

ProHD

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ProHD STUDIO 4000S

KM-IP4000S

SPORTS PRODUCTION and STREAMING STUDIO **SOFTWARE USER'S MANUAL**

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ProHD Studio 4000

LIVE PRODUCTION AND STREAMING STUDIO

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WELCOME

Congratulations on your purchase of the ProHD Studio KM-IP4000S, Live Sports Production Studio, the ideal live sports production system for the new generation of digital native media professionals.

ProHD Studio KM-IP4000S - Live Sports Production Studio

The ProHD Studio KM-IP4000S is conceptually as well as technologically ground breaking. Specifically designed for live sports streaming production the SW features a highly effective, intuitive touch screen user interface, that's been fine tuned and tested in thousands of real life sports productions. It offers a specialized feature set that will enable you to produce professional, broadcast quality live sports productions with unprecedented speed, efficiency and extreme ease of use.



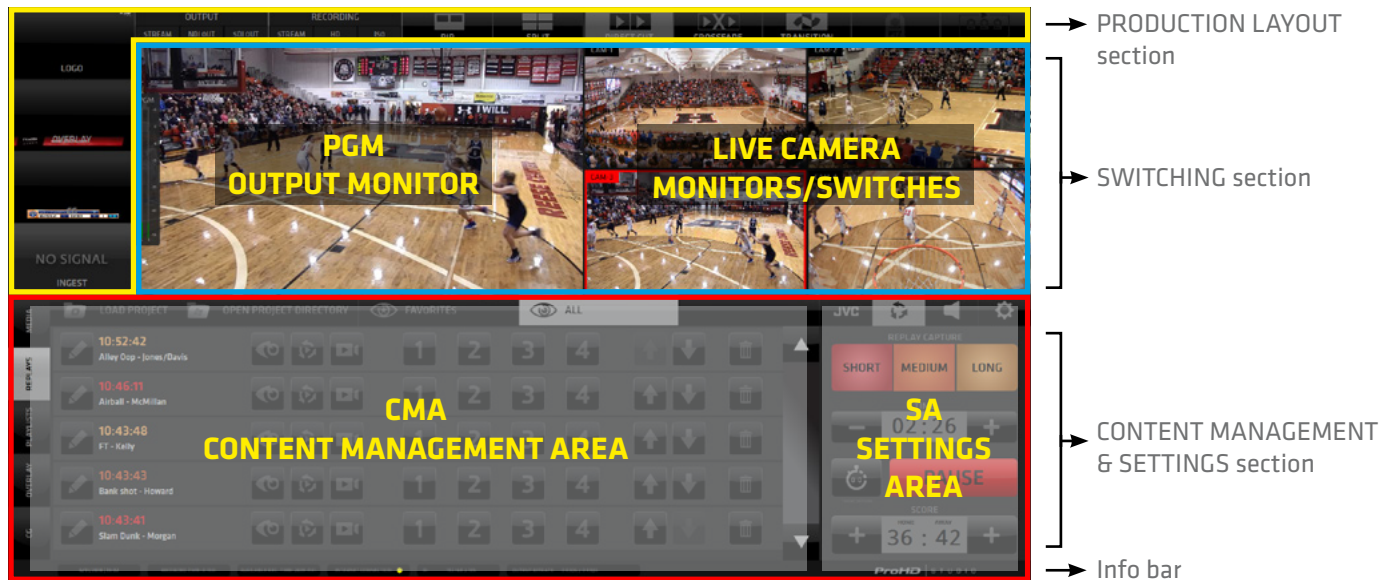
GUI - Graphical User Interface overview

The ProHD Studio Live Production Software is operated via an innovative, touch screen user interface, perfectly tuned for live streaming production.

It was designed to fulfill all the requirements of a live streaming production in the **easiest, most efficient and user-friendly** way. It allows a high level of sophistication, creative freedom, operational flexibility while maintaining perfect control of every aspect of the production at all times. Processes, functionalities and workflows are handled in the most logical and practical way.

The GUI layout is divided into 3 main sections containing logically related, operational elements.

1. **PRODUCTION LAYOUT** section - outlined in yellow
2. **SWITCHING** section - outlined in blue
3. **CONTENT MANAGEMENT & SETTINGS** section - outlined in red



At the very bottom is an additional information bar displaying some helpful system status information.

NOTE: As you will learn the PGM and Live Camera monitors/switches desktop areas (marked yellow in the above image) are occasionally used to display certain control elements, logically related to various functionalities. As you learn the GUI you will quickly understand how it all makes perfect sense and allows for incredible speed with which you can work with the ProHD Studio SW.

SOFTWARE START

Start the ProHD Studio SW application in a Windows OS usual way by double clicking its desktop icon.



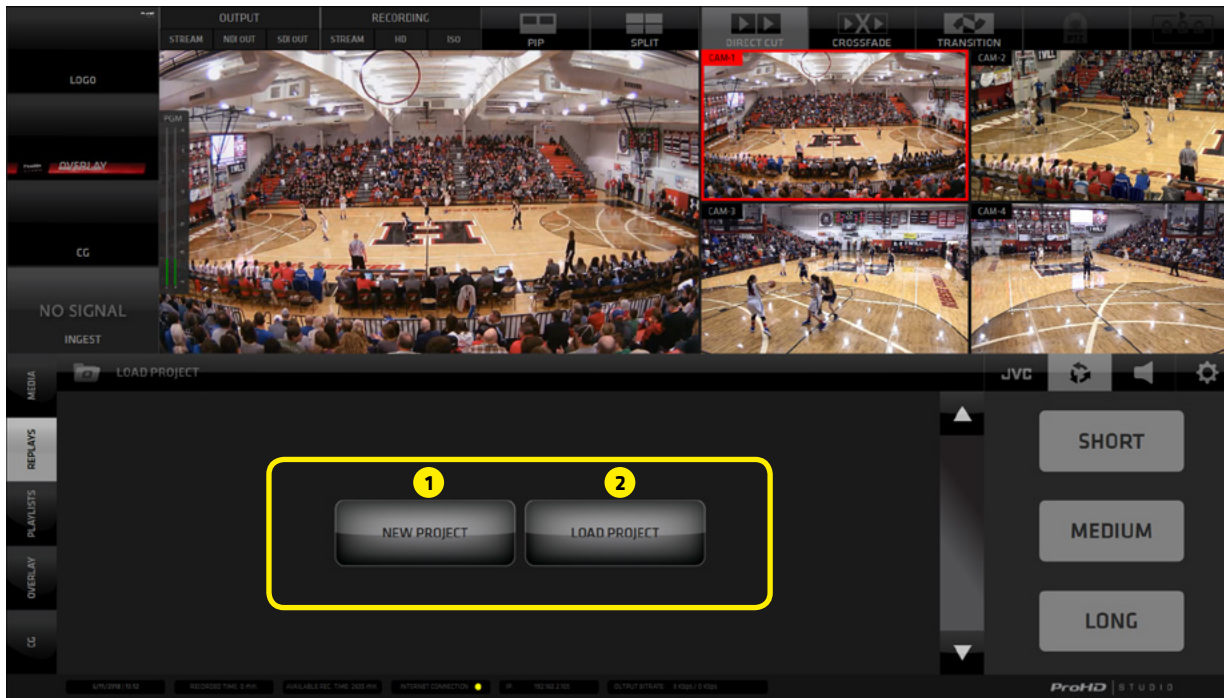
CREATING A PROJECT

After application start the 1st GUI screen appears.

Two large buttons appear in the center of the CONTENT MANAGEMENT AREA.

1 - NEW PROJECT - a new project is created and you can start working immediately

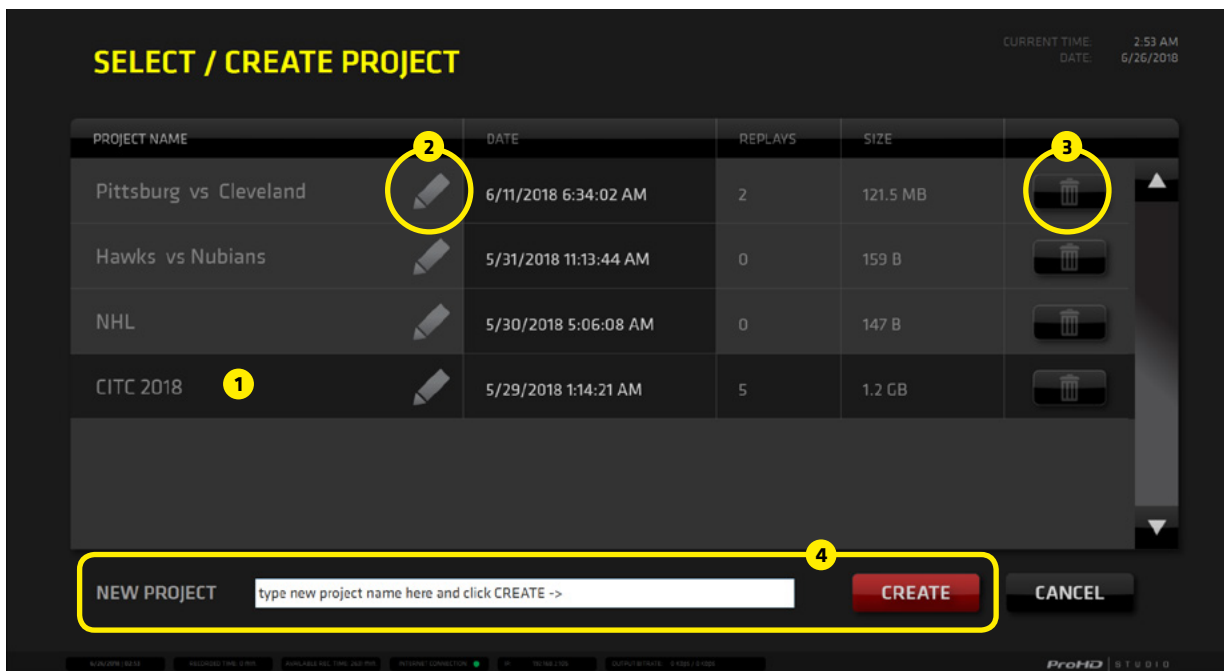
2 - LOAD PROJECT - a dialog screen appears with a list of previously saved projects.



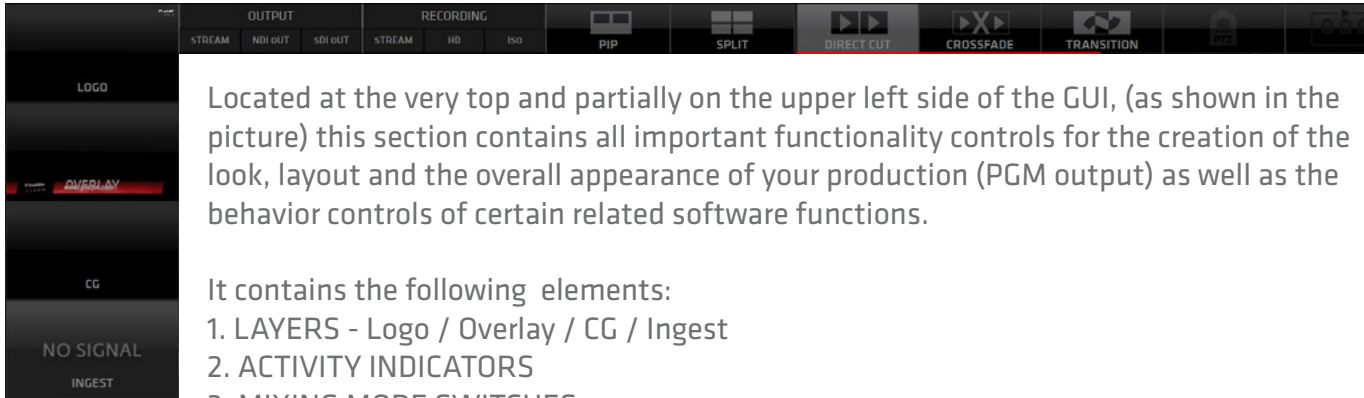
NOTE: At SW first run an optional QUICK TUTORIAL provides basic operational instructions to get you started

LOAD PROJECT dialog screen:

1. **Select** an existing project by tap/click on its name in the list
2. **Edit** the name of projects by tap/click on the PENCIL icon besides the names of projects
3. **Delete** projects by tap/click on the TRASH Icon
4. **Create** a new project by typing its name into the text input field and tap/click the NEW button



PRODUCTION LAYOUT Section

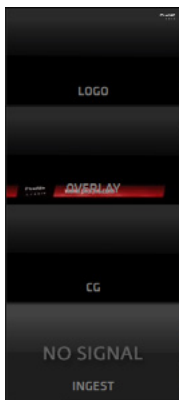


Located at the very top and partially on the upper left side of the GUI, (as shown in the picture) this section contains all important functionality controls for the creation of the look, layout and the overall appearance of your production (PGM output) as well as the behavior controls of certain related software functions.

It contains the following elements:

1. LAYERS - Logo / Overlay / CG / Ingest
2. ACTIVITY INDICATORS
3. MIXING MODE SWITCHES
4. SCREEN LAYOUT SWITCHES - PIP / Split screen
5. PTZ CAMERA CONTROLS - Individual PTZ Camera controls / PTZ Groups controls

LAYERS:



Contains four switches for video layers superimposed on top of the camera layer

- | | |
|----------|--|
| LOGO | on/off switch for the LOGO layer
<i>(for description go to the SETTINGS / LAYERS / LOGO section on page 34)</i> |
| OVERLAYS | on/off switch for the OVERLAYS layer
<i>(for detailed description go to the CMA / OVERLAYS TAB section on page 21)</i> |
| CG | on/off switch for the Character Generator layer
<i>(for detailed description go to the CMA / CG TAB section on page 22)</i> |
| INGEST | on/off switch for the INGEST layer
<i>(for description go to the SETTINGS / LAYERS / INGEST section on page 34)</i> |

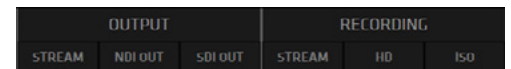
ACTIVITY INDICATORS:

6 indicators providing status info about system processes.

Their function is informative only.

OUTPUT - indicators of different types of outputs

RECORDING - indicators of recording functions



SCREEN LAYOUT SWITCHES

PICTURE IN PICTURE - enables the PIP screen layout functionality

Operating procedure:

1. Tap/click the PIP layout switch to select/activate it
If there is no PIP layout setup yet, you need to set it up to be able to use it.
Tap/click and HOLD the PIP switch for over a second to reveal the PIP SETUP window which opens above the PGM monitor
2. Tap/click one of the 9 preset templates available - the selected template zooms in (*image 1 next page*)
3. Select the sources for the individual PIP areas by simply tap/click on the source preview monitor
PLEASE NOTE: a source for a PIP can be a live camera, media file, playlist or a replay
The software prompts you to assign a source by highlighting the area in RED that need to be set ...
A... B... C... depending on the number of PIP areas in the selected template (*image 2 next page*)



Image 1 - Selecting the PIP template

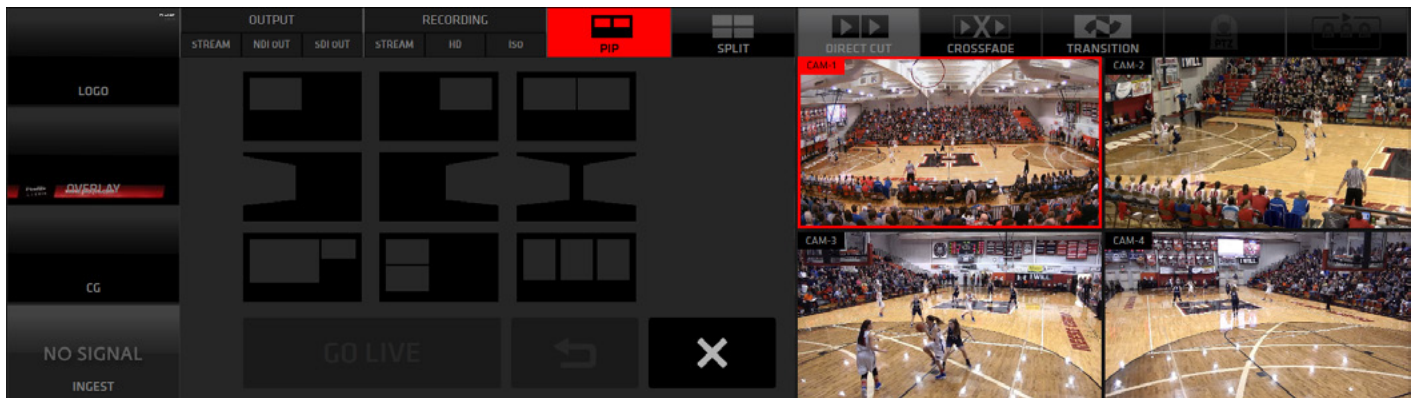
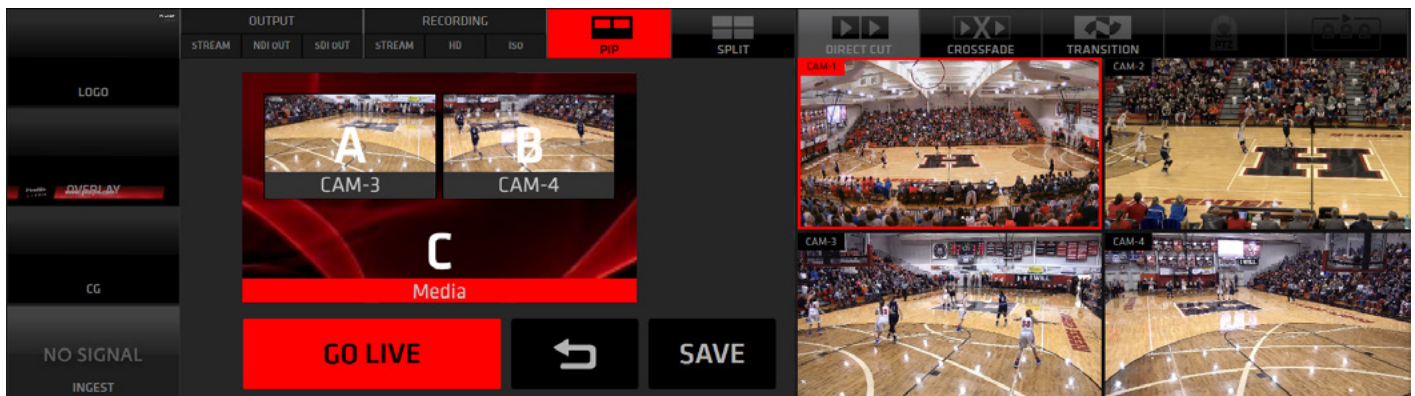




Image 2 - Assigning sources to the PIP template areas



Operating procedure - continued...

4. when all PIP screen areas are populated/filled with content a red GO LIVE button at bottom activates
5. Tap/click the **GO LIVE** button to switch the SPLIT SCREEN layout to live PGM
6. Tap/click **SAVE** to save the PIP layout - the saved PIP layout is highlighted in grey in the PIP Templates
You can setup another PIP and save it if you wish or exit the PIP SETUP (see point 8b)
7. When assigning sources to PIP areas tap/click **BACKSPACE**  to go back a step,
press twice to go back two steps and so on
... this way you can modify/clear the existing PIPs
8. Tap/click **CANCEL**  to do the following:
 - a: when in the Content selection state - to cancel and go back to the PIP Templates selector to choose another template
 - b: when in PIP Templates selector - to exit the PIP SETUP window
9. The last PIP used in live PGM is assigned to the main PIP SWITCH button in the top section menu for fast, repeated use.
If you wish to select another PIP simply tap/click and HOLD the PIP switch to access the PIP Setup window and select another saved PIP or create a new one.
10. To re-assign new content to areas in an already setup PIP template, tap the PIP template, select the area you wish to re-assign and select a new source by a tap/click on it's preview monitor.

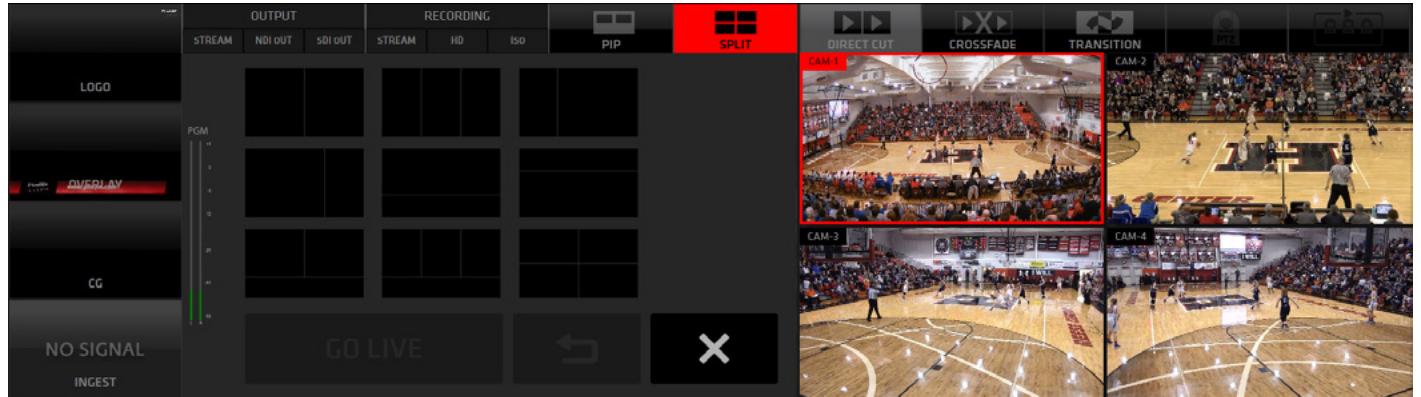
SPLIT SCREEN - enables the split screen layout functionality

Operating procedure:

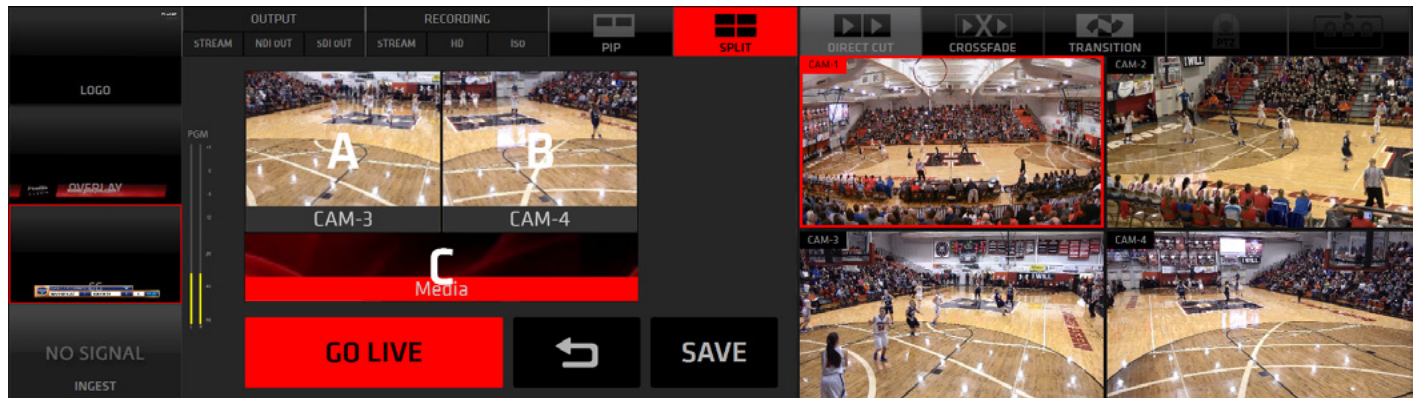
The operating procedure of the SPLIT SCREEN is identical to the of the PIP.

Please refer to the previous page for instructions. The only difference is that now you are working with SPLIT SCREEN TEMPLATES.

Selecting a SPLIT template



Selecting sources for the SPLIT areas



MIXING MODES:



Tap/Click any of the three switches to select a switching mode with their respective functionality controls.

DIRECT CUT - enables a direct cut between sources

CROSSFADE - enables automated crossfade transition between sources

TRANSITION - enables automated wipe transition between sources

Adjusting the Mixing Modes parameters:

DIRECT CUT - Tap/Click the button to select the DIRECT CUT mode. There are no parameters to adjust.

CROSSFADE - [Tap/Click and HOLD] the CROSSFADE button for longer than a second to reveal the CROSSFADE ADJUSTMENT controls.

TRANSITION - [Tap/Click and HOLD] the TRANSITION button for longer than a second to reveal the TRANSITION ADJUSTMENT controls.

Crossfade Duration Adjustment:

The image bellow shows the CROSSFADE ADJUSTMENT controls window open.

- Use the DURATION BAR to adjust the duration of the crossfade. Slide the red bar to the right to increase the crossfade duration, ...to the left to decrease it.

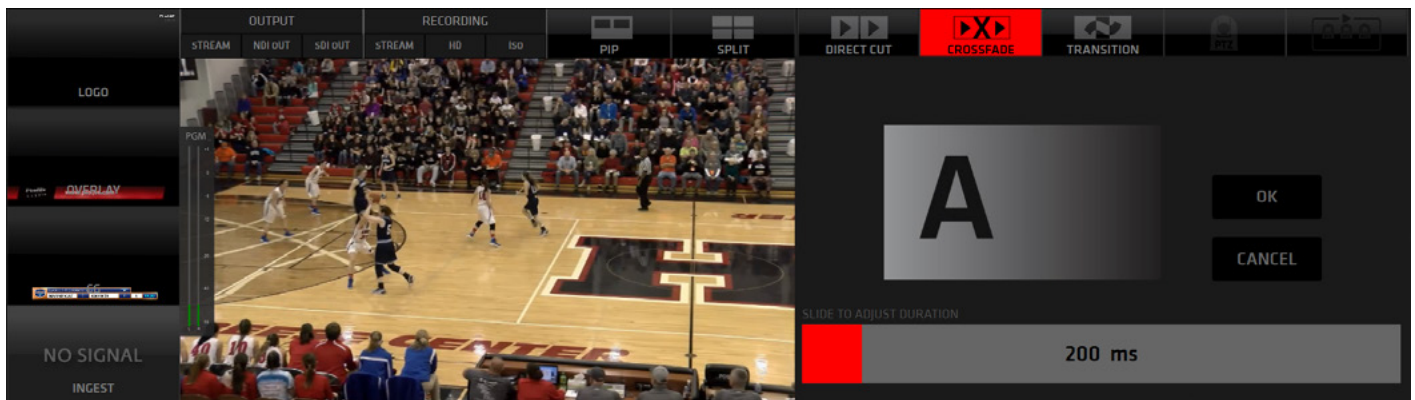
Or tap/click anywhere on the duration adjustment bar to set a new duration.

- After a new value is set the Preview window above (with letter A) will play a crossfade animation previewing the newly set duration.

- When you are OK with the new duration, tap/click OK to confirm the new duration time value.

The CROSSFADE DURATION ADJUSTMENT window closes and from now on all CROSSFADES are executed with the new duration time value.

The CANCEL button closes the window without any changes to the Crossfade duration.



Transition Template Selection and Duration Adjustment:

The next image bellow shows the TRANSITION ADJUSTMENT controls window open.

It contains 9 Transition Template buttons. Tap/click any of them to select a desired transition.

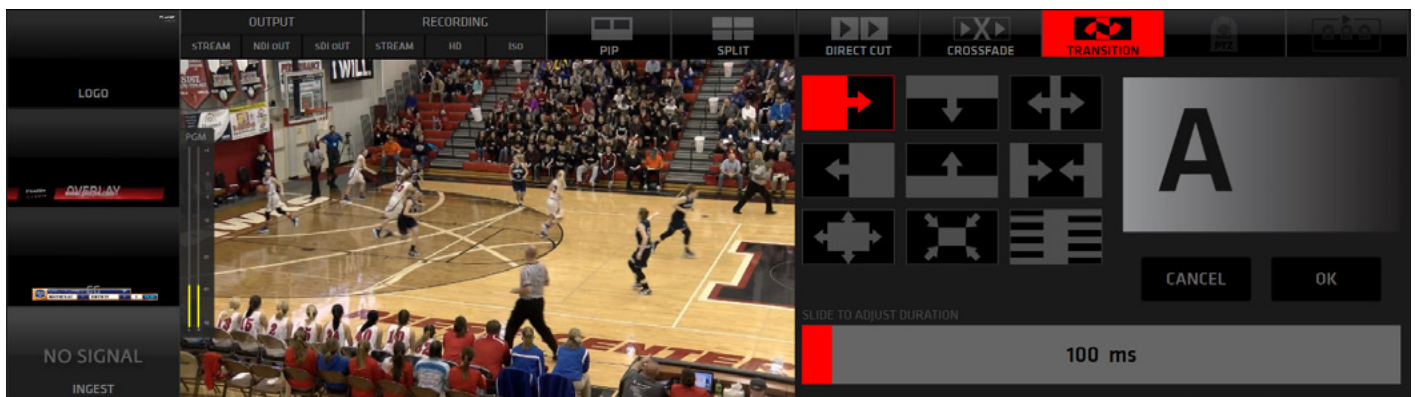
Use the TRANSITION DURATION BAR to adjust the duration of the transition. Slide the red bar to the right to increase the transition duration, ...to the left to decrease it.

Or tap/click anywhere on the duration adjustment bar to set a new duration value.

After a new template is selected and /or new duration is set the Preview window above (with letter A) will play a transition animation previewing the newly set transition template and duration.

When you are done with the transition setup tap/click OK to confirm the new transition settings.

The TRANSITION ADJUSTMENT window closes and from now on all TRANSITIONS are executed with the new transition and duration time setting. The last selected transition is assigned to the TRANSITION button for fast access. If you wish to select another transition use the above described process again.



PTZ CAMERA CONTROL



The last 2 switches in the top menu section are:

PTZ CONTROLS - which enable the control of individual PTZ CAMERAS over IP

PTZ GROUPS control - which enable the PTZ CAMERA GROUPS control over IP

These 2 functions become available automatically if PTZ cameras are connected to the ProHD Studio.

NOTE: For a good understanding of these functions we recommend first to go through and familiarize yourself thoroughly with the CAMERA SWITCHING and JVC CAMERA CONTROL functionalities. Therefore we will discuss the PTZ CAMERA CONTROL functionalities in detail in the JVC CAMERA CONTROL section on page 41.

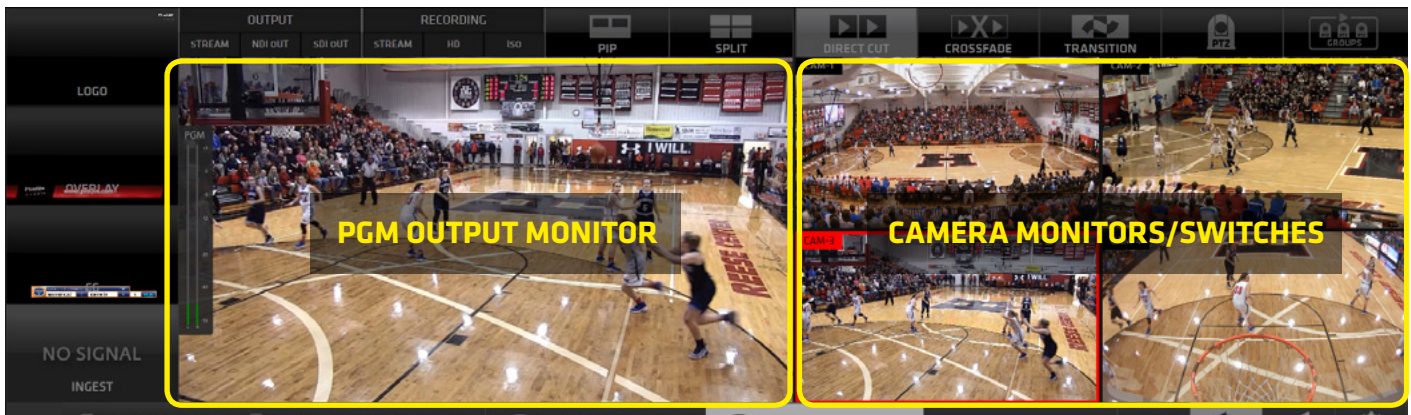
PGM / CAMERA SWITCHING SECTION

This section features the PGM output monitor and the live camera monitors/switches.

PGM - Program Output Monitor

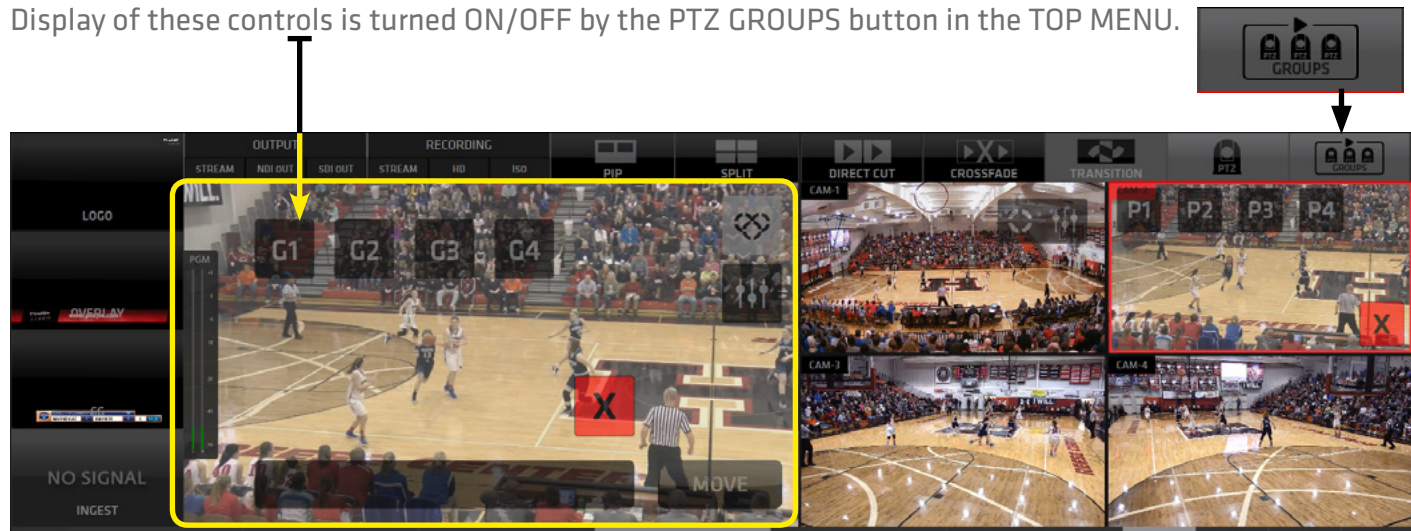
The large PGM monitor on the left is displaying the composite system output - PGM and the AUDIO LEVELS indicator superimposed on top.

The audio level indicator is not part of the composite signal created and broadcast by the SW. It is displayed for information and visual control of the audio output only.



JVC PTZ Camera GROUP PRESETS controls display

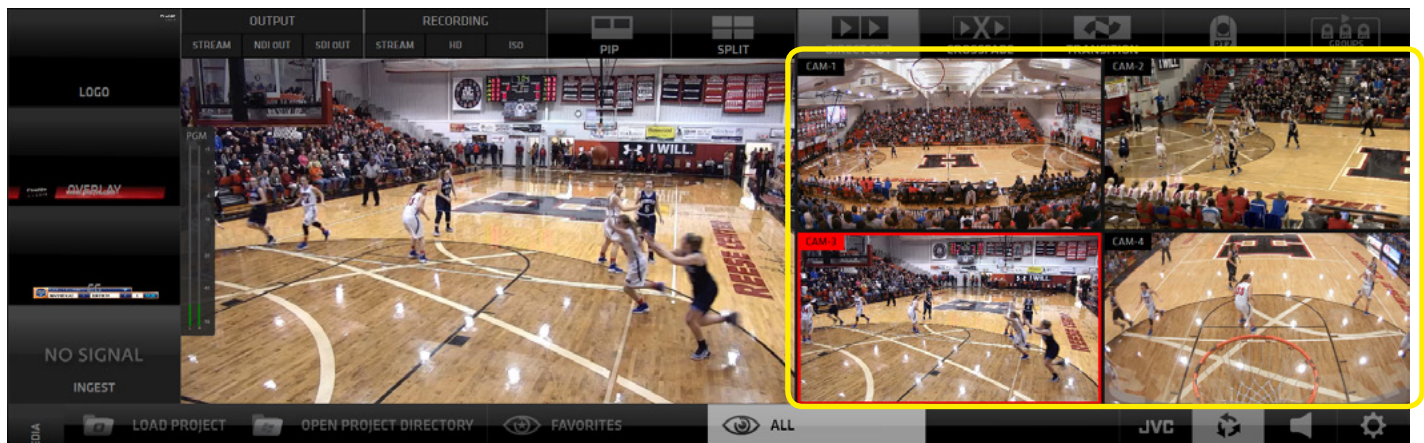
If JVC PTZ cameras are connected to the system the PTZ Camera GROUP PRESETS control switches may be displayed superimposed over the PGM monitor to allow instant access to PTZ CAMERA GROUPS PRESETS. Display of these controls is turned ON/OFF by the PTZ GROUPS button in the TOP MENU.



The Live Camera Monitors have several functions:

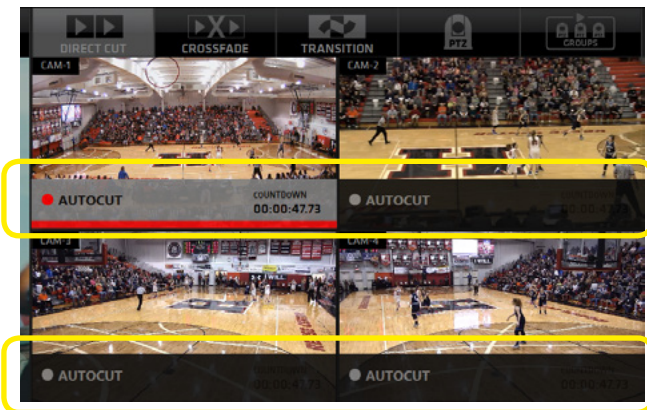
a, Live camera previews

b, Switches for camera switching - tap/click any of the live camera monitors to switch that camera to PGM.



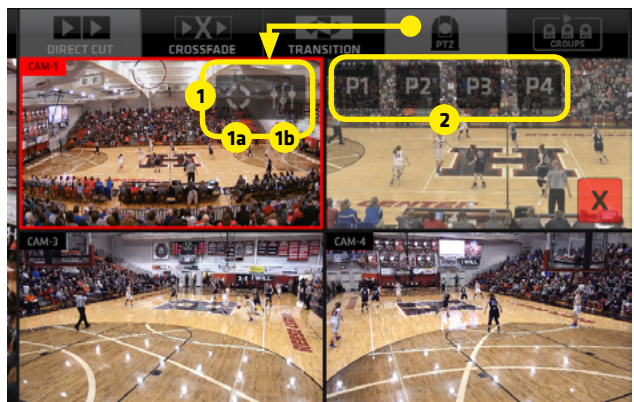
c, Autocut switches display

If other content than a live camera is played in PGM (e.g. a Media file or a Replay) there will be AUTOCUT SWITCHES / BUTTONS displayed at bottom of the CAMERA MONITOR. Tap/click on the AUTOCUT to specify which camera will go to live PGM once the Media/Replay is finished.



d, PTZ camera control switches

If JVC PTZ cameras are connected to the system the PTZ Camera Presets control switches may be displayed superimposed over the corresponding camera monitors to allow instant access to PTZ camera presets. Two CONTROL SWITCHES (1) become visible by enabling the PTZ CONTROL button in the TOP MENU.



1a - PTZ PRESETS display button

1b - SETTINGS hotkey button to allow quick access to PTZ settings.

Activating the PTZ PRESETS button (1a) reveals the existing PTZ PRESETS (2) in this PTZ.

Click/tap a Preset button to execute a PTZ camera move to that Preset.

Click/tap the [X] button to close the Presets display.

Click/tap the PTZ CONTROL button to hide the PTZ CONTROL SWITCHES and return to normal camera switching mode.

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ProHD STUDIO 4000S

LIVE SPORTS PRODUCTION AND STREAMING STUDIO

CONTENT MANAGEMENT and SETTINGS Section

The lower half of the ProHD Studio SW GUI is divided into 2 main areas used to display control elements of the many functionalities available in ProHD Studio. It provides great flexibility and speed of operation.

- A - CONTENT MANAGEMENT AREA (CMA)**
- B - SETTINGS AREA (SA)**

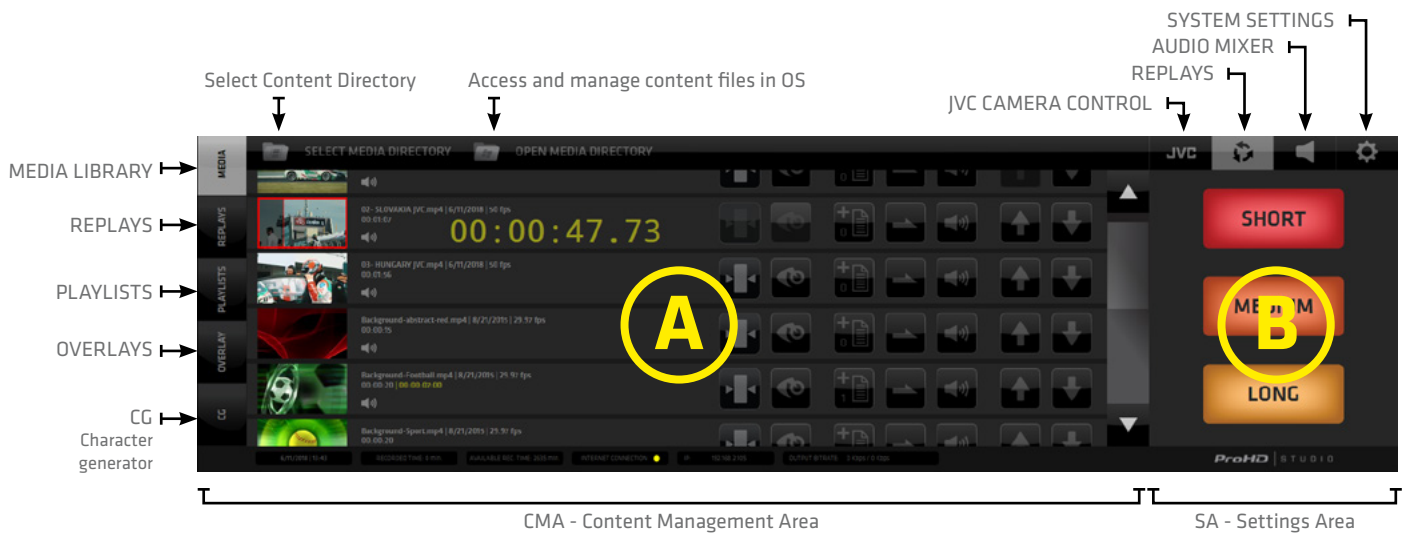
CMA (Content Management Area)

features **5 CONTENT MENU TABS on the left** that reveal the operational controls for **MEDIA LIBRARY, REPLAYS LIST, PLAYLISTS, OVERLAYS** and **CG** controls.

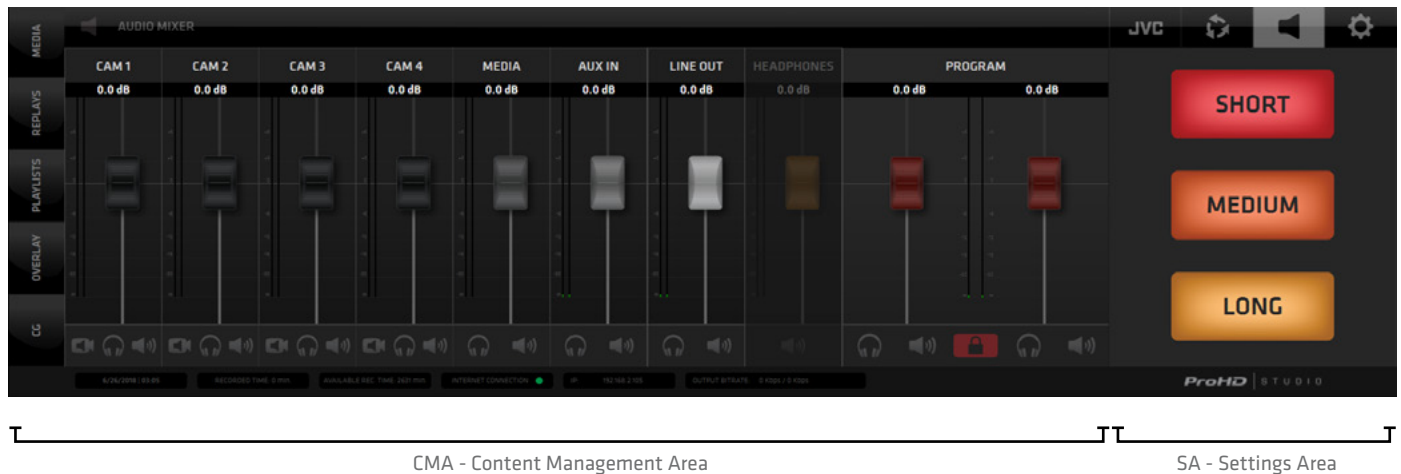
SA (Settings Area)

features **4 MENU TABS on the top** that trigger the display of: **JVC CAMERA CONTROL, REPLAY CAPTURE BUTTONS, AUDIO MIXER** and **SYSTEM SETTINGS**.

The image below shows the MEDIA LIST in CMA and REPLAY CAPTURE BUTTONS in SA.



This image shows the AUDIO MIXER controls in CMA and REPLAY Capture Buttons in SA.



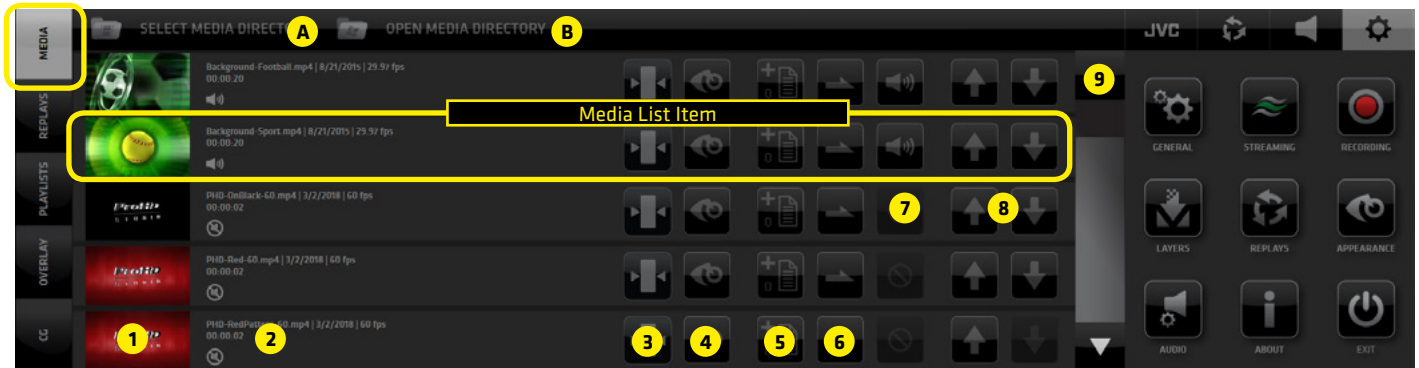
CMA (Content Management Area) - MEDIA Menu Tab

Opens the **MEDIA LIST** pane with all interface elements to operate the MEDIA playback functionality.

The **MEDIA** pane top bar contains 2 TABS:

A - SELECT MEDIA DIRECTORY - Windows OS access to select the directory which contains your video files

B - OPEN MEDIA DIRECTORY - Windows OS access to manage the selected directory content



Media List Item

represented by a line in the Media List - it contains all controls to operate and manage the media file

- 1. Media Video Monitor** - thumbnail /switch - tap/click it to switch the media file to live PGM.
Media playback is indicated by a red bar moving across the media video preview thumbnail
- when selecting content for a PIP or SPLIT area tap/click will assign the media to a PIP/SPLIT area.
- 2. Media file info** - contains information about the media file status
 - 1st row: name of media file | date created | framerate
 - 2nd row: entire media duration time | selected duration - when IN/OUT points are set for the media
 - 3rd row left: media audio indicator icon
 - 3rd row right: large countdown timer displaying the remaining time when the media is playing live

NOTE: When the media is playing the AUTOCUT function is active on the camera switches allowing you to choose to which camera the system will switch after the media is finished.
Tap any camera switch to cut out of the media playback at any time.

- 3. Media In/Out Points Editor button** - tap/click to enter the media In/Out points editor.
The functionality is described in detail on the next page.
- 4. Media Preview button** - tap/click it to preview the media file in the Media Video Monitor thumbnail
The preview progress is indicated by a blue progress bar moving across the Preview button
A media can be cut to live PGM anytime during the preview by a tap/click on the thumbnail media player
- 5. Assign to Playlist button** - used to assign the media files to a Playlists
Tap/click the button -> a dialog box appears that enables you to select a playlist (or to create a new one) and add this media file to it. (The procedure is described in detail in the PLAYLISTS section on page 20)
- 6. Loop button** - sets a media file into a loop
- tap/click it several times to cycle through the various loop options
- 7. Audio Mute switch** - mute switch for Media audio
- 8. Sorting buttons** - move Media files up / down in the list
- 9. Scroll bar** - scroll the media files list

MEDIA IN/OUT POINTS EDITOR

Enables you to trim your media file by setting up IN/OUT points for media playback. The functionality is non-destructive and your physical media files are untouched. You can reset the IN/OUT points at any time.

Enter the IN/OUT points editor by tap/click on any MEDIA IN/OUT POINTS EDITOR BUTTON in the media file list display - indicated by the yellow arrows in the image bellow.



NOTE: When a media is playing in Live PGM the MEDIA IN/OUT points editor button is disabled for that media file and In/Out points editing is NOT available - indicated by the red arrow in the image above.

IN/OUT Points Editor control elements and functionality description

The MEDIA IN/OUT POINTS EDITOR pane contains elements that enable you to easily and precisely setup the media playback In/Out points to prepare your media file for playback in your live production.

1st row - PREVIEW/EXIT/ DURATION/ RESET (left to right)

- A - Preview Media Video player
- B - media info display - Media file name and entire duration | edited duration
- C - media In/Out Points Editor EXIT BUTTON
- D - playback duration time of media - between the IN and OUT points.
if no In/Out points are set it shows the entire media duration.
- E - RESET In/Out Points BUTTON - clears the In/Out Points and resets media playback to the entire duration of the media file



2nd row - IN/OUT POINTS SET/NAVIGATE (left to right)

- F - GO TO IN Point - moves the playhead to the IN point location
- G - IN POINT Time - displays the IN point time
- H - MARK IN Point button - tap/click to set the IN point
- I - MARK OUT Point button - tap/click to set the OUT point
- J - OUT POINT Time - displays the OUT point time
- K - GO TO OUT Point - moves the playhead to the OUT point location



NOTE: For a manual / keyboard entry of In/Out points DOUBLE CLICK on any of the digit pairs in the IN and OUT POINT DISPLAYS and enter a desired numeric value.

3rd row - TIMELINE BAR

Tap/click anywhere on the Timeline Bar to move the playhead to that location. It is indicated by a red line. A numeric display below the Timeline Bar indicates the current time/location of the playhead. To set the IN or OUT point to that location tap/click the MARK IN or MARK OUT buttons above. The IN/OUT point is set and the indicator moves to that location, visually identifying the In/Out position. Use this procedure to set your in out points roughly and fine tune the positions using the 4th row controls.

4th row - VIDEO NAVIGATION CONTROLS (left to right)

- L - GO TO FRONT - moves the playhead to the beginning of the media
- M - REWIND 1 SEC. - moves the playhead 1 second towards the beginning of the media
- N - STEP BACK 1 FRAME - moves the playhead 1 frame towards the beginning of the media
- O - PLAY - plays the media in the PREVIEW Video player on top left from the current playhead location
- P - STEP FORWARD 1 FRAME - moves the playhead 1 frame towards the end of the media
- Q - FORWARD 1 SEC. - moves the playhead 1 second towards the end of the media
- R - GO TO END - moves the playhead to the end of the media

MEDIA IN/OUT POINTS SETUP PROCEDURE

1. Open the Media In/Out Editor
2. Tap/click on the timeline to position the playhead at a desired In Point location
3. Use Video Navigation control elements to fine tune the In Point location
4. Tap/Click the Mark In button
5. Repeat 2. and 3. to locate the Out Point
6. Tap/Click the Mark Out button
7. Tap /Click the GO TO IN Point button
8. Tap /Click the PLAY button to preview the media playback
9. Tap /Click the EXIT In/Out Points Editor button to go back to the Media List View.

At this point we need to explain the AUTOCUT functionality

It is a unique automated switching feature of the ProHD STUDIO production SW inherently connected with Media and Playlists playback. It allows you to select a Camera, which will be switched to Live PGM after a Media File or Playlist playback (further: "M/PL") reached its end.

Procedure to operate:

1. When a M/PL is switched to Live PGM a darkened area = **AUTOCUT SWITCH** appears in the lower part of all Live Camera Monitors.

2. Tap/click on any of them, to activate it.

After the M/PL reaches its end a camera with the active AUTOCUT switch is automatically switched to Live PGM.

By default, when a M/PL is switched to Live PGM, the AUTOCUT SWITCH of a camera is activated, that was last in live PGM, before the M/PL was played.

Tap/click above the AUTOCUT SWITCH inside the Live Camera Monitor will terminate the AUTOCUT function and normally switch that camera to Live PGM, just as usual.

A COUNTDOWN TIMER inside the AUTOCUT button indicates the remaining time of the M/PL.

If a M/PL is set to loop, the countdown timer is showing the remaining time of the M/PL currently playing.



CMA (Content Management Area) - REPLAYS Menu Tab

ProHD Studio features an extremely powerful and unique replay system specially designed to make the replays operation fast and easy.

The CMA Replays Menu reveals the REPLAYS LIST of all captured REPLAY SETS.

Each REPLAY SET in the Replays List contains all interface elements to operate the REPLAY functionality.

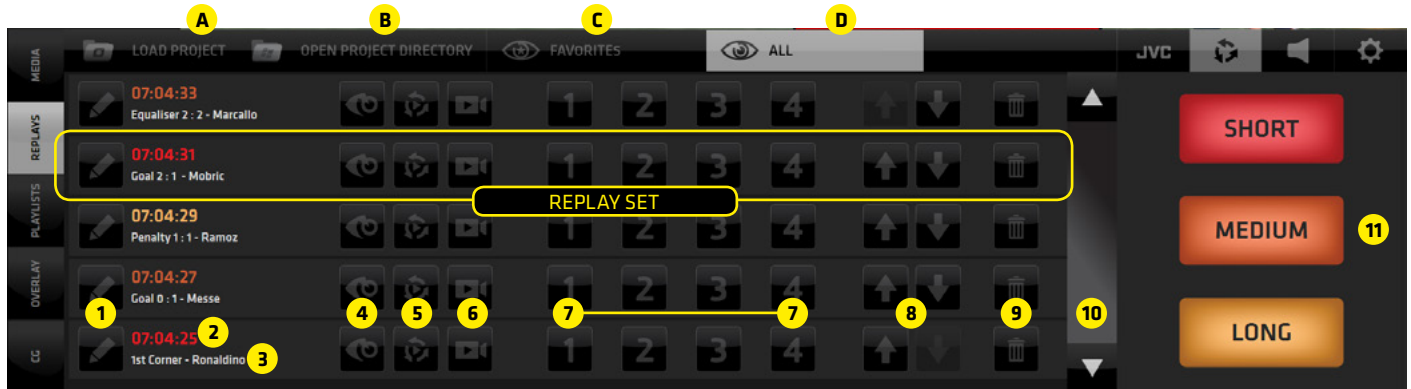
The REPLAY pane top bar contains 4 TABS:

A -LOAD PROJECT - allows the selection of and existing or creation of a new project

B - OPEN PROJECT DIRECTORY - Windows OS access to manage the project directory content

C - FAVORITES - view only the replay sets that contain a favorite marked replay

D - ALL - view all replay sets captured



Each REPLAY SET contains the following controls/buttons:

1. **Tag editor** - name a replay set / add a text note "TAG" for easy identification
2. **Time of capture** - color coded time signature of the captured Replay set
3. **Replay TAG** - display of replay set Tag
4. **Preview button** - triggers the display of video monitors to preview the captured replay set
Tap/click a preview to cut the replay of a camera to live PG OUT
While playing a preview a blue progress bar in the preview button indicates the playhead position
5. **SRP replay mode** - activation switch (Sequential Replay Playback)
6. **DRCS replay mode** - activation switch (Dynamic Replay Camera Switching)
7. **Camera switches** - tap/click any of the camera replay buttons to switch that camera replay to PG.
Replays are cut IN and OUT to PGM with a lead-in and a lead-out animation - called "WIPE"
The Wipes setup and activation is described in the Settings section under REPLAYS/Settings (page 19)
8. **Sorting buttons** - move a set of Replays up and down in the list
9. **Delete button** - deletes a set of Replays from the list and the system
10. **Scroll Bar** - scroll up and down the list
11. **Replay Capture buttons** - used to capture replays of 3 different lengths, which can be set in the Settings/Replays section. Go to page 20 for detailed description.

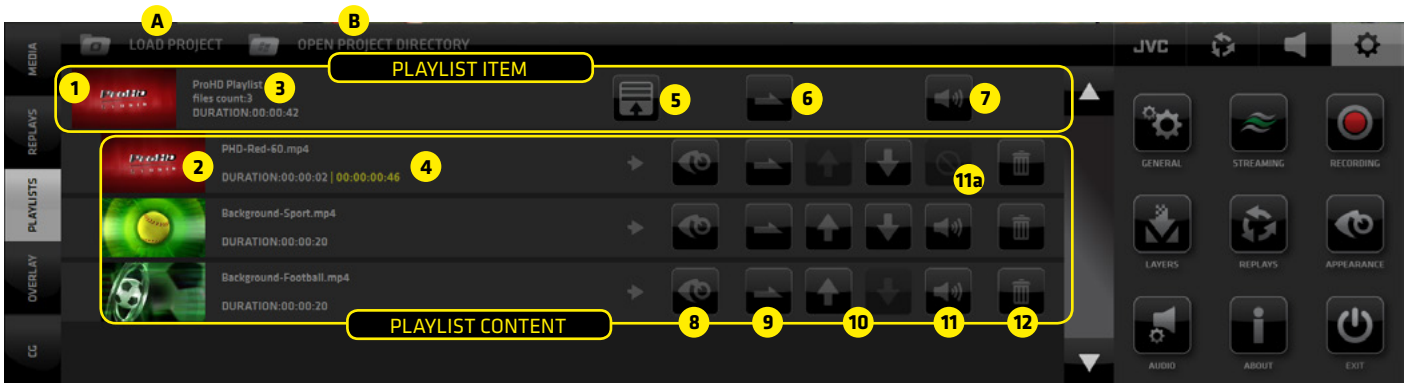
NOTE: The REPLAYS functionality is described in greater detail in the REPLAY SETTINGS section on page 42. We highly recommend to learn about the Replay Settings first, to use the REPLAY functionality to its full potential.

CMA (Content Management Area) - PLAYLISTS Menu Tab

Opens the PLAYLISTS pane with control elements to operate the PLAYLISTS functionality. Playlists are virtual collections of MEDIA files or REPLAYS assembled in a list for continuous playback. Each Playlist can be expanded with the EXPAND button to reveal its content. Each Playlist Item contains a set of control elements to control its behavior in the Playlist.

The PLAYLIST pane top bar contains 2 TABS:

- A - LOAD PROJECT - allows the selection of an existing or creation of a new project
- B - OPEN PROJECT DIRECTORY - Windows OS access to manage the project directory content



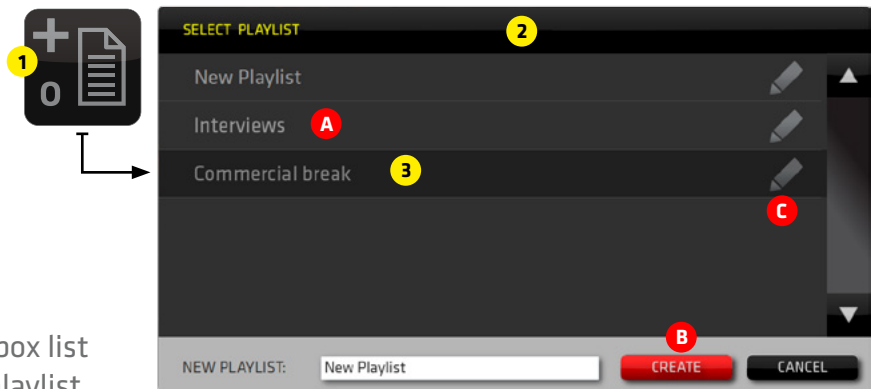
The PLAYLIST pane contains a list of PLAYLIST ITEMS with the following controls/buttons:

1. **Playlist Preview/Switch** - thumbnail video player/monitor of the entire playlist
tap/click it to cut the Playlist to PGM, when live in PGM tap/click it again to cut out of PGM
2. **Playlist Content Preview/Switch** - thumbnail video player of each item in the playlist
tap/click it to cut to PGM | when playing in PGM tap/click again to cut out of PGM
3. **Playlist info** - playlist info
4. **Playlist content info** - playlist content item info
5. **Playlist Expansion button** - tap/click to expand a playlist to view/manage its content
6. **Playlist/Loop button** - set the playback of the playlist to a number of repeats or a loop
7. **Audio On/Off button** - entire playlist audio on/off
8. **Preview button** - playlist content item preview - played in the thumbnail video player (2)
9. **Item Loop button** - set the playback of a playlist item to a number of repeats or a loop
10. **Sorting buttons** - move a Playlist item up and down in the list
11. **Audio On/Off button** - it turns a playlist item's audio on/off if audio is available
- 11a. **Audio Unavailable Icon** - indication that a playlist item does not have audio
12. **Delete** - delete a playlist item or the entire playlist if the Playlist is closed - DELETE icon is in top line

Playlist Management

To assign an item to a Playlist:

1. Go to MEDIA or REPLAYS and locate the ASSIGN TO PLAYLIST button
2. Tap/click on it reveals a dialog box that enables you to:
 - A - select a playlist
 - B - create a new playlist
 - C - edit playlist name
3. Tap/click a Playlist row in the dialog box list to assign the Media/Replay to that playlist



CMA (Content Management Area) - OVERLAYS Menu Tab

Opens the OVERLAYS pane which provides controls for the insertion of pre-rendered graphics into your live PGM. Typical usage is info graphics, bumpers, stingers, advertisements, pop ups, promos e.t.c. PNG files with transparency/alpha channel and FLV animations with transparency are supported.

The PLAYLIST pane top bar contains 2 TABS:

A - SELECT OVERLAY DIRECTORY - Windows OS access to select a directory containing Overlay files

B - OPEN OVERLAY DIRECTORY - Windows OS access to manage the selected directory content



OVERLAYS Operation Procedure:

1. Tap/click the OVERLAYS MENU to display the OVERLAYS content.
2. Tap/click the LOAD ALL button to load the first 10 files in the specified Overlays directory into the 10 provided memory slots. A PREVIEW THUMBNAIL of each graphic is displayed in slots.
3. Each slot can also be loaded individually using the drop-down selector button on top of each slot.
4. Tap/click a Slot Preview to select a graphic to be inserted into live PGM. Outlines in RED when selected.
5. Tap/click the OVERLAYS LAYER to insert the selected Overlay into PGM.

NOTE: Alternatively, if the OVERLAYS LAYER SWITCH (5) in the Production Layout Section is active, you can switch the Overlay graphics directly by tapping the thumbnails (4) in the Overlays pane.

When you are using the optional ProHD Studio Keyboard the keyboard shortcuts for all Overlay slots are marked in BLUE. (Q-T keys for the top 5 slots, Y-P for the bottom 5 slots on a PC keyboard)

CMA (Content Management Area) - CG Menu Tab

Contains a list of CG OBJECTS with all control elements to operate the CG functionality.
The CHARACTER GENERATOR - CG enables you to insert editable real time graphics into your live PGM.

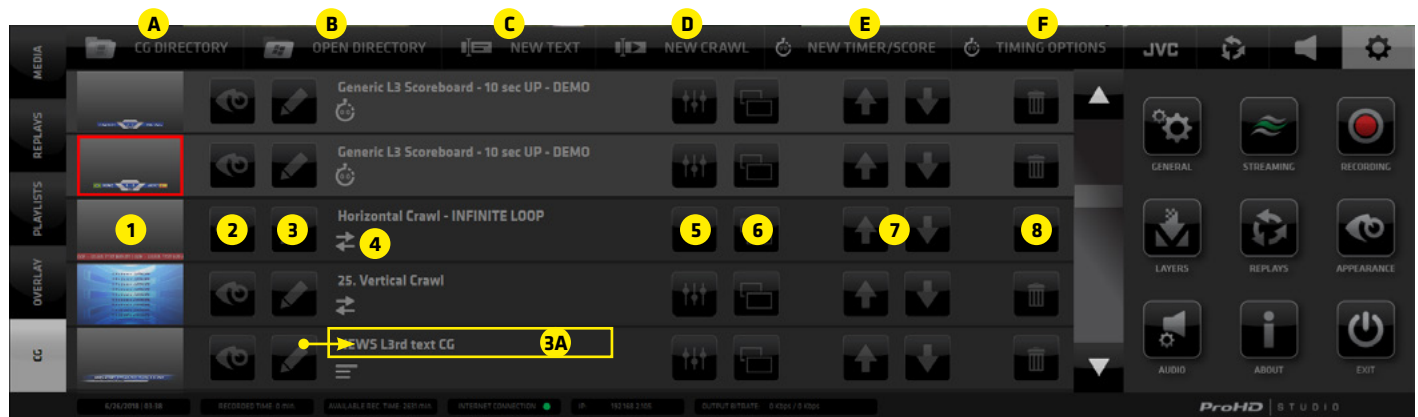
There are 3 types of CG objects that can be created within the ProHD Studio CG system:

1. **Text CG** - 5 layers of editable texts positioned over a graphic background file with transparency. Each layer can be individually positioned and formatted to create a complex CG composite.
2. **Crawl CG** - animated text layer positioned over a graphic background file with transparency. It can be formatted and looped to crawl across the screen in various directions and speeds.
3. **Dynamic Timer/Score CG** - a combination of editable and dynamic text layers, controlled by a live controller. Score, timer and game period layers and a graphic background layer, all individually formatted and positioned to create sophisticated live sports graphics CG Objects.

CG LIST CONTENT - The CG LIST is accessed via the CG MENU in the left side menu of the CMA.

The CG pane top bar contains 6 TABS:

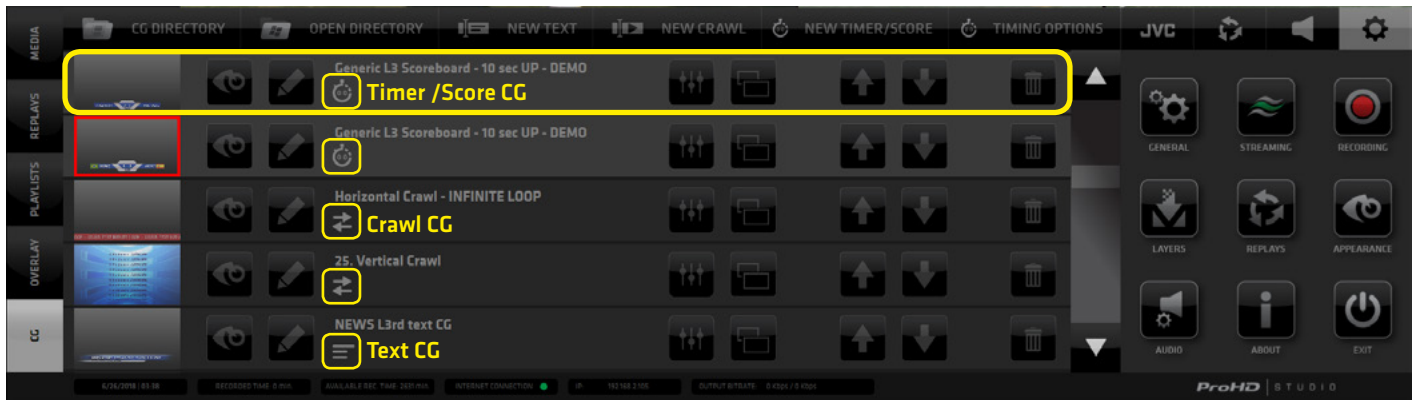
- A - CG DIRECTORY - select a directory containing the CG objects data to load into the CG List
- B - OPEN CG DIRECTORY - open selected CG directory in Windows OS to manage its content
- C - NEW TEXT - creates a new TEXT CG object in the CG List
- D - NEW CRAWL - creates a new CRAWL CG object in the CG List
- E - NEW TIMER SCORE - creates a new TIMER/SCORE CG object in the CG List
- F - TIMING OPTIONS - access to Timing Options settings for the Timer/Score CG objects



Each CG object in the CG List contains the following control elements for that particular CG object:

1. THUMBNAIL - a small preview of the CG that also functions as a SWITCH to select the CG item
2. PREVIEW - play button to preview the CG animation inside the THUMBNAIL
3. EDIT CG NAME - button opens the CG NAME FIELD (3a) to allow typing/editing of its name
4. CG TYPE ICON - indicates the Type of CG Object in the CG LIST
Timer/Score CG Objects are visually differentiated by a lighter background color
5. SETTINGS - access to the Settings Editor to setup the CG Object's parameters
6. DUPLICATE - creates a duplicate of this CG Object in the list so variations can be made easily
7. SORTING - arrow buttons to move CG Objects in the CG List up/down to organize the CG List
8. DELETE - delete a CG Object from the CG List

NOTE: The CG Object TYPE is indicated by the CG Type ICON under the CG Name. TIMER SCORE CGs are highlighted in the CG LIST with a brighter gray background color for quick visual differentiation.



CG Operation Procedure:

- A. Tap/click the CG TAB in the left side menu bar of the CMA to display the CG list pane.
- B. Specify where your CG files are located using the Directory selector in the top bar of the CMA.
 - B1 - Use the CG DIRECTORY tab to SELECT the directory where your CG items are located
 - B2 - Use the OPEN DIRECTORY tab to OPEN and manage its content
- C. Tap/click the CG thumbnail in the list to select it - becomes outlined in red when selected
- D. Switch the CG Layer into live PGM using the CG switch in the LAYERS section.



CG OBJECT CONSTRUCTION

All CG objects are constructed from separately controlled layers.

Depending on the type the CG Object will have different layers that need to be setup.

All CG Objects contain a GRAPHIC BACKGROUND layer plus several other - either editable or dynamic text layers that are positioned on top of the background layer.

All layers are combined to create a composite CG Objects that can be used in your productions.

CG OBJECT PARAMETERS EDITING



Tap the CG PARAMETERS EDITOR button of any CG Object in the CG list that you wish to edit.

It provides access to all controls to setup the CG Object for use in your productions.

The CG Editor GUI is divided into TABS containing all controls to setup the parameters of all layers used in the construction of the CG Object.

- **BACKGROUND Layer**

Contains the controls to setup the background graphic for all the other TEXT layers placed above.

Supported file formats are: - .FLV for animated backgrounds

- .PNG for static graphics with transparency

- **TEXT and CRAWL Layer**

Allows to type/paste/edit the text content and control its parameters.

- **DYNAMIC TEXT Layer**

Used in the Timer/Score CG Objects only. Its content is controlled by a LIVE GAME controller that allows to increase the score, the game period or it is a running timer measuring the time of the game.

BACKGROUND Layer parameters setup

- CHOSE BACKGROUND FILE - drop-down selector menu to select the graphics file to use for the layer

- CLEAR - clears the selection of a background file

- X-POS, Y-POS - position the graphics file using the coordinates controls

- LOOP button to turn the loop on/off for the selected graphic/animation file

- SCALE, DURATION, CROSSFADE - set parameters using the provided controls

- Tap/click the PREVIEW monitor to preview the modified CG Object

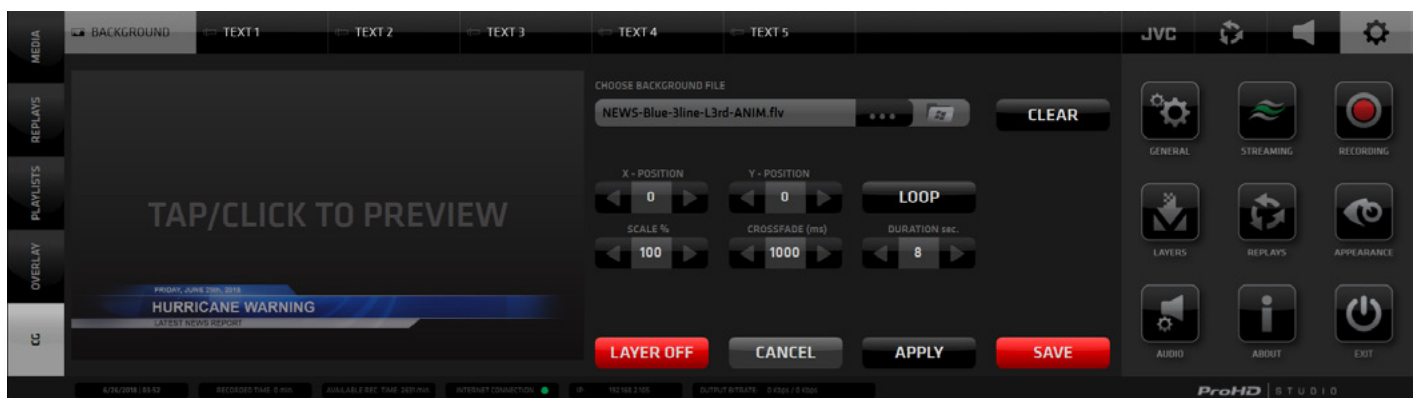
Buttons at bottom:

- LAYER OFF - switches the layer off so it is not visible in the CG Object composite

- CANCEL - aborts the editing and exits the editor -> go back to the list of CG items

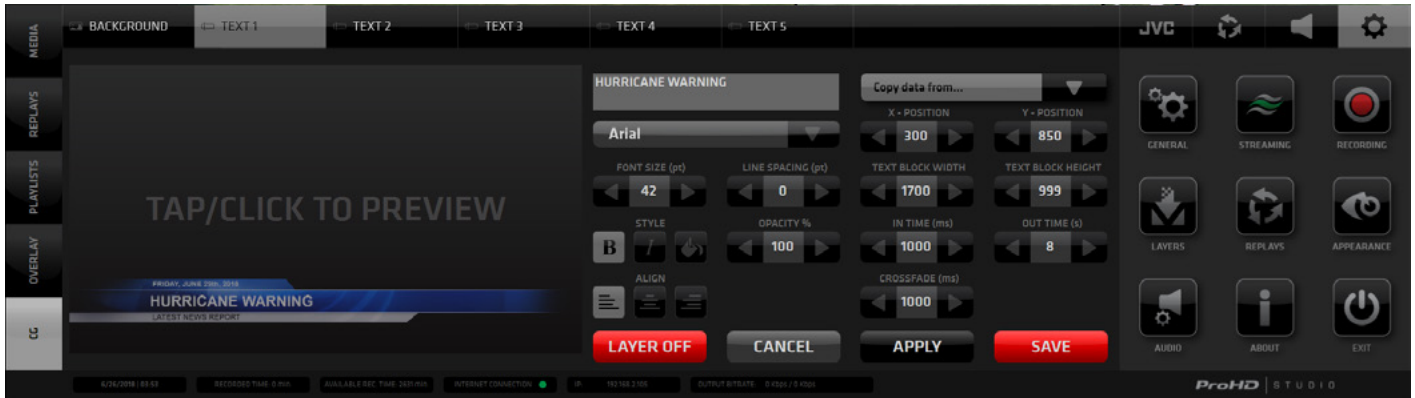
- APPLY - applies the changes you made to the CG Object

- SAVE - saves all changes and exits the editor -> go back to the list of CG items.



TEXT Layer parameters setup

- Edit/Type the text content in the text field
- Format the text using the provided controls - Font, Size, Line Spacing, Style, Opacity, Alignment in a usual text editor way.
- Setup the text position using the X-POS, Y-POS, Text Block Width, Text Block Height properties
- Setup the text animation using the In-Time, Out-Time, Crossfade properties
- The LAYER OFF, CANCEL, APPLY and SAVE buttons function the same way as described earlier.



NOTE: X/Y-POS parameters define the coordinates of the TOP LEFT corner of the text block within the video frame. The TEXT BLOCK WIDTH and HEIGHT define the distance from the X/Y = Left/Top edges of the text block. That determines the width and height of the whole text block calculated from the X/Y coordinate. (E.g.: If X=0 and TEXT BLOCK WIDTH = 1920px it means the text block is set to the full width of the frame)

CRAWL Text Layer parameters setup

The procedure is identical to editing a regular text layer with a few additional settings:

- SPEED - set the speed of text movement
- DIRECTIONAL BUTTONS - set the direction of the text movement
- LOOP - turn a loop of text movement on/off
- EDIT TEXT - enter a separate EDIT CRAWL TEXT pane to allow longer text edits

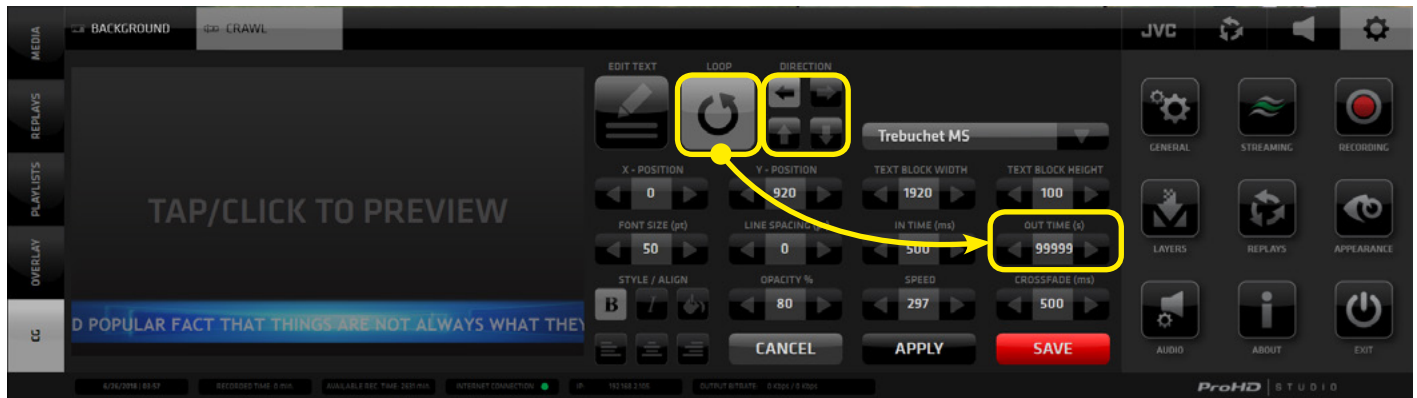
All the other controls function the same way as already described.



CRAWL DIRECTION and LOOP parameters setup

- Use the LOOP button to loop the crawl text.
- Use the CRAWL DIRECTION buttons to specify the crawl direction.

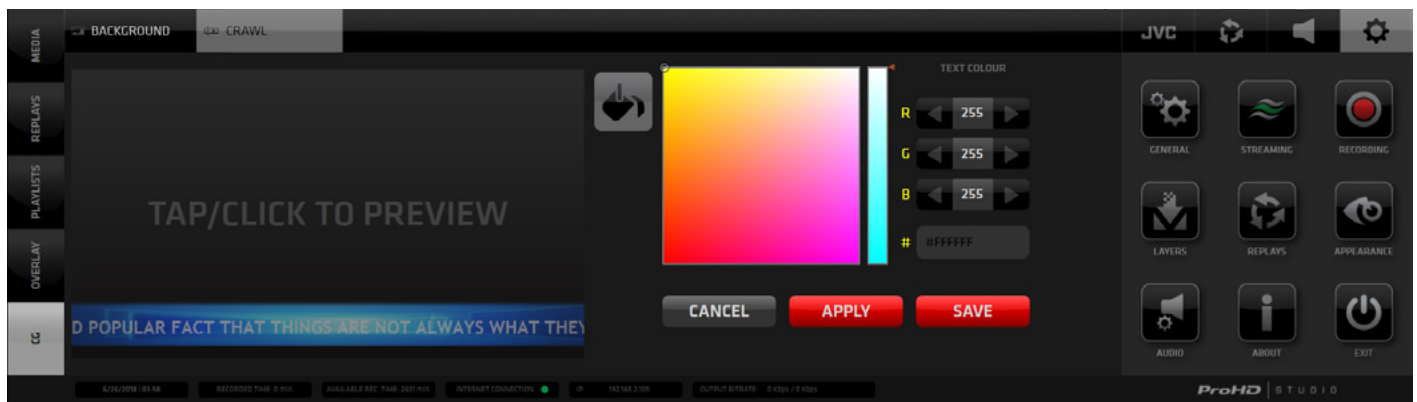
NOTE: The loop is only active for as long as set by the OUT TIME parameter which has the priority. The OUT TIME setting will terminate the crawl regardless of the loop setting. To loop the crawl text indefinitely you need to set the OUT TIME to 999.



TEXT LAYER COLOR parameters setup



- Push the BUCKET Icon in the STYLE group of icons. The COLOR EDITOR pane opens
- Tap/click inside the color selector or enter the new color RGB values numerically
- Push the APPLY button to view the new text color in the PREVIEW monitor
- Once you decide on the new color push the SAVE button to save the setting
- The color editor closes and the CG editor is displayed with text in new color.
- Once you are done with all edits push SAVE to re-render the CG and exit to the CG list view



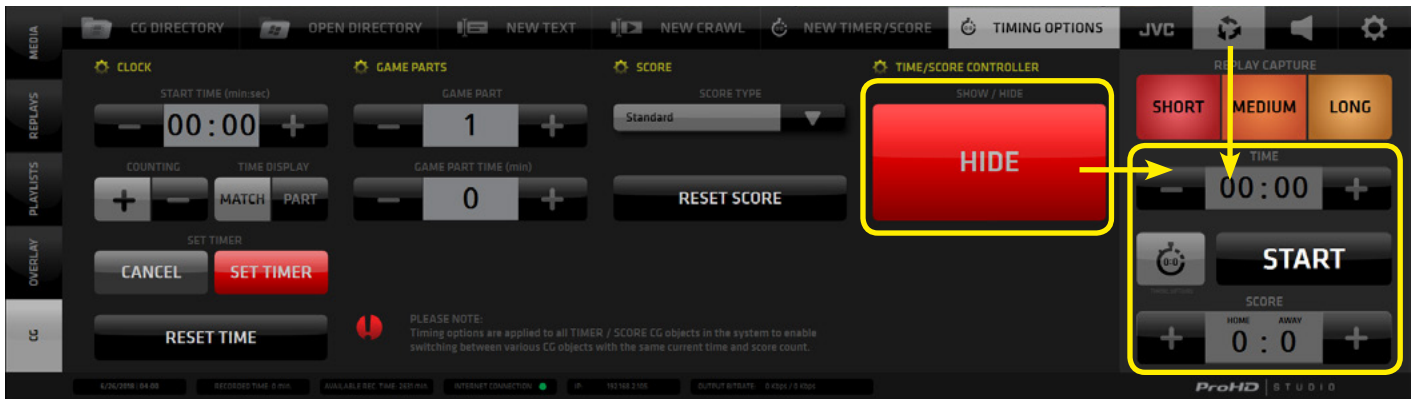
NOTE: ProHD Studio provides several examples of ready-made CG items to help you get started working with the CG system quickly. We recommend to duplicate any CG Object before you start editing it's parameters so the original configuration is preserved for reference.

TIME/SCORE CG Objects

This type of CG Object allows you to create live sports graphics dynamically controlled via the TIME/SCORE CONTROLLER. It is revealed via the large [SHOW/HIDE] button in the TIMING OPTIONS Tab found in the CG Tab of the CMA Left Side Menu.

The controller is displayed within the SA (Settings Area) Replay Tab to allow simultaneous operation of other functionalities of the SW.

The controller offers SCORE and a GAME/TIME controls with various options. Detailed description is provided in the TIMING OPTIONS TAB section on the next page.



TIMER/SCORE CG Object - Layers Setup

All TIMER/SCORE CG Layers are setup in exactly the same way as the layers in a regular TEXT CG with the difference that there are no input fields for the dynamically or automatically triggered text fields. The default values for those are displayed when setting up to allow for positioning and formatting. The actual values will be controlled during the live game using the TIME/SCORE CONTROLLER described above.

TIMER/SCORE CG Layers:

BACKGROUND - a graphics file used as background for all the text layers placed above it

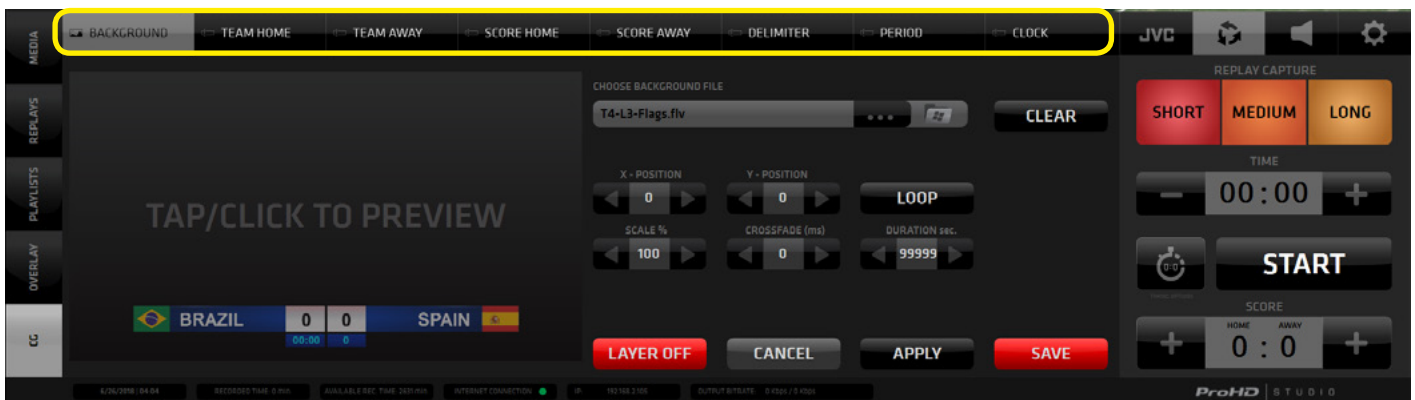
TEAM HOME and TEAM AWAY - regular text layers to be filled in buy user

SCORE HOME and SCORE AWAY - dynamic layers to indicate the current score

DELIMITER - regular text layer to be used as a separator between the score indicator digits

PERIOD - automatic layer indicating the current game period

CLOCK - automatic layer - running timer display



Combining these elements allows the creation of effective live sports graphics. Examples are provided with the installation of ProHD Studio free to be used in your productions. Your own custom graphics can be used by selecting them in the background layer setup.

TIMING OPTIONS Tab

This is where the dynamic layers data output logic is setup. The output of the TIMER/SCORE CG Object may vary significantly depending on how the various parameters in this pane are set. Please read this section carefully and familiarize yourself with all the settings and their effects on the display of the system to avoid unexpected or confusing results. Once you understand it thoroughly it will serve you well.

CLOCK Parameters Setup

- 1. START TIME** - use the +/- buttons to set the starting time for the time counter or type a time value in the center field manually. This will be the time value the timer will START at match beginning.

NOTE: *Inserting a value here will not yet affect the actual state of the counter in the controller and the CG display until you press the SET TIMER button described further down.*

- 2. COUNTING** - choose a time counting method. [+] for counting UP ... [-] for counting DOWN

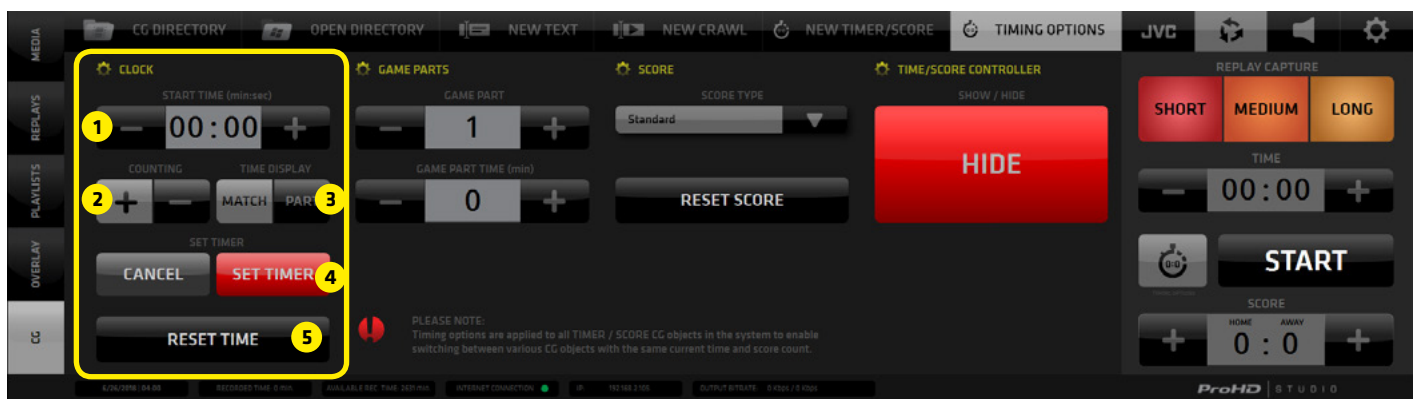
NOTE 1: *Be aware that if the COUNTING Method is set to [-] DOWN, the Start Time field needs to be set to a value allowing a Time Countdown to actually take place!*

- 3. TIME DISPLAY** - choose whether the time counter is to display time per MATCH or per GAME PART

NOTE: *Be aware that this parameter setting will have dramatic effects on the actual time displayed. The displayed time will be affected by the Counting Method and the Start Time. If the Counting method is set to [-] Countdown, and Time Display is set to PER MATCH the Start Time field needs to be set to a value that covers the entire match. If the Time Display is set to PER GAME PART hence the Start Time field needs to be set to the duration of a Game Part. The clock has to be stopped manually after each game part.*

- 4. SET TIMER** - SET TIMER red button will actually insert the time value in the START TIMER field into the LIVE TIME COUNTER in the CONTROLLER and in the CG Output.
- CANCEL will undo changes in the Start Time Field to a previously set value which was confirmed by the SET TIMER button.

- 5. RESET TIME** - will instantly reset the TIME value in the Controller as well as in the CG Output to the value specified in the Start Time field of the Clock setting. It will also STOP the clock and timer display.



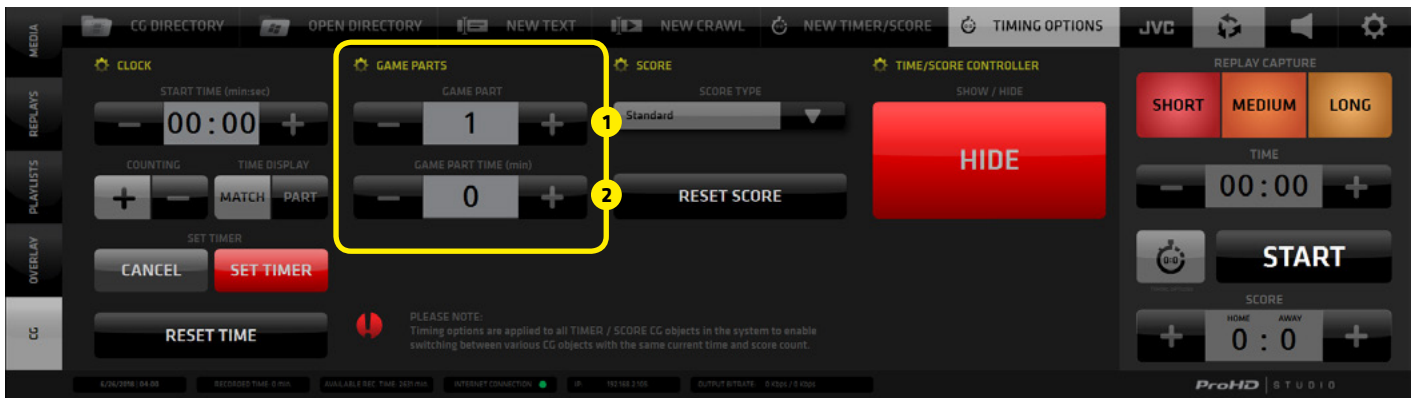
GAME PARTS Parameters Setup

1. GAME PART - use the +/- buttons to set the Number of Game Parts in the game.

NOTE: *This value needs to be set if you wish to count time by Game Parts.*

2. GAME PART TIME - use the +/- buttons to set the Duration of an individual Game Part alternatively you can type in the numeric value directly

NOTE: *This value needs to be set if the Time Display Clock parameter is set to Game PART. The clock has to be stopped after the game part. When it is started again at the beginning of a new Game Part it will start counting the set Game Part Time again regardless of when it was stopped - thus allowing to count the time of a new Game Part from its start.*

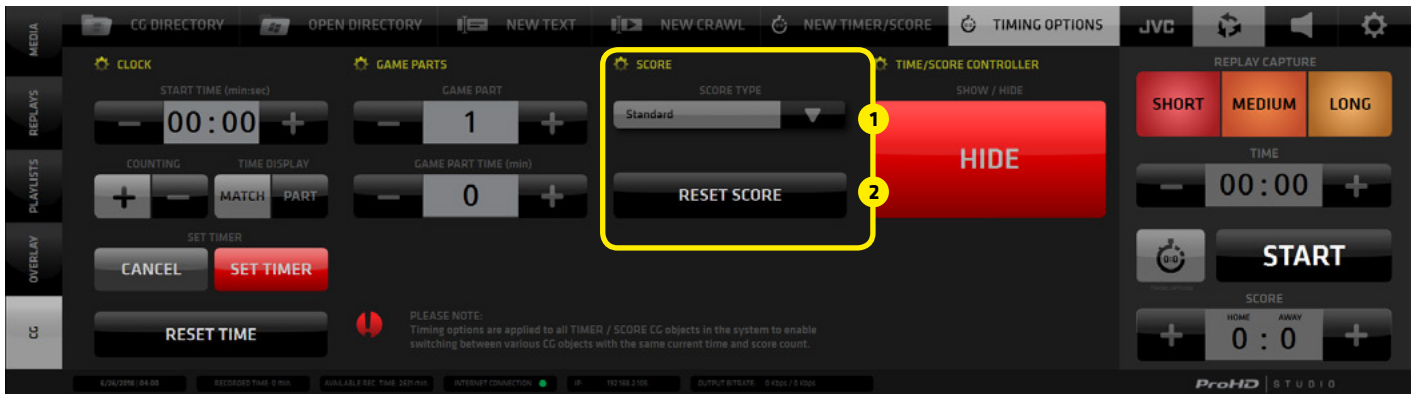


SCORE Parameters Setup

1. SCORE TYPE - drop down menu selector allowing the choice of a scoring method.

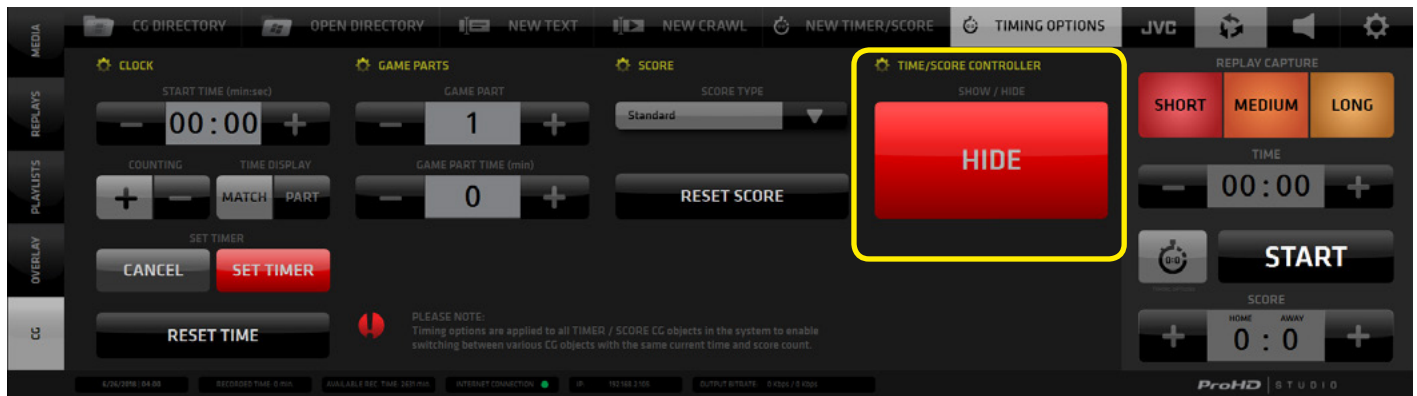
At the moment a general scoring method is available. Scoring methods for other sports with a different scoring scheme (e.g. Tennis, Baseball) will be available in a future version of the ProHD Studio SW.

2. RESET SCORE - resets the score to the default value of "0 : 0"



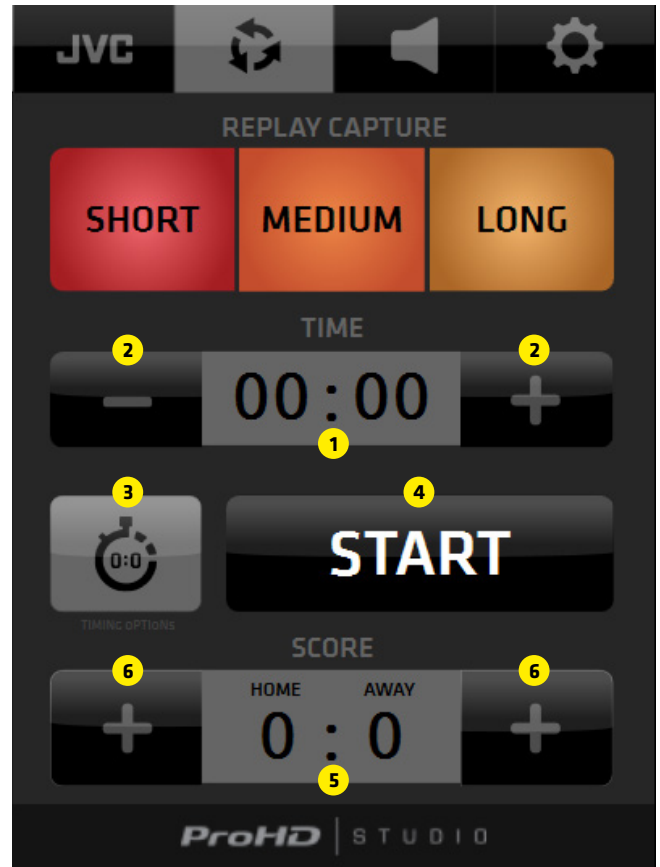
NOTE: Timing options parameters are applied to all TIMER/SCORE CG Objects in the entire CG system to enable switching of various CG Objects with identical values = synchronized data.

Push the big SHOW/HIDE button to reveal / hide the Live TIME /SCORE CONTROLLER in the SA to allow for live game control / manual control of the data in the dynamic layers of Timer/Score CG Objects.



TIMER/SCORE CONTROLLER functionality

1. TIME Display
indicates the current time based on the Start Time settings in the Timing Options Pane.
2. TIME ADJUST +/- buttons
to both sides of the TIME display allow for manual time correction
3. TIMING OPTIONS HOTKEY
SHOWS/HIDES the Timing Options pane
4. TIME START/STOP button
Starts or Stops the clock
5. SCORE INDICATORS
6. SCORE ADJUST buttons
Increase the score by pressing the [+] on either side. Press and hold the button for over 1 second turns it to a negative icon [-] allowing to decrease a score. Press and hold again to revert to [+]



NOTE: Controller entries are applied to all TIMER/SCORE CG Objects in the entire CG system to enable switching of various CG Objects with synchronized data.

SA - SETTINGS AREA MENU

Contains 4 Menu Tabs revealing user interface elements that provide access to:

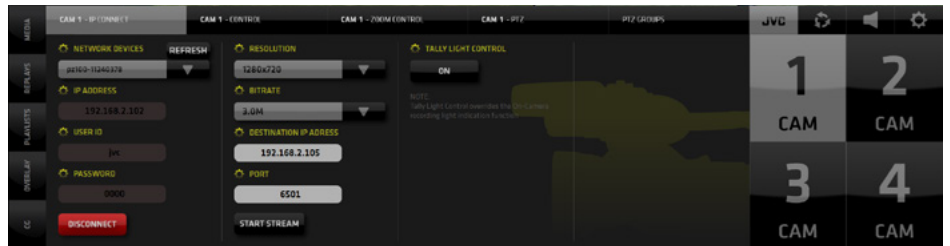
1. JVC CAMERA CONTROLS
2. REPLAYS
3. AUDIO MIXER
4. SYSTEM SETTINGS



The SA Menu Tabs change the content of both the SA and CMA as follows:

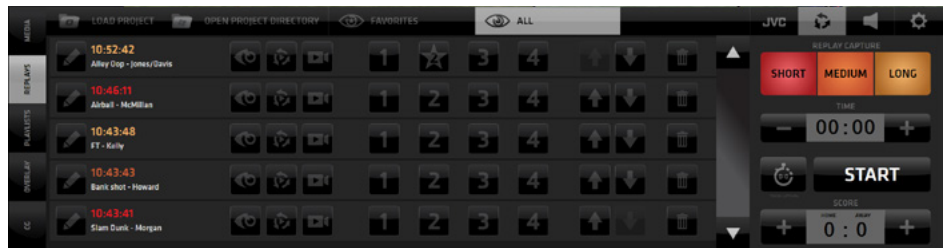
1. JVC menu

SA - Camera selection buttons
CMA - JVC camera controls



2. Replay menu

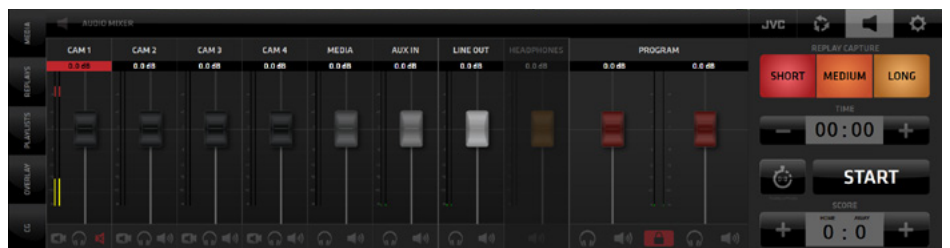
SA - Replays Capture buttons
Time/Score Controller
CMA - CG List



3. AUDIO menu

SA - Replay Capture buttons
Time/Score controller *
CMA - Audio Mixer

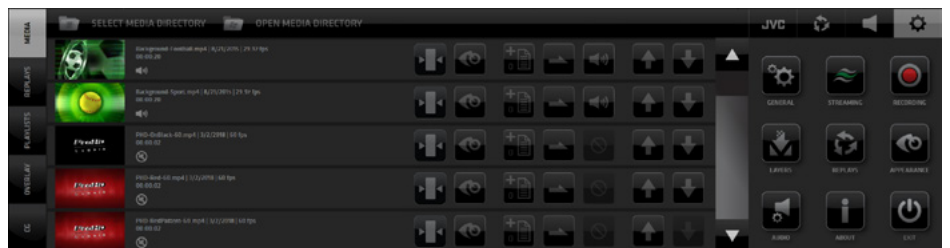
*) Display of Time/Score controller in the SA is turned On/Off in the TIMING OPTIONS Tab of the CG menu



4. System Settings menu

SA - System Settings buttons
CMA - Replays**

***) Display of Replays controls in CMA is operational priority
Switching the CMA Left Side Menu has no effect on the System Settings buttons display in the SA.



SA (Settings Area) - JVC CAMERA CONTROL Menu Tab

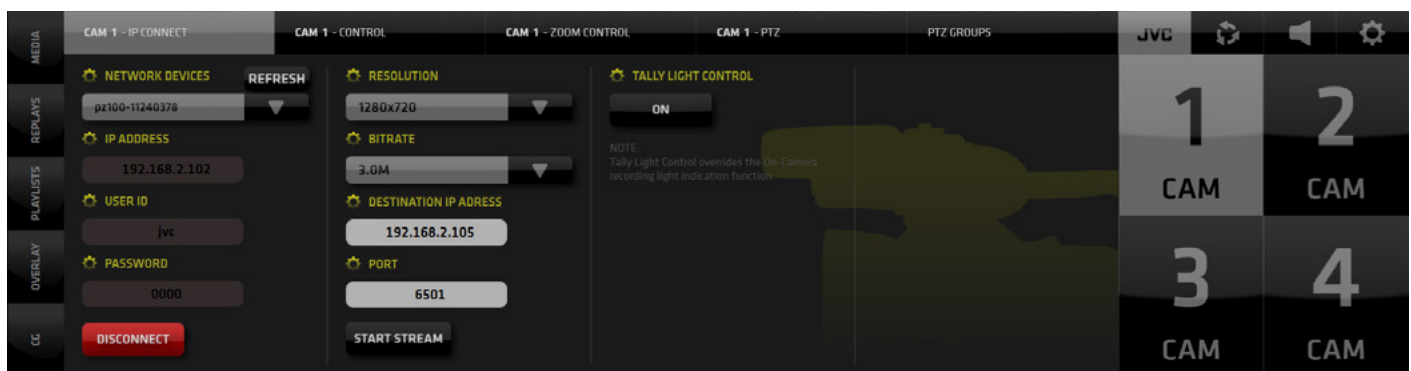
It provides all the interface elements to remotely control JVC camcorders or PTZ cameras - over IP. It is divided into 4 TABS with various logically related controls.

1. IP CONNECT - contains all parameters to establish a connection to a camera
2. CONTROL - contains all camera settings available to be controlled over IP
3. ZOOM & FOCUS - contains zoom focus, presets, recording start/stop controls
4. PTZ - contains all controls to operate individual JVC PTZ cameras and to create camera presets
5. PTZ GROUPS - contains tool for creation of PTZ camera groups and group presets

IP CONNECT Tab

- Setup of the camera connection
- Setup of the camera IP signal
- Tally light control port

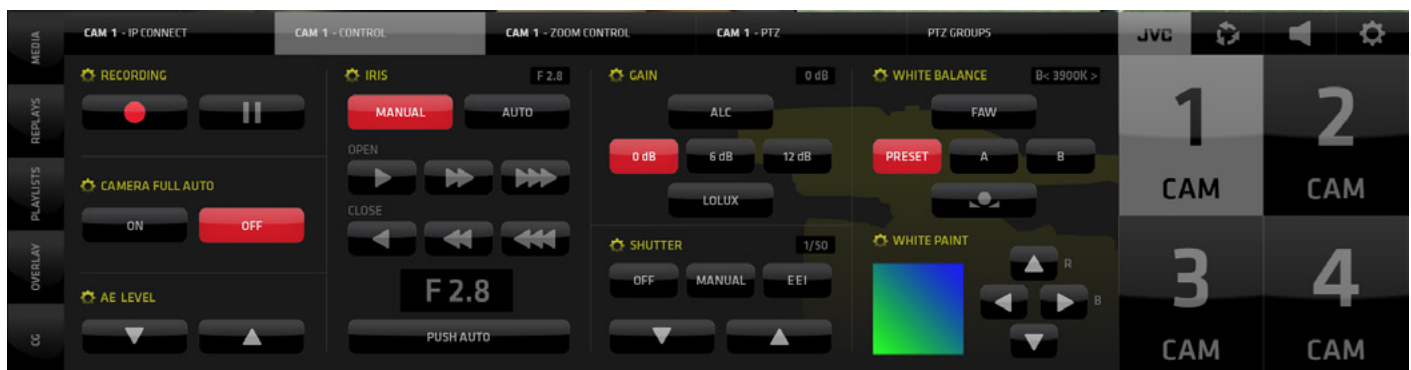
NOTE: when a camera is connected, the Streamstar SW takes over the function of the on camera recording light and uses it as TALLY LIGHT



CONTROL Tab

Provides access to all settings of the JVC camera that can be controlled over IP:

The available controls will differ depending on what type of camera is connected to the ProHD Studio.



NOTE: For details on the functionality and settings of JVC cameras please refer to your camera users manual.

ZOOM AND FOCUS Tab

Provides access to the ZOOM and FOCUS related JVC camera controls.
If a PTZ camera is connected a PAN/TILT control grid will displayed as well.
(see the 2nd image on this page)

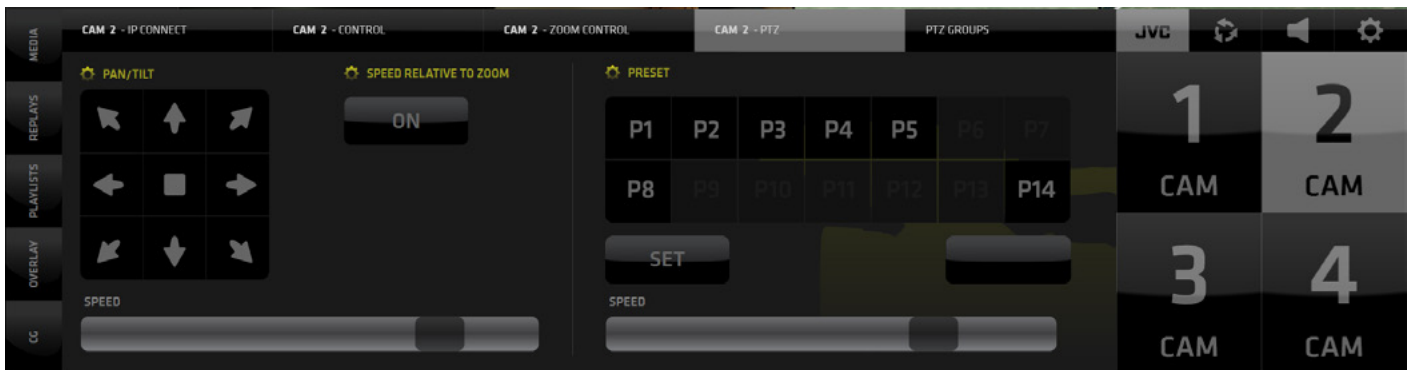


NOTE: For details on the functionality and settings of JVC cameras please refer to your camera users manual.

PTZ PRESETS Tab

If a JVC PTZ camera is connected to the ProHD Studio this tab will be available and provides access to its PRESET controls:

- Pan/Tilt with movement speed adjustment slider
- Speed Relative to Zoom On/Off
- Presets - 14 memory slots to store the PTZ camera position



PTZ controls operating procedures:

- Pan/Tilt - press and hold the directional arrow buttons to move the camera to a desired position
- Speed Relative to Zoom - The wider the zoom the faster the speed of movement and vice-versa
- Presets - to create and store a camera preset tap/click the SET button followed by the PRESET (P1 - P14) button - the current settings for this camera is stored as a preset
 - to activate a stored camera preset just push a Preset button (P1 - P14)
 - to clear a preset push CLEAR button followed by the Preset button (P1 - P14)

PTZ GROUPS PRESETS Tab

Provide access to the JVC - PTZ camera groups controls:

- Combine individual camera presets into 14 groups of GROUP PRESETS
- Execute a Group Presets - instantly move multiple cameras to positions assigned in the group preset



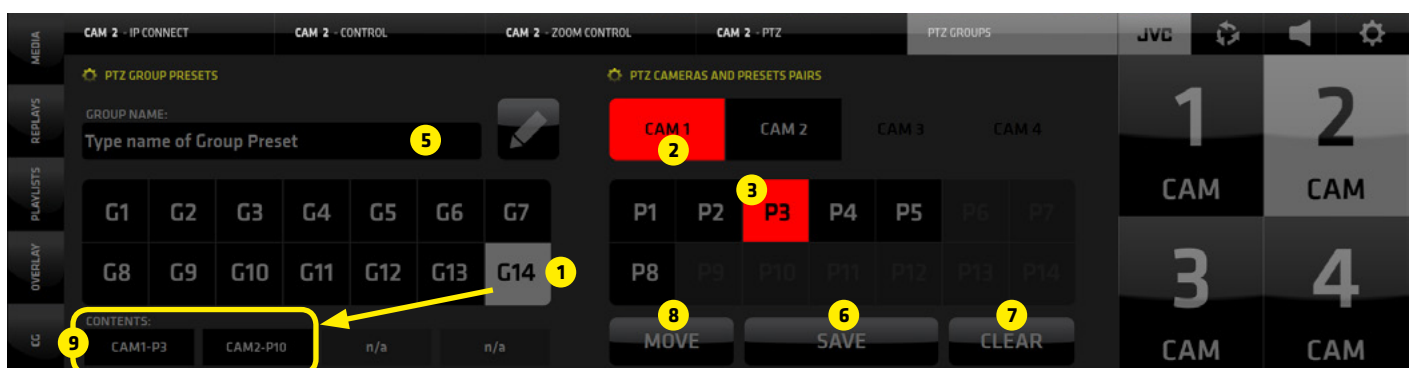
Creating a PTZ Group:

1. Select a slot (button) for a new group preset in the G1 - G14 grid of buttons on the left
2. Select a camera in the upper row of buttons of the PTZ CAMERAS AND PRESETS PAIRS on the right
3. Choose a preset of the selected camera P1-P14 that will be used when the Group preset is activated
Note: Steps 2 & 3 create a so called "Camera + Preset Pair"
4. Repeat steps 2 & 3 to create more Camera + Preset Pairs
- add as many as you wish - up to 4 are possible = all cameras will move when preset is activated
5. To name the preset - Click/tap the PENCIL button above the G1-G7 buttons, type a name in the field tap/click Pencil when done
6. Tap/click SAVE to save the group preset
7. To CLEAR the contents of a Group Preset tap/click CLEAR and tap whatever you wish to clear it can be a Camera+Preset Pair in the group or the entire group.
When done deactivate the clear function by tap/click on the CLEAR button again to turn it off
8. Tap/click MOVE to execute the Group Preset.

NOTE: Executing a Group Preset will move all cameras in the group to their chosen presets at once. However, if a camera is in LIVE PGM it will not move in order not to spoil the live output. Only after it is switched off Live PGM it will move to complete the Group Preset.

In the example bellow a GROUPS PRESET - G14 was created.

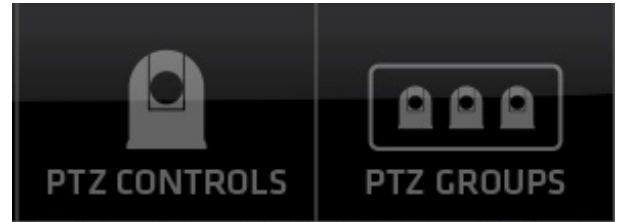
It contains 2 Camera + Preset Pairs: CAM1-P3 and CAM2-P10. The content of the selected group preset is indicated in the CONTENTS fields bellow the Group Preset buttons (*marked 9*). The Camera + Preset Pairs are clearly listed.



TOP MENU - Camera Presets and Group Presets - GUI explained

Now that we understand how the Camera presets and Camera groups work we can return to the two PTZ functionality buttons in the TOP MENU.

As mentioned earlier these 2 buttons will become active automatically if PTZ CAMERAS are connected to the system.



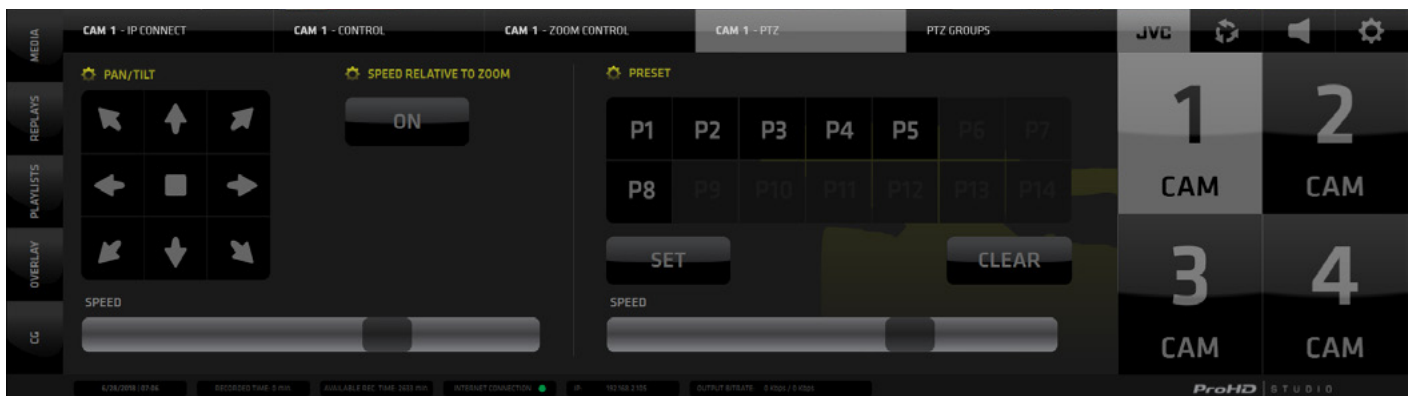
PTZ CONTROLS

1. Tap/click on the PTZ CONTROLS button (1) to reveal the PTZ CAMERA CONTROLS for each PTZ camera detected by the Streamstar SW
2. Two buttons with icons become visible in the live monitors of the PTZ cameras, 2A - Camera PRESETS 2B - Camera settings HOT KEY
3. Tap/click on the Preset button (2A) reveals a PRESETS GRID of all available presets for this PTZ camera
 - a - These presets are created in the PTZ CAMERA PRESETS pane in the JVC PTZ Tab.
 - b - tap/click any of the PRESET (P1-P14) buttons and the camera moves to that position immediately
 - c - tap/click the [X] button in lower right to close/hide the PRESETS GRID.



NOTE: While the Camera Presets Grid is revealed in the camera monitor, switching of that camera is temporarily unavailable. Click the [X] button to close the grid to go back to switching capability.

3. Tap/click on the CAMERA SETTINGS HOT KEY button (2B) opens the PTZ camera settings in the CMA so quick changes to PTZ Camera presets can be made when needed.



PTZ GROUPS

The last button in the top menu reveals PTZ GROUP controls

1. Tap/click on the PTZ GROUP button reveals the PTZ GROUP CONTROLS

2. In the PGM monitor area, 2 buttons become visible

2C - PTZ Camera GROUP PRESETS

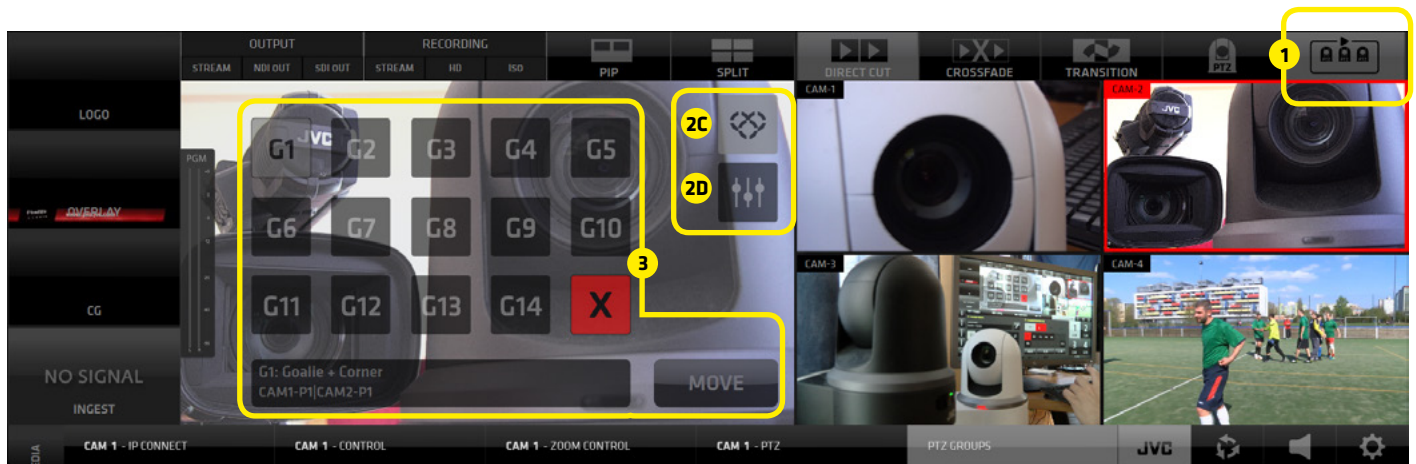
2D - PTZ Camera GROUP PRESETS HOT KEY

3. Tap/click on the Preset button (2C) reveals a GROUP PRESETS GRID of all available presets (up to 14)

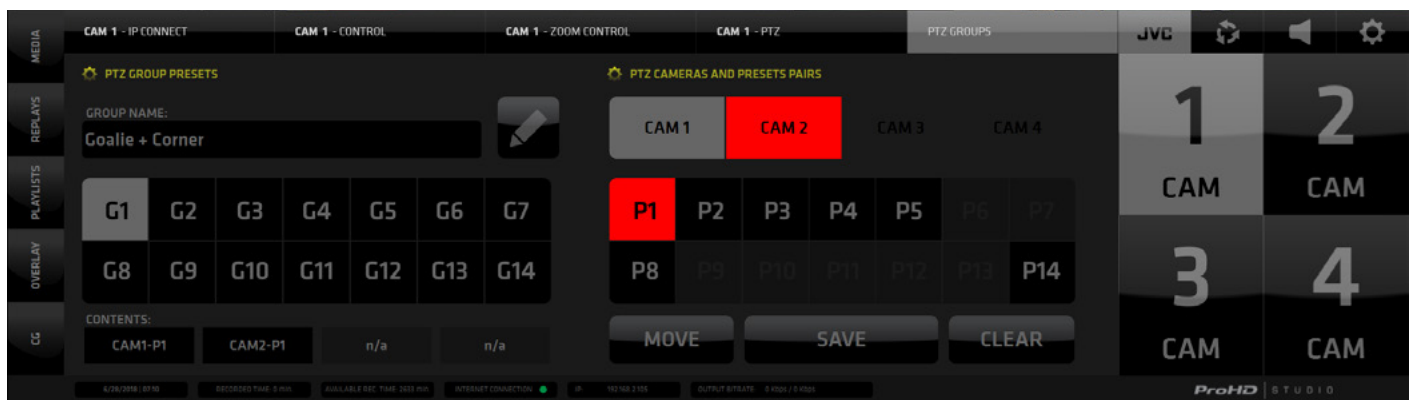
a - These are the presets created in the PTZ CAMERA GROUP PRESETS pane in the JVC PTZ CAMERA GROUPS PRESETS Tab.

b - tap/click any of the PRESET (G1 - G14) buttons and all cameras within that group move to their preset positions immediately

c - tap/click the [X] button in lower right to close/hide the PTZ GROUP PRESETS GRID



3. Tap/click on the CAMERA SETTINGS HOT KEY button (2D) opens the PTZ CAMERA GROUPS settings in the CMA so quick changes to PTZ Camera Group Presets can be made when needed.

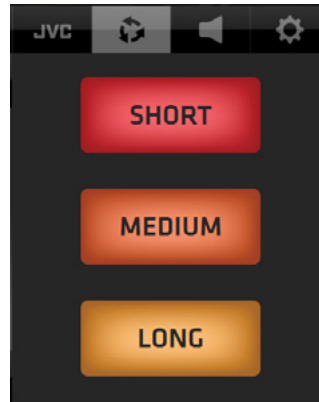


NOTE: If you no longer wish to work with individual camera presets or camera group presets switch of the PTZ presets and PTZ group presets buttons to have a clean view of the live camera monitors.

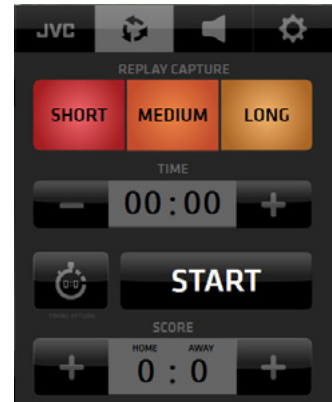
SA (settings area) - REPLAY Menu Tab

Activates the display of REPLAY CAPTURE buttons in SA and the REPLAYS List in the CMA.

If the TIME/SCORE CONTROLLER is activated in the CG pane the SA shows a combined display to allow time/score control as well as replay capture.



SA - Replay Capture buttons



SA - Replay Capture buttons and Time/Score Controller

REPLAY CAPTURE BUTTONS

1. SHORT

triggers the capture of 3, 4 or 5 sec. replays in all cameras (the length can be set in REPLAY SETTINGS - default is 3 sec.)

2. MEDIUM

triggers the capture of 6, 8 or 10 sec. replays in all cameras (the length can be set in REPLAY SETTINGS - default is 6 sec.)

3. LONG

triggers the capture of 10, 15 or 20 sec. replays in all cameras (the length can be set in REPLAY SETTINGS - default is 10 sec.)

NOTE: The functionality of the TIME/SCORE Controller is described in detail on page 31.

Replay Capture and Playback procedure

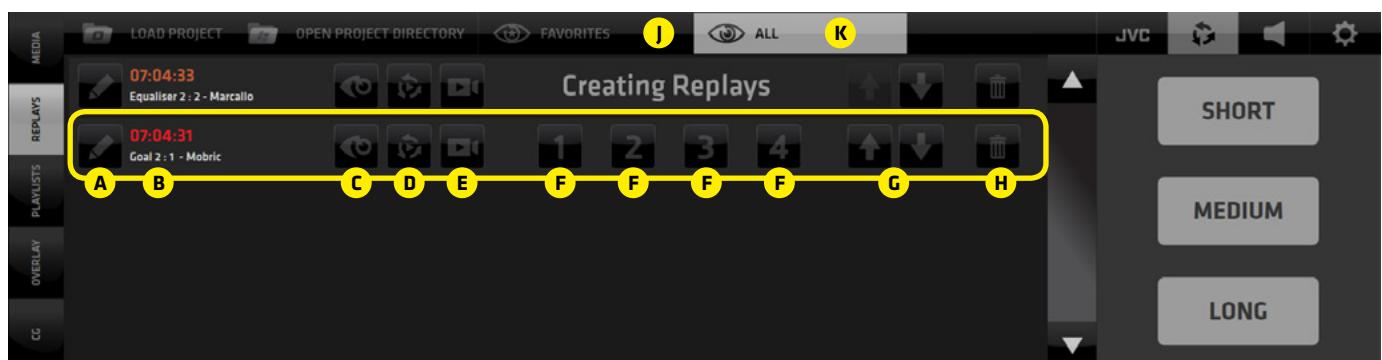
1. Activate the REPLAY TAB on top of the SA to reveal the REPLAY CAPTURE buttons in SA and open the REPLAYS LIST in the CMA. In a new project there are no replays captured yet, hence an empty list.
2. To capture a REPLAY SET tap/click one of the REPLAY CAPTURE buttons in the SA.
A Replay Set is a set of 4 replay files (one for each camera). It's listed as one line in the REPLAYS LIST.

Each REPLAY SET (*outlined yellow*) contains the following elements:

- A - **EDITE REPLAY NAME** button - push and type to name the replay set
- B - **TIME STAMP and REPLAY NAME** - time and name display
- C - **PREVIEW** button - enter the Replay Preview pane
- D - **SRP REPLAY MODE** button - turn SRP Mode ON/OFF
- E - **DRCS REPLAY MODE** button - turn DRCS Mode ON/OFF
- F - **REPLAY CAMERA** buttons - replay playback for each camera
- G - **SORTING** buttons - move a replay set up/down in the list
- H - **DELETE REPLAY** button

The REPLAY LIST also has 2 SORTING TABS on the top:

- J - **FAVORITES** - view only those Replay Sets that contain a replay marked as FAVORITE
- K - **ALL** - view all Replay Sets



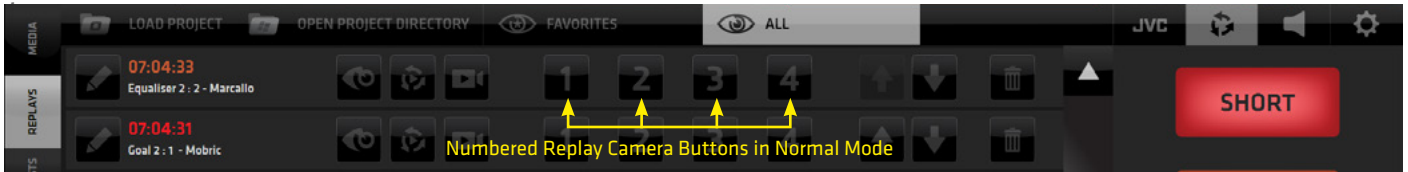
REPLAY MODES

ProHD Studio features a very unique and extremely efficient, easy-to-use replay system that doesn't require a special training or an extra operator.

It offers 3 different MODES to work with replays, that provide many creative possibilities.

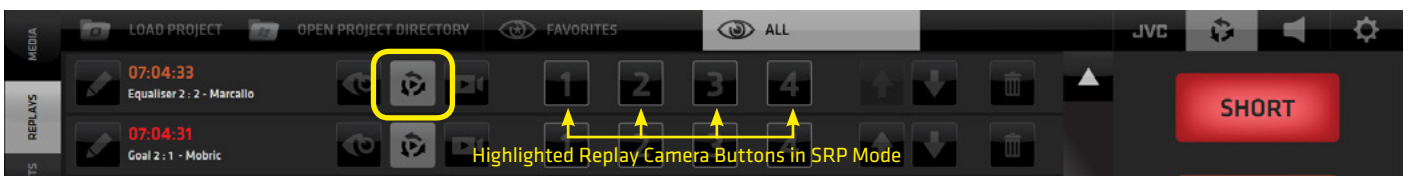
1. **NORMAL MODE**
2. **SRP - SEQUENTIAL REPLAY PLAYBACK MODE**
3. **DRCS - DYNAMIC REPLAY CAMERA SWITCHING MODE**

NORMAL mode - a replay is switched to PGM by a tap/click on any of the numbered replay camera but-

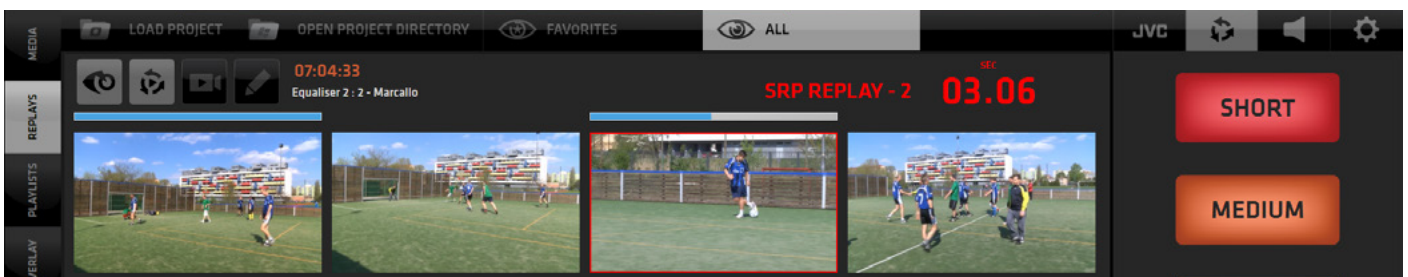


SRP - SEQUENTIAL REPLAY PLAYBACK mode - allows to play a sequence of replays.

1. Tap/Click the SRP MODE ICON to activate the SRP MODE (outlined in yellow)
The numbered replay camera buttons become outlined to indicate the active SRP MODE.



2. Tap/click any of the numbered replay camera buttons to start the playback of a replay sequence.
The REPLAY PREVIEW pane opens and the replay playback of the selected replay camera is indicated by a blue progress bar above the replay video monitor. Click any other video preview monitors you wish to add to the sequence. All this way selected replays will play in a sequence in the same order as selected. The replay playback progress is indicated by a blue progress bar above each replay video monitor. Additionally a numeric display in the top right of the replay preview pane indicates its remaining time.



3. Tap as many replays as you wish to add to the presently playing sequence.
A replay that is already finished - indicated by a blue bar above - can be added to the currently playing sequence again by tapping its video monitor again. Its bar turns grey and the replay will be added to the replay sequence again.

At this point you can either **CLOSE** the Replay Preview, **MARK** a replay as **FAVORITE** or **ASSIGN** a **REPLAY** to a **PLAYLIST** to create a **REPLAY HIGHLIGHTS PLAYLIST** - described further down on the next page.



CLOSING REPLAY PREVIEW

Tap/click the PREVIEW ICON in the Replay Set to close/open the replay PREVIEWS pane with replay preview monitors. The previews loop indefinitely to give a good overview of their content.

DRCS - DYNAMIC REPLAY CAMERA SWITCHING mode

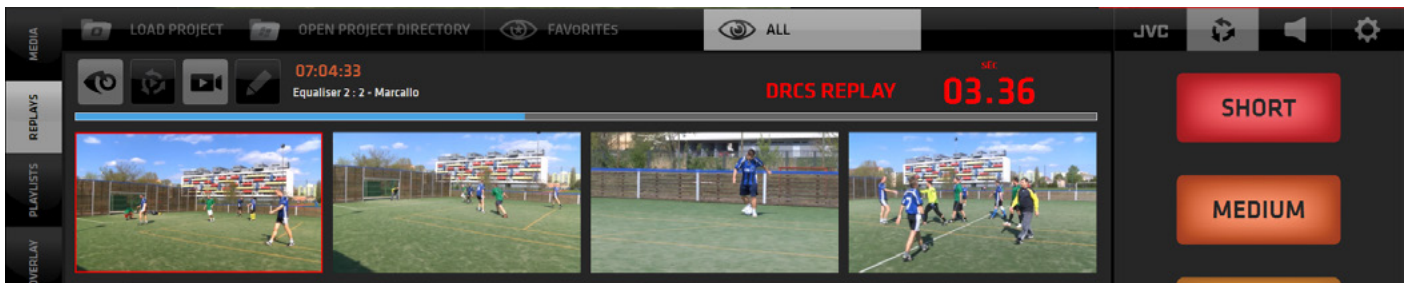


Allows switching camera angles during replay playback.

1. Tap/click the DRCS MODE ICON to activate the DRCS MODE. (outlined in yellow)
The numbered REPLAY CAMERA buttons group in a block to indicate the DRCS MODE.
2. Tap any of the camera buttons to start the DRCS replay playback in PGM.



The REPLAY PREVIEW opens immediately in the CMA to reveal the Replay Preview Monitors.
The DRCS replay playback is indicated by a BLUE PROGRESS BAR and the red text: “DRCS REPLAY” above.



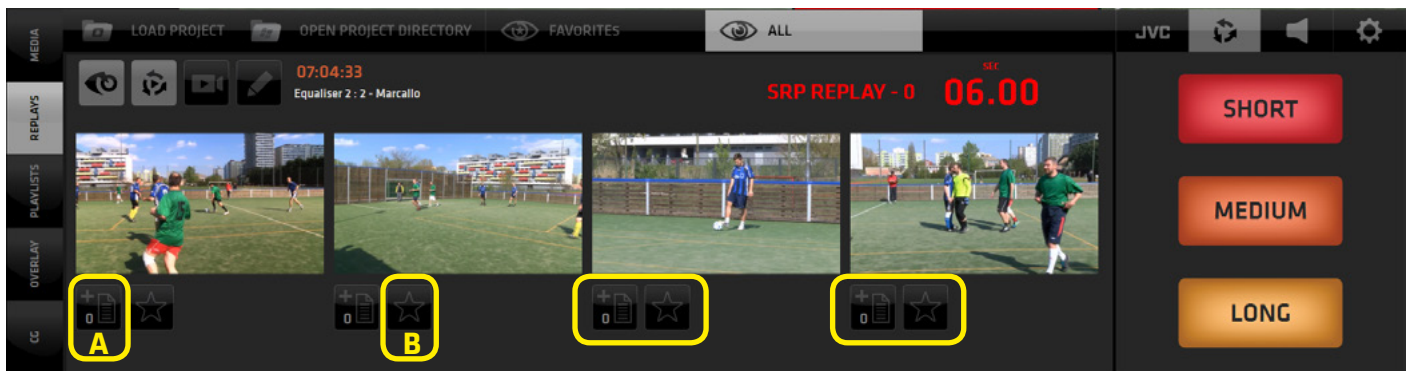
3. While the first replay is playing in the PGM tap/click the replay preview monitors to switch camera angles just like switching cameras in real time. The replay preview monitor of a replay currently in PGM is outlined in RED for visual control.

A **COUNTDOWN TIMER** is provided displaying the remaining time of a replay. Once the replay is finished a live camera is automatically switched to PGM via **AUTOCUT** (described on next page).

FAVORITES and REPLAY HIGHLIGHTS

In the open REPLAY PREVIEW two more buttons are available below the replay preview monitors:

- A - Add Replay to Playlist** - adds a replay to a playlist to create a Highlights sequence in Playlists
- B - Favorite** - marks a replay as Favorite - used for FAVORITES VIEW in the Replays List.



SLOW MOTION REPLAY PLAYBACK / FREEZE FRAME

During the replay playback SLOW MOTION functionality is available. Default replay playback motion ratio is 50% of original speed. Use the following keyboard shortcuts for Variable speed and Freeze frame:

- [S] - hold to slow down replay playback to 20% of the original speed
- [F] - hold to speed up replay playback to 100% of the original speed
- [Z] - push to freeze frame, push again to continue replay playback

All replay playback parameters are fully adjustable in the SETTINGS / Replay Settings section.

DELETING REPLAYS

Replay Sets are stored internally as timestamped files for each camera separately. Deleting a Replay Set is a destructive operation, which physically erases the files from storage.

AUTOCUT IN REPLAYS

Allows users to select a live camera, that will be switched to PGM automatically, after a Replay ends. When a replay is switched to Live PGM the **AUTOCUT SWITCH** appears on top of the lower portion of all Camera Monitors. Tap/click to activate it on any camera. After the replay ends the camera with the AUTOCUT ON will be automatically switched to Live PGM. The AUTOCUT functionality is described in detail on page 19.



NOTE: By default, the AUTOCUT SWITCH of that camera is activated, which was live in PGM before the the Replay was switched.

WIPES

Short Lead-In / Lead Out animations used in the Replay system as transition to enter and exit the Replay. The users can create these animations themselves to enhance the visual appeal of their productions. It is a well accepted, unobtrusive way to introduce commercial content, sponsor logos etc. into the production which can become a source of extra revenue for the production. Exact Wipes usage statistics are provided for monetizing purposes.



NOTE:

A choice of a single wipe, a sequence or a random shuffle mode can be set for the use of Replay Wipes. Wipes format: FLV animations with transparency. The switch to and from a replay is executed 1 sec. into the wipe exactly. To cover the camera to replay switch it is best to create the animation with a full frame graphic at 1 sec. A tutorial on Wipes construction is available.

NOTE: By default, Wipes are used when entering and exiting the replay system only. When switching from replay to another replay no wipe but a 10 frames crossfade is used. The user can override this setting or turn of the functionality completely in Replay settings.

SA (Settings Area) - AUDIO Menu Tab

Activates the display of the AUDIO MIXER in the CMA and the REPLAY CAPTURE buttons in the SA.

The AUDIO MIXER board provides all the standard Audio for Video mixer interface elements.

1. Cameras SDI embedded audio faders with level and peak indicators
2. Audio Follow Video, Solo and Mute buttons for each fader
3. Media audio fader with Solo and Mute buttons
4. AUX input fader (external audio signal source) with Solo and Mute buttons
5. Line Out fader with Solo and Mute buttons
6. Headphones output fader with a mute button below
7. Program Output levels stereo faders with levels and peaking indication, stereo lock/unlock, solo and mute buttons

AUDIO MIXER - Important notes on certain functionalities:

- If the Stereo Lock in PGM faders is Active (locked icon) both move in sync relative to each other.
- If the Stereo Lock PGM faders is Deactivated (unlocked icon) the faders move individually.
- Double clicking on any Fader Button will set its level to [0]
- In the Unlocked state of the PGM faders double clicking one PGM Output fader will set the other PGM fader to the same level as the one that was double-clicked
- In the Locked state of the PGM faders double clicking any of the faders will set both their levels to [0]



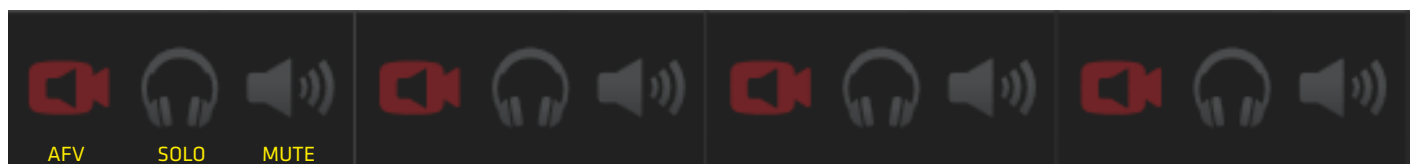
AUDIO FOLLOW VIDEO - This functionality makes the audio mixer a slave to the video mixer.

If the AFV switch is ON (*red icon*) - switching cameras to live PGM will switch the audio as well.

If AFV is OFF (*grey icon*) - audio is sent to PGM at levels set by the faders - regardless of camera switching.

SOLO (*headphones icon*) - send that channel to the PREVIEW Output controlled by the HEADPHONES fader

MUTE - mutes the audio in a channel



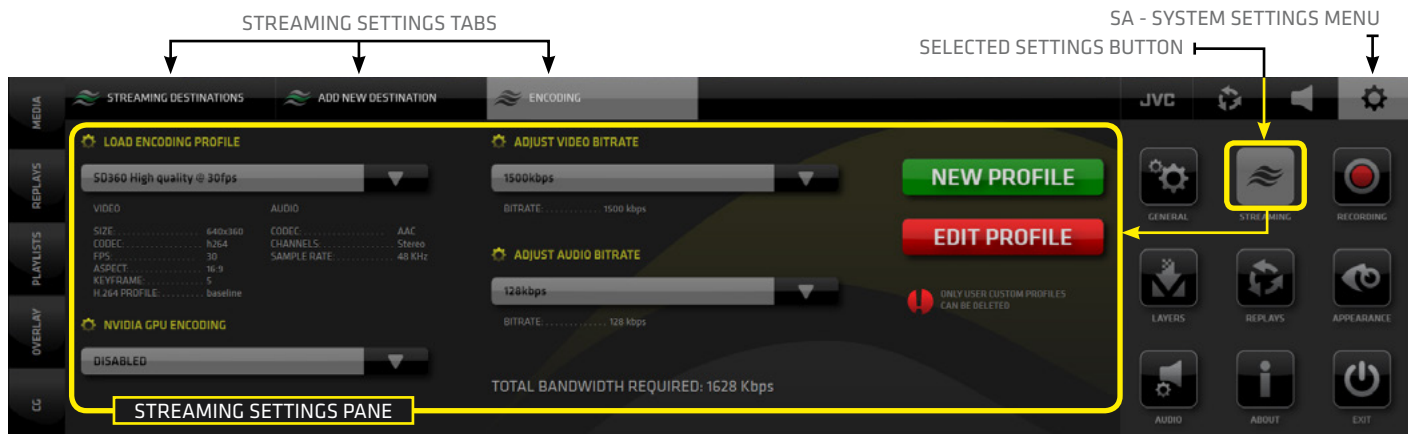
NOTE: Basic knowledge of audio mixer operation is required. It is beyond the scope of this manual to explain Audio Mixer board operational procedures.

SA (Settings Area) - SYSTEM SETTINGS Menu Tab

Provides 9 buttons to access control panes for all system settings and functions.

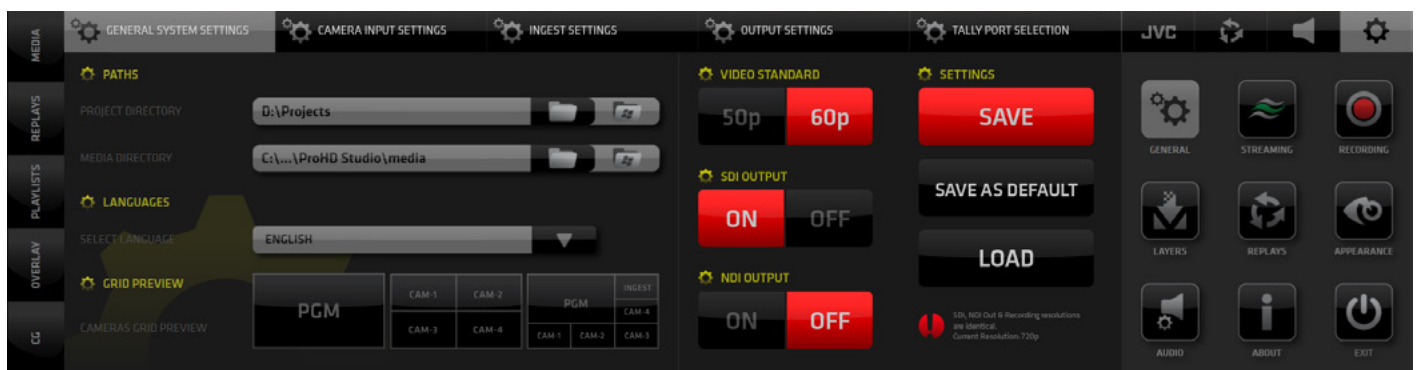
Each Settings button reveals a relevant settings pane in CMA. Some panes have additional TABS in the top bar of the CMA allowing access to additional settings and adjustable parameters.

The screenshot below is an example of a typical UI elements organization in the Settings section.



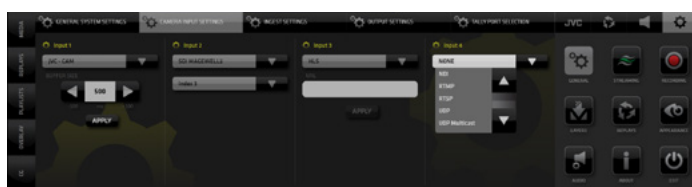
GENERAL / General System Settings tab

Contains setup of directories, language choices, second monitor output layout selector, video standard settings and load/save settings options. The controls are self explanatory.



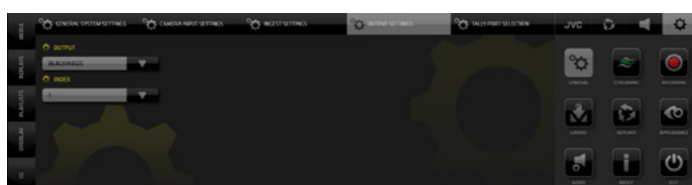
GENERAL SETTINGS / Camera Input Settings tab

use the drop-down selection box in each camera column to setup all camera inputs



GENERAL / Output Settings tab

Select the Output Card and Output Index to be used for SDI Output



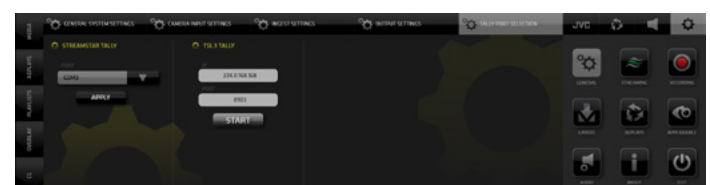
GENERAL SETTINGS / Ingest Settings tab

Ingest Layer Input setup - select sources for the INGEST Layer



GENERAL / Tally Port Selection tab

setup of the communication port for the optional Tally & Intercom



STREAMING SETTINGS / Streaming Destination tab

Streaming Destinations List display

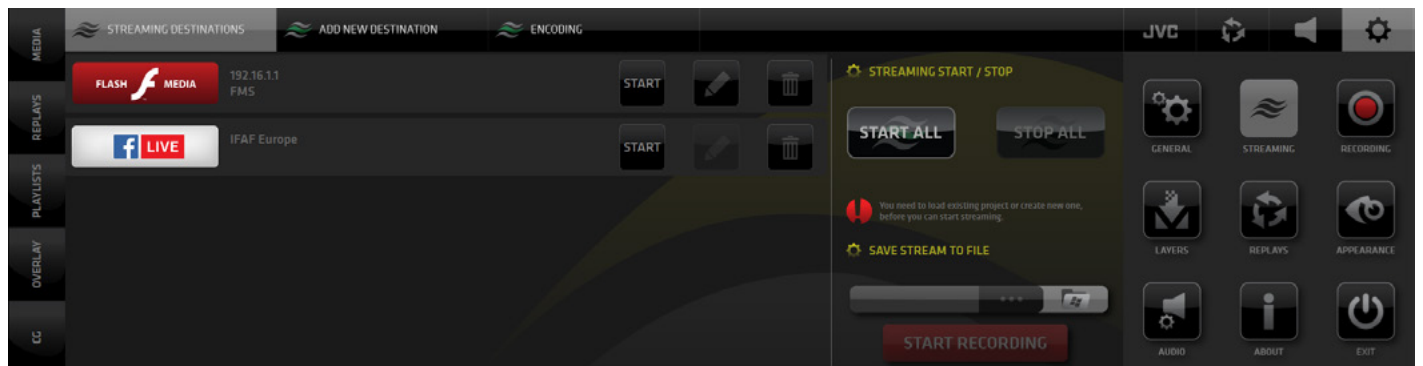
At first the list will be empty and you need to add one, as described further bellow in the "ADD NEW DESTINATION" tab paragraph.

Multiple Destinations can be added and simultaneous streaming to multiple destinations is possible. Streaming controls START, EDIT and DELETE buttons for each streaming destination are provided.

START ALL - start streaming to all destinations

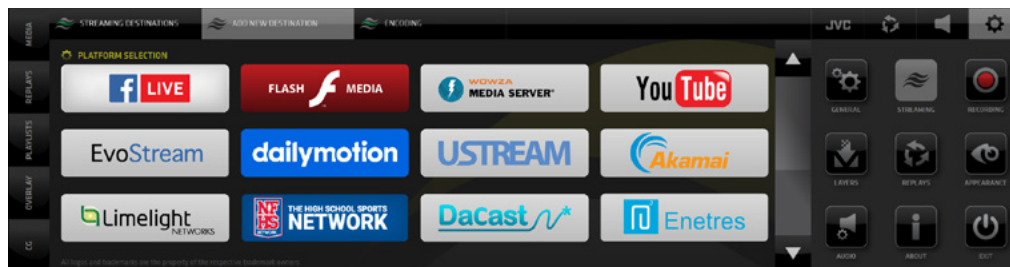
STOP ALL - stop all streaming

SAVE STREAM TO FILE - specify a name and path for the stream file to be saved



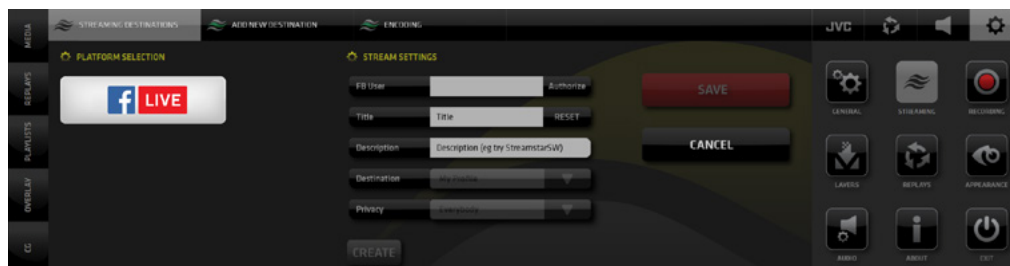
STREAMING SETTINGS / Add New Destination tab

Predefined streaming platforms are displayed - tap/click to choose one...



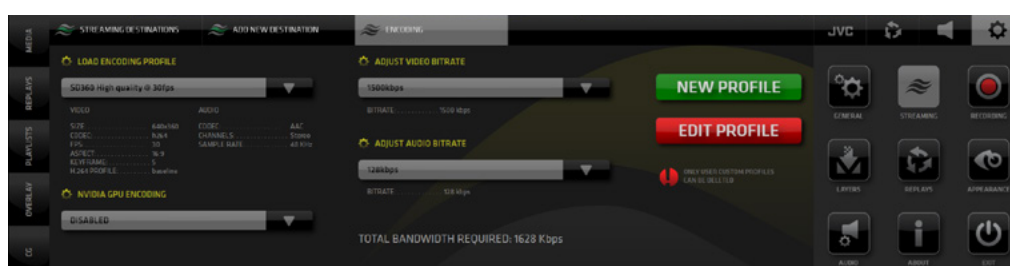
Fill out your login info and SAVE.

The new destination is added to the Streaming Destinations list.



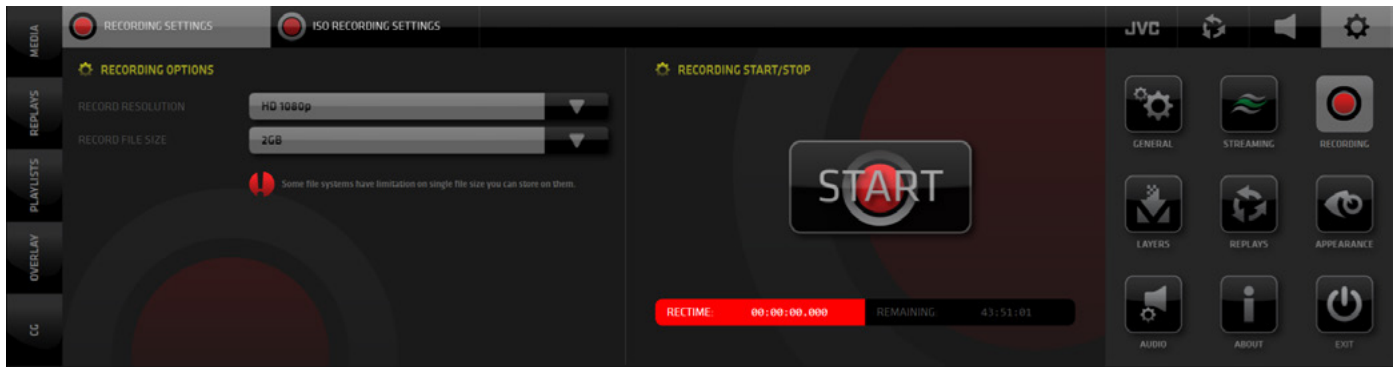
STREAMING SETTINGS / Encoding tab

Encoder profile, audio and video bitrates setup



RECORDING SETTINGS / Recording Settings tab

PGM high quality recording setup - start/stop, recording / remaining time, and disks info



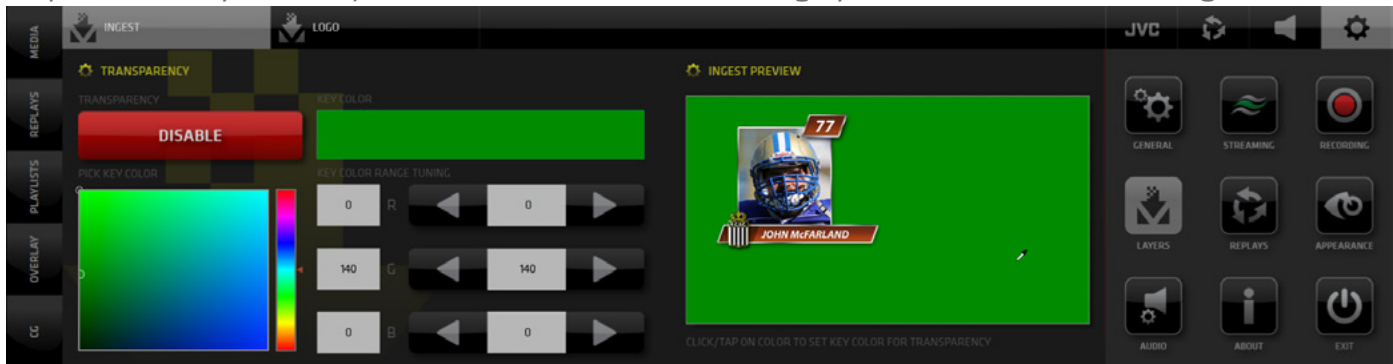
RECORDING SETTINGS / ISO Recording Settings tab

All camera ISO recording setup, define drives, paths, start/stop recording, storage space info



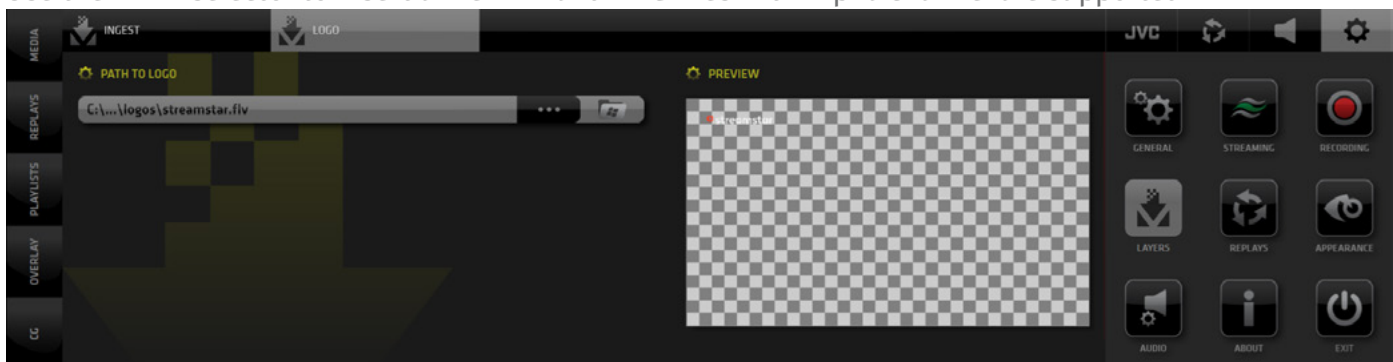
LAYERS SETTINGS / Ingest tab

A transparency color key can be created on the INGEST input. ENABLE the Transparency and use the eye drop tool to sample the key color. For best results use video/graphics with a solid color background.



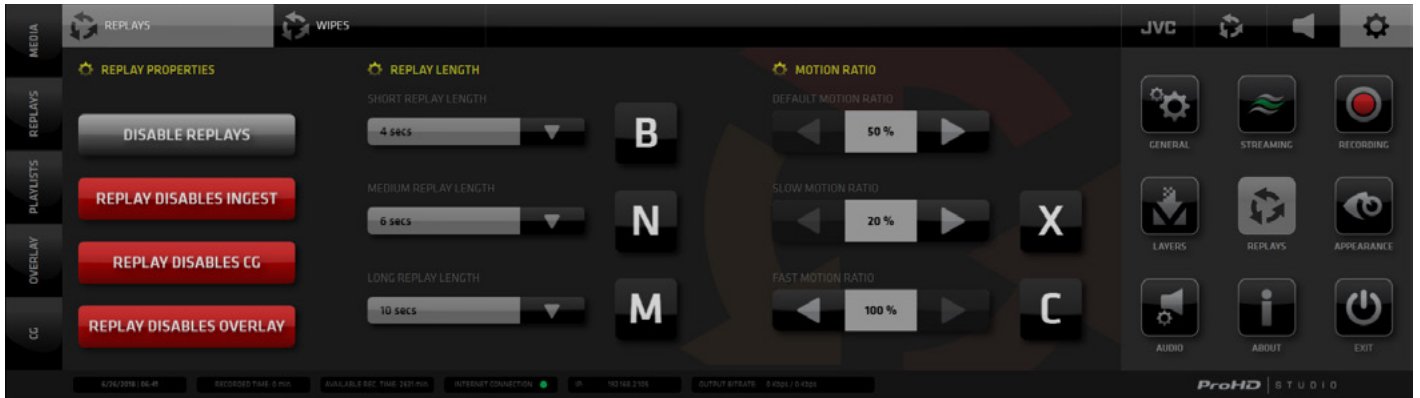
LAYERS SETTINGS / Logo tab

Use the PATH selector to insert a file. FLV and PNG files with Alpha channel are supported.



REPLAYS SETTINGS / REPLAYS tab

Replay properties, capture duration, motion ratio, shortcuts setup



REPLAY PROPERTIES

Provides Enable/Disable buttons for the specified functionality:

- DISABLE REPLAYS - turn the replay functionality ON/OFF
- REPLAY DISABLES INGEST - replay activation automatically disables the Ingest layer
- REPLAY DISABLES CG - replay activation automatically disables the CG layer
- REPLAY DISABLES OVERLAY - replay activation automatically disables the Overlay layer

NOTE: Throughout the SW GUI red color indicates the “ON” state of buttons. By default the DISABLE REPLAYS function is turned OFF = meaning replays are ON. Therefore the grey default color. To turn Replays OFF push the button (it turns red). You will be asked to RESTART the system to apply the change and disable replays.

REPLAY LENGTH

Set the replay capture duration for each of the 3 Replay Capture Buttons

- SHORT - available range: 3 - 5 sec. / default is 3 sec.
- MEDIUM - available range: 6 - 10 sec. / default is 6 sec.
- LONG - available range: 10 to 20 sec. / default is 10 sec.

REPLAY CAPTURE SHORTCUT KEYS

- SHORT “B”
- MEDIUM “N”
- LONG “M”

MOTION RATIO

Set the playback speed of Replays

- DEFAULT - replay playback speed = 50% of original speed
- SLOW - replay playback speed when the SLOW KEY is held / default is 20% of original speed
- FAST - replay playback speed when FAST KEY is held / default is 100% of original

VARIABLE REPLAY PLAYBACK SPEED SHORTCUT KEYS

- SLOW “X” - press and hold key to apply
- FAST “C” - press and hold key to apply
- FREEZE “Z” - press key to freeze frame - press again to continue replay playback

NOTE: To slow down or speed up replay playback **PRESS & HOLD** the “X” or “C” shortcut key. To **FREEZE** a frame of a replay playback **PRESS** the “Z” keyboard key. Press again to continue.

REPLAYS SETTINGS / WIPES tab

Wipes are short animations that serve as transitions to Lead In/Lead Out the Replays. The controls in this pane allow the setup and usage of wipes.

WIPE MODE

Choose one of 4 MODES OF OPERATION of Wipes.

Depending on your choice of a WIPE MODE the relevant controls will be displayed in the CMA.

1. NO WIPES - No wipes used - no control elements displayed
2. FILE - Select a single wipe to be used for all replays - file selector displayed
3. SEQUENCE - multiple wipes will be used in sequence - check the checkbox for each wipe to be used
4. SHUFFLE - multiple wipes will be used randomly

REPLAY TO REPLAY SWITCHING

WIPES ON/OFF button

In sports productions it is a common practice to play several replays of an event in sequence.

This functionality provides control of the usage of wipes when switching from one replay to another or from a replay to a live camera.

WIPES OFF - a wipe will be played only when entering the replay system and exiting to a live camera

WIPES ON - a wipe will be played in between every replayed played as well as when entering and exiting the replay system.

NOTE: By default, this functionality is OFF since it is a standard behavior in most sports broadcasting situations. However, it can be activated and used if required.

USAGE STATISTICS

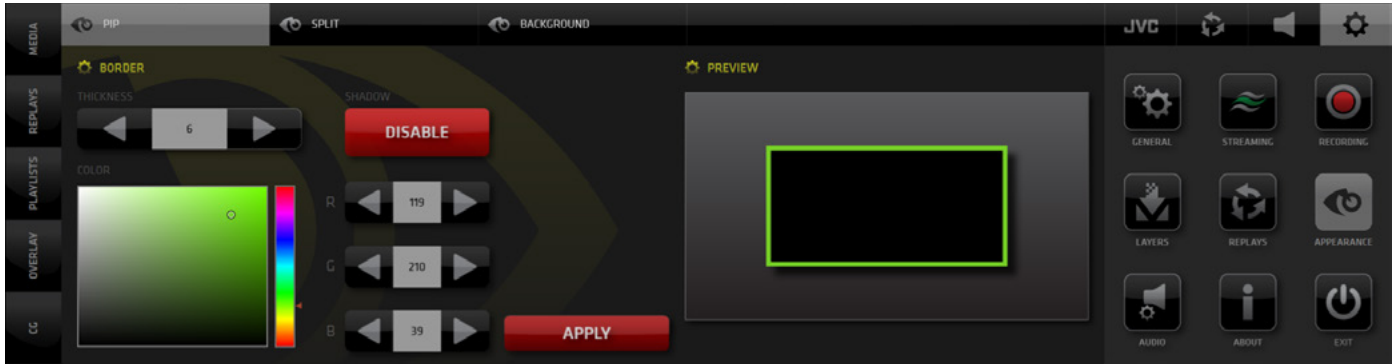
A listing of wipes usage statistical information.

This is a very important monetizing tool especially in live sports productions where sponsor logos built into replay wipes can be a significant source of extra revenue.



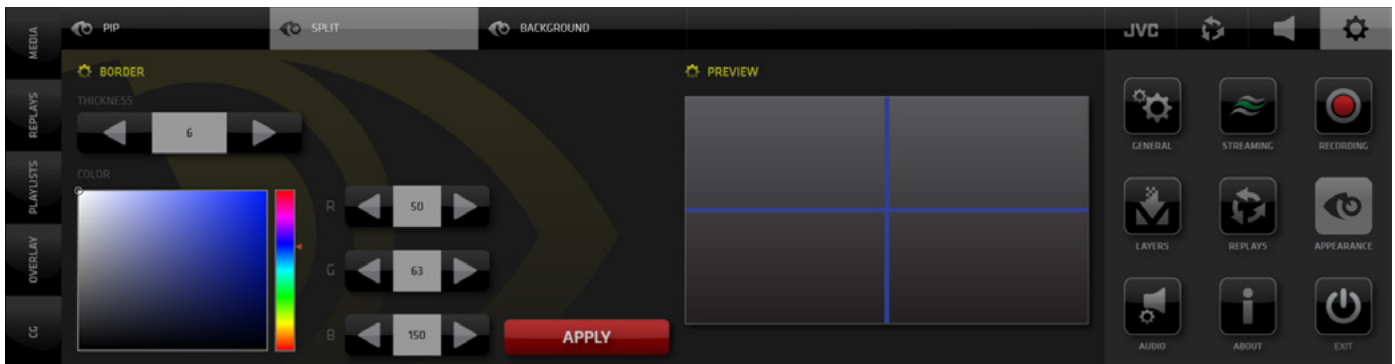
APPEARANCE SETTINGS / PIP tab

setup PIP border - color, thickness and shadow on/off



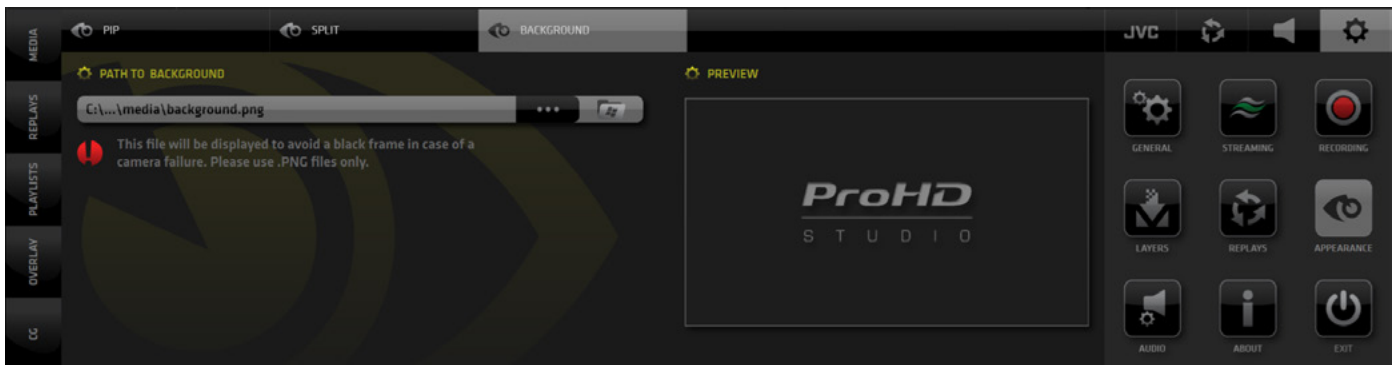
APPEARANCE SETTINGS / SPLIT tab

setup SPLIT SCREEN border color and thickness



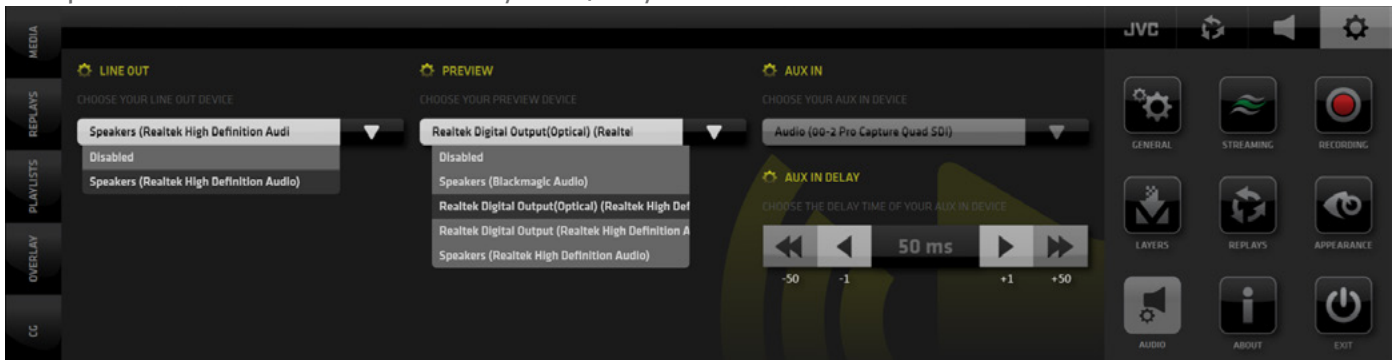
APPEARANCE SETTINGS / BACKGROUND tab

setup of a background image to avoid black screen in case of camera dropout



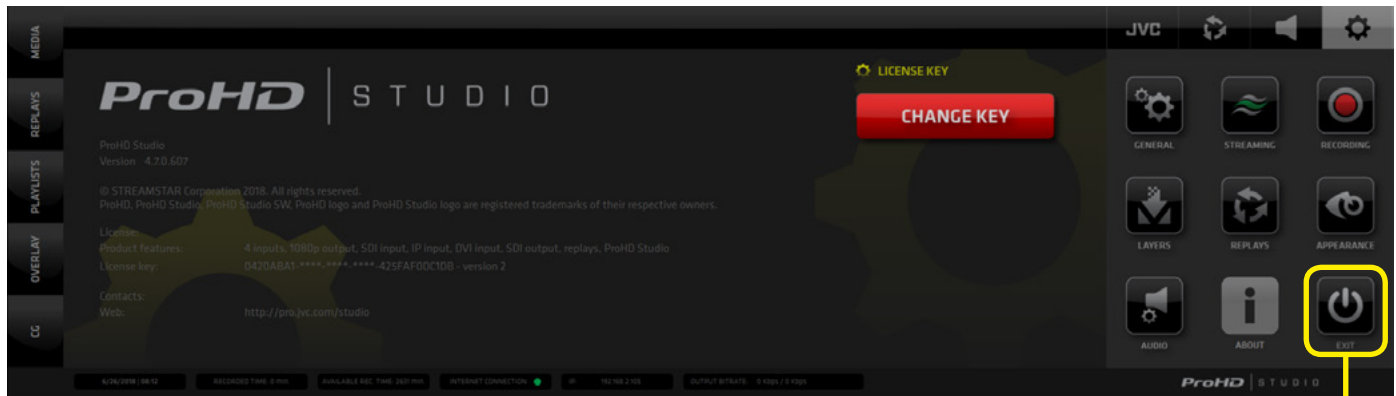
AUDIO SETTINGS

setup of audio devices and audio delay for A/V synchronization



ABOUT screen

Provides system information and license key entry button



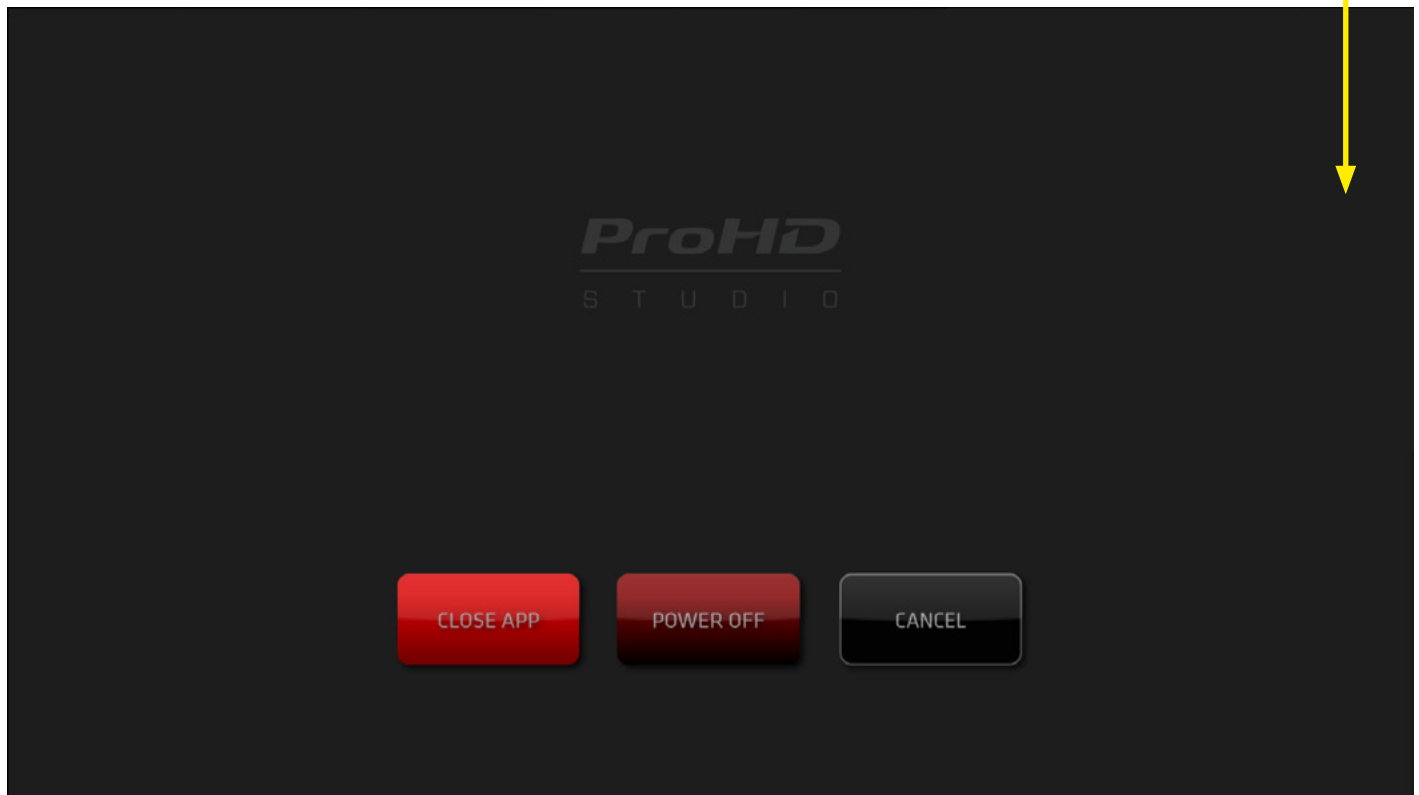
EXIT

Tap/click the EXIT button to access the following:

CLOSE APP - application shut down

POWER OFF - system shut down

CANCEL - return to application





ProHD STUDIO 4000S
LIVE SPORTS PRODUCTION AND STREAMING STUDIO

For more information on ProHD Studio please visit:
<http://pro.jvc.com/studio>

For support visit:
<http://pro.jvc.com/studio/support>

Thank You!
We wish you many successful live productions with your ProHD Studio.