

ProHD

S T U D I O

ProHD STUDIO 4000

KM-IP4000

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

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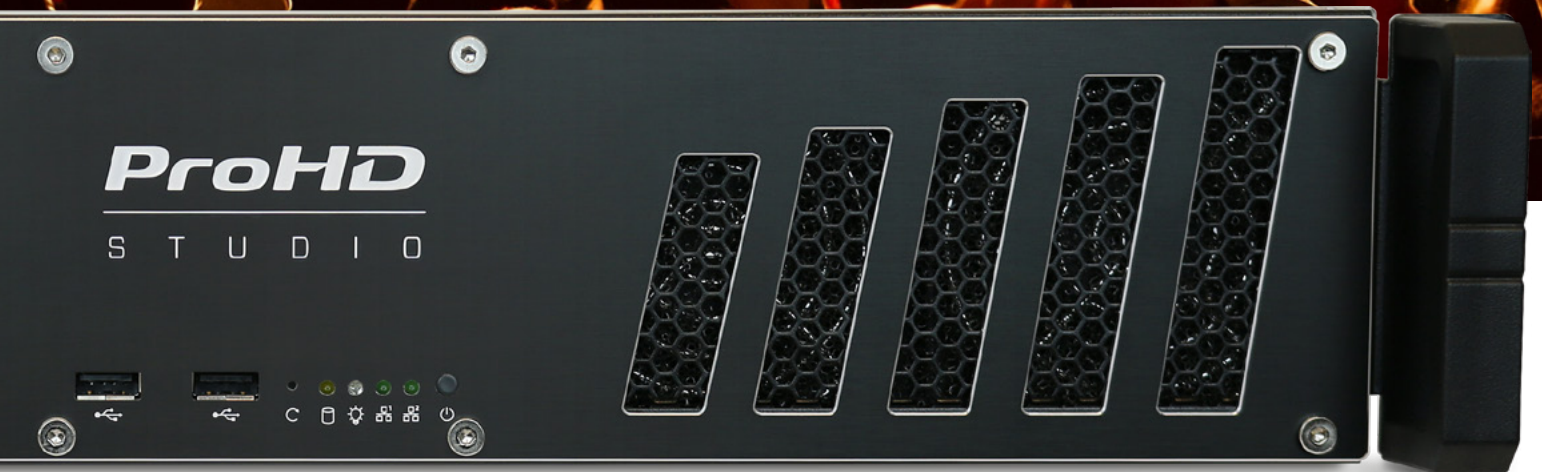
ProHD

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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 Live Production Studio KM-IP4000, the ideal live production system for the new generation of digital native media professionals.

ProHD Studio KM-IP4000 - Live Production Studio Software

The ProHD Studio KM-IP4000 SW is a conceptually as well as technologically ground breaking. Specifically designed for live streaming production it features a highly effective, intuitive touch screen user interface, that has been fine tuned and tested in thousands of real life productions. It offers professional live production features that will enable you to produce broadcast quality productions with unprecedented speed, efficiency, flexibility and extreme ease-of-use.



GUI - Graphical User Interface Overview

The 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 a perfect control of every aspect of the production at all times.

The GUI is designed to allow the control of processes, functionalities and workflows in the most logical and practical way. Its layout is divided into 3 main, horizontal sections, containing logically related, operational elements and functions.

1. **PRODUCTION LAYOUT** section - on top
2. **PGM & CAMERA SWITCHING** section - in the middle
3. **CONTENT MANAGEMENT & SETTINGS** section - at bottom

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



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.



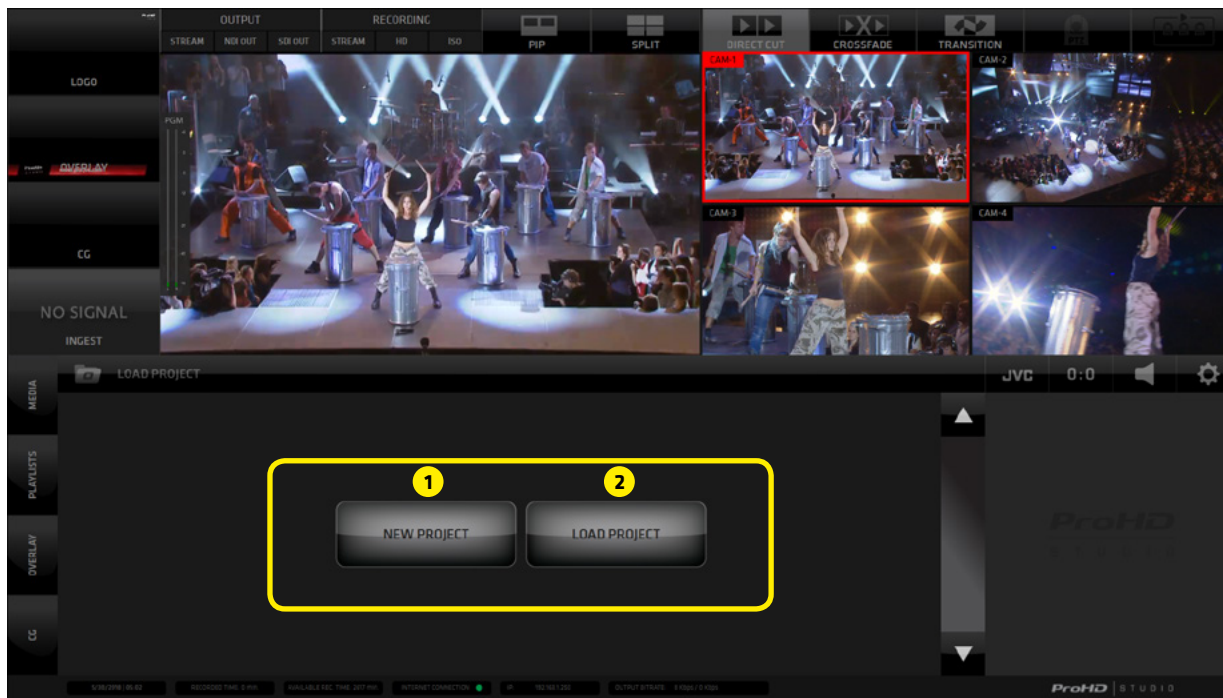
CREATING A PROJECT

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

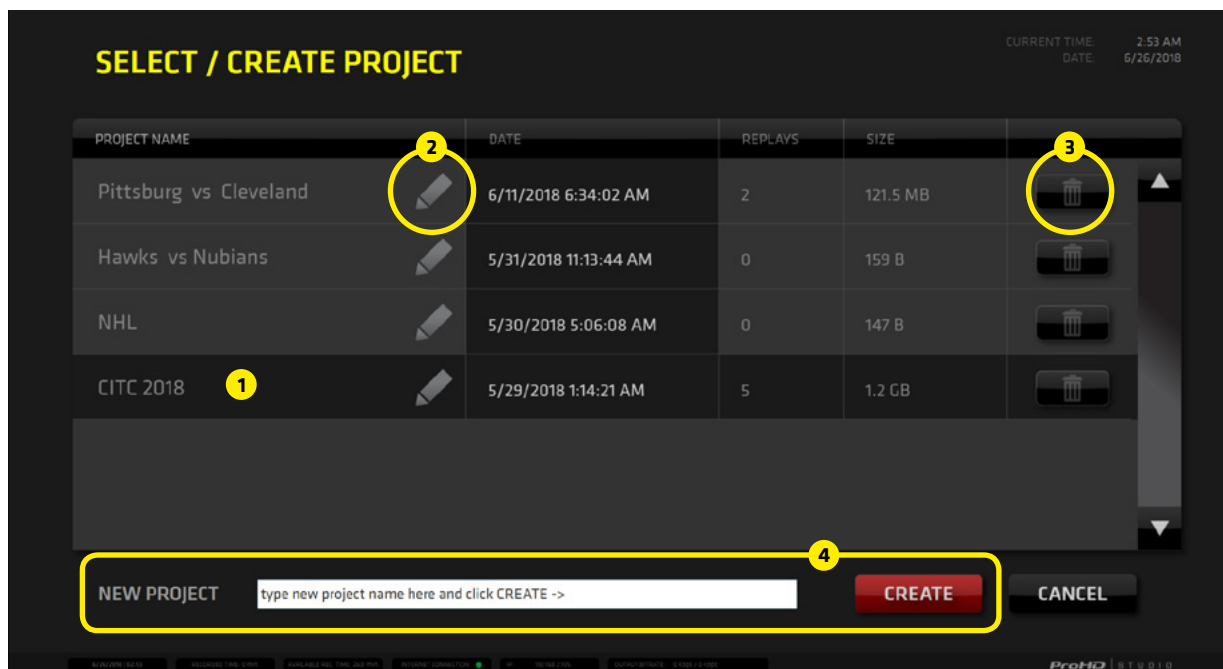
2 - LOAD PROJECT - a dialog screen appears with a list of previously saved projects.



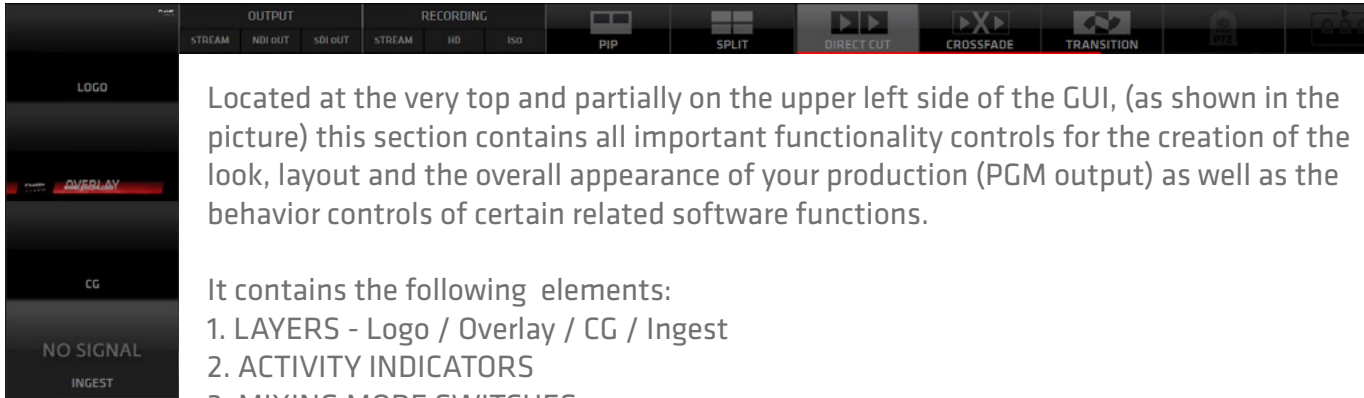
NOTE: At SW first run an optional QUICK TUTORIAL provides basic operational instructions to get you started

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> |

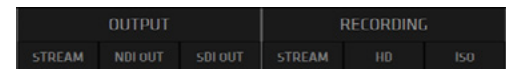
ACTIVITY INDICATORS:

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

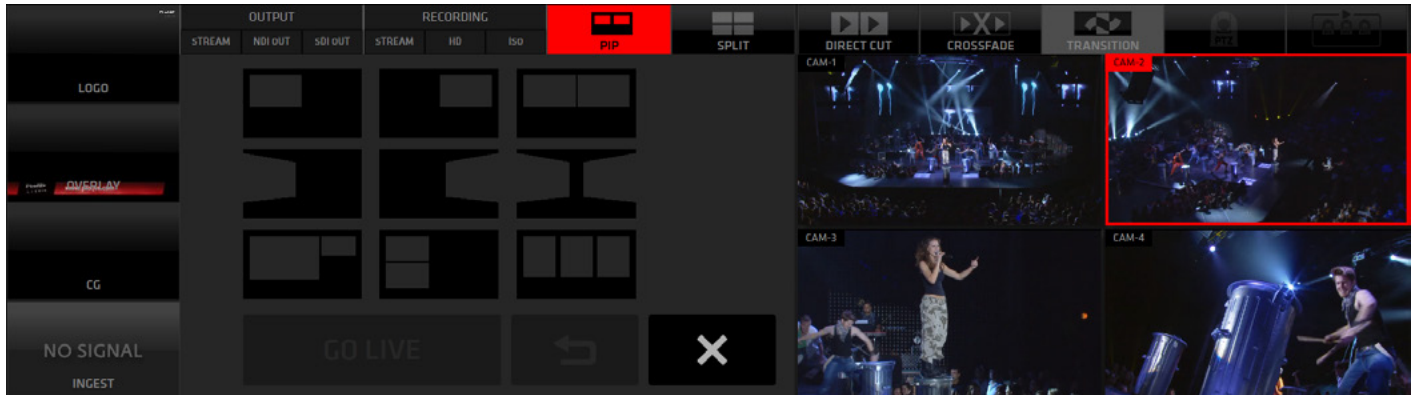
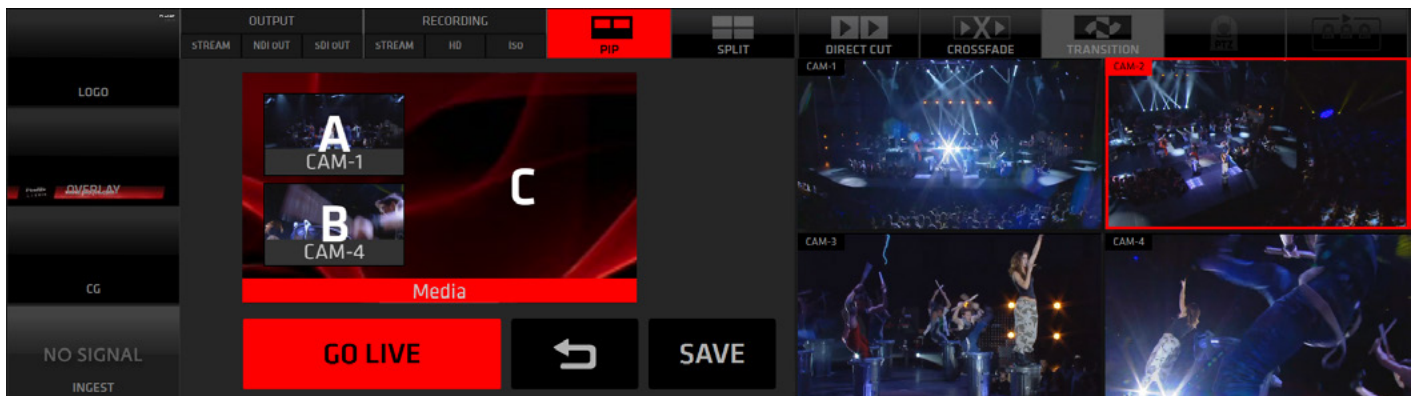





Image 2 - Assigning sources to the PIP template areas



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.

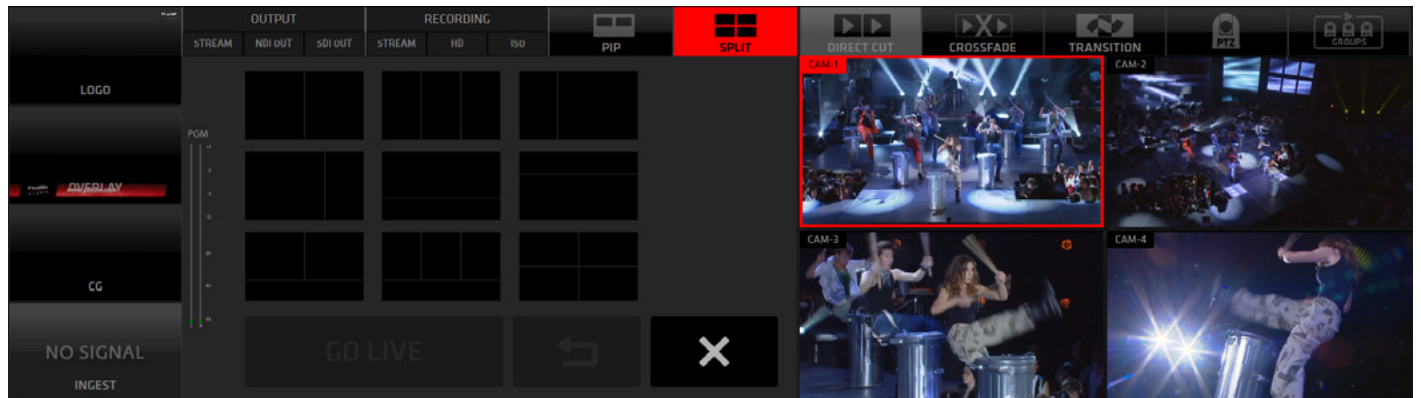
SPLIT SCREEN - enables the split screen layout functionality

Operating procedure:

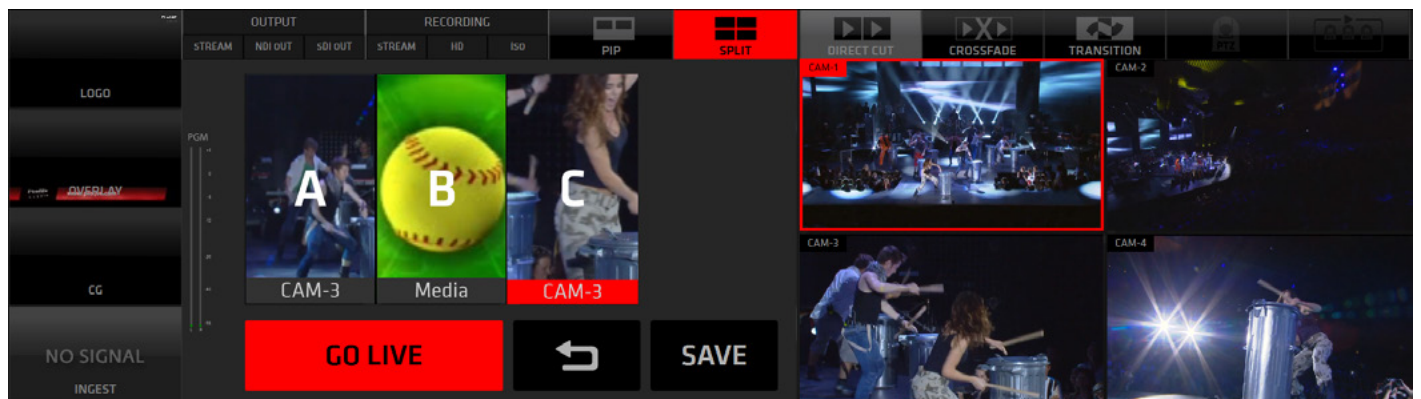
The operating procedure of the SPLIT SCREEN is identical to the of the PIP.

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.

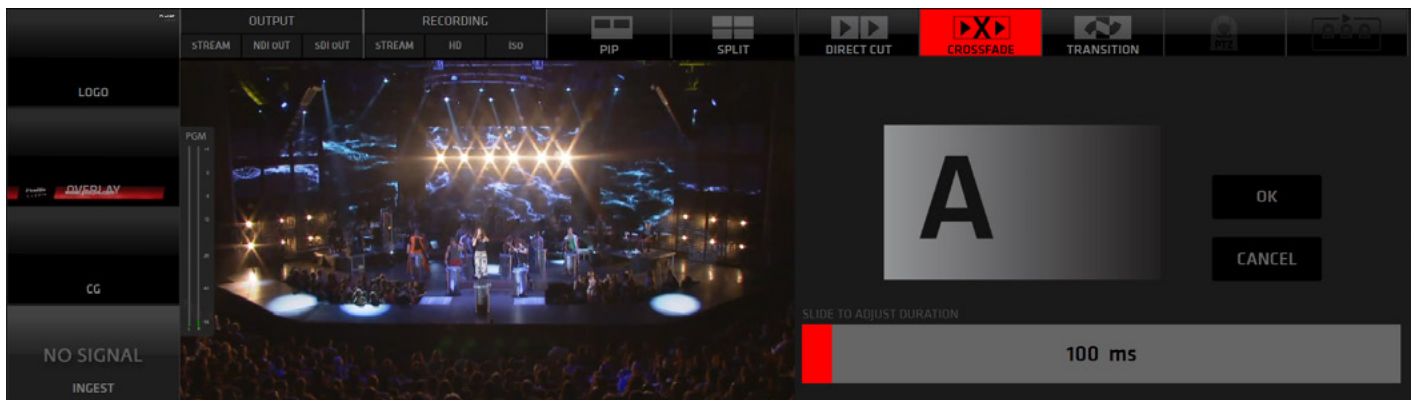
Or tap/click anywhere on the duration adjustment bar to set a new duration.

- 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.

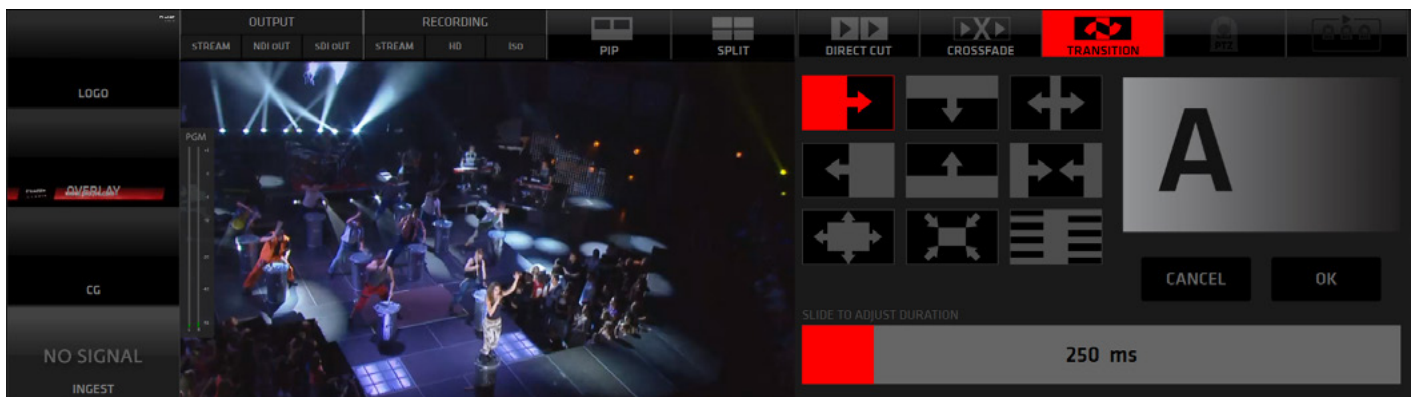
Use the TRANSITION DURATION BAR to adjust the duration of the transition. Slide the red bar to the right to increase the transition duration, ...to the left to decrease it.

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

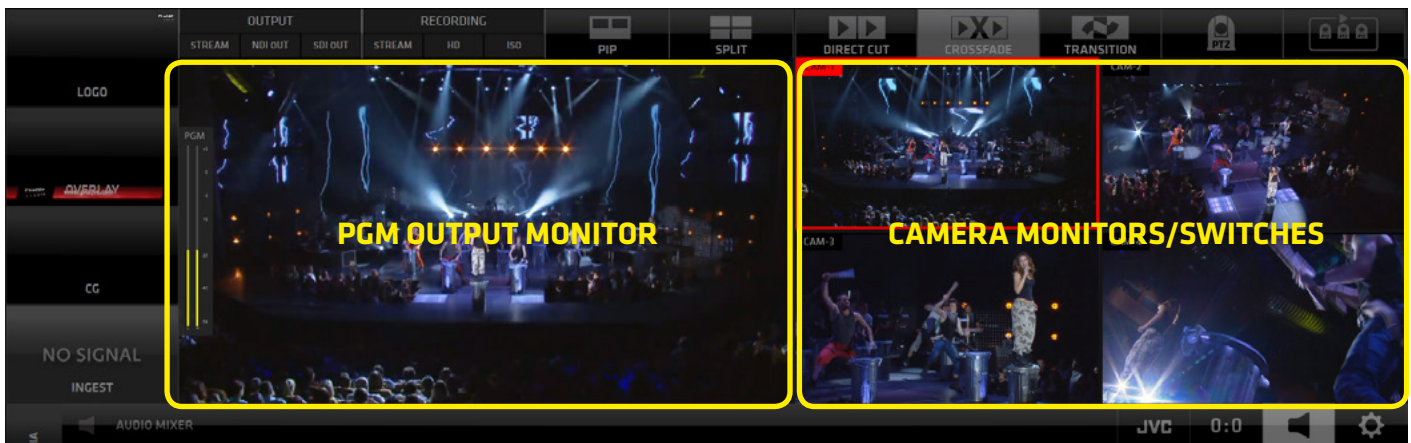
PTZ GROUPS control - which enable the PTZ CAMERA GROUPS control over IP

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.



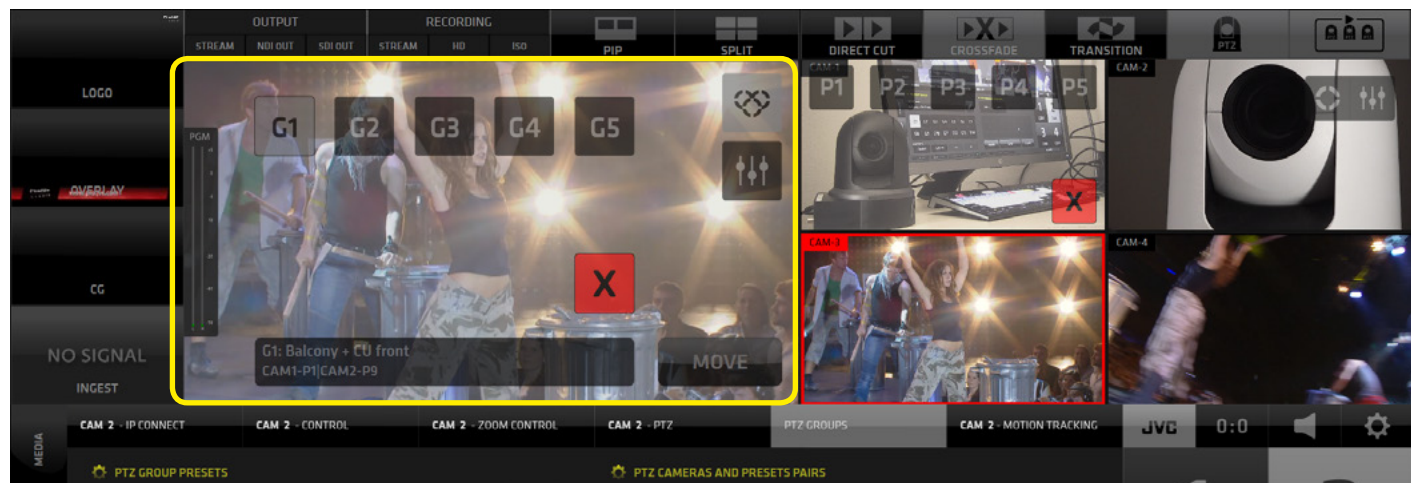
PGM Monitor

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

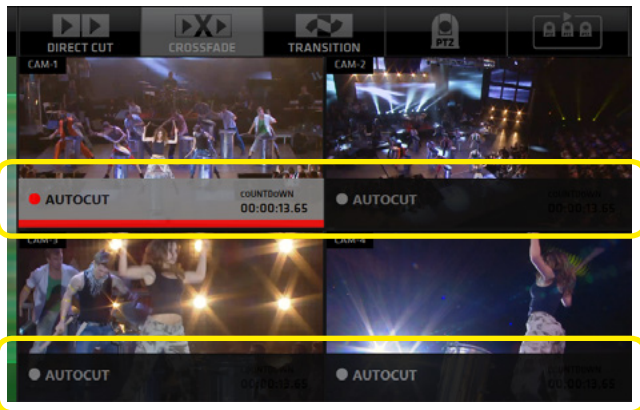
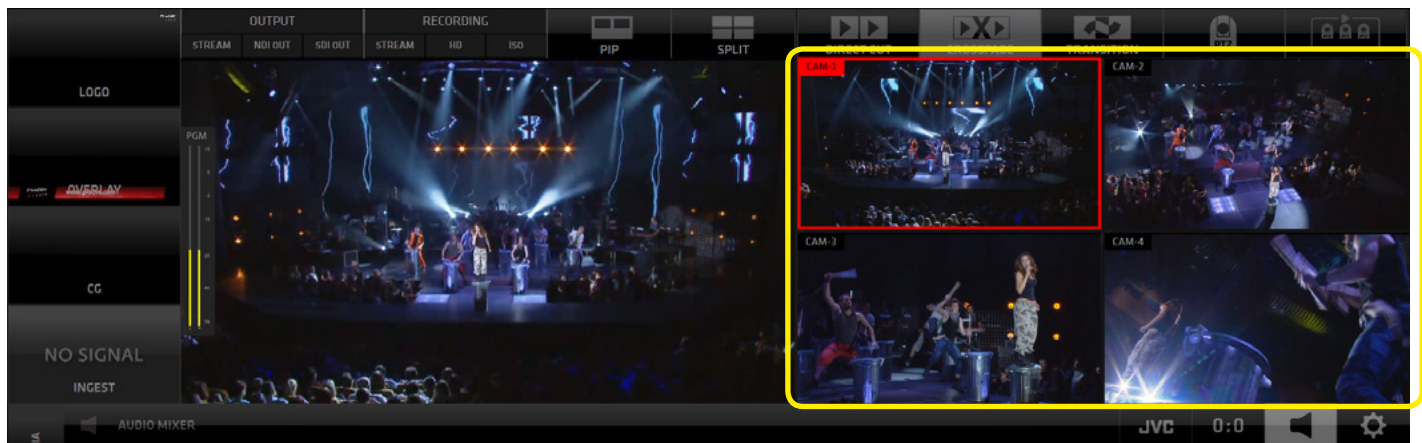
If JVC PTZ cameras are connected to the system the PTZ Camera GROUP PRESETS control switches may be displayed superimposed over the PGM monitor to allow instant access to PTZ CAMERA GROUPS PRESETS.



The Live Camera Monitors have several functions:

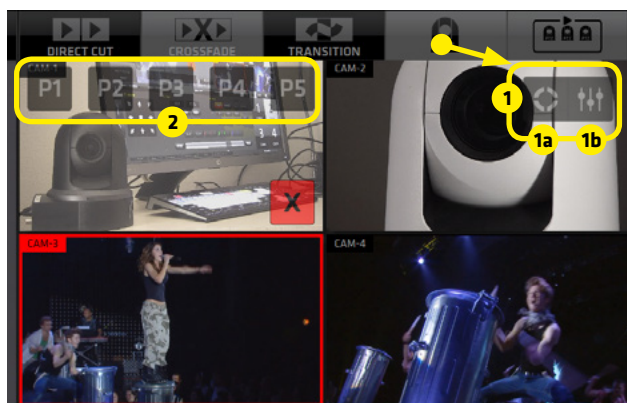
a, Live camera previews

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



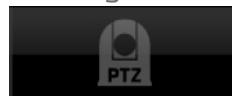
c, Autocut switches display

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 4000

LIVE PRODUCTION AND STREAMING STUDIO

CONTENT MANAGEMENT and SETTINGS Section

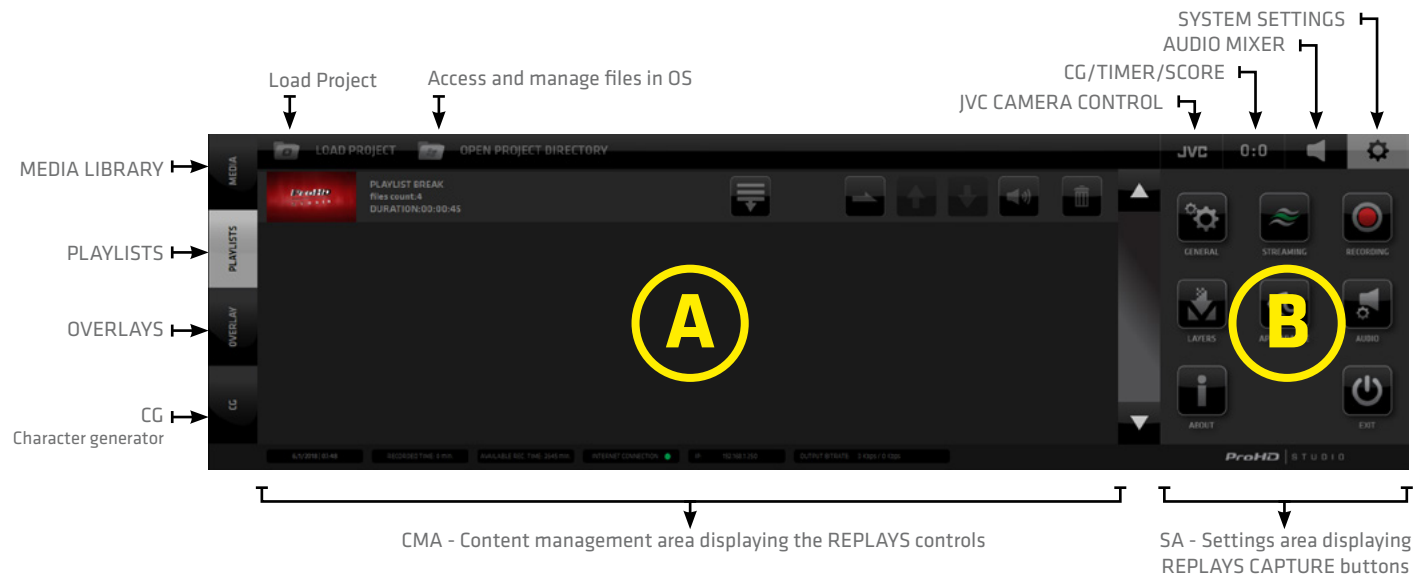
This section contains all the control elements of the many functionalities available in ProHD Studio. It's content displays various controls depending on what is selected. It provides great flexibility and speed of operation.

This part of the GUI is subdivided into two major SUB-sections:
A - CONTENT MANAGEMENT AREA (CMA) (marked with letter A)
B - SETTINGS AREA (SA) (marked with letter B)

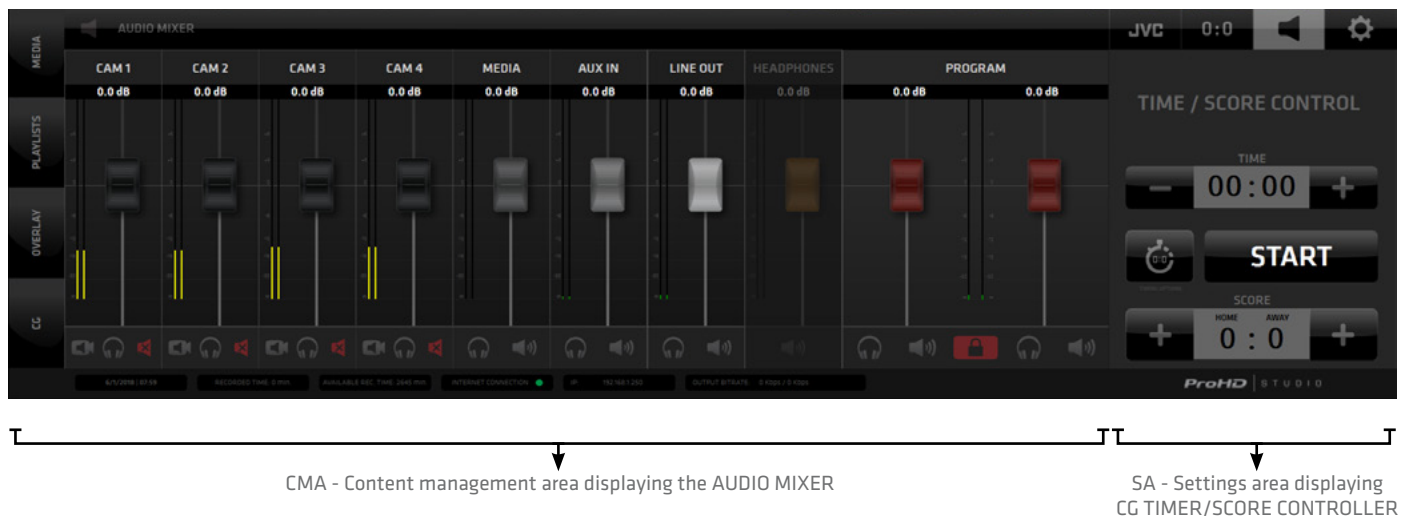
The **CMA** (Content Management Area) has **4 CONTENT MENU TABS on the left** that reveal the operational controls for the **MEDIA LIBRARY, PLAYLIST, OVERLAYS** and **CG** controls.

The **SA** (Settings Area) has **4 TABS on the top** that trigger the display of: **JVC CAMERA CONTROL CG, AUDIO MIXER, SYSTEM SETTINGS**.

The image below shows the **PLAYLISTS** controls in CMA and **SYSTEM SETTINGS** in the SA.



This image shows the **AUDIO MIXER** controls in CMA and **CG/TIMER/SCORE** controller in the SA.



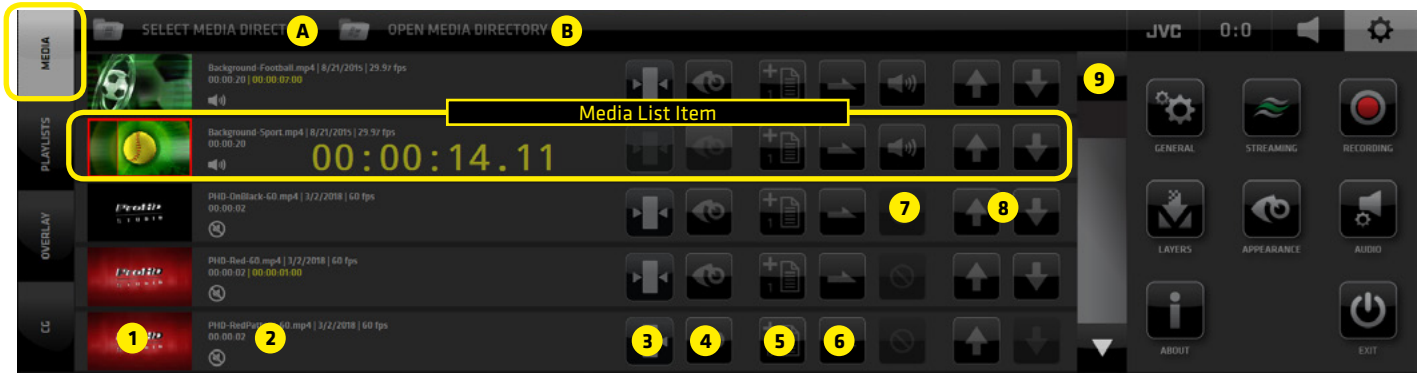
CMA (Content Management Area) - MEDIA Menu Tab

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

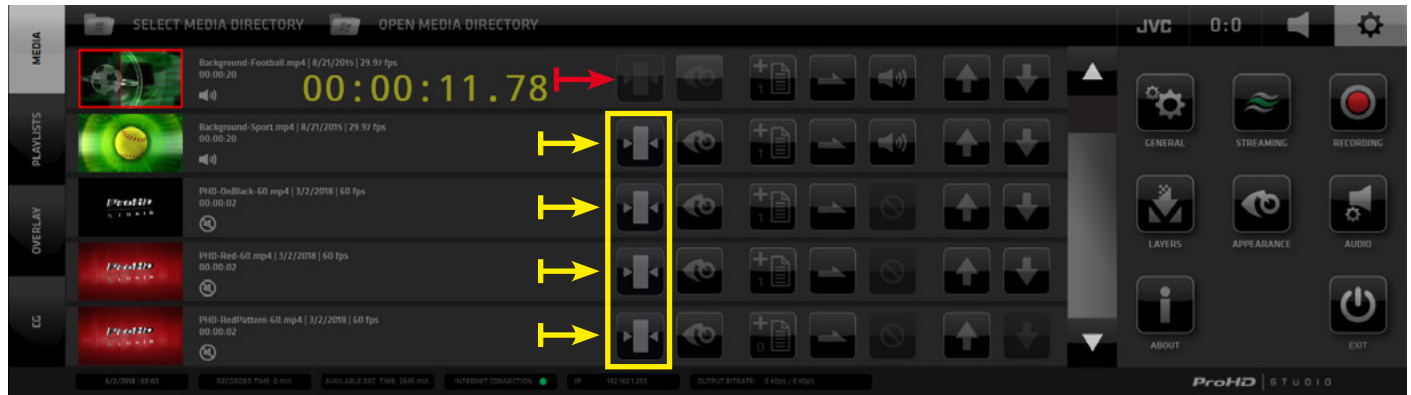
NOTE: When the media is playing the AUTOCUT function is active on the camera switches allowing you to choose to which camera the system will switch after the media is finished.
Tap any camera switch to cut out of the media playback at any time.

- 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 control elements functionality



IN/OUT POINTS control elements functionality description

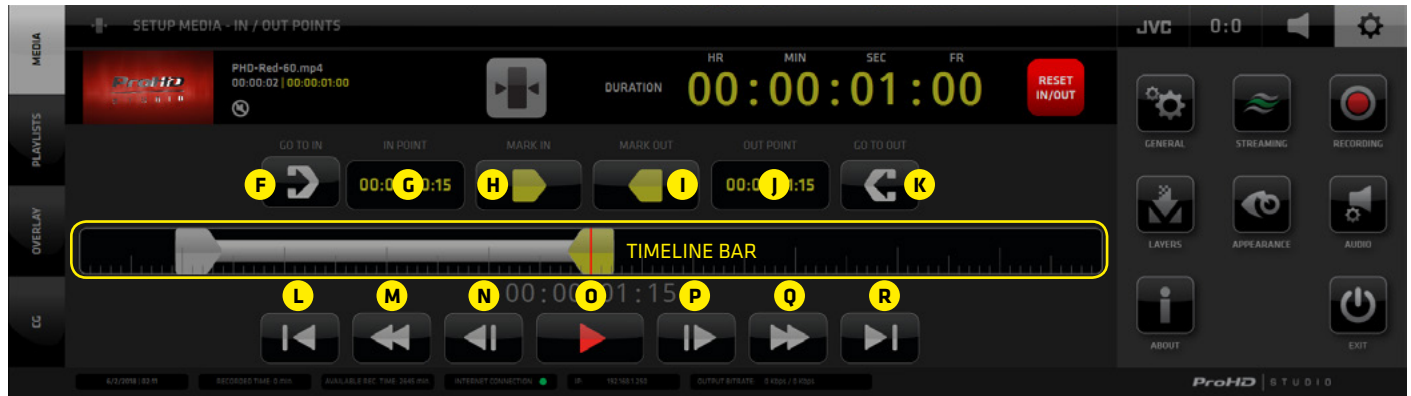
The MEDIA IN/OUT POINTS EDITOR pane contains several elements that enable you to easily and precisely setup the media playback In/Out points to prepare your media for playback in your live production.

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.

AUTOCUT

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.



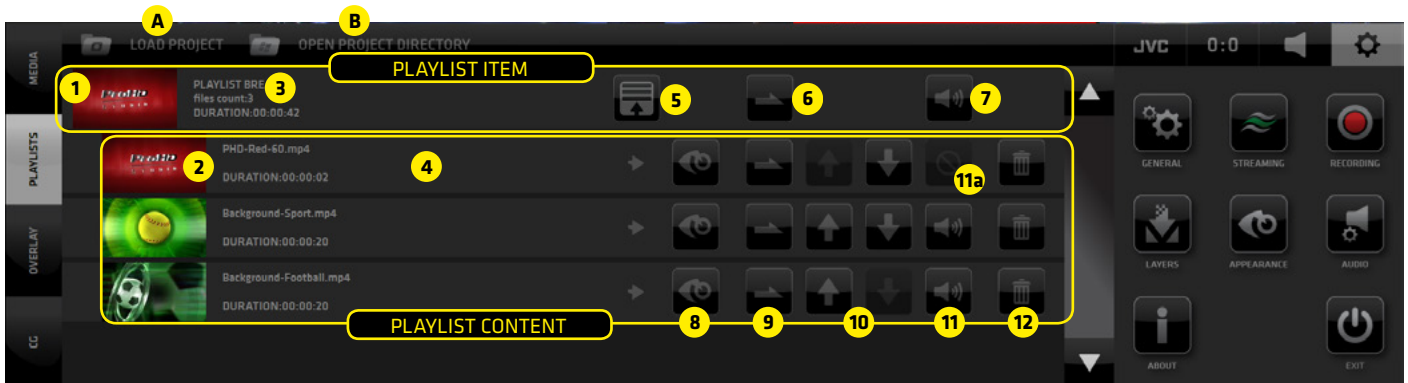
CMA (Content Management Area) - PLAYLISTS Menu Tab

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 and existing or creation of a new project

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



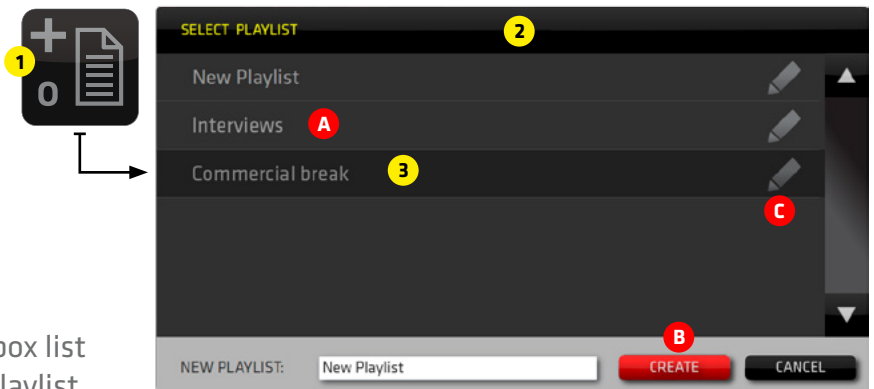
The PLAYLIST pane contains a list of PLAYLIST ITEMS with the following controls/buttons:

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 it's 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 REPLYAS 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

The OVERLAYS enables the insert of pre-rendered graphics into your live PGM. Typical usage is info graphics, bumpers, stingers, advertisements, pop up promos and similar. PNG files with transparency/alpha channel and FLV animations with transparency are supported. The OVERLAYS controls are accessed via the OVERLAYS TAB within the left side menu in the CMA.



OVERLAYS Operation Procedure:

1. Tap/click the OVERLAYS TAB in the left side menu bar of the CMA to display the OVERLAYS content.
2. Specify the directory containing your Overlays files using the SELECT OVERLAY DIRECTORY tab located in the CMA top menu bar.
3. 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 the slot. Each slot can also be loaded individually using the drop-down selector button on top of each slot.
4. To select a graphic to be inserted into live PGM tap/click a Slot. It's outlined in RED when selected.
5. To insert the selected Overlay into PGM Tap/click the OVERLAYS LAYER switch on top left side in the Production Layout Section.

NOTE: Alternatively if the OVERLAYS LAYER SWITCH in the Production Section on top left is active, you can switch the Overlay graphics directly by tapping the thumbnail previews in the Overlays pane in the CMA.




When you are using the optional ProHD Studio Keyboard the keyboard shortcuts for all Overlay slots are marked in BLUE. (It's the keys Q - T for the top 5 slots and Y-P for the bottom 5 slots on a PC keyboard)

CMA (Content Management Area) - CG Menu Tab

It 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 Streamstar 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 TAB in the left side menu of the CMA.

The TAB BAR on the top of the CG pane contains 6 TABS that provide access to the following:

A - CG DIRECTORY - select a directory containing the CG objects data to load into the CG List

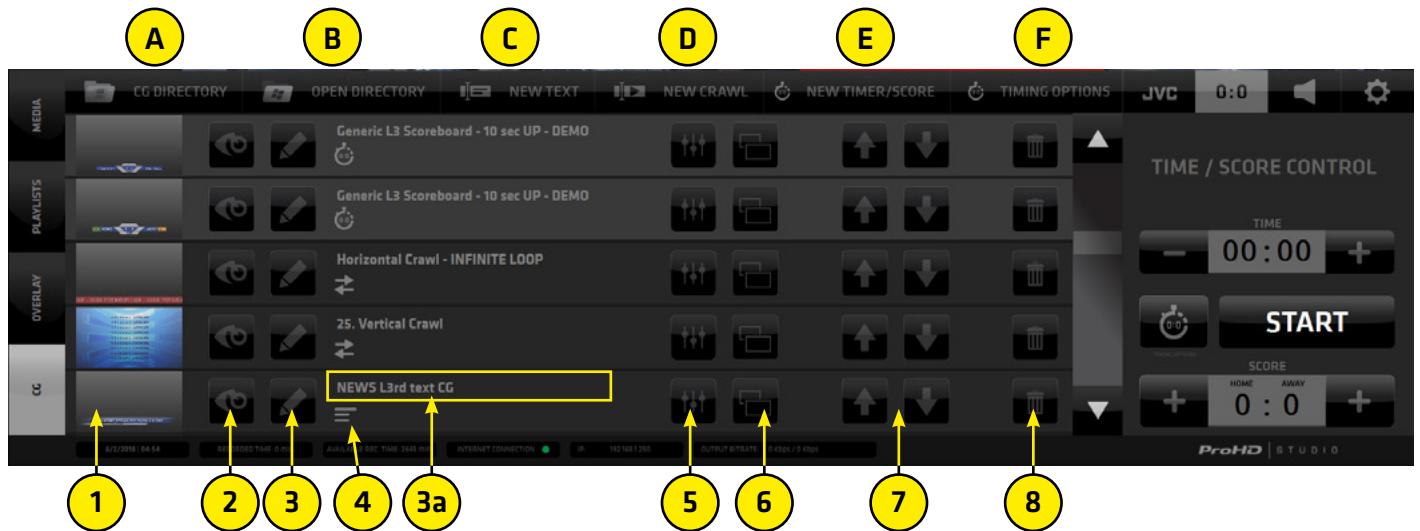
B - OPEN CG DIRECTORY - open selected CG directory in Windows OS to manage its content

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

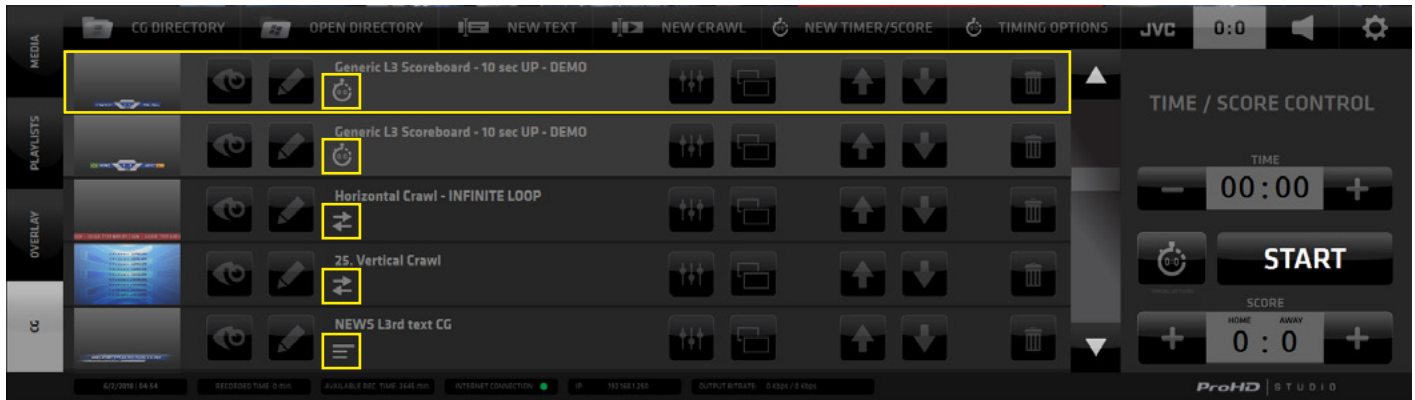
F - TIMING OPTIONS - access to Timing Options settings for the Timer/Score CG objects



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 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**

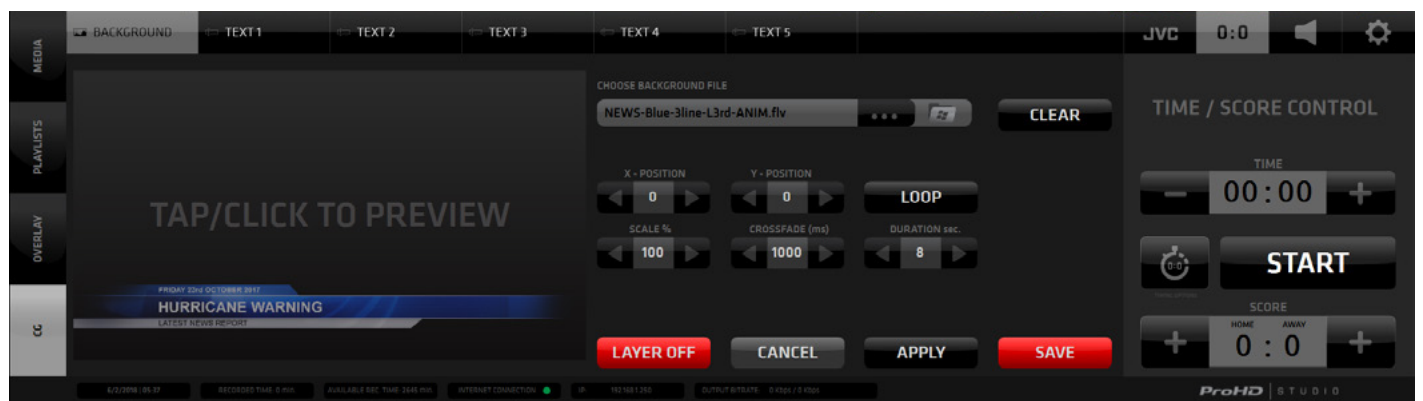
Used in the Timer/Score CG Objects only. Its content is controlled by a LIVE GAME controller that allows to increase the score, the game period or it is a running timer measuring the time of the game.

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

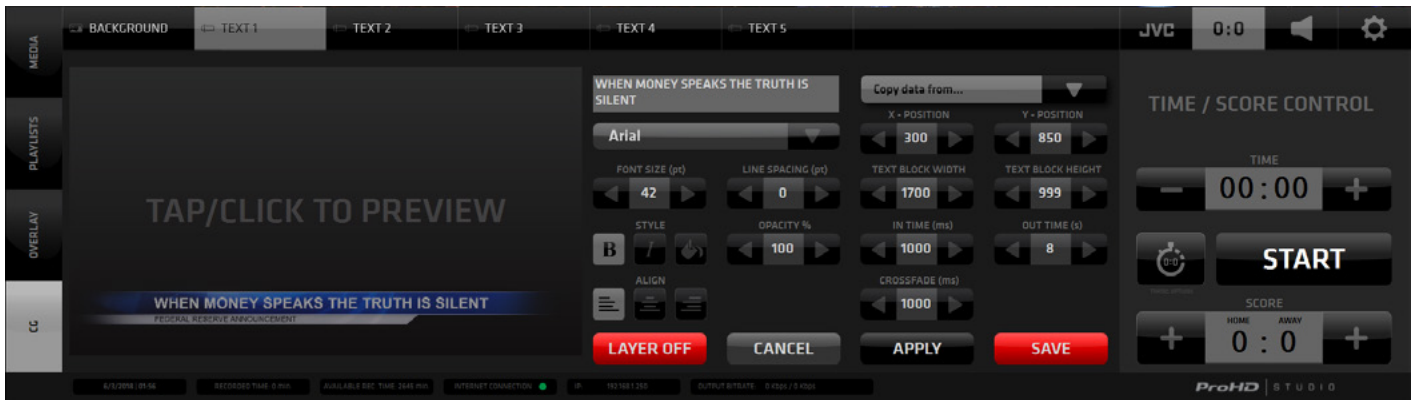
Buttons at bottom:

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

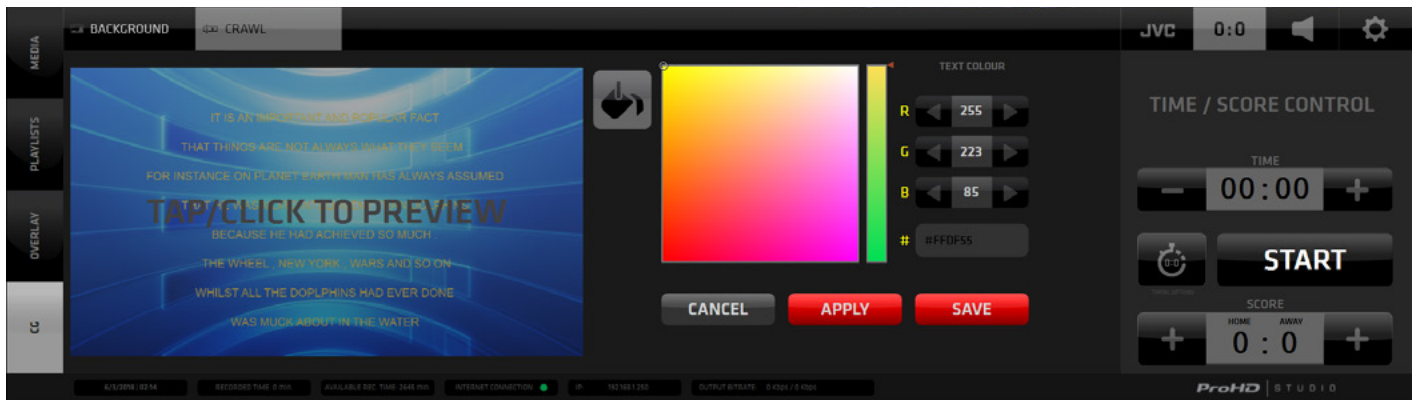
NOTE: The loop is only active for as long as set by the OUT TIME parameter which has the priority. The OUT TIME setting will terminate the crawl regardless of the loop setting. To loop the crawl text indefinitely you need to set the OUT TIME to 999.



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



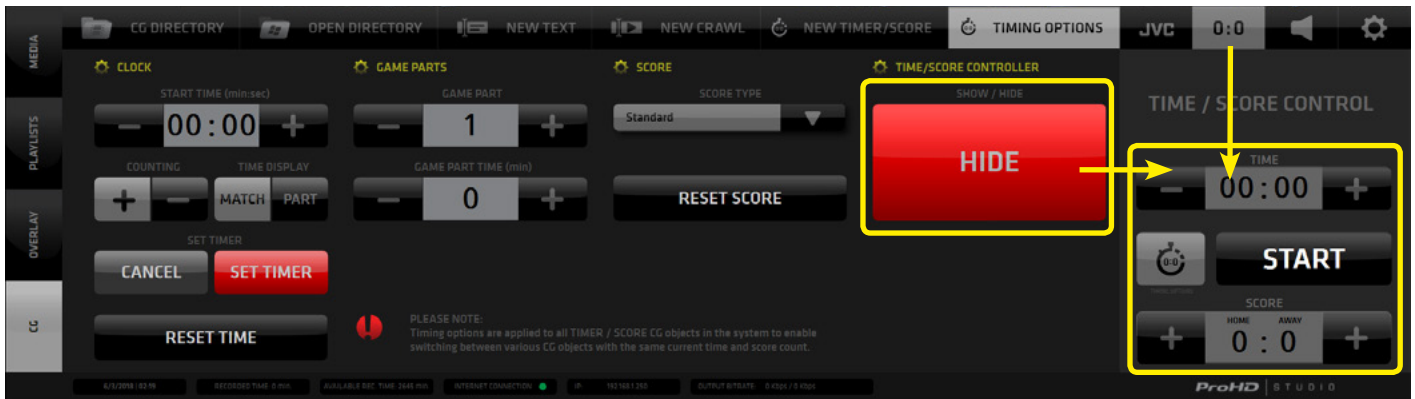
NOTE: ProHD Studio provides several examples of ready-made CG items to help you get started working with the CG system quickly. We recommend to duplicate any CG Object before you start editing it's parameters so the original configuration is preserved for reference.

TIMER/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 [0:0] tab in the SA MENU and/or the TIMING OPTIONS Tab found in the CG Tab of the CMA Left Side Menu.

The controller is displayed within the SA (Settings Area) to allow simultaneous operation of the live game graphics controls along with operating 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

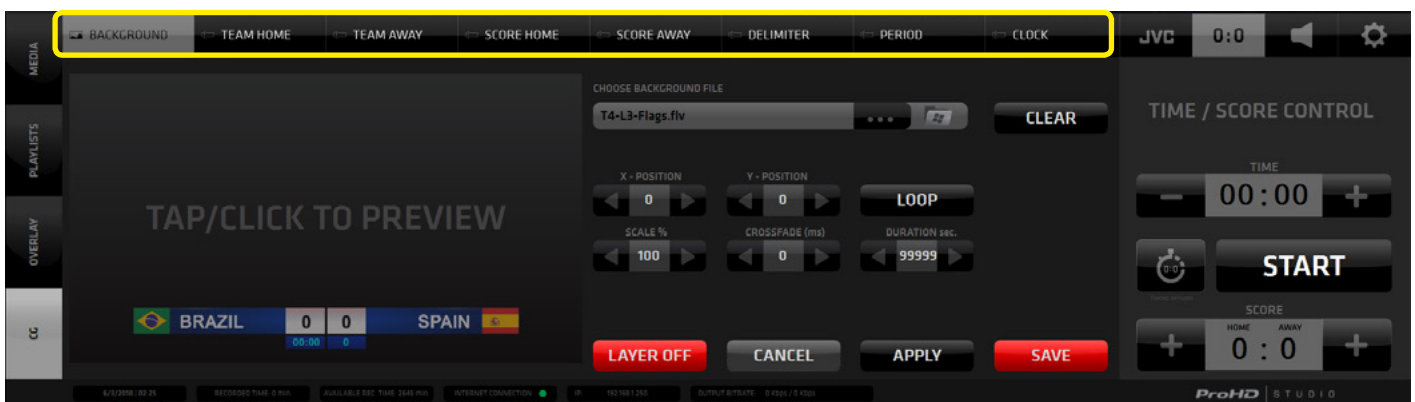
TEAM HOME and TEAM AWAY - regular text layers to be filled in buy user

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.

CG PANE - 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

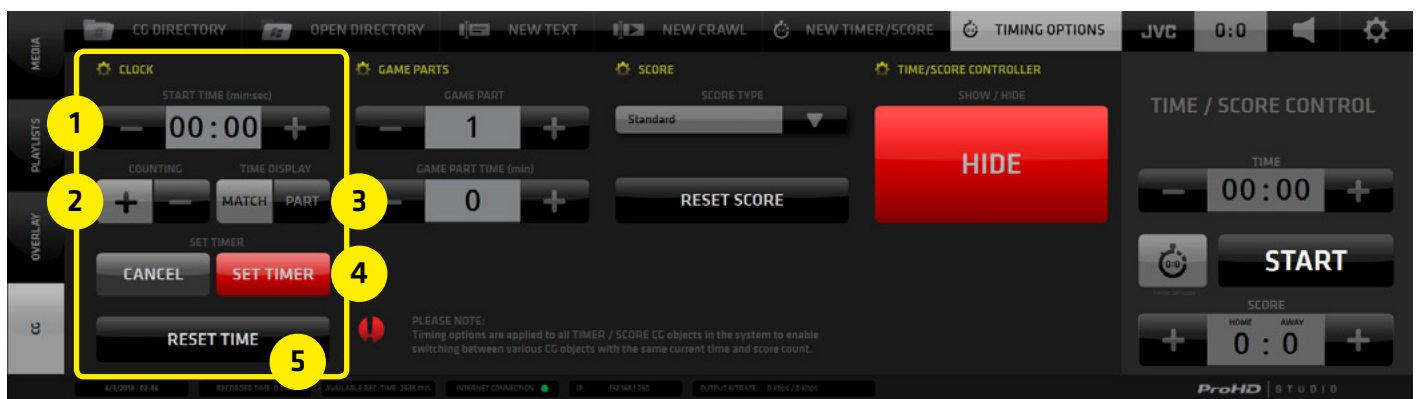
NOTE 1: *Be aware that if the COUNTING Method is set to [-] DOWN, the Start Time field needs to be set to a value allowing a Time Countdown to actually take place!*

- 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.



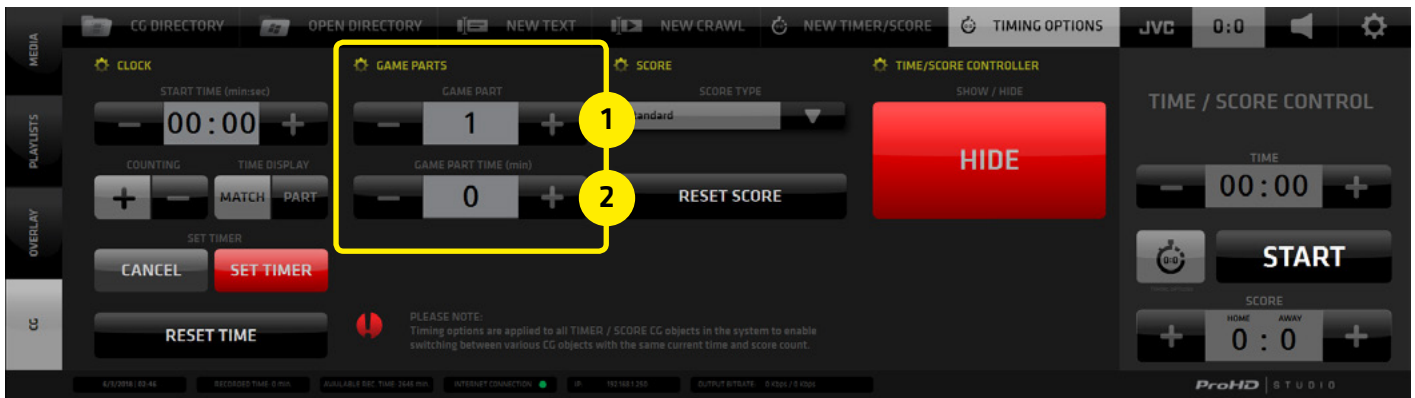
GAME PARTS Parameters Setup

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.*

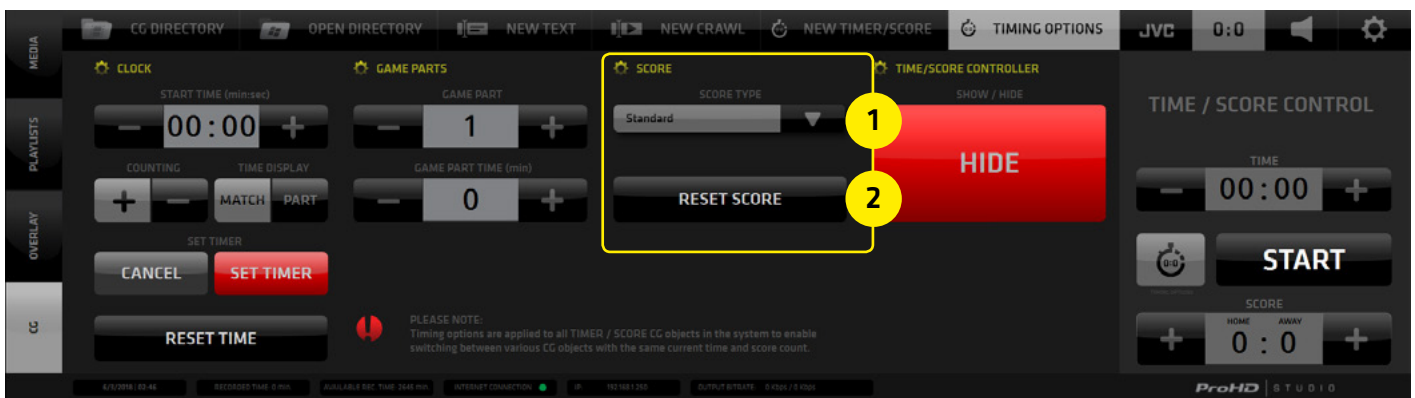


SCORE Parameters Setup

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.

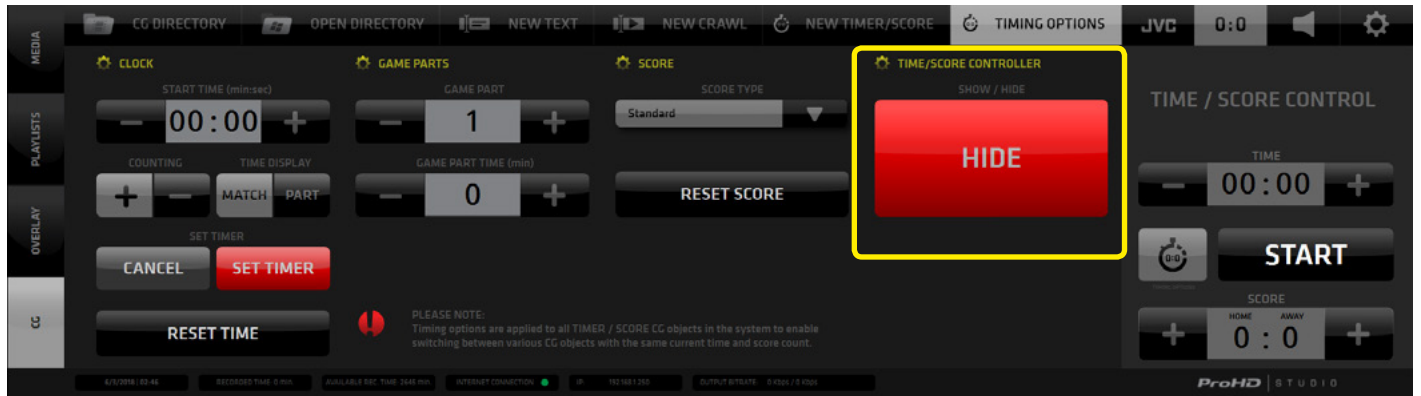
2. RESET SCORE - resets the score to the default value of "0 : 0"



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.

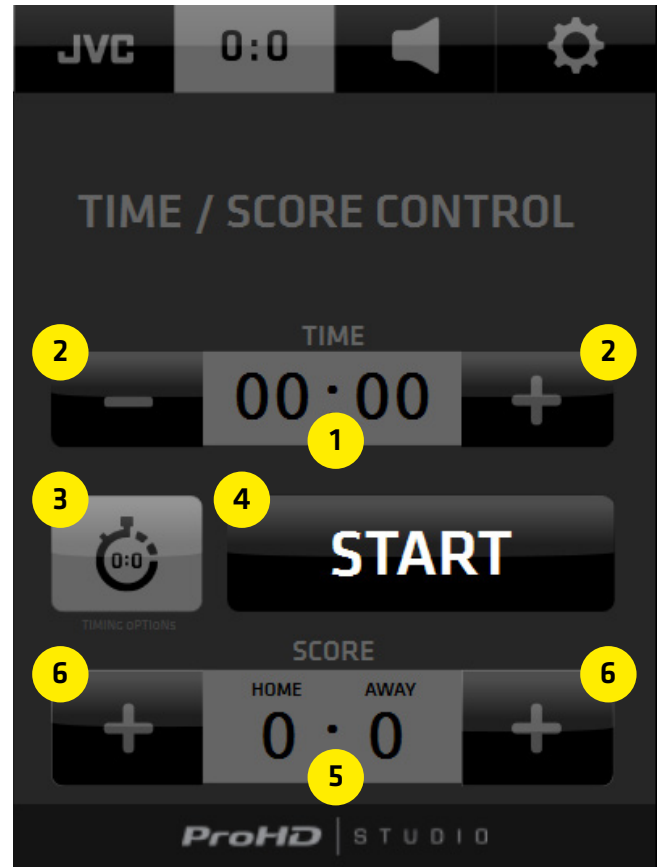
TIMER/SCORE LIVE GAME CONTROLLER

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 [+]

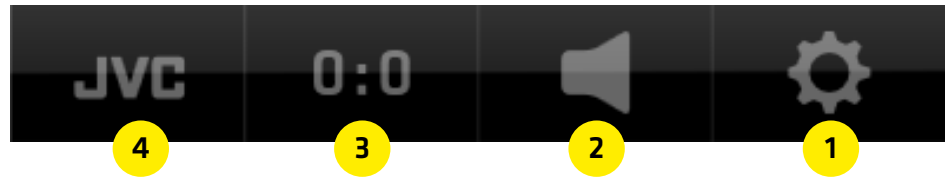


NOTE: Controller entries are applied to all TIMER/SCORE CG Objects in the entire CG system to enable switching of various CG Objects with synchronized data.

SA - SETTINGS AREA MENU

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

1. SYSTEM SETTINGS
2. AUDIO MIXER
3. CG TIME/SCORE CONTROLLER
4. JVC CAMERA CONTROLS

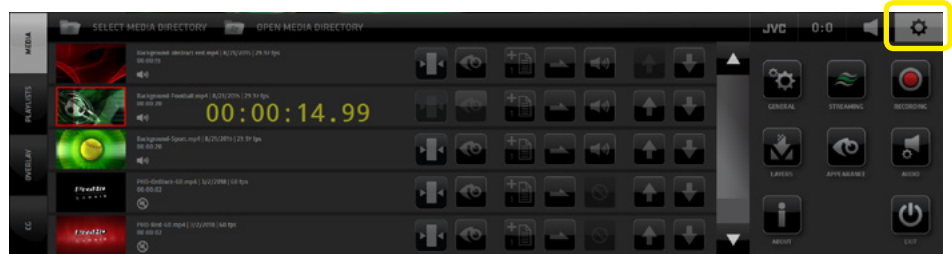


NOTE: For a good understanding of all the operating procedures and SW functionalities covered in the SA MENU TABS it is important to learn about the System Settings and their implications on the system performance first. Therefore we'll go through it in right to left order.

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

1. SYSTEM SETTINGS Tab

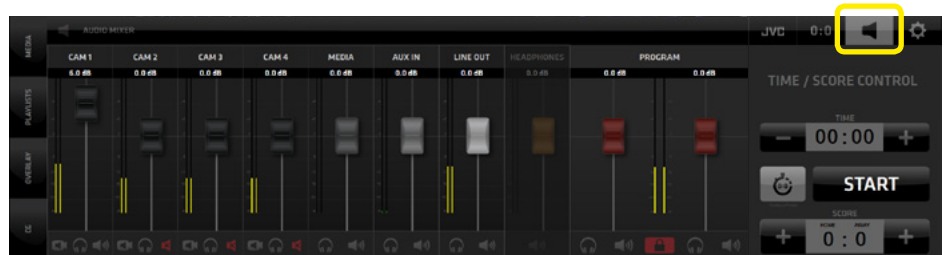
SA - System Settings buttons
CMA - no change from previous



2. AUDIO Tab

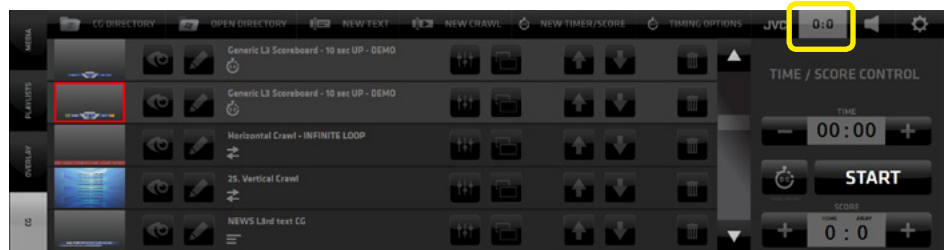
SA - Live TIME/ SCORE controller *
CMA - AUDIO MIXER in the CMA

*) Access to the live game controller in the SA has operational priority it is displayed for as long as possible and is hidden only when it is unavoidable.



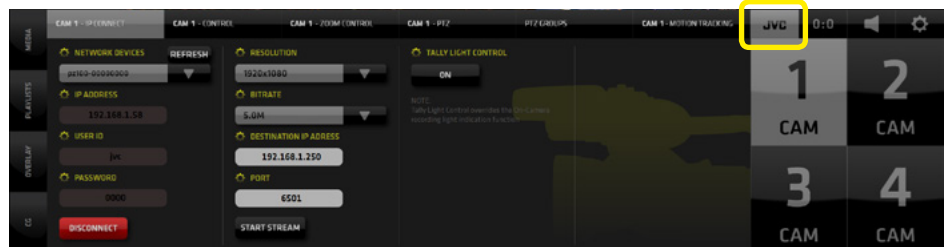
3. CG Time/Score Tab

SA - Live Time/Score Controller
CMA - CG List



4. JVC Tab

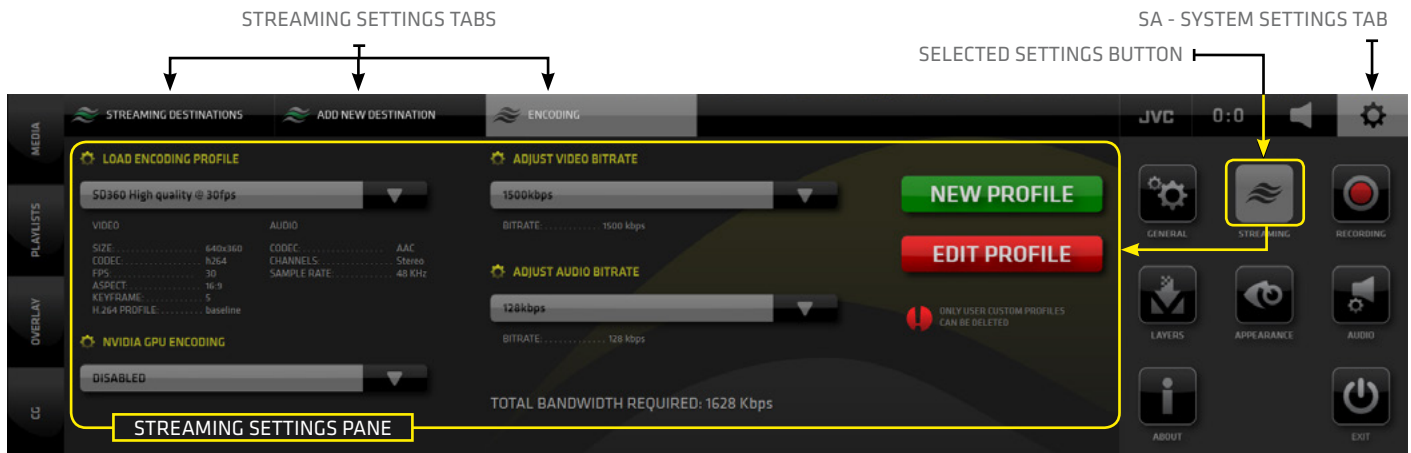
SA - camera selection buttons
CMA - JVC camera controls



SA (Settings Area) - SYSTEM SETTINGS Menu Tab

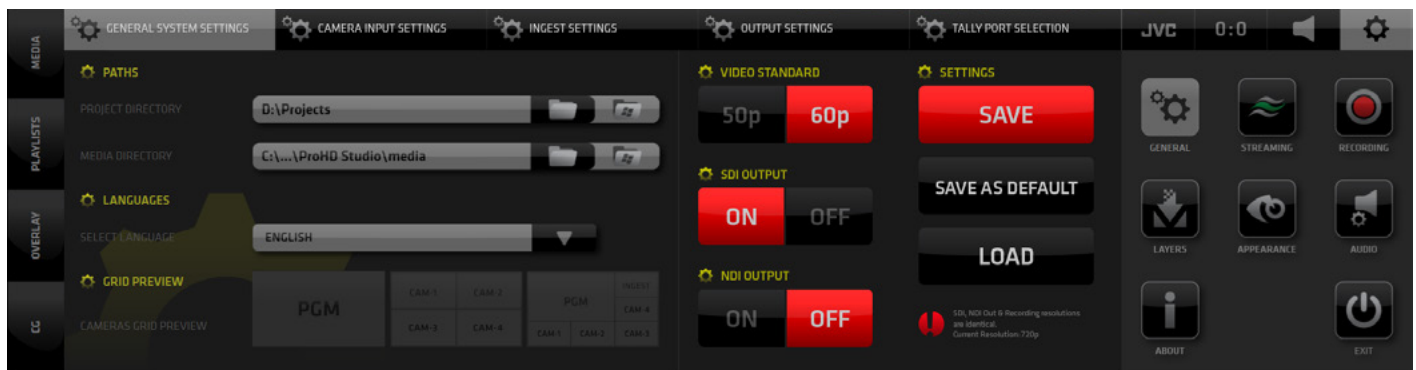
Provides 8 buttons to access control panes for all system settings and functions. Tap/click on a Settings button in SA opens a relevant settings pane in CMA. Some panes have additional PREFERENCES TABS in the top bar of the CMA allowing access to more settings and adjustable parameters.

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



GENERAL / General System Setting tab

Contains setup of directories, language choices, second monitor layout selector, video standard settings, settings saving options and load settings.



GENERAL / Camera Input Settings tab

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



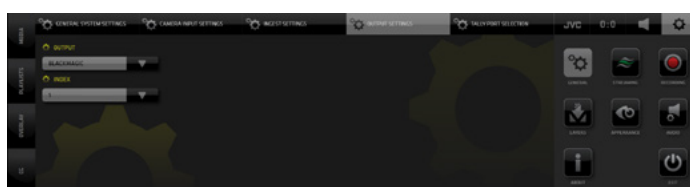
GENERAL / Ingest Settings tab

Ingest Layer Input setup - a notebook, an action camera, or even a smartphone can be used as sources and inserted into your live production



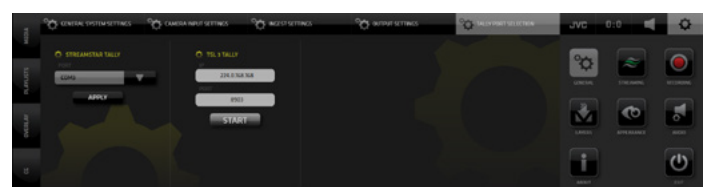
GENERAL / Output Settings tab

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



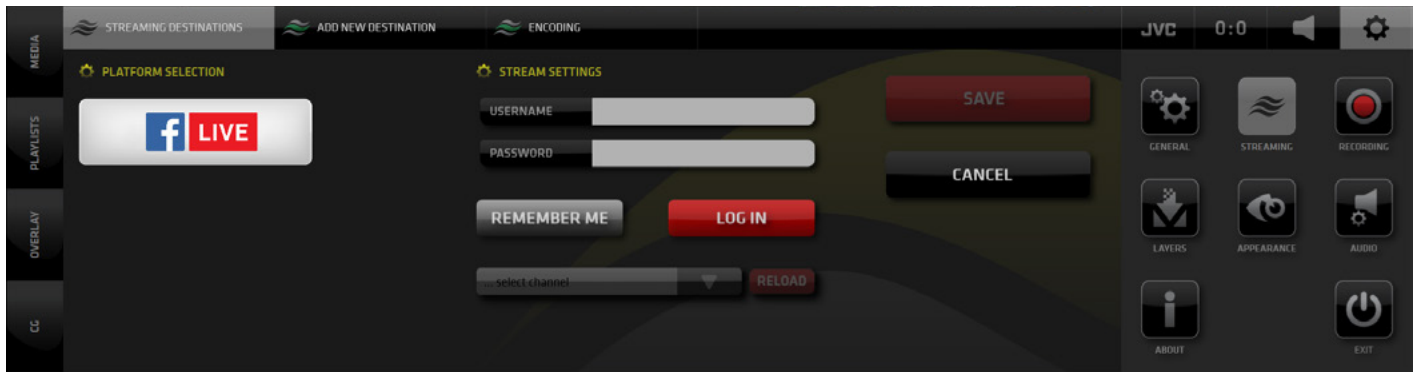
GENERAL / Tally Port Selection tab

setup of the communication port for the optional Tally & Intercom



STREAMING / Streaming Destination tab

Login Data Input for the selected streaming platform



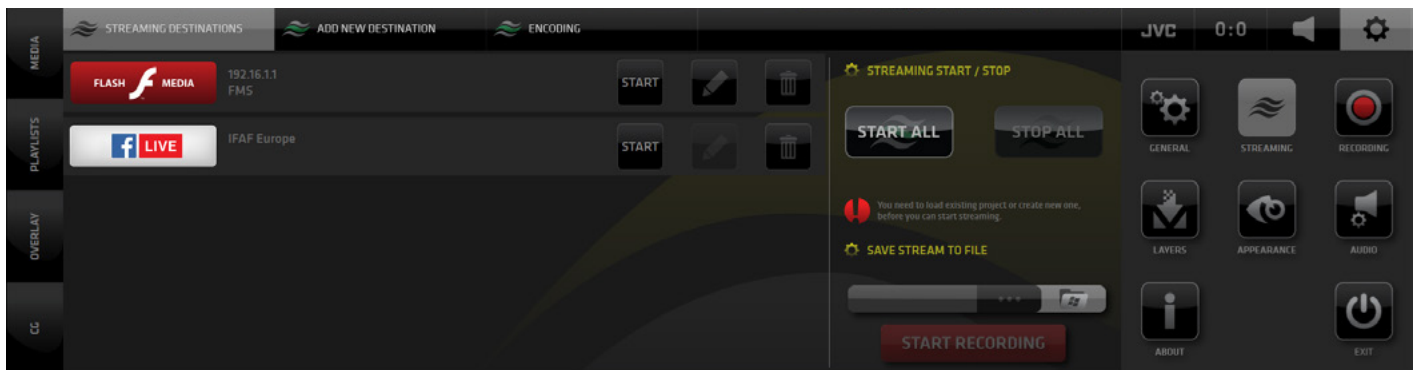
STREAMING / Streaming Destinations tab

Multiple Streaming Destinations List - streaming controls START, EDIT and DELETE buttons for each streaming destination are provided.

START ALL - start streaming to all destinations

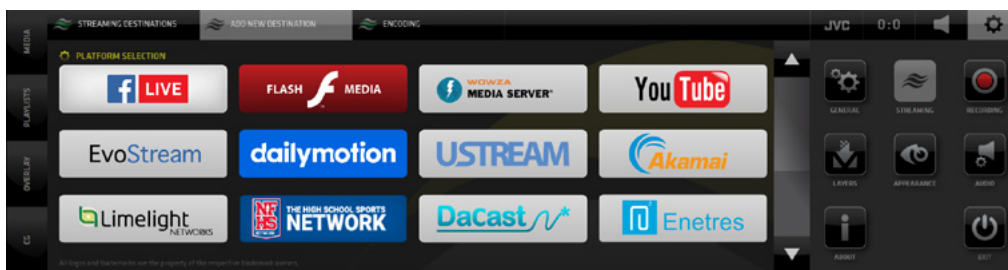
STOP ALL - stop all streaming

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



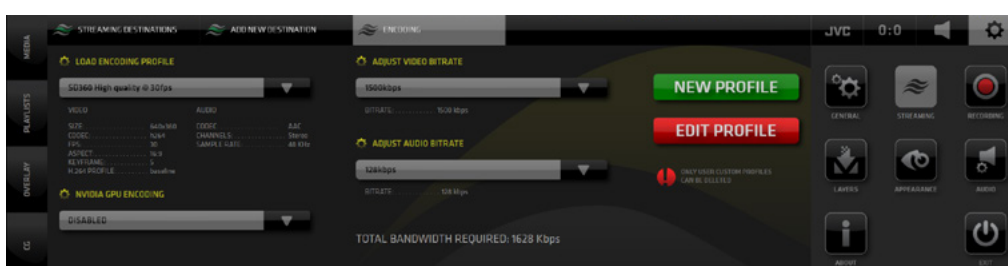
STREAMING / Add Streaming Destination tab

List of predefined streaming platforms - tap/click to choose and go to 3.2a to login



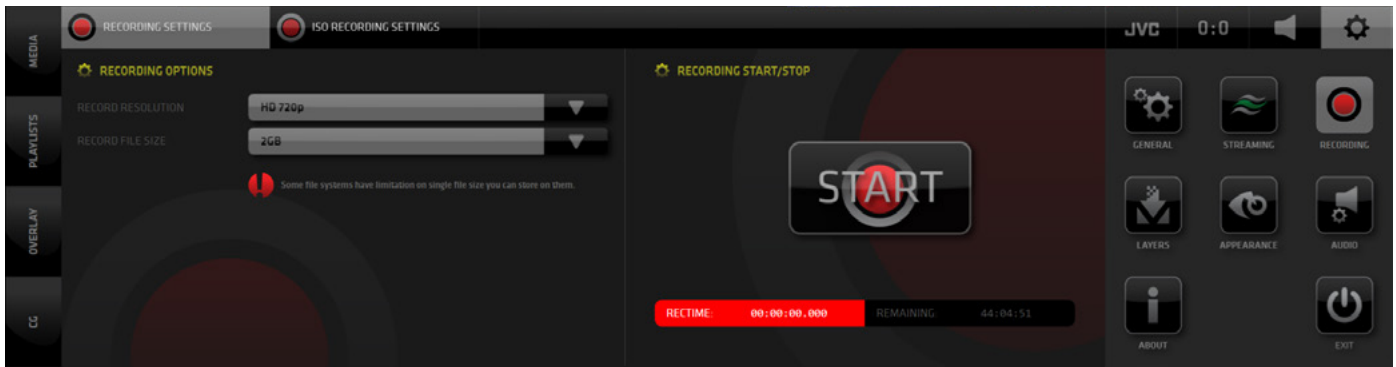
STREAMING / Encoding tab

Encoder profile setup - audio/video bitrates



RECORDING / Recording Settings tab

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



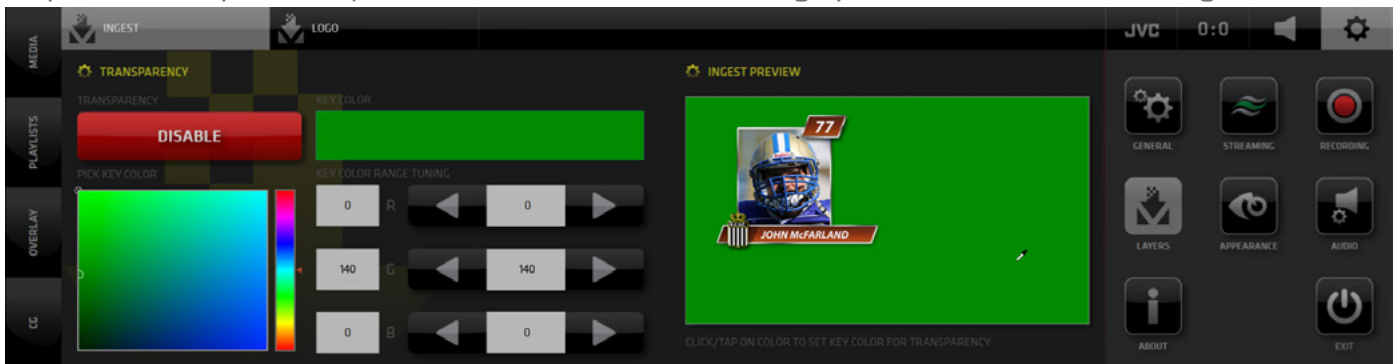
RECORDING / ISO Recording Settings tab

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



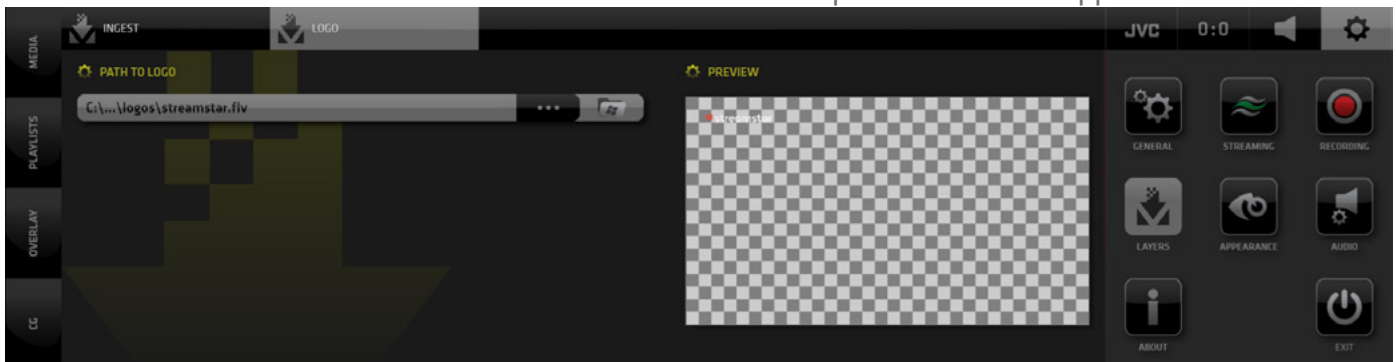
LAYERS / Ingest tab

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.



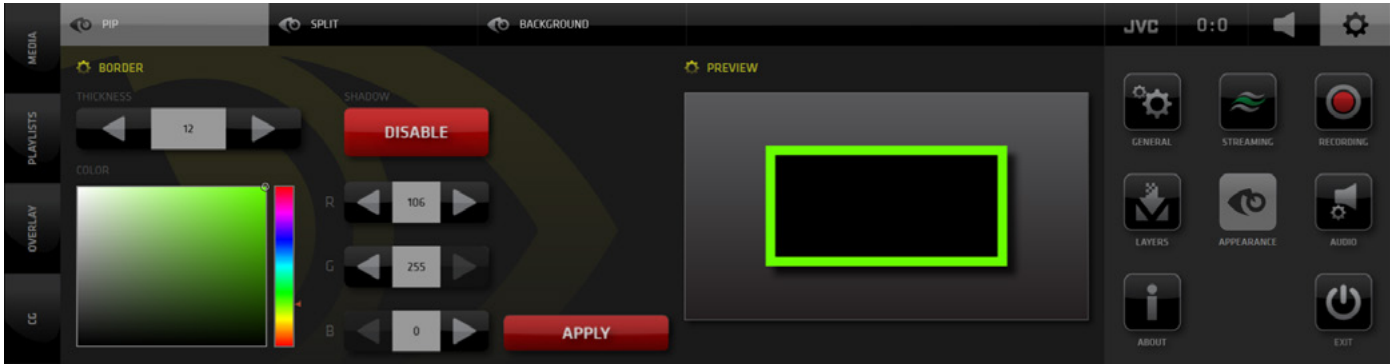
LAYERS / Logo tab

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



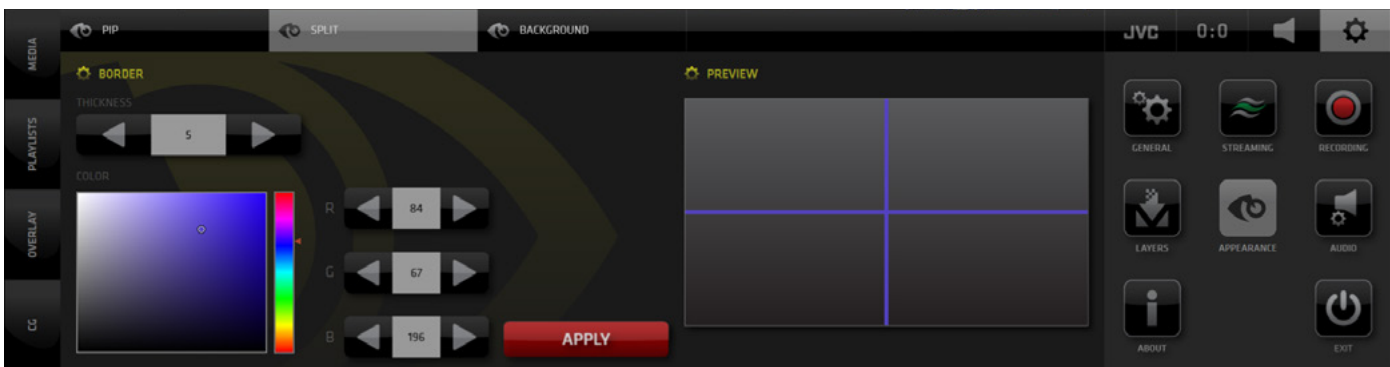
APPEARANCE / PIP tab

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



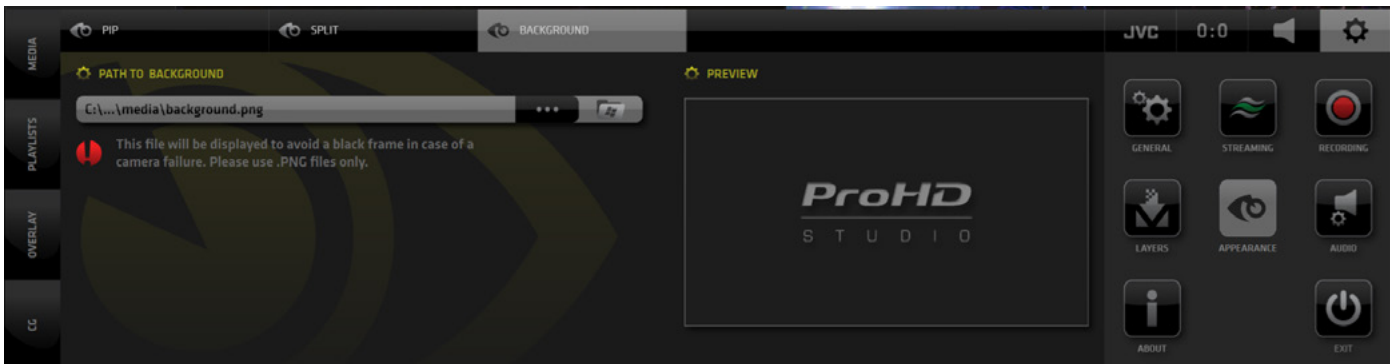
APPEARANCE preferences / SPLIT tab

setup SPLIT SCREEN border color and thickness



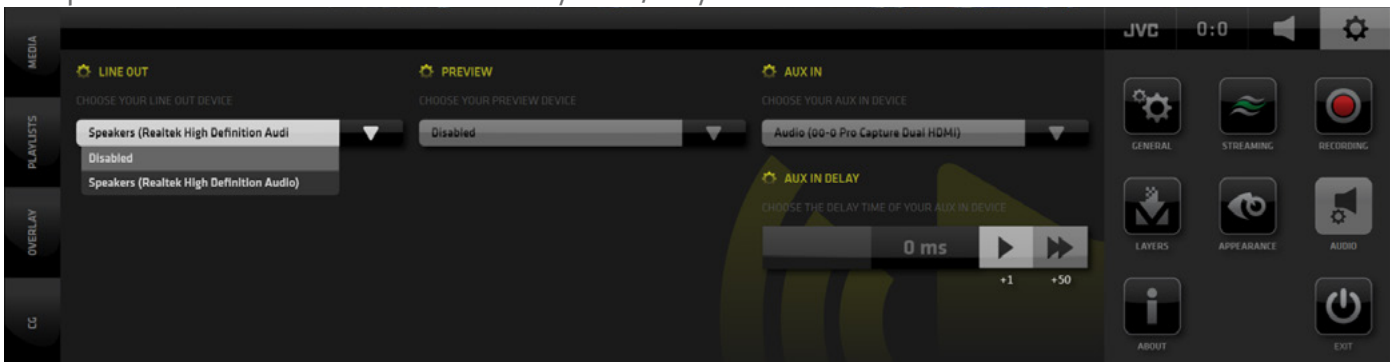
APPEARANCE / BACKGROUND tab

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



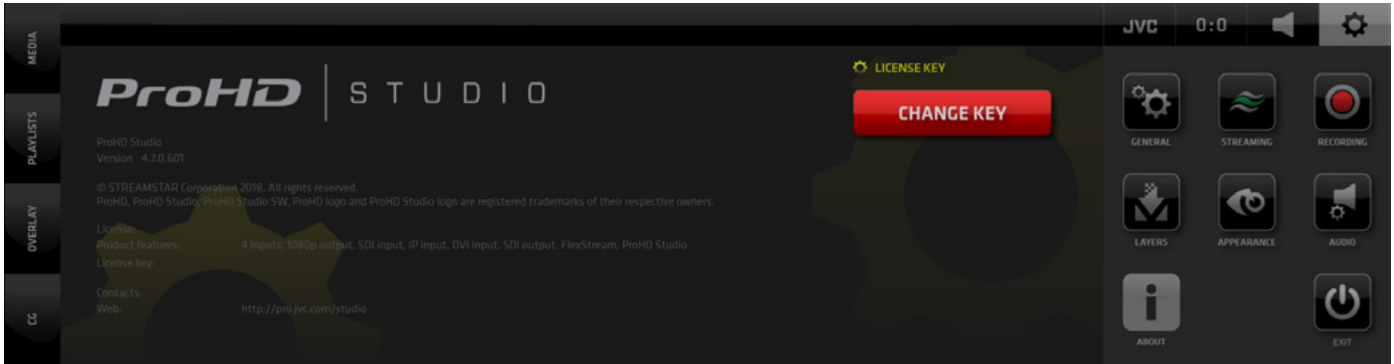
AUDIO Setting

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



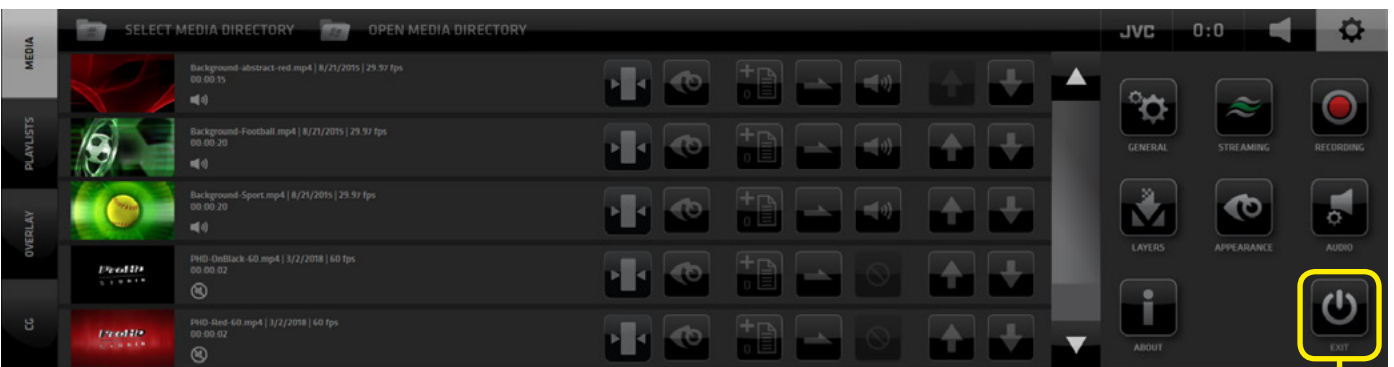
ABOUT screen

Provides system information and license key entry button

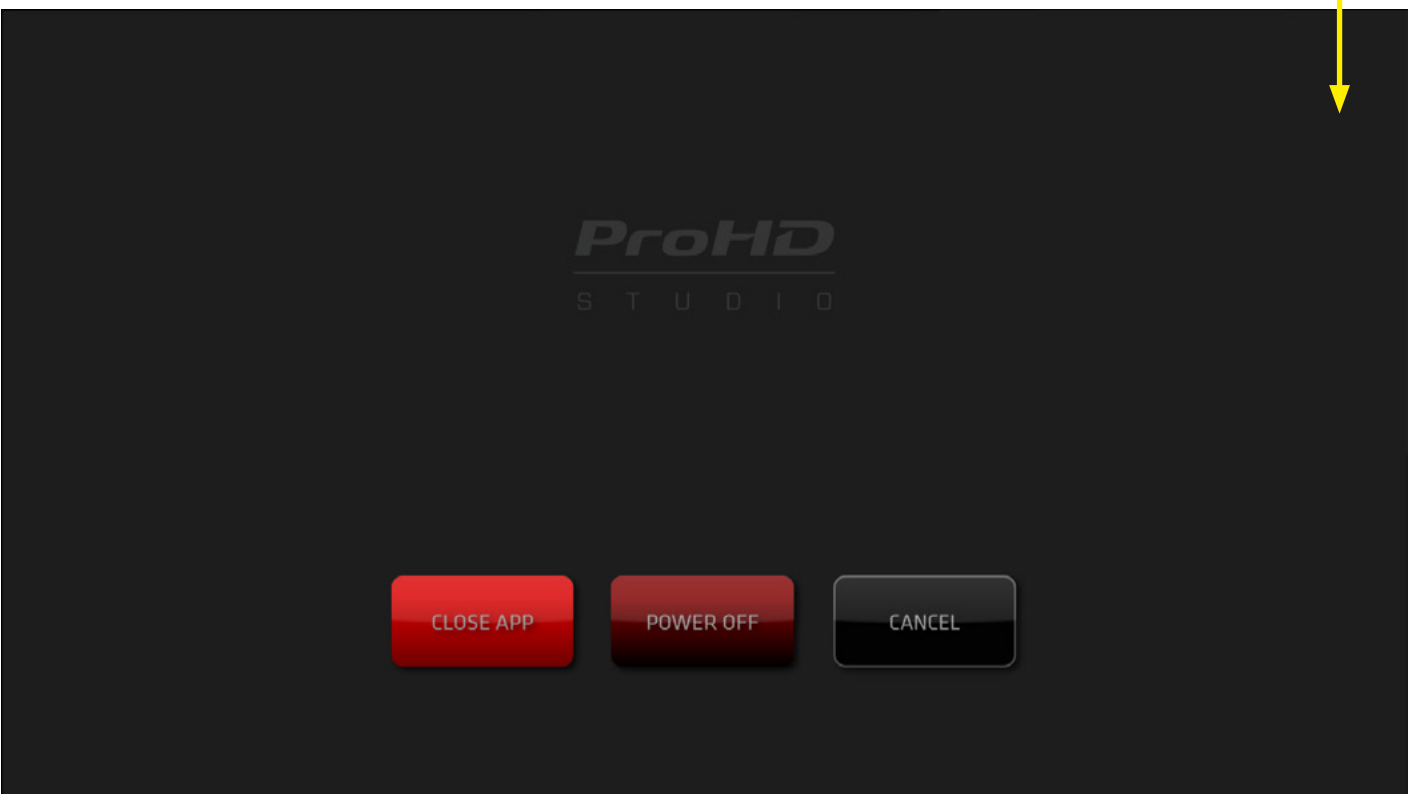


EXIT

Tap/click the EXIT button to close the application



Application shut down / system shut down dialog



SA (Settings Area) - AUDIO Menu Tab

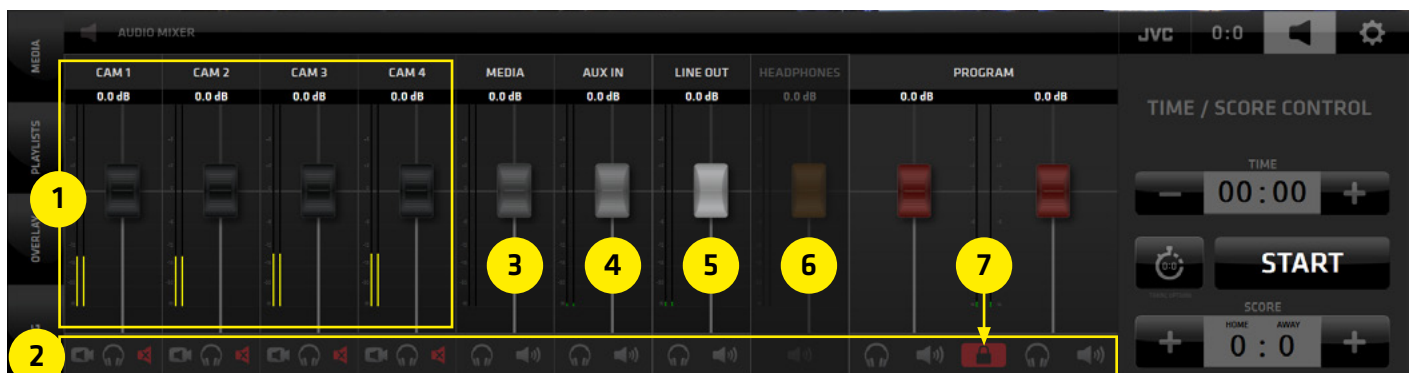
Activates the display of the AUDIO MIXER in the CMA and the REPLAY CAPTURE buttons in the SA (*ProHD Studio SPORTS version only*).

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
4. AUX input fader (external audio signal source)
5. Line Out fader
6. Headphones output fader
7. Program Output levels stereo faders with levels, peaking and a stereo lock/unlock

Important notes on certain functionalities of the Audio Mixer:

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



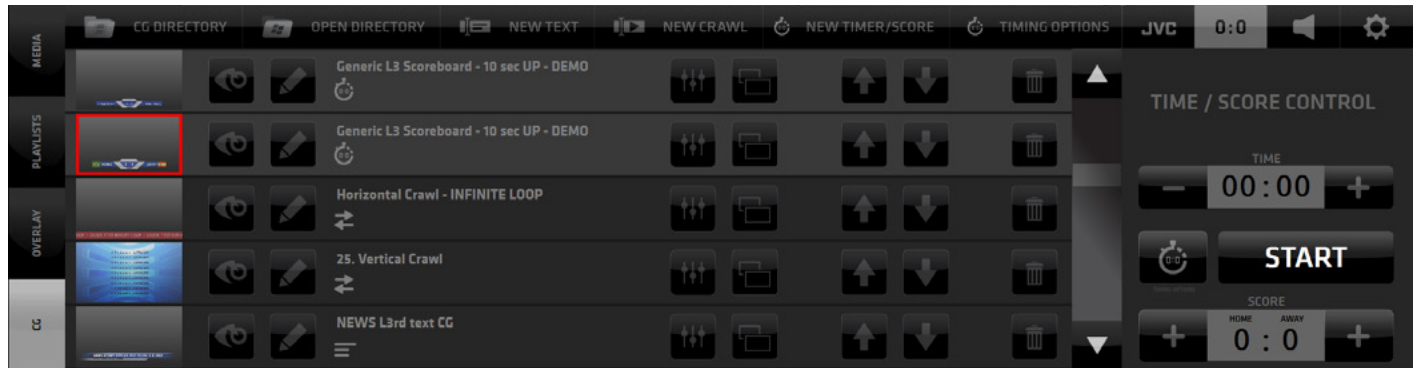
NOTE: 1. All faders have integrated Level and Peaking indicators
2. Basic knowledge of audio mixer operation is required. It is beyond the scope of this manual to explain Audio Mixer board operational procedures.

AUDIO FOLLOW VIDEO

This functionality makes the audio mixer a slave to the video mixer. Whenever the functionality is active (red speaker in camera icon) - on a certain channel, switching video to another camera will switch the audio of that channel off and vice versa.

SA (Settings Area) - CG TIME/SCORE CONTROLLER

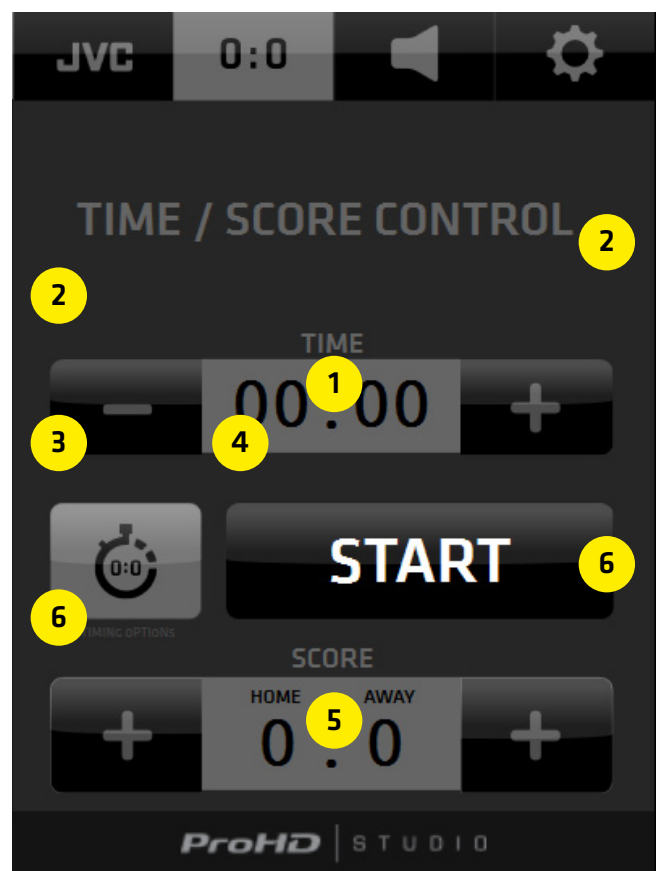
Provides access to the Live TIME /SCORE CONTROLLER in the SA to allow for live game control / manual control of the data in the dynamic layers of Timer/Score CG Objects.



NOTE: The following description of the TIME/SCORE CONTROLLER is a copy of the same content already explained on pg. 30. To make things practical and because it is very relevant we included it in this section as well. If you are familiar with its operation you can skip to the next page.

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) - JVC CAMERA CONTROL Menu Tab

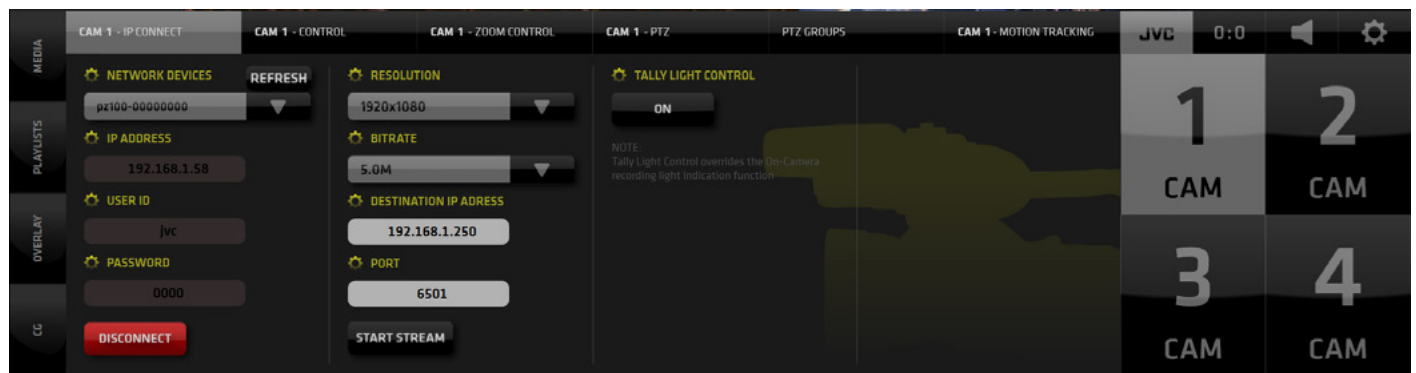
It provides all the interface elements to remotely control JVC camcorders or PTZ cameras - over IP. It is divided into 4 TABS with various logically related controls.

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

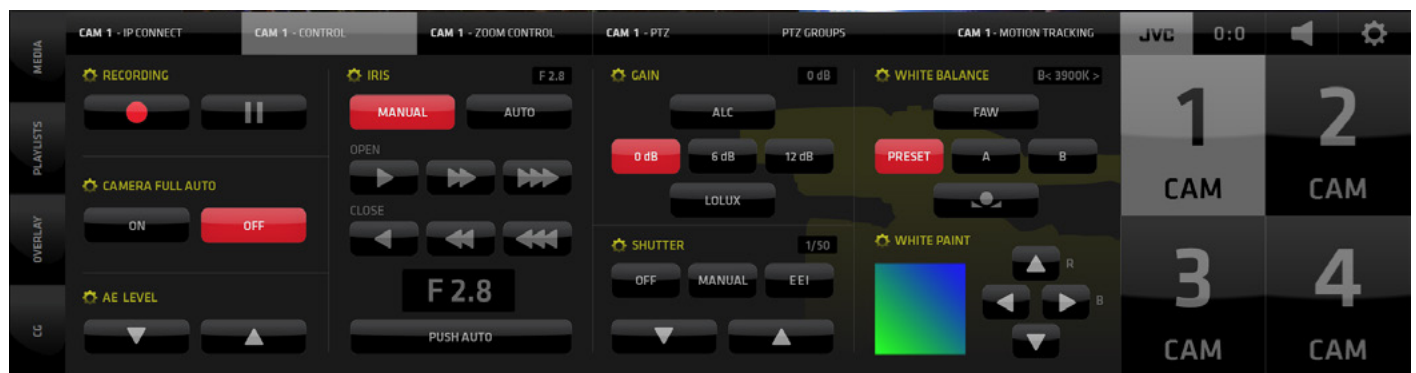
NOTE: when a camera is connected, the Streamstar SW takes over the function of the on camera recording light and uses it as TALLY LIGHT



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)

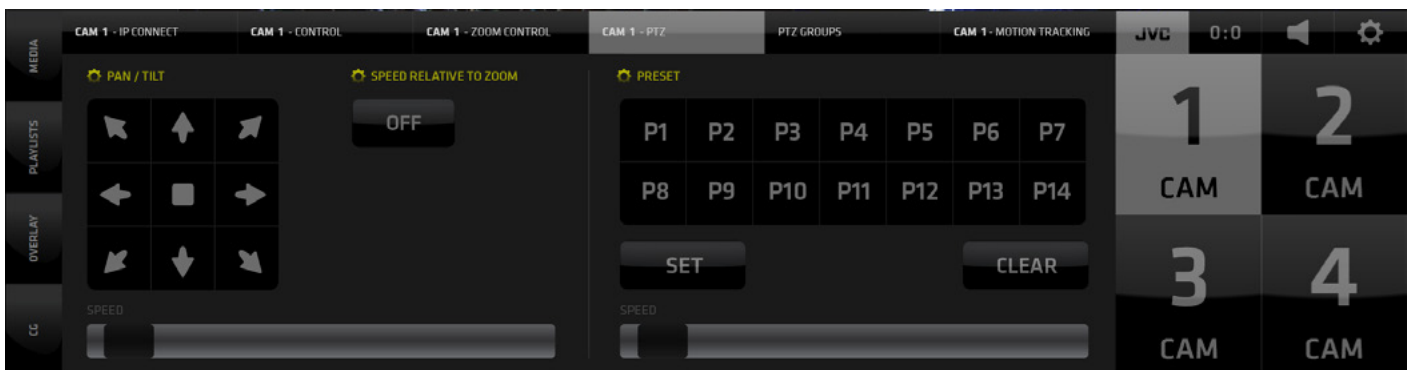


NOTE: For details on the functionality and settings of JVC cameras please refer to your camera users manual.

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



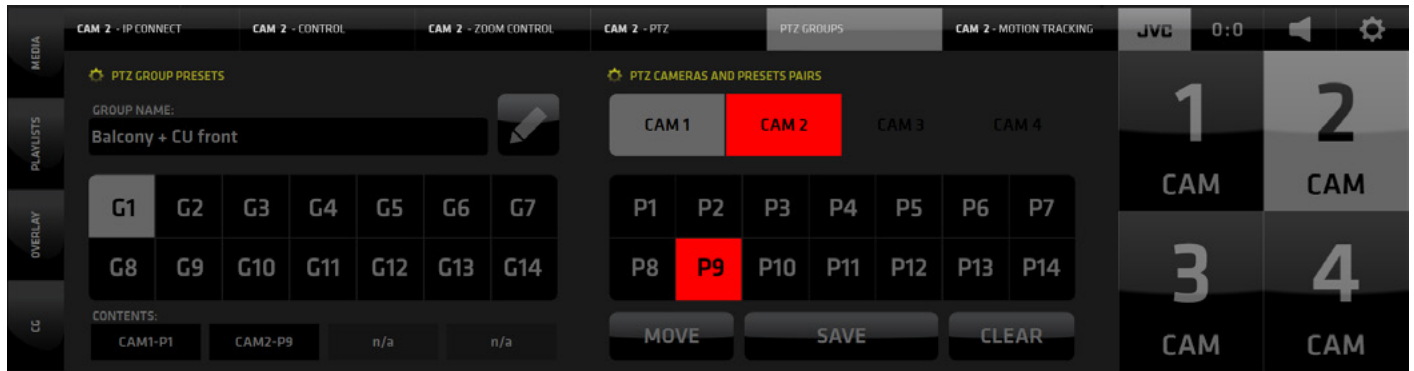
PTZ controls operating procedures:

- 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:

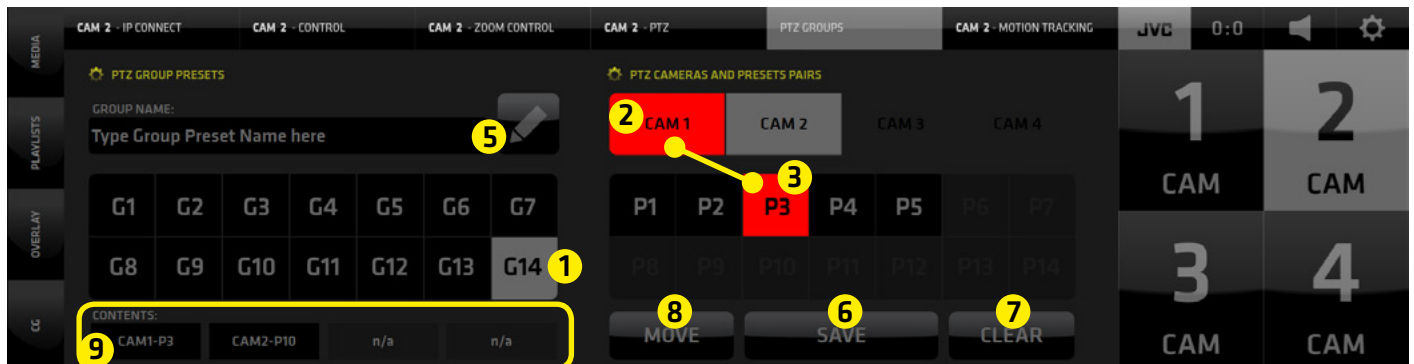
1. Select a slot (button) for a new group preset in the grid of buttons on the left G1 - G14
2. Select a camera in the upper row of buttons of the PTZ CAMERAS AND PRESETS PAIRS on the right
3. Choose a preset for the selected camera 1-14 that will be used when this Group preset is activated
Note: Steps 2 & 3 created a so called "Camera+Preset PAIR"
4. Repeat steps 2 & 3 and create more Camera+Preset pairs
- add as many as you wish - up to 4 are possible
5. Name the preset - Select a Group Preset and Click the PENCIL button above the G1-G7 buttons.
Type a name/note in the field - tap 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.

Executing a Group Preset will move all cameras in the group to their chosen presets at once.

If a camera is in LIVE PGM it will not move. Only after it is switched off it will move to complete the Group Preset.

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

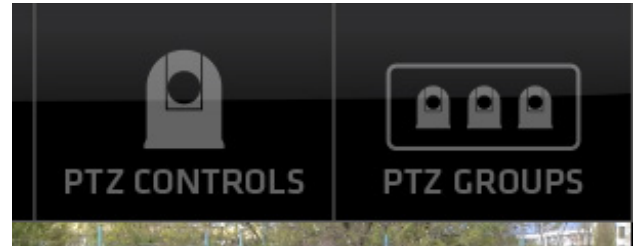
It contains 2 Camera+Preset Pairs: CAM1-P3 and CAM2-P10. The content of the selected group preset is indicated in the CONTENT fields below the Group Preset buttons (*marked 9*). The Camera+Preset pairs are clearly listed.



TOP MENU - Camera Presets and Group Presets - GUI explained

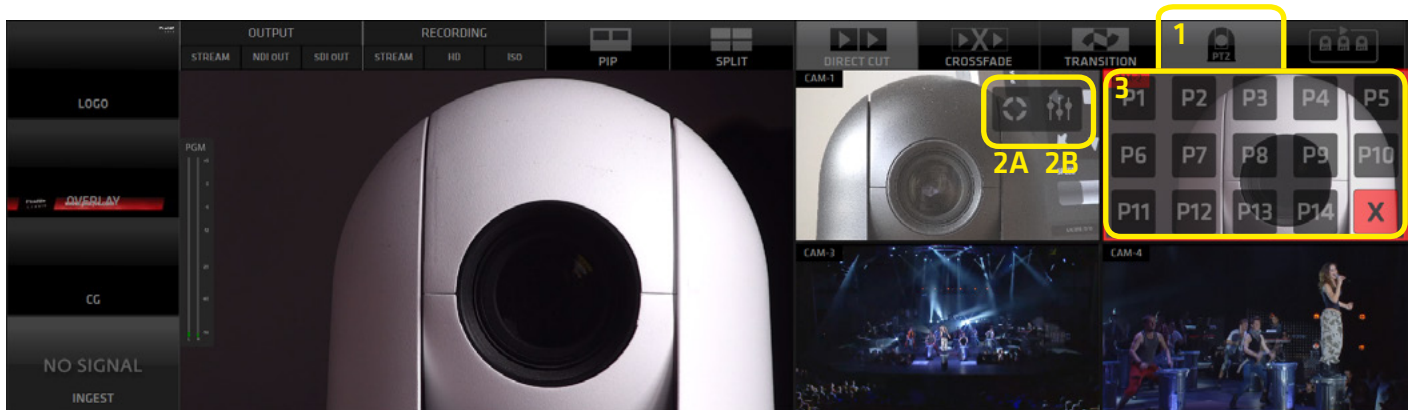
Now that we understand how the Camera presets and Camera groups work we can return to the two PTZ functionality buttons in the TOP MENU.

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



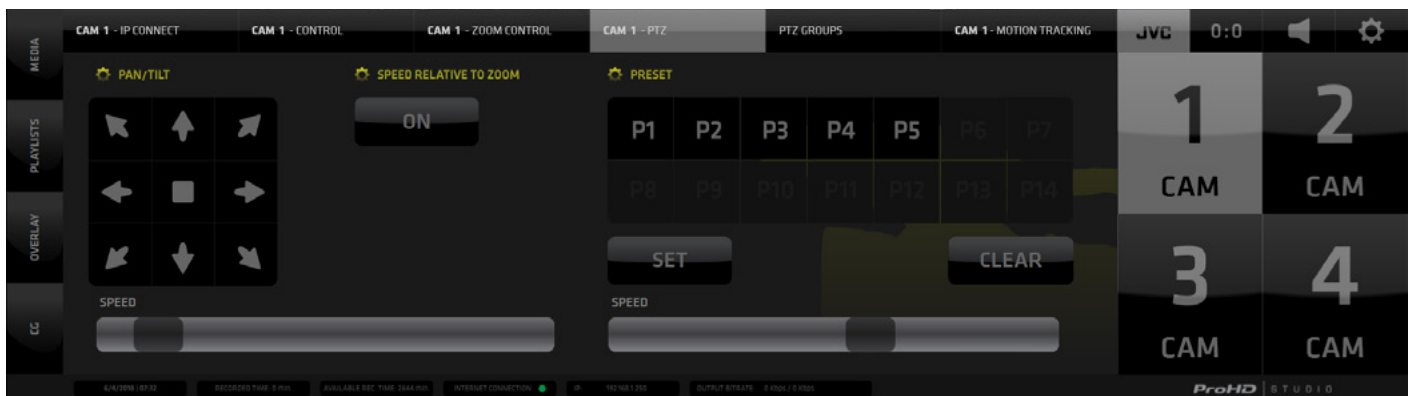
PTZ CONTROLS

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

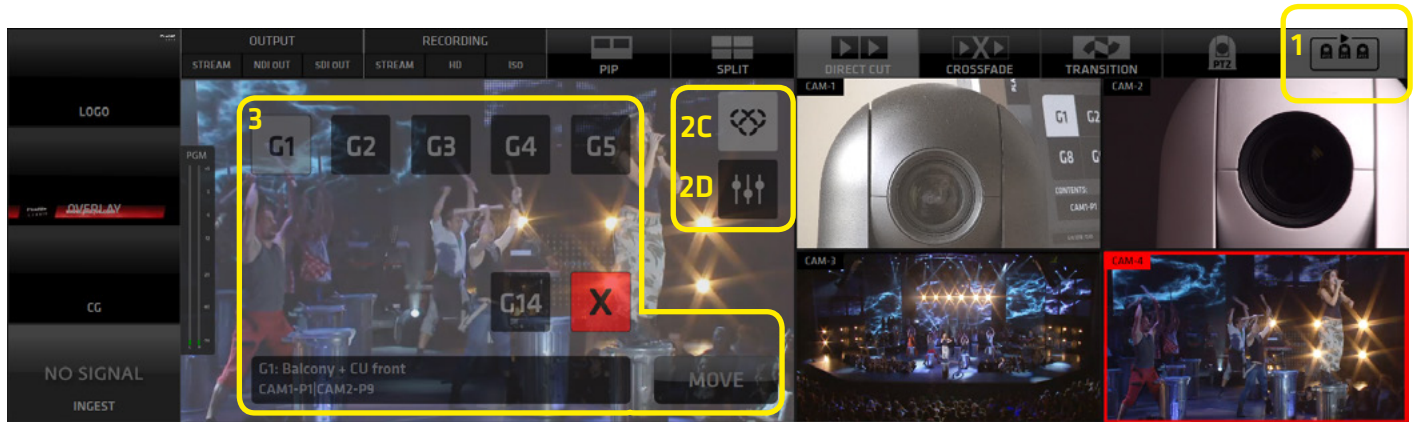
2D - PTZ Camera GROUP PRESETS HOT KEY

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

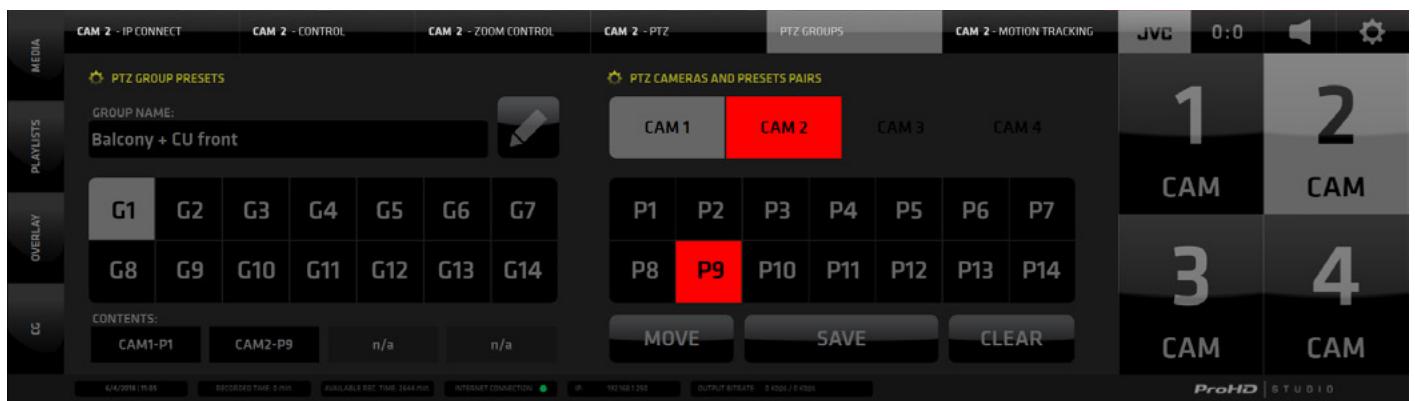
a - These are the presets created in the PTZ CAMERA GROUP PRESETS pane in the JVC PTZ CAMERA GROUPS PRESETS Tab.

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.

PTZ MOTION TRACKING Tab

Provides access to the JVC - PTZ camera Motion Tracking controls.

In principle Motion Tracking is the ability of the ProHD Studio SW to:

- analyze the image captured by a JVC PTZ camera and recognize a defined pixel pattern in its field of view
- control the JVC PTZ camera Pan/Tilt controls to follow the motion of such pattern to keep it within its field of view

To achieve that the ProHD Studio employs advanced image analysis algorithms that control the behavior of the JVC PTZ cameras over IP.

The Motion Tracking Tab features its own **SUBMENU** located below the Motion Tracking Tab on the right side of the CMA. It contains 7 submenu items that reveal various controls needed to setup and control the Motion Tracking functionality:

1. BASIC SETTINGS - basic parameters setup
2. REFRAMING AREA - setup of borders that activate camera tracking motion
3. SAFETY ZONES - approach zones to borders to fine tune camera tracking motion
4. PATTERN RECOGNITION - pixel pattern definition for recognition analysis
5. FRAMING - positioning preferences for of the tracked pattern within a video frame
6. TOUCH AND FOLLOW - manual tracking triggered by user touch-screen input
7. PREVIEW - preview of the motion tracking behavior and pattern search preferences



This screenshot shows 2 JVC PTZ cameras connected to the system.

A - PTZ CONTROL in the Main Menu is turned ON to reveal PTZ Control elements.

B - Turn Motion Tracking ON using the TRACKING ON/OFF button in the CMA or...

C - In the live camera monitors of the PTZ cameras a new Motion Tracking control element is displayed
Part C1 - on the left is used to turn Motion Tracking ON/OFF

Part C2 - on the right is already a familiar hotkey to reveal the motion tracking pane in the CMA

D - When motion tracking is enabled the button B turns grey indicating an active MT Mode on this PTZ

E - Motion Tracking mode is also indicated by a green MT ICON  in the Live Camera Monitor top left corner so it is visually identified also when the PTZ CONTROL (A) in the Main Menu is OFF.

PTZ MOTION TRACKING - SUBMENU - BASIC SETTINGS

Provides access to basic Motion Tracking settings.

The following settings/control elements are available:

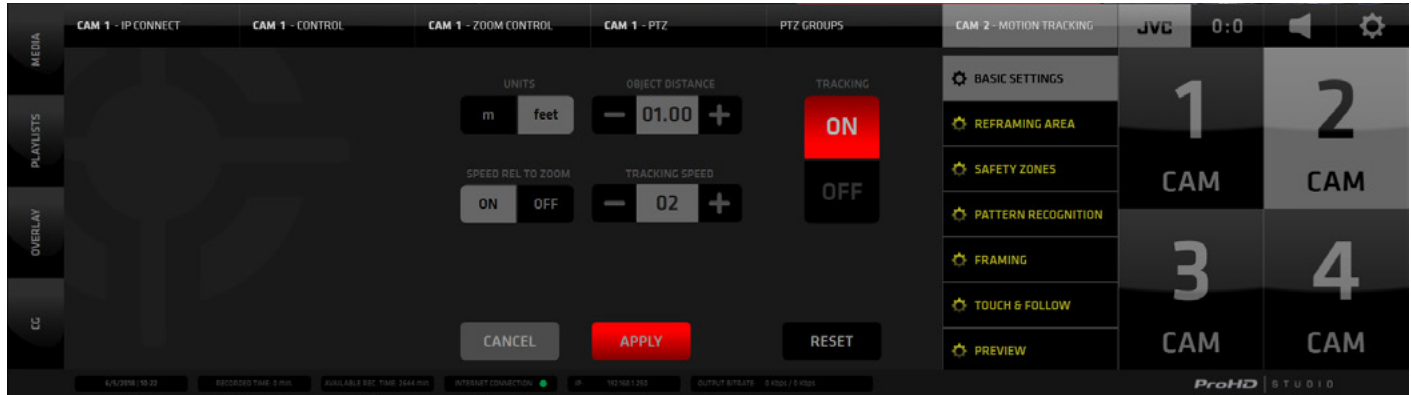
TRACKING - On/Off switch for the Motion Tracking functionality on this JVC PTZ camera channel

OBJECT DISTANCE - to provide optimal tracking behavior set the distance to the tracked object

UNITS - relates to the previous object distance - select metric/imperial

TRACKING SPEED - PTZ motion speed control

SPEED RELATIVE TO ZOOM - JVC PTZ cameras feature that modifies PTZ motion speed in relation to Zoom

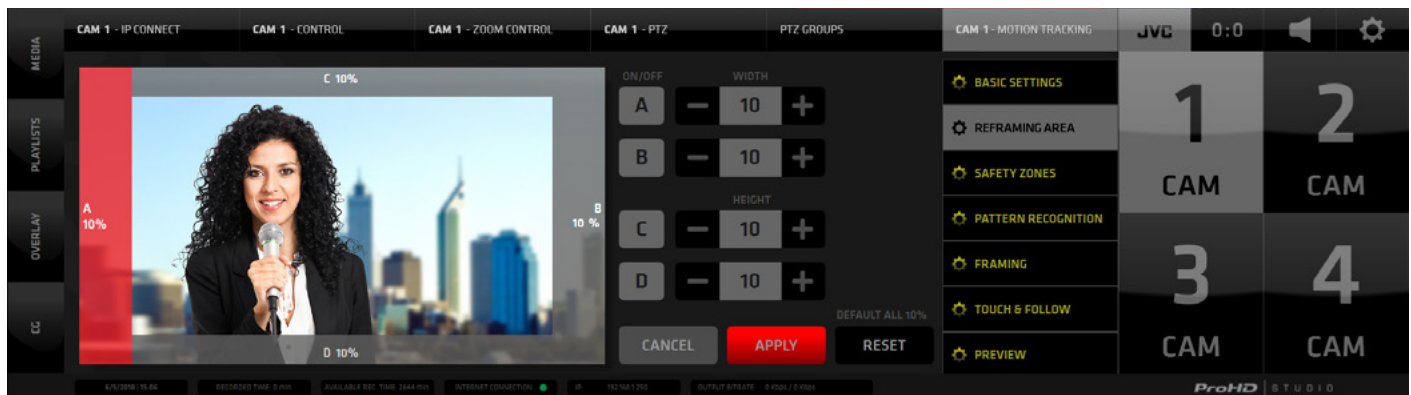


PTZ MOTION TRACKING - SUBMENU - REFRAMING AREA

It is an area that stretches from the outer edges of the video frame towards the inside of the video frame. If a tracked object crosses the the REFRAMING AREA BORDER the system will move the PTZ camera and reframe the shot in order to position the tracked object according to the settings defined in the FRAMING section further in this chapter. The movement speed applied is set in the MT / BASIC SETTINGS tab.

Procedure to operate:

1. Use the ABCD buttons to turn each side border ON/OFF
2. Use the [-/+] buttons to the left to adjust the distance from the edge of the video frame
3. Alternatively tap/click and drag each side area to adjust the distance from the edge of the video frame - while being adjusted the selected side-area becomes highlighted in red temporarily
4. Tap/click APPLY to confirm the new setting when done
5. Tap/click CANCEL to abandon any changes and return to previous settings
6. Tap/click RESET to set default values - set the values to 10% of the width of the video frame



PTZ MOTION TRACKING - SUBMENU - SAFETY ZONES

Safety zones (indicated green) are additional areas stretching from the REFRAMING AREA borders towards the inside of the video frame. They serve as an additional “safety” mechanism that fine tunes the PTZ camera movements triggered by the Motion Tracking system.

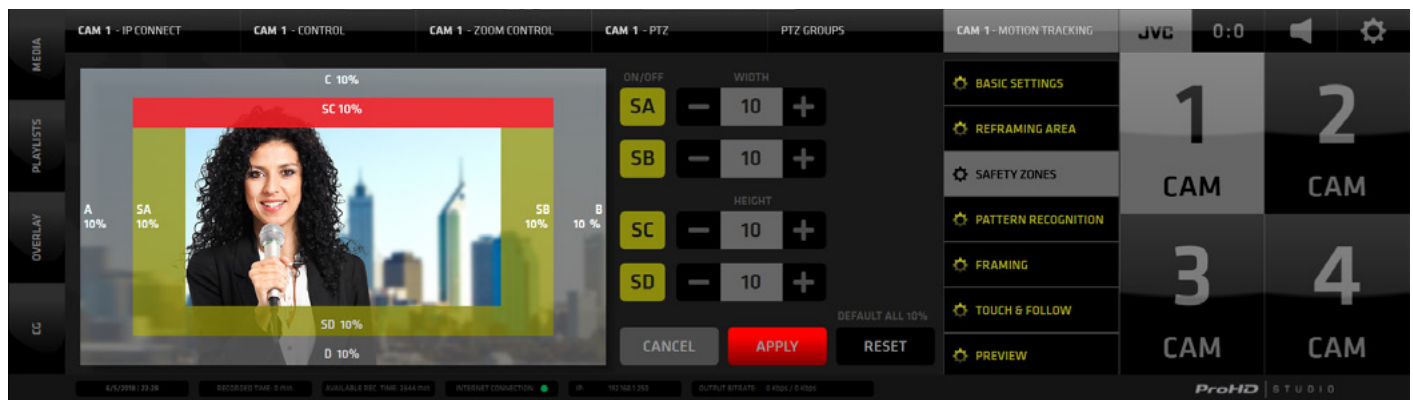
How it works:

- If a tracked object moves into a Safety Zone the system will perform a subtle movement and attempt to re-establish the framing as set in the FRAMING section further in this chapter. This will initiate a smooth move of the camera, attempting to place the tracked object into a position defined in the FRAMING section further in this chapter.
- If the tracked object move further beyond the SAFETY ZONE and crosses the REFRAMING AREA border towards the outer edges of the frame - the system will perform a standard reframing action and place the tracked object into a position defined in the FRAMING section further in this chapter. The PTZ camera movement speed applied is set in the MT / BASIC SETTINGS tab.

This combined behavior will result in a nice camera movement that follows the tracked object naturally.

Procedure to operate:

1. Use the SA,SB, SC, SD buttons to turn each Safety Zone side ON/OFF
2. Use the [-/+] buttons to the left to adjust the distance from the edge of the Reframing Area
3. Alternatively tap/click and drag each Safety Area side to adjust the distance
 - while being adjusted the selected Safety Zone side-area becomes highlighted in red temporarily
4. Tap/click APPLY to confirm the new setting when done
5. Tap/click CANCEL to abandon any changes and return to previous settings
6. Tap/click RESET to set default values - set the values to 10% of the width of the video frame



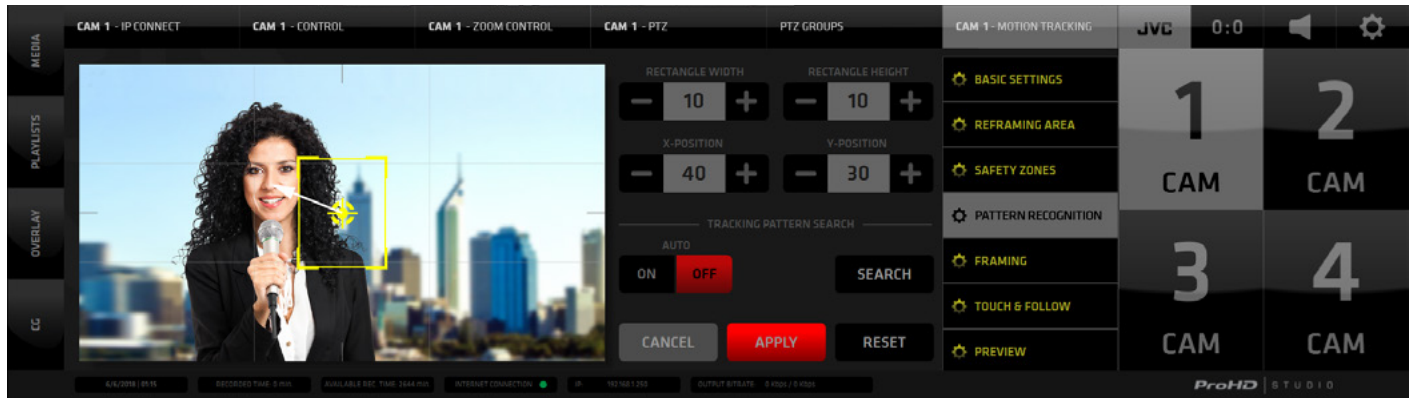
PTZ MOTION TRACKING - SUBMENU - PATTERN RECOGNITION

As you have seen in the previous sections in order for the Motion Tracking system to function properly it is of utmost importance to clearly identify the TRACKED OBJECT. The image analysis system defines the TRACKED OBJECT as a distinctive and recognizable PIXEL PATTERN that is subsequently used for tracking.

Procedure to define a PATTERN = TRACKED OBJECT:

1. At first a default yellow rectangle is visible in the center of the Preview monitor, which will be used for the PATTERN definition.
2. Tap/click & drag the rectangle to the center of the image area you wish to define as the Tracked Object
3. Adjust the width and height of the rectangle and reposition it as necessary

- When done tap/click APPLY - the system will perform the image analysis and store the defined Pixel Pattern as the TRACKED OBJECT.
- Once the analysis process is finished the rectangle will turn RED to confirm the successful definition of the pixel PATTERN =TRACKED OBJECT.

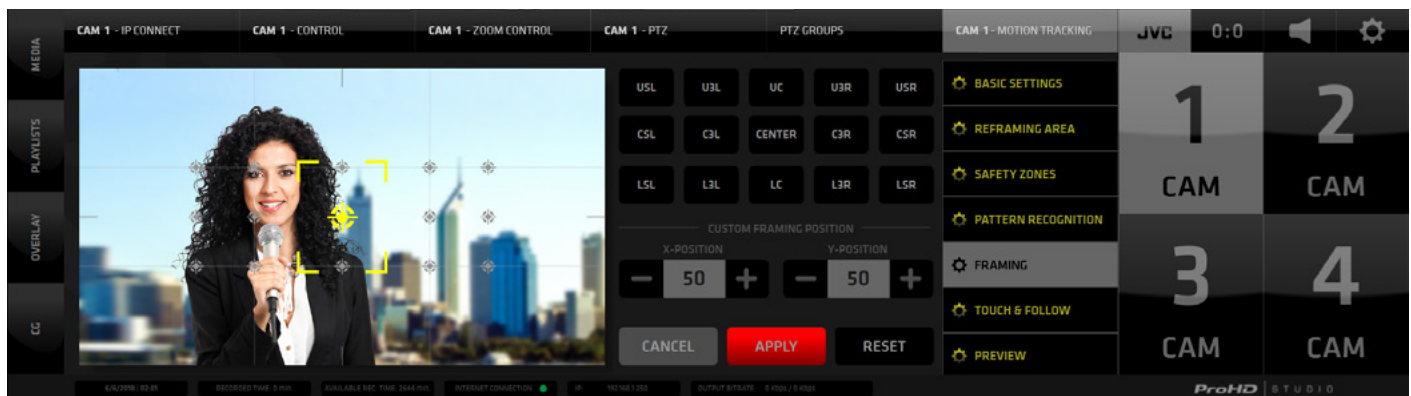


PTZ MOTION TRACKING - SUBMENU - FRAMING

Now that the system knows what to track (the TRACKED OBJECT is defined) we need to specify a preferred position of the Tracked Object within the video frame = FRAMING. The Motion Tracking system will base its calculations on the FRAMING position and attempt to frame the shot so that the center of the Tracked Object is placed in that position.

Procedure to setup FRAMING:

- As default a yellow rectangle is visible in the center of the Preview monitor, which indicates central Framing => the PTZ camera will move so that the Tracked Object is in the center of the video frame.
- Tap/click anywhere in the Video Preview Monitor (VPM) to specify a new Framing position or
- use one of the 15 predefined most commonly used positions indicated by a grey Tracking Icon. The predefined positions correspond with the 15 position buttons to the right of the VPM. The position button names indicate their position:
USL (Upper Side Left), U3L (Upper Third Left), UC (Upper Center), U3R (Upper Third Right), USR (Upper Side Right), ... C3R(Center Third Right), LC(Lower Center), L3L (Lower Third Left) ... etc.
- Adjust the position using the X, Y position [+/-] buttons as necessary
- When done tap/click APPLY - from now on the system will use the new position for FRAMING
- Once the FRAMING is set the rectangle will turn RED to confirm the new FRAMING position



PTZ MOTION TRACKING - SUBMENU - TOUCH AND FOLLOW

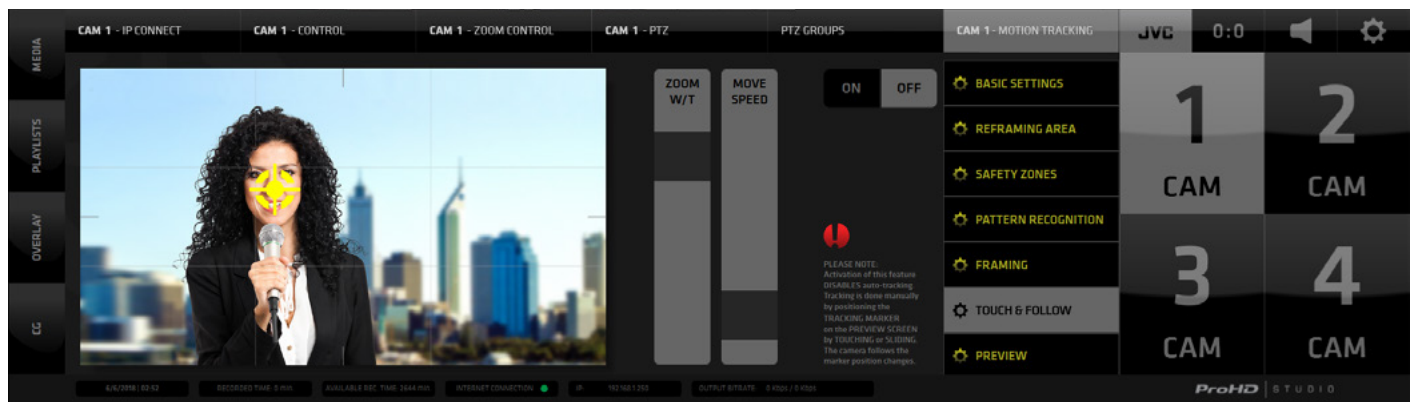
In certain situations it may be necessary or useful to manually control the Motion Tracking system. This control may be looked at as an alternative to a joystick control if no controller is connected.

Procedure to operate:

1. Turn the TOUCH & FOLLOW function ON using the ON / OFF button on top right of the pane

NOTE: PLEASE NOTE that activation of the TOUCH & FOLLOW feature will TURN OFF automatic motion tracking since it is now being controlled manually.

2. Tap/click anywhere in the VPM (Video Preview Monitor) to place the Motion Tracking marker icon to a new position.
3. The Motion Tracking system will immediately move the PTZ camera to center the frame on the new marker position
4. Adjust the ZOOM using the ZOOM W/T slider
5. Adjust the PTZ camera movement speed using the MOVE SPEED slider.

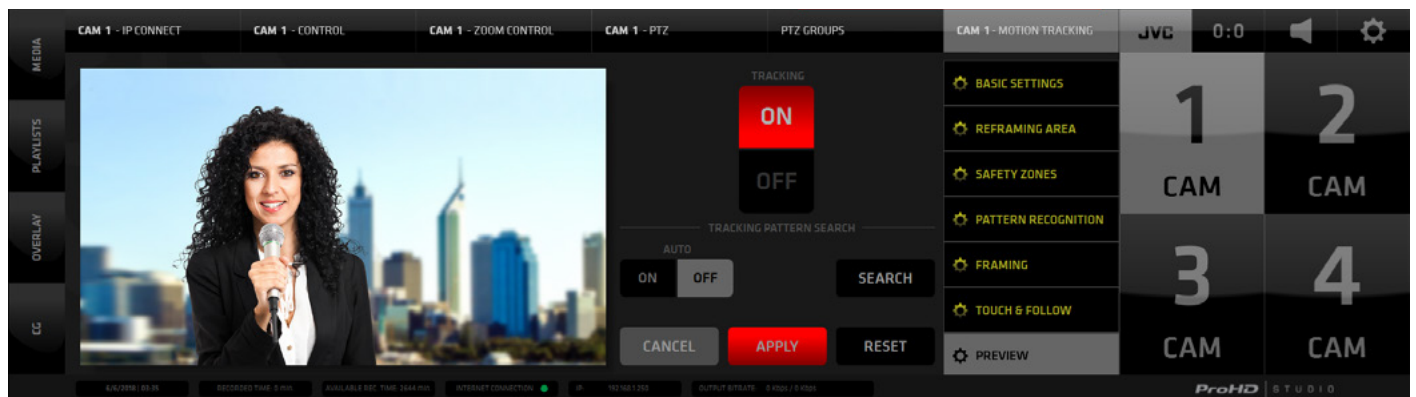


PTZ MOTION TRACKING - PREVIEW

This pane provides a PREVIEW of the Motion Tracking behavior and is used mainly when setting up the Motion Tracking parameters.

Procedure to operate:

1. ON / OFF button - to turn Motion Tracking On/Off on this channel
2. AUTO SEARCH ON/OFF - in case the Motion Tracking system loses the Tracking Object and the Automatic SEARCH function is ON the system will attempt to find it automatically.
3. SEARCH - in case the Motion Tracking system loses the Tracking Object and the Automatic SEARCH function is OFF, activating the SEARCH button will manually start the search for the Tracking Object.



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

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

Thank You for using ProHD Studio.
Enjoy!