Second Back	1	
2 Seconds Back	2	
3 Seconds Back	3	
4 Seconds Back	4	
5 Seconds Back	5	
6 Seconds Back	6	
7 Seconds Back	7	
8 Seconds Back	8	
9 Seconds Back	9	

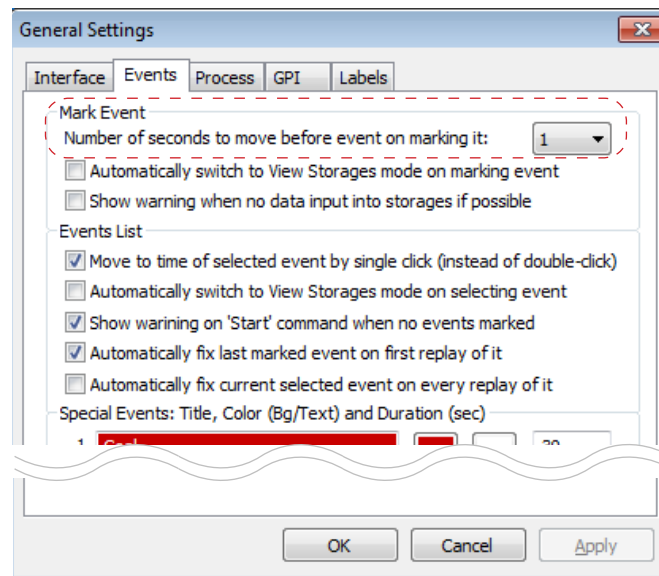
## 7. Moving At Event Marking

At marking of event current position is automatically moved to event time, and time is adjusted to some value, with active default settings the value is 1 second before moment of marking event.





Note: Use drop-down list in the Options > General Settings... > Events window to specify shift step.



Automatic shifting back allows compensating time needed for operator to mark event. In this case you move to the most close position of needed event at once. This is useful if you need to playback replay of event at once as the first frame of replay corresponds to current position.



## Working With Video Introductions

### 1. General Information

Short video introduction («intro») is a short video file that is displayed before playback of replay. There is a possibility to deal with different introductions at the beginning and between separate fragments of sequence of replays.

Recommended duration of intros is from 0.15 up to 5 seconds, recommended format is AVI.

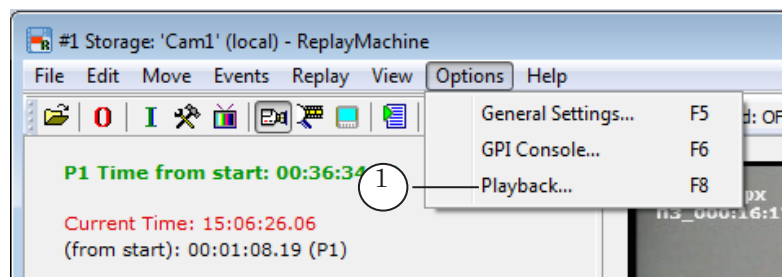
Note: You can select fragment of clip of desired duration if necessary. Playing of files in other formats (\*.mpg, \*.mov, etc.) is supported but is not recommended .

### 2. Customizing of Introductions

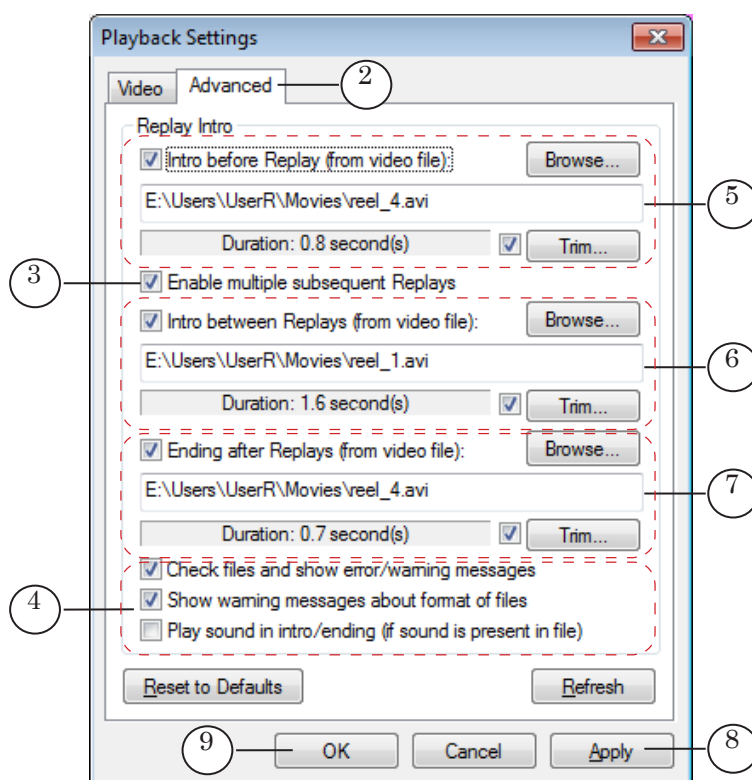
Video introduction files are usually customized before start of a game.

Complete the following to specify files and customize mode of playback:

1. Select the Options > Playback... menu item (1) in the main program menu.



2. Pass to the Advanced tab (2) in the appeared window.



3. Put the Enable Multiple Subsequent Replays mark (3) to allow playback sequence of replays.
4. Use the (4) check boxes to activate or deactivate parameters that are general for all backgrounds:
  - Check files and show error/warning messages denotes checking duration of specified files and displaying warning if their duration exceeds a recommended value (0.15–5 sec) or if file is absent;
  - Show warning messages about format of files denotes warning if format of file is not AVI or it contains uncompressed video;
  - Play sound in intro/ending (if sound is present in file) enables playing sound from file on air.
5. Three groups of elements (5–7) are used to enable/disable playback of corresponding introductions and specify files to play:
  - (5) are elements for customizing of Intro Before Replay (sequence of replays);
  - (6) are elements for customizing of Intro Between Replays;
  - (7) are elements for customizing of Ending After Replays (sequence of replays).

Note: You can enable/disable playback of intros via buttons of the main program window: Default Picture 1, Default Picture 2, etc.

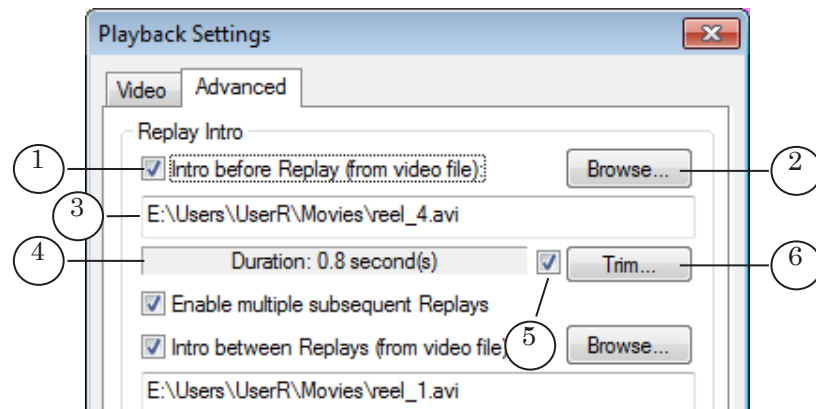




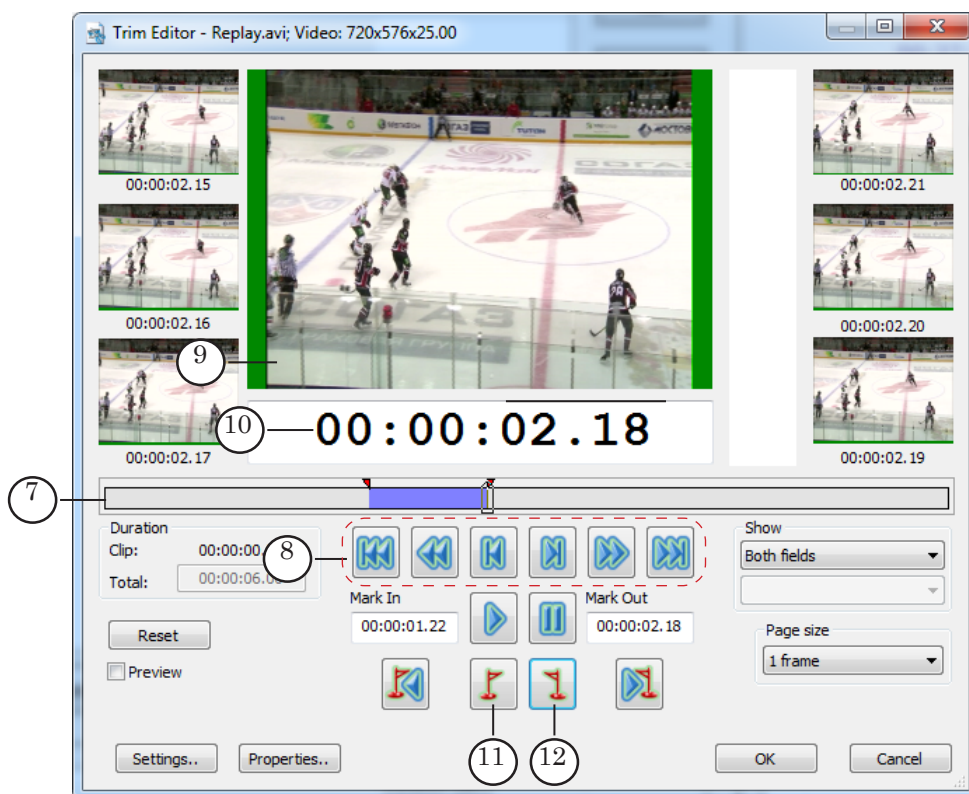
6. Click Apply (8) to apply made configuration without closing of the window or OK (9) to close the window with applying of made configuration.

All types of intros are customized identically. For example, to specify clip for intro and enable its playback complete the following:

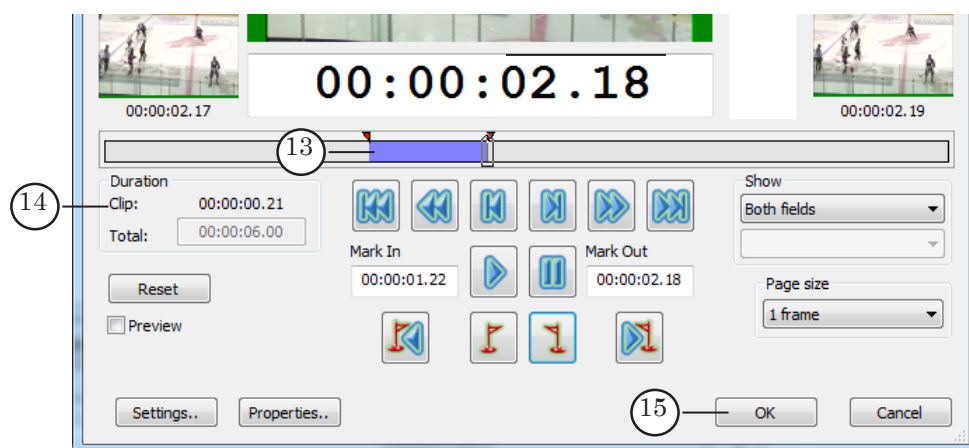
1. Put the (1) mark.



2. Click Browse... (2). Specify clip for introduction.
3. A full path to the clip is displayed in (3) field, (4) displays clip duration.
4. Put the (5) mark to select fragment of clip and click Trim... (6).
5. Specify desired fragment to be played in the appeared Trim Editor window by putting marks of fragment start and/or end:
  1. To select clip position use slider (7) or step-by-step navigation buttons (8). Current position frame is displayed in preview window (9), indicator displays current position time (10).
  2. Click corresponding button (11, 12) to put the MarkIn/MarkOut mark.



3. Specified fragment is marked by blue colour on slider (13). Its duration is displayed in information field (14).

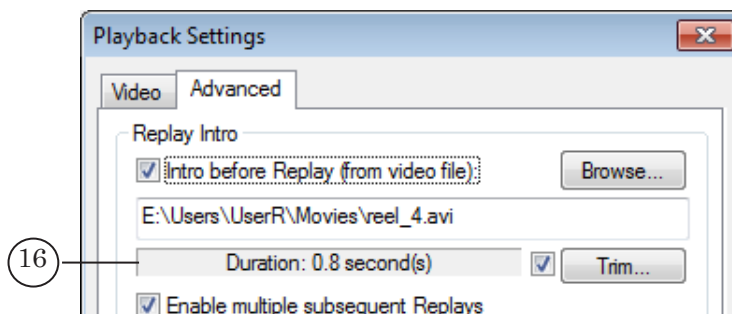


4. Click OK (15) to apply the settings after selecting fragment.

Note: More information on the Trim Editor utility see in the [«FDO nAir. Additional Sections»](#) guide.

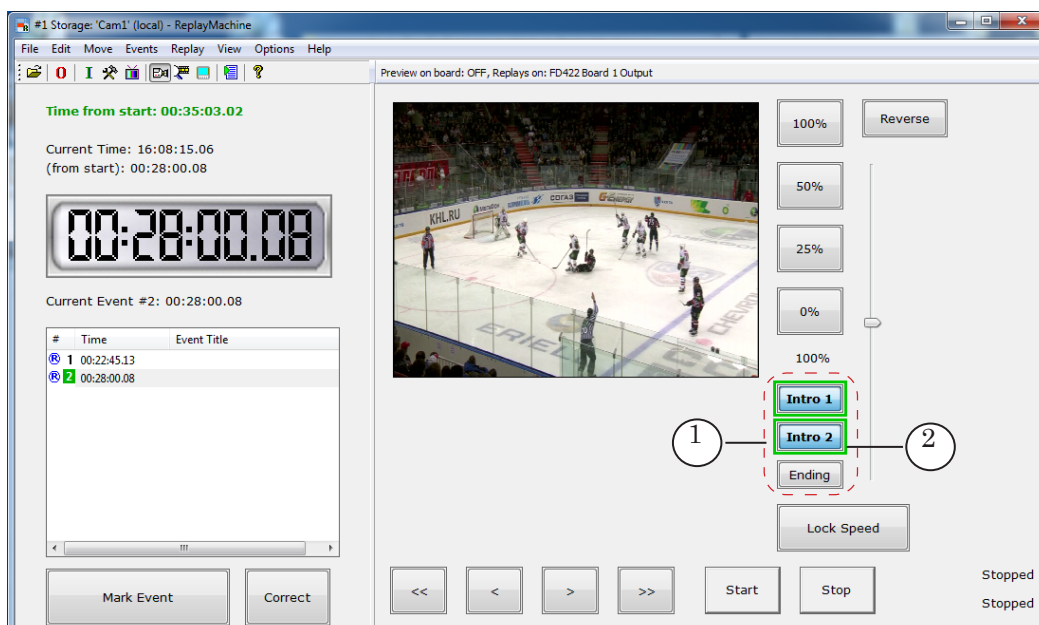


6. Duration of specified fragment is displayed in information line (16).



### 3. Control Over Introductions

1. Buttons to control over introductions are located in the main program window. The buttons are enabled (1) if corresponding clips are assigned to them (about assigning see the subsection above):
  - Intro 1 – introduction before replays;
  - Intro 2 – introduction between replays;
  - Ending – introduction after replays.
2. The button is outlined in green (2) if playback of introduction is enabled. Click corresponding button once to enable/disable playing.





## Overlaying Game Titles (Logotype)

The system provides with a possibility of displaying titles during replays, for example, to inform the audience that this is a replay (1).

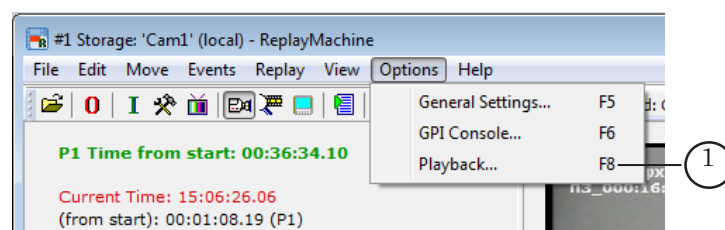


Complete the following to customize titles displaying:

1. Create title project in the FDTTitleDesigner program preliminary (see the [«FDTTitle Designer. Creating Title Objects»](#) guide). The project, for example, can contain the MovieList title element. This element specifies region where logotype is displayed, logotype itself, some desired effects.

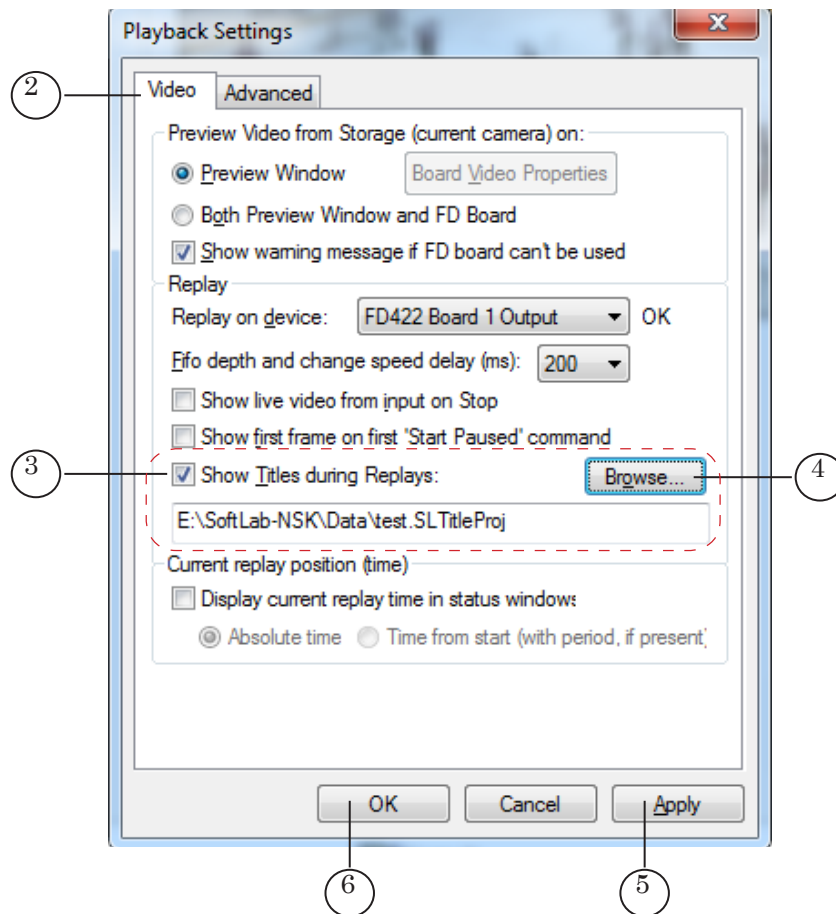
The MovieList title element allows displaying a sequence of static images and clips (see the [«FDMovieListEditor. Task Editor For the MovieList Title Element»](#) guide).

2. Select the Options > Playback command (1) in the ReplayMachine Console main program menu.





3. Pass to the Video tab (2) in the appeared window.
4. Put the Show titles during replays mark (3).
5. Click Browse... (4) to specify title project (\*.SLTitleProj).



6. Click Apply (5) to apply the settings without closing the window or click OK (6) to apply the settings and close the playback settings window.
7. Title project is loaded. Now titles are displayed at replays.

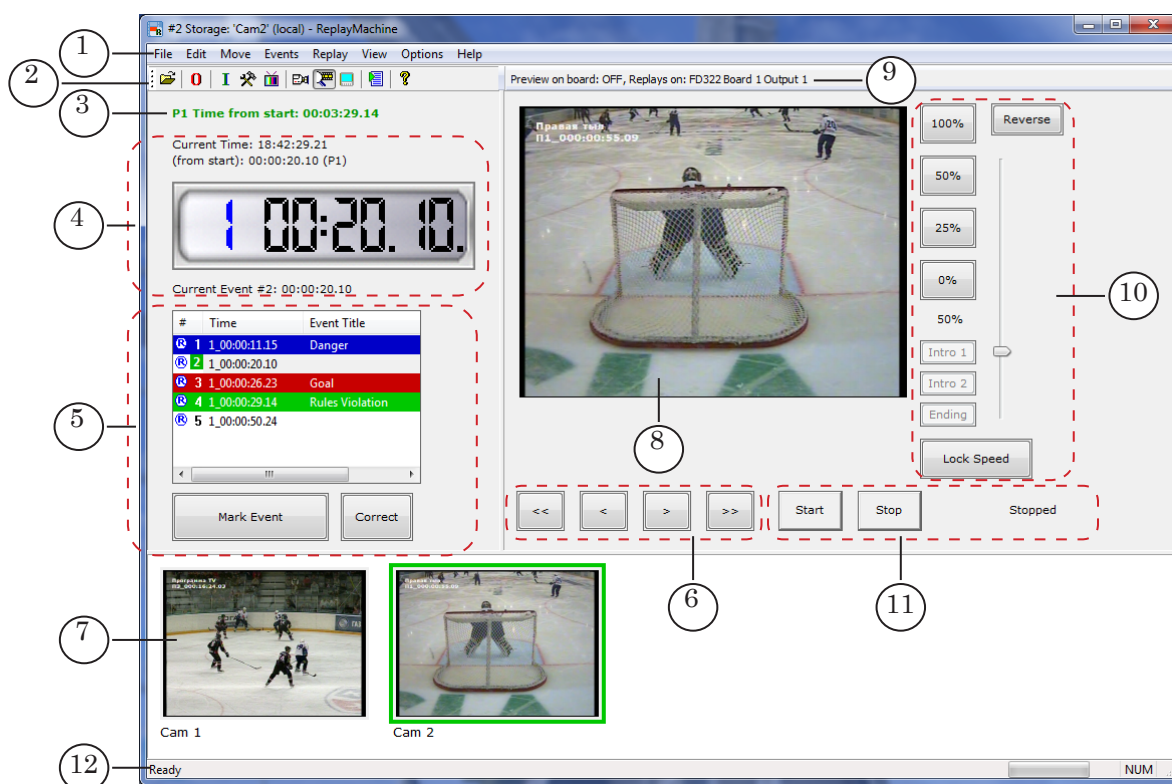


# FDReplayMachine Console. Program Interface

## Main Program Window

### 1. Appearance

The main program window contains the complete set of commands for instant replays adjustment and control over instant replays in a real-time mode.



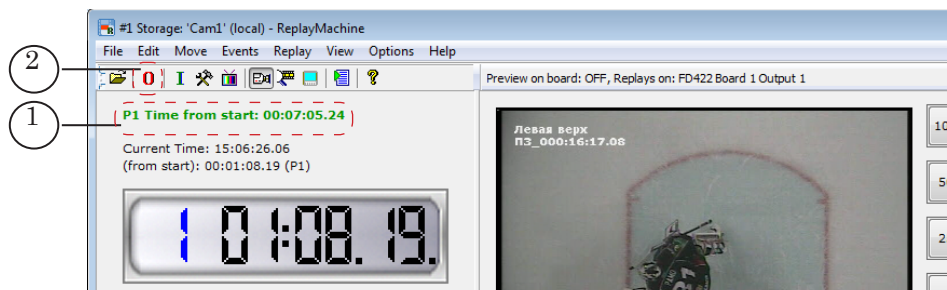
### Main Program Window. Control Elements:

1 – main menu; 2 – toolbar; 3 – playing time timer; 4 – indicators of current position and current event; 5 – list of events and buttons used to mark/correct events; 6 – buttons used to change current position one/several steps; 7 – windows to preview data from cameras/storages; 8 – window to preview data from current storage; 9 – current settings of previewing and playback of replays (board); 10 – buttons for specifying of speed of replay playback and buttons to switch intro clips on/off; 11 – buttons to launch/stop replays and replay indicators; 12 – status line



## 2. Playing Time Timer

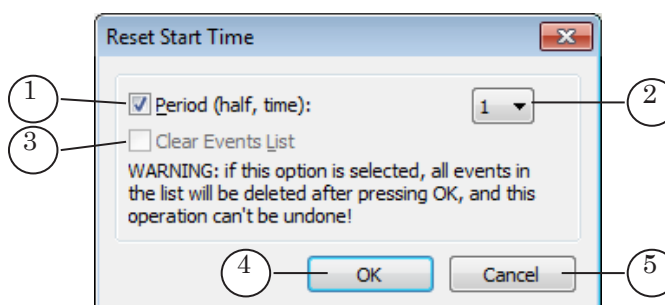
Timer (1) located in the main program window displays number of current period (if mode of periods counting is on) and time from start of period/game.



Timer can be reset at any moment. For this use the icon located on toolbar (2) or the Edit > Reset Start Time menu command.

The Reset Start Time window appears. Click OK to reset time.

**Note:** At resetting of start time events list is cleared in any way excluding cases when switching to new period is implemented (the next period is specified).



### Control Elements:

1 – switch counting of periods on/off; 2 – specify index of current period; 3 – enable/disable clearing of events list; 4 – apply settings and close the window; 5 – close the window without applying settings.

Press corresponding button on keyboard: 1–9 to specify number of period in the Reset Start Time window quickly. Press 0 to disable period counting.

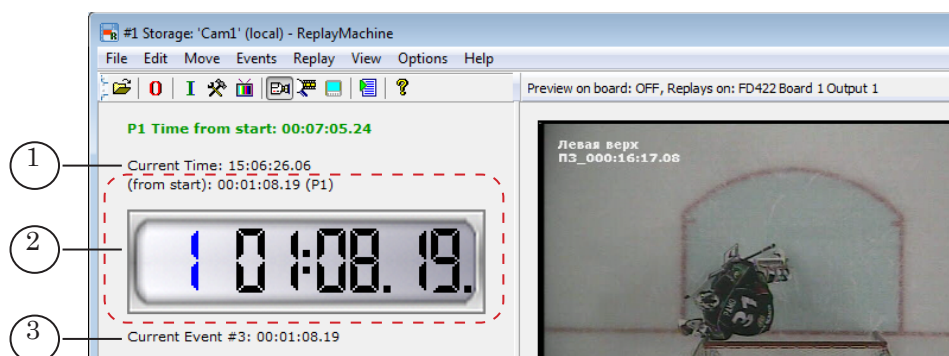




### 3. Indicators of Current Position

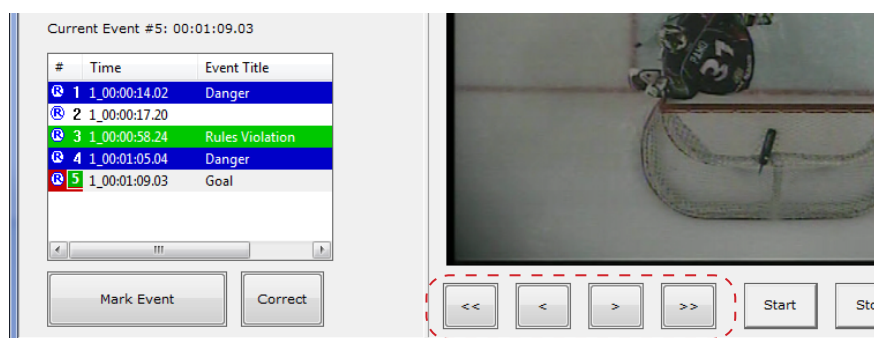
Information on current position is displayed via specific indicators located in the main program window:

- 1 – time that corresponds to current preview position (daily);
- 2 – playing time (time from start) that corresponds to current preview position;
- 3 – information on current event (specified in events list): serial number, time mark.



Note: Changing of current position in storages happens in the following cases:

1. When marking of event. Current position is switched to moment of event time specifying. The time is decreased in several seconds automatically (0–9).
2. At selection of event via events list or command of switching to event. Finally current position is switched to time mark of specified event directly.
3. When using buttons/commands of navigation: several frames left, several frames right, one step left, one step right, 0, 1, ..., 9 seconds back.

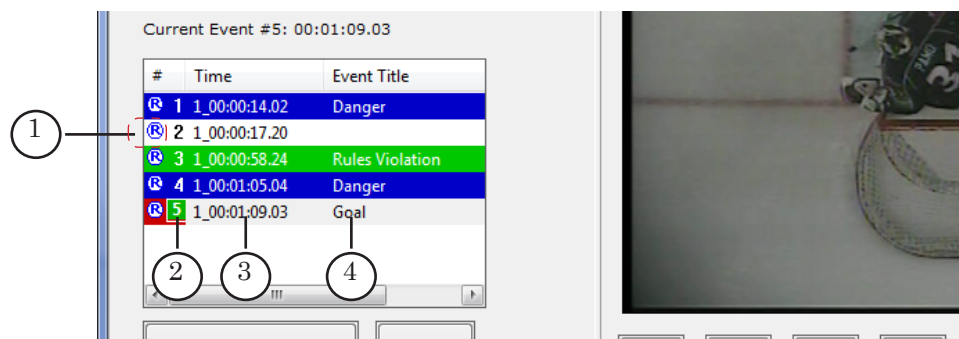




## 4. Elements to Work With Events

### 1. Table With Events List

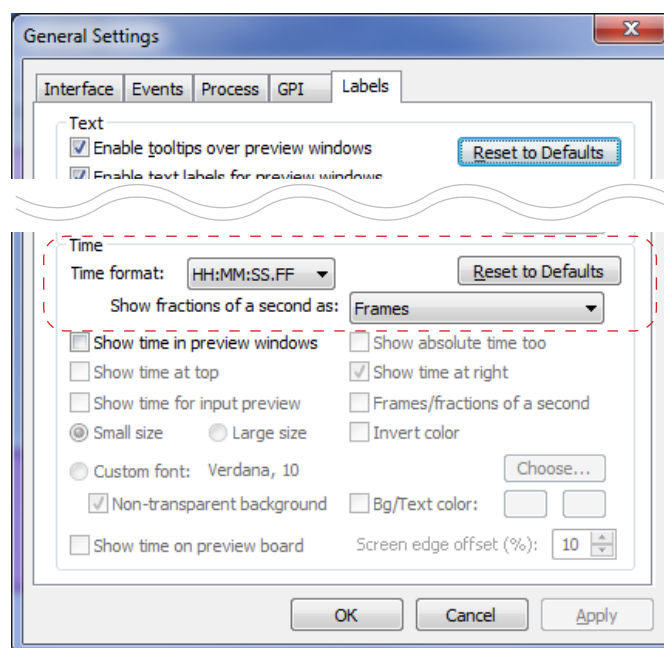
List with events marked by operator is displayed in the main program window in the form of a table.



The table displays the following information on event:

- **R** mark (1) is indicator of status of video recording into storages for event time:
  - blue indicator (**R**) indicates that there is data in storage;
  - red indicator (**R**) indicates that old data is already rewritten by new data;
- serial number (2) is assigned when marking of event automatically;
- time of event, Period\_hh:mm:sec.frames, from start (3) corresponds to moment when operator marked event;

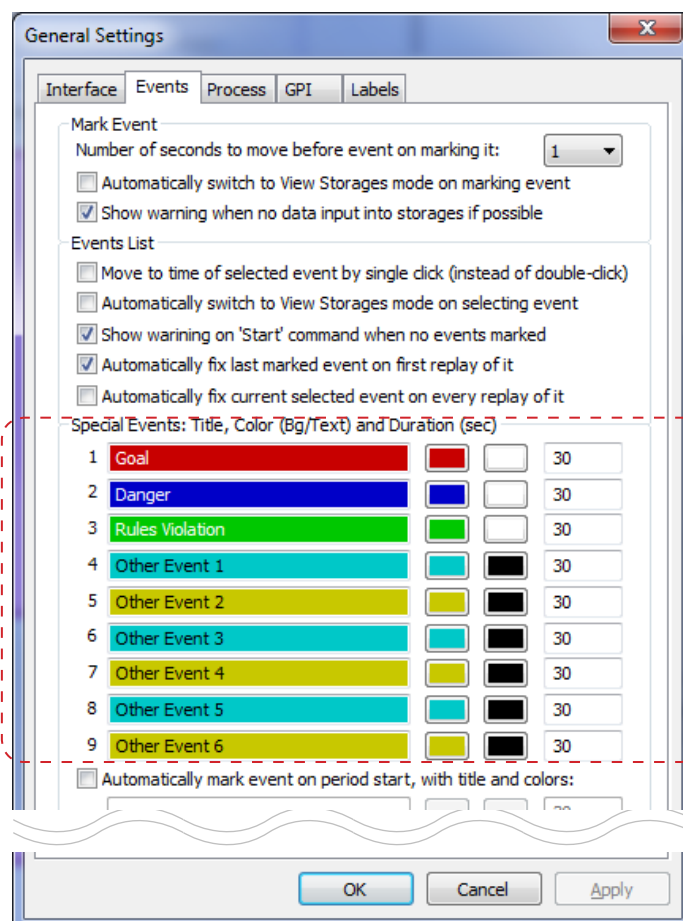
Note: Format of time displaying in program window (up to frames/fractions of a second accuracy) can be selected in the Time group of elements of the General Settings > Labels window.





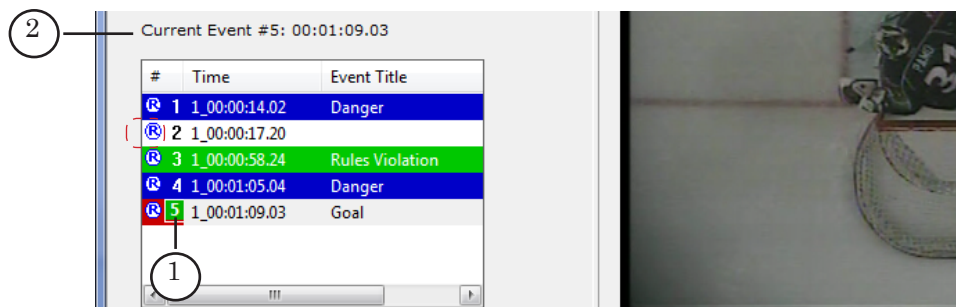
- type of event (4) is specified by operator at marking (or later): usual event, goal, dangerous moment, etc. Each type has its colour in addition.

Note: To specify other (not default) names of events types and their colour indication use group of elements in the General Settings > Events window.



## 2. Current Event Indicator

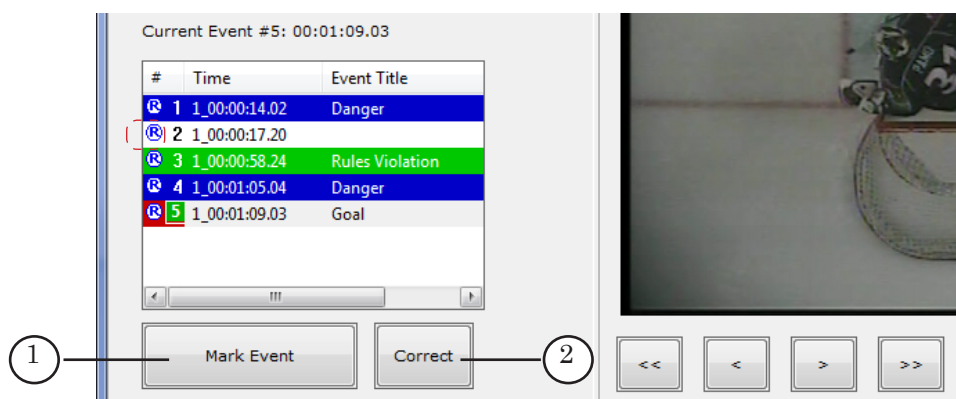
Current event is an event selected in the list with all events. Its number in the table is green (1). Above the table information on current event is displayed (2): number, time.





### 3. Buttons to Mark and Correct Events

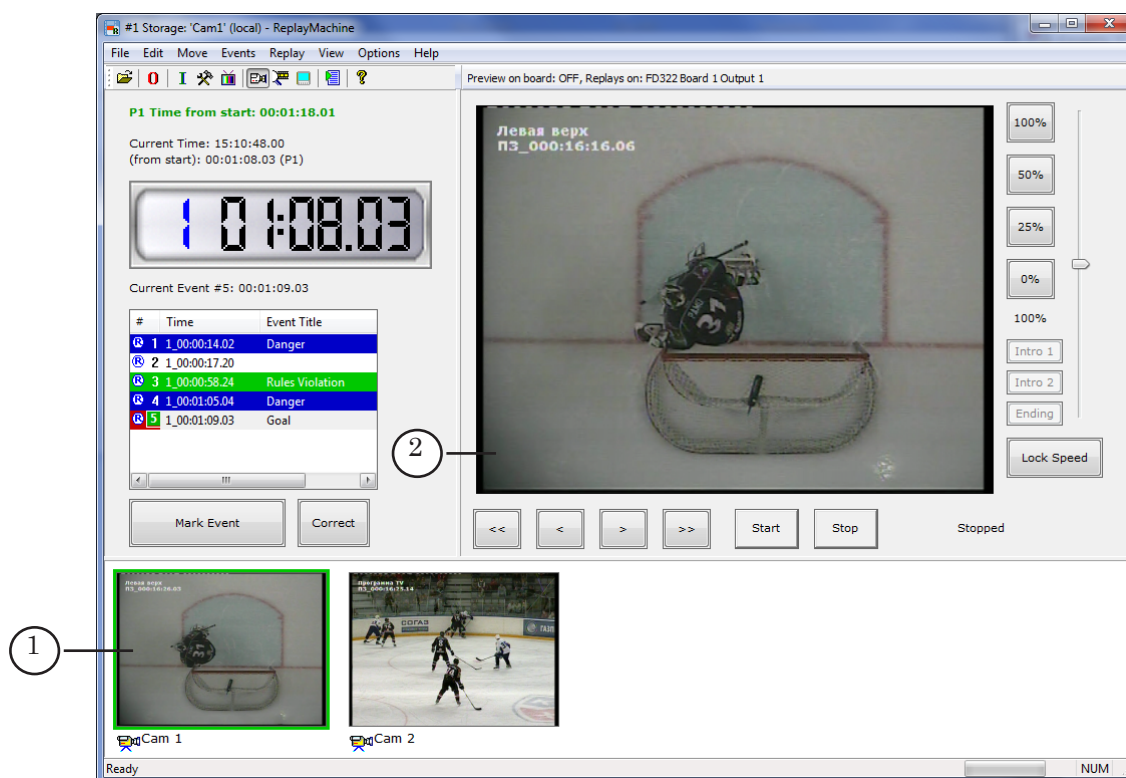
The Mark Event button (1) is used to mark event without type indicating in a real-time mode (more information on this issue see in the «Marking of Event At Its Happening» instruction above).



The Correct button (2) is used to correct time of current event by shifting time mark of event to current position (more information on this issue see in the «Correcting of Event Time» in instruction above).

### 5. Preview Windows

Several small preview windows (1) and one big preview window are available to preview video from storages in the main program window. An additional preview window can be also opened.



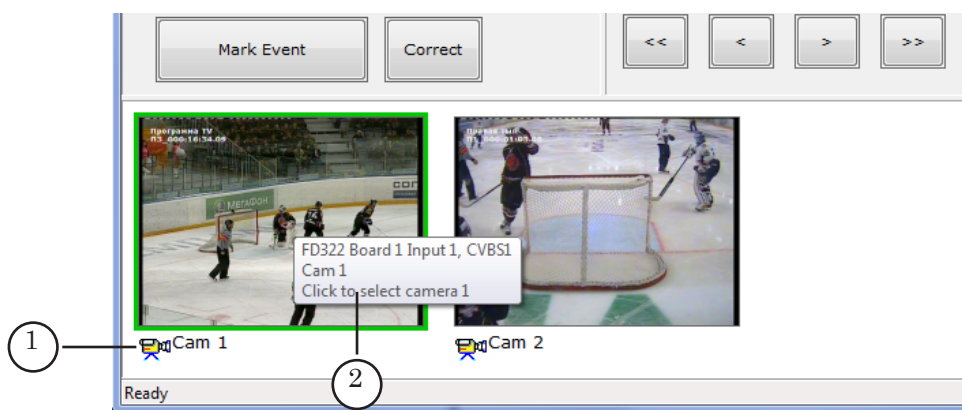


## 1. Small Preview Windows

Small preview windows display frames from corresponding storages or board inputs (from cameras) depending on current preview mode (see commands of switching video from inputs – storage video). Indicator of previewing of input video is an icon of camera under window (1).

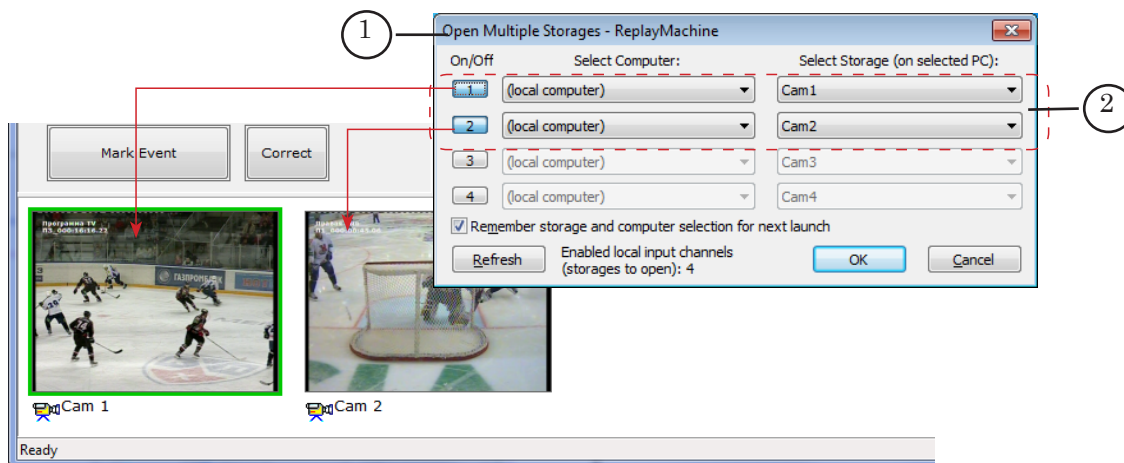
Quantity of small windows is equal to quantity of opened storages. To see to what input window corresponds to put mouse cursor on it. A tool tip with information appears (2):

- name of video input and name of storage – if preview video input mode is on;
- only nsme of storage – if previewing storages video mode is on.



If frame around window is magenta it means that frame is not loaded yet.

Note: «Window-camera» correspondence appears after program launch. Select View > Autoselect Inputs for Small Video Preview to assigne storages for small preview windows according to current order. Storages/cameras are assigned for small preview windows according to current order specified in the Open Multiple Storages – Replay Machine window (1). Order of storages in list (2) corresponds to order of their displaying in windows.

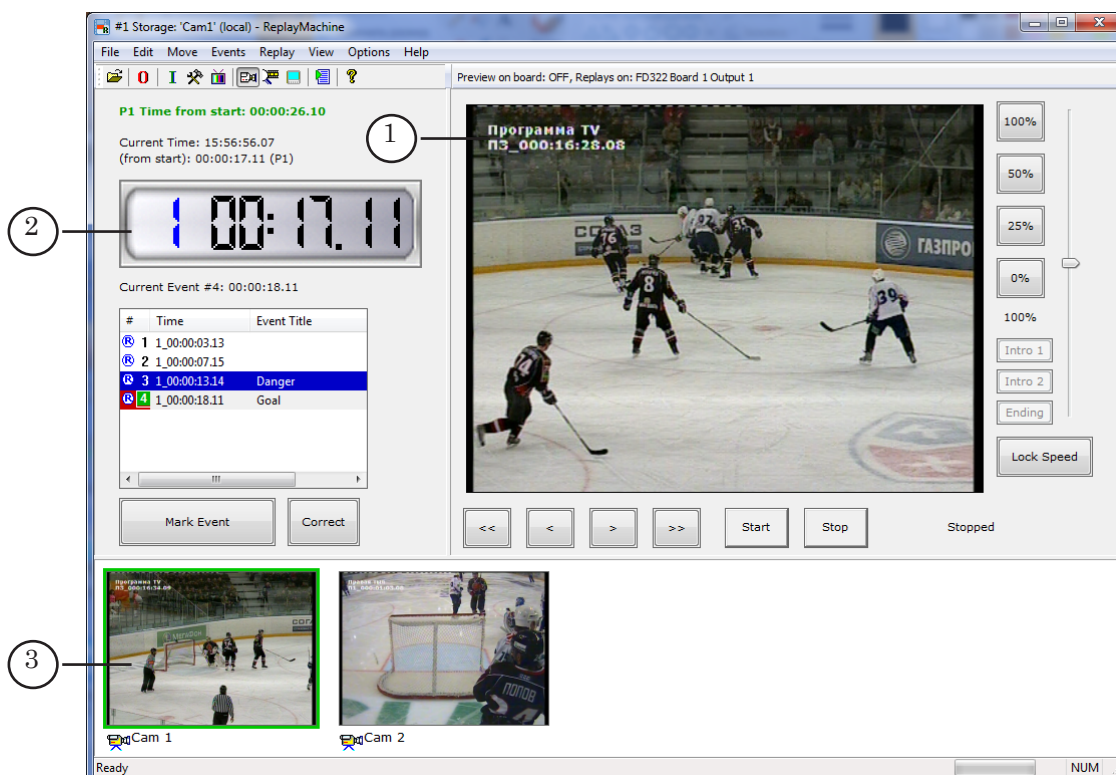




## 2. Large Preview Window

Large preview window (1) displays frames from current storage that correspond to current position (2).

Indicator of current storage is a green frame (3). To select storage as the current one click corresponding small preview window. If you want to select another storage click corresponding small preview window (or use hot keys, see the commands of the Edit > Select Camera 1–10 menu).



## 3. Additional Preview Window

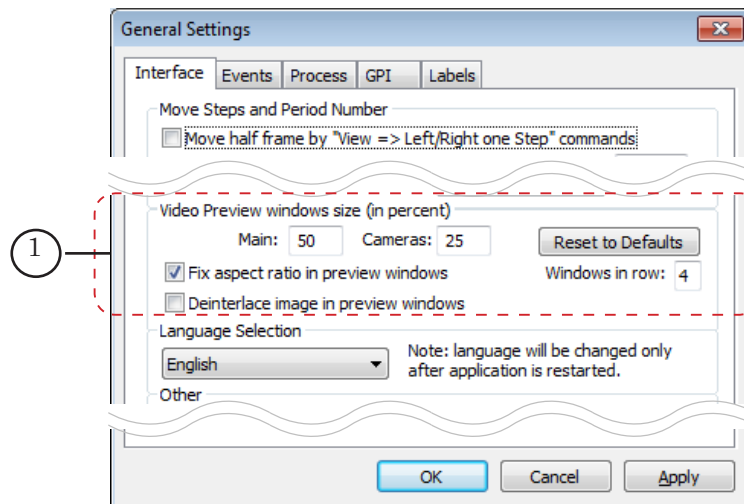
There is also a possibility to open additional preview window to view current frames from current storage using the View > Preview in Separate Window command.



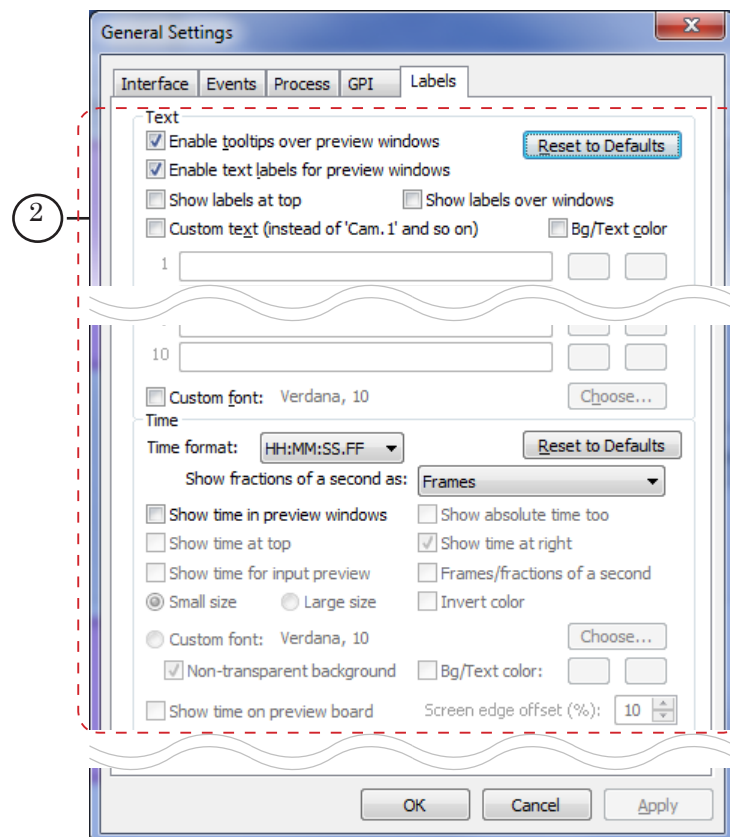


## 4. Windows Size and Labels

1. To customize size and location of preview windows use group of elements (1) in the General Settings... > Interface window (Options menu). You can also customize here parameters of displaying – interlacing and image aspect ratio correction.



2. To customize content, view and location of labels and other service information related to preview windows use group of elements in the General Settings... > Labels window (2) (Options/General Settings menu).





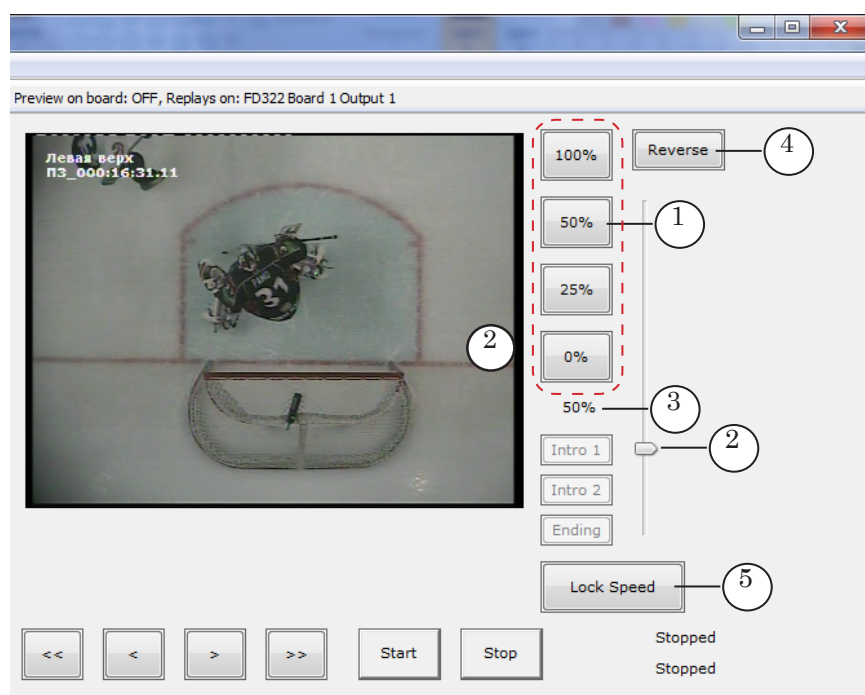


## 6. Elements To Control Replays Speed and Direction

Group of buttons located in the main program window (1) and sidebar (2) are used to specify speed of replay playback (you can use **Replay > Set Speed XX%** commands of the **Replay** menu also). Also, there is indicator of current speed (3) and the **Reverse** button (4) used to change direction of playback without changing of speed absolute value.

The buttons are active both before start of replay playback and during playback (if locking of speed is not on). Possible values for buttons and commands:

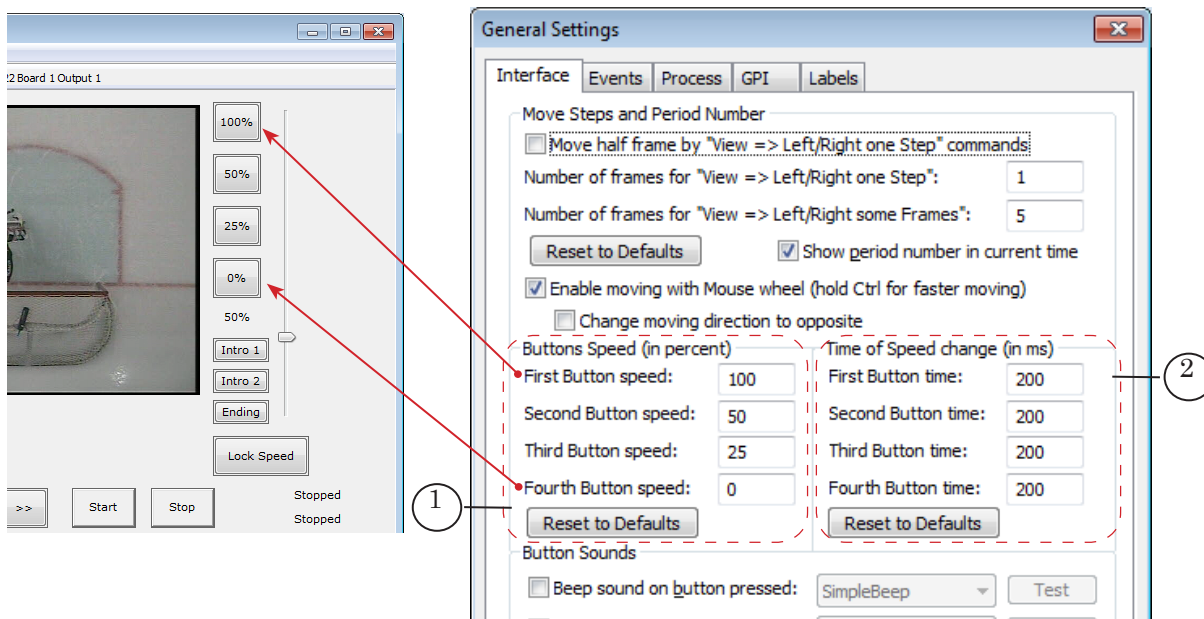
- -100% up to 0% – slow reverse replay («time is reversed»);
- 0% – stop frame;
- 0% – 100% – slow replay («time goes frontwards»);
- 100% – real speed;
- 100% – 200% – accelerated replay.



The **Lock Speed** button (5) is used to lock speed when one replay is played. If the button is pressed then speed is not changed until the next **Start** command.

**Note:** To assign some other speed values for buttons and commands use the group of elements (1) in the **General Settings > Interface** window (**Options** menu).

Also you can customize time interval of changing speed starting from current one to specified one for each of four buttons (2). Buttons located in the main program window are numbered up-down. The supreme button (100% by default) is 1st, the lowest one (0%) – 4th.



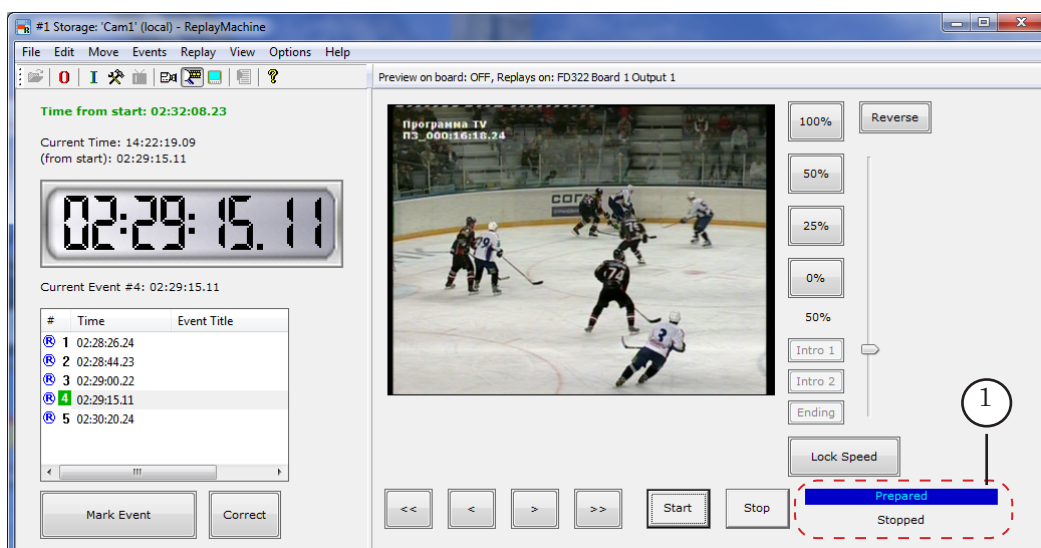
## 7. Buttons To Control Intros

See the «Control Over Introductions» section.

## 8. Control Elements and Replays Indicators

Note: See the «During Game: Main Operator Actions» section, subsection 4 «Adjusting and Start of Replays».

State of replays is displayed in the main program window on 2 indicators (1).





Both indicators function in the same way. One of them indicates current state of replay, the second one – replay that follows the first one (if there is such). If after launch of the second replay one more is prepared then the first (free) indicator is used to output information on it, «cycled scheme».

Note: Presence of 2 indicators is useful when dealing with sequential replays. As during broadcasting of one replay another one can be prepared (adjusted and loaded into buffer) then there is a necessity to control states of both replays – current and next one.

Current state of replays is displayed on indicators via colour and text messages. Possible messages here:

- Stopped – replay playback is stopped;
- Prepare – data is being loaded;
- Ready – data is loaded into buffer, replay is ready to be broadcasted on air. Its playback starts after clicking Start button;
- Playback (speed XX) – replay is being performed with specified speed;
- Intro – introduction is being played;
- Error (Stop) – error occurred, playback of replay is stopped.





You can monitor replay content only via external monitor or using FDPreview application.







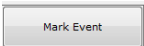
## Main Menu

The main menu includes commands to customize and control replays playback and commands for configuration of some other working aspects. Part of the commands can be activated via icons of the toolbar or main program window buttons, hot keys.


There is also a possibility to activate commands via external console.

Menu command	Hot key	Button in the main application window	Notes
1. File menu includes commands for customizing link with storages and displaying information on used storages.			
Open...	Ctrl+O		Open storages (is implemented in a separate window).
Storages Information	Shift+I		Display information on opened storages: parameters and current state.
Exit			Close program window.
2. Edit menu includes commands to reset time of start, select current camera and switch to playlist editing.			
Reset Start Time			Reset playing time and specify period number.
Select Camera 1	Z	click the first small preview window (from left-right)	Select camera number 1.
Select Camera 2	X	the same but 2nd window	Select camera 2.
Select Camera 3	C	the same but 3rd window	Select camera 3.
Select Camera 4	V	the same but 4th window	Select camera 4.
Select Camera 5	A	the same but 5th window	Select camera 5.
Select Camera 6	S	the same but 6th window	Select camera 6.
Select Camera 7	D	the same but 7th window	Select camera 7.
Select Camera 8	F	the same but 8th window	Select camera 8.
Select Camera 9	Q	the same but 9th window	Select camera 9.
Select Camera 10	W	the same but 10th window	Select camera 10.
Playlist Editor	Ctrl+P		Open window to edit playlist.


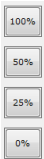
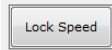


Menu command	Hot key	Button in the main application window	Notes
<b>3. Move menu includes commands to navigate storages (changing of current position).</b>			
Go to Time...	Ctrl+G		Pass to necessary time moment (specify daily or playing time/time from start).
Go to Period Begin > 1,2 ...9	Ctrl+1 – Ctrl+9		Pass to start of selected period.
Left One Step	←		Move one step back (1 frame by default).
Right One Step	→		Move one step forward (1 frame by default).
Left Some Frames	↑		Move several frames back (5 frames by default).
Right Some Frames	↓		Move several frames forward (5 frames by default).
Value of shift is specified in the <b>General Settings</b> window on the <b>Interface</b> page.			
Swap Up/Down Keys			Swap action of «Up»/«Down» keys (↑/↓) (are assigned for the <b>Left Some Frames/Right Some Frames</b> commands).
Disable Left/Right Some Frames			Disable buttons of the main program window and items of menu for the <b>Left Some Frames/Right Some Frames</b> commands.
Go to Last Event	End		Move to the last event and select it as current one.
Go to Previous Event	PageUp		Move to event that is previous current and select it as current one.
Go to Next Event	PageDown		Move to the next event and specify it as current.
X Seconds Back (X is a number from 0 up to 9)	0, 1 ... 9		Move specified number seconds back from time of current event. Repeated action of command does not lead to repeat shift.
<b>4. Events menu includes commands for marking, editing and correcting of events.</b>			
Mark Event	Space		Put mark for current event and add event to the list without type indicating.
Mark Special Event "Goal"	B		Mark current moment as «Goal» and add event to the list.
Mark Special Event "Dangerous Moment"	N		Mark current moment as «Dangerous Moment» and add event to the list.
Mark Special Event "Violation"	M		Mark current moment as «Violation» and add event to the list.
Mark Special Event "Other 1"	<		Mark current moment as «Other 1» and add event to the list.
Mark Special Event "Other 2"	>		Mark current moment as «Other 2» and add event to the list.



Menu command	Hot key	Button in the main application window	Notes
Mark Special Event "Other N" (N is number from 3 up to 6)			Mark current moment as «Other N» (N=3–6) and add event to the list.
Create New Event	Ctrl+R		Create new event for current position in storages. If event with the same time already exists then the second is not created. The command is used when it is needed to mark moment as event when it was not marked in a real-time mode.
Edit This Event			Edit event under mouse cursor where mouse cursor is put by adjusting its colour, type, etc. The command is accessible from context menu of events list.
Edit Current Event	E		Edit settings of current event: type, colors, etc.
Correct Current Event	/		Shift mark of current event to position that corresponds to current position.
Correct Current Event To "Goal"	Ctrl+B		Assign to current event the «Goal» type.
Correct Current Event To "Dangerous Moment"	Ctrl+N		Assign to current event the «Dangerous Moment» type.
Correct Current Event To "Violation"	Ctrl+M		Assign to current event the «Violation» type.
Correct Current Event To "Other 1"	Ctrl+<		Assign to current event the «Other 1» type.
Correct Current Event To "Other 2"	Ctrl+>		Assign to current event the «Other 2» type.
Correct Current Event To "Other N" (N is number from 3 up to 6)			Assign to current event the «Other N» type (N=3–6).
Delete all Non-Special Events			Delete all untyped events.
Clear Events List			Delete all events in list.
Export Events From List			Create PostPlay clips in corresponding storages basing on events list. Information on clips is available in PostPlay Preview and FDO nAir programs (see corresponding guides).
Export Events to All Storages			Create PostPlay clips in all storages basing on events in list.
5.1. Replay menu includes commands for playback of replays.			



Menu command	Hot key	Button in the main application window	Notes
Start Paused	«+» (on additional keyboard)		Prepare to playback to start replay via the Start command.
Start	Enter		Start playback of replay.
Stop	Esc, «-» (on additional keyboard)		Stop playback of replay.
Always Start Paused	Ctrl+P		Switch mode of replay start via pause on/off. If the mode is on then preparing to playback is made by Start command. Only second Start command starts playback.
5.2. Replay menu also includes commands for customizing of speed of replays playback. Use the buttons to specify speed.			
Set Speed 100%	F9		– for the first (numbering starts from up to down) button, default – real speed;
Set Speed 50%	F10		– for the second button, default – 50% from real speed;
Set Speed 25%	F11		– for the third button, default – 25% from real speed;
Set Speed 0%	F12		– for the fourth button, default – 0% from real speed.
Lock Speed	Ctrl+L		Switch on/off mode of preserving current speed. If the mode is on then speed is locked until the next activated Start command.
6. View menu includes commands for customizing of appearance of the main program window: sizes and location of control elements. The commands allow adjusting work area to a concrete user taking into account characteristics of monitor. For example, dealing with example touch screen operator works clicking buttons located in the window and sometimes it is necessary to enlarge/minimize their size or offsets between the buttons.			
Toolbar			Show/hide toolbar.
Status Bar			Show/hide status bar.
Preview in Separate Window	Ctrl+U		Open a separate additional preview window.
Main Window Preview Size >			Specify size of the main preview window (in percents relatively initial size).
50%	Ctrl+F1		
25%	Ctrl+F2		
33%	Ctrl+F3		
10%	Ctrl+F4		
Arbitrary			Open window with settings (Properties > General Settings... > Interface).





Menu command	Hot key	Button in the main application window	Notes
Controls Size			Specify size of controls (in units relatively default size).
-2 Units			2 units less;
-1 Unit			1 unit less;
0 (Default)			initial size;
+1 Unit			1 unit more;
+2 Units			2 units more.
Offset Between Controls >			Specify offset between controls (in units relatively default size).
-2 Units			2 units less;
-1 Unit			1 unit less;
0 (Default)			initial size;
+1 Unit			1 unit more;
+2 Units			2 units more.
Reset Controls Size and Offset			Return to initial window appearance.
Show Input Preview			Enable/disable displaying of input video in small preview windows.
Auto Show Preview on Start			Display input video in small preview windows at program start automatically.
Switch to Input Preview	Ctrl+I		Display images from board inputs in all small preview windows.
Switch to View Storages	Ctrl+T		Display data from storages that correspond to current position in all small preview windows.
Switch Between Input Preview/View Storages	TAB		Switch from current display mode to another in all small preview windows (input video – video from storage or vice versa).
Small Video Preview Mode >			Switch from current image to another in one preview window (input video – video from storage or vice versa):
Preview Input 1	Ctrl+Z		in the first window;
Preview Input 2	Ctrl+X		the second;
Preview Input 3	Ctrl+C		the third;
Preview Input 4	Ctrl+V		the fourth;
Preview Input 5 – Preview Input 10			the same for windows 5–10 correspondingly.
Autoselect Inputs for Small Video Preview			Automatically select board inputs in small windows, capture application must be running.
7. Options menu commands are used to open windows with settings. More information on this issue see in section 8.			



Menu command	Hot key	Button in the main application window	Notes
General Settings...	F5		Customizing of general parameters: functional characteristics and interface elements; use of processors and priority; control over GPI signals.
GPI Console...	F6		Customizing of external GPI console.
Playback...	F8		Customizing of previewing and playback of replays parameters.
Help			
About ReplayMachine			Open window with information on the program.



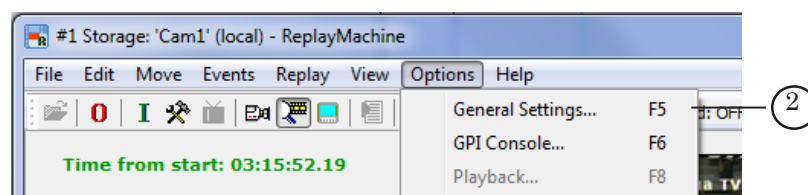
## Interface Customizing

### 1. Language

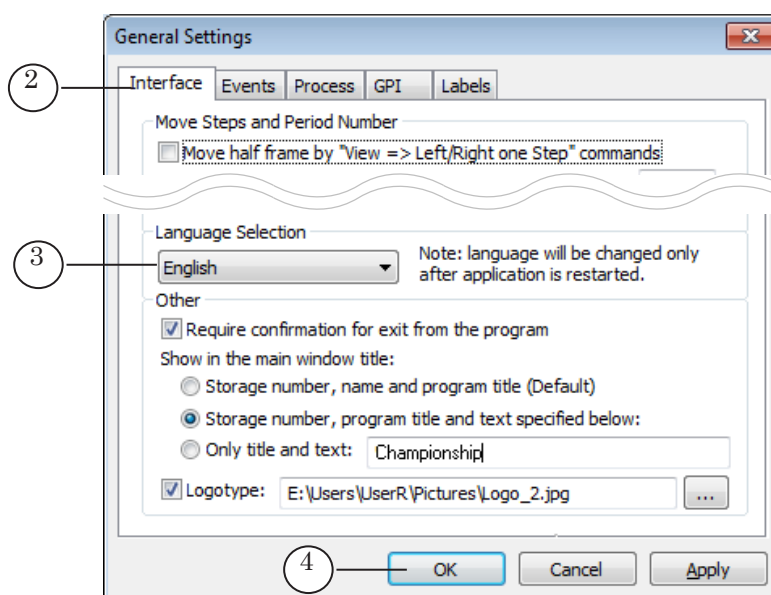
- ✓ **Important:** You must restart the ReplayMachine Console program to change interface language.

To select language (Russian/English):

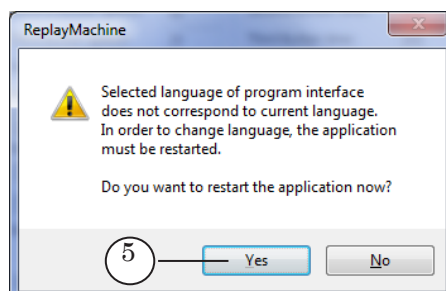
1. Select the Options > General Settings... menu command (1).



2. Pass to the Interface tab (2) in the appeared window.
3. Select language (3). Click OK (4).



4. Service message appears. Click OK (5) to close window with settings.

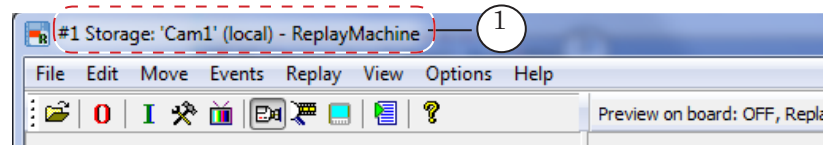


5. The main program window is closed. Language is changed.



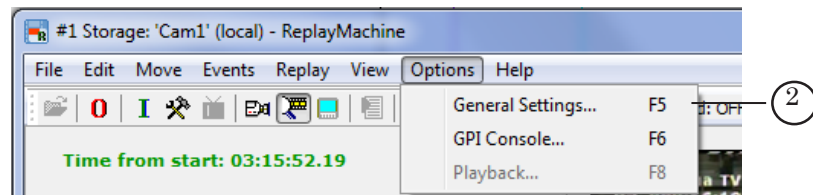
## 2. Information in Title Bar Area

Title bar information area (1) includes name of program, index of current storage and text specified by user (optionally).

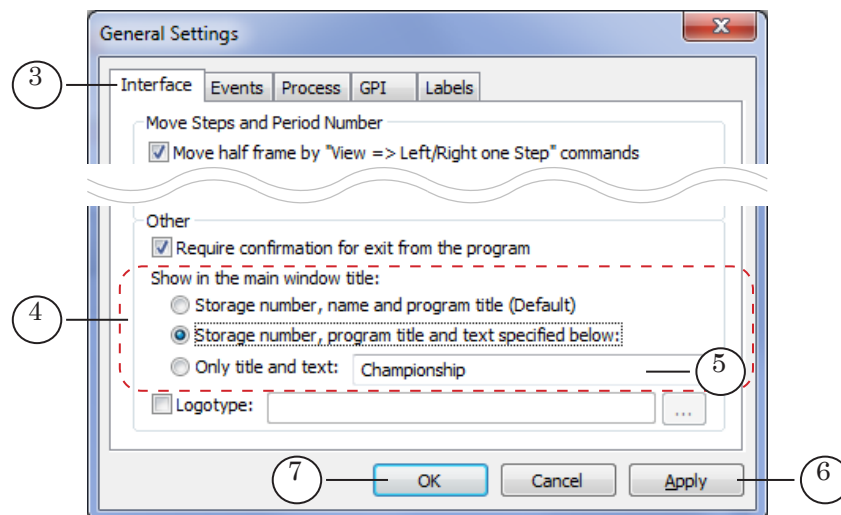


To customize this information complete the following:

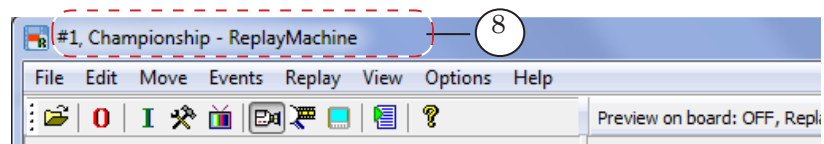
1. Select the Options > General Settings menu command (2).



2. Pass to the Interface tab (3) in the appeared window.



3. Using radio buttons (4) select desired title mode. If necessary specify text to be displayed in title bar (5).
4. Click Apply (6) to apply the settings and OK (7) to close the window.
5. Information in title bar is changed (8).

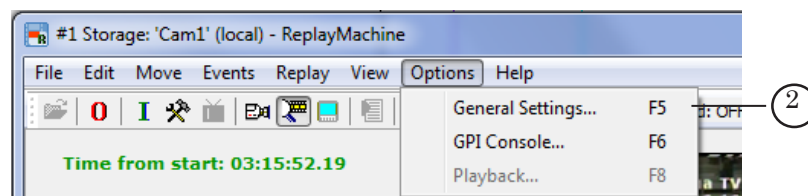




### 3. Logotype

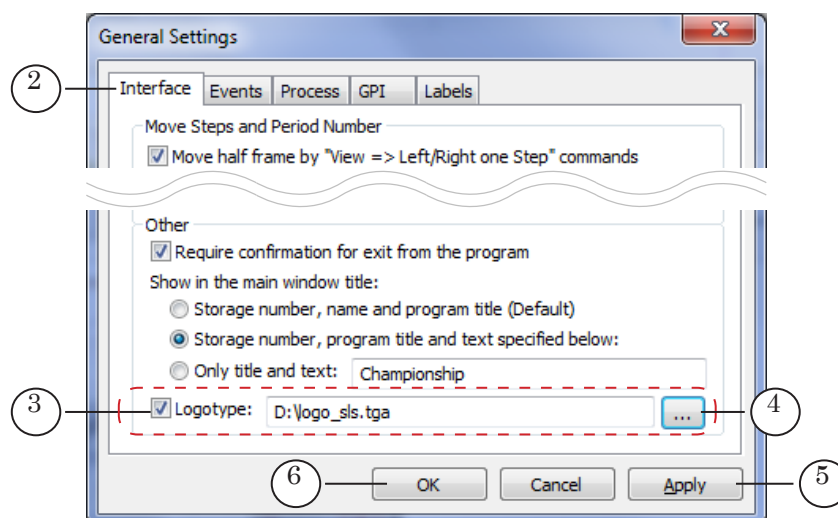
To customize displaying of logotype in the main program window complete the following:

1. Select the Options > General Settings menu command (1).

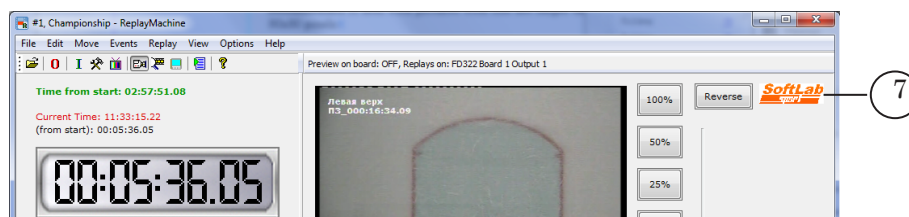


2. Pass to the Interface tab (2) in the appeared window.
3. Put the Logotype mark (3). Click the (4) button and specify file with image. Nearly located field displays a full path to file with the image. Acceptable formats of images are: \*.png, \*.bmp, \*.dib, \*.jpg, \*.tga.

Size of image must not exceed 800x800 pixels. It is recommended to deal with pictures with size not larger than 80x80 pixels.



4. Click Apply (5) to apply specified settings and OK (6) to close the window.
5. Logotype appears in the upper right corner of the main window (7).



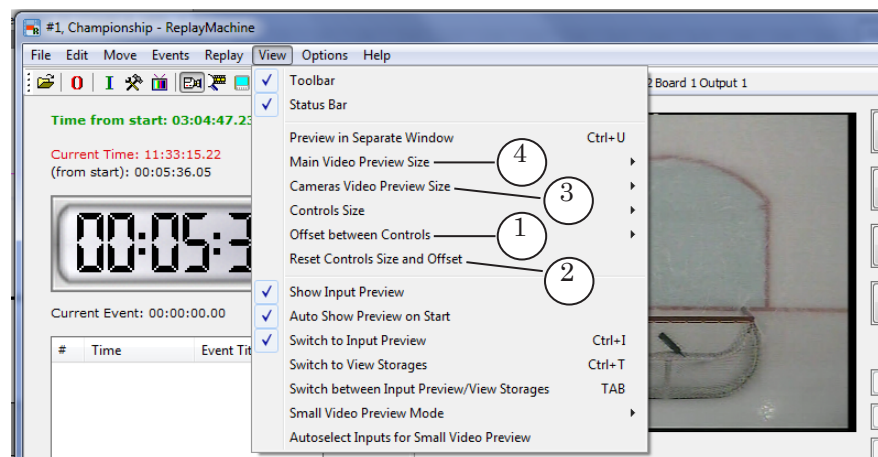


## 4. Size of Buttons and Preview Windows

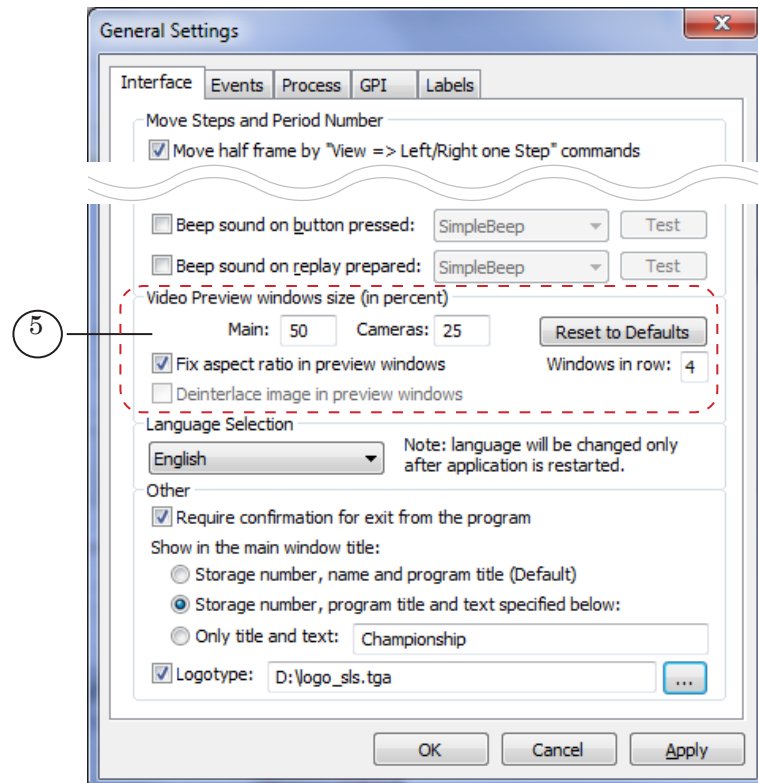
Size of elements of the main program window and spacing among them can be adjusted to a concrete user and characteristics of used monitor.

For example, when using touch screen it can be necessary to enlarge or diminish size of buttons and spacing. In this case it is more convenient for operator to click the buttons on screen with fingers.

1. To change size of buttons and other control elements use the View > Controls Size submenu commands (1).
2. To change spacing use the View > Offset Between Controls submenu commands (2).
3. To change size of small preview windows use the View > Cameras Video Preview Size submenu commands (3).
4. To change size of the main preview window use the View > Main Video Preview Size submenu commands (4).



5. To customize location of preview windows pass to the Interface group of elements (5).



It is possible to separate small preview windows in several rows if size of monitor allows it.

## 5. Displaying of Time

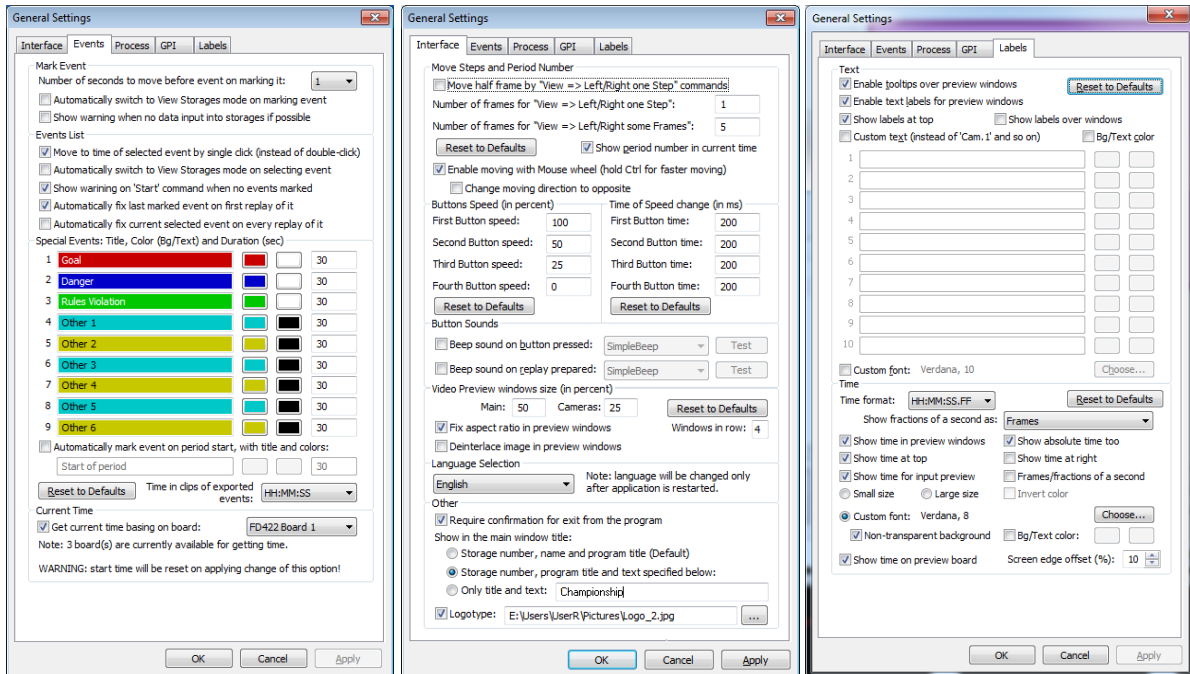
The section is currently under development.





## Default Settings

Pictures below show default settings.





## Customizing of Working Mode

- Note: The following programs are used to customize parameters of input/output boards:
- for FD322, FD422, FD842, FDVrt boards – FDConfig2 (see the guide);
  - for FD300 board – FDConfiguration (see the guide).

### Timing Via Board

The following is recommended to organize a synchronous work of all «Forward Goalkeeper» system components:

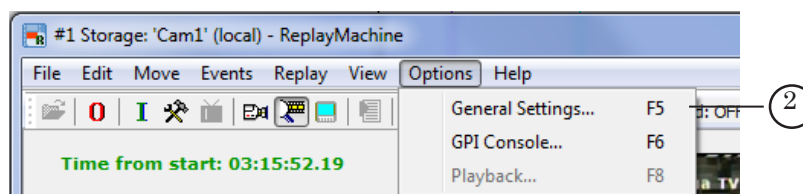
1. Synchronize all used boards (FD300/FD322/FD422/FD842) in the system by specifying mode of genlock video sources (see corresponding guides for the FDConfiguration/FDConfig2 programs).
2. Set current timing in the ReplayMachine Console program via one of the boards (more information see below).

- ✓ **Important:** We insistently recommend to customize program to get time from board. It minimizes discrepancy between data captured from boards.

Complete the following to specify device for current timing:

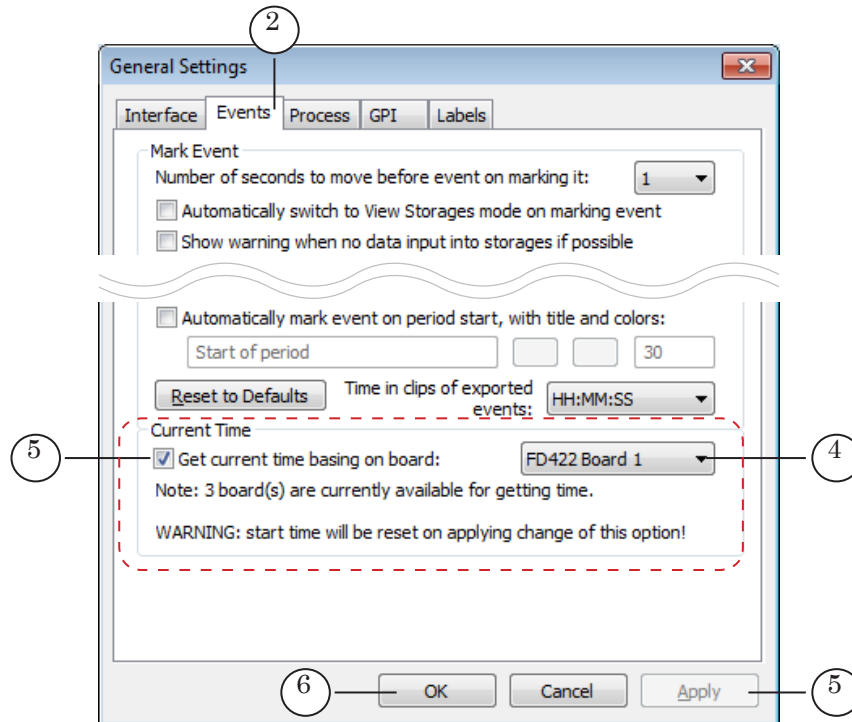
- ✓ **Important:** When changing this setting timer in the ReplayMachine Console program is reset. List of events is cleared.

1. Select the Options > General Settings menu command (1).





2. Pass to the Events tab (2).
3. In the Current Time group of elements:
  1. Put the Get Current Time Basing on Board mark (3).
  2. Select necessary board in the list (4).



Note: If there are several boards of one type in the system (for example, FD422 board) all of them receive serial numbers automatically. Numbering depends on location of boards in mother board slots. You can identify all boards by opening the FDCConfig2 program window (for FD300 board – the FDCConfiguration program) and examine all boards there.

4. Click Apply (5) just to apply the settings or OK (6) to apply the settings and close settings window.

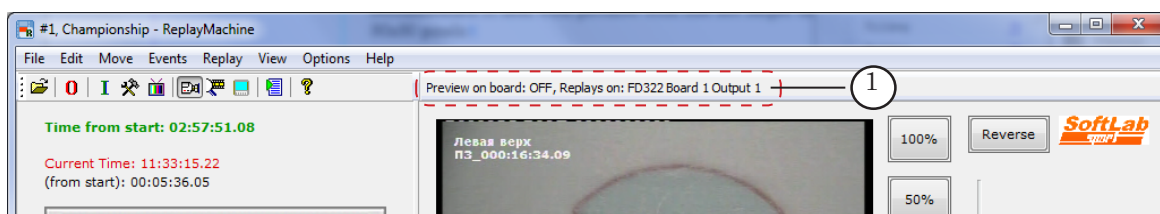


## Preview Mode

Previewing of video when working with replays can be implemented in windows of the ReplayMachine Console program and via external monitor (if system configuration allows).

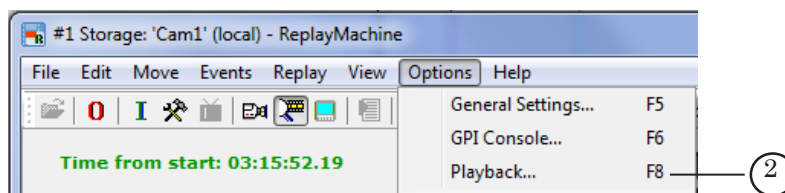
**Note:** For video previewing and playing replays different devices must be selected (different output lines of one board or outputs of different boards). If it is impossible then previewing via external monitor is impossible.

Information on devices used for replays previewing and playback is displayed in information area (1).

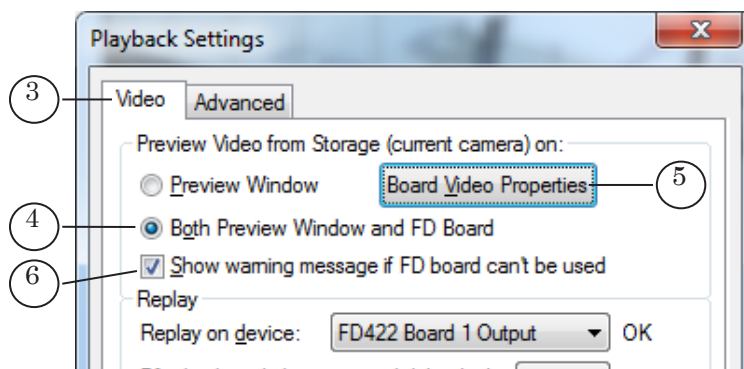


To specify mode and device for preview complete the following:

1. Select the General Settings... > Playback menu command (2).



2. Pass to the Video tab (3) in the appeared window.

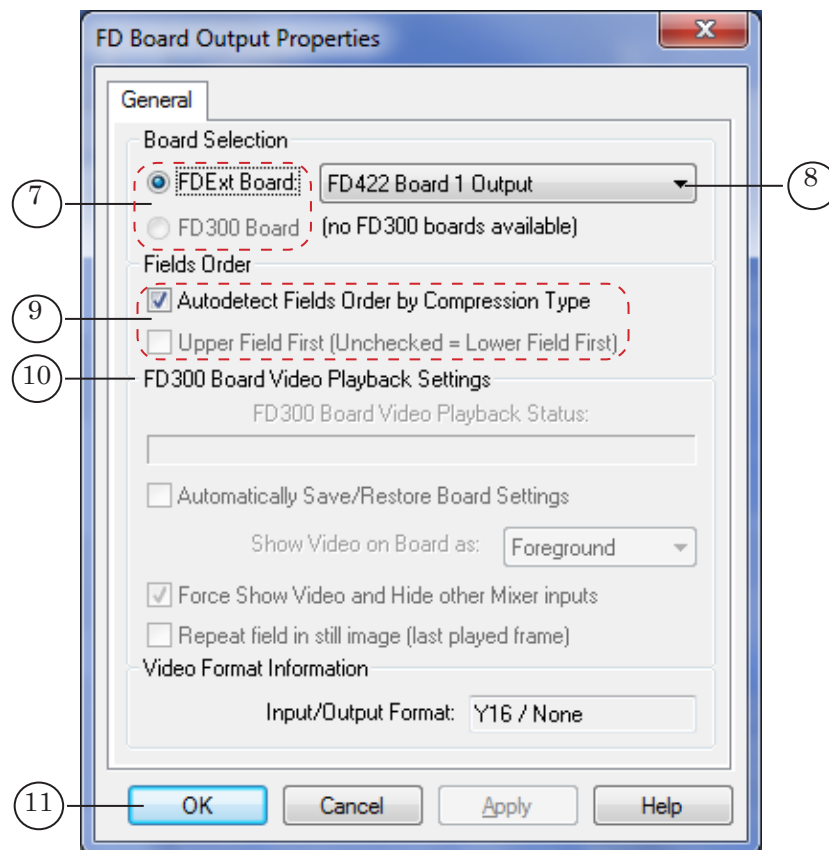


3. To switch preview mode via external monitor on select Both Preview Window and FD Board (4). Then click Board Video Properties (5).



Note: If the (6) mark is put then in case when it is impossible to preview via board a service message appears.

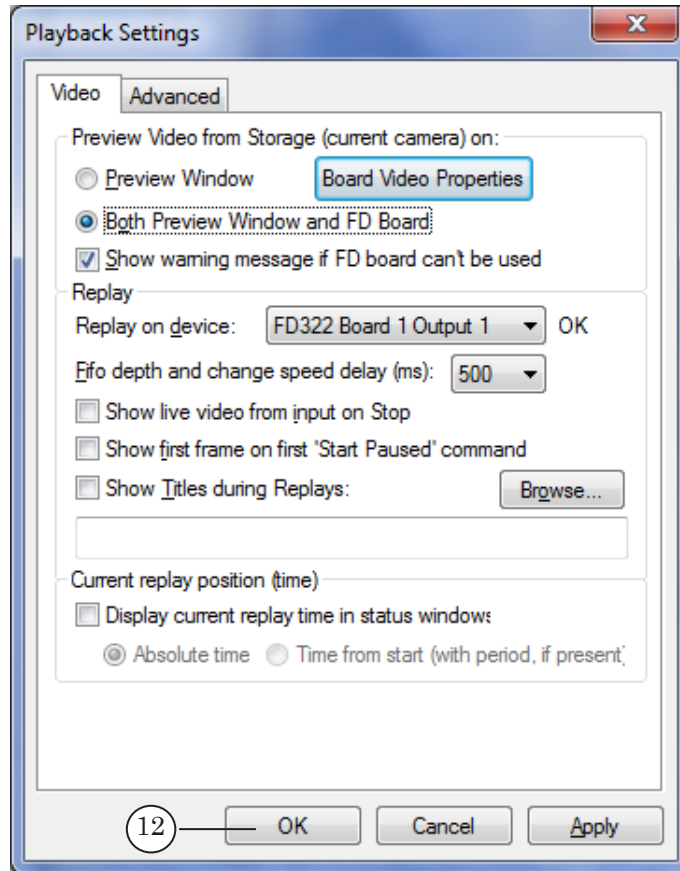
4. Select type of board (FDExt (FD322/FD422/FD842) or FD300) in the appeared window via radio buttons (7).



5. Select output line in the drop-down list (8). Remember that previewing and playback require different devices strictly.
6. Put/release marks (9) to specify necessary mode of fields output at playback.
7. Customize playback board module (10) additionally if FD300 board is used for previewing.



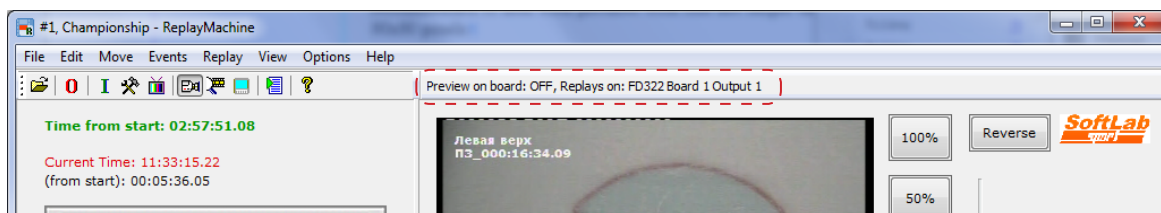
8. Close windows with settings successively by clicking OK (11, 12).





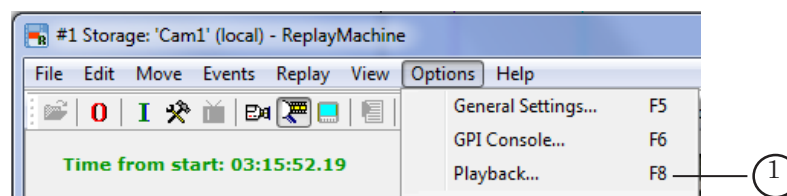
## Specifying of Board for Replays Playback

Information on devices used for storages previewing and playback of replays is displayed in information area (1).

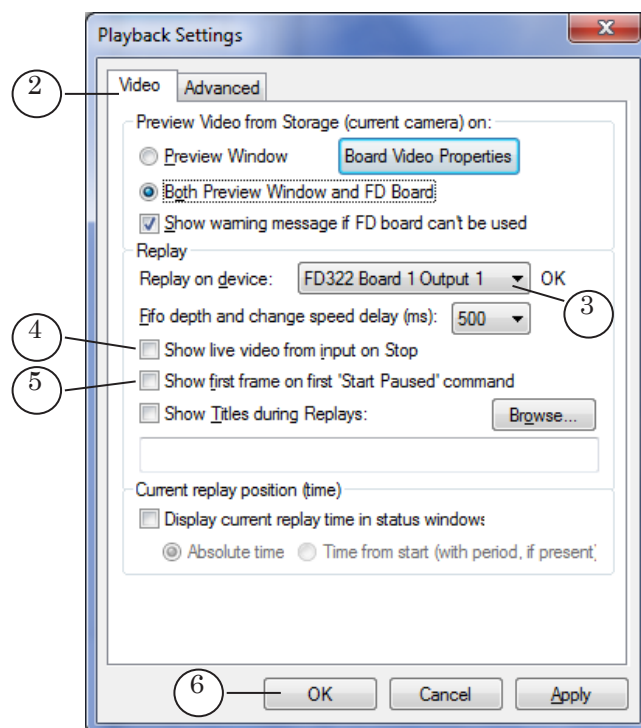


To specify mode and device for replays playback:

1. Select the General Settings... > Playback menu command (1).



2. Pass to the Video tab (2) in the appeared window.



3. Select device for playback (output line or board) in the drop-down list (3). Remember that previewing and playback require different devices strictly.





4. If necessary to switch to broadcasting of video from input of specified board automatically put the Show live video from input on Stop mark (4). If the mark is absent then the last frame is displayed after replay stop.
5. To enable/disable displaying of the first replay frame on the output when waiting of replay put/release the mark (5).
6. Click OK (6) to close the window and apply the settings.

Note: For more information see the «Data Buffer in Operative Memory» subsequent section.



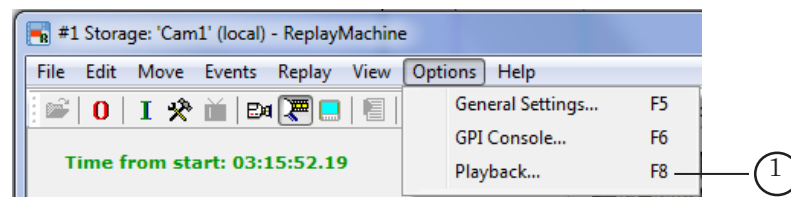
## Data Buffer in Operating Memory

Data buffer is memory area used at playback of replays for a transitional getting of data located on PC hard disk. Time needed for system to react when changing replay playback speed depends on buffer capacity. The less is capacity the quicker is fulfilling of buffer by data and the result is – program is ready to playback. Using larger capacity buffer results into enlarging of time needed to react user commands (e.g. changing speed).

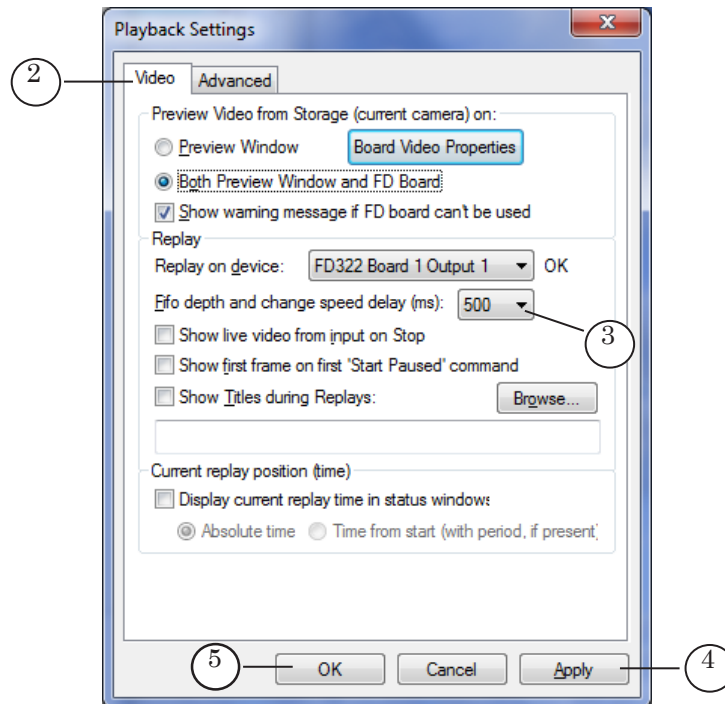
Selecting buffer capacity you must take into account PC features. For fast PCs you can specify not a very large capacity – 100 – 300 msec, for slow PCs – capacity must be enlarged up to 1000 msec.

We recommend testing quality of replays playback in advance (before broadcasting on air) especially if minimal value is specified. It is necessary to be sure that breaks and any dragging during playback are absent. If there are still some breaks then enlarge buffer capacity by completing the following:

1. Select the Options > Playback menu command (1).



2. Pass to the Video tab (3) in the appeared window.



3. Select necessary value in the Fifo depth and change speed delay (ms) drop-down list (3).
4. Click Apply (4) just to apply the settings or OK (5) to apply the settings and close settings window.



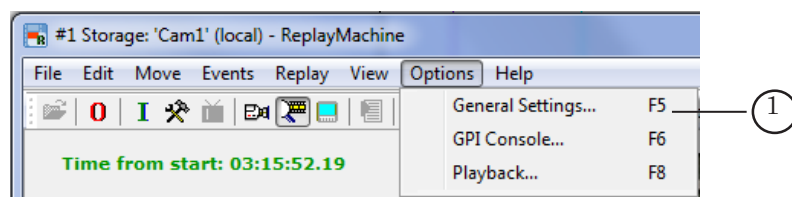
## Use of Processors and Priority

Proper distribution of processors and selection of processes priority allows optimizing system performance.

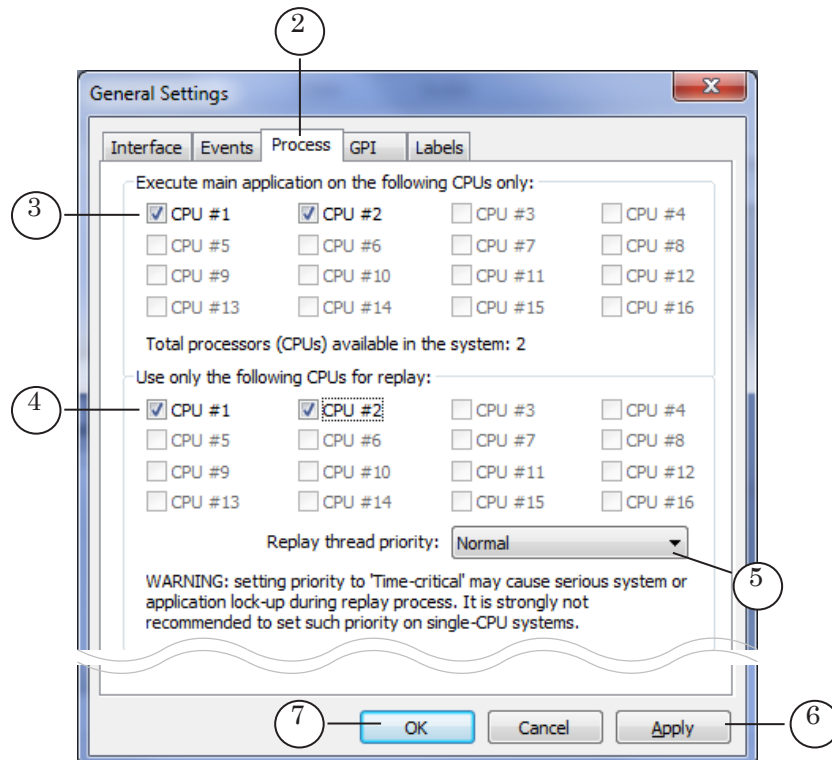
- ✓ **Important:** System resources must be distributed properly. Privileged status of one task may result into capturing of all resources by one task. It leads to impossibility of execution of other tasks.

To view current settings and adjust them if necessary complete the following:

1. Select the Options > General Settings menu command (1).



2. Pass to the Process tab (2).





3. Put corresponding marks to select necessary processors for ReplayMachine Console program (3) and for task of replay playback (4).

✓ **Important:** Incorrect distribution of CPU cores among applications leads to abrupt decreasing of PC performance.

4. Select priority of process execution in the (5) drop-down list.
5. Click Apply (6) just to apply the settings or OK (7) to apply the settings and close settings window.



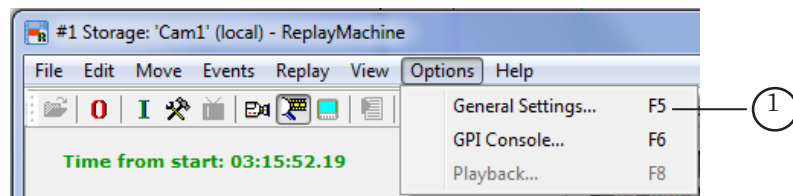
## Interaction With External Devices Via GPI

The Forward Goalkeeper system provides with a possibility of interacting control signals with external devices via GPI.

Using GPI signals it is possible to organize control start and stop of replay according to operator commands via external mixer. It guarantees accuracy of inserting of replay in air. The system transmits signals to external console at start and stop of replay playback.

Complete the following to customize mode of interaction of system and external equipment via GPI:

1. Select the Options > General Settings menu command (1).

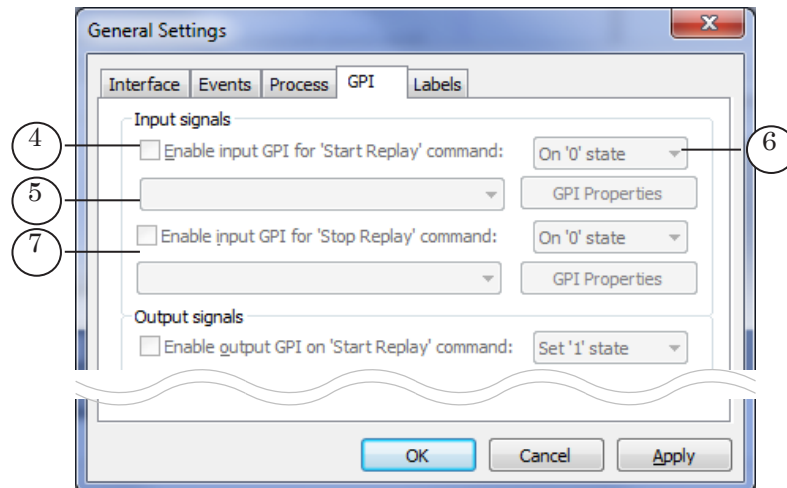


2. Pass to the GPI tab (2).



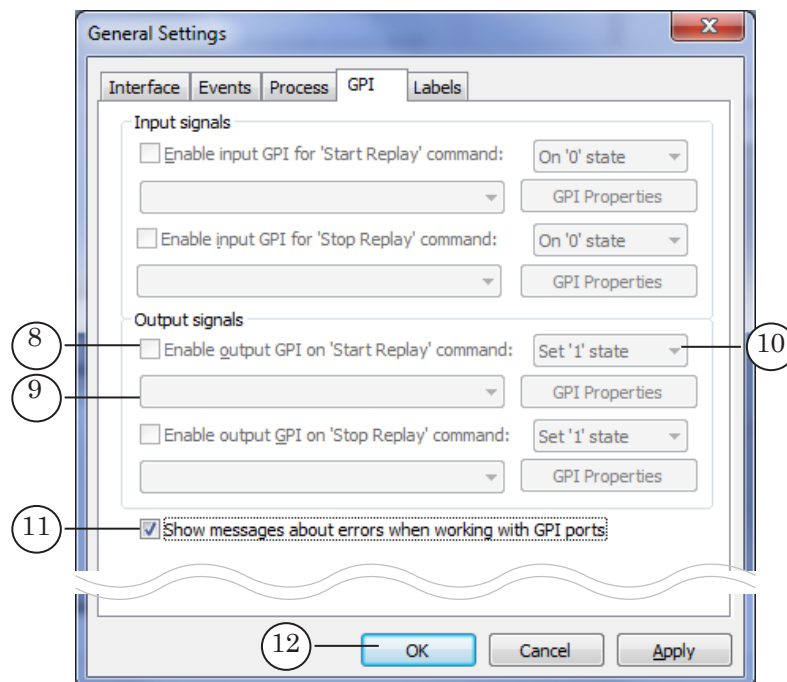
3. Use the Input Signals group of elements (3) to customize control over replays via external GPI commands. For example, to customize start of replays via GPI complete the following:
  1. Put the Enable input GPI for 'Start Replay' command mark (4).
  2. Select signal (5) and active state (6) in drop-down lists of the group.

**Note:** Identifiers of GPI signals include COM port identifier via which signal passes (COM1, COM2, etc.), serial number (0/1) and indication of signal type – Input denotes input signal, Output denotes output signal.



In the same way you can customize control over stop of replay playback via external command – Enable input GPI for ‘Stop Replay’ command (7).

4. To customize transmitting of GPI signals to external devices at activating of Start and Stop commands use the Output Signals group of elements. For example, to enable signal at activating of Start command complete the following:
  1. Put the Enable output GPI on ‘Start Replay’ command mark (8).



2. Select identifier of signal (9) and active state (10) in near located lists.





- 
5. To enable output of service messages if errors appear at GPI signals processing put the Show messages about errors when working with GPI ports mark (11).
  6. Click OK (12) to apply the settings and close window.



## External Consoles

The «Forward Goalkeeper» system provides with a possibility of using external console when preparing and output of data on air.

Console is a device with buttons, speed regulator and jog shuttle. The following console models are supported currently:

- DNF ST300;
- DPS Velocity Jog-4000;
- DPS Velocity Jog-5000;
- JLCoper ES-SloMo;
- JLCoper MCS-3;
- Shuttle Pro 2.

Buttons and other control elements can be customized to complete the following:

- mark event (important moment) for its further replay;
- quickly navigate video material (frame by frame or with jog-shuttle);
- correct event mark;
- select current camera;
- control replay playback speed;
- prepare for launch, start, stop of replay.

More information on dealing with consoles you can find in the [«ReplayMachine Console. Instant Replay Control»](#).



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## Useful Links

### **ForwardT Software set: description, download, documentation, solutions**

<http://www.softlab-nsk.com/forward/streaming.html>

### **Support**

e-mail: [forward@sl.iae.nsk.su](mailto:forward@sl.iae.nsk.su)

[forward@softlab-nsk.com](mailto:forward@softlab-nsk.com)

### **Forum**

<http://www.softlab-nsk.com/forum> (currently available in Russian only)

### **Additional Documentation**

1. [«FDPostPlayCapture. Application for Input of Video and Audio Data into PostPlay Storages, Dealing with Storages Using the FD322, FD422, FD842 Boards» User's Guide.](#)
2. [«FDReferee Workplace For Video Goal Judge. Record of match, mark and review of sport events. User's Guide».](#)
3. [«FDOnAir. Additional Sections» User's Guide.](#)
4. [«FDTitle Designer. Creating Title Objects» User's Guide.](#)
5. [«FDMovieListEditor. Task Editor For the MovieList Title Element» User's Guide.](#)
6. [«FDPreview. Program for Previewing of Audio and Video on Boards Inputs/Outputs» User's Guide.](#)

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