

Multichannel Recording and Instant Replay System

Operator's Guide

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Introduction

The Guide is intended to assist operators working with multichannel recording and instant replays systems. It provides description of the interface structure, its elements and controls.

The manual describes how to create and work with clips, playlists, events, instant and deferred replays.

Setting up program elements is described in a separate manual "Tools".

Setting up projects is described in a separate manual "Slomo.tv Launcher – User Guide".

Working with options "Super Motion", "Game Analyzer", etc. is addressed in respective Guides.



Warning: Operation of this equipment in a residential environment could cause radio interference.



Warning: The device is sensitive to electrostatic discharge. Before handling an electronic unit, you must first touch a grounded metal object in order to discharge yourself.



Users should be familiar with safe operation of computers and know the basics of using Microsoft Windows.

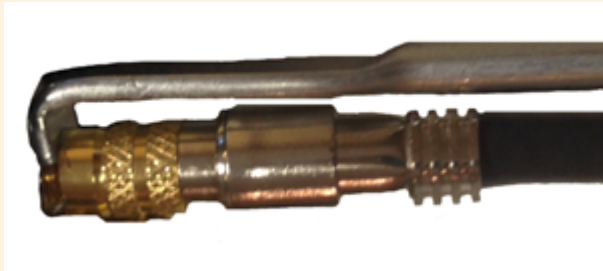


All systems come with a **USB Recovery Stick**. It contains an image of that particular system. Keep it safe.

The data available on the USB Recovery Stick is necessary to cherish, not to remove as much as possible to create a backup on the side of the media!

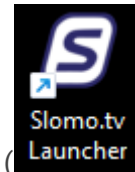
Using the supplied Recovery Stick you can, if necessary, restore the original software configuration and get a fully functional system in a few minutes.

Use a special tool for disconnecting the Din 1.0 / 2.3 cables.
In case of damage to the connectors the warranty will be void.
The tool and its placement are shown below:



Disconnecting Din 1.0/2.3 cables

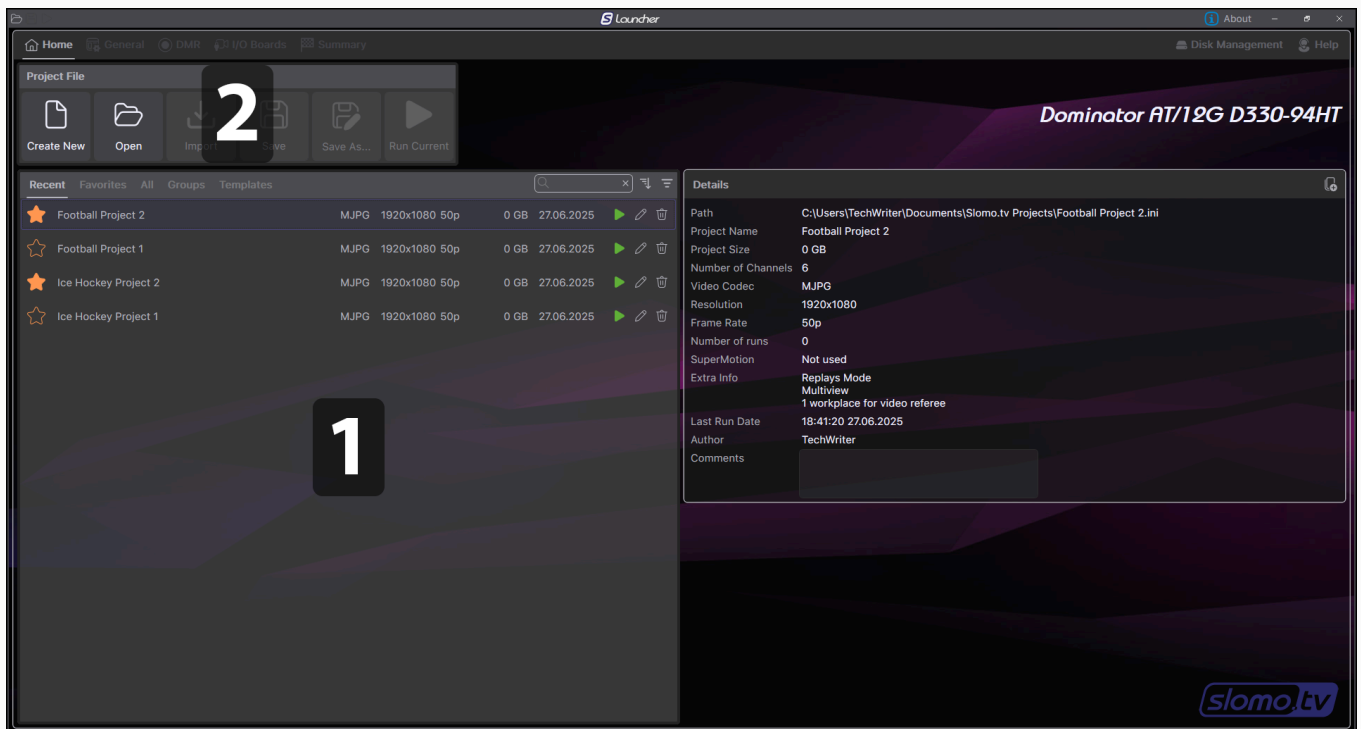
Launching the System Software



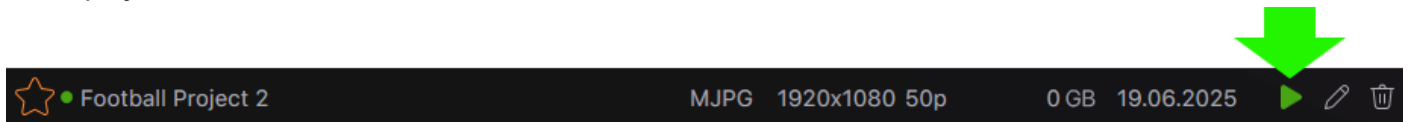
The program is launched using Slomo.tv Launcher. Locate the Slomo.tv Launcher shortcut () on your desktop and launch the program by double-clicking the shortcut with the left mouse button.

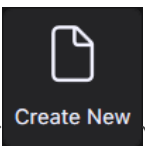
After launching Slomo.tv Launcher, the "Home" tab will open ([Figure 1](#)).

Figure 1 – Slomo.tv Launcher – "Home" tab



Select one of the projects in the project list ([Figure 1 - 1](#)) and click the **Run project** () button on the right side of the project row:



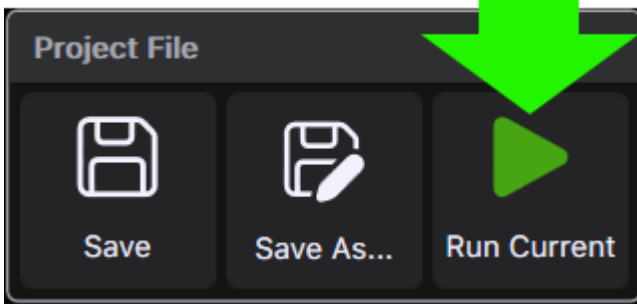
If no projects are present in the list, create a project: to do this, click the **Create New** button () in the "Project File" menu ([Figure 1 - 2](#)), after which the "General" tab will open. Begin project configuration starting from this tab.



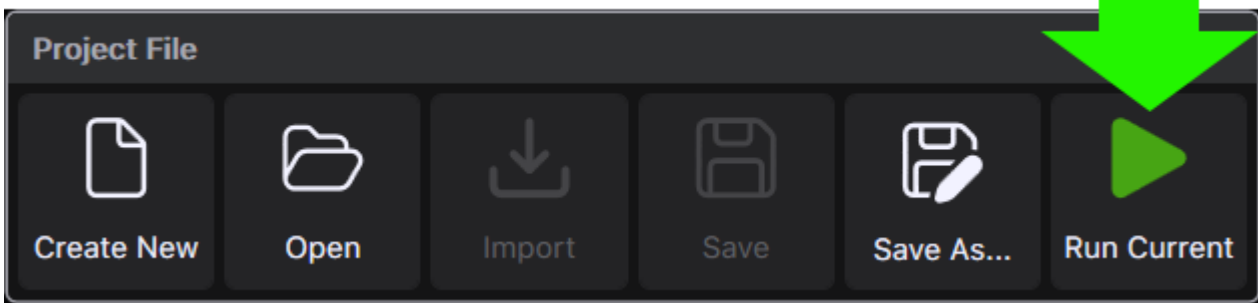
If you encounter difficulties during project setup, refer to the "Slomo.tv Launcher User Guide" manual.

Perform the necessary project configurations and then launch it using one of the following methods:

- The "Run Current" button in the **Summary** tab;



- The "Run Current" button in the "Project File" section of the **Home** tab;



After launching the project, Slomo.tv Launcher will close, and the main program interface shown in [Figure 2](#) will open.

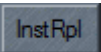
Program Interface

The main program interface contains live video windows, windows for search on recorded material, different tabs for created during operation objects, control panel, system tools and audio settings, area for notifications and playlists for playback (On Air).

Figure 2 – Main Interface



1. **Lists** – In the corresponding tabs, the lists will display clips, events, and playlists created during operation. For more details, refer to the "[Event/Clip/Playlist storage organization](#)" section of this manual.
2. **Live/Search video windows** – These windows are used to display live camera feeds or search through video footage for creating and working with clips, as well as performing instant replays.
3. **Operating mode information** – This window displays information about errors, dropped frames, and the status of the timecode (connected/disconnected).
4. **Control panel** – This panel is used for direct video operations: controlling recordings, creating events, clips, and playlists during recording. The use of the control panel is described in each relevant section of this manual, depending on the action being performed.
5. **Program window** – shows the video output being sent to the video output. The Program and Preview windows can be swapped if needed by double-clicking the left mouse button on either window.
6. **Audio output** – displays the waveform of the audio signal from the active channel.
7. **Preview window** – This window is designed to display the next clip during playlist playback or to duplicate video from the active channel during search. The Program and Preview windows can be swapped if needed by double-clicking the left mouse button on either window.
8. **Configurations panel** contains the following buttons:

- ▶  **Tools** for system configuration;
- ▶  **InstRpl** for switching to Instant Replay mode;
- ▶  **Audio Panel** for configuring audio;
- ▶  **Tips** for turning On/Off tips;
- ▶ **Standard windows controls:**
 - ▶  **Minimize**,
 - ▶  **Maximize/Restore**,
 - ▶  **Close**.

9. **Playlists for playback (On Air)** – This list is used to queue clips ready for broadcast (On Air). For more details, refer to the "[Playing Clips and Playlists](#)" section of this manual.
10. **Notification area** – Displays information about the program's operation, including general workflow status and hardware system failures.

For convenience of the operator each video window is provided with the name of recording channel and indicators of the recording process:

Figure 3 – Active Window



Window is not active – there is no red border around it



Active window – red border and sand colored strip

The concept of the active channel is very important, because when you export a clip it will contain only the video of the active channel (as well as sound, if it was recorded in the active channel).

Active channel is the selected channel. Channels can be selected by:

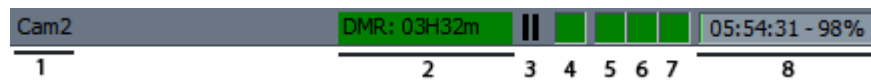
- ▶ **F1** – **F12** keys,

- ▶ Clicking on the channel window with a mouse,
- ▶ **Ch#** buttons on the remote control.

The selected (active) channel has a red border around it and a sand colored indication strip. Indication strip of inactive channels is gray.

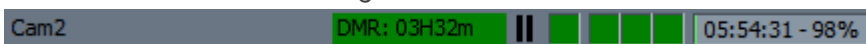
Recording Indicators

Depending on system configuration the indication strip can be positioned on top of the video window or under it. It always contains the name of the channel (1), the available DMR™ recording time (2) when DMR™ is present, the recording status indicators (3...5), status indicators of DMR™ recording (6, 7), the time available for recording on internal array (8):

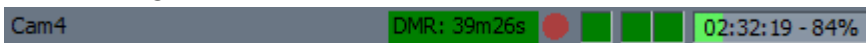


Depending on the system and its configuration indication strip can look as follows:

- ▶ DMR™ and DMR™ Set 2 configuration:



- ▶ DMR™ configuration:



- ▶ configuration without DMR™ or DMR™ is not used:



A more detailed description of the indicators and all possible states are presented below:

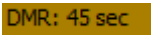
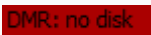
1. **The name of the channel.** This value can be changed by double-clicking on it and entering a new name. Confirm the entered value by pressing **Enter**. To cancel editing, press the **Esc** key or select another channel.

If channel name already exists, both names will be in red:

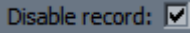


To avoid confusion it is recommended to use a different name for each channel.

2. **Available time for writing DMR™ discs.** This indicator is present only when DMR™ is available. Depending on the remaining time it can be green, yellow or red. All possible states of DMR™ discs are shown in the [Table 1](#):

Table 1 – States of DMR™ indicators	
	There is enough time for project recording
	Less than 1 min left for project recording
	Less than 20 sec. left for project recording
	DMR™ recording has stopped
	No DMR™ disc or it is not set-up correctly
	No DMR™ recording mode

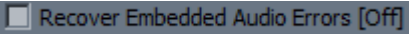
3. Status of Recording Unit (RU):

- ▶ Black sign of a pause (||) – no recording
- ▶ Red circle (●) – recording in process
- ▶ Black crossed-out circle (⊗) – recording is disabled ( in Tools).

4. Status of audio recording.

Colors other than grey (■) mean that audio is being recorded.

- ▶ Green (■) – normal recording;
- ▶ X on green background (⊗) – possible audio errors previously;
- ▶ X on blinking red (⊗)/yellow (⊗) background – possible audio errors;
- ▶ Plus sign on blinking red (⊕)/yellow (⊕) background – errors in audio frame length;
- ▶ Plus sign on green background (⊕) – possible previous errors in audio frame length.

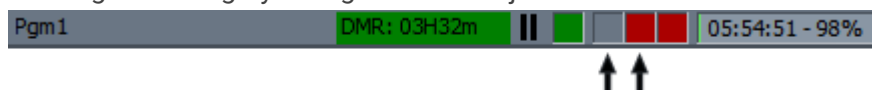
At indication of error it is recommended to listen to audio for its presence and to confirm that it is not random noise. Then first try to fix the error by re-configuring external audio sources, and only after that activate the built-in error correction in "Tools" → "Settings" → "Recover Embedded Audio Errors" ().

At random error double-clicking on the indicator will reset it.

5. Status of recording to internal storage array.

- ▶ Green (■) – normal operation
- ▶ Cross on green background (⊗) – problems with disk array.

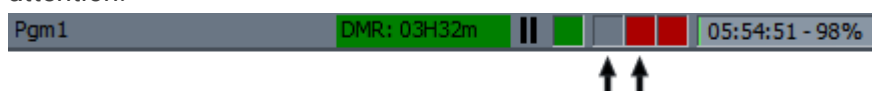
- ▶ Yellow (■) – Disk does not have time to record all information. The information is not lost; it is buffered and then recorded. The operator should pay attention to the working of disk drives and check the performance with third-party programs.
- ▶ Cross on red background (⊠) – disk does not have time to buffer information.
- ▶ Blinking red on a gray background in conjunction with indicator 6 – no input video at the current moment.



6. **Status of DMR™ recording** – Displays the recording status of the channel on the DMR™ disks installed in the system. Depending on the system configuration, this indicator may not be visible.

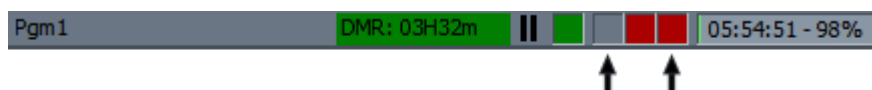
The indicator can display the following states:

- ▶ Green (■) – Normal operation of the DMR™ disk.
- ▶ Cross on a green background (⊠) – Previous issues occurred with the DMR™ disk, and some data was lost.
- ▶ Yellow (■) – A problem has been detected with the DMR™ disk; the disk cannot keep up with recording data (performance drop). No data is lost – it is buffered and written later. If the indicator changes from yellow (■) back to green (■), the disk has recovered, but the operator should monitor the DMR™ disks and check their status using third-party diagnostic tools.
- ▶ Cross on a red background (⊠) – A critical issue has occurred: the DMR™ disk cannot keep up with recording or buffering data, leading to data loss. If the indicator changes from red (⊠) back to green (■), the disk has recovered, but the operator must inspect the DMR™ disks and verify their condition using third-party tools.
- ▶ Alternating red and gray flashing (along with indicator 5) – Indicates an urgent issue requiring immediate attention.



7. **Status of DMR™ Set 2 recording** – reflects recording to external DMR™ disk or network storage. (Depending on system configuration this indicator may not be displayed). Indicator can be as follows:

- ▶ Green (■) – DMR™ Set 2 works normally;
- ▶ Cross on green background (⊠) – previous problems in DMR™ Set 2 recording, loss of some data;
- ▶ Yellow (■) – degraded disk performance or network problems. Data is not lost, but is being buffered. If indicator changes to green (■), performance has recovered, but the operator should pay attention and check DMR™ Set 2 performance with third-party programs.
- ▶ Cross on red background (⊠) – loss of data due to degradation beyond buffering performance. If indicator changes to green (■), performance has recovered, but operator should pay attention and check it at the first opportunity with third-party programs.
- ▶ Alternatively blinking red and grey together with indicator 5 indicates that there is no incoming signal. Channel window will display the last received frame.



8. Remaining project time (HH:MM:SS) of internal storage array.

At sufficient amount of disk space the project time will be distributed proportionally to all channels. With a lack of storage space project time will not be deducted proportionally from each channel, but will be deducted from the last one. With even greater shortage – the penultimate channel and so on. Thus, the lack of reserved space can result in loss of recorded material in some channels.

Color indication of percent of an empty seat from the reserved volume the following:

- ▶ Green (00:01:07 - 37%) – take from 0 to 68 %,
- ▶ Yellow (00:00:29 - 16%) – take from 69 to 84 %,
- ▶ Red (00:00:01 - 0%) – take from 85 to 100 %.

Special attention should be paid to recording indicators, in particular for DMR™ and audio. If the light turned red, indicating loss of frames due to buffer overflow than recorded material at minimum is incomplete. Similar situation is with the sound. In the less favorable case, this can cause problems in recorded file making it unusable for NLE.

If such situations you will need to export video after recording. In fact, if possible, you should stop recording without waiting for completion of the program. Since there is no quick way to check the integrity of a recorded DMR™ file, we recommend to export the entire video of those channels where the failure has been observed. Any breaks during recording should be used to export only the segments with problems. At red indicators the operator must request a stop of recording as soon as possible. If this is not possible, we recommend exporting the entire video, even though it takes a lot of time.

Zoom

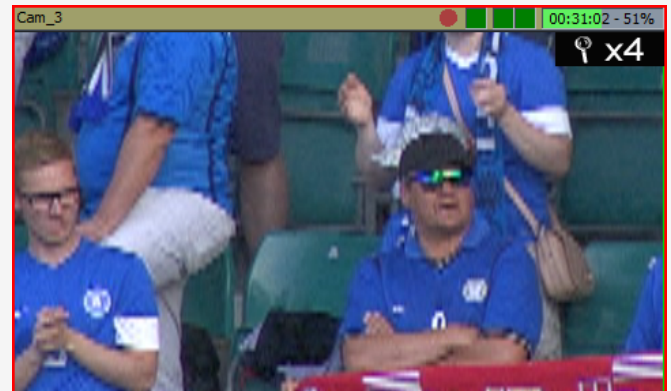
Each Live/Search window has a zoom function. To activate zoom it is necessary:

1. Select active channel ([Figure 4a](#));
2. Hold down the right mouse button and rotate the mouse wheel ([Figure 4b](#)).

Figure 4 – Zoom



a) Normally displayed window



b) Window at zoom x4

Magnification parameter is displayed in the right upper corner of the window. Minimum magnification is x2, maximum – x12.

Magnification factor can be set for each channel ([Figure 5](#)).

Figure 5 – Two channels are magnified



Multiskin Interfaces

The **MultiSkin** function allows switching between different program interfaces. Switch by pressing the button



Scroll Lock on the keyboard, or **Graphics Port 1** on the remote control.

Multiviewer

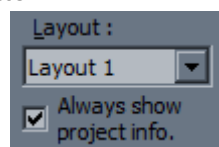
Multiviewer (Figure 6) is one of the MultiSkin interfaces. It displays graphical information from all connected channels and can also show other work-related data.

Figure 6 – Multiviewer



To expand a channel's image to full screen, double-click the channel with the left mouse button.

Channel arrangement in the **Multiviewer** can be changed in the "Tools" → "Hardware setup" → "MV" menu. To select a layout, click the "Layout" dropdown button.



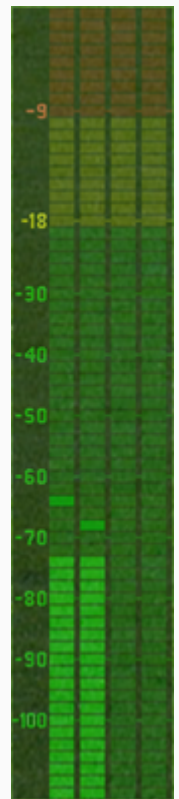
When using the remote control, switch between multiviewer layouts by pressing the **Alt** + **FX|Switch In** key combination.

To exit the **Multiviewer**, press **Esc** or **Scroll Lock** on the keyboard, or the **Graphics Monitor 1** button on the remote control.

Audio Monitoring (PPM)

The multiviewer allows displaying a **Peak Program Meter (PPM)** overlay on each channel's video feed.

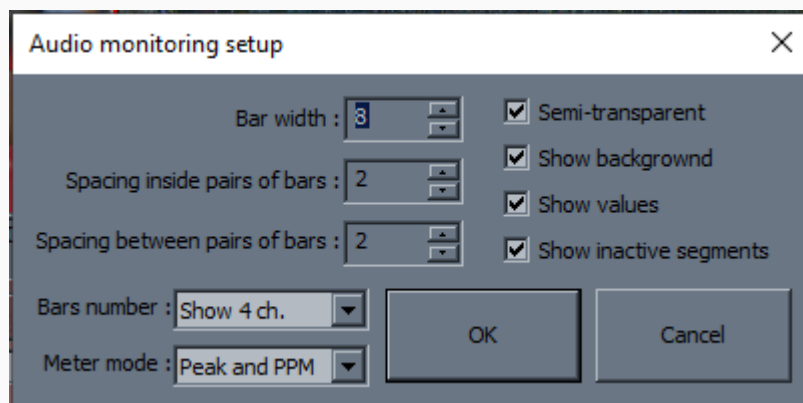
The **PPM** consists of bars, each displaying the peak audio level of one audio channel. The bars are divided into three zones: green - normal level, yellow - possible audio distortion, and red - distorted audio. Numerical dB values are shown to the left of the bars.



Configuring the Audio Monitoring (PPM)

To configure PPM display, go to "Tools" → "Hardware setup" → "MV" → "Audio Monitoring". A configuration window will open:

Figure 7 - Audio Monitoring Setup



Bar width – width of each bar ([Figure 8 – 1](#));

Spacing inside pairs of bars – spacing between two bars within their pair ([Figure 8 – 3](#));

Spacing between pairs of bars – spacing between bar pairs ([Figure 8 – 2](#)).

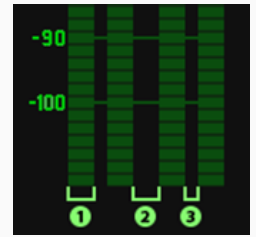


Figure 8 – Setting up PPM

Bars number – total number of displayed bars (audio channels). To select, click the dropdown button and choose the quantity. Available options:

- ▶ **Off** – channel display disabled,
- ▶ **2 channels**,
- ▶ **4 channels**,
- ▶ **8 channels**,
- ▶ **4x4** – first 4 channels displayed on left side of image, second 4 channels on right.

Meter mode – audio level display mode. Available:

- ▶ **Peak only** – displays exact audio level peaks;
- ▶ **PPM only** – displays averaged audio level peaks;
- ▶ **PPM + Peak** – displays both averaged and exact audio level peaks.

Semi-transparent – semi-transparent/opaque PPM display;

Show background – show/hide PPM background. When disabled, "Show values" is automatically disabled too;

Show values – display of dB values to the left of bars;

Show inactive segments – enables/disables discrete display of bars.

Clips, clip editing, events

A clip is a fragment of recording, the key characteristics of which are the time (time code) of the beginning (entry point – Mark In), the time (time code) of the end (exit point – Mark Out) and the active camera (channel). All attributes of a clip (except for the camera name) can be edited later.

All created clips are placed in playlists – an ordered collection of clips. The Slomo.tv systems support many types of playlists and methods of creating clips, which are necessary when working with sports replays. The types of playlists are described in the "[Types of playlists](#)" section.

The required number of clips and their duration depends on the situation. Slomo.tv systems allow using up to 4000 clips, 1000 playlists and 1000 events in a project.

Control panel

Control panel ([Figure 9](#)) is used for working with clips, events, folders and playlists.

Figure 9 – Control Panel



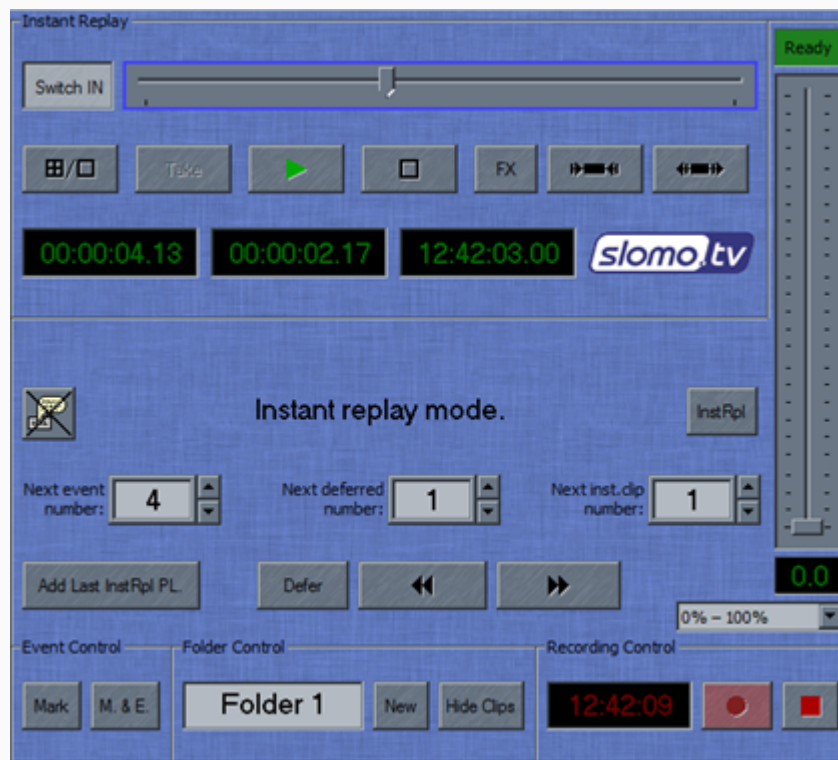
It is divided into several functional areas:

- **Editing Control,**
- **On-Air Control,**

- Event Control,
- Folder Control,
- Recording Control.

In **Instant Replay** mode the control panel changes color and looks like this:

Figure 10 – Instant replay mode



In both modes at the top of control panel there is a message box displaying information about system operation, special situations and possible recording errors.

System Information Box

The box displaying information about system operation and special situations is located at the top of the control panel:

```
LTC: LastTC 00:00:00.00, OkCnt 0, TOuts 7624, DErrs 0, FErrs 0, CErrs 0
RQ: 1,1,1,1,1,1, TE0: 0,0,0,0,0,0, VL: 0,0,0,0,0,0, TO: 0,15,15,15,16,16,
```

It displays information about errors, dropped frames, connected/disconnected time-code and data for each input channels, separated by commas.

The counters are reset by double-clicking. So remember that all displayed values are since the last reset and not necessarily from the start.

The first line in the message window displays information regarding time-code (LTC):

- ▶ **LastTC** – the last time-code on the LTC input. It shows the real time-code if this parameter was checked in "Tools" ("Settings" → "Show Time code"). Otherwise it will display the value taken from the system clock.
- ▶ **OkCnt** – is an indicator of the time-code presence. The value of this counter will continue to increase even if time-code input is not changing. If there is no time-code input, the value of OkCnt does not change.
- ▶ **TOuts** – when there is no time-code the value of this parameter increases.



If the value OkCnt and TOuts remain simultaneously unchanged, it means that there is a hardware failure. A message about this problem will most likely appear in the notification area.

- ▶ **DErrs, FErrs, CErrs** – errors with time code. Normally, these values should not change (increase), but if the incoming time code signal contains errors and interferences, any of these parameters will increase.

The second line of the message window displays information about the video and possible errors associated with video parameters:

- ▶ **RQ** – if the value of this parameter is increasing, it means that the CPU is at a performance limit for video processing. The operator should limit the use of system resources by not processing additional secondary tasks without urgent need.
- ▶ **TE0** – counter of missed frames in each channel. Can have a negative value when the channel is not synchronous, or at system timing problems.
Because of the difference in cameras speed, the counter value for a particular camera can accumulate at the rate of 1-2 frames per hour. Higher rates may indicate malfunction, including overloading the CPU, problems with recording to disks or cable problems.
- ▶ **VL** – number of inserted VideoLost frames.
- ▶ **VLPx** – number of inserted VideoLost frames in Proxy (only when Proxy is used).
- ▶ **TO** – Time shift (in ms) of input time-code and video signals for all channels relative to the first channel. The value is displayed as a shift of +15 ms. The number of parameters corresponds to the number of channels. If the first parameter is 0, it indicates that the time code signal has not been received.

Double-clicking the right mouse button on system operation box will change the display – parameters VL and VLPx will be replaced by TE1, TE2:

```
LTC: LastTC 00:00:00.00, OkCnt 0, TOuts 7719, DErrs 0, FErrs 0, CErrs 0
RQ: 1,1,1,1,1,1, TE0: 0,0,0,0,0,0, TE1: 0,0,0,0,0,0, TO: 0,15,15,15,15,15, TE2: 0,1,1,1,1,1,
```

- ▶ **TE1** – counter of the number of times a frame length differed significantly (~ 5 msec.) from the 40 msec. for each channel.
- ▶ **TE2** – maximum phase shift in the corresponding channel (in milliseconds). A large value of this parameter indicates the presence of errors in the incoming video signal.

Recording Control

The recording control zone is shown on [Figure 11](#):

Figure 11 – Recording Control



This zone has three elements:

1. **Time display**. Displays either the current timecode or system time;
2. **Record** button to start recording;
3. **Stop** button to stop recording.

Start recording

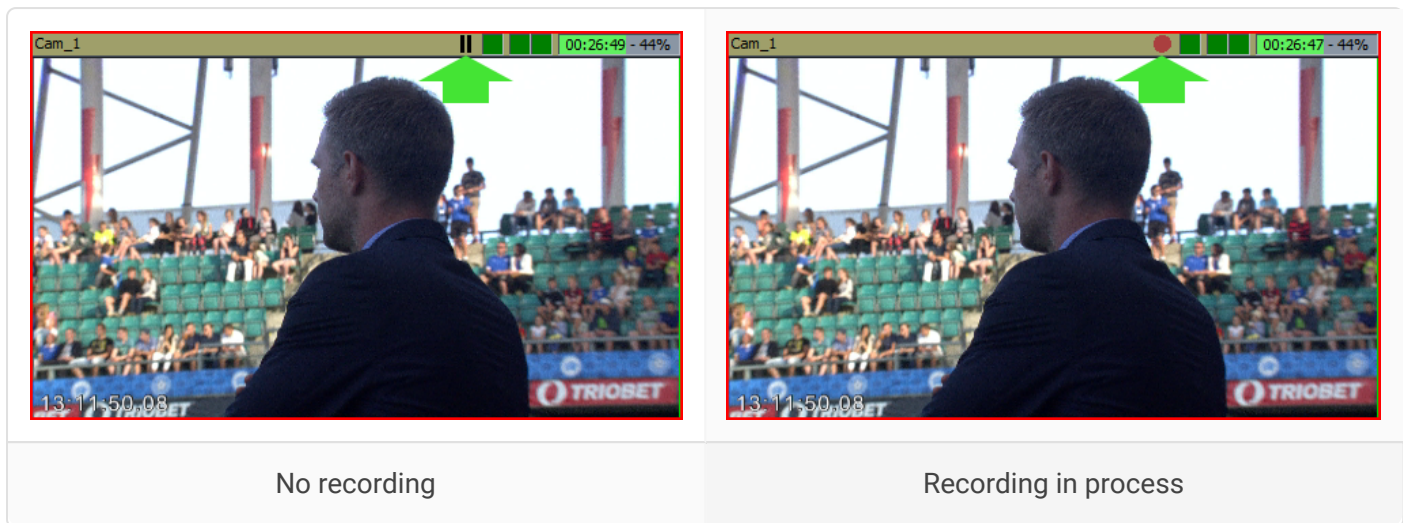
To start recording press **Record** button ([Figure 11 – 2](#)) or use keyboard combination **Ctrl** + **Shift** + **R**.

After the start of recording the Recording Control will change to:

Figure 12



Time display will become red. At the same time all recording indicators for each recorded channel will change the indication from a sign the pause (||) to a red circle (●):



Group recording

When using multiple servers connected via a network, to enable synchronous recording on all servers at the same time one of the following methods is used:

- ▶ Pressing the keyboard shortcut **Ctrl** + **Shift** + **R** on the keyboard of any server;
- ▶ Holding the **Shift** key on the keyboard and left-clicking the **Record** () button in the program interface.

Once the video recording has started, the Recording Control zone on all servers will look as shown in [Figure 12](#) – the indicator showing the time during recording will be red.

Per-channel recording control (Only for servers with internal HDD disks)

If your server uses HDD disks the system also provides per-channel recording control. In this case, the operator can turn on and off the desired channel. In per-channel recording you can use group recording, or select channels, which will not be controlled by group recording buttons.

To start/stop only the selected channel recording, you must use one of the following:

- ▶ Double-click on the channel Record Unit status indicator ();
- ▶ Right-click on the channel Record Unit status indicator () and choose an action in the opened menu:

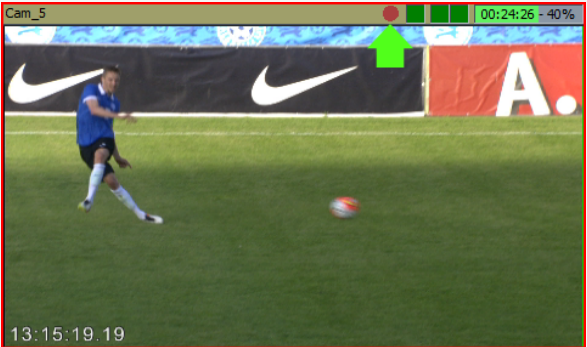
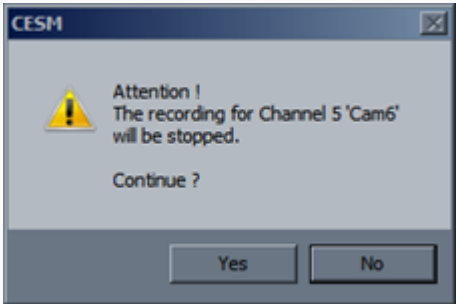


Use  to start recording;

Use  to stop recording.

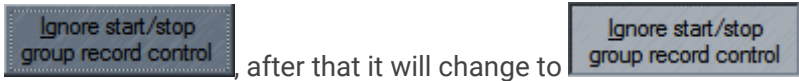
	
Channel is not recorded	Recording in process

The system will issue a warning at stopping channel recording:

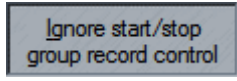
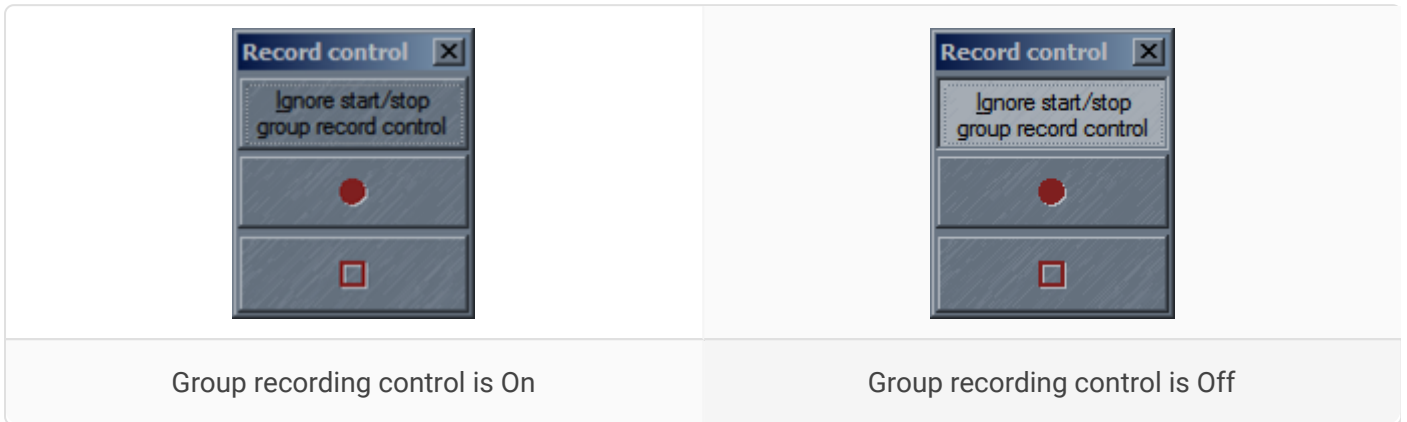
Action	Display
Selection of channel and double-clicking on recording indicator (●);	
Warning about stopping recording. To confirm – press Yes ;	
After pressing Yes recording indicator will change to .	

The system also allows each channel to ignore group recording controls.

By default all channels are controlled by buttons in **Recording Control**. To change this setting press



after that it will change to



Group recording control is On

Group recording control is Off

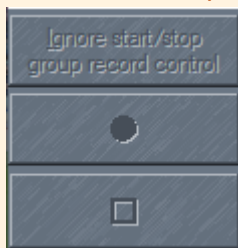
This setting can be activated by "Tools" → "Hardware setup" → "Tab Ch#" → "Ignore start/stop group record control" (Ignore start/stop group record control: ☒).



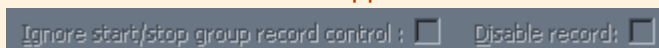
The settings of ignoring group recording control for the channel do not change when you change the project and are saved when you close the program. It is therefore necessary to change them as needed for new projects.



The per-channel recording function is not available for servers equipped with an internal SSD disks. In this case, the per-channel control menu appears as follows:



In the menu **Tools** → **Hardware setup** → **Ch#** tab the "Ignore start/stop group record control" and "Disable record" functions appear as follows:

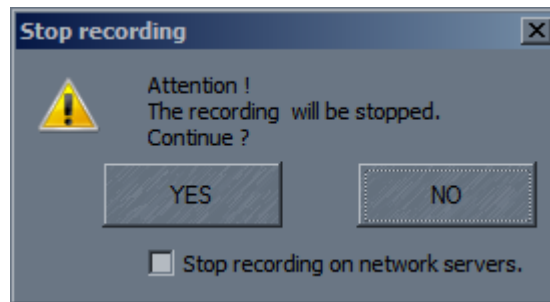


Stop recording



To stop recording press **Stop** button () or use keyboard combination **Ctrl** + **Shift** + **S**.

After the **Stop** command the following warning will appear:



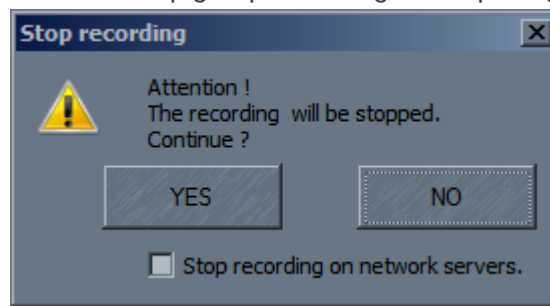
To continue, press the **Yes** button.

To cancel the command, press the **No** button.

Stop group recording

To stop group recording, the keyboard shortcut **Ctrl** + **Shift** + **S** is pressed.

The **Stop**  button can also be used to stop group recording after opening the warning message:



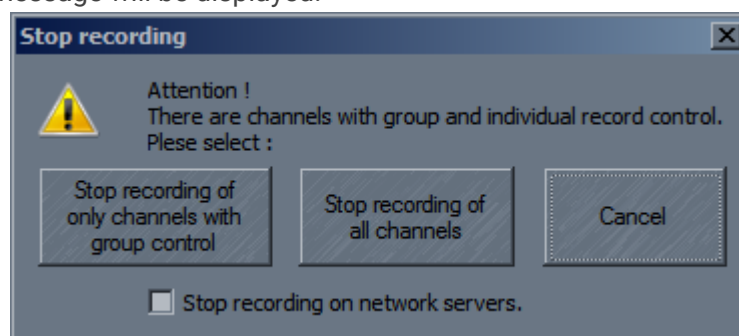
To stop recording on network servers controlled by your system activate **Stop recording on network servers** (☒ Stop recording on network servers.) and press **Yes**.

Stop recording per-channel (Only for servers with internal HDD disks)

When disabling group control of the channel via the menu:

"Tools" → "Hardware setup" → "Ch# tab" → "Ignore start/stop group record control" (

Ignore start/stop group record control: ☒) and when pressing the **Stop Recording** button () in the "Recording Control" zone, a warning message will be displayed:



Select the desired action by pressing the appropriate button.

To stop recording on network servers controlled by your system activate **Stop recording on network servers**.



The per-channel recording function is not available for servers equipped with an internal SSD disks.

Proxy Recording

If recording is performed on DMR™ with the Proxy recording function active, the disk will store duplicates of the original video streams but with reduced resolution and bitrate.

Recorded Proxy videos allow faster work with captured material: due to the smaller size of Proxy video streams, they load faster into the editing system and can be edited on hardware with performance levels insufficient for editing full-resolution video streams.

Proxy videos have the same timecodes as the original video streams. This enables editing a sequence using Proxy videos, which can then be automatically replaced with the original full-resolution videos.

Proxy videos are recorded using the same codec as the original video streams.

The Proxy recording function cannot be enabled in the program interface: the function's activity is predetermined in the configuration file. To enable Proxy recording, launch the configuration with the "Proxy" suffix. Refer to the "Launching the System Software" section for configuration launch instructions.

Event/clip/playlist storage organization

Playlist is a named collection of clips or events assembled in a given order.

Clips are grouped into named lists – playlists. The clips can be placed into playlists, edited, moved between playlists, change their position within the playlist, removed. The clip can be edited – most commonly by changing its entry and exit points, but also by modifying some of the clip attributes. There is also a utility playlist **OnAir**, which plays a special role in formation of user generated playlists.

Types of playlists

For the convenience all events, clips, playlists, deferred replays and imported graphical objects are organized into lists, divided by different tabs:

- ▶ **Events** (: **Ctrl** + **1** / : **Shift** + **1**) – contains created events which subsequently can be transformed into clips. For convenient storage organization the area can have folders.
- ▶ **Playlists** (: **Ctrl** + **2** / : **Shift** + **2**) – contains saved playlists. The folders contain clips from "On Air". They are created by pressing **Save PL**. Individual clips cannot be deleted from these playlists (folders). You can only delete the entire playlist. You can change the playlist name and the names of the clips in it.

- ▶ **Orchestrator media** (**Ctrl** + **3** /  **Shift** + **3**) – this area contains playlists and clips created on remote servers via the Orchestrator system.
- ▶ **Deferred** (**Ctrl** + **5** /  **Shift** + **5**) – a place where there are clips deferred during instant replay mode. It may contain folders created for storage organization.
- ▶ **CG/Paint** (**Ctrl** + **6** /  **Shift** + **6**) – area for computer graphics and imported clips. It does not contain folders. Clip names and attributes can be changed.
- ▶ **Clips** (**Ctrl** + **7** /  **Shift** + **7**) – area for storage of created clips. It contains only clips without folders. Clip names and attributes can be changed.
- ▶ **On Air** (**Ctrl** + **8** /  **Shift** + **8**) – a place where clips are arranged into a playlist for playing out with defined speed. In the "On Air" you can add clips from "Auto P.Lists", "CG/Paint", "Playlists", and "Clips".
- ▶ **Auto P.Lists** (**Ctrl** + **9** /  **Shift** + **9**) – area for automatically generated in instant replay mode playlists. It is possible to change the names of playlists and clips. You cannot delete individual clips, only the entire folder.



Objects from **Events** and **Deferred** cannot be directly added to **On Air**. First, they need to be transformed into clips.



In instant replay mode objects from **Deferred** can be placed on **On Air**. During playout the **On Air** cannot be edited.



Adding and removing **On Air** objects is only possible when playback is stopped.

Displaying of playlists

The playlists can be displayed in three different formats:

The name and time-code

"+" indicates that folder can be opened to view its content.



Table format

Displaying a list of contained objects with time-codes. "±" indicates that other display formats are available.



Graphical format

Displaying small icons from each camera with time-code and object name. Events will also have in the lower right corner an active camera indicator.

"-" indicates that the folder is displayed in graphical format.



Switching between display formats of folders and playlists is done by pressing **+**, **-** or **±** symbol on the left of the folder name or by pressing button **Folder** on remote control.

To quickly hide all folders in the selected tab, use **Hide Clips**, located in the **Folder Control** area.

Clips

A **Clip** is a video with an entry point (**Mark In**) and exit point (**Mark Out**), the source (camera) name and the clip name. In addition to this, clip may have many other attributes, which will be discussed later, but the ones mentioned here are always present. All attributes of the video (other than the name of the camera) can be changed (edited).

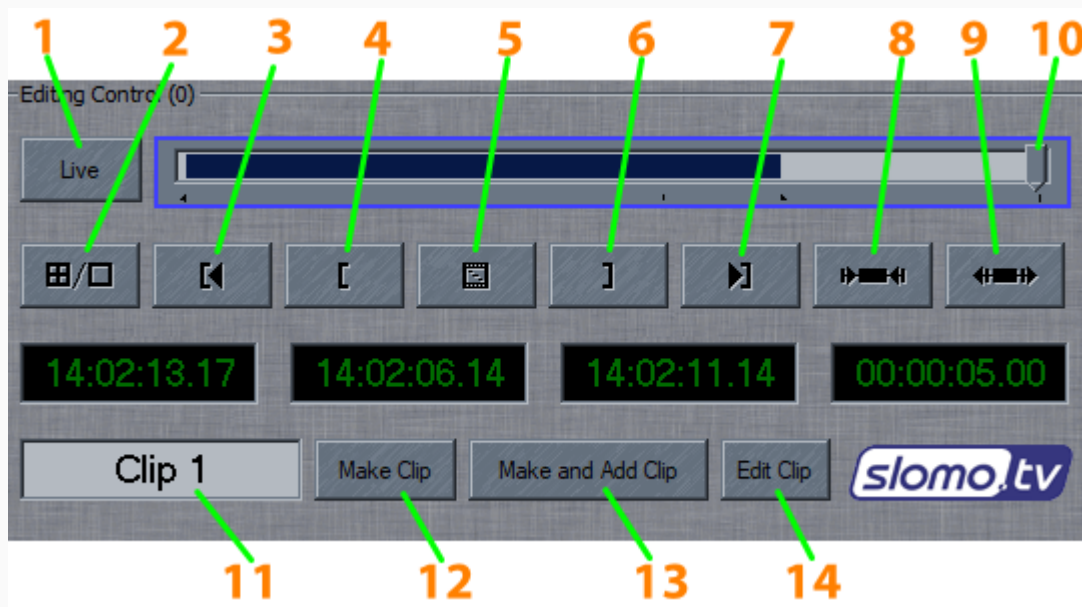
All created clips are placed in playlists – a collection of clips in certain order.

The system supports many kinds of playlists and different ways of clip creation. All types of playlists will be described in the [Playlists](#). The number of created clips and their duration depends on the situation.

Editing Control

Creating and editing clips is done on Editing Control ([Figure 13](#)):

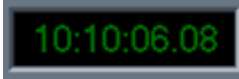
Figure 13 – Editing Control



Editing Control has:

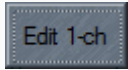
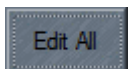
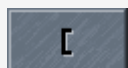
- Positioning slider for clip editing – 10 (**Ctrl** + **0** /  **Shift** + **0**),
- Time monitors ([Figure 14](#)),
- Area for entering/editing the clip name – 11 (**Ctrl** + **C**).

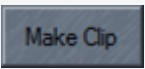
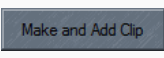
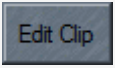
Figure 14 – Time monitors

Current time-code	Time-code of Mark In	Time-code of Mark Out	Length of the clip
			

Controls (1...14) are described in [Table 2](#):

Table 2

№	Button	Description	Shortcuts	
				
1		Live – Display live video for all channels;	NumPad_2	Live/Search
		Edit 1-ch – Search on selected channel;		
		Edit All – Search on all channels.	Shift + NumPad_2	Shift + Live/Search
2		Switching the MultiSkin interfaces	ScrollLock	Graphics Port 1
3		Go to Mark In	NumLock Ctrl + [	Shift + Mark In
4		Mark In	NumPad_7 Ctrl + Q [	Mark In
5		Set frame as clip picture	NumPad_5 Ctrl + W	–

6		Mark Out	NumPad_9 Ctrl + E I	Mark Out
7		Go to Mark Out	NumPad_* Ctrl + I	Shift + Mark Out
8		Reduce clip editing area	Shift + NumPad_+	–
9		Expand clip editing area	NumPad_+	–
10		Positioning slider	Ctrl + 0	Shift + 0
11		Clip name editing	Ctrl + C	–
12		Place clip in Clips folder	Shift + NumPad_Enter	Shift + Clip
13		Place clip in Clips folder and it to On-Air	NumPad_Enter	Clip
14		Copy current clip from Clips, On Air, PRJ, PLS, Searches into editing control	NumPad_ /	Edit Clip

Again, the concept of the active channel is very important when you create a clip, because when the clip is exported, it will contain only the video of the active channel (as well as sound, if it was recorded in the active channel).

Active channel is the selected channel. There are different ways of specifying the active channel:

- ▶ Keyboard **F1...F12** ¹,
- ▶ Mouse,
- ▶ **Ch1...Ch24** ² on the remote control.

Active window will have a red frame (1). Remember also the position of the slider (2):

Figure 15 – Active Window



Clip Creation

To create a video clip, select the channel to be used for clip creation and make it active ([Figure 15](#)). Find the moment which will be used as clip entry point (Mark IN).

Positioning on video can be done by:

1. Moving the editing control slider  by using the mouse or by **Ctrl** + **0** on keyboard and using **←**, **→** keys;
2. By pressing **Shift** + **0** and rotating Jog/Shuttle on remote control.

Clip entry point can be created by:

1. Clicking  button on the interface;
2. Pressing **[**, **Numpad_7** or **Ctrl** + **Q** on keyboard;
3. Pressing **Mark In** on remote control.

After that the clip entry point will shift to slider position (1) as seen by the left edge of the blue strip representing the clip on [Figure 16](#). The time-code of the slider position (2) and time-code of clip entry point (3) are identical.

Figure 16 – Setting Mark In



After setting the clip entry point (Mark IN) we need to set its exit point (Mark OUT).
The end of the clip can be set by:

1. Clicking  button (2) on interface,
2. Pressing **J**, **Numpad_9** or **Ctrl + E** on keyboard,
3. Pressing **Mark Out** on remote control.

After that the clip exit point will shift to slider position (1) The time-code of the slider position (2) and time-code of clip exit point (3) are identical as seen on [Figure 17](#).
The clip is now marked.

Figure 17 – Setting Mark Out



After the Mark In and Mark Out a clip can be created. Clip can be created only in "Clips". To create a clip you need by:

- ▶ Clicking on **Make Clip** button on interface;
- ▶ Pressing **Shift** + **Numpad_Enter** on keyboard;
- ▶ Pressing **Shift** + **Clip** on remote control.

Clip can be created in "Clips" and simultaneously placed in "On Air" by:

- ▶ Clicking on **Make and Add Clip** button on program interface;
- ▶ Pressing **Numpad_Enter** on keyboard;
- ▶ Pressing the **Clip** button on remote control.

[Figure 18](#) shows a clip created only in **Clips**.

Figure 18 – The clip was created only in "Clips"



Figure 19 shows a clip created simultaneously in **Clips** and **OnAir**.

Figure 19 – The clip was created in "Clips" and "On Air"



If you realize that the entry or exit point will not have to be shifted too far from its current positions, then it is better to start with the current position and then use the Jog/Shuttle to indicate a new position.

To quickly move to Mark IN or Mark OUT points use buttons  or .

To access Mark In and Mark Out from the keyboard:

- Navigate to Mark In using: **Num_Lock** or **Ctrl** + **[**;
- Navigate to Mark Out using: **Numpad_*** or **Ctrl** + **]**.

To accomplish the same things using the remote control:

- Navigate to Mark In using: **Shift** + **Mark In**;
- Navigate to Mark Out using: **Shift** + **Mark Out**.

To change the scale of clip positioning zone  and, accordingly the sensitivity of the slider and Jog wheel, you need to use  and  buttons on user interface.

- The  button increases the area occupied by the clip and therefore improves the accuracy of marking entry and exit points, but at the same time narrows the space displayed outside the clip.

- ▶ The  button visually reduces the area occupied by the clip, but allows you to move entry and exit points far beyond the existing boundaries of the clip.

Actually clip creation is a process with iterations. We can repeatedly change clip's entry and exit points before placing it in On Air. We may also need more than one clip -clips of different intervals as well as clips of the same episode but from different cameras.

Navigating through the timeline (: **Ctrl** + **0** / : **Shift** + **0**) can be achieved by moving the slider with the mouse, using keyboard  ,  keys or using the Jog/Shuttle on remote control. At appropriate points we can set Mark In and Mark Out and place the created clip in "On Air". There is no need to worry about previously created clips saved in "On Air".

Deleting Clips from On Air

If necessary, a clip can be deleted from "On Air" by selecting it and pressing , or using keyboard **Ctrl** + **Delete**, or **Ctrl** + **Del** button on remote control.

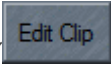
If there are breaks during recording, you can export the fragments between the breaks. To quickly navigate to stops in recording, there are special keyboard shortcuts. **Alt** + **NumLock** will jump back to the stop in recording, **Alt** + ***** will move the slider forward to the next stop.

In order not to confuse brake stops with stops caused by problem situations the operator should keep track of all stops during recording.

Marking clips can be performed without stopping the recording – it practically does not have an effect on CPU performance.

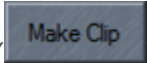
Clip Editing

Clip editing assumes changing its duration (Mark In and Mark Out points). To edit a previously created clip select it in the playlist and press:

- ▶ **Edit Clip** () in the "Editing Control" zone;
- ▶  – **Numpad_ /**;
- ▶  – **Edit Clip**.

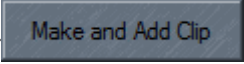
The selected clip will be placed in editing area where you can change its entry (Mark In) and exit (Mark Out) points.

To finish editing and add the new clip only to "Clips", press:

- ▶ **Make Clip** ()

- ▶ : **Shift** + **NumPad_Enter**
- ▶ : **Shift** + **Clip**.

To finish editing and add the new clip to "Clips" and "On Air" press:

- ▶ **Make and Add Clip** ();
- ▶ : **NumPad_Enter**;
- ▶ : **Clip**.

Renaming clip / event

Previously created clip can be easily renamed, if necessary. Enter the new name in the input field (1) and double-click the right mouse button on the title of the clip (2) want to rename as seen in [Figure 20](#).

Figure 20 – Renaming a clip



The result will be a new name of the clip (1) and an increase by one of clip name counter (2) as seen in [Figure 21](#).

Figure 21 – Renamed clip



Quick positioning at the clip name field is done by **Ctrl** + **C**.
Name changes can be done for clips in folders "Clips", "Events" and "Deferred".

Graphical clip representation includes the following attributes:



Time-code T: 16:44:25.22

Duration D: 00:00:02.14

Name: * Clip 1

Channel name: [Cam_1]

Clip attributes

Other clip attributes can be accessed in **Clip Options**.

The **Clip Options** menu can be opened in two ways:

1. Holding the **Ctrl** key on the keyboard and double-clicking the left mouse button on the clip;
2. Pressing the key combination **Shift** + **Edit Clip** on the control panel.

In this window, you can view/edit the following attributes:

Source File name – Channel (camera) name, read-only,

Clip name – Clip name, editable,

(1) Stop at start of clip – When playing the clip in a playlist, the entire playlist playback will stop upon reaching this clip (i.e., the previous clip will play fully, then playback stops);

(2) Stop at end of clip – When playing the clip in a playlist, the entire playlist playback will stop after this clip finishes;

(4) Infinite loop – Infinite loop playback of this clip;

(5) Field dominance: lower field first – Changes field order for compatibility with non-linear editing systems;

(7) Fixed speed – Ignores manual speed adjustments via the T-bar and plays the clip at the speed specified in Speed value;

(8) Set speed at start of clip – Sets playback speed at clip start (can be adjusted later via T-bar);

(9) Speed value – Clip playback speed (percentage);



When using the control panel, select this parameter and use the Jog wheel to change the value;

(0) Disable FX transition – Disables transition effects for this clip (even if enabled at a higher level).

To configure one of the parameters using the remote control, press the number button on the control corresponding to the number preceding the parameter. For example, to enable/disable "(7) Fixed Speed", press button **7** on the control.

Additionally, you can also select the parameter using keys **3** (Up) and **6** (Down). To enable/disable the selected parameter, press **Enter**.

To confirm clip settings, click **OK** in the "Clip Options" window.

To confirm parameters using the remote control, press the key combination **Shift** + **Enter**.

To cancel changes – **Del**.

You can also change the icon that appears for this clip in the playlist. Vertical notch (1) within the clip on the scrollbar indicates which frame is used as the icon of the clip at the moment ([Figure 22](#)).

To change a clip's icon, select the clip for editing in the "Clips" list (2). To place the clip in the editing area, perform one of the following actions:

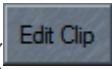
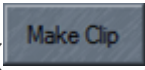
- ▶ Press the **Edit Clip** button () in the program interface (3);
- ▶ Press the **Numpad_/_** key on the keyboard;
- ▶ Press the **Edit Clip** button on the remote control.

Figure 22 – Selecting a clip to change its icon

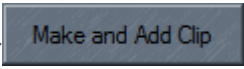


To change the icon, move the slider to desired frame and press  button (4).

Save your changes in one of the following ways:

- ▶ Press the **Make Clip** button () in the program interface;
- ▶ : **Shift** + **NumPad_Enter**
- ▶ : **Shift** + **Clip**

To simultaneously save the edited clip and put it to "On Air" use one of the following methods:

- ▶ Press the **Make and Add Clip** button () in the program interface;
- ▶ : **NumPad_Enter**
- ▶ : **Clip**

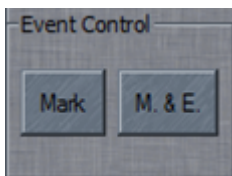
Events

Events (tags) are placed on the "Events" tab, but unlike a clip, an event is just a timestamp. It has no entry and exit points and cannot be played out. **Events** are created by pressing the corresponding key on the remote control or keypad. Attributes of event are: time of its marking, name of the active camera channel and event name. **Events** are used for creating on their basis clips which can be placed in "On Air".

Marking of events is possible only during recording.

Creating Events

Events are created using **Event Control** in control panel:



Mark (: **~** / : **Event**) creates an event and places it in "Events" tab.

M. & E. (: **Ctrl** + **~** / : **Shift** + **Event**) places the created event in editing area for creating a clip on its basis.



The keyboard shortcuts mentioned above may be inverted relative to the **Mark** and **M & E** buttons. This behavior is configured in **Tools** → **Settings** → **Event Key : Create and Edit**.

For quick access to "Events" tab, use : **Ctrl** + **1** / : **Shift** + **1**. At the beginning of the project the tab has no folders. The first folder will be automatically created with marking of the first event.

Camera for which you will create an event must be active (1), i.e. you first need to select the active channel and then press **Mark** (2) or  ~ or  **Event**.

You can also quickly place an event in the editing area with the selected channel. For this use the shortcut : **Alt** + **F1** / : **Alt** + **Ch1**, where **F1** / **Ch1** is the camera number (can be from F1 to F12 for keyboard and from Ch1 to Ch24 for remote control, depending on the number of channels in the system).

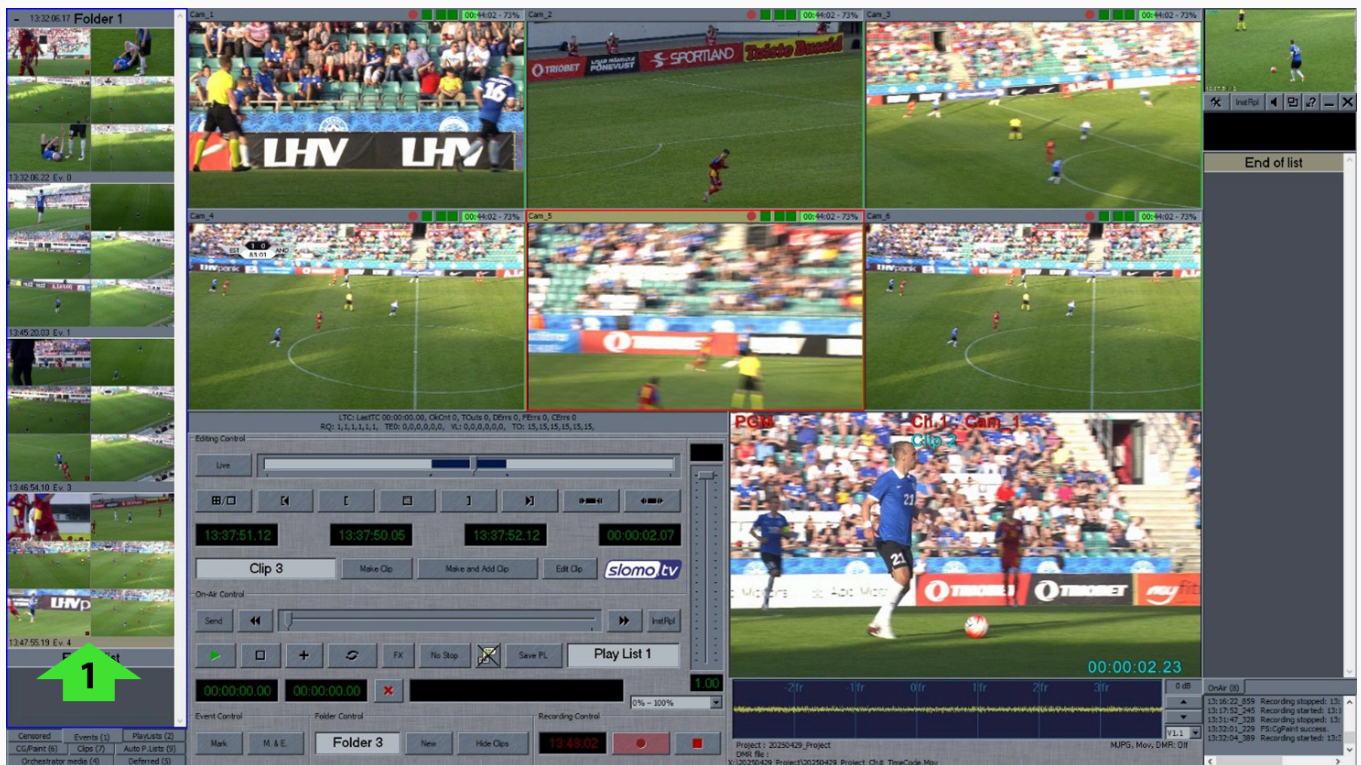
Notice the last event (3) in the list of "Events":

Figure 23 – Creating Event



After pressing **Mark** /  ~ /  **Event** created event (1) will be placed in "Events" ([Figure 24](#)).

Figure 24 – Event has been created



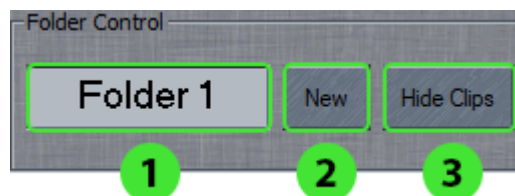
If instead of **Mark** you will use **M. & E.**, the event will be available in "Editing Control" for creating on its basis a clip. This operation can also be performed by using **Event** on remote control.

Creating events does not change the system operating mode. Therefore, events can be marked in instant replay mode, where operators spend most of their time, waiting for interesting moments.

Saving events

For convenience in working with events there are folders in "Events" and "Deferred" tabs - a kind of catalog of videos.

To create a folder, you need to use **Folder Control**:



It contains the following elements:

1. **Folder name**, quickly accessed by keyboard shortcut **Ctrl + F**.

2. **New** to create a new folder with the name entered in the folder name field (1)
3. **Hide Clips** (3) to collapse the list of folders in the selected playlist.

To create a new folder, you must enter the new name and click **New**. A new folder will be created simultaneously in "Events" and "Deferred".

The folder name shown above consists of the name "My Folder" and the counter 2.

The next folder will be "My Folder 3", etc.

The new event will be added to the last folder. If a previously created folder is empty, then creating a new folder makes it impossible to add objects to the previous one.

Folder name (Name N) is formed by **Name** that is entered in the input field, and **N** – a counter, which will be incremented for each subsequent folder. The **Name** part will remain unchanged as long as you do not enter a new name. The same principle is applied in naming clips and playlists.

To rename a folder you must enter a new name (1) and then double-click on the folder title (2) ([Figure 25](#)).

Figure 25 – Changing folder name



After that folder "Folder 2" will change to "My Folder" (2) and incrementing the name counter by one (1) as shown in [Figure 26](#).

Figure 26 – Result of the name change



Double-clicking on folder name or on $+$ / $\pm$ / $-$ in "Events" or "Deferred" will change the format of its display (graphical, table, as time-code and name).

Deleting event / folder

Deleting a folder in "Events" does not affect the "Deferred" and vice versa.
Previously created events can be deleted from any folder by:

- ▶ Use the  button located in the area of "On Air Control";
- ▶ Use the keyboard shortcut **Ctrl** + **Delete**;
- ▶ Use **Ctrl** + **Del** on remote control.

Folder can be deleted the same way as an event, but only if it is empty and does not contain any objects (events).
Slomo.tv systems can create events, clips, instant replays, including deferred and form playlists.

Switching to Time-code

Often there is a need to quickly move to a specific event, using time-code previously recorded by the operator.

To specify time code value, press **Alt** key on the keyboard or remote control (**Alt**) and enter a numeric value. Pressing **Alt** key will change the color of the timecode window showing the current position, which indicates that the system is ready to accept time-code numeric values.

Figure 27 – Entering time-code



Enter the numbers beginning with the hour, then minutes, seconds, and frame number (if necessary).

To delete entered characters, press **Backspace** / **Del**.

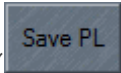
After entering the value of the time code, press **Enter** / **Enter** to confirm. The time line position will switch to the specified time code.

Figure 28 - Time-code has been entered



Playlists

Creating Playlists

Folders in "Playlists" are created by using **Save PL** () (1) or  : **Numpad_8** /  : **Play List**.

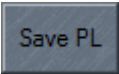
The name of the new folder is defined in the window (2) to the right of  button.
For quick access to it press **Ctrl + P** on the keyboard.

Figure 29 – Entering a playlist name and saving it



To create a playlist in "Playlists", enter the name of the playlist in (1) or leave the default name (it can be changed later), and click the **Save PL** (2) or or **Numpad_8** / **Play List**.

Pay attention to the number of clips in the "On Air" (3) in [Figure 30](#).

Figure 30 – Create a playlist in the "Playlists" area



After pressing **Save PL** all clips from "On Air" are placed in "Play List 1" folder (1):

Figure 31 – A playlist has been added to the "Playlists" area.



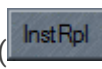
You can also create a playlist by pressing the remote control key combination **Alt** + **Ctrl** + **Shift** + **Enter**. In this case the playlist will be created and added to the "Playlists" list and the source "On Air" clips used to form it will be deleted.

Editing Playlists

To edit the playlist:

- Place it in "On Air" (refer to "[Adding playlists to On Air](#)")
- Remove / add clips from it (refer to "[Deleting clips from OnAir](#)") / "[Adding a clip to On Air](#)".
- Press the **Replace** button () in the program interface or **Shift** + **Add|Repl** keys on remote control.

Auto Playlists

In **Auto P.Lists** folders and clips are created automatically when you use the instant replay function ( button or **Instant Replay** on remote control).

Clips are automatically placed in this area whenever they are placed in "On Air" in instant replay mode.

For each new instant replay mode a new folder with clips is created. The folder name is assigned automatically, but you can later edit it, as well as playlists. Assigned name consists of "Inst. PlayList" and a counter: "Inst.PlayList1", "Inst.PlayList2", etc.

Renaming Playlists

To rename a playlist you created earlier in "Playlists" or "Auto P.Lists" enter the new name (1) in the window (**Ctrl** + **P**) and double-click the right mouse button on the title of the playlist (2) you want to change:

Figure 32 - Entering new playlist name



Playlist is assigned a new name (1), and in the name window the counter is automatically incremented by 1 (2).

Figure 33 – Changing the playlist name



Deleting Playlists

Previously created playlists can be deleted by:

- ▶ Use the  button located in the area of "On Air Control";
- ▶ Use the keyboard shortcut **Ctrl** + **Delete**;
- ▶ Use **Ctrl** + **Del** on remote control.

Let's select for deletion Play List (1) and press  (2):

Figure 34 – Selecting a playlist to delete



The playlist is deleted and Play List 2 (1) is now first in PlayList:

Figure 35



Alternative Playlists

For the convenience of operation, the slomo.tv system supports working with alternative playlists. These playlists can be used to save certain special individual segments on a given topic.

There are two types of alternative playlists:

PL98 – clips can only be added to it using a keyboard shortcut on the control panel;

PL99 – clips can be added and played back at the Preview output.

PlayList 98

An alternative playlist with quick addition of clips via a keyboard shortcut on the control panel.

Alt + **Clip**

The item currently being edited on the timeline is added to the end of the PlayList 98. It will also be saved as a clip in the clip list.

Alt + **Add**

Adding a clip / playlist to PlayList 98. If PlayList 98 does not exist, it will be created upon pressing the keys.

PlayList 99

Clips can be added to this playlist and played on the Preview output.

Keyboard shortcuts and control panel shortcuts are provided for convenient work with this playlist.

Keyboard shortcuts:	
Alt + →	Clip playback from the playlist is started at the Preview output
Alt + ←	Clip playback is stopped at the Preview output
Alt + Shift + →	Navigate forwards through the clips in this playlist
Alt + Shift + ←	Navigate backwards through the clips in this playlist
Alt + Ctrl + Shift + →	Go to the end of the playlist
Alt + Ctrl + Shift + ←	Go to the beginning of the playlist

Control panel shortcuts:	
Alt + ▶	Clip playback from the playlist is started at the Preview output
Alt + ■	Clip playback is stopped at the Preview output
or	
Alt + ▶ ¹	
Alt + →	Navigate forwards through the clips in this playlist
Alt + ←	Navigate backwards through the clips in this playlist
Alt + Shift + →	Go to the end of the playlist
Alt + Shift + ←	Go to the beginning of the playlist

If PlayList 99 is not active during playback, switching to Instant Replay will stop the playback of PlayList 99, since Preview must be used in Instant Replay.

If PlayList 99 is being played, entering Instant Replay does not stop the playback of PlayList 99.

In other words, the preview during playback and the preview in the window in Instant Replay mode are not the

same.

Playing Clips and Playlists

Playing clips and playlists is performed using **On Air Control** ([Figure 36](#)).

Detailed description of all buttons in **On Air Control** with shortcuts is in [Table 3](#).

Figure 36 – On-Air Control

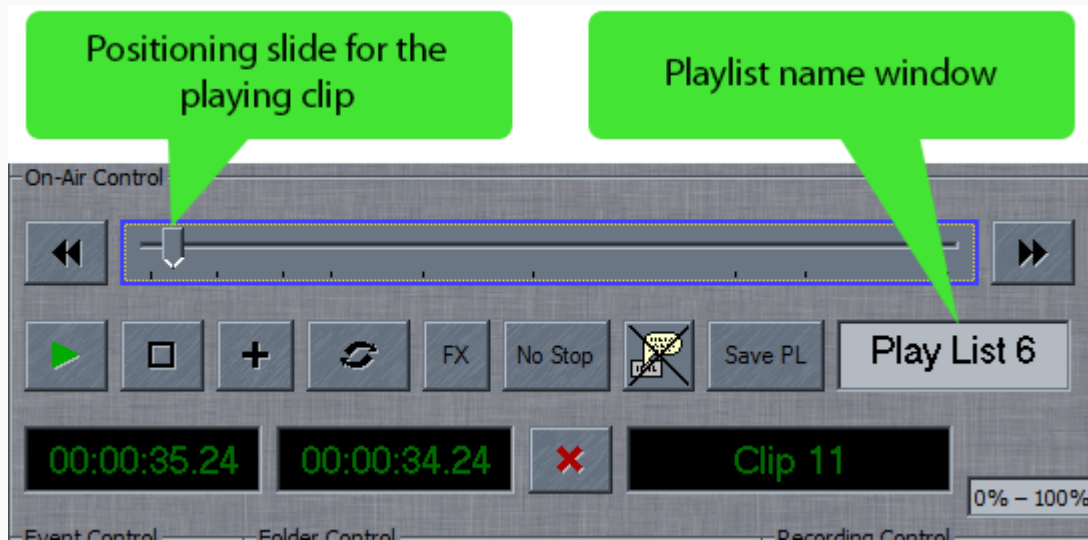


Table 3

Controls	Shortcut		Description
			
	Ctrl + Space		Start playing at a given speed
	Ctrl + S		Stop playback
	Shift + Left (←)		Go to the beginning of the clip preceding the current position
	Shift + Right (→)		Go to the beginning of the next clip
	Insert	Add Replace	Add selected clip or playlist to the end of On Air
	Ctrl + Insert	Ctrl + Add Replace	Adds selected clip or playlist to On Air in front of a clip selected there
	Shift + Insert	Shift + Add Replace	Clear On Air and add the selected clip or playlist

	Ctrl + T	FX Switch In	Turn On/Off FX transition effect between clips
	Ctrl + Alt + S	–	Playback modes: <ul style="list-style-type: none"> ▶ No Stop – Play without stop; ▶ 1 Stop – Stop at the end of current clip; ▶ Stop All – Stop at the end of each clip.
	Ctrl + Shift + H	–	Turn On/Off help tips
	NumPad_8	Play List	Save On Air content as playlist with entered name in Playlist for future use
	Ctrl + Delete	Ctrl + Del	Delete selected clip/event/playlist/folder
	Ctrl + P	–	Enter/edit the name of playlist

"On Air Control" also contains indicators of the total playlist duration at selected playback speed (1), the remaining duration at selected playback speed (2) and name of the current clip (3).



Adding a Clip to On Air

Adding a clip to "On Air" can be done by:

- ▶ Clicking the button on the program interface;
- ▶ Pressing **Insert** on keyboard;
- ▶ Pressing the **Add|RePlace** button on remote control.

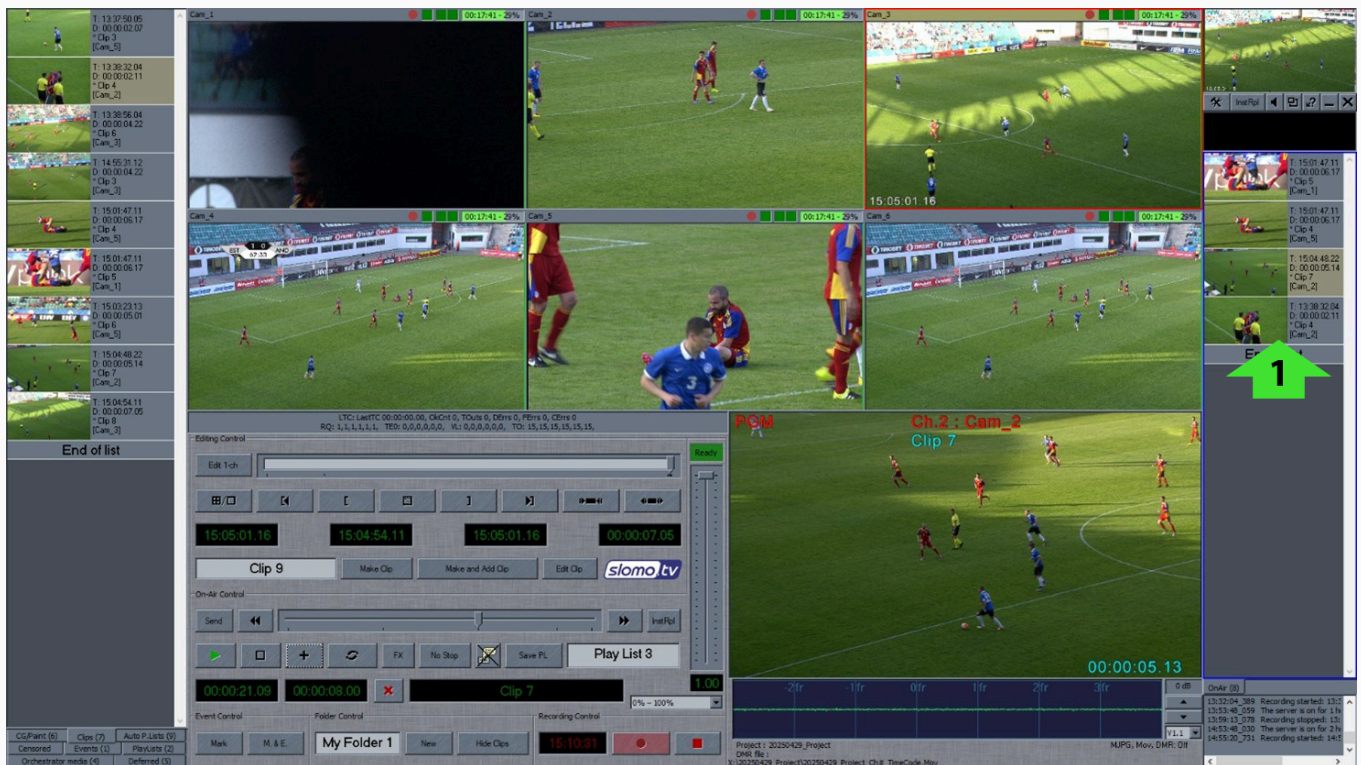
Select clip (1) and press the **Insert** key on your keyboard, or (2). Pay attention to the number of clips in the "On Air" (3).

Figure 37 - Selecting clip to add to "On Air"



After above described actions, the clip will be added to the end of "On Air" (1).

Figure 38 – Adding a clip to the "On Air" area



Clips and playlists may be added not only to the end of "On Air", but also in front of a selected clip. To do this, you must:

1. Select the clip (in "Clips", "PlayLists", "CG/Paint" or "Auto P.Lists") to add to "On Air",
2. Then in "On Air" select the clip in front of which you plan to add the clip/playlist,
3. Press **Ctrl** + **Insert** on the keyboard.

To perform this operation from the remote control, press the combination **Ctrl** + **Add|Replace**.

Select clip for addition to "On Air" – "Clip 6" (1). Then in "On Air" select a clip (2) in front of which you want to add the selected clip from "Clips".

Figure 39 – Selecting Clips



Using keyboard combination **Ctrl** + **Insert** or **Ctrl** + **Add|Replace** on the remote control, "Clip 6" will be added to "On Air" in before "Clip 4".

Figure 40 – Adding clip



Adding playlists to On Air

Adding clips to "On Air" from "PlayLists" or "Auto P.Lists" can be done one by one, or as entire playlists. Adding a single playlist is similar to adding a clip from "Clips".

Note the content of "On Air" (3). Select the playlist (1) to be added to "On Air" by clicking on its name. To add the selected playlist to "On Air" use one of the following:

- ▶ Click on **+** button on the interface (2);
- ▶ Press **Insert** on the keyboard;
- ▶ Press the **Add|Replace** on the remote control.

Figure 41 - Selecting playlist to add to "On Air"



All clips in the selected playlist will be added to "On Air" (1) for payout.

Figure 42 – Adding playlist to "On Air"



Replacing Playlists with Clips from On Air

Interactions with "On Air" actually can work in reverse. You can access clips in "On Air" to add or replace content in "PlayLists".

To replace the playlist with clips from "On Air":

1. Let's select the entire playlist "Play Lists 2" in "PlayLists",

2. Add it to the "On Air" by pressing **Replace** () button or **Shift** + **Insert** on keyboard or **Shift** + **Add|Replace** on remote control.

The contents of the "On Air" will be replaced by the selected playlist:

Figure 43 – Placing "PlayList 2" content into the "On Air" area



3. Now let's delete from "On Air" "Clip 6" and "Clip 7" by one of the following:

- ▶ Clicking on **Delete**  button on the interface;
- ▶ Pressing **Ctrl** + **Delete** on keyboard;
- ▶ Using **Ctrl** + **Del** on the remote control.

This results in only 2 clips remaining in "On Air" ([Figure 44](#)) – "Clip 5", "Clip 8".

Figure 44 – Deleting clips from "On Air"



The new content of "On Air" will be placed in this playlist using one of these methods:

- ▶ Double-clicking on the title of "PlayList 2",
- ▶ Pressing the **Replace** button () in the program interface,
- ▶ Pressing **Shift** + **Insert** on keyboard,
- ▶ Pressing **Shift** + **Add|RepLace** on remote control,

Figure 45 – Placing "On Air" content into "PlayList 2"



Playlists can be added not just to the end of "On Air", but in front of any selected clip.

In "On Air" select the clip in front of which we want to add the playlist – "Clip 1" (2). Then in "PlayLists" select the playlist for addition to "On Air" – "PlayList 2" (1). Press **Ctrl** + **Insert** on keyboard.

Same action can be achieved by using **Ctrl** + **Add|Replac** buttons on the remote control.

Figure 46 – Selecting playlist and clip



This will result in addition of the content of playlist (1) in front of "Clip 1" (2) ([Figure 47](#)).

Figure 47 – Adding playlist



To clear the entire contents of "On Air" and replace it with selected clip or playlist, use one of the following:

- ▶ Click the  button on program interface;
- ▶ Press **Shift** + **Insert** on the keyboard;
- ▶ Press **Shift** + **Add|Replace** on remote control.

After that the content of "On Air" is completely cleared and replaced with the content of the selected playlist or clip.

Playing of Clips

To play a clip from "On Air" first select the clip and then use one of the following:

- ▶ Click on **Play** () interface button (in "On Air Control" area);
- ▶ Press **Ctrl** + **Space** on keyboard;
- ▶ Press  on the remote control.

After the start of the play the button  will change to .

Stopping Playback

Playback is stopped by:

- ▶ Clicking on **Stop**  interface button;
- ▶ Pressing **Ctrl** + **S** or **Space** on keyboard;
- ▶ Pressing  on remote control.

Changing the Playback Speed

Playing clips from "On Air" can be made with the desired speed. The playback speed can be set by the slider in the control panel (1), or by the T-bar handle on remote control.

Figure 48 – Location of playback speed controls



Located directly below the slider is a drop-down list for selecting the variable speed range (3). Depending on system configuration, this indicator can have several predefined playback ranges. All possible options for speed ranges are shown in [Table 4](#). For quick access to speed ranges press **Ctrl + G** on the keyboard. You can switch between playback speed ranges using the remote control by pressing the **Speed Range** button.

Table 4 - Selection of playback speeds

System type	Indication	Ranges of speeds
For systems working with single-speed cameras	<div> <div>0% – 100%</div> <div>0% – 100%</div> <div>0% – 200%</div> <div>-100% – 100%</div> <div>-200% – 200%</div> </div>	1) 0% – 100%; 2) 0% – 200%; 3) 100% – 100%; 4) 200% – 200%.

For systems working with Super Motion cameras	2 phases	<div>50%, 100%, 150%</div> <div>50%, 100%, 150%</div> <div>0% - 150%</div> <div>-100% - 150%</div>	1) 50%, 100%, 150%; 2) 0% – 150%; 3) -100% – 150%.
	3 phases	<div>33%, 66, 100, 133</div> <div>33%, 66, 100, 133</div> <div>0% - 133%</div> <div>-66% - 133%</div>	1) 33%, 66%, 100%, 133%; 2) 0% – 133%; 3) -66% – 133%.
	4 phases	<div>25%, 50%, 75%, 100%</div> <div>25%, 50%, 75%, 100%</div> <div>0% - 100%</div> <div>-100% - 100%</div>	1) 25%, 50%, 75%, 100%; 2) 0% – 100%; 3) -100% – 100%.

When working with Super Motion cameras, the playback speed change modes are different.

- *The first mode* is a stepwise speed change. This means that the playback speed changes when certain values are reached, corresponding to the set number of camera phases.
For example, for a two-phase camera, the values will be 50%, 100%, and 150%, while for a three-phase camera, the values will be 33%, 66%, 100%, and 133%.
- *The second mode* is a smooth speed change. The range depends on the number of camera phases.
For example, for a two-phase camera, the range is 0% - 150%, while for a three-phase camera, the range is 0% - 133%.
- *The third mode* is a smooth speed change with the ability to play in reverse.
For example, for a two-phase camera, the range is -100% - 150%, while for a three-phase camera, the range is -66% - 133%.

When working with Super Motion cameras, you can also switch between playback speed modes using the remote control:

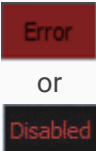
- **Shift** + **Speed Range** – the first mode.
- **Ctrl** + **Speed Range** – the second mode.
- **Shift** + **Ctrl** + **Speed Range** – the third mode.

Directly above the slider is an indicator of the system output state (2) – **Feeder Station**.

The possible states of this indicator are shown below:

Table 5 - Possible indicators of the system output state

Indication	Description of purpose
PreRd.	Pre Read – system prepares for playback – reading data from disk Prolonged display of this indicator points to problems with disk drives

	Ready – the system is ready for playback
	Play – playback in process
	Play – playback will stop soon, there are few frames left in the buffer
	Error– system output is not properly configured Disabled – some systems may have no output

Freeze Point for Clips

The **Freeze Point** function is designed for situations where you need to stop on a specific frame during "On Air" playback. Most commonly, **Freeze Point** is used to review offside situations in football. **Freeze Point** splits the "On Air" clip into two: the first clip starts from the original clip's Mark In and continues up to the frame before the Freeze Point, the second clip begins from the Freeze Point frame and ends at the original clip's Mark Out.

For the first clip, transition effects are disabled () to ensure the key moment is not obscured by a transition. For the second clip, playback is paused upon reaching it (): "On Air" playback stops to allow review of the Freeze Point frame. Playback can then be resumed by pressing .

The same action can be performed using the keyboard or remote control:

- ▶ : **Ctrl + Space**
- ▶ 

Freeze Point can only be applied to clips in "On Air".

To create a **Freeze Point**:

1. Create a clip containing the desired moment and add it to "On Air" ([Figure 49](#)).

Figure 49 – Clip added to "On Air"



2. Select the clip in "On Air" (1) and, by moving the slider in the "On Air Control" area (2) or rotating the Jog/Shuttle wheel, locate the frame for Freeze Point (3).



3. Create the Freeze Point using one of the following methods:

- ▶ : **Ctrl** + **Alt** + **Shift** + **D**,
- ▶ : **Alt** + **Defer**.

The "On Air" clip will split into two clips:

You can now select the first clip in "On Air" and play it by pressing **Play** (). To resume playback, press **Play** () again.

The same action can be performed using the keyboard or remote control:

- ▶ : **Ctrl** + **Space**
- ▶ : 

Freeze Point can also be applied when creating a deferred replay. See the ["Freeze Point for Deferred Replays"](#) section.

Instant Replays

The work of the system operator during the broadcast of a sporting event consists of creating clips, lists of clips (playlists), manipulations on clips and playlists, playing created playlists or clips on the air.

In practice, most of the time the operator is making instant replays, as well as plays out entire playlists. Individual clips are played much less frequently. Instant replays are traditionally made "on the fly", without preliminary markups.

This is done by switching the system to Instant Replay mode and waiting for the right moment to replay. At this point you need to select the desired camera, rewind to the beginning of an interesting moment and start play. Stop is also made "by the eye".

Let's look at the step by step sequence of actions required to produce an instant replay.

Switching to Instant Replay mode

To put the system into Instant Replay mode you will need to do one of the following:

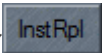
- ▶ Press the **Instant Replay** () button;
- ▶ Use **Ctrl** + **Shift** + **I** on the keyboard;
- ▶ Press **Instant Replay** on the remote control.

Figure 50 - Interface during Instant Replay mode



Switching to **Instant Replay** mode is confirmed by lighting the **Instant Replay** button on the Control ZR / ZR2 and changing interface (Figure 50).

You cannot switch from editing mode to instant replay mode and back during playouts.

The indicator that the playback is currently in progress is the green color of  in the interface and the bright green glow of the  button on the Control ZR / ZR2 panel.



In Instant Replay mode and preparation for playout there will be no audio. The audio from the source set in the audio panel (see the "Tools" manual) will be present in the playout.



When video speed is changed, the audio will slow down according to the set speed, and then, upon reaching a certain slow-down percentage, the audio playback will stop. The slow-down percentage at which audio stops playing is set in "Tools" → "Settings" → "Audio playback speed range" (see the "Tools" manual).

If imported audio is used as the audio source, it is always played at 100% speed, regardless of the video playback speed used.

Live Mode Settings

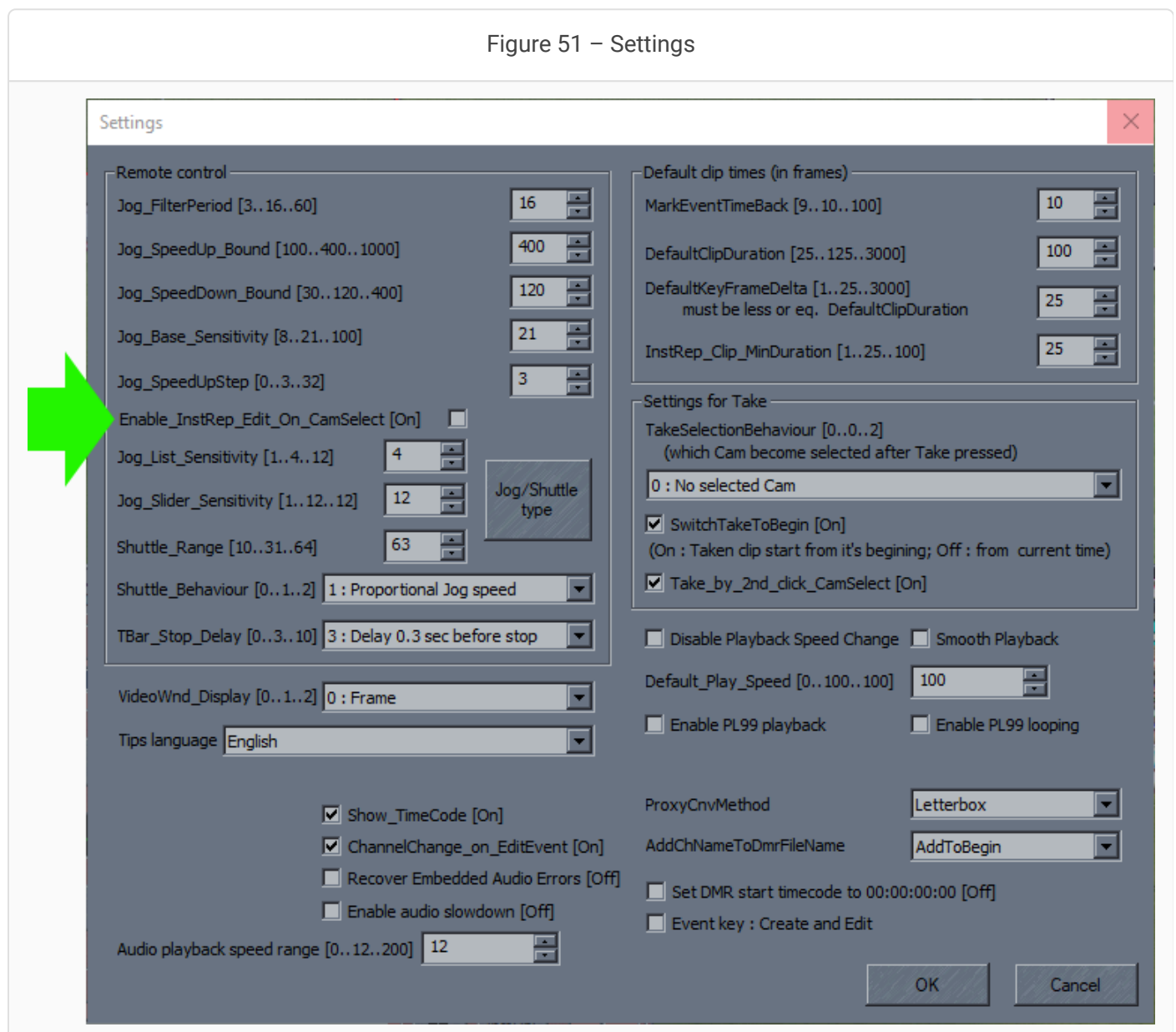
Slomo.tv systems provide **Live Mode**, when live video is at the output of the system.

When switched to Instant Replay output transmits the live video, however during switching the channels there can be two possibilities:

- ▶ Changing the active channel will output its live video;
- ▶ Changing the active channel will output a static image of the corresponding channel.

To change the Live mode setting use "Tools" → "Settings" and change the parameter "Enable_InstRep_Edit_On_CamSelect [On]":

Figure 51 – Settings



If "Enable_InstRep_Edit_On_CamSelect [On]" is activated, changing the active channel will output a static image.
If "Enable_InstRep_Edit_On_CamSelect [On]" is not activated, the output will transmit live video.

Rotating the Jog/Shuttle knob or using Mark+edit to create an event will switch the system to Editing mode (search).

Working with Instant Replays

In **Instant Replay** mode you are waiting for an interesting moment. Once that happens, you need to turn the Jog wheel counterclockwise. The system goes into a state of readiness for instant replay. The slider moves from the extreme left position to (3). The active camera (1) is displayed in the Program/Preview window (2):

Figure 52 – Search for a moment



Continue to rotate the Jog wheel until you get to the right moment (1) at which to start replay. Press **Play** button (2) to start playing (3) on the air.

Figure 53 - Starting playback



We must take into account that in this case, playback starts at the predetermined speed. However, during playback the speed can be changed by the T-bar handle on remote control or by the speed slider of the user interface.

There is another way to start instant replay. Moving the T-bar handle will immediately start playback. Therefore, in

practice, the majority of operators use this method. A slight touch will start playback. During an instant adjusting replay playback speed and stop are made manually.

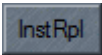
Playback is stopped by:

- ▶ Pressing  button on interface;
- ▶ Using **Ctrl** + **S** on the keyboard;
- ▶ Pressing the  key on the remote control;
- ▶ Moving the T-bar to zero position.

You should try all available methods and choose the optimal for yourself.

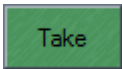
To pre-set the speed, without starting playback do it while pressing **Shift**.

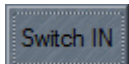
There are three ways to get the system ready for the next instant replay:

1. Click twice  button on user interface
2. Click twice **Instant Replay** on the remote control
3. Use **Shift** + **Stop** keys on the remote control

During instant replay the operator can show the same episode from several angles.

To do this, in the course of the playback choose another active camera and at the right moment press **Take**

 or use **Ctrl** + **Shift** + **K** on the keyboard.

The essential point in this case is the state of the  button.

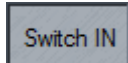
The illustration below shows playback from camera (2) starting at 11:51:13.20, the  button (1) has been pressed:

Figure 54 - Instant Replay at activated Switch IN



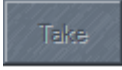
After initiating an Instant Replay (1) and switching the active camera (2), the  button changes its appearance to . When the  button (3) is pressed, the output from the new camera (2) will start exactly from the same moment – 11:51:13.20 – from which the instant replay from the first camera (Cam 5) originally began – [Figure 55](#).

Figure 55 - Second replay at activated Switch IN



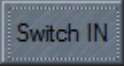
Now Switch IN () is not activated (1). Notice the starting time-code 11:51:13.20 (2) of the active camera.

Figure 56 - Switch IN is not activated



If you press **Take** (1) playback from the new camera (2) will start from the moment of switching to it, i.e. at 11:51:29.04, 16 seconds later than the start of playback from the Cam 6.

Figure 57 – Instant Replay without pressing the Switch IN button



This important feature allows us to show the same moment from different angles or to show its development over time, moving to new perspectives.

Playlists for Instant Replays

We have already described events, clips, utility and custom playlists, instant replays and deferred replays. We also described instant replays and clip editing.

Let's summarize all the possible features:

- ▶ Replays can be produced "on the fly" or by using deferred replays.
- ▶ Events and clips can be used equally with deferred replays.
- ▶ Playlists are formed from the clips contained in other playlists.
- ▶ Clips are created by marking entry and exit points.
- ▶ Instant replay does not require preliminary marking. Nevertheless, during its playing a clip is created with entry and exit points of starting and ending time-codes.

▶

The clip based on the last instant replay can be placed directly in "On Air" by using

Add Last InstRpl PL.

Let's illustrate this feature. While in clip editing mode, remember the contents of "On Air".

Figure 58 – "On Air" contents



Switching to instant replay mode, press

Add Last InstRpl PL.

Figure 59 – Switching to Instant Replay mode



Let's go back to clip editing mode and confirm that the last instant replay was indeed added to "On Air". To be precise, we added the clip based on the last instant replay.

Figure 60 – Adding last Instant Replay to "On Air"



We must keep in mind that in the Instant Replay mode displaying the status of "On Air" makes no sense. Do not be concerned that "On Air" is not filled. When you switch to editing mode it will become clear that everything was placed in "On Air".

Thus, the system offers a variety of ways to create clips with and without preliminary marking.

The operator can seize the moment on the fly and immediately start rewinding for an instant replay. But he can also use events, clips and deferred replays to play episodes that occurred earlier. Operators can create clips by editing existing ones or use events, remembering that there are also clips automatically generated by instant replays.

Thus, creating a clip allows setting entry and exit points more accurately than launching the same episode as instant replay, but it takes more time. Ultimately, all available features are geared to make it possible to select the most convenient and best for a particular situation.

Deferred Replays

Playout of instant replay may for some reasons be postponed. In that case, one could create an event in order to go back to it later. However, working with events requires marking a clip, which in turn requires the system to be switched to editing mode. System enables you to postpone replays without having to switch modes.

Creating Deferred Replay

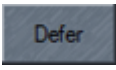
The previous chapter described all the steps for preparing an instant replay and here we assume that the operator did all of them. But in this case, rather than to push the T-Bar handle or press the play button, pressed was the **Defer** button on remote control or  (1) on the interface:

Figure 61 - Creating deferred replay



No play will be performed and if you open **Deferred** tab (2), you can see that it is structured similar to "Events" and "PlayLists", and it has an object (3) similar to clip with indication of the active camera (4).

Created object – deferred replay, is functionally closer to event than to clip because it captures a moment in time, and has no markings. The purpose of creating a deferred replay is to produce a replay which closely replicates the instant replay. No clip marking is required, and the beginning and end of replay will be set by the operator "on the fly". The only difference is that deferred replay does not require the use of the Jog wheel to get to the starting point.

There are several ways to return to the deferred replay.

First – sequential use of  and  buttons. In this case there is respective movement up and down the list. After pressing  (1) instead of "Deferred 8" is selected will become "Deferred 7" (2):

Figure 62 – Go to the previous deferred replay



After pressing  (1) "Deferred 8" (2) will be selected:

Figure 63 – Go to the next deferred replay



Instead of these buttons you can use the Jog wheel or buttons  and  on remote control. You can also select the desired deferred replay with the mouse.

After selecting the Deferred Replay start playback as conventional Instant Replay (**Ctrl** + **Space** or  or T-bar). Stop is made by the same methods as in standard instant replay.

Naturally, for working with **Deferred** the system must be in Instant Replay mode and no playback in process.

Freeze Point for Deferred Replays

Similar to [Freeze Point for Clips](#), this function can also be applied to deferred replays.

Freeze Point is designed for situations where playback of a replay must stop on a specific frame. Most commonly, it is used to review offside situations in football.

A **Freeze Point** is a deferred replay that stops playback at a predefined frame. After pausing, playback can be

resumed by pressing .

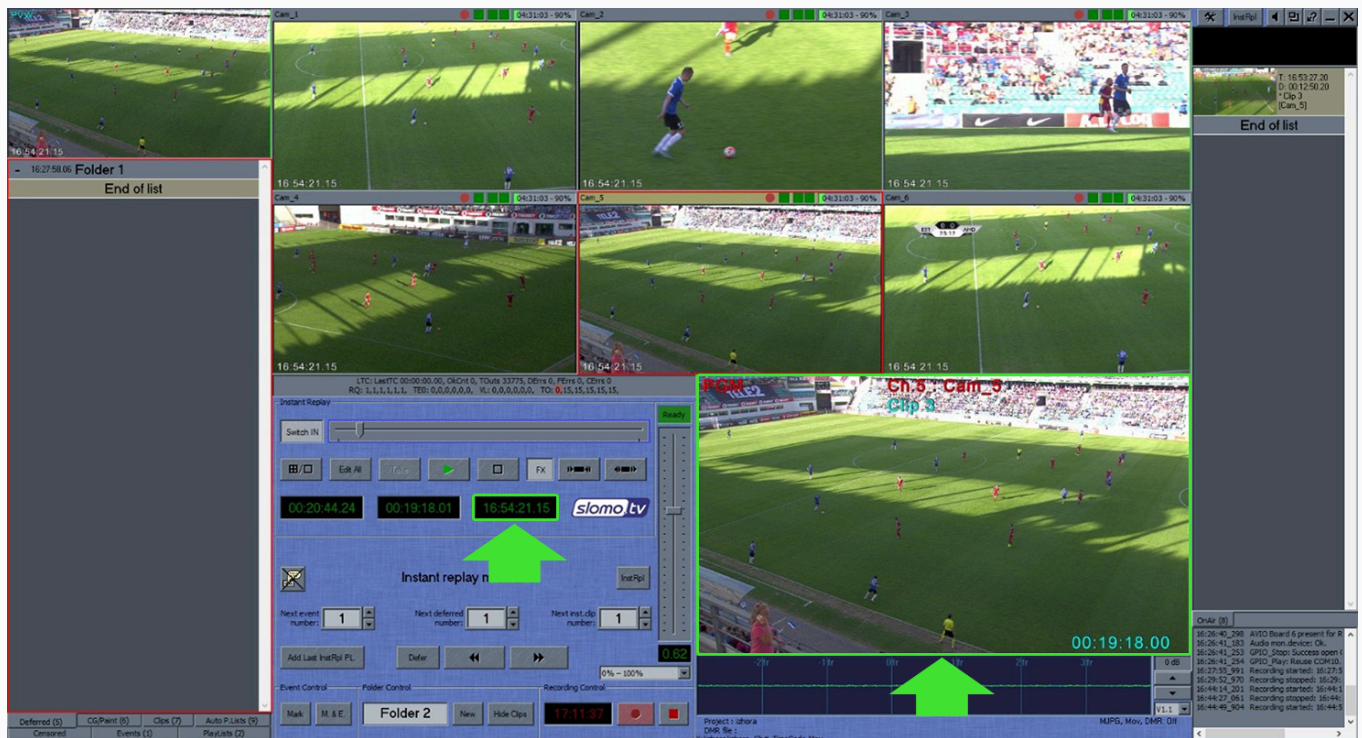
The same action can be performed using the keyboard or remote control:

- ▶ : **Ctrl** + **Space**
- ▶ 

To create a **Freeze Point** deferred replay:

1. Initiate an instant replay by rotating the Jog/Shuttle wheel counterclockwise;
2. While rotating the Jog/Shuttle, locate the key frame where playback should pause ([Figure 64](#)).

Figure 64 – Freeze Point frame selected



3. Create the Freeze Point using one of the following methods:

- ▶ : **Ctrl + Alt + Shift + D**,
- ▶ : **Alt + Defer**

After this, a Freeze Point deferred replay will be created in the "Deferred" area:



An active Freeze Point deferred replay is marked in red and labeled with the prefix "Freeze Deferred".

4. Select the Freeze Point deferred replay and rotate the Jog/Shuttle counterclockwise to start playback from a position earlier than the Freeze Point frame;



If playback of a Freeze Point deferred replay is started without rewinding, the playback stop will occur immediately.

5. Start playback of the Freeze Point deferred replay: press  ;
The same action can be performed using the keyboard or remote control:

▶  : **Ctrl + Space**

▶  : 

6. When the Freeze Point is reached, playback stops. Press  again to continue playback.

A Freeze Point deferred replay remains active until:

- ▶ Creating a new Freeze Point deferred replay;
- ▶ Exiting instant replay mode.

After either action, the Freeze Point deferred replay becomes inactive. It remains in the Deferred area but functions as a standard deferred replay without stopping at the predefined frame.

An inactive Freeze Point deferred replay is marked in green.

Figure 65 – The "Freeze Deferred" became inactive after adding a new one

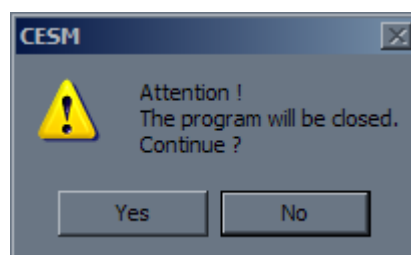


An inactive Freeze Point deferred replay can be reactivated - select it and press : **Ctrl** + **Alt** + **Shift** + **D** or : **Alt** + **Defer**.

Shutting Down the Program

To shut down the program stop recording and press button in the upper right corner of the interface or use **Ctrl** + **Shift** + **X** on the keyboard.

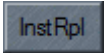
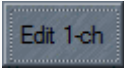
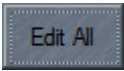
The following warning will appear:

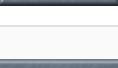
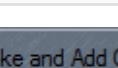
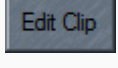
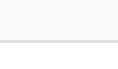


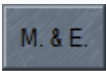
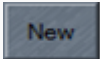
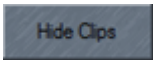
Click **Yes** to continue or **No** to cancel.

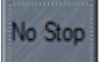
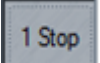
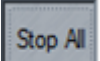
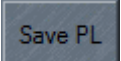
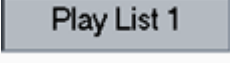
Appendix A

Shortcuts

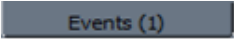
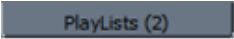
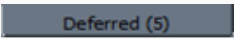
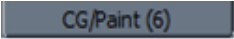
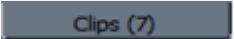
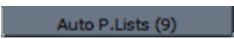
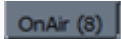
Interface button	Shortcut		Description
			
Menu panel			
	Ctrl + Shift + T	–	Opening of Tools menu
	Ctrl + Shift + I	Instant Replay	On/Off Instant Replay Mode
	Ctrl + Shift + A	–	Display/Hide audio panel
	Ctrl + Shift + L	–	Switching size of video windows
	Ctrl + Shift + N	–	Collapse program window
	Ctrl + Shift + X	–	Exit the program
Editing Control			
	NumPad_2	Live/Search	Live video on all channels
			Search on 1 selected channel
	Shift + NumPad_2	Shift + Live/Search	Search on all channels simultaneously.

	ScrollLock	Shift + Graphics Port 1	Switching the MultiSkin interfaces
	NumLock Ctrl + [	Shift + Mark In	Go to Mark In
	NumPad_7 Ctrl + Q [	Mark In	Mark In – set entry point
	NumPad_5 Ctrl + W	–	Set clip icon based on current frame
	NumPad_9 Ctrl + E]	Mark Out	Mark Out – set exit point
	NumPad_* Ctrl +]	Shift + Mark Out	Go to Mark Out
	Shift + NumPad_+	–	Reduce clip editing area
	NumPad_+	–	Expand clip editing area
	Shift + NumPad_Enter	Shift + Clip	Place clip in Clips
	NumPad_Enter	Clip	Place clip in "Clips" and "On Air"
	NumPad_ /	Edit Clip	Copy current clip from Clips, On Air, PRJ, PLS, Searches to Editing Control
	Ctrl + Alt + *	–	Move slider in Editing Control to end of recording
	Ctrl + Alt + NumLock	–	Move slider in Editing Control to beginning of recording
	Ctrl + 0	Shift + 0	Move to slider in Editing Control

	Ctrl + C	–	Enter/edit the name of the clip
Channel selection			
	F1...F12	Ch1...Ch24	Channel selection. (Active channel is framed in red).
	Alt + F1...12	Alt + Ch1...Ch24	Channel selection and event marking. (F1 – the channel number)
Event Control			
	~	Event	Mark an event
	Ctrl + ~	Shift + Event	Mark an event and place it in Editing Control
Recording Control			
	Ctrl + Shift + R	Ctrl + Alt + Shift + Event	Start recording
	–	–	Recording in process
	Ctrl + Shift + S	Ctrl + Alt + Shift + [Stop icon]	Stop recording
	–	–	Recording has stopped
Folder control			
	Ctrl + F	–	Enter/edit the name of folder
	Ctrl + NumPad_/_	–	Create new folder in Events/Deferred with a given name
	Shift + NumPad_/_ Ctrl + NumPad_/_	–	Close all folders/ playlists in current tab (Events/Deferred/Playlists)

On Air Control			
	Ctrl + -	Shift + Enter	Move positioning slider along playlist in On Air
	Shift + Left (←)		Go to beginning of clip before current position
	Shift + Right (→)		Go to beginning of next clip
	Ctrl + Space		Start playback
	Ctrl + S		Stop playback
	Insert	Add Replace	Add selected to the end of On Air
	Ctrl + Insert	Ctrl + Add Replace	Add a clip selected in any area or the entire playlist to On Air (before the clip selected in On Air)
	Shift + Insert	Shift + Add Replace	Clear On Air and add selected
	Ctrl + T	FX Switch In	Turn On/Off transition effects
	Ctrl + Alt + S	–	Playback stop modes: – No Stop; – Stop at the end of current clip (1Stop); – Stop at the end of each clip (Stop All).
			
			
	NumPad_8	Play List	Save On Air content as playlist with a given name in Playlist
	Ctrl + P	–	Enter/edit the name of playlist

	Ctrl + Delete	Ctrl + Del	Delete selected clip/event playlist/folder
	Ctrl + G	–	Select playback speed range
Playback speed			
	Ctrl + + Ctrl + D	T-Bar	Speed control slider
Instant Replay			
	–	Shift + FX Switch In	On/Off Switch IN mode
	Ctrl + Shift + K	–	Switching playback to selected camera
	Ctrl + Space		Start play
	Ctrl + S		Stop play
	Ctrl + T	FX Switch In	Turn On/Off transition effects
	Shift + NumPad_+	–	Reduce clip editing area
	NumPad_+	–	Expand clip editing area
	–	–	Add last Instant replay to the end of On Air
	–	Defer	Add clip to Defer
	–		Go to previous deferred replay

	–		Go to next deferred replay
PlayLists			
Events 	Ctrl + 1	Shift + 1	Opens tab Events
Playlists 	Ctrl + 2	Shift + 2	Opens tab Playlist
Deferred 	Ctrl + 5	Shift + 5	Opens tab Deferred
CG/Paint 	Ctrl + 6	Shift + 6	Opens tab CG/Paint
Clips 	Ctrl + 7	Shift + 7	Opens tab Clips
Auto P.Lists 	Ctrl + 9	Shift + 9	Opens tab Auto P.Lists
OnAir 	Ctrl + 8	Shift + 8	Opens OnAir