



## **MED-VPR-8430**

**Multiviewer with Streaming Solution and Stand Alone  
PC-based System for Video Capturing**



**Operation Manual**



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## SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

## VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
<b>RDV1</b>	2020/03/28	Preliminary release



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## 1. INTRODUCTION

The MED-VPR-8430 Medical Video Recorder is designed to integrate with multiple medical devices for video recording during diagnosis or while performing an operation. It supports high quality video, up to 4K@60Hz, input and output over the HDMI ports. Video signals from medical devices such as endoscopes, X-Ray systems, ultrasounds, DaVinci Surgical Systems, etc. can be combined in multiview windows for output over local displays for monitoring while being simultaneously recorded onto the built-in hard disk. This Medical Video Recorder supports real time display and recording and complies with medical environment certification to fulfill your medical applications.

Control over all functions of the Medical Video Recorder is provided by the Time Capsule software.

## 2. APPLICATIONS

- Medical Operation Rooms
- Medical Training Environments
- Community Care Centers

## 3. PACKAGE CONTENTS

- 1× Software Serial Number Card

## 4. SYSTEM REQUIREMENTS

MED-VPR-8430 Medical Video Recorder hardware with Windows 10 and .net framework 4.5 or later installed

## 5. FEATURES

- 4 HDMI inputs
- 1 HDBaseT and 2 HDMI outputs
- Intuitive, and easy to use, graphical user interface
- Multi-windowing modes with support for window size, position and setting adjustments
- Per-input EDID management with internal or external EDID options
- Assignable macros for each trigger input on the unit
- Live video source previews
- H.264 video recording and photo snapshot capture support
- Work List for patient database setup with keyword data search
- Supports adding “Important Moment” tags and notes within each video’s timeline

## 6. INSTALLATION AND SETUP

### 6.1 Hardware Driver

Before the Medical Video Recorder Software can be used for the first time, a number of drivers must be installed. The required hardware drivers for all currently supported capture cards as well as a software codec pack and the application software itself are included in a single \*.zip file which can be downloaded by using the web link provided on the Software Serial Number Card.

*Note: If the Medical Video Recorder hardware was provided with Windows pre-installed, this process should not be necessary.*

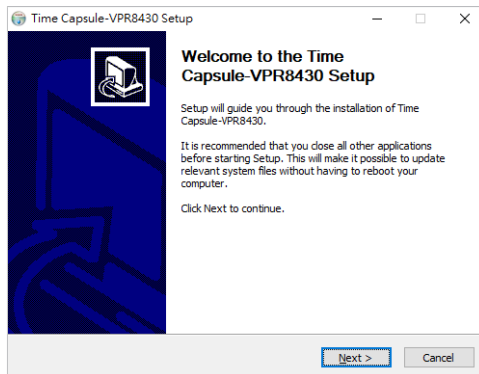
- (1) Download the \*.zip file, extract the contents and place them on the Medical Video Recorder in a location that you can easily find, such as the desktop, or the “Downloads” folder.
- (2) First, install the codec pack by double clicking on the relevant \*.exe file..
- (3) Next, install the appropriate capture card driver(s) by double clicking on the relevant \*.exe files.

### 6.2 Application Software

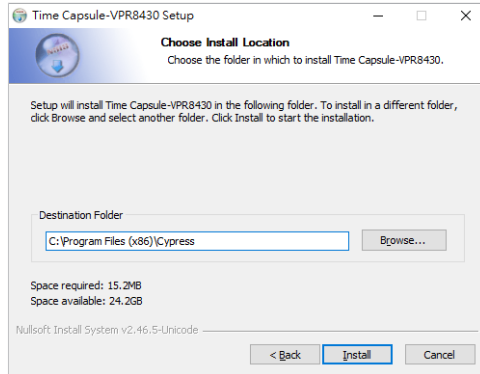
The Time Capsule software is the main application, and should only be installed on supported hardware, such as the MED-VPR-8430.

*Note: If upgrading from a previous version of the software and it is currently still installed, please uninstall the old version before attempting to install the new version.*

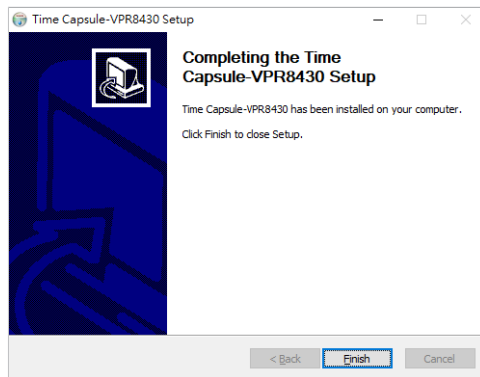
- (1) Double click on the Time Capsule \*.exe file to begin the installation procedure and click “Next” to begin.



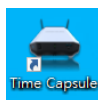
- (1) Select the location to install the application. In most cases, the default location is appropriate, but if you wish to change the location click “Browse” to pick a new install location. Once satisfied, click “Install” to begin the process.



- (2) Once the installation has completed successfully, click “Finish” to exit the installer.

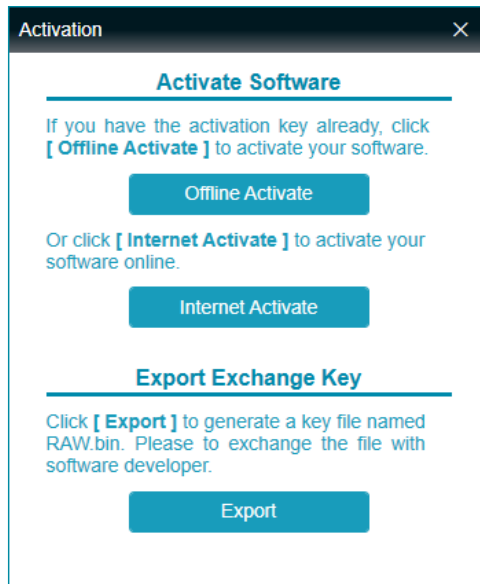


- (3) The Time Capsule software’s shortcut icon will now appear on the Windows desktop. Double click on the icon to run the software for the first time.



## 6.3 Software Activation

When the Time Capsule software is run for the first time, after installation, it will need to be activated using the 16 character activation code found on the Software Serial Number Card. The software's activation can be completed either automatically through a live internet connection to the Medical Video Recorder, or manually by exporting a special key file and providing that file to your authorized hardware vendor (via USB thumb drive, e-mail, etc.).

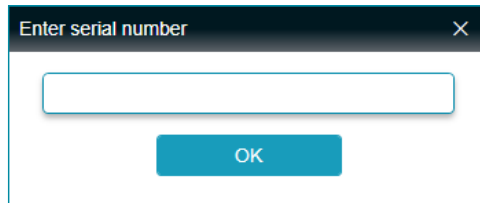


*Note: Every Software Serial Number Card comes with a holographic sticker containing a 16 character activation code. If your card arrives without this sticker, please contact your authorized vendor immediately!*

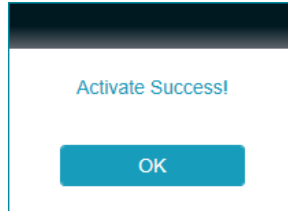
### 6.2.1 Online Activation

If your Medical Video Recorder has a connection to the internet, this is the quickest and most efficient way to activate your software.

- (1) Launch the un-activated Time Capsule software by double clicking on the desktop icon.
- (2) Click on the “Internet Activate” button and, when asked, enter the 16 character activation code from the Software Serial Number Card.



- (3) Once the code has been entered correctly, click the “OK” button.
- (4) If the code is accepted, your software will be activated and you will see the “Success!” popup. If activation failed, please double check your code and return to step 1.



- (5) Close the window to continue launching the software.

## 6.2.2 Offline Activation

If your Medical Video Recorder is installed in a location without internet access, the software can be activated by exporting a unique key file which can be sent to your authorized hardware vendor for verification. They will then send you an activation key file which can be used to activate the software.

*Note: The activation key file is unique, and bound to the specific hardware installed in the unit at the time the original key file was generated. It cannot be used to activate software installed on another unit.*

- (1) Launch the un-activated Time Capsule software by double clicking on the desktop icon.
- (2) To perform an offline activation, a hardware ID key (named RAW.bin) must be generated and exported. Connect some form of portable external storage device (such as a USB thumb drive) to the Medical Video Recorder.



- (3) Click on the “Export” button and then select the preferred save location, such as the USB thumb drive. Next, click the “Save” button to export the “RAW.bin” file to the selected location. You may now exit the software.
- (4) Send the exported “RAW.bin” file to your authorized hardware vendor. After verifying the file, the vendor will send back your activation key file.  
*Note: When sending \*.bin files via e-mail, it is strongly recommended to compress them as a \*.zip file first, to avoid being automatically flagged as a potential virus due to the \*.bin extension.*
- (5) After receiving the activation key, re-launch the software and select the “Offline Activate” button. This will open a file browser so you can locate and load the activation key you received back from your vendor.
- (6) After successfully loading the key file, your software will be activated and you will see the “Success!” popup.

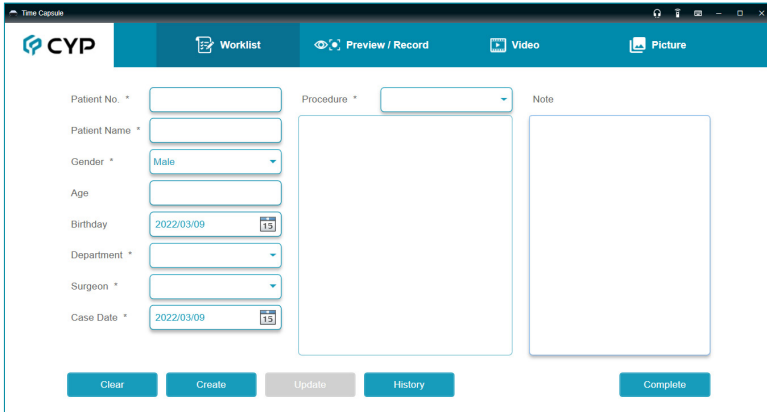
*Note: If activation failed, please contact your vendor for additional troubleshooting assistance.*

Close the window to continue launching the software.

## 7. OPERATION CONTROLS AND FUNCTION

### 7.1 Basic Operation

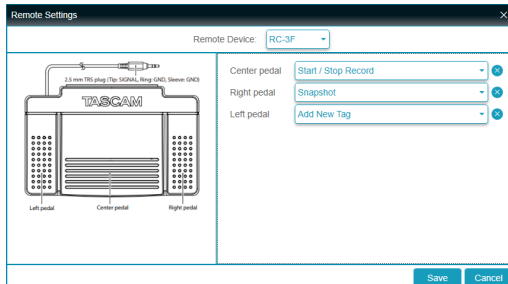
After activation has been successfully completed, or any time the software is started thereafter, it will launch directly into the main interface and display the contents of the “Worklist” tab. All four main tabs (Worklist, Preview/Record, Video, and Picture) are accessible from here simply by clicking on the tab header.



The upper left corner of the window displays the current software version, while the upper right contains control icons to select the Line Out audio source, configure optional foot pedal controls, or activate the virtual keyboard along with the standard Windows controls for minimizing, expanding, and closing the window.

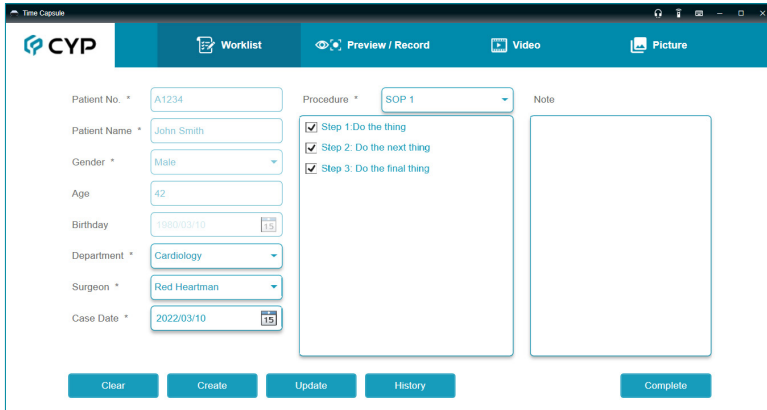


The optional foot pedal control is connected to the Medical Video Recorder via the 3.5mm RS-232 port on the back, and each of the 3 pedals can be configured to control a variety of different functions.



## 7.2 Worklist Tab

Individual patient cases and the associated procedures can be created, viewed, edited, and selected via this tab. When the software is used for the first time, and prior to entering the first patient case, at least one type of “Department”, “Surgeon”, and “Procedure” must be defined within the Institution Configuration page which is accessed by pressing Ctrl+F12 while viewing the Worklist tab.



*Note: Before any video can be recorded, at least one patient case must be created, and set as active.*

To create a new patient case, first clear the view, if necessary, by clicking on the “Clear” button. Next, enter the appropriate case information, ensuring that all required (\*) fields have been completed, and then click the “Create” button to save the new case into the database. You may now proceed to the other tabs to begin working with video that will be associated with this case.

To continue working with, or to edit, an existing case, click on the “History” button, to select the preferred case from the presented list to make it the active case. If the details of an existing case have been changed, click the “Update” button to save those changes into the database.

Once work on a case is considered to be closed/completed, click on the “Complete” button to finalize it.

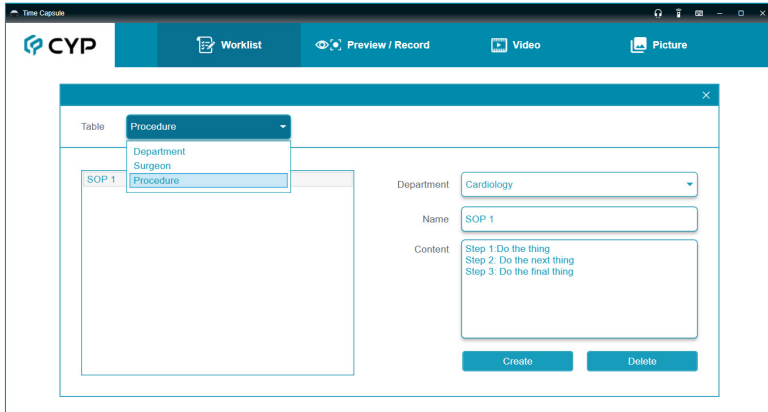
*Note: Data within completed cases can not be changed.*

- 1) Case Information:** This is the default view on the Worklist tab, and is where new patient cases can be created, or existing ones can be viewed, or updated.

*Note: When creating a patient case, all categories marked with an asterisk (\*) must be filled in or configured.*

- **Patient No. \***: Enter the patient's medical tracking code here.
- **Patient Name \***: Enter the patient's name here.
- **Gender \***: Use the dropdown to select the patient's gender.
- **Age**: Enter the patient's current age here.  
*Note: Entering an age will automatically update the year portion of the "Birthday" field.*
- **Birthday**: Click on the calendar icon (📅) to set the patient's birth date.  
*Note: Setting a birthday will automatically update the "Age" field.*
- **Department \***: Use the dropdown to select the department responsible for managing the case.  
*Note: Additional departments can be added via the Institution Configuration page.*
- **Surgeon \***: Use the dropdown to select the primary surgeon assigned to the case.  
*Note: Additional surgeons can be added via the Institution Configuration page.*
- **Case Date \***: Click on the calendar icon (📅) to set the case date.
- **Procedure \***: Use the dropdown to select the procedure checklist to apply to this case.  
*Note: Additional procedures can be added via the Institution Configuration page.*  
*Note: Enter any notes or comments that are relevant to the case in this space.*
- **Clear Button**: Press this button to display a clean case entry screen to use when creating a new patient case.
- **Create Button**: Press this button to save a newly created patient case to the database.
- **Update Button**: Press this button to save the contents of an updated patient case to the database.
- **History Button**: Press this button to open the Case History page to review past cases or to select a previously saved patient case.
- **Complete Button**: Press this button, after completing all procedures, to save and finalize the currently open patient case. This will allow it to have video and snapshots recorded for it.  
*Note: Data within completed cases can not be changed.*

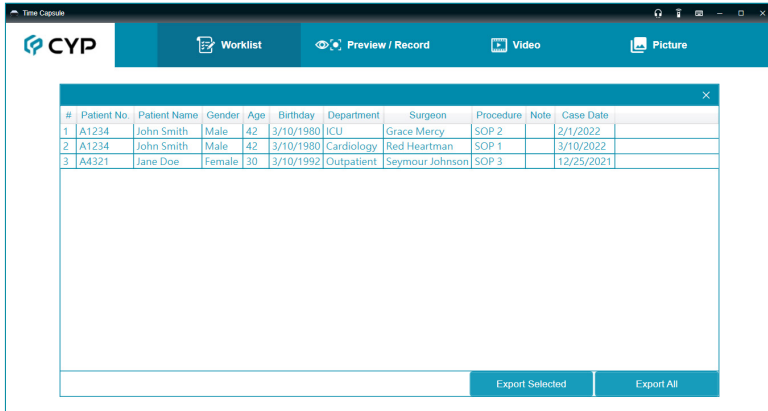
- 2) **Institution Configuration:** This page is accessed by pressing Ctrl+F12 while viewing the Worklist tab. It allows for the contents of the “Department”, “Surgeon”, and “Procedure” categories to be configured for assignment within patient cases. To finish editing and close this page, click on the “X” in the upper right corner.



*Note: At least one “Department”, “Surgeon”, and “Procedure” must be defined in order to create patient cases.*

- **Table - Department:** To create a new department, enter its name in the “Name” field and then click “Create” to add it to the list. To delete an existing department, select it from the left side and then click “Delete”.
- **Table - Surgeon:** To add a new surgeon, use the “Department” dropdown to select a department for the surgeon, type the surgeon’s name in the “Name” field, and then click “Create” to add the surgeon to the list. To delete an existing surgeon, select them from the left side and then click “Delete”.
- **Table - Procedure:** To add a new procedure checklist, use the “Department” dropdown to select a department for the procedure, enter a name for the procedure in the “Name” field, and then type each checklist item into the “Content” field. Press the enter key after each item in the “Content” field to assign them as separate entries. After all items have been entered, click “Create” to add the procedure to the list. To delete an existing procedure, select it from the left side and then click “Delete”.

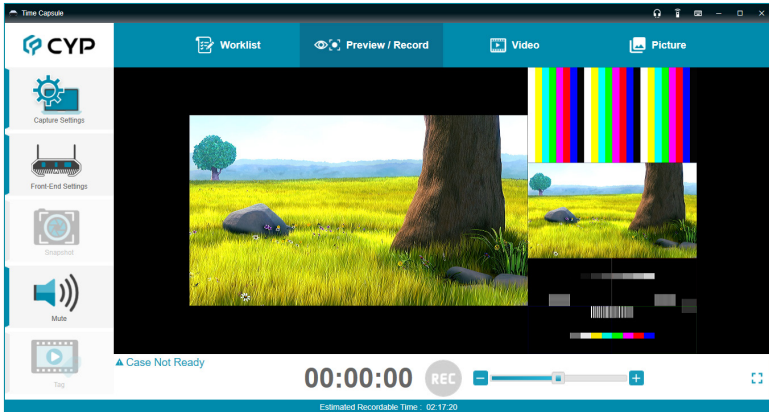
- 3) **Case History:** This page displays all patient cases that are currently saved in the database. Double clicking on an entry will select and activate that case and return to the “Case Information” page.



- **Export Selected:** Press this button to extract the currently selected patient case to an Excel format file.
- **Export All:** Press this button to extract all patient cases to an Excel format file.

## 7.3 Preview/Record Tab

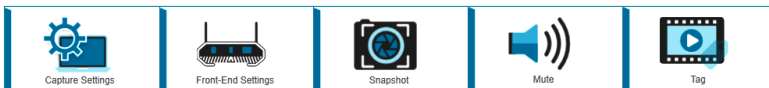
The Preview/Record tab provides controls for configuring each window's video and image capture settings, including storage location, file name, etc. as well as for starting and stopping the video/image capture process. This software can support up to four video inputs simultaneously. The main window(s) display a preview of the current live source(s) with the layout pre-configured. If there is currently no sources connected, the window will display a black screen. Double clicking on a video window will expand it to fill the screen, and double clicking again will return the view to normal.



*Note: HDCP video sources cannot be previewed or captured, and the Record and Snapshot function will be automatically disabled.*

### 7.3.1 Left Side Menus

The side menu contains buttons to configure the associated video capture stream.



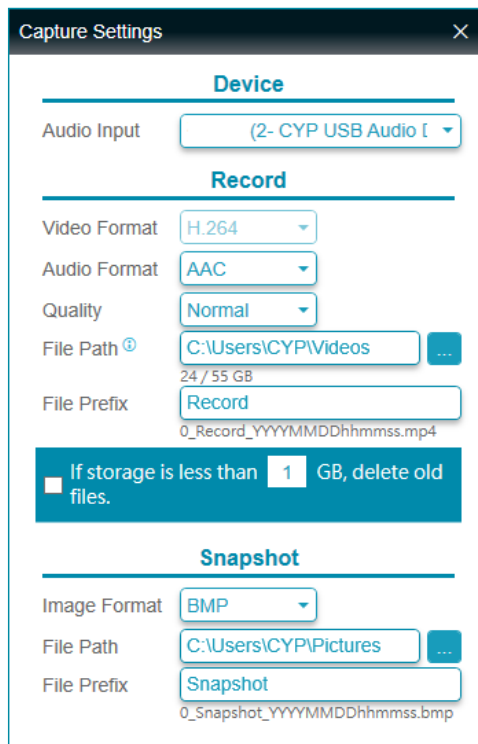
- 1) **Capture Settings:** Clicking on this opens the Capture Settings popup which provides control over the video and image capture format and storage location for the capture window.
- 2) **Front-End Settings:** Clicking on this opens the Front-End Settings popup which provides control over the layout of the preview, detailed video/audio settings, the OSD settings, and trigger/macro configuration, as well as system related settings such as firmware upgrades for the unit.

- 3) **Snapshot:** Click this button to take a snapshot of the capture window's content. The snapshot will be stored according to the current capture settings.
- 4) **Mute:** Click this button to mute or unmute the capture window's audio.
- 5) **Tag:** While video recording is active, clicking this button will insert a video bookmark tag at the current time point in the live recording. A running total of the number of tags inserted into the current recording is kept on the bottom right of the icon as well.

*Note: This button only places a bookmark tag in the video. Adding descriptive text to the tag can only be performed from the Video tab, after the recording has been completed.*

### 7.3.2 CAPTURE SETTINGS POPUP

Provides control over the video and image capture format and storage location for the capture window.



**Capture Settings** [X]

---

**Device**

Audio Input: (2- CYP USB Audio [ ...]

---

**Record**

Video Format: H.264

Audio Format: AAC

Quality: Normal

File Path: C:\Users\CYP\Videos [ ...]  
24 / 55 GB

File Prefix: Record  
0\_Record\_YYYYMMDDhhmmss.mp4

If storage is less than **1** GB, delete old files.

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**Snapshot**

Image Format: BMP

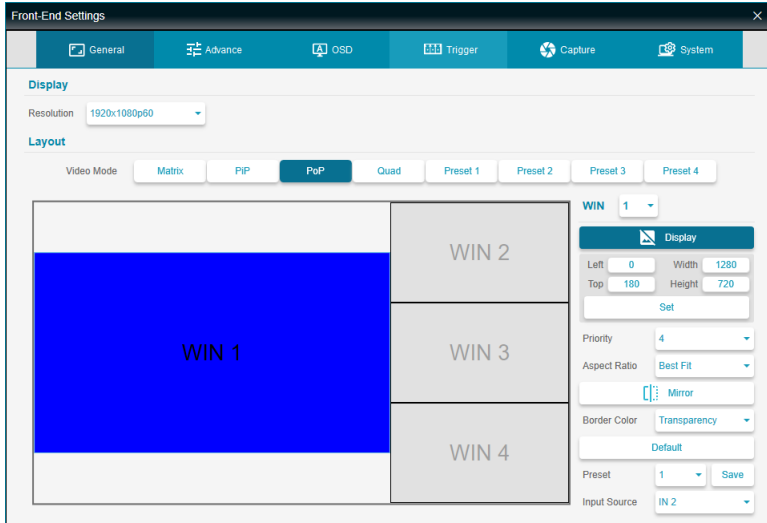
File Path: C:\Users\CYP\Pictures [ ...]

File Prefix: Snapshot  
0\_Snapshot\_YYYYMMDDhhmmss.bmp

- 1) **Audio Input:** Use the dropdown to select the audio source to include with the recorded video.
- 2) **Video Format:** Use the dropdown to select the video encoding format to use when capturing video.  
*Note: If only a single format is available, this will be greyed out.*
- 3) **Audio Format:** Use the dropdown to select the audio encoding format to use when capturing video.
- 4) **Quality:** Use the dropdown to select the video encoding quality.
  - **High:** Uses the maximum allowable bitrate, and can result in improved quality video if fine detail is needed. Uses the most storage space.
  - **Normal:** Uses an average bitrate that is acceptable for most general purpose needs. Uses a medium amount of storage space.
  - **Low:** Uses the lowest allowable bitrate and requires the least amount of storage space. Only recommended when conserving storage space is more important than video quality.
- 5) **Record File Path:** Set the local file directory to store recorded video.  
*Note: The amount of available storage space for the currently selected file path is displayed directly below the entry box.*
- 6) **Record File Prefix:** Set an identifying text string to insert near the beginning of the captured video's filename.  
*Note: An example of the full filename is displayed directly below the entry box.*
- 7) **Storage Space Management:** Enable or disable the automatic deletion of older video recordings if the available storage space falls below the set limit.  
*Note: This setting is system wide and will apply to recordings from either window.*
- 8) **Image Format:** Use the dropdown to select the preferred snapshot image format.
- 9) **Snapshot File Path:** Set the local file directory to store snapshots.  
*Note: The amount of available storage space for the currently selected file path is displayed directly below.*
- 10) **Snapshot File Prefix:** Set an identifying text string to insert near the beginning of each snapshot's filename.  
*Note: An example of the full filename is displayed directly below the entry box.*

### 7.3.3 Front-End Settings Popup

Provides control over the layout of the preview, detailed video/audio settings, the OSD settings, and trigger/macro configuration, as well as system related settings such as firmware upgrades for the unit.



1) **General:** This section provides control over the position, size, aspect, priority, and other settings of each window in multi-viewer modes. A graphical representation of the layout is also provided. When the unit is in Matrix mode, only a limited selection of controls is available.

- **Resolution:** Use the dropdown to select the preferred output resolution for the unit.

*Note: Both outputs will always share the same output resolution, even in Matrix mode.*

- **Video Mode:** Select the unit's operational mode. Available options are: Matrix, PiP, PoP, Quad, and Presets 1~4.

*Note: Switching between video modes will cause the output to briefly go to black, but audio output will not be affected if the selected audio source is the same in both modes.*

- **Matrix Mode:** Full screen video with the ability to select sources independently for each output.

- **PiP Mode:** This is a quad-windowing preset mode. By default it is in a PiP (Picture in Picture) configuration but it can be manually adjusted by the user.



- **PoP Mode:** This is a quad-windowing preset mode. By default it is in a PoP (Picture outside Picture) configuration but it can be manually adjusted by the user.



- **Quad Mode:** This is a quad-windowing preset mode. By default it is in an equal 4 window configuration but it can be manually adjusted by the user.



- **Preset Modes:** These are 4 additional quad-windowing presets that can be manually adjusted by the user.

- **Visual Layout Window:** When in a multi-windowing mode, individual windows may be selected, moved and resized simply by clicking and dragging on them in the layout window. To select a window, click on it and the information will be displayed on the right. Click and drag the center of a window to reposition it. Click and drag the bottom right corner of a window to manually resize it. The results of a change will be displayed on the outputs as soon as the mouse button has been released.

*Note: Not available in Matrix mode.*

- **WIN:** In multi-window modes, use the dropdown to select the window to modify. Changes made while a “Preset” video mode is selected will automatically be applied and saved to that preset.

*Note: In Matrix mode, use the dropdown to select the video source to modify.*

- **Display:** Enable or disable the currently selected window.

*Note: Not available in Matrix mode.*

- **Position Left/Top and Size Width/Height:** Set the X and Y coordinate position of the upper left corner of the currently selected window, and the horizontal and vertical size of the currently selected window. Click on the “Set” button, after making changes, to make them active.

*Note: Not available in Matrix mode.*

- **Priority:** Select the layer priority of the currently selected window. Priority 1 is at the front and priority 4 is at the back.

*Note: Not available in Matrix mode.*

- **Aspect Ratio:** Use the dropdown to select a fixed aspect ratio for the currently selected window or input. Available options are: Full, 16:9, 16:10, 4:3, Best Fit, and User. In multi-windowing modes the aspect

ratio will be based on the window's current height. Selecting the "Full" aspect ratio will return the window to the current mode's default size and shape for that window. Selecting "Best Fit" will automatically set the ratio based on the window's current source resolution.

*Note: The "User" aspect ratio is not available in Matrix mode.*

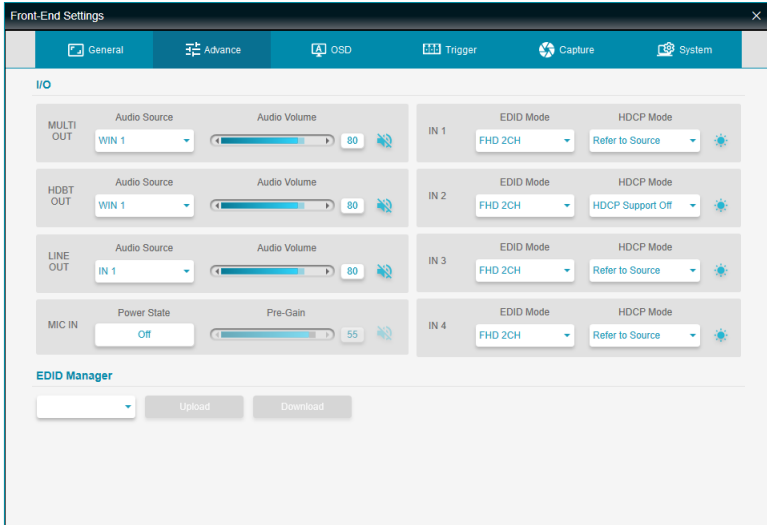
- **Mirror:** Turning this switch on will flip the currently selected window/input horizontally.
- **Border Color:** Use the dropdown to select the color to use for the border of the currently selected window/input. Available colors are: transparency, black, red, green, blue, yellow, magenta, cyan, white, dark red, dark green, dark blue, dark yellow, dark magenta, dark cyan, gray.
- **Default:** Reset the current window/input to its default settings based on the currently selected mode.
- **Preset Save:** Select a preset from the dropdown list and then click the "Save" button to store the unit's current video window configuration to the currently selected preset.
- **Input Source:** Select the video source to use in each window of a multi-window mode (PiP/PoP/Quad/Preset).

*Note: Only available when a multi-window mode is active.*

- **MULTI OUT/HDBT OUT:** Select the video source for each output in Matrix mode.

*Note: Only available when Matrix mode is active.*

- 2) **Advance:** This tab provides control over the audio output behavior as well as the input related EDID, HDCP and color settings.



- **Audio Source:** Use the dropdown to choose the audio source for the associated audio output.
  - **IN 1~4:** Always use the audio from the specified input.
  - **MIC IN:** Always use the audio from microphone audio input.
  - **LINE IN:** Always use the audio from analog audio input.
  - **WIN 1~4:** Always use the audio from the source currently displayed in the specified window.
  - **PC IN:** Always use the audio from PC audio.
- **Audio Volume:** This slider provides control over the audio volume of the associated output. It can also be changed via the text box on the right.
- **Audio Mute:** Click the “Mute” icon (🔇) to toggle between muted and unmuted audio on the associated audio output.
- **MIC IN:** This section contains the microphone input’s controls.
- **Power State:** Click this button to toggle 48V phantom power between on or off.
  - **Pre-Gain:** Sets the microphone input’s volume level when the microphone is an active audio source. It can also be changed via the text box on the right.
  - **MIC Mute:** Click the “Mute” icon (🔇) to toggle between muted and unmuted microphone audio input.

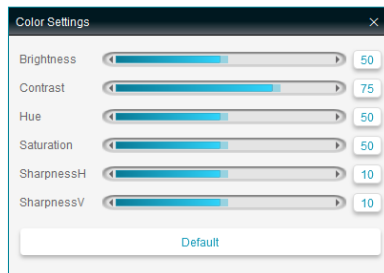
- **EDID Mode:** Use the dropdown to select the EDID to assign to the specified input. Available options are: three standard EDIDs, two sink sourced EDIDs and four user uploaded EDIDs.

This unit provides the following 3 default EDIDs:

Unit's default EDIDs	
<b>FHD 2CH</b>	1920×1080p@60Hz (4.95Gbps), 8-bit color, LPCM 2.0
<b>UHD 2CH</b>	3840×2160p@30Hz (10.2Gbps), 12-bit Deep Color, LPCM 2.0
<b>UHD+ 2CH</b>	3840×2160p@60Hz (18Gbps), 12-bit Deep Color, LPCM 2.0

*Note: In some rare cases it is possible for custom or external EDIDs to cause compatibility issues with certain sources. If this happens, it is recommended to switch to one of the 3 default EDIDs for maximum compatibility.*

- **HDCP Mode:** Use the dropdown to select the HDCP behavior to the specified input.
  - **HDCP Support Off:** Completely disables support for HDCP on that input.
  - **Refer to Source:** Makes the input port support the same HDCP version as required by the connected source.
  - **Refer to Display:** Makes the input support the HDCP version of the currently connected displays.
- **Color Settings:** Click the “Color” icon (🎨) to open the settings window. The settings window provides controls over each input’s brightness, contrast, hue, saturation and sharpness levels.

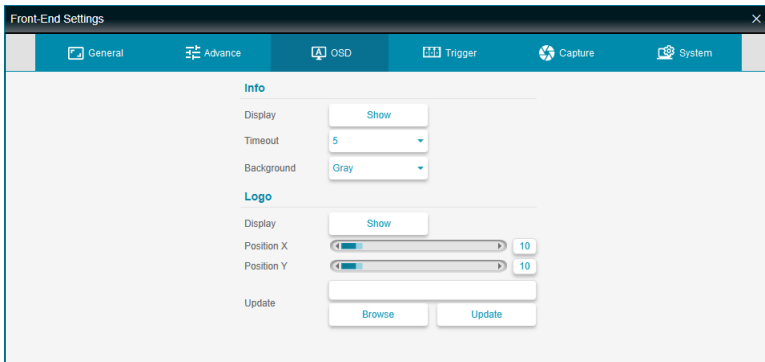


*Note: All picture settings are per-input and are mode-independent.*

- **Brightness:** This slider provides control over the overall brightness of the currently selected source video. It can also be changed via the text box on the right.
  - **Contrast:** This slider provides control over the overall contrast of the currently selected source video. It can also be changed via the text box on the right.
  - **Hue:** This slider provides control over the hue shift of the currently selected source video. It can also be changed via the text box on the right.
  - **Saturation:** This slider provides control over the overall saturation of the currently selected source video. It can also be changed via the text box on the right.
  - **Sharpness H/V:** These sliders provide control over the amount of sharpness processing to apply to the currently selected source video. It can also be changed via the text box on the right.
- Note: Horizontal and vertical processing is independently controlled, providing finer control over the image quality.*
- **Default:** Reset the current input to its default settings.

- **User EDID Upload:** Use the dropdown to select a User EDID to update. Click the “Upload” button to open the file selection window and then select the EDID file (\*.bin format) located on the local PC. After selecting the file, the system will automatically begin the EDID upload process.
- **EDID Download:** Select the appropriate User EDID/sink from the dropdown list then click the “Download” button to save that EDID as a file (\*.bin) to the PC.

3) **OSD:** This tab provides control over the behavior of the OSD informational display and user uploaded logo graphic.



■ **OSD Info:**

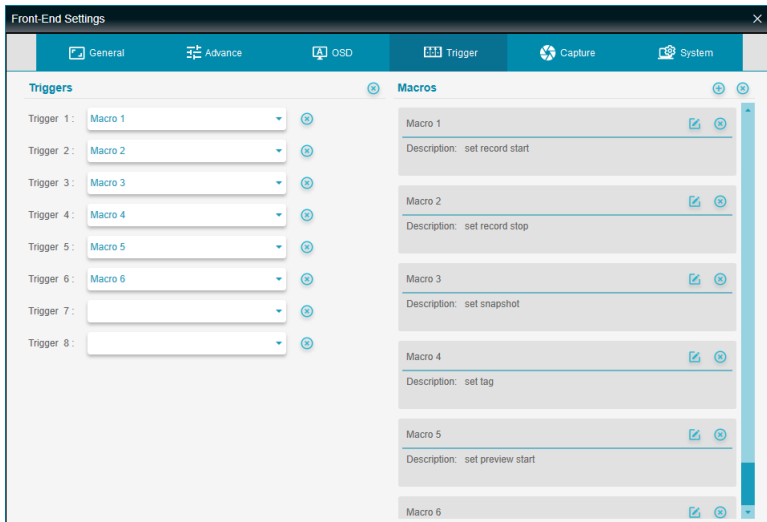
- **Display:** Enable or disable the informational OSD.
- **Timeout:** Set the length of time, in seconds, that the informational OSD will be displayed after a signal or source change, or disable the timeout completely.
- **Background:** Set the color of the background of the OSD info. Available colors are: gray, black, and blue.

■ **OSD Logo:**

- **Display:** Enable or disable displaying the logo graphic.
- **Position X/Y:** Sets the position of the logo's upper left corner, within the output. The position values are a relative percentage of the available output resolution. It can also be changed via the text box on the right.
- **Update:** To upload a graphic logo, please click the "Browse" button to open the file selection window and then select the graphic logo file (8-bit \*.bmp format, 960×540 max resolution) located on the local PC. After selecting the file, click the "Update" button to upload the logo to the unit.

*Note: The upload process can take a while, depending on the size of the logo. Progress information will be displayed on the OSD while the logo is being installed.*

- 4) **Trigger:** This tab provides a way to create operational command sequences (macros) that can be activated via the external triggers.



- **Trigger List:** The left section contains a list of the 8 trigger inputs which can have macros assigned to them. To assign an existing macro, use the dropdown to select a macro from the list. To remove an assigned macro, click the “Remove” icon (⊗).

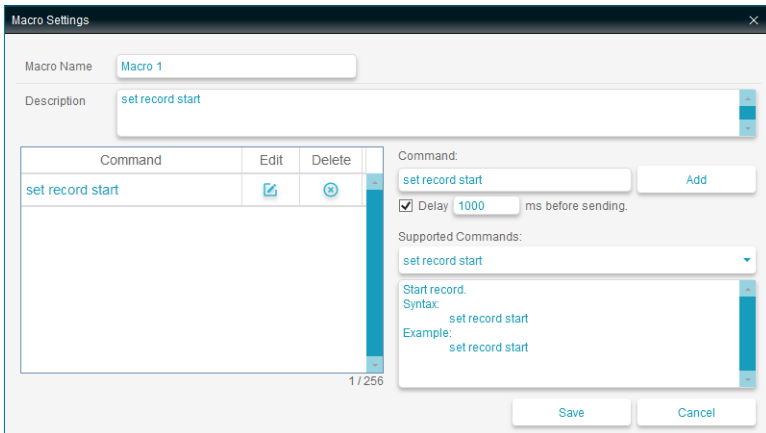
*Note: To remove all the assigned macros, click the “Remove” icon (⊗) on the top of this section.*

- **Macro List:** The right section contains a list of all currently defined macros and provides a way to create new macros, edit them, or delete them. To add a new macro, click on the “Add” icon (⊕). To edit an existing macro, click on the “Edit” icon (✎). To delete an existing macro, click on the “Delete” icon (⊗).

*Note: To delete all the existing macros, click the “Remove” icon (⊗) on the top of this section.*

- **Macro Settings:** To open the settings window, click on the “Add” icon (⊕) or the “Edit” icon (✎).

*Note: The entire macro needs to be saved by using the “Save” button. Leaving the Macro Settings window before clicking “Save” will undo any changes made.*



- **Macro Name:** Enter the preferred name of the macro.
- **Description:** Enter a brief description for the macro.
- **Command List:** This section contains a list of all currently assigned commands within the macro and their execution order. To edit an existing command, click on the “Edit” icon (✎) and then make changes in the edit window. To delete an existing command, click on the “Delete” icon (⊗). To reorder an existing command, drag the command to the preferred position.

- **Command Add:** Manually type a command into this box, or edit the details of a command that has been selected from the Command dropdown's list. Click on the "Add" button to add it to the current macro. An optional delay value for the command can also be set here.
- **Supported Commands:** Use the dropdown to select a pre-made command from a list of common command types.

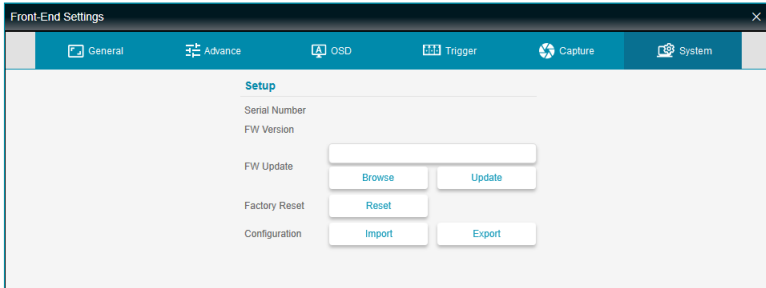
*Note: Some commands contain variables (n1, n2, etc.) which will need to be manually replaced with an appropriate value in order for the command to function properly.*

- 5) **Capture:** This tab provides control over a selection of basic video capture functions, including: audio source, volume and video settings.



- **Audio Settings:** This section provides direct control over a variety of audio settings.
  - **Source:** Click the "Follow Video" button to toggle between using the output's default audio and a selected audio source from the dropdown.
  - **Volume:** This slider provides control over the audio volume of the captured video. It can also be changed via the text box on the right.
  - **Mute:** Click the "Mute" icon (🔇) to toggle between muted and unmuted recorded audio.
- **Video Settings:** This section provides direct control over a variety of video settings when video capture is active. All the settings can also be changed via the text box on the right of the sliders.
  - **Brightness:** This slider provides control over the overall brightness of the captured video.

- **Contrast:** This slider provides control over the overall contrast of the captured video.
  - **Hue:** This slider provides control over the hue shift of the captured video.
  - **Saturation:** This slider provides control over the color saturation level of the captured video.
  - **Sharpness:** This slider provides control over the amount of sharpness processing to apply to the captured video.
  - **Default:** Reset the current input to its default settings.
- 6) **System:** This tab displays the capture hardware's serial number as well as the current firmware version. A way to update firmware, perform a factory reset, as well as export/import the system configuration is also provided.



- **Firmware Update:** To update the capture hardware's firmware, click the "Browse" button to open the file selection window and then select the firmware update file (\*.bin format) located on the local PC. After selecting the file, click the "Update" button to begin the firmware update process. After the upgrade is complete, the capture hardware will reboot automatically.

*Note: This firmware update is ONLY for the hardware that controls the Front-End Settings features, all other Time Capsule updates are performed through updates to the software itself. Please see section 6.2.*

- **Factory Reset:** To reset the capture hardware to its factory default state, click the "Reset" button. After the reset is complete, the unit will reboot automatically.
- **Import:** To restore a previously saved system configuration, click the "Import" button to locate the saved \*.json file in the local PC.
- **Export:** Click the "Export" button to save the current system configuration to the local PC. The current system configuration will be saved as a \*.json file.

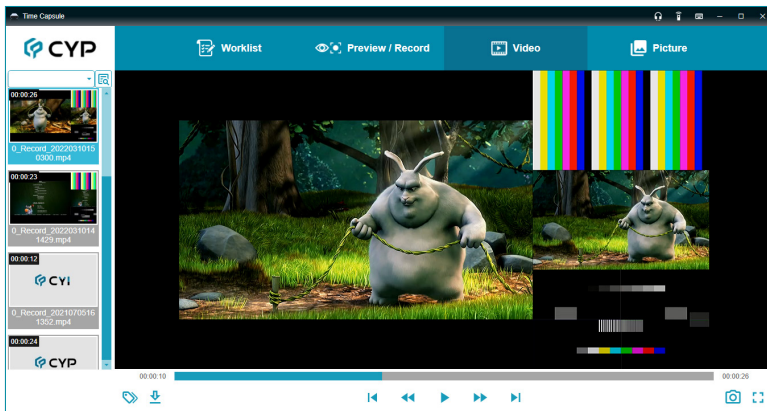
### 7.3.4 Bottom Recording Controls

Below each capture window is a set of controls to show the current recording length, start/stop recording, set the volume level, and expand the view to fill the screen.

- 1) **Record:** Click this button to start or stop recording video.  
*Note: If a removable storage device is connected to the unit when recording is stopped, the recorded video file will be both stored locally and automatically copied to the storage device.*
- 2) **Volume:** Use the slider to adjust the volume level of the video recording.
- 3) **Full Screen:** Click this to expand the associated video capture window to fill the screen. Double clicking on the full screen video, or pressing the ESC button, will return to the normal video size.

### 7.4 Video Tab

The Video tab is where all recorded video can be searched, played back, tagged, and exported. The central portion of the tab displays the currently selected video file, while the left side lists all available video recordings depending on the current search settings. Video can be played back at normal speed, paused, or at x2, x4, -x2, or -x4 speed. Additional snapshots may also be taken while playing back video.



- 1) **Side Menu:** Displays a chronological list of all video files that match the current search parameters.

*Note: By default, all available videos will be listed. If there is a large number of videos it may take a few seconds to fully populate.*

- **Search:** Enter a search word into the top entry field and then click on the “Search” icon (🔍), or use the dropdown to select a date relevant to the video(s) you are searching for. All matching videos will be listed below.
- **Export All:** To export all currently visible videos to another location, such as an external hard drive or USB thumb drive, right click on the video list and select “Export All”. You may then select the preferred location to copy the videos to.

*Note: When exporting a large number of videos this process can take a long time and will continue even if the primary software is closed.*

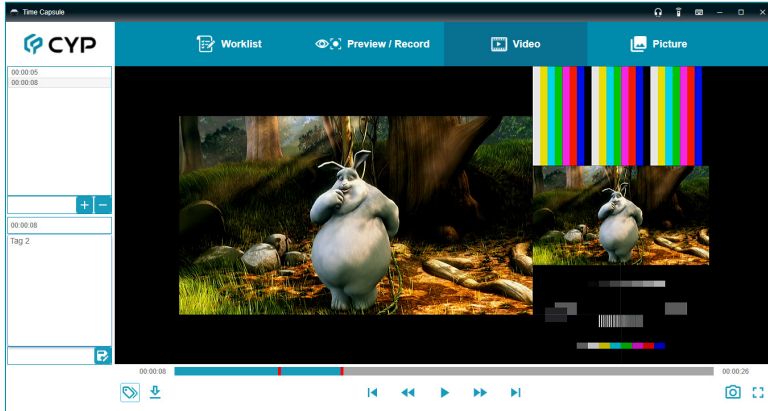
- 2) **Bottom Menu:** This section contains the video playback controls along with controls for individual video export, bookmark tag editing, and taking snapshots.

- **Tag Edit Mode:** Clicking on the “Tag Edit” icon (🏷️) will open the Tag Edit sidebar and allow for adding text descriptions to existing bookmark tags, as well as for creating additional tags within the current video.
- **Export One:** Click on the “Export” icon (📁) to export the video file that is currently being viewed to another location, such as an external hard drive or USB thumb drive.
- **Playback Controls:** These buttons, and the timeline slider above them, control the playback of the currently selected video file.
  - **Timeline:** The video timeline shows the current playback location, as well as the location of any current bookmark tags. You can jump to any position within the video by clicking on the timeline.
  - **Previous:** Click this button to jump to the previous video within the current video list.
  - **Rewind:** Click this button to increase the rewind playback speed (up to x4 maximum).
  - **Play / Pause:** Click this button to start or pause video playback.
  - **Fast Forward:** Click this button to increase the playback speed (up to x4 maximum).

*Next: Click this button to jump to the next video within the current video list.*

- **Snapshot:** Click on the “Snapshot” icon (📷) to make a snapshot from the currently displayed video frame.
- **Full Screen:** Click on the “Full Screen” icon (⏏) to expand the video to fill the screen. Double clicking on the full screen video, or pressing the ESC button, will return to the normal video size.

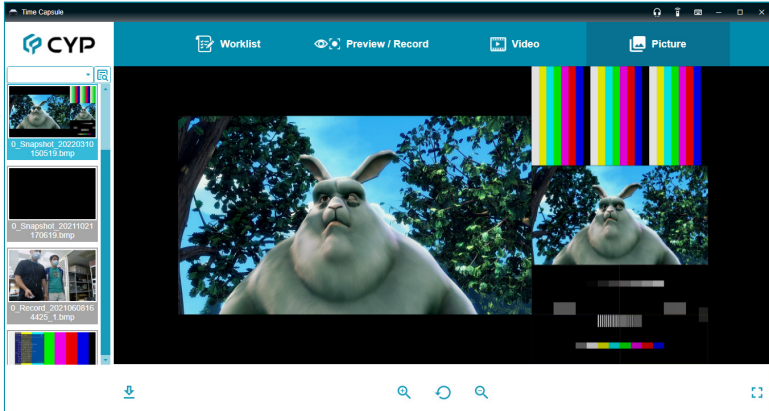
- 3) **Tag Editor:** After clicking on the “Tag Edit” icon (🔍) the video sidebar will change to the Tag sidebar which is split into two areas. The upper area lists the time code for all current tag points within the video. The lower half contains any tag notes that have been assigned to the currently selected tag. Clicking on a tag’s time code will cause the displayed video to immediately jump to the specified video frame.



- **Add Tag:** To add additional tags to the current video, move the video playback’s timeline slider to the preferred time and then click the “+” button within the upper half of the Tag sidebar.
- **Delete Tag:** To delete an existing tag, select the tag and then click on the “-” button.
- **Edit Tag Description:** To edit or add a text note for the currently selected tag, type the new text in the space in the lower half of the Tag sidebar and then click the “Save” icon (💾).

## 7.5 Picture Tab

The Picture tab is where all snapshots can be searched, displayed, and exported. The central portion of the tab displays the currently selected snapshot image, while the left side lists all available snapshots depending on the current search settings. Snapshots can also be zoomed into and panned around, if desired.








- 1) **Side Menu:** Displays a chronological list of all snapshot files that match the current search parameters.

*Note: By default, all available snapshots will be listed. If there is a large number of snapshots it may take a few seconds to fully populate.*

- **Search:** Enter a search word into the top entry field and then click on the “Search” icon (🔍), or use the dropdown to select a date relevant to the snapshot(s) you are searching for. All matching snapshots will be listed below.
- **Export All:** To export all currently visible snapshots to another location, such as an external hard drive or USB thumb drive, right click on the snapshot list and select “Export All”. You may then select the preferred location to copy the snapshots to.

*Note: When exporting a large number of snapshots this process can take a long time and will continue even if the primary software is closed.*

- 2) **Bottom Menu:** This section contains the snapshot display controls along with controls for individual snapshot export.
- **Export One:** Click on the “Export” icon () to export the snapshot file that is currently being viewed to another location, such as an external hard drive or USB thumb drive.
  - **Zoom In:** Click on the “Zoom In” icon () to enlarge the image by 50%.
  - **Reset Default:** Click the “Reset” icon () to return the image to its default zoom level.
  - **Zoom Out:** Click on the “Zoom Out” icon () to shrink the image by 50%.
  - **Full Screen:** Click on the “Full Screen” icon () to expand the snapshot to fill the screen. Double clicking on the full screen image, or pressing the ESC button, will return to the normal picture size.



## 8. SPECIFICATIONS

### 8.1 Technical Specifications

<b>Operating System</b>	Windows 10 (64-bit)
<b>System RAM</b>	16GB (Minimum)
<b>Hard Drive Size</b>	1TB (Minimum)
<b>Display Resolution</b>	1366×768 (Minimum) 1920×1080 or above (Preferred)

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>10GbE</b>	10 Gigabit Ethernet
<b>ASCII</b>	American Standard Code for Information Interchange
<b>AV</b>	Audio/Video
<b>AVR</b>	Audio/Video Receiver or Recorder
<b>Cat.5e</b>	Enhanced Category 5 cable
<b>Cat.6</b>	Category 6 cable
<b>Cat.6A</b>	Augmented Category 6 cable
<b>Cat.7</b>	Category 7 cable
<b>DHCP</b>	Dynamic Host Configuration Protocol
<b>DP</b>	DisplayPort
<b>DVI</b>	Digital Visual Interface
<b>GB</b>	Gigabyte
<b>GbE</b>	Gigabit Ethernet
<b>Gbps</b>	Gigabits per second
<b>GUI</b>	Graphical User Interface
<b>HD</b>	High-Definition
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>HDR</b>	High Dynamic Range
<b>HDTV</b>	High-Definition Television
<b>IP</b>	Internet Protocol
<b>kHz</b>	Kilohertz
<b>LAN</b>	Local Area Network
<b>LPCM</b>	Linear Pulse-Code Modulation
<b>MHz</b>	Megahertz
<b>OSD</b>	On-Screen Display
<b>TB</b>	Terabyte
<b>TCP</b>	Transmission Control Protocol

<b>ACRONYM</b>	<b>COMPLETE TERM</b>
<b>UHDTV</b>	Ultra-High-Definition Television
<b>USB</b>	Universal Serial Bus
<b>VGA</b>	Video Graphics Array
<b>WUXGA (RB)</b>	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
<b>XGA</b>	Extended Graphics Array





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