Iris™ media solutions

User Manual

Iris 4K Player • Iris IMF Player

Iris QC Pro • Iris QC Anywhere

Iris Play

Version 9.7.7.207



GRAYMETA

Foreword

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1 Introduction

1.1 Overview

GrayMeta Iris is the go-to studio grade media player and quality control solution.

Iris enables media professionals to quickly and accurately collaborate and deliver ALL forms of professional file content through the production lifecycle from asset acquisition, post-production on through to approval and distribution.

This manual provides software installation instructions, an overview of the GrayMeta Iris and its most common tasks. For more information, please contact FAQ and support section on the GrayMeta website.

Visit www.graymeta.com

- Product information and software download
- Manage user account and license
- Support center for inquiries and issue management

1.2 Supported Formats

Example Codecs

- JPEG 2000
- Uncompressed
- PRORES
- DNXHD
- XDCAM
- IMX D10
- DV
- DVCPRO
- AVC-INTRA
- MPEG2
- MPEG4 / H264
- XAVC
- HEVC / H265
- Windows Media and more

Example Wrappers

- MXF
- MOV
- DPX

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- IMF
- GXF
- AVI
- TIFF
- TS
- M2T
- M2TS
- MP4
- WMV
- WMA

Example Audio

- 1024 input channels, 16 output channels
- PCM
- AAC
- AC3
- MP2
- MP3
- other compressed formats

Resolution Bits

- 8, 10, 12 and 16 bits

Example Color Space

- XYZ
- SMPTE RGB 4:4:4, 8/10/12 bit
- CGI RGB range
- YCbCr 4:4:4
- YCbCr 4:2:2
- YCbCr 4:2:0
- YCbCr 4:1:1

Example Subtitle

- EIA-608 (DTVCC Transport) text stream
- EIA-708 (DTVCC Transport) text stream
- Line 21 EIA-608
- Teletext
- TX3G
- European Broadcasting Union (.STL) external files
- Timed Text Markup Language (.ITT) external files
- D-Cinema Interop (.XML) external files

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- Screen Electronics (.PAC) external files
- Distributed Exchange Format Profile (.DFXP) external files
- Subrip (.SRT) external files
- Comma Separated Values (.CSV) external files
- Scenario Closed Captions (.SCC) external files
- SAMI (.SMI) external files
- IMSC1 (.TTML) external files
- Unicode PAC (.FPC) external files
- WebVTT (.VTT) external files
- Cheetah (.CAP) external files
- Videotron Lambda (.CAP) external files
- Cavena (.890) external files
- SMPTE 428-7 external files
- Spruce STL external files
- Son external files

1.3 Supported SDI Cards

- Bluefish 444 Supernova S+, Neutron, Kronos
- AJA Kona 4, Kona 3G, Kona IP, Kona 5
- Black Magic Design, DeckLink Range

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2 Installation

2.1 Installing the GrayMeta Iris

a) Please download the installer from support.graymeta.tv
b) Run the installer and follow the step by step instructions. (Select the Bluefish444 card and/or AJA card options if the SDI card(s) are installed). The installer will prompt to update the Bluefish drivers and firmware if they are out of date.



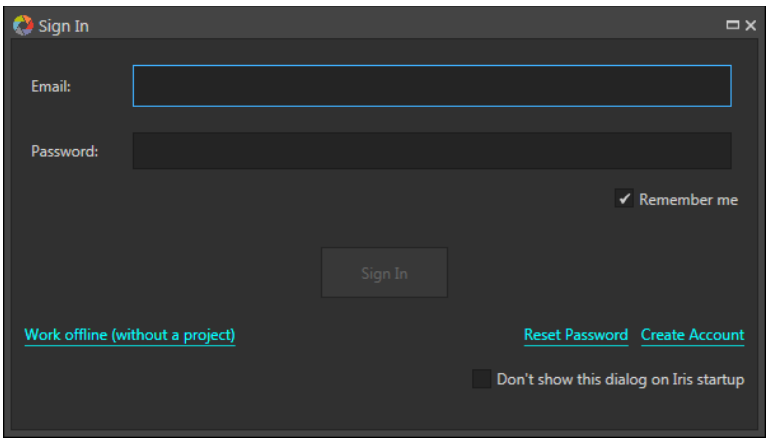
2.2 Starting GrayMeta Iris

Double-click the GrayMeta Iris shortcut on the desktop to start. Or from the startup menu to start Iris.

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3 Getting Started

3.1 Creating a new account



After starting the application, a sign-in dialog box will appear. You must sign into Iris to access the Projects, Message Board and Annotations, otherwise you can skip the sign-in dialog box by closing it or disable it in the options (see 4.3.23.1.3)

Signing in will use one of the following types of accounts:

- Private Iris Service where the accounts are held in a user-defined server.
- Active Directory account, which requires extra configuration in the Iris Admin GUI (please consult the Iris Admin manual for further information).

3.2 Encrypting config.js passwords and AWS Keys (only applicable to Iris Anywhere)

It is recommended to use encrypted values for some of the settings in iris Anywhere's config.js file. Specifically, the IrisServer password and AWS Elastic Search's SecretAccessKey and AccessKeyID. To generated encrypted text, the IrisAnywhere.exe file located in the installed location (usually C:\Program Files\GrayMeta\Iris Anywhere) can be used as a generator. The syntax to generate encrypted text is:

IrisAnywhere.exe --encryptText <mytext>

where <mytext> is the text to encrypt. This text should be quoted if it contains space characters.

For example, the Iris Server setting in config.js could have an entry:

Password : 'password'

After generating the encrypted text, this would give the value "hRlOmDiA3uc9Qsyv8J2NXA==" so the setting in config.js becomes:

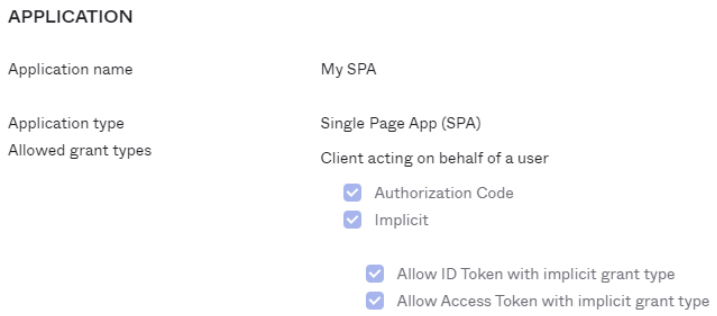
Password: 'hRlOmDiA3uc9Qsyv8J2NXA=='

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Note that unencrypted text can still be used. Iris Anywhere will automatically detect if the setting is using unencrypted or encrypted values.

3.3 Creating OKTA Account (only applicable to Iris Anywhere)

Iris Anywhere has support for OKTA (SSO). An OKTA account is required to use this feature. From OKTA's account application settings, the Client ID and OKTA domain must be specified in iris Anywhere's config.js file. Also, in the OKTA's application settings, the application grant types must be specified as shown below:



The config.js file (located in C:\Users\Public\Documents\GrayMeta\Iris Anywhere\config.js) will need the OKTA settings to point to the correct Client ID and OKTA domain. For example:

```
Okta :  {
                enabled     : true,
                issuer      : 'https://dev-02238043.okta.com/oauth2/default',
                client_id   : '0oa2z8e9zpw1azJn6534',
                redirect_uri : '/implicit/callback',
                scope       : 'openid profile email'
        }
```

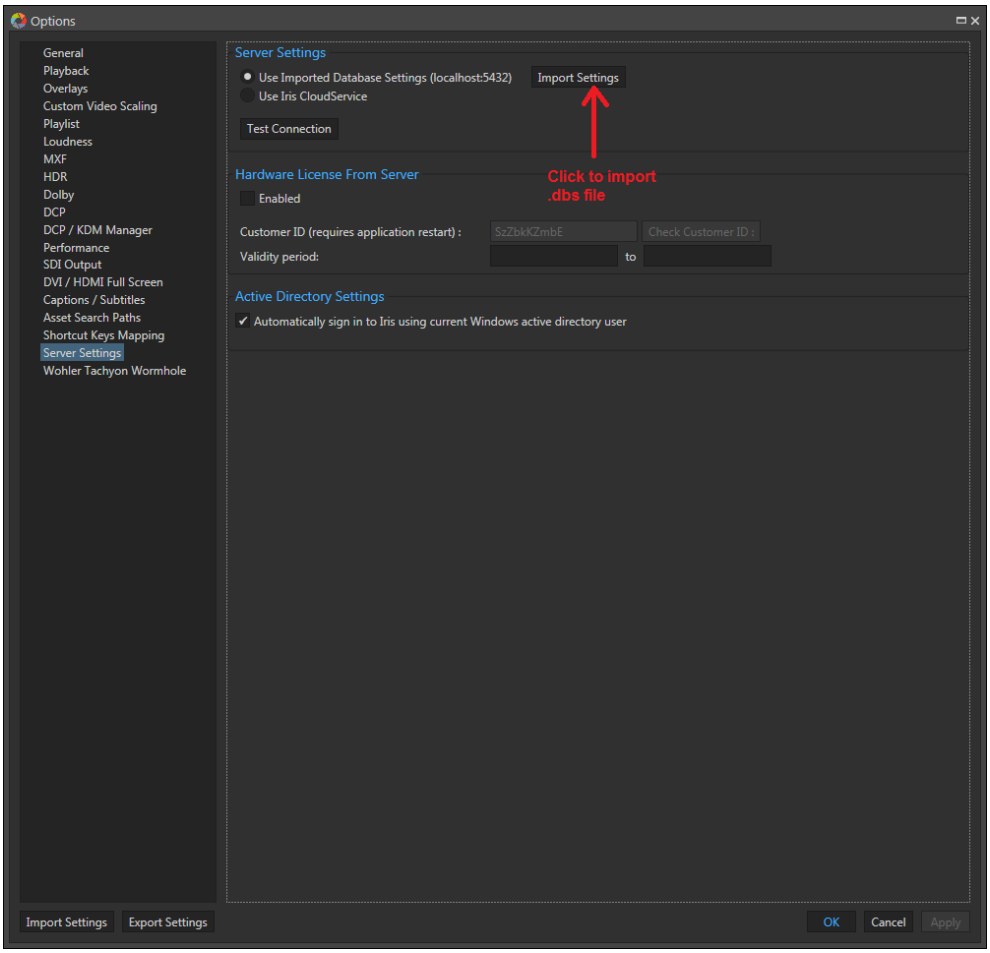
Means that the client ID is '0oa2z8e9zpw1azJn6534' and the domain (specified in issuer) is 'dev-02238043.okta'. Replace the client ID and domain with the values obtained from your OKTA account.

3.4 Setting the Private Iris Service IP Address

If you are using Iris within your organization, where a privately hosted Iris Service has already been established, the IP address of that service must be created before it can be accessed. Click the "Work Offline" link (or press the ESCAPE key) to cancel the sign-in dialog box. Using the mouse,

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right-click on the main player window to bring up the context menu and then select “Options” then “Server Settings.”



In order to specify usage of a privately hosted Iris Admin, the information pertaining to the server needs to be entered in the Iris Admin GUI and a .dbs file generated (please consult the Iris Admin user manual for details on generating the .dbs file). The .dbs file is imported by clicking the “Import Settings” button as shown above. Also, ensure the “Use Imported Database Settings” option is selected. Once the .dbs file has been imported, you can sing in to Iris again by leaving the options and clicking “Sign In” button on the top right.

3.5 Import Settings

Iris supports the option of importing settings from a known drop folder. This occurs as soon as Iris starts up and it will look in the **C:\Users\Public\Documents\GrayMeta\Iris\ServerSettings** drop folder for files to import. By importing these settings, they will override existing settings. There are current two types of settings that can be imported – a server settings .dbs file as mentioned in section 3.4 and general settings.

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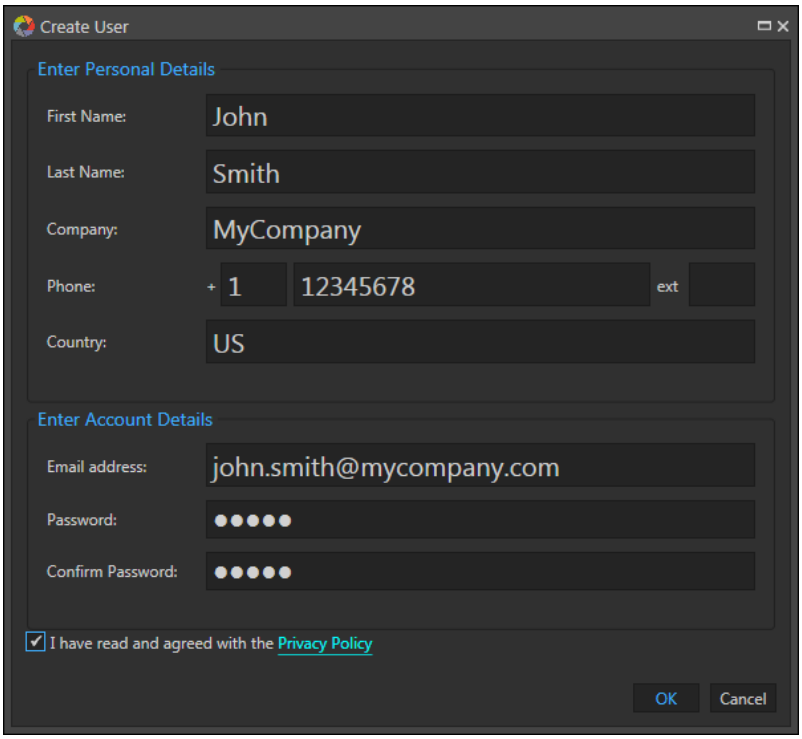
To import a .dbs file copy the .dbs file that was generated by Iris Admin and place it in the drop folder **C:\Users\Public\Documents\GrayMeta\Iris\ServerSettings**. Upon startup, Iris will import this file and move it into another location called **C:\Users\Public\Documents\GrayMeta\Iris\ServerSettings\ImportedServerSettings**.

Similarly, to import general settings, a settings.json file needs to be manually created and placed in the drop folder **C:\Users\Public\Documents\GrayMeta\Iris\ServerSettings**. Once this has been imported upon Iris startup, it will also be copied into **C:\Users\Public\Documents\GrayMeta\Iris\ServerSettings\ImportedServerSettings**

The settings.json file currently support one setting that is represented in json format. A typical settings.json file may look like the following:

```
{
        "AutoLoginActiveDirectory": true
}
```

Registering Your Details



In the sign-in dialog box, you can click “Create Account” link to register your details. Enter your name, company and contact information. All fields are required, except the phone extension field. Your email address will be used to uniquely identify you whenever you sign into Iris. Please read and accept the Privacy Policy statement carefully before proceeding. Select OK to create the

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account. After your account has been created successfully, the sign-in dialog box will reappear and you can sign into Iris using your email address and password.

Note that if you are using Active Directory sign in (which can be enabled in the Server GUI), the “Create Account” link will not be available.

3.6 Groups

User accounts can be placed into groups. When a user account is placed in a group, the individual’s account permissions are overridden by the group’s permissions. A group can be an Iris Group or a group created in an Active Directory server. For Active Directory users that are members of more than one group, signing into Iris will result in Iris presenting the user with a list of groups, of which the user must choose one.

These groups and their permissions are managed in the Iris Admin GUI. For further details, please consult the Iris Admin user manual.

3.7 Licensing

Iris can be licensed using either a locally stored license file or via online licensing. The local license requires importing the licensing file (see section 4.3.26) and the online licensing requires the following:

- Importing an online license file into an Iris Admin database (please consult the Iris Admin user manual for more information)
- Entering the Customer ID into Iris (see section 4.3.1.3 for information on entering the Customer ID)

Both types of licenses can be unlimited or use start and end dates. If Iris is licensed using both a local license and server license, then the local license takes precedence. Additionally, the server license is used to manage the number of concurrent users who are using Iris at any given time.

Signing in to use projects (see section 4.3.1) or configuring Iris to use a Server License (see section 4.3.23.19.2) will take up one slot in the list of users currently using Iris. The maximum number of slots taken up must not exceed the number of concurrent users mandated by the Server License.

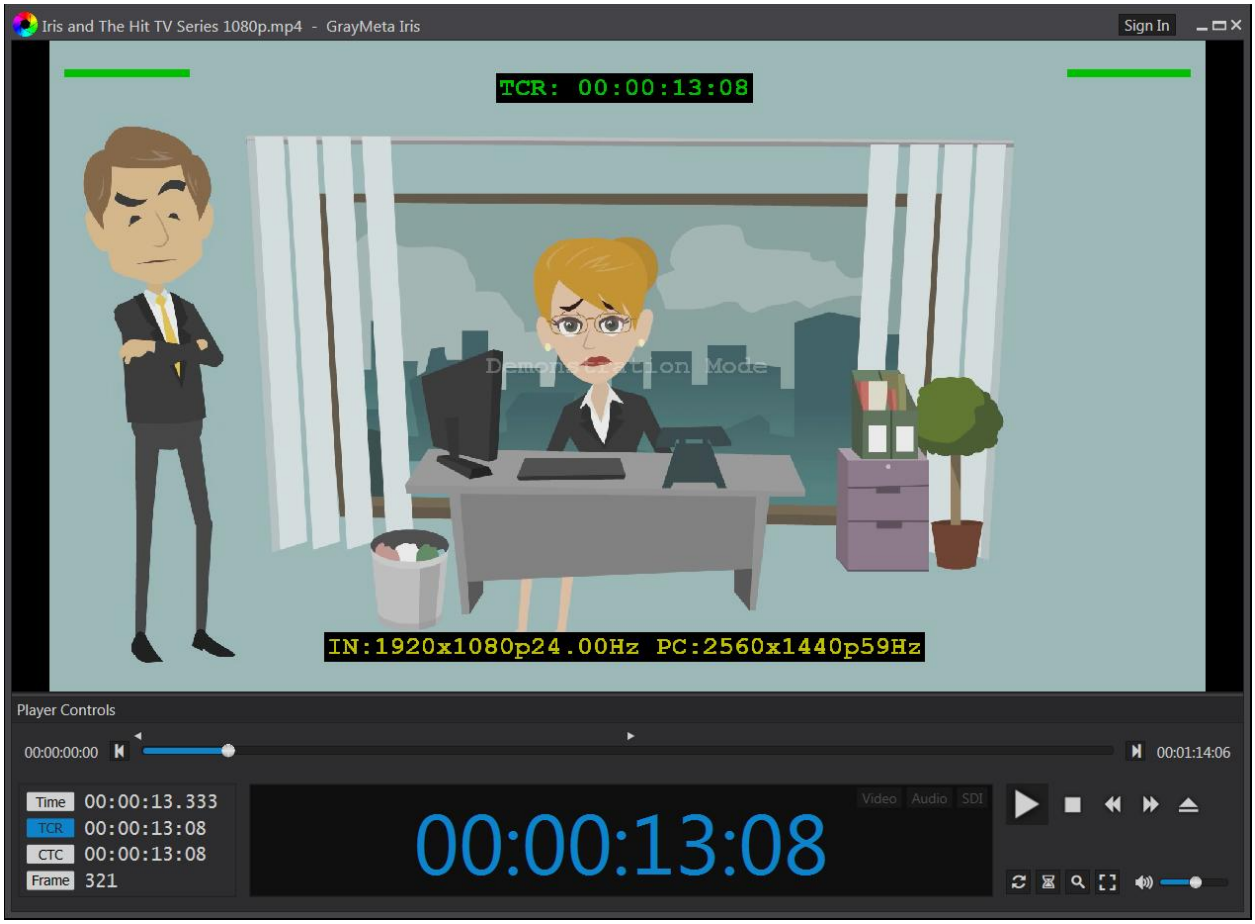
3.8 Working Offline

You can use Iris in “Offline” mode without signing into an Iris Service by clicking the “Work Offline (without a Project)” link or by pressing the ESCAPE key. Please contact sales@graymeta.com to purchase a license. When working offline, Projects, Message Board and Annotations will not be available.

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4 Using GrayMeta Iris

4.1 The Main Player



4.1.1 Horizontal Progress and Seek Bar

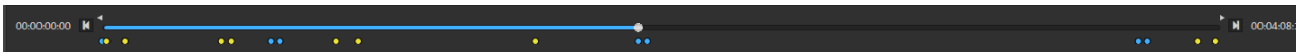
Play head indicates the current position of the playback and allows the user to randomly seek to any position of the video. Mark in and out points to the start and end positions of the playback respectively.



4.1.1.1 *IMF Files*

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When playing IMF files, the seek bar will also show 2 types of information represented as blue markers and yellow markers:



The blue markers represent the beginning of a video segment and the yellow markers represents markers to denote points of interest within the video. Each one of the blue and yellow dots are referenced by frame positions. Hovering the mouse over the markers will show a tool tip with further information and clicking the markers will cause the player to seek to the position of the marker.

4.1.1.2 *Dolby Vision® Files*

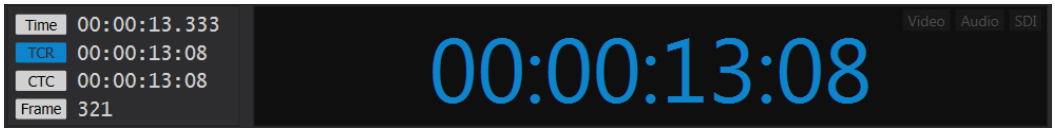
When playing Dolby Vision files, the seek bar will also show orange markers that represent Image Characters and Trim.



The Image Character and Trim can be viewed by hovering the mouse over the orange markers and clicking the markers will cause the player to seek to the position of the marker.

4.1.2 Time Display

Current display mode: **Tape Time Code (TCR), Control Time Code (CTC), Time position (TIME) or absolute FRAME**. Click on the “Time”, “TCR”, “CTC” or “Frame” buttons to select the active mode.



Time format: hours: minutes: seconds: milliseconds

TCR / CTC format: hours: minutes: seconds: frames. A semi-colon ‘;’ separator between the seconds and frames counter denotes drop-frame timecode.

It is possible to jump to a specific position in the video by editing the Time Display. Editing mode is enabled by double-clicking on the time display and entering the new position to jump to followed by ENTER key. Press ESCAPE to cancel edit mode. The current display mode (Time, TCR, CTC and Frame) determines how inputted data is interpreted during edit mode, so if the current display mode is in time code, then a time code must be entered during edit mode.

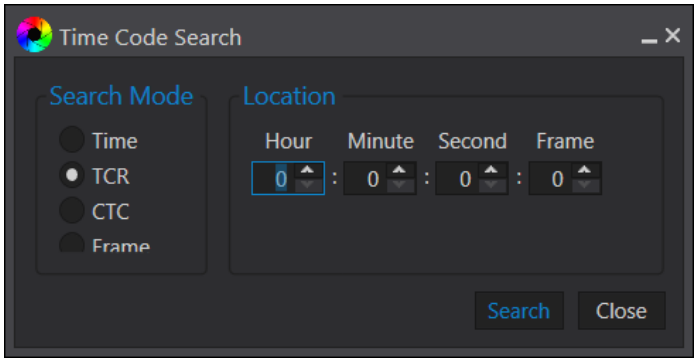
4.1.3 Player Control

Button	Description

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	Stop the current playback.
	Rewind the playback. Supports the following speeds: 2x, 4x, 8x, 16x, 32x and 64x.
	Begin playing the video. Button changes to Pause while playing.
	Pause the playback. Button changes to Play when paused.
	Fast forward the playback. Supports the following speeds: 2x, 4x, 8x, 16x, 32x and 64x.
	Select a file to be played.
	When the video finishes, it automatically repeats it once.
	Play video repeatedly. When the video finishes, it automatically starts playing again.
	Normal playback mode: Stop at end.
	The Slow-motion mode to change the rewind and fast forward speed to (1/16, 1/8, 1/4 and 1/2).
	Search and jump to position.
	Switch to default full screen mode.

4.1.4 Search and Jump

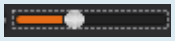


Select the search mode, time code track, control track, play time or absolute frame. Enter the required position and click “Search.” The play position will jump to the specified value if found.

4.1.5 Audio Control

Button	Description

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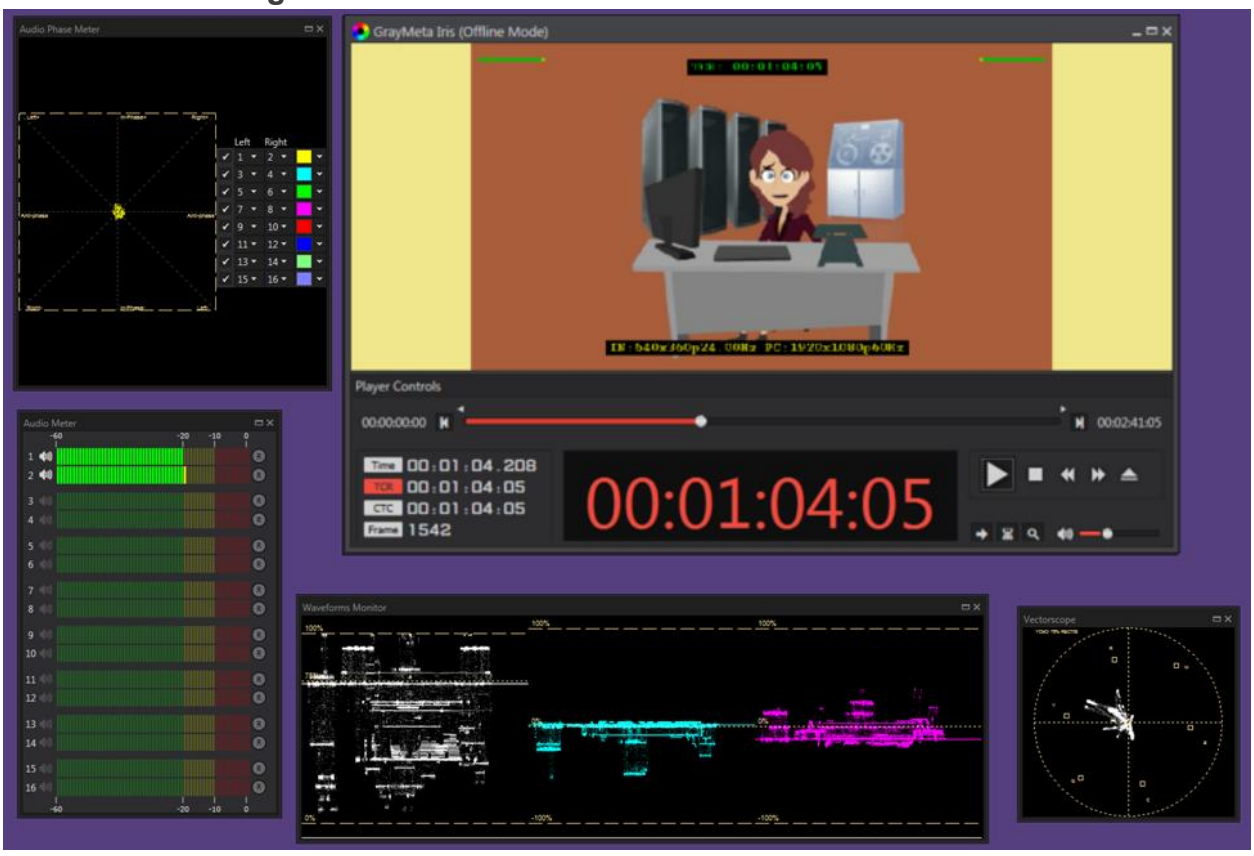
	Adjust the volume level.
	Click to mute audio.
	Click to un-mute audio.

4.1.6 Panning of Video

If the video is scaled so that it is larger than the display window, then the left clicking and dragging the display allows for the video to be panned.

4.2 Docking Windows and Layout

4.2.1 Individual Floating Windows

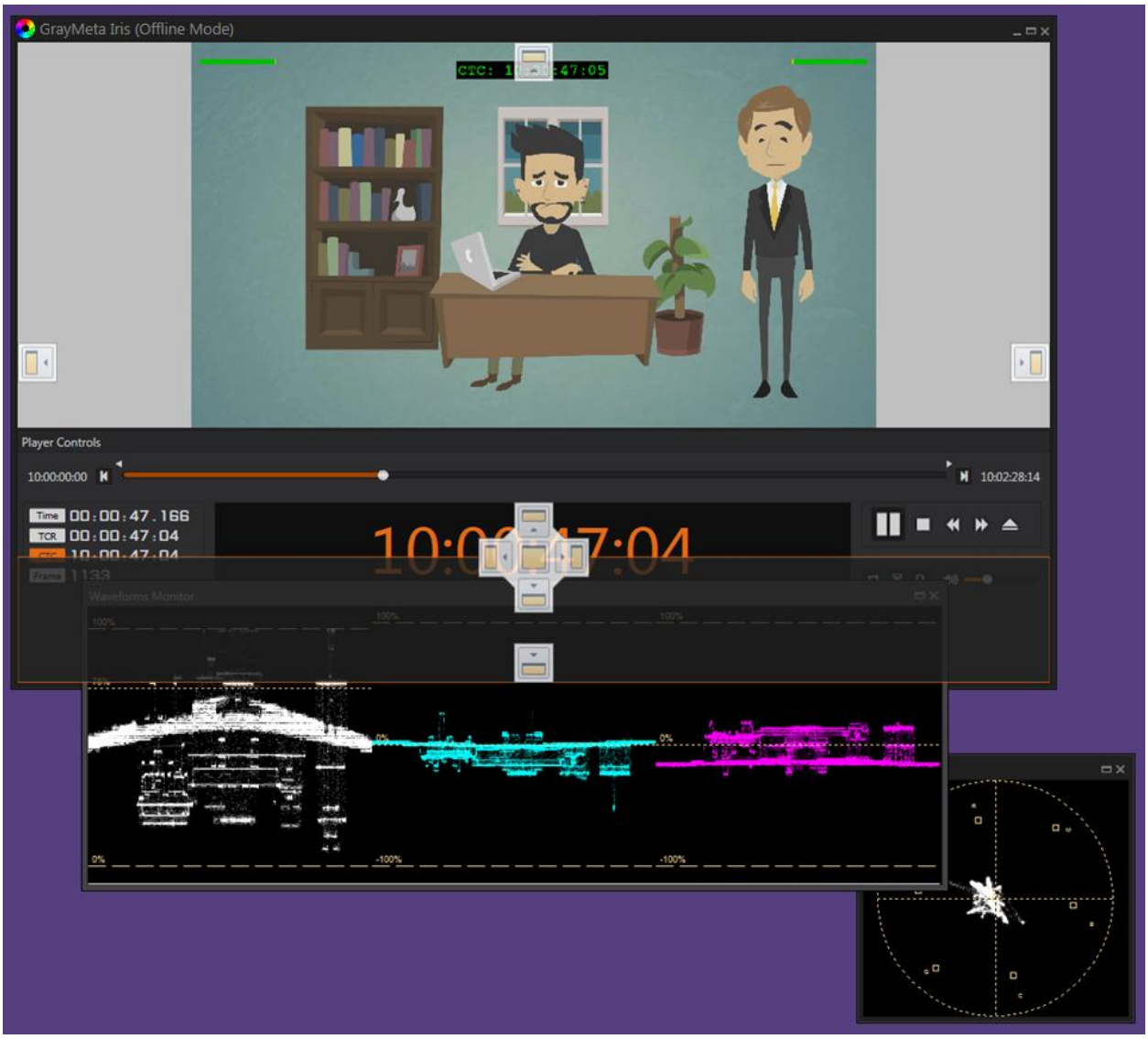


Iris is comprised of a main player window and a set of ‘tool’ windows that can be placed anywhere on the screen for convenience. However, with so many tool windows available, it

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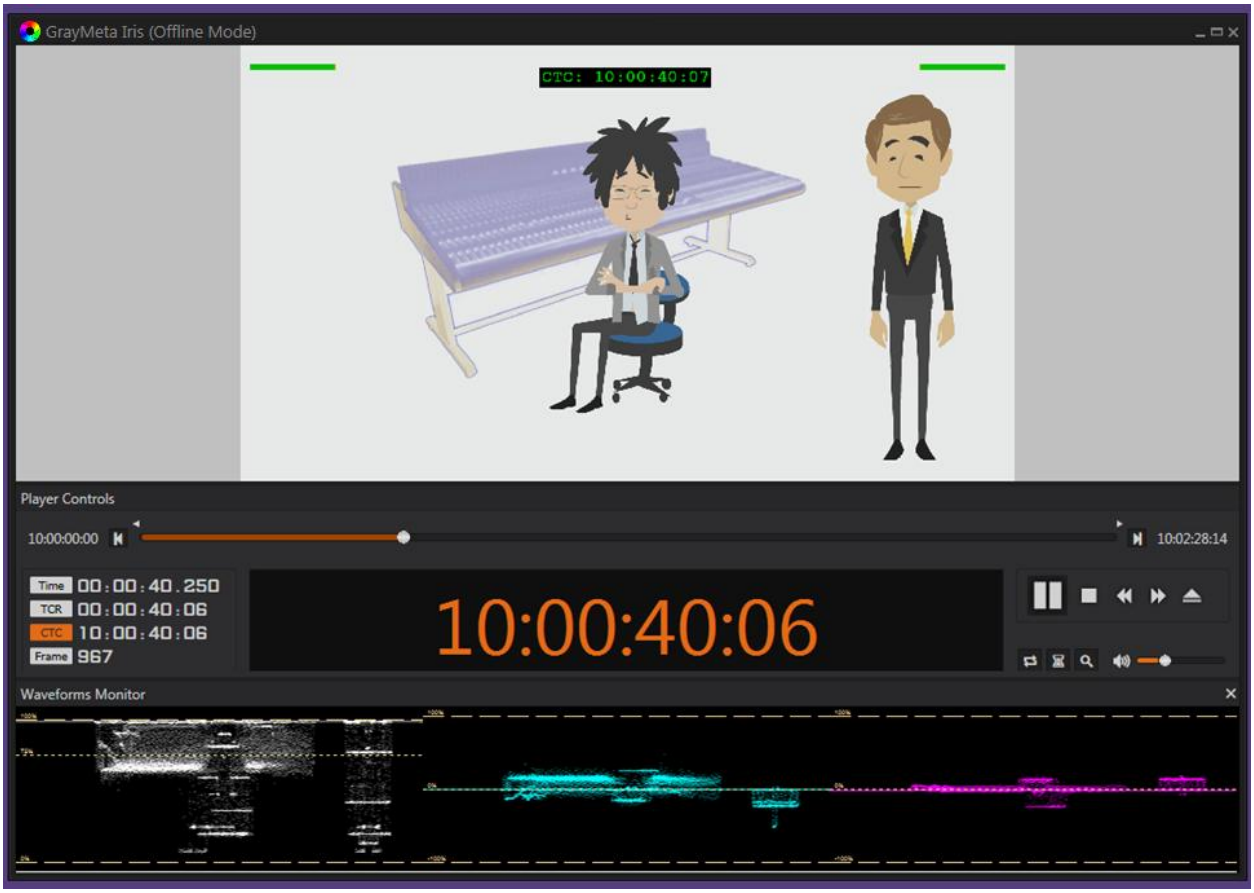
is quite difficult to navigate around the windows and to set up a layout that best suits your needs.

4.2.2 Docking a Window



To dock a window to another window, click and grab the title bar of the window you want to dock and then move the mouse over the window you want to dock to. As the mouse moves over the window, docking ‘handles’ appears in the middle and edges of the window. By moving the mouse over the handles, an outline of where the window will dock will be highlighted. Since a window may already contain multiple windows, moving the mouse over different parts of the window will show multiple docking handles. To dock the window, release the mouse button when the desired position is highlighted.

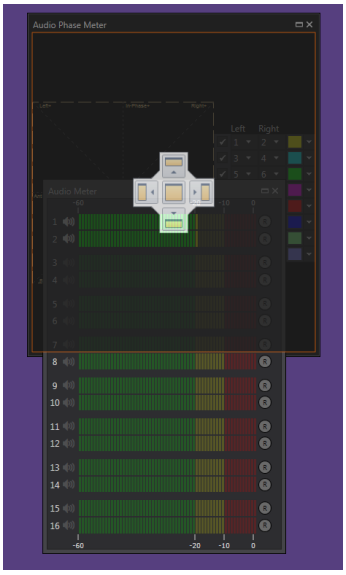
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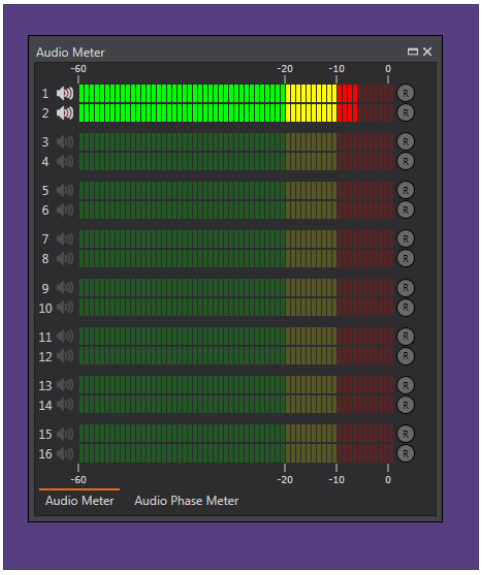


The resultant layout shows the video waveform docked to the bottom of the player controls which in turn is docked to the bottom of the main player. The dividing borders between the windows can be dragged to resize the windows. To undock a window, click and grab the title bar of the tool window and move it away from its position in any direction. Release the mouse, and the window will reform back to a floating tool window.

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4.2.3 Docking Tabs





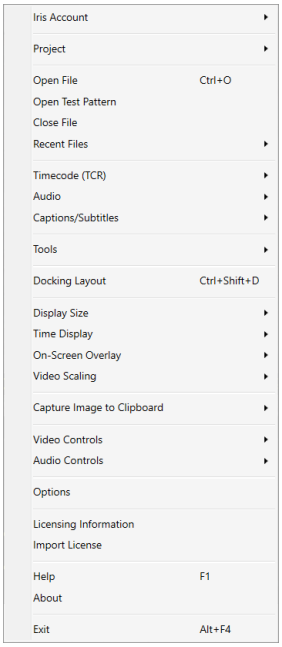
When you release the mouse over the center handle, the window forms a tabbed layout. To bring a window to the top, click on the tab name on the bottom.

4.2.4 Saving and Restoring the Window Layout

See the ‘Docking Layout’ context menu on how to save and restore a window layout.

4.3 Context Menu Options

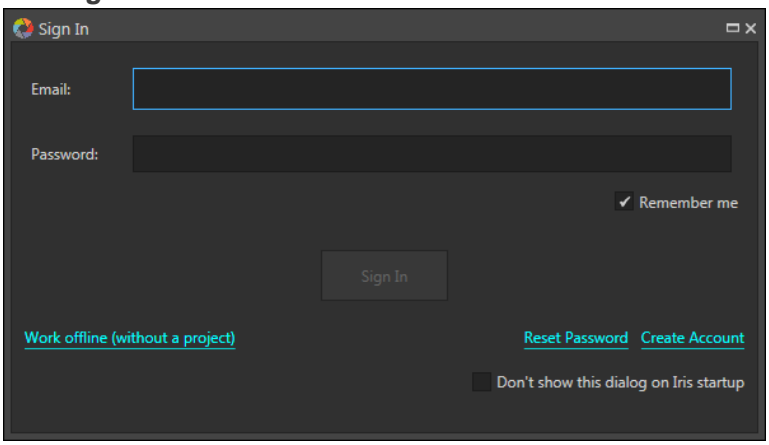
Using the mouse, right-click on the main player window to bring up the main context menu. This menu provides access to most of the features and functions of Iris.



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4.3.1 Iris Account

4.3.1.1 *Sign In*



Use this menu to sign into your Iris account. Signing in will use one of the following types of accounts:

- Private Iris Service where the accounts are held in a user-defined server.
- Active Directory account, which requires extra configuration in the Iris Admin GUI (please consult the Iris Admin manual for further information).

  If the checkbox “Don’t show this dialog on Iris startup” is enabled, then future sessions of Iris will open without the sign in dialog and will run in Offline Mode. This setting can be changed again in the “General” tab of the Options dialog (see 4.3.23.1.3). Also, the sign in can be selected manually from the context menu.

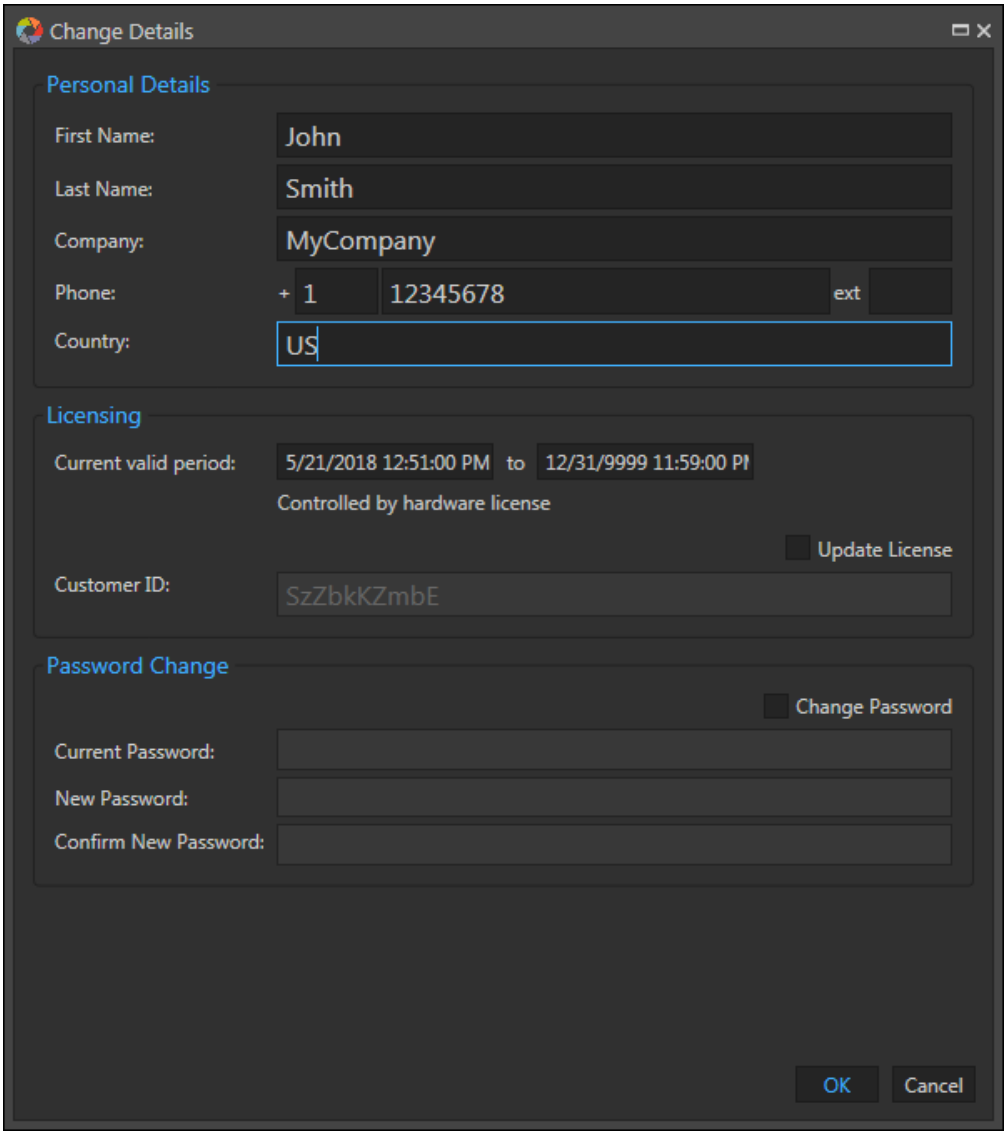
4.3.1.2 *Sign Out*

Sign out from an active session.

4.3.1.3 *Change Details*

Change your personal information, password or license.

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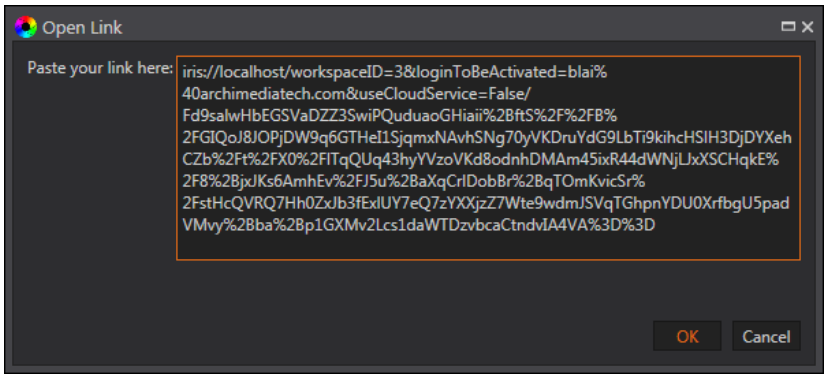
This dialog box also displays the validity of your license and the “Customer ID” which is used for enterprise licensing (for your organization). The Customer ID will be provided upon purchase of a valid license.

4.3.2 Project

4.3.2.1 *Open Link*

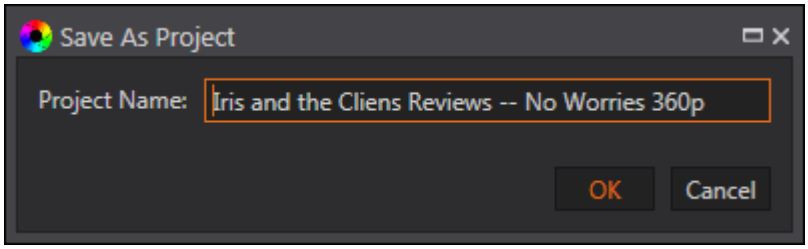
A direct link to a project and annotation position can be shared, and the link can be entered here to open the project.

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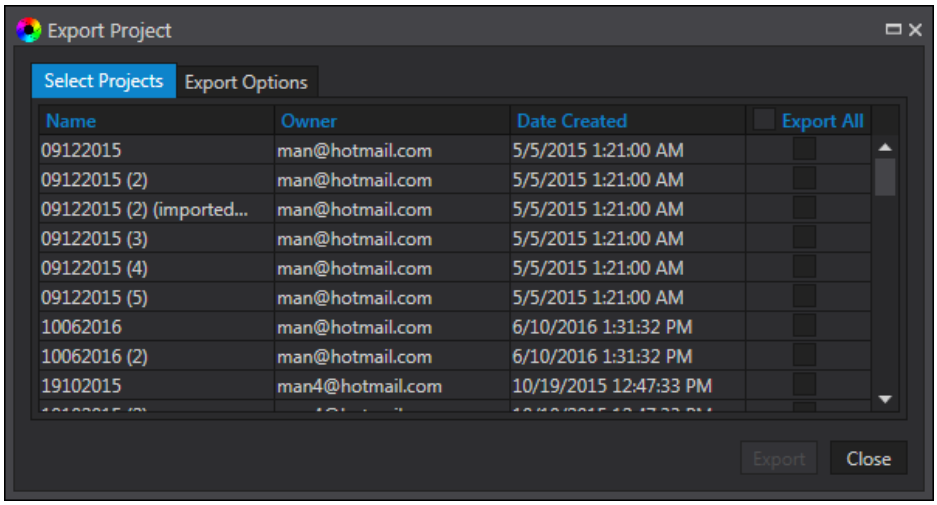
4.3.2.2 *Save Project As…*

Save the current project with a new name.



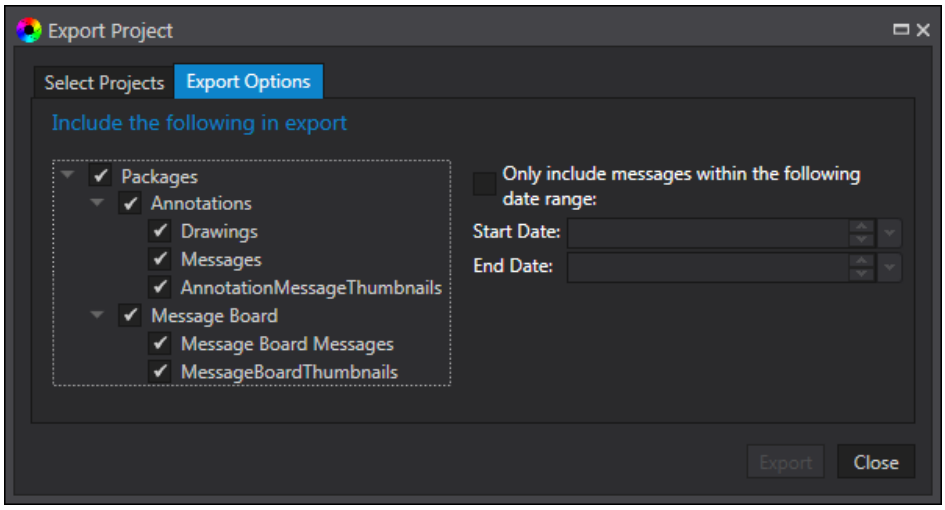
4.3.2.3 *Export Project to XML*

Projects can be exported to an XML file via the “Export Project to XML” context menu. A list of projects that are accessible to the current user is displayed as follows:

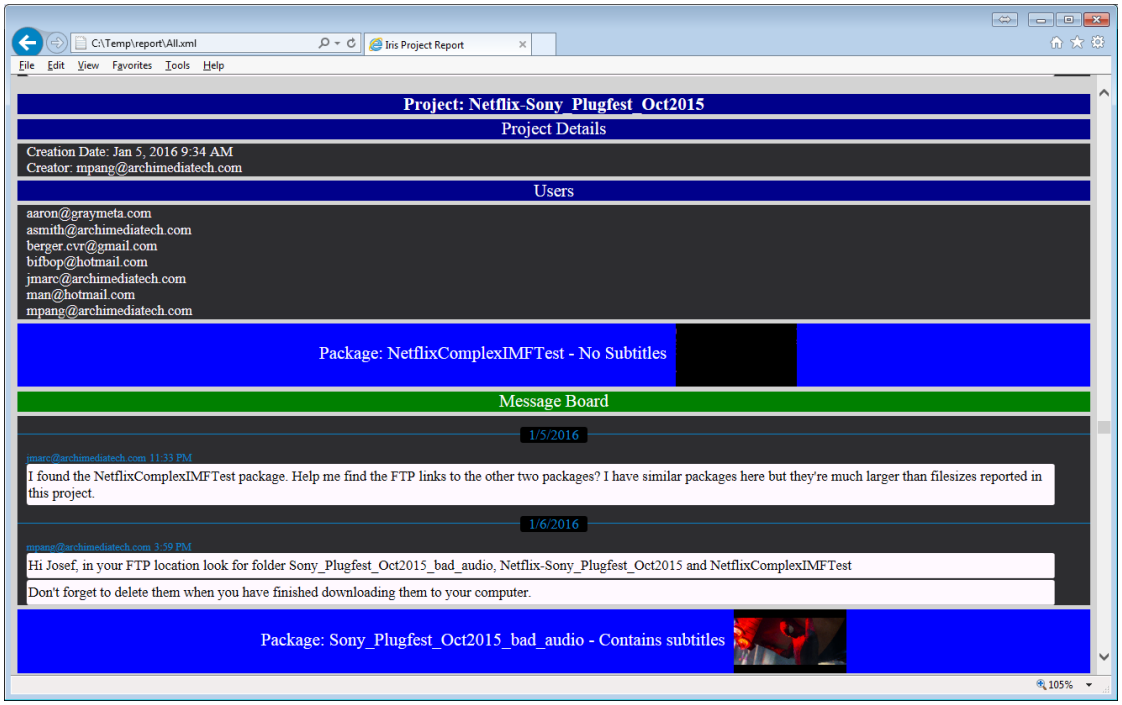


Selected projects can be exported by clicking the “Export” button followed by a dialog that allows the user to specify the XML file and location in which to store the exported projects. The “Export Options” tab gives the user some options to control what can be exported, such as specify a date range, specify not to export messages or omit thumbnails (which results in much faster exporting).

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The resultant export file location will include a file called **report.xsl** and four folders named **CSS**, **jQuery**, **moment** and **Thumbnails**. The purpose of these additional folders and files is to enable the exported XML file to be opened in a web browser and viewed as a report. Here is an example of such a report shown in Internet Explorer:



Note that in Internet Explorer, opening the exported XML file may result in a message “Internet Explorer restricted this webpage from running scripts or ActiveX controls.” If this appears, you must allow this when prompted to view the report in the correct format.

In Google Chrome, XML documents are blocked by default and the only way to open XML documents in Google Chrome is to run it from the command line with the parameter –allow-file-access or –allow-file-access-from-files.

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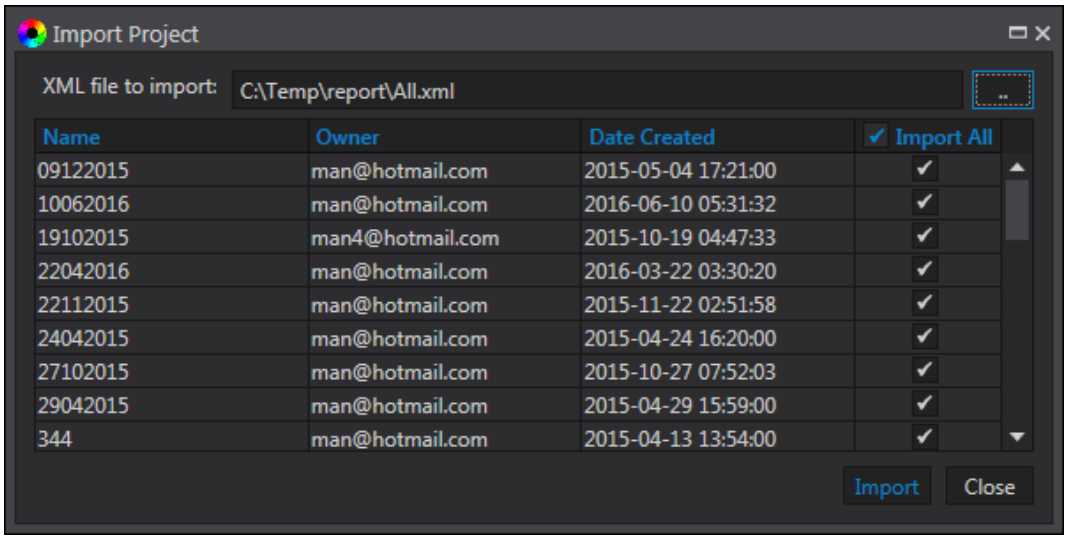
When passing exported XML files to another user, the following needs to be heeded:

- If the user requires opening the XML file as a report in a web browser, then the report.xsl file and the four folders mentioned earlier must be included.
- If the user only wants to re-import the XML file into Iris, then it is sufficient to provide them with the exported XML file only.

Exporting a lot of data can be time consuming and furthermore, reading very large XML files in a web browser can also give the appearance that the web browser has hung while it processes the large amounts of data.

4.3.2.4 *Import Project from XML*

This context menu option allows a user to import projects from an XML file. When selected, the following dialog is shown:



Select the location of the XML file and a list of projects in the XML file (and are authorized for access by the current user) is shown. Choose the projects to import and click the “Import” button. The naming of imported projects takes the form of the original project name suffixed by “(imported on <datetime>)” where <datetime> is a date and timestamp of the import.

Note that importing a large XML file can be very time-consuming.

4.3.2.5 *Import Segment Data from XML*

This allows the import of XML files containing Segment Data annotations to be imported into the current project. An sample Segment Data XML file can be found in the Documents folder of the Iris installed location.

4.3.2.6 *Close*

Close the current Project but does not sign out.

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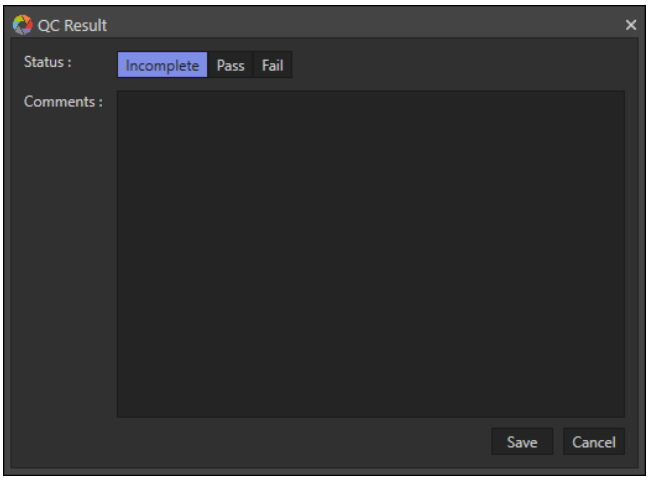
4.3.2.7 *Generate QC Report*

This option allows for generation of a QC Report. The report consists of asset metadata, loudness measurements, annotations within the project (including those that were created by QC files such as Baton and Aurora). The report will be saved as an XML file.

For more customized reports such as generation of user-defined XML formats and even generation of PDF formats, it is necessary to import a QC Report Config file in the Iris Admin (for more details, see the Iris Admin user manual). The QC Report File will be a zip file that contains xslt and json files used for customizing the reports. A sample GrayMeta QC Report zip file is included with the Iris Admin Install (called QCReportConfig.zip). Inside will be json and xslt files which can be customized. The customized files can be zipped up and imported into Iris Admin. After the import, the Generate QC Report context menu will contain new entries to allow generation of these customized reports.

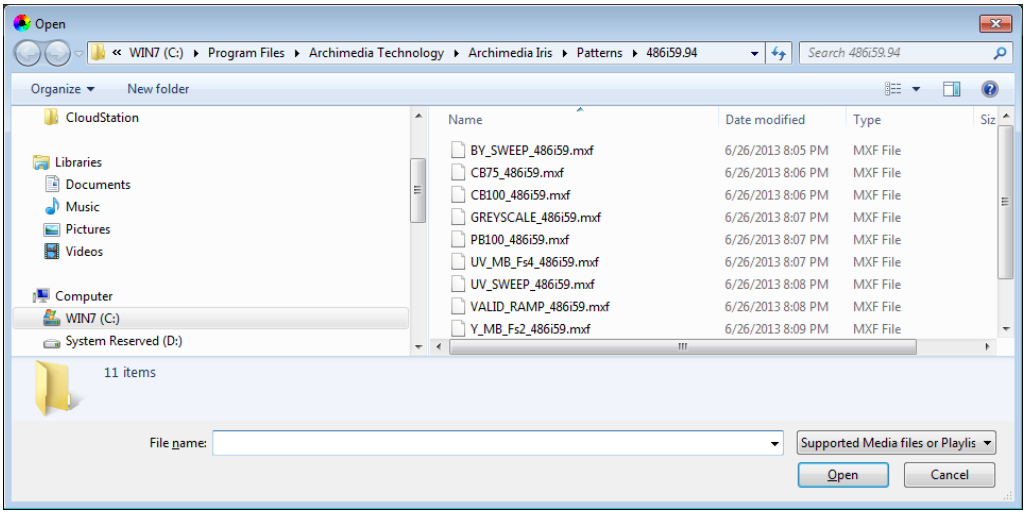
4.3.2.8 *QC Result*

QC Results can be marked as Pass or Fail. This option provides the user the ability to mark the results as pass or fail, and to add comments.

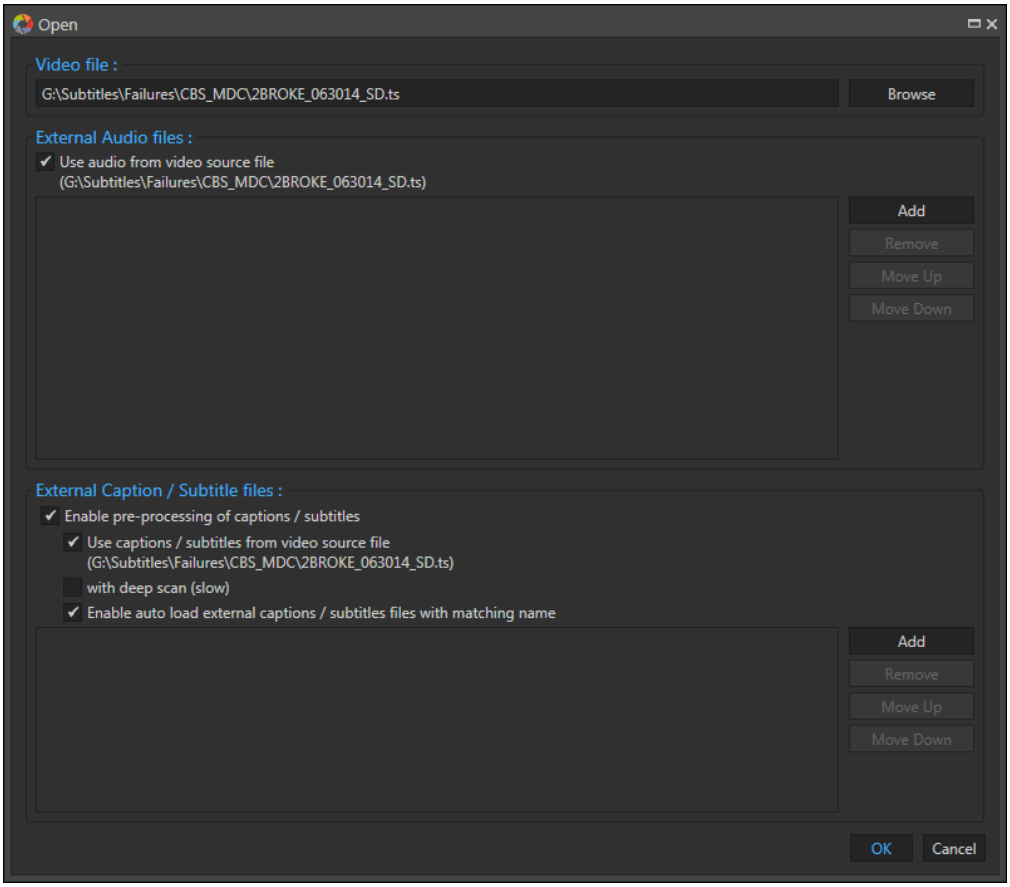


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4.3.3 Open File



This option allows the user to select a file for playback. For non-IMF and non-DCP packages, the user can select separate audio files by enabling the option and clicking the Add button to select the audio files. There is also an option to include external captions/subtitles file to display.

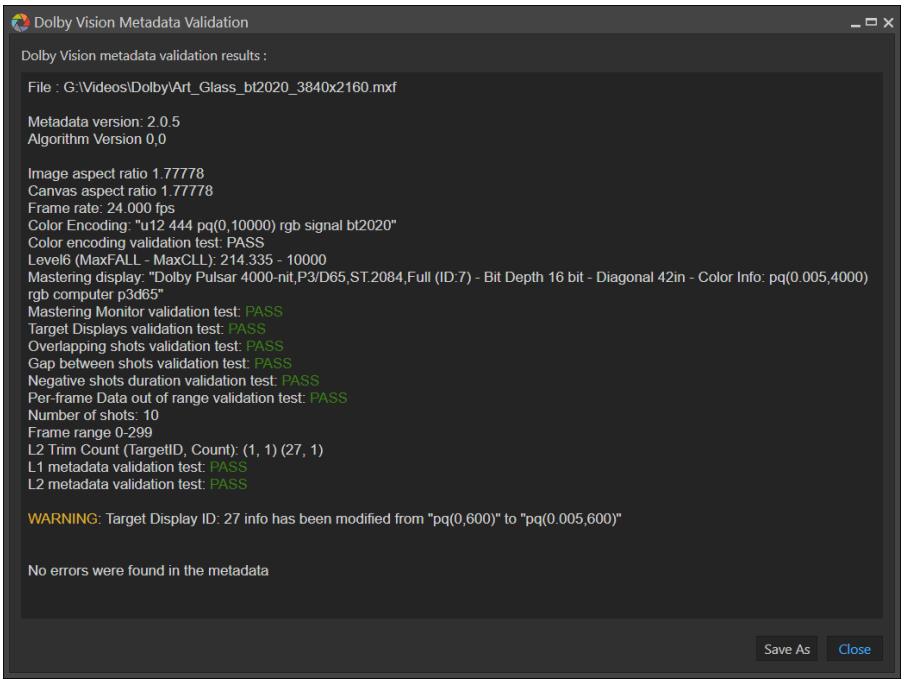


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To open an IMF or DCP package, browse the package folder and select either the ASSETMAP.XML or a CPL.XML file. The playlists are represented as files with the name suffixed by "_cpl" and the extension being ".xml." Please refer to Appendix F for more information.

This option can also be used for opening Dolby Vision metadata XML files but only after a video file has been loaded. The Dolby Vision metadata will be used for playback of the currently opened file. This is useful when the currently opened file is intended for Dolby Vision playback but does not contain embedded Dolby Vision metadata.

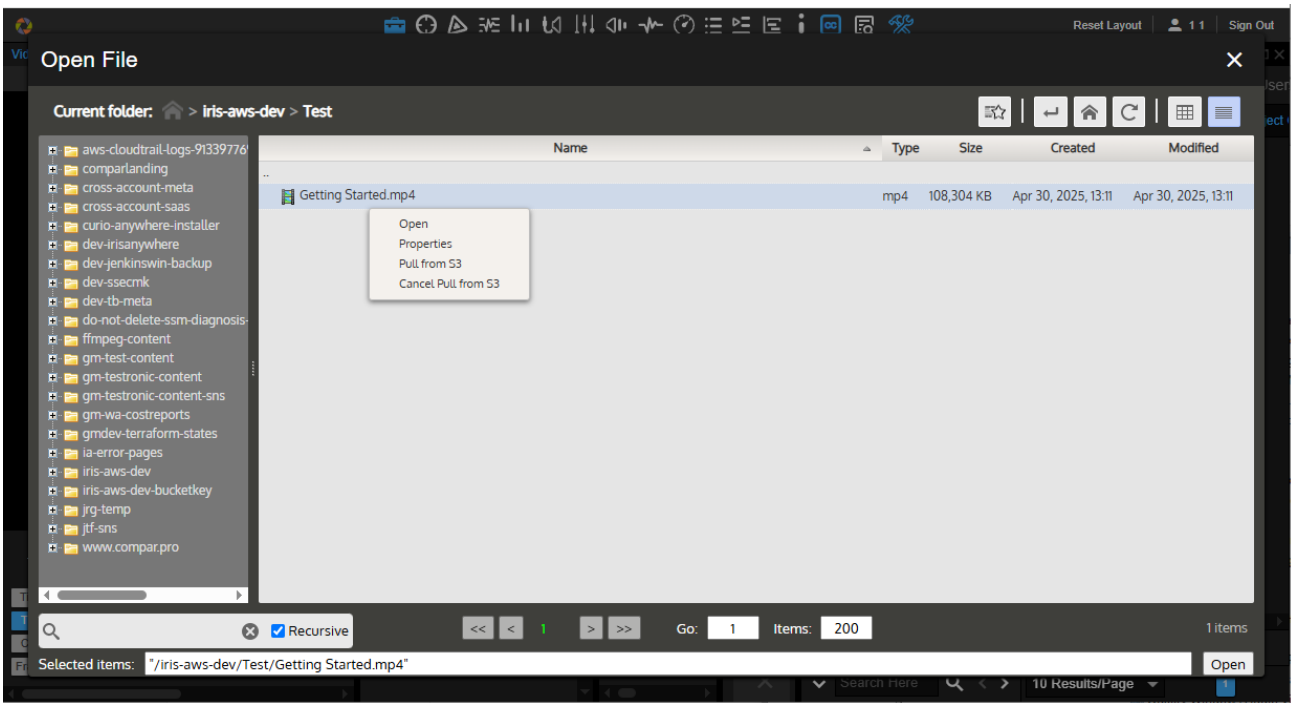
If the option to validate Dolby Vision metadata is enabled (Options->Dolby->Dolby Vision Mastering->Validate Dolby Vision Metadata), then upon opening the Dolby Vision metadata XML file (or opening video file with embedded Dolby Vision metadata), it will be validated using the Dolby Vision validation tool and its results will be displayed in a window as shown below. To continue, close the window.



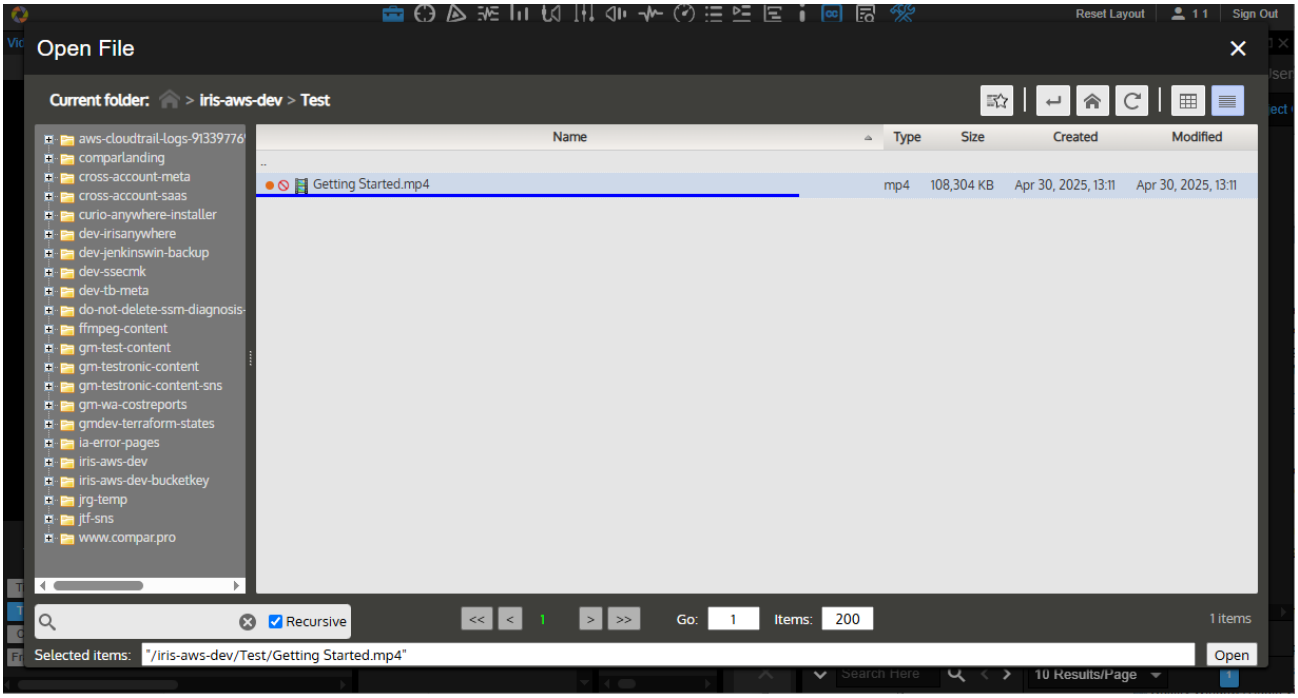
4.3.4 Pull Files from S3 Storage (only applicable to Iris Anywhere)

When opening files from S3 storage, playback quality may be degraded. Iris Anywhere supports a file “pull” feature which downloads the file from S3 storage to local storage. Playback of the file will take place from local storage. Currently, this feature is only available for files managed by “TigerBridge” or “Rclone”. The screenshot below shows a context menu opened with an option “Pull from S3”:

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Select the “Pull from S3” option and the file will download (indicated by a blue progress bar below the filename) as shown below:

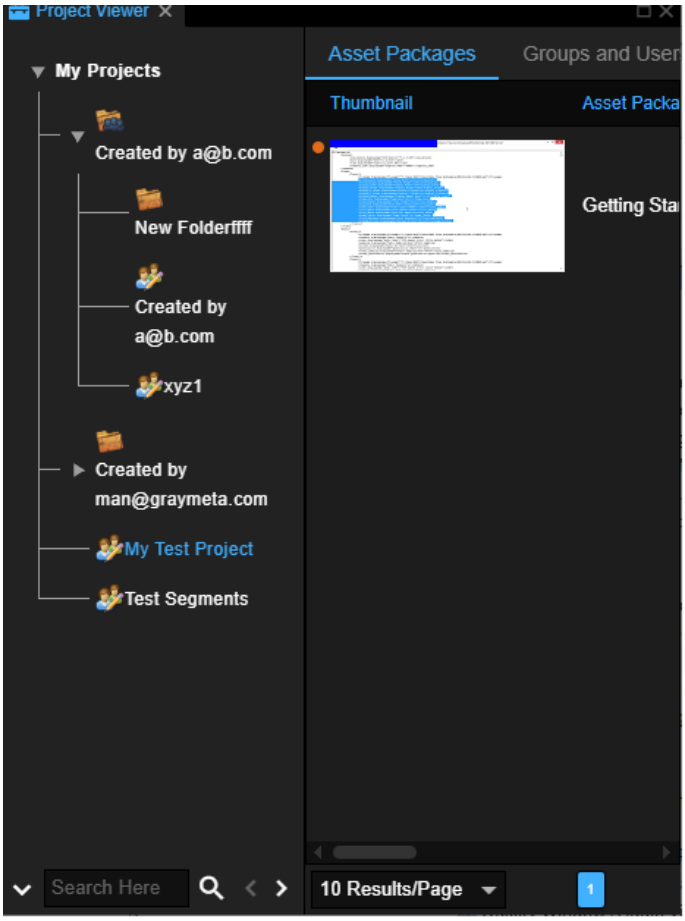


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There are 2 icons to the left of the filename. The first one is an indicator that shows the state of the download. A green indicator denotes the file has been downloaded, red means the file no longer exists after previously been downloaded and orange means download in progress. The second icon is a cancel button which will cancel the download.

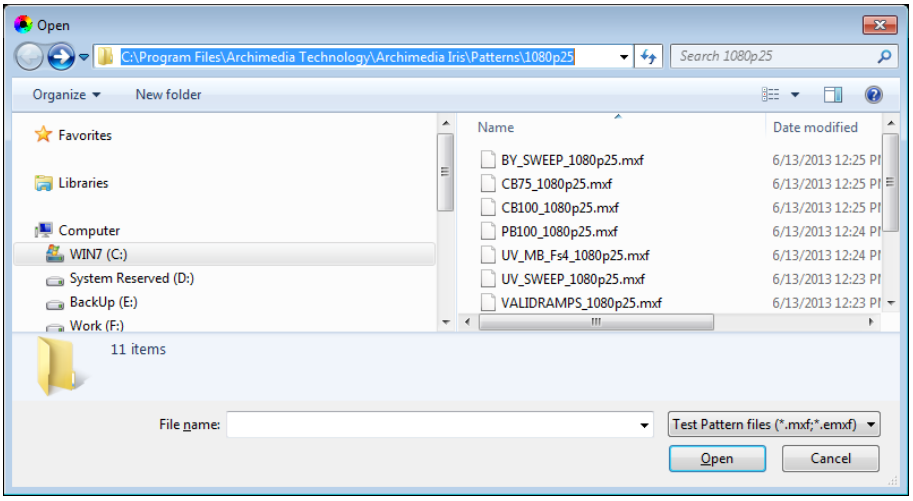
After the file has been downloaded to local storage, it can be played from local storage by double clicking the filename.

Note that this feature is also available in the Project Viewer as shown below by the blue progress bar above the asset package:



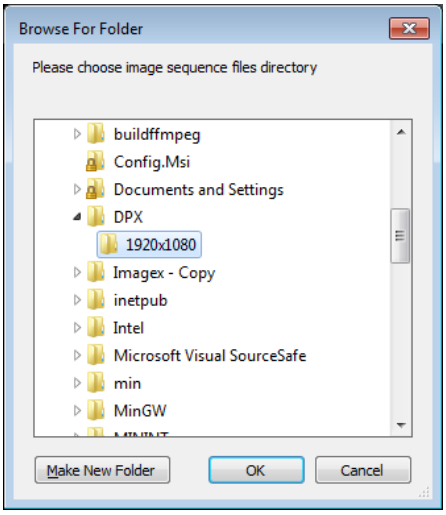
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4.3.5 Open Test Pattern



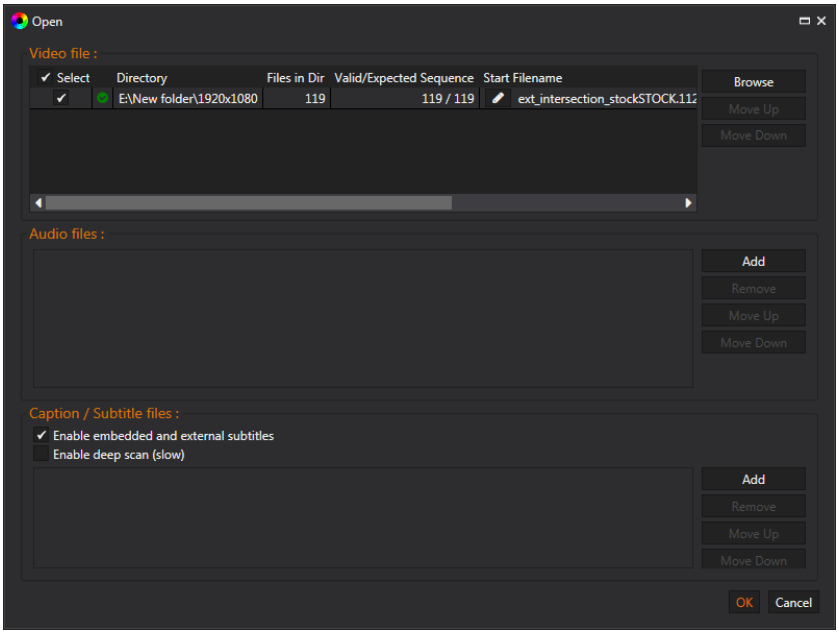
A set of test patterns is installed by default to help to test systems and monitors. Additional advanced and more complex charts can also be purchased separately from GrayMeta. Select a test chart for playback. With our partner VideoQ, we have developed a set of unique test patterns and charts to provide lossless quality digital signals for engineering and test purposes such as display setup and encoder/decoding paths.

4.3.6 Open Image Sequence Folder



Select the top-level folder for a set of Image Sequence folders or a single folder. The options box will search through the folders looking for DPX, TIFF, EXR, BMP, JPG/JPEG and TARGA files.

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The dialog box performs several checks on the files.

1. Checks the sequence of file names is sequential, without any missing files.
2. Checks the number of files in the folder matches the sequential number of files in the folder.
3. Displays the first and last file names in the sequence for user to verify.

The starting filename in each folder can be edited by clicking the “pen” button.

The order of the folders for playback can be changed by moving the row up or down.

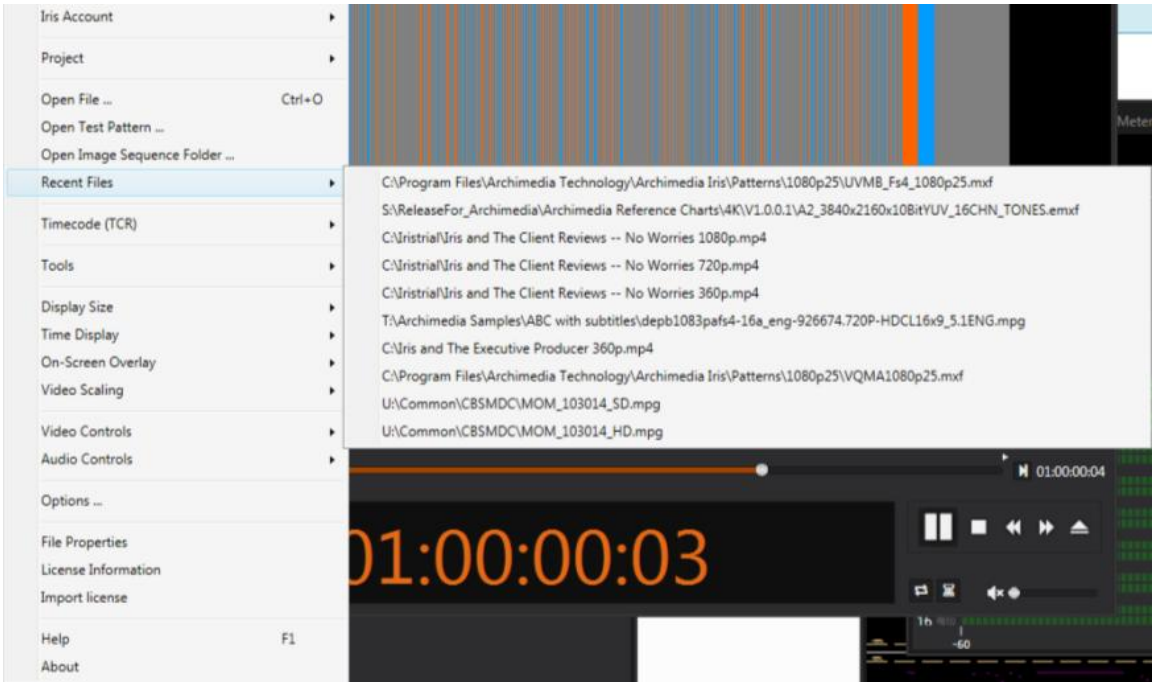
Multiple audio and caption/subtitle files can be added for playback.

4.3.7 Close File

When a file or package of files is opened, and loaded for playback, it is locked to prevent modification. Closing the file or package releases all files and unloads content from memory.

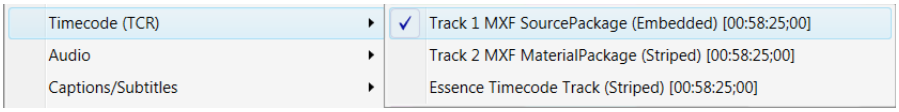
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4.3.8 Recent Files



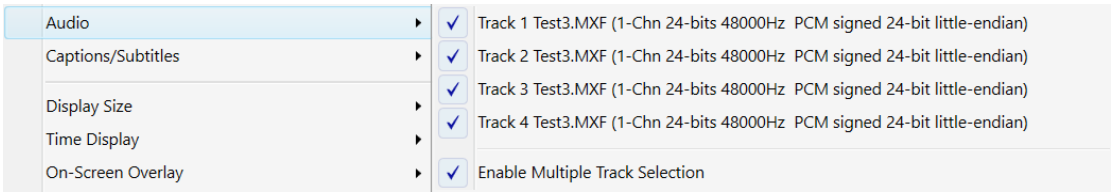
Ten most recent files will be displayed in the recent list.

4.3.9 Timecode (TCR)



This selects the active Timecode track (TCR) if more than one track is available. An embedded track indicates that the timecode is assigned on a frame-by–frame basis and can be discontinuous. A striped track only contains a starting value, and all subsequent values are regenerated, providing continuous timecode.

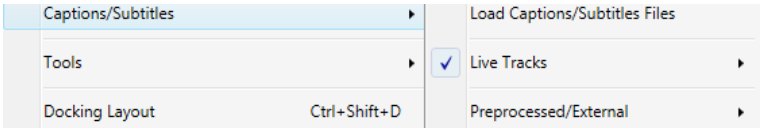
4.3.10 Audio



This selects the input audio tracks to be processed. Each track may have one or more channels and all selected tracks are combined to form the output channels. The order of the tracks cannot be changed by this selection. Use the audio router to rearrange the order or to mute individual channels. Unchecking the “Enable Multiple Track Selection” menu will allow only one track to be selected at a time.

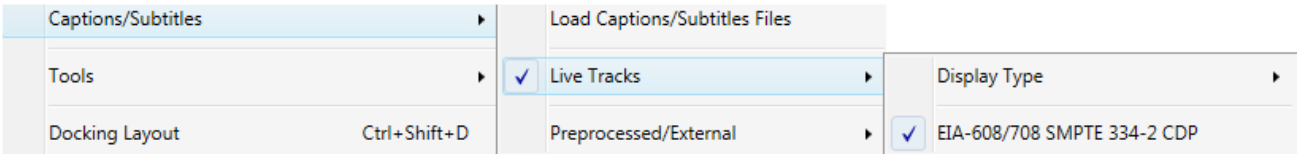
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4.3.11 Captions / Subtitles

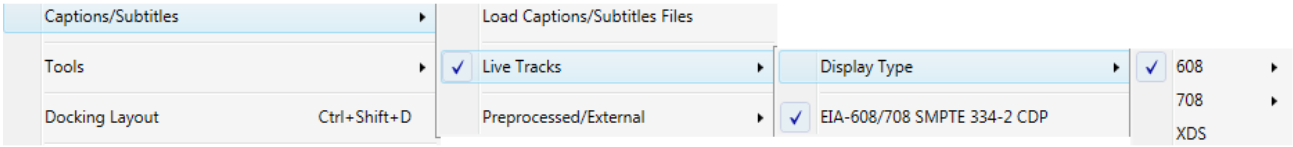


When a file is loaded for playback, the “Open File” dialog has the options to choose whether to extract ‘live’ captions in real time from the video source file as well as to ‘pre-process’ the files prior to playback so that the dialogue appears in the Caption Viewer.

The Live Tracks will appear under the Live Tracks menu option:

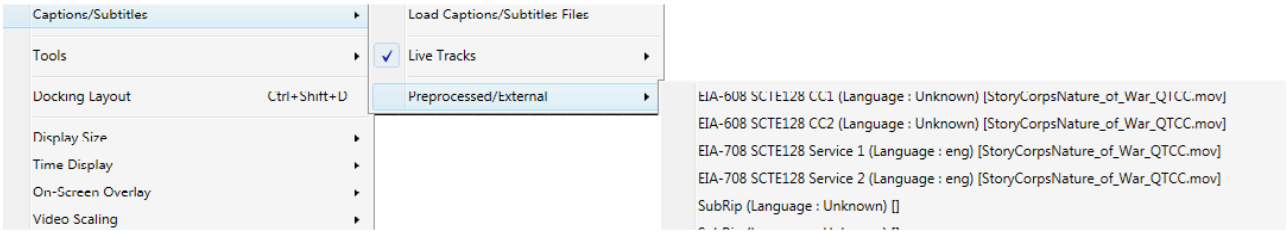


While a live track is selected, the display type can be chosen:



Only display types applicable to the live tracks are available for selection. For example, if an SCTE20 live track is selected, the 708 display type will be disabled as this does not apply to SCTE20 tracks. Typical display types are EIA-608 SCTE20 (containing SCTE 20 captions/subtitles), EIA-608 SCTE128 (containing 608, 708 and XDS captions/subtitles) and Line 21 EIA-608 (containing line 21 captions/subtitles).

Preprocessed and external subtitle files will be listed under the Preprocessed/External menu option:

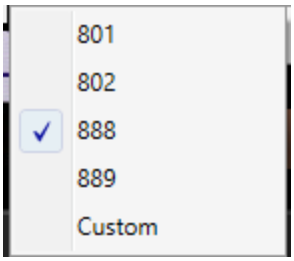


‘Live’ caption tracks are also passed to the SDI as embedded SMPTE 334-2 708 CDP in its native format which may include 608, 708 and XDS data.

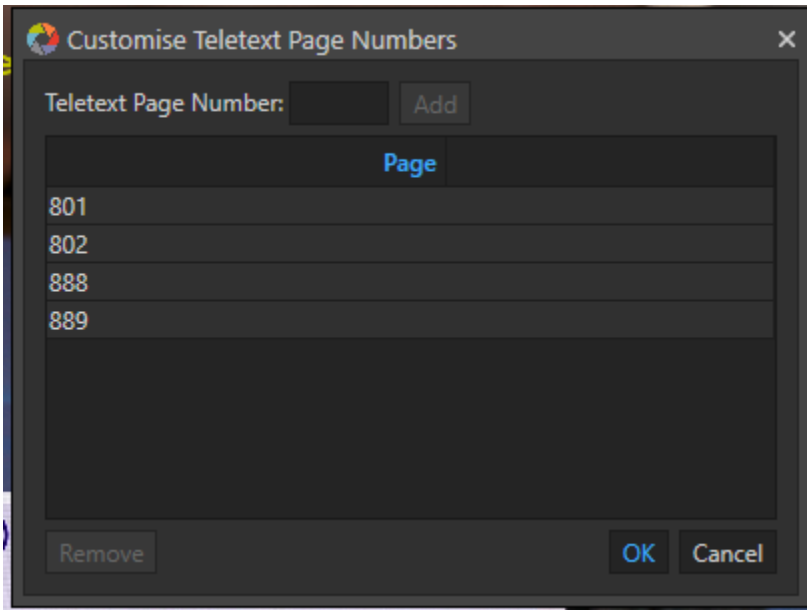
4.3.11.1 *Teletext*

Since teletext are accessed by specifying page numbers, it is necessary to select the required page number when switching to teletext captions/subtitles. The teletext context menu allows for selection of pages 801, 802, 888 (this is the default) and 889.

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For other pages, the custom option is required to add or remove teletext pages to the context menu.



To add a page number, enter the page number and click Add button. To remove page numbers, select the required page numbers (use SHIFT and/or CTRL to select multiple page numbers) and either click the remove button or right click the selected page numbers and select Remove from the pop up context menu.

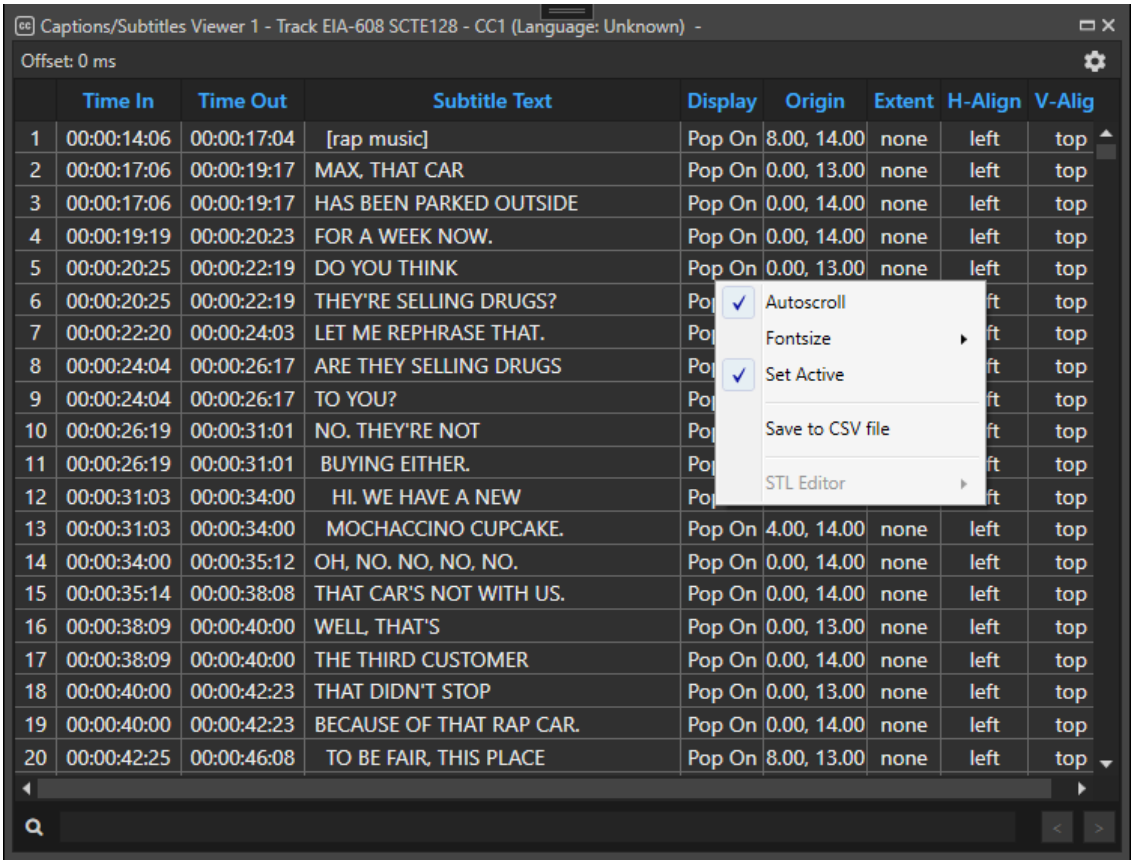
4.3.11.2 *Load Caption/ Subtitle File*

The user can manually add further files for processing at any time using the Load Caption/Subtitle menu.

4.3.11.3 *Subtitle type*

This selects the active track for display. Only pre-processed captions are available in the Captions/Subtitles Viewer.

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The Captions/Subtitles Viewer consists of the following columns:

- Time In and Time Out – Specifies a time window (in hours, minutes, seconds, milliseconds) in which the subtitle text is displayed.
- Display – Specifies how the subtitle text is to be displayed – can be pop on, paint on, roll up.
- Origin – Specifies the origin of the subtitle text. In the case of EIA-608 and SCC subtitles, this refers to the row number and column number. In other cases, this represents the origin as either percentage, pixels or points and will be indicated as such – eg. (10%, 20%) or (10px, 20px) or (10pt, 20pt).
- Extent – Specifies the width and height of the bounding rectangle in which the subtitle text is placed within. As with the Origin column, this can be represented as rows and columns, percentage, pixels or points.
- H-Align – Indicates how the text is aligned horizontally. This can be left aligned, center aligned or right aligned.
- V-Align – Indicates how the text is aligned vertically. This can be top, center or bottom.
- Subtitle Text – This is the text that will be displayed.

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The Captions/Subtitles Viewer provides a preview of the currently selected captions/subtitles track. As well as providing a preview, it also offers the ability to position the player at the point where subtitle text begins or ends.

Double-clicking on a time in the Time In column will position the player at the first frame in which the text appears. Double-clicking on a time in the Time Out column will position the player at the last frame in which the text is shown.

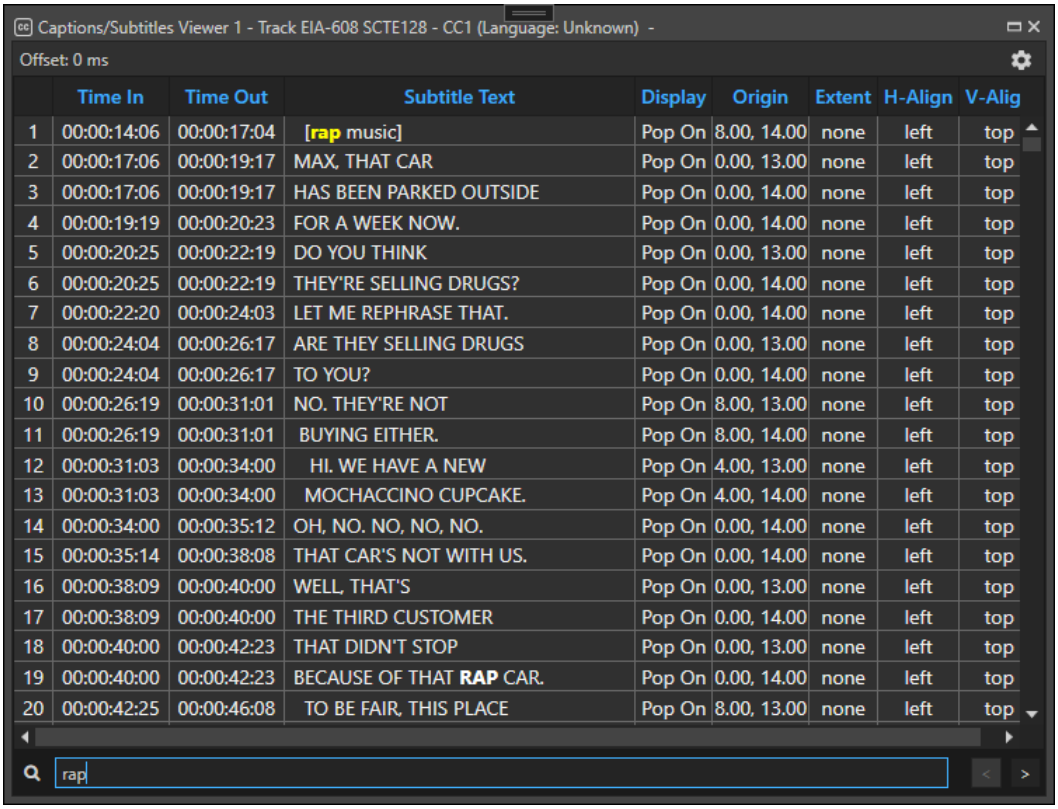
The row highlighted in blue indicates that the text is currently being shown in the player. Note that more than one row may be highlighted if the player's current play time are within the time in and time out values.

The row indicated in blue may scroll off the top or bottom of the Captions/Subtitles Viewer, hence an option is provided as a context menu (shown in screenshot above) to enable or disable 'Autoscroll.' The other options in the context menu allows for toggling of an option for the Captions/Subtitles Viewer to be always on top and for choosing a font size to be used to preview the captions/subtitles.

See Appendix G for more information on Captions and Subtitle formats and editing of STL files.

4.3.11.4 *Searching for Text in Captions/Subtitles Viewer*

The captions/subtitles viewer contains a search bar allowing for specified text to be searched.



	Time In	Time Out	Subtitle Text	Display	Origin	Extent	H-Align	V-Alig
1	00:00:14:06	00:00:17:04	[rap music]	Pop On	8.00, 14.00	none	left	top
2	00:00:17:06	00:00:19:17	MAX, THAT CAR	Pop On	0.00, 13.00	none	left	top
3	00:00:17:06	00:00:19:17	HAS BEEN PARKED OUTSIDE	Pop On	0.00, 14.00	none	left	top
4	00:00:19:19	00:00:20:23	FOR A WEEK NOW.	Pop On	0.00, 14.00	none	left	top
5	00:00:20:25	00:00:22:19	DO YOU THINK	Pop On	0.00, 13.00	none	left	top
6	00:00:20:25	00:00:22:19	THEY'RE SELLING DRUGS?	Pop On	0.00, 14.00	none	left	top
7	00:00:22:20	00:00:24:03	LET ME REPHRASE THAT.	Pop On	0.00, 14.00	none	left	top
8	00:00:24:04	00:00:26:17	ARE THEY SELLING DRUGS	Pop On	0.00, 13.00	none	left	top
9	00:00:24:04	00:00:26:17	TO YOU?	Pop On	0.00, 14.00	none	left	top
10	00:00:26:19	00:00:31:01	NO. THEY'RE NOT	Pop On	8.00, 13.00	none	left	top
11	00:00:26:19	00:00:31:01	BUYING EITHER.	Pop On	8.00, 14.00	none	left	top
12	00:00:31:03	00:00:34:00	HI. WE HAVE A NEW	Pop On	4.00, 13.00	none	left	top
13	00:00:31:03	00:00:34:00	MOCHACCINO CUPCAKE.	Pop On	4.00, 14.00	none	left	top
14	00:00:34:00	00:00:35:12	OH, NO. NO, NO, NO.	Pop On	0.00, 14.00	none	left	top
15	00:00:35:14	00:00:38:08	THAT CAR'S NOT WITH US.	Pop On	0.00, 14.00	none	left	top
16	00:00:38:09	00:00:40:00	WELL, THAT'S	Pop On	0.00, 13.00	none	left	top
17	00:00:38:09	00:00:40:00	THE THIRD CUSTOMER	Pop On	0.00, 14.00	none	left	top
18	00:00:40:00	00:00:42:23	THAT DIDN'T STOP	Pop On	0.00, 13.00	none	left	top
19	00:00:40:00	00:00:42:23	BECAUSE OF THAT **RAP** CAR.	Pop On	0.00, 14.00	none	left	top
20	00:00:42:25	00:00:46:08	TO BE FAIR, THIS PLACE	Pop On	8.00, 13.00	none	left	top

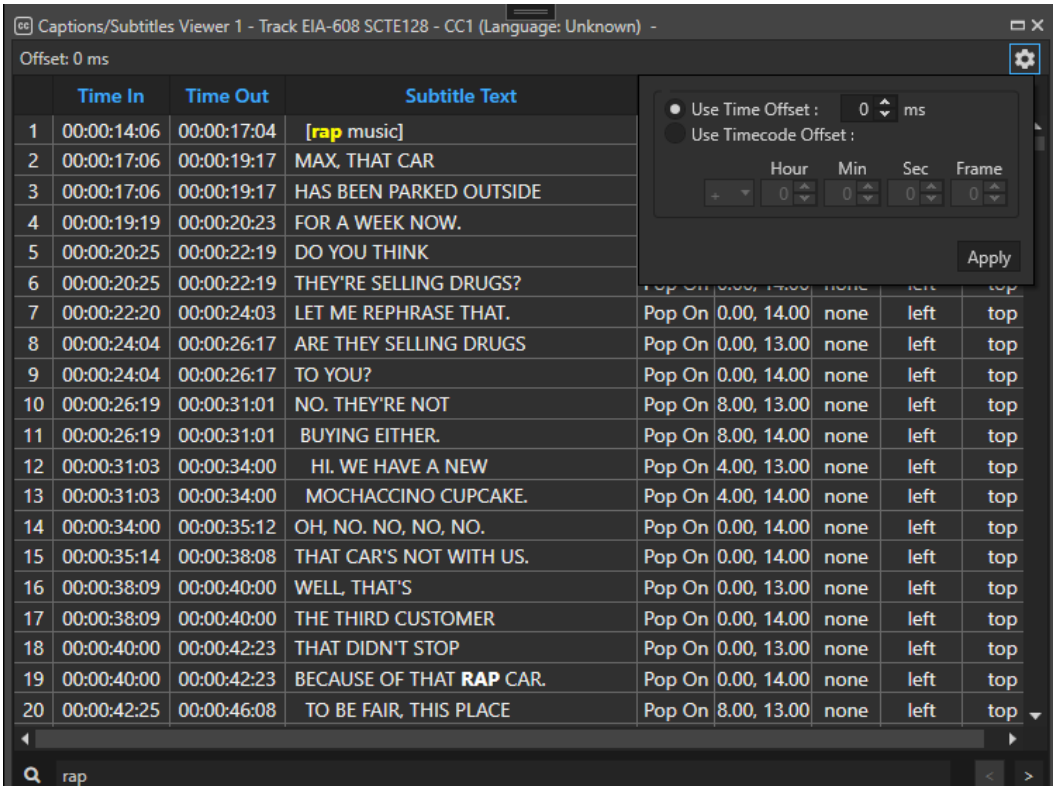
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To carry out a search, enter the search text in the search bar and hit Enter. Matched text will be highlighted. It is possible to cycle through each of the matches by clicking the “<” and “>” buttons to go to the previous and next match, respectively. Cycling through the matches will highlight the current matched text in red.

4.3.11.5 *Offset*

Each captions/subtitles viewer window can be configured with its own individual timing. Note that where a global offset is specified (see **Error! Reference source not found.**), then the g lobal offset will be added to the captions/subtitle viewer’s offset, therefore if an offset of 1 second is specified here and the global offset is 3 seconds, the net effect is an offset of 4 seconds.

To apply an offset to the captions/subtitles viewer, click the settings icon as shown below:



	Time In	Time Out	Subtitle Text					
1	00:00:14:06	00:00:17:04	[rap music]					
2	00:00:17:06	00:00:19:17	MAX, THAT CAR					
3	00:00:17:06	00:00:19:17	HAS BEEN PARKED OUTSIDE					
4	00:00:19:19	00:00:20:23	FOR A WEEK NOW.					
5	00:00:20:25	00:00:22:19	DO YOU THINK					
6	00:00:20:25	00:00:22:19	THEY'RE SELLING DRUGS?					
7	00:00:22:20	00:00:24:03	LET ME REPHRASE THAT.	Pop On	0.00, 14.00	none	left	top
8	00:00:24:04	00:00:26:17	ARE THEY SELLING DRUGS	Pop On	0.00, 13.00	none	left	top
9	00:00:24:04	00:00:26:17	TO YOU?	Pop On	0.00, 14.00	none	left	top
10	00:00:26:19	00:00:31:01	NO. THEY'RE NOT	Pop On	8.00, 13.00	none	left	top
11	00:00:26:19	00:00:31:01	BUYING EITHER.	Pop On	8.00, 14.00	none	left	top
12	00:00:31:03	00:00:34:00	HI. WE HAVE A NEW	Pop On	4.00, 13.00	none	left	top
13	00:00:31:03	00:00:34:00	MOCHACCINO CUPCAKE.	Pop On	4.00, 14.00	none	left	top
14	00:00:34:00	00:00:35:12	OH, NO. NO, NO, NO.	Pop On	0.00, 14.00	none	left	top
15	00:00:35:14	00:00:38:08	THAT CAR'S NOT WITH US.	Pop On	0.00, 14.00	none	left	top
16	00:00:38:09	00:00:40:00	WELL, THAT'S	Pop On	0.00, 13.00	none	left	top
17	00:00:38:09	00:00:40:00	THE THIRD CUSTOMER	Pop On	0.00, 14.00	none	left	top
18	00:00:40:00	00:00:42:23	THAT DIDN'T STOP	Pop On	0.00, 13.00	none	left	top
19	00:00:40:00	00:00:42:23	BECAUSE OF THAT **RAP** CAR.	Pop On	0.00, 14.00	none	left	top
20	00:00:42:25	00:00:46:08	TO BE FAIR, THIS PLACE	Pop On	8.00, 13.00	none	left	top

Select whether to use a time offset or a timecode offset, enter the amount to offset and click Apply.

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4.3.12 Display Size



This sets the display size of the PC on-screen video. This has no effect on the SDI output.

4.3.12.1 ***Auto Size***

Video is displayed in the aspect ratio based on the file header information and the calculated picture size to fit the player window size.

4.3.12.2 ***Aspect Ratio***

4.3.12.2.1 File Aspect

Video is displayed in the aspect ratio specified in the file only.

4.3.12.2.2 1:1 Pixel Size

Video is displayed in actual size (1:1) pixel on-screen.

4.3.12.2.3 4:3

Video is displayed in 4:3 aspect ratio.

4.3.12.2.4 16:9

Video is displayed in 16:9 aspect ratio.

4.3.12.2.5 14:9

Video is displayed in 14:9 aspect ratio.

4.3.12.2.6 21:9

Video is displayed in 21:9 aspect ratio.

4.3.12.3 ***Zoom***

4.3.12.3.1 Zoom – Fit to Window

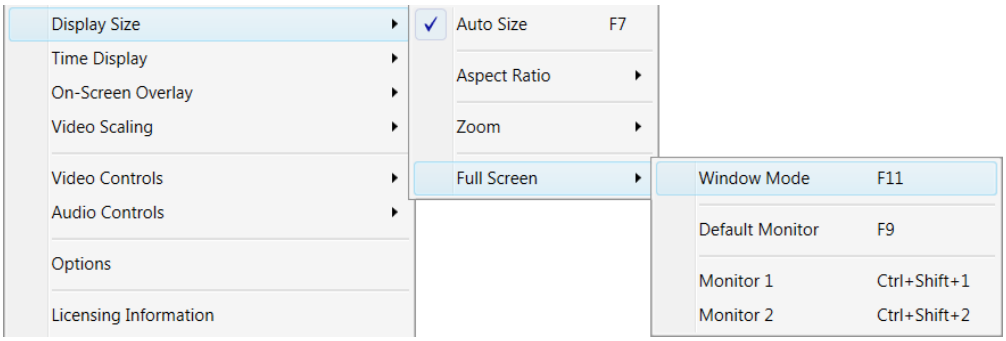
Video is stretched to fit the current window size maintaining aspect ratio.

4.3.12.3.2 Zoom 25% to 400%

Display video at 25% to 400% of actual pixel size.

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4.3.12.4 *Full Screen*



Video on the PC screen can be displayed in full screen mode.

4.3.12.4.1 Window Mode

The video can be made to fill the entire screen that the application is currently visible on but it uses the current desktop resolution and frequency. The transport control panel can be made visible by moving the mouse near the bottom of the screen. To quit full-screen, press the ESCAPE key. This mode is commonly known as ‘Software mode’ because the display resolution and frequency does not change and switches very quickly. The default shortcut key is F11.

4.3.12.4.2 Hardware Mode

For ‘Hardware mode’, the full screen is achieved by switching the horizontal and vertical timing signals of the display to match the resolution and frequency of the video content. This produces the smoothest video because the display is locked to the video timing. The default shortcut key for ‘Hardware mode’ full screen is F9. To quit full-screen, press the ESCAPE key. If there are multiple monitors in the system, the menu will display the available monitors that full screen can be performed on. In this mode, the transport control panel is NOT visible and transport controls can only be actioned via shortcut keys.

4.3.13 Time Display Window



Switch between Time Code, Control Time code, Frame count and Play time.

4.3.13.1 *Show Time Code*

Set Time Display Window to show Time Code.

TCR format: hours: minutes: seconds: frames

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4.3.13.2 *Show Control Time Code*

Set Time Display Window to show Control Time Code. This is a presentable time code sequence that is available on all files.

CTC format: hours: minutes: seconds: frames

4.3.13.3 *Show Frame Count*

Set Time Display Window to show Frame Count.

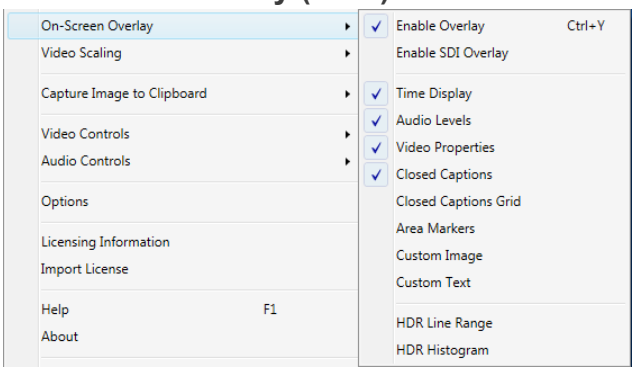
Frame Count format: frame count starting from 1

4.3.13.4 *Show Play Time*

Set Time Display Window to show Play Time.

Play Time format: hours: minutes: seconds: milliseconds

4.3.14 On-Screen Overlay (OSD)



This sets the information to be displayed on the PC on-screen overlay. It does not output to SDI.

4.3.14.1 *Enable Overlay*

Enable On-Screen overlay (OSD) with Time Display, Audio Level and/or Video information.

4.3.14.2 *Enable SDI Overlay*

Enable Overlay on SDI output.

4.3.14.3 *Time Display*

Time Display is set to be displayed as overlay (OSD).

4.3.14.4 *Audio Levels*

Audio Levels is set to be displayed as overlay (OSD).

4.3.14.5 *Video Properties*

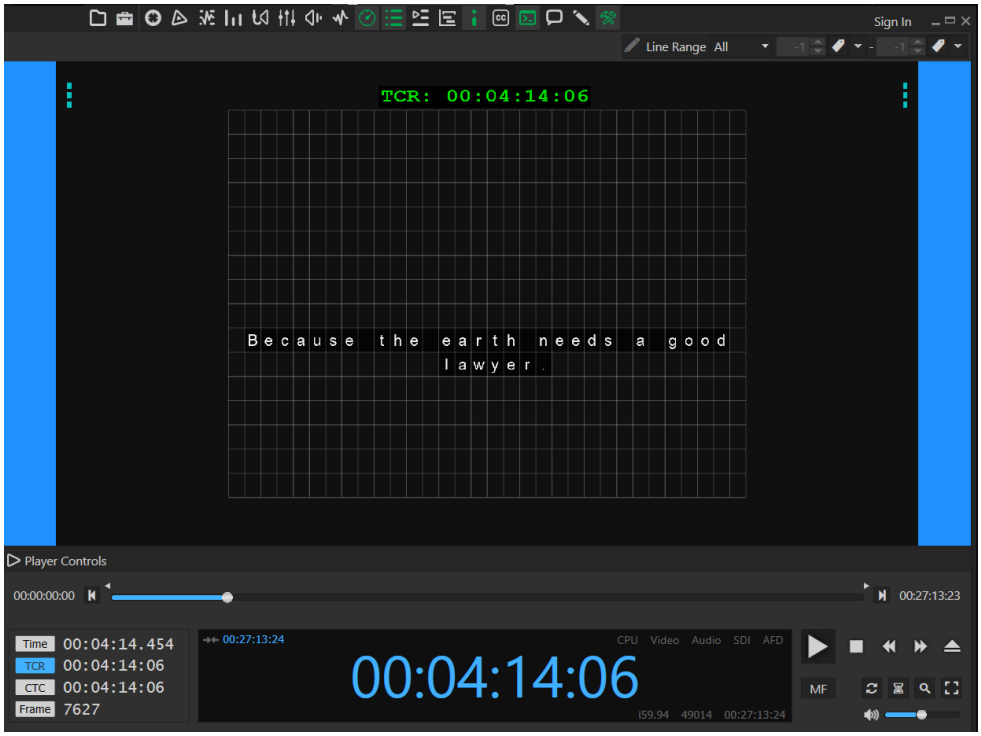
Video Properties is set to be displayed as overlay (OSD).

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4.3.14.6 *Closed Captions*

Show captions or subtitles if available on the PC display (OSD).

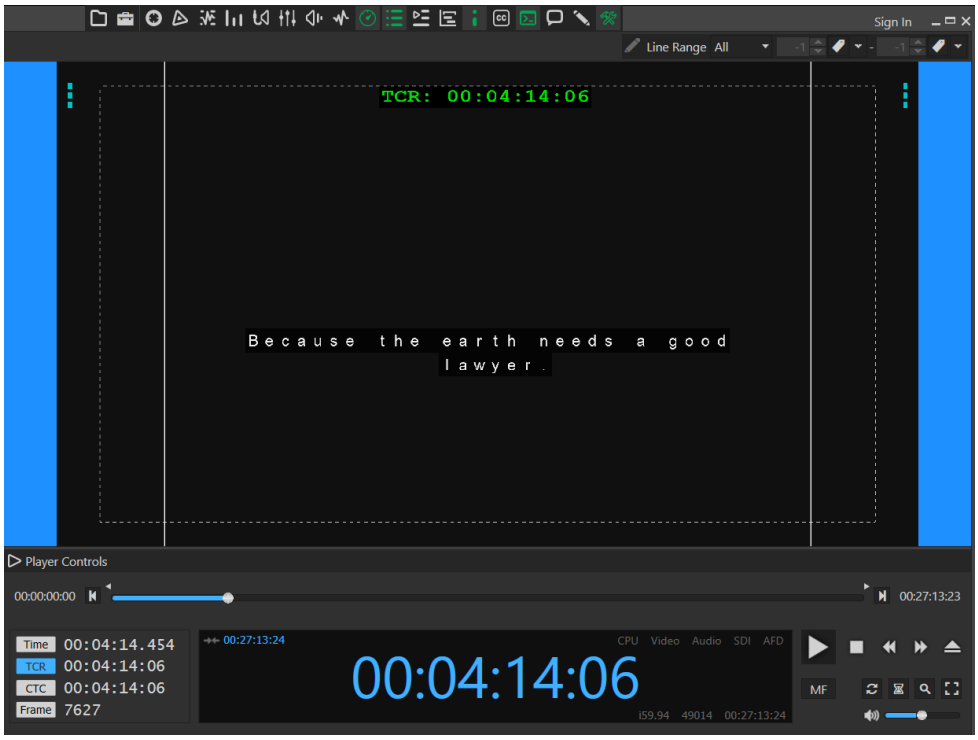
4.3.14.7 *Closed Captions Grid*



This shows the CEA608 grid of 15x32 or CEA708 grid of 15x42 depending on the caption format selected. This allows verification of text positions within the grid.

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4.3.14.8 *Area Markers*



Shows the 4:3 aspect ratio markers in 16:9 content and a safe area marker around the picture. The size of the safe area marker is adjustable in the Options dialog box.

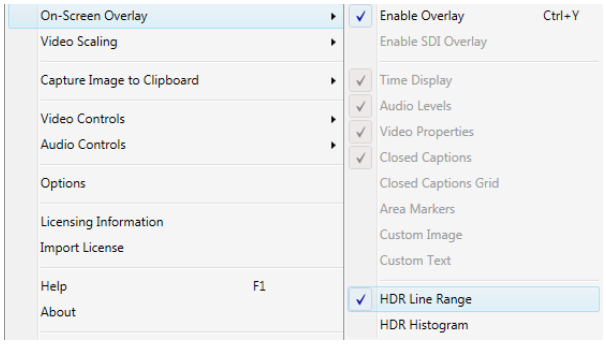
4.3.14.9 *Custom Image*

Toggles the display of a custom image (specified in the Overlays section of the Options page) to be overlaid on the video.

4.3.14.10 *Custom Text*

Toggles the display of custom text (specified in the Overlays section of the Options page) to be overlaid on the video.

4.3.14.11 *HDR Line Range*



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This option only applies if the content is HDR. The HDR Line Range represents the lowest and highest brightness level for each line in the picture. The lowest level are in the left, the highest levels are on the right. For any values that falls below a minimum brightness or exceeds the maximum brightness, that part of the line will be shown in a different color (the default being red). These limits are taken automatically from the Mastering Display Luminance minimum and maximum metadata values if present.



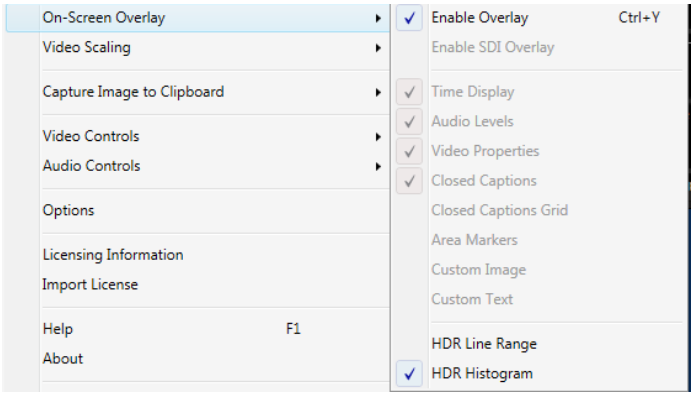
When the content has high random highlights, the traces may appear scattered and difficult to see. Turning the “Filter Line Range” on in the HDR options page will perform a low pass filter on the data to provide a smoother and more visible trace.

The HDR Line Range can be toggled on and off with this option. Note that selecting this option will turn off HDR Histogram (the two options are mutually exclusive). Also, turning on HDR Line Range will turn off all non HDR related other overlays. Turning HDR Line Range off will re-enable the non-HDR overlays that were previously turned off.

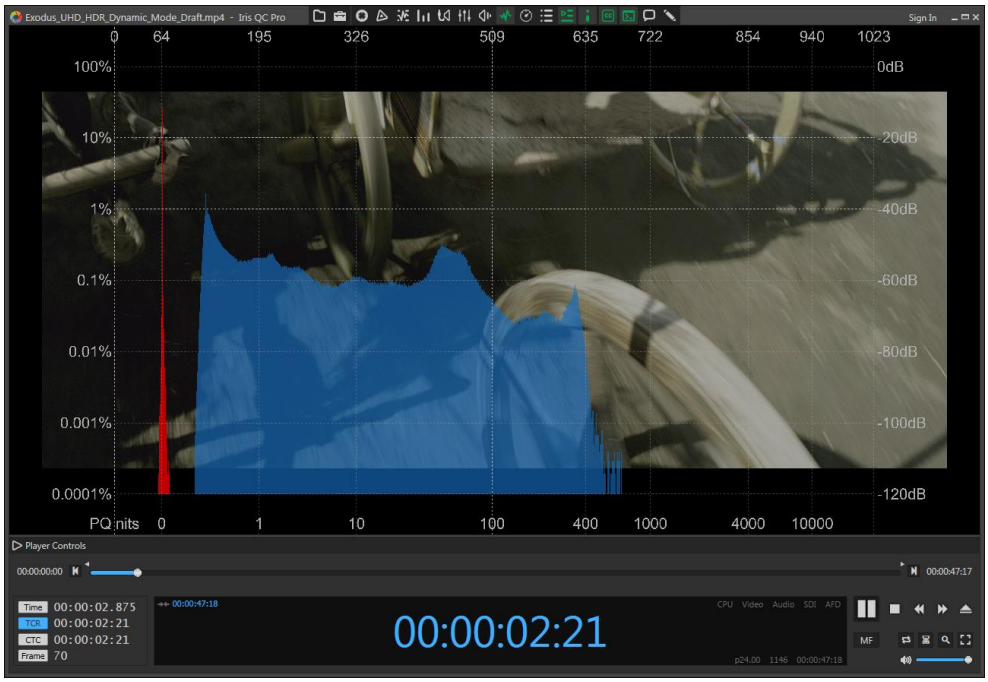
See 4.3.23.9.3 HDR Overlay for details on changing the colors of the HDR Line Range.

4.3.14.12 *HDR Histogram*

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This option only applies if the content is HDR. The HDR Histogram shows the distribution of levels of the video content across the entire frame. For brightness levels that falls below a minimum threshold or exceeds a maximum threshold, that part of the histogram is shown in a different color (the default being red). These limits are taken automatically from the Mastering Display Luminance minimum and maximum metadata values if present.



The graticules along the top X-axis indicate the absolute digital level from 0 to the maximum range. The bottom X-axis indicate the same level in nits for PQ or percentage of light level for HLG. The left Y-axis indicate the percentage of values within the frame and the right Y-axis indicate that percentage in decibels (100% = 0 dB).

This option toggles the HDR Histogram on and off. Note that selecting this option will turn off HDR Line Range (the two options are mutually exclusive). Also, turning on HDR Histogram will turn off all non HDR related other overlays. Turning HDR Histogram off will re-enable the non-HDR overlays that were previously turned off.

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See 4.3.23.9.3 HDR Overlay for details on changing the colors of the HDR Histogram.

4.3.15 Video Scaling



The video scaling applies to both the PC display and the SDI. The scaling mode can be set in the Options > Playback setting.

4.3.15.1 *None*

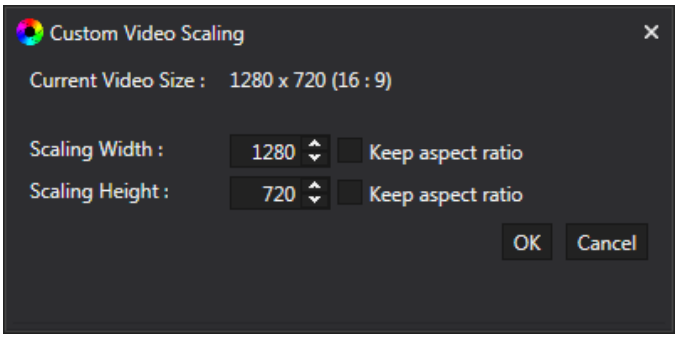
No Scaling.

4.3.15.2 *Suggested Scaling*

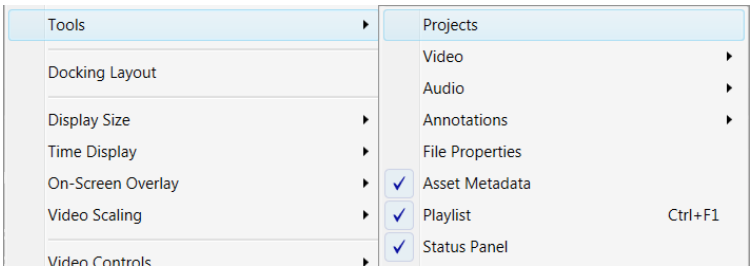
Suggested Scaling based on known sizes of certain formats.

4.3.15.3 *Custom*

Custom video Scaling



4.3.16 Tool Windows

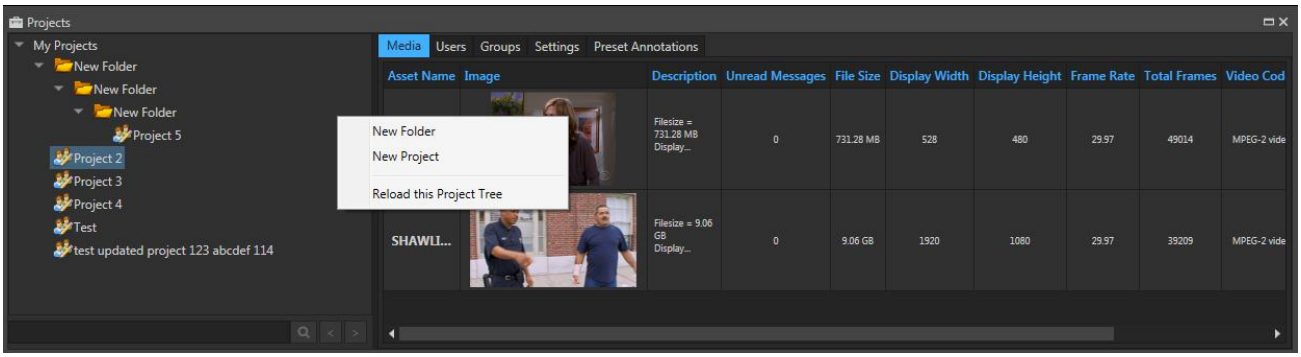


4.3.16.1 *Projects*

The Projects window is the central place for organizing folders, projects and media files. Projects are located on the left Project Window and are organized in a file explorer style tree

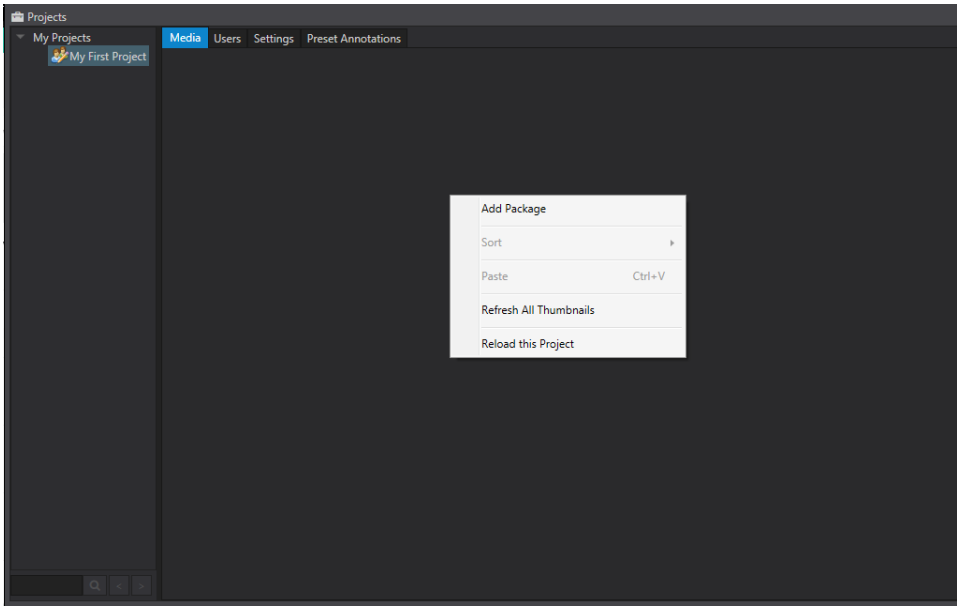
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as shown below. Right clicking on the background of the Project Window brings up a context menu that allow further options.



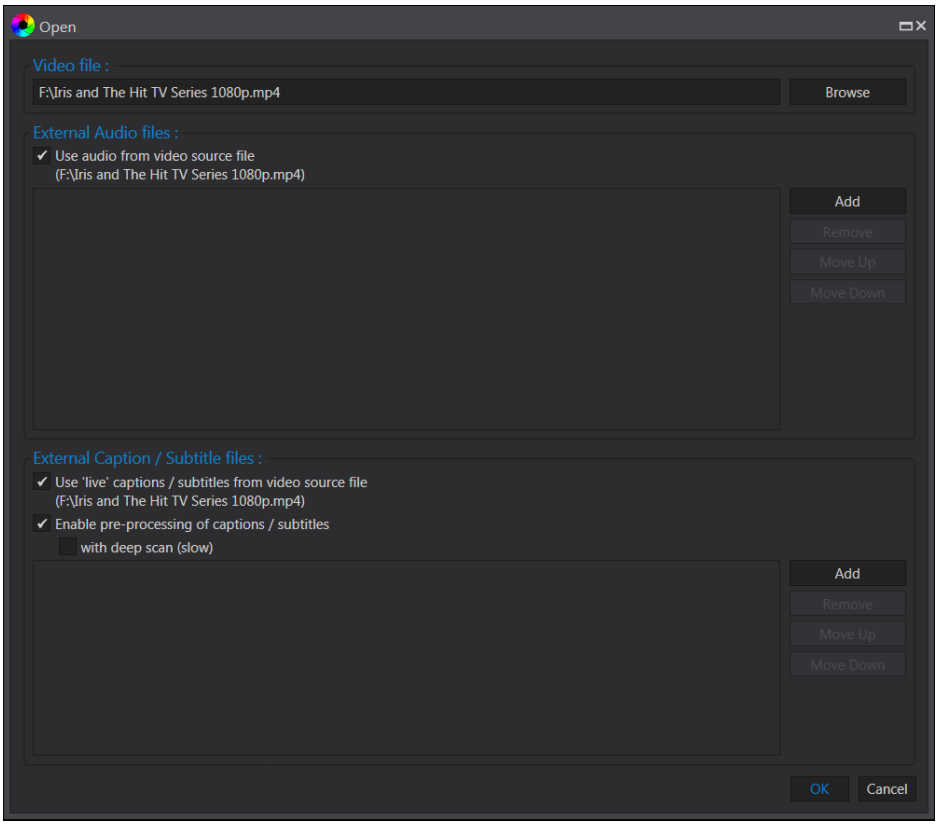
Select menu “New Folder” to create a folder. At each tree folder location (including the root location “My Projects”), you can select menu “New Project” to create a new project at that location. Although the Project Tree will auto update as other users invite you to their projects, a manual update can be triggered by selecting “Reload this Project Tree” to reload and update the project tree with the latest projects.

4.3.16.1.1 Adding Media



For each project, multiple media files can be added either by dragging files from Windows Explorer to the right-hand media window or by the context menu > Add Package. For Image Sequences, the folder containing the image sequences can be dragged and dropped into the right-hand media window. For DCP and IMF packages, the assetmap.XML file can be dragged and dropped in.

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The “Open” file dialog box allows the user to add additional audio and caption or subtitle files to the package.

Select the “Use audio from video source file” checkbox if you want to include audio from the video source file otherwise only audio from files in the additional list will be used.

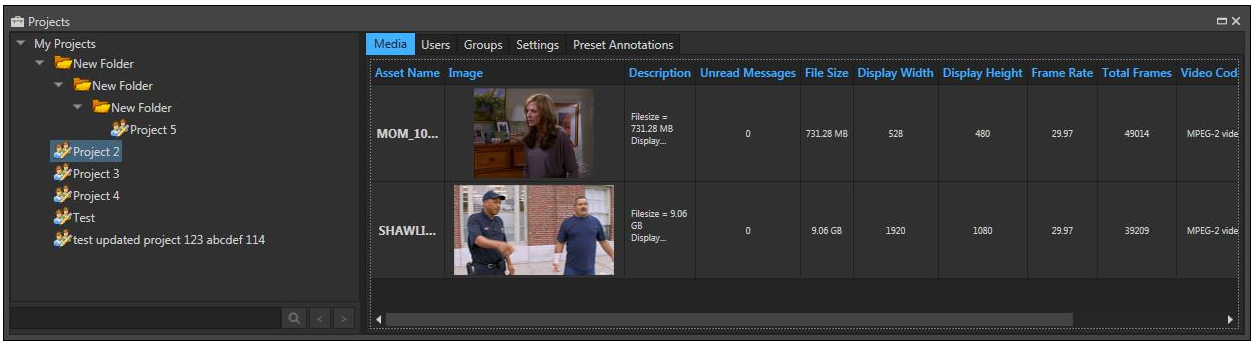
Select the “Use ‘live’ captions/subtitles from video source file” checkbox if real-time captions or subtitles are to be displayed during playback. ‘Live’ captions or subtitles do not appear in the Captions Viewer can cannot be scrubbed.

Select the “Enable pre-processing of captions / subtitles” checkbox if pre-parsing of captions or subtitles is required. This option must be selected to use the Captions Viewer and to process external side-car files such as SRT, SCC and XML files. Please note that enabling this option may cause the media loading time to increase.

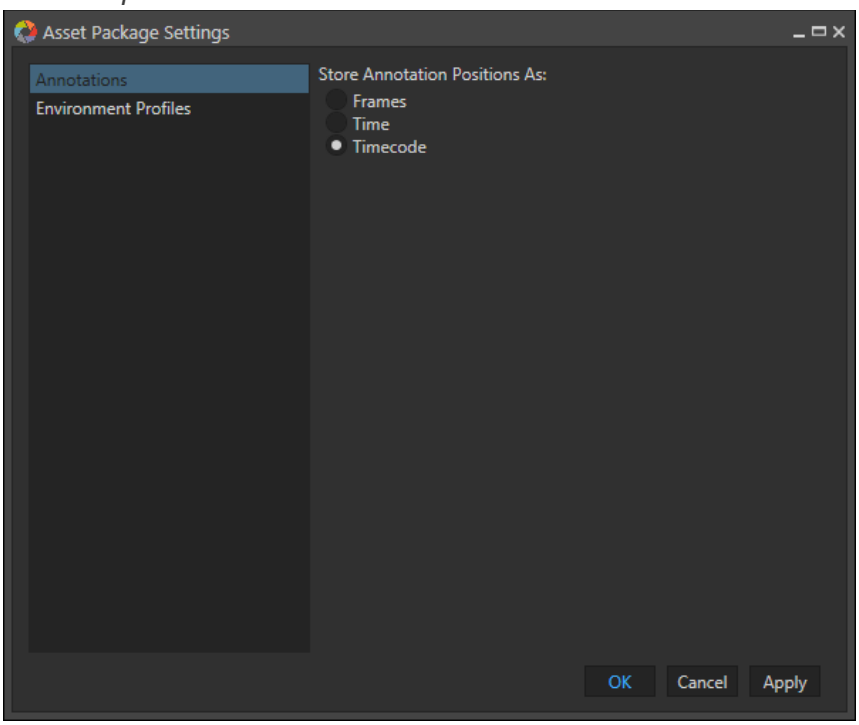
Select the “with Deep Scan” checkbox for certain files that do not have caption information in its header. This option will cause a full scan of the file to locate captions and may take several minutes to process.

After selecting ‘OK’ to continue, the media package will appear in the Project as an icon with a thumbnail and some metadata.

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4.3.16.1.1.1 Options

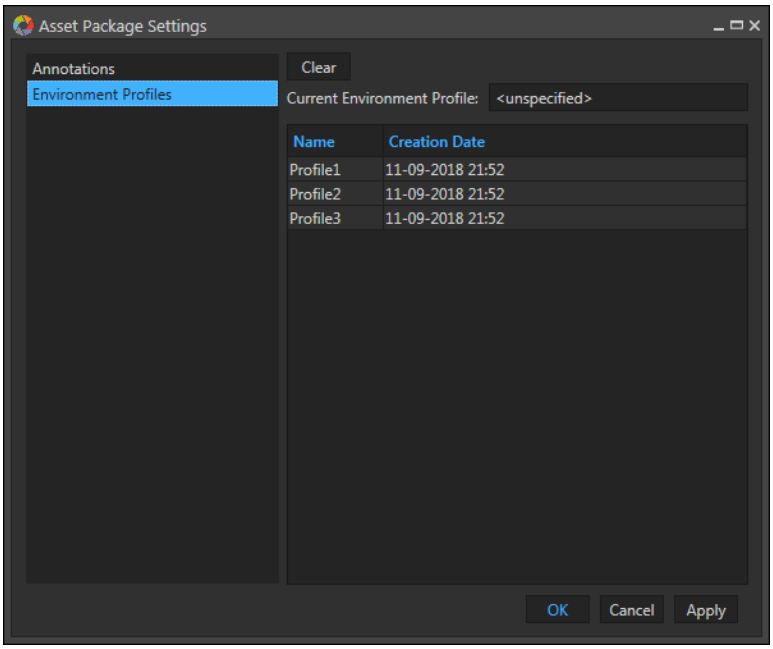


There are two options available. The first one determines how annotations will be stored – either as frames, time or timecode and the second one allows defining an environment profile to be used when the asset package is opened. The significance of this is that by storing as timecode, the position of the annotations is guaranteed to appear in the frame it was intended for, when working on different versions of a video fie. For example, 2 different people may be working on 2 versions of a video file where 1 of the video files is of a different duration to the other due to it being edited. Storing annotations by timecode ensures that annotation appears on the same scene but storing as time could result in an annotation appearing on a different scene.

The Environment Profiles setting allows an environment profile to be applied for a given asset package. The list of environment profiles must already have been added in the Iris

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Admin and the dialogue box below will display the list of Environment Profiles held by the Iris Admin. Please consult the Iris Admin user manual on adding Environment Profiles.

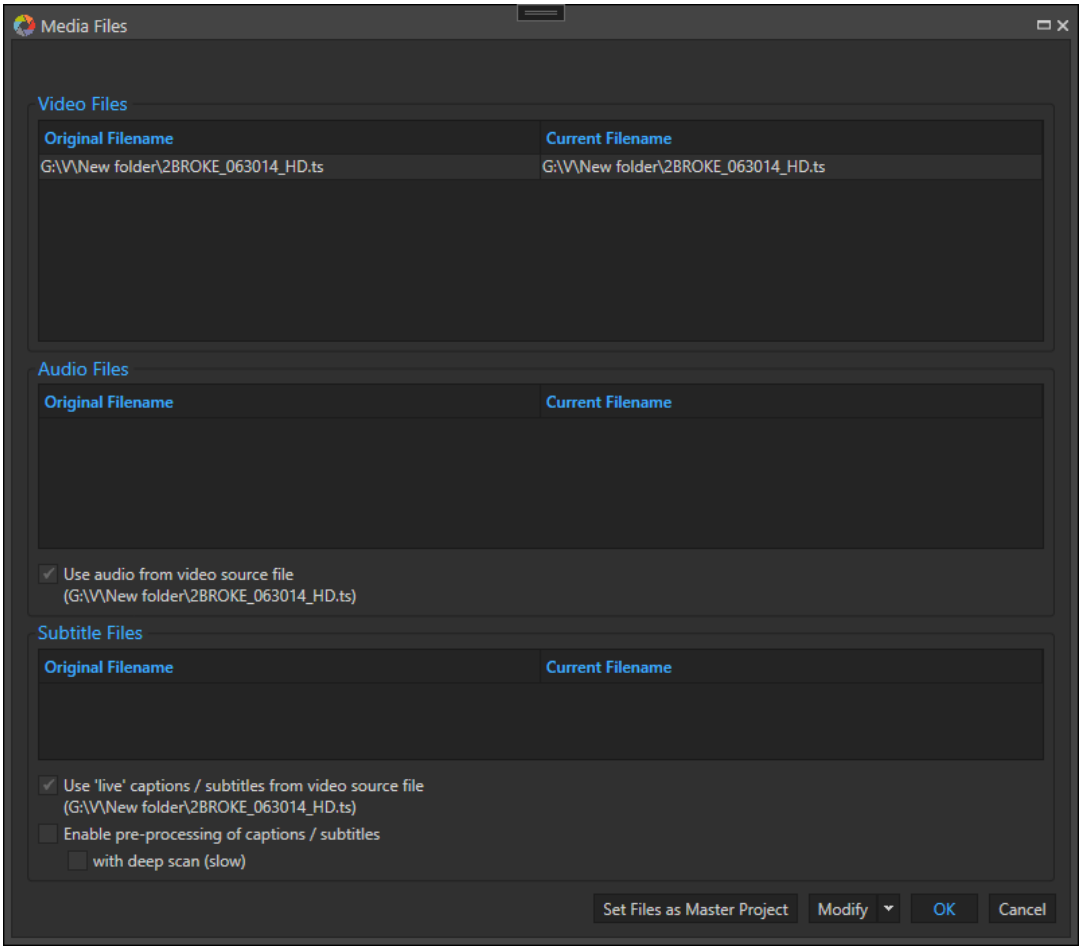


To assign an environment profile, select the profile from the list and click “Apply” button. To remove the environment profile, click “Clear” followed by “Apply”.

4.3.16.1.1.2 Play

Selecting this or double clicking the icon will load and play this package.

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This dialog box is split into two halves. The left-hand side shows the original 'symbolic' link of the files that make up the package. The right-hand side shows the current user's link to the files for the same package. If there are missing files, then the links will be highlighted in red. The user can also modify its lists of files for this package by selecting 'Modify' and then selecting a new set of files. To re-assign the current files and settings as the master set of files so that all other users will see the new symbolic links, select the 'Set Files as Master Project' button.

4.3.16.1.1.3 Upload Package to Server

The project can hold both the 'symbolic link' to the package and the entire package on the Iris service server. You can upload the package to the server so that it can be shared with other users who do not have access to the symbolic link of the media.

4.3.16.1.1.4 Download Package

If the media package has been uploaded to the server, this menu allows the user to bring the entire package back to their local machine.

4.3.16.1.1.5 Cut

Copy to clipboard and delete this item on successful paste.

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4.3.16.1.1.6 Copy

Copy item to the clipboard.

4.3.16.1.1.7 Delete

Deletes the entire package. If the media also exists on the server, it will be deleted if there are no other projects referencing the media.

4.3.16.1.1.8 Rename

Changes the package name.

4.3.16.1.1.9 Refresh Thumbnail

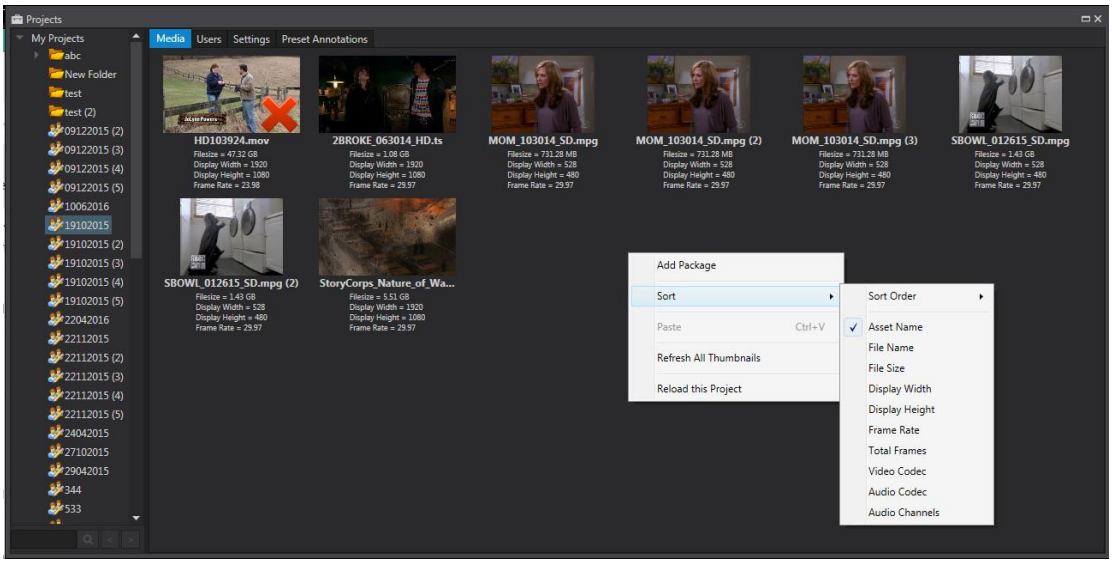
Clears saved thumbnail for this package and rebuilds a new image.

4.3.16.1.1.10 Add/ Edit Description

The default description is the basic metadata for the video source file. User can overwrite this description.

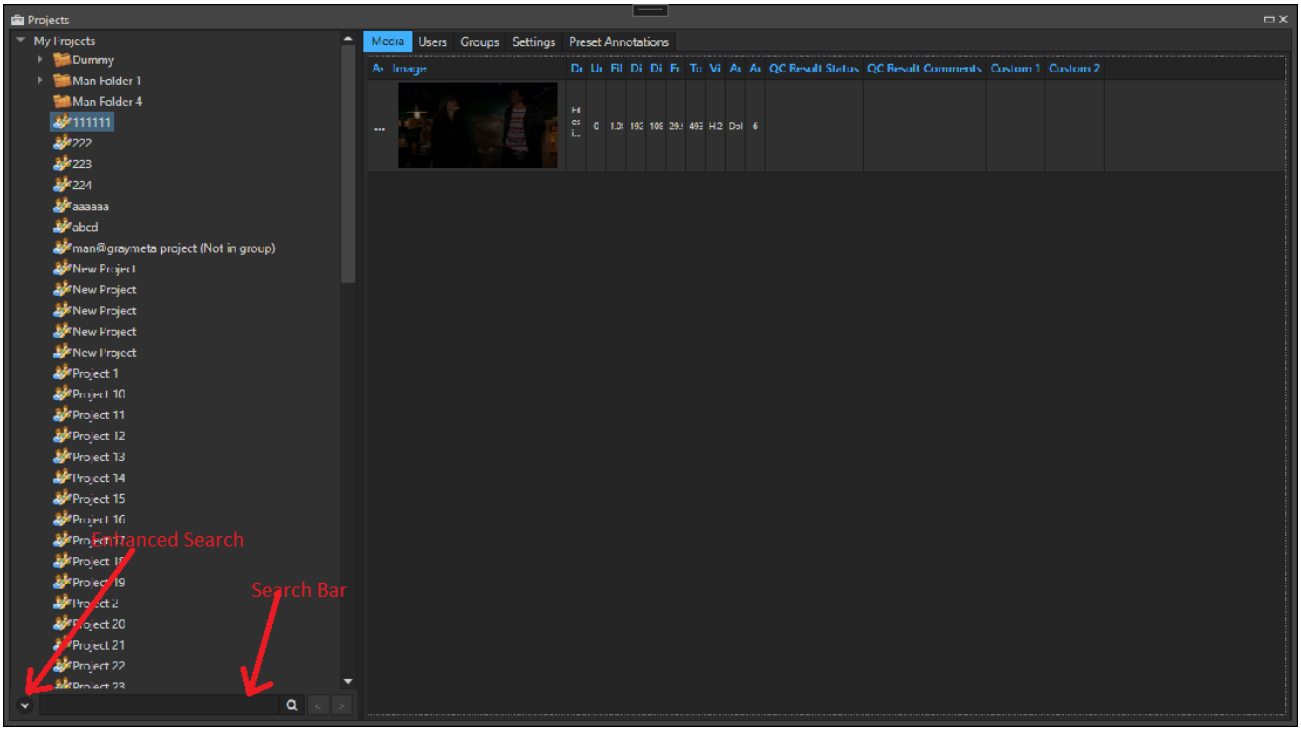
4.3.16.1.2 Sorting

The media packages in the projects can be sorted. Right click the project window to bring up the project context menu and select the criteria to sort on. The sort order can also be specified.



4.3.16.1.3 Search for Asset Media

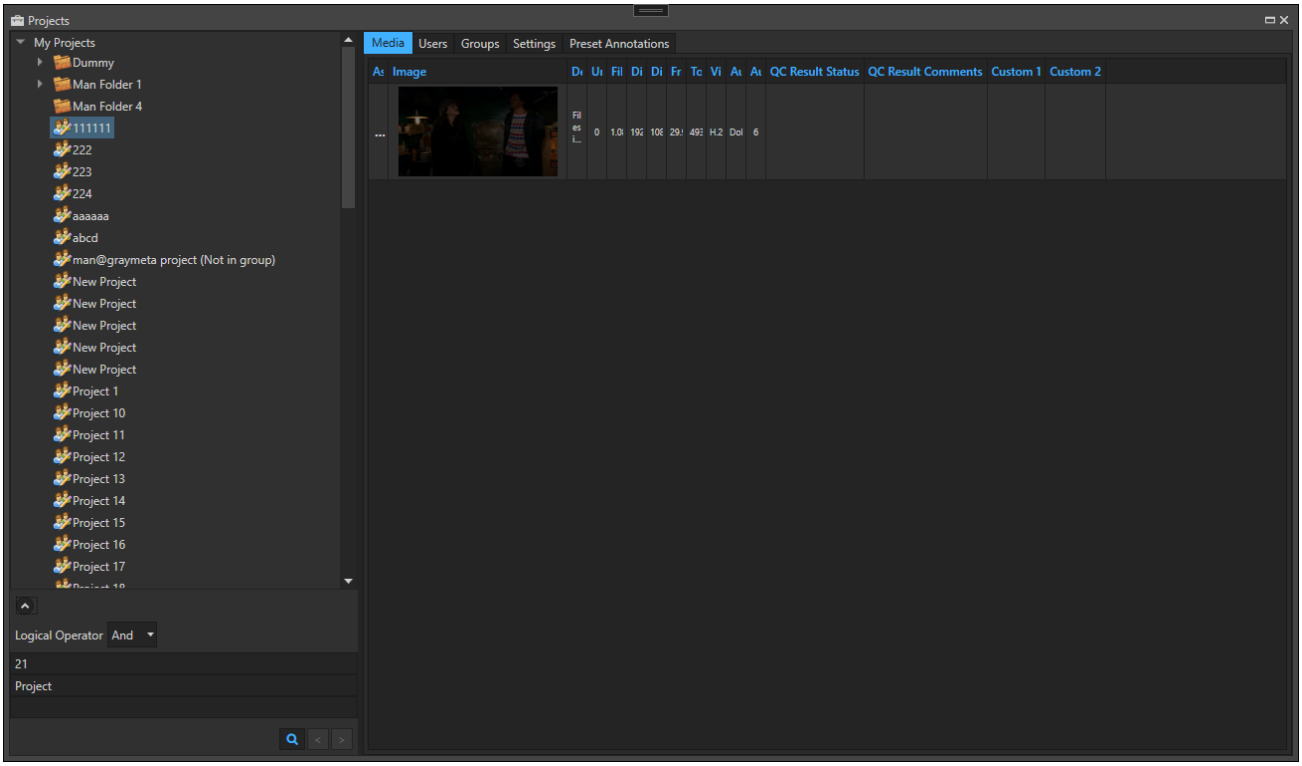
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The Search Bar is located below the Projects Tree and enables searching for a folder, project or asset packages based on name. The left and right arrow enable navigation of search results allowing for the previous and next match (a match can be either a project or asset media) to be located. If the previous or next match is a project, then the matching project is highlighted. If it is an asset package, then both the matching project and matching asset package will be highlighted.

On the left of the search bar, there is a down arrow button which can be used to perform an enhanced search. The enhanced search looks like the following:

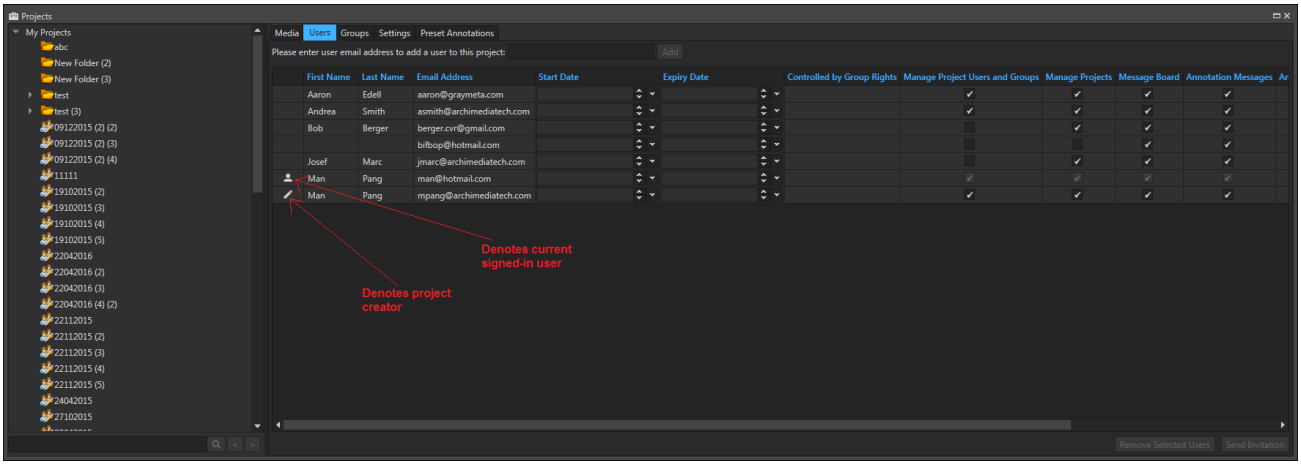
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With enhanced search, there is the ability to search using the logical operators AND and OR. This allows Iris to perform search based on 1 or more matches. In the above example, the search is equivalent to finding a match where the name contains “21” and the name also contains “Project”.

Note that upon a search being carried out, the Project Tree will only show matched items. These will be folders or projects whose names match the search string and/or projects who that contain asset packages whose names match the search string.

4.3.16.1.4 Users



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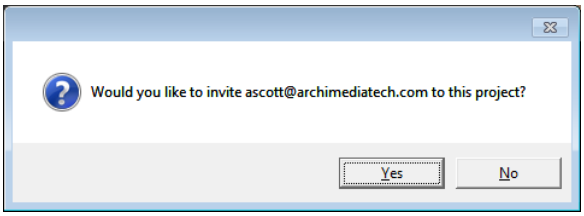
Each project can be shared by multiple users. The creator of the project (denoted by a pencil icon in the first column) can add a user via their email address. Users can be removed from the project by selecting each user (use CTRL key in conjunction with left mouse button to select multiple users) and clicking “Remove Selected Users”.

When a user is added to a project, then the user will either use group permissions, if the user is a member of a group, otherwise the permissions for that user are set to the following default values and can be modified by anyone with the “Manage Users” permission enabled:

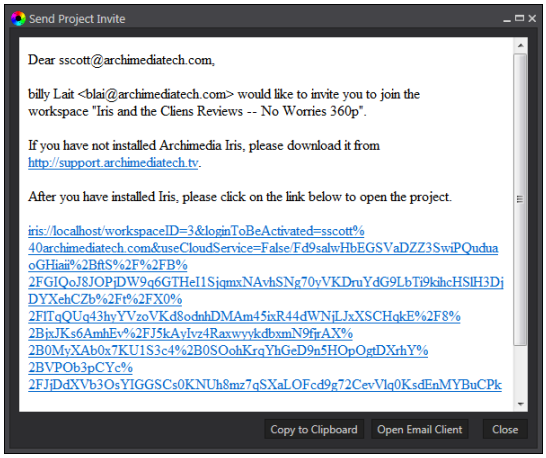
Manage Users	No
Manage Projects	No
Message Board	Yes
Annotation Messages	Yes
Annotation Drawings	Yes
Delete Messages	No
Add Message Attachments	No

An invitation link can be generated and copied to the clipboard for pasting into an email to invite the new user to this project. The link contains information on how to download an Iris installer and how to join the shared project.

The user can invite new user by adding their email address.



The user can copy the invitation to the clipboard or open an email client to send the invitation text if one is installed.



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Users' permissions and their project start and end dates can be modified but if the user is a member of a group and that group is in the project, then the permissions and the project start and end times are controlled by the group. This is denoted by a group name being shown under the column "Controlled by Group Rights". See section 4.3.16.1.5 for more information on groups. In the case of a user's permission being "Controlled by Group Rights", the permissions are not editable but the group permissions can be modified in the Iris Admin GUI.

4.3.16.1.5 Groups

Both projects and/or folders can belong to one or more groups and this allows users who are members of specified groups to be given access.

4.3.16.1.5.1 Folders

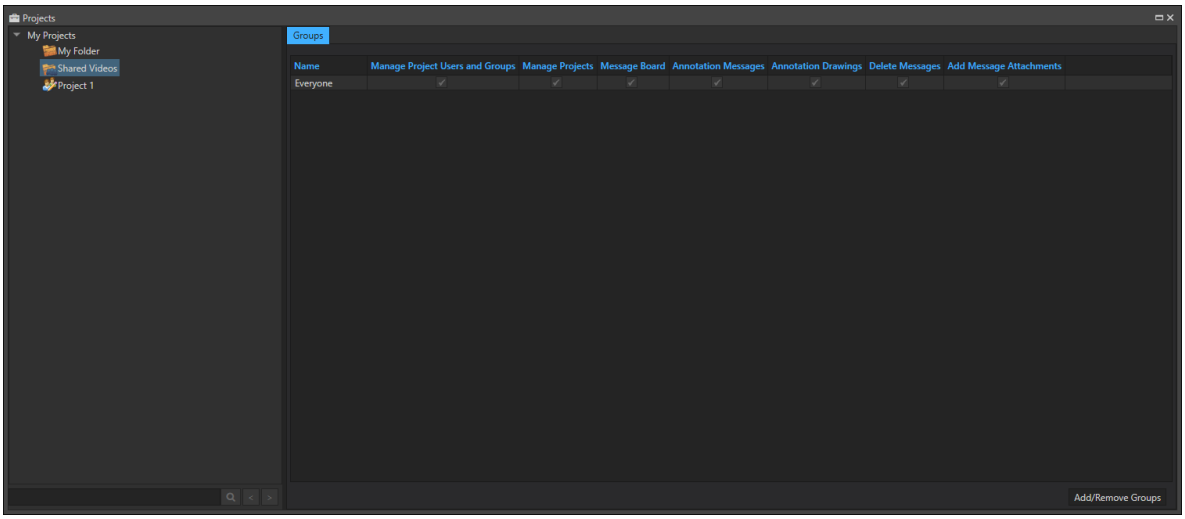
A folder becomes a shared folder when it is made available to specified groups. All items in the shared folder's hierarchy also become available to group members but **note that users will still need to be invited to projects to view the assets within the projects**, even if the project is in a shared folder. Any user can add their own folders and projects to a shared folder but items that do not belong to the current user are read-only; that is, they cannot be deleted, renamed, moved, etc. These read-only folders and projects will be shown with a red cross at the bottom right as shown below:



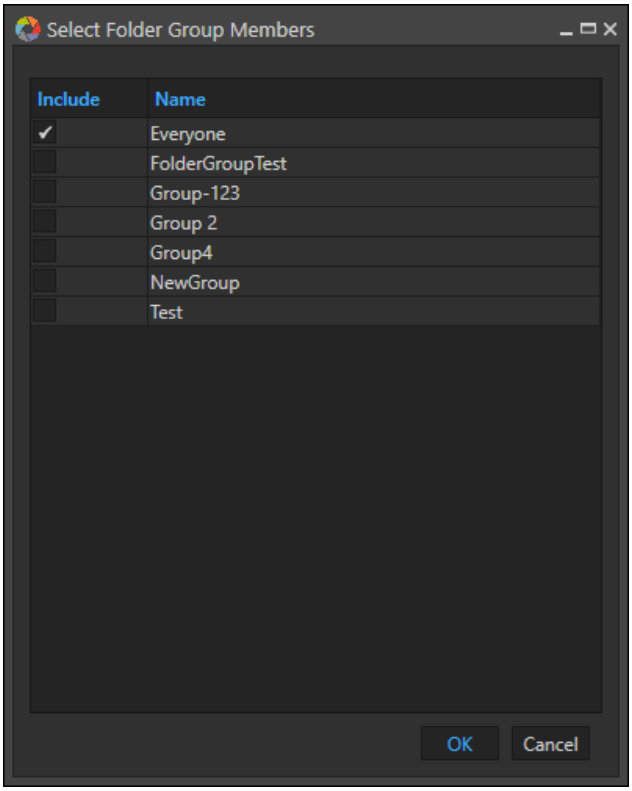
Note that only folders at the project tree's root level can be assigned groups and this operation can only be carried out if the user has the rights to manage projects.

To add/remove folder groups click on a folder in the project tree and the Groups settings will appear:

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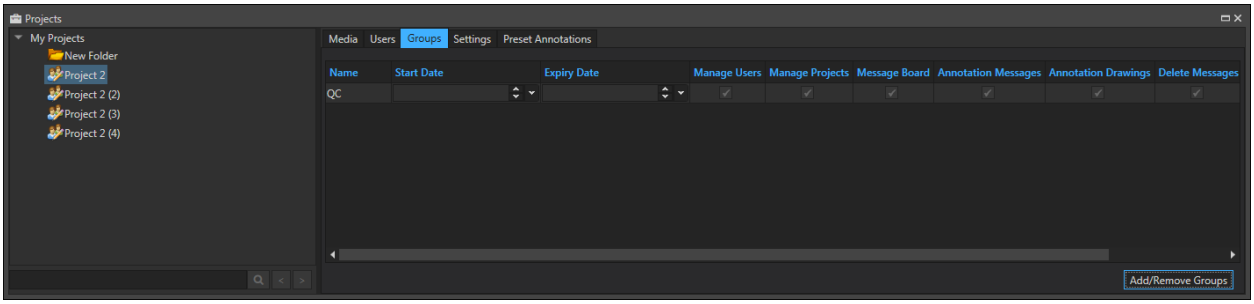


To add or remove a group to the project, click the “Add/Remove groups” button, located at the bottom. A new dialog box will be shown a list of groups that have been configured in the Iris Admin GUI. For more information on groups, please consult the Iris Admin User Manual.



4.3.16.1.5.2 Projects

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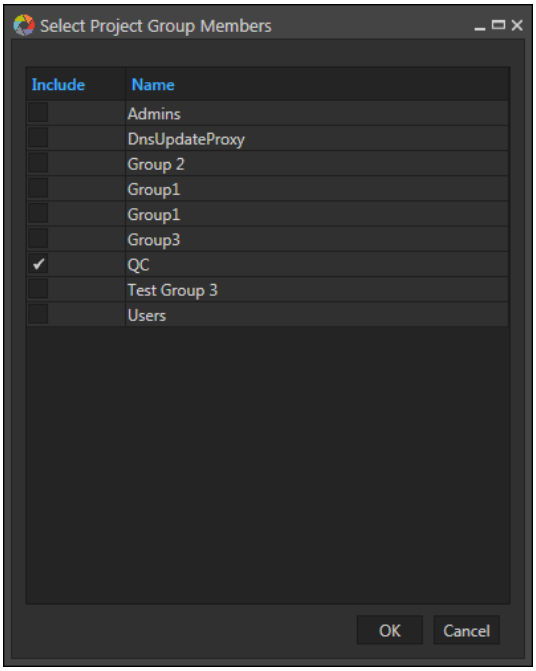
Here, groups can be added or removed from a project. In the screenshot above, a group called “QC” has already been added to a project and this means users who are member of the “QC” group have access to the project. Furthermore, such users will inherit the permissions and the start and end dates of that group. This applies even if a user that is a member of that group had previously been individually added to a project with individual permissions and project start/end times. **Essentially, if a user is a member of a group, the group’s permissions and project start/end times take priority over the user’s individual settings**.

The following rules describe how user permissions are used in Iris:

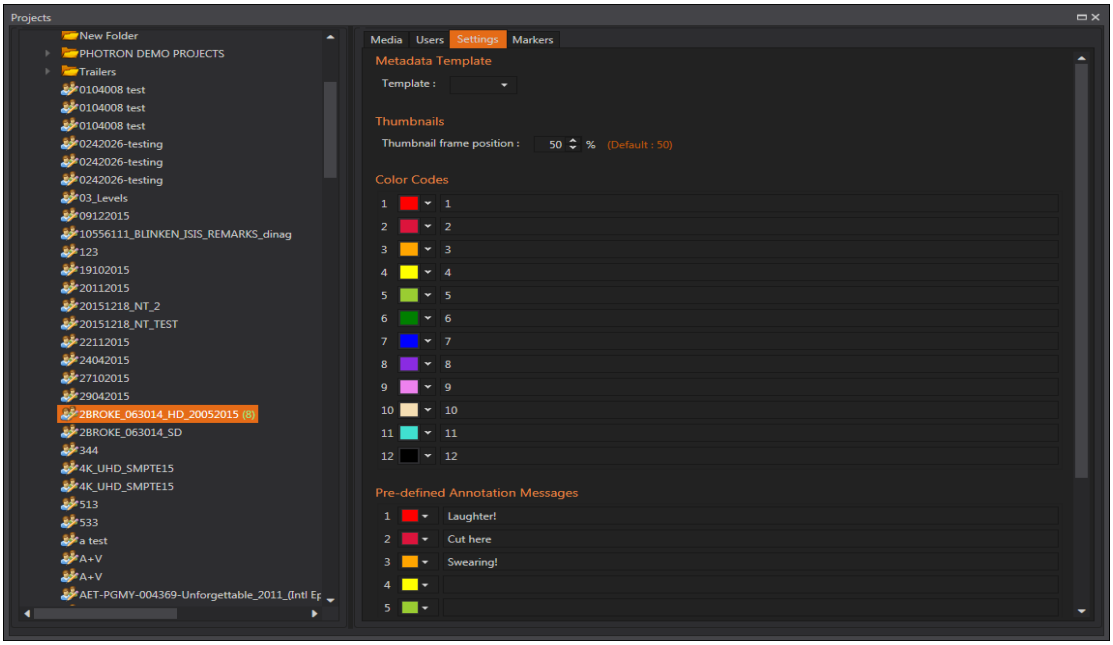
- If the user is not in a group, the users’ permissions can be individually altered in the Users table (see 4.3.16.1.4).
- If the user is in a group, then the group permissions override the user permissions. Group permissions can be modified in the Iris Admin GUI.

To add or remove a group to the project, click the “Add/Remove groups” button, located at the bottom. A new dialog box will be shown a list of groups that have been configured in the Iris Admin GUI. For more information on groups, please consult the Iris Admin User Manual.

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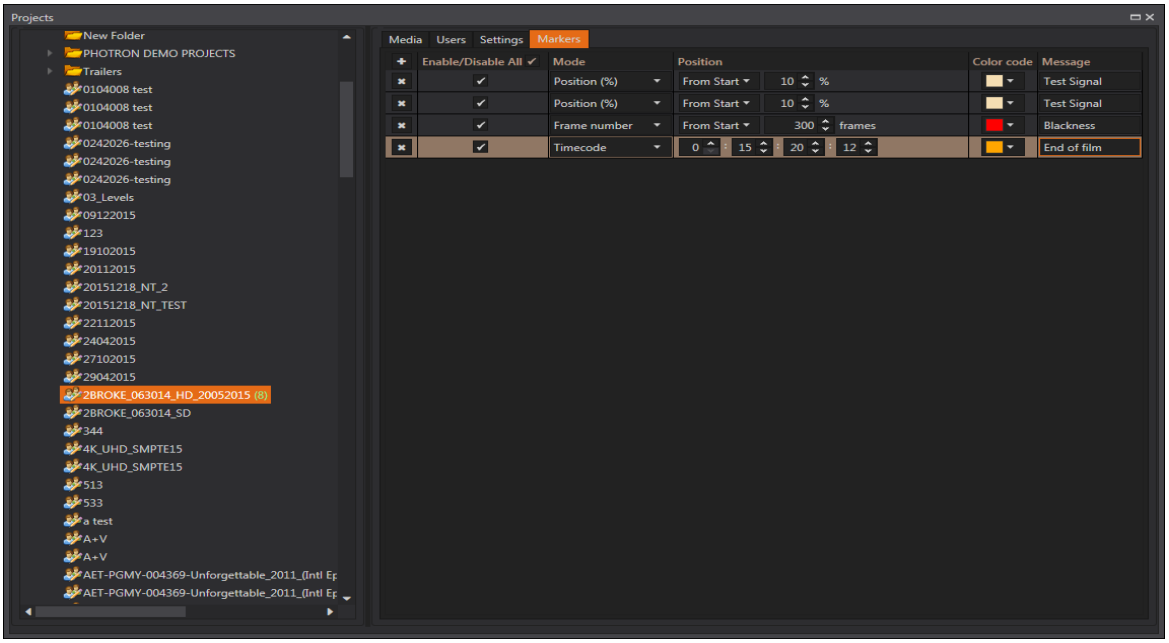
4.3.16.1.6 Project Settings



Each project has a set of common settings. These include the Asset Metadata template (online shareable templates only), thumbnail position to extract from, color codes and pre-defined shortcut annotation messages.

4.3.16.1.7 Markers

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Pre-defined annotation markers can be specified on a per-project basis. Each media file added to a project will include the pre-defined annotation markers in addition to those that have already been manually added.

Pre-defined annotation markers are added by clicking the '+' symbol to create a new marker. Each new marker can be enabled or disabled via a checkbox and its positioning is specified by:

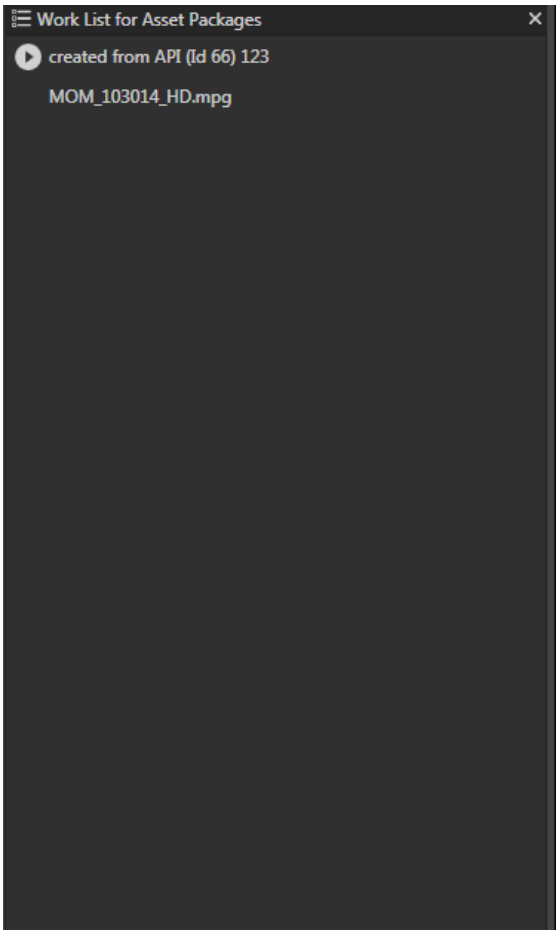
- A percentage from beginning or end of the media file
- The number of frames from beginning or end of the media file
- The timecode
- The time from beginning or end of the media file

Furthermore, each marker can be supplied with a color code and a message. These are reflected in the Annotation Messages tool window.

To delete a marker, click the 'x' button that appears on the left of the marker.

4.3.16.2 ***Work List for Asset Packages***

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The Work List is a pre-prepared list of asset packages given to users of a particular group to work on. The asset packages in the list are populated via the API and each work list belongs to a group, hence only users who are assigned to groups will see the work list.

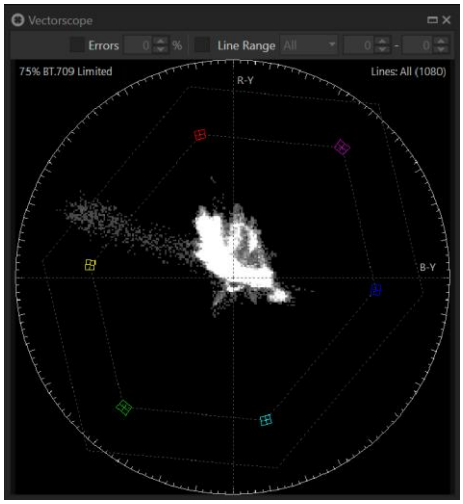
After a user logs in, the first asset package in the Work List will commence playback. To play other asset packages in the Work List, double click the item. Asset Packages that are added or removed via the API will be dynamically updated in the Work List. If the asset package that is currently being played is removed, then playback of that asset package will end and the first item in the Work List will commence playing.

4.3.16.3 ***Video***

4.3.16.3.1 Vectorscope

This toggles the Vectorscope tool window on and off. This represents the phase relationship between the Cb and Cr color component of a color difference YCbCr system. RGB/XYZ formats are not represented in the Vectorscope.

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When the “Errors” checkbox is enabled, pixels that are outside of the 100% boundary markers are shown in yellow. The limit can be adjusted within the range of -25% to +25%. A positive value is percentage higher than 100%, a negative value is percentage below 100%. Errors are also logged to the “Timeline” window.

The “Line Range” checkbox when enabled overrides the global “Line Range” settings from the Video Selection toolbar.

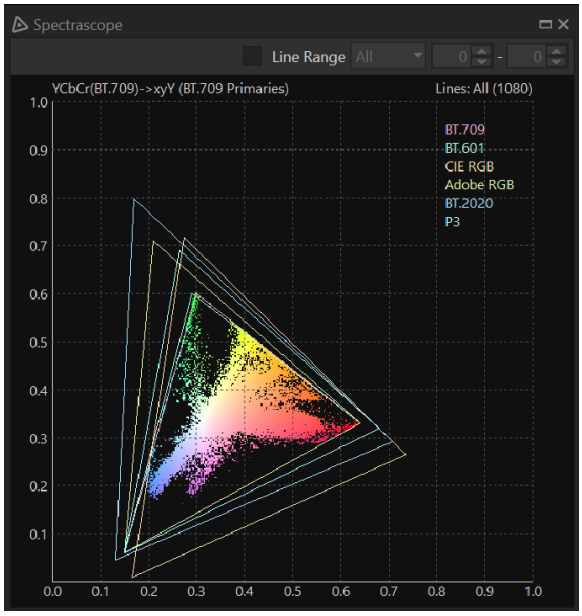
4.3.16.3.2 Spectrascope

This is an advanced feature to display the color space of the video on the CIE 1931 Chromaticity diagram. The sequence of conversion from each color format is as follows:

YCbCr > RGB > XYZ > xyY.

For more details, see https://en.wikipedia.org/wiki/CIE_1931_color_space#CIE_xy_chromaticity_diagram_and_the_CIE_xyY_color_space

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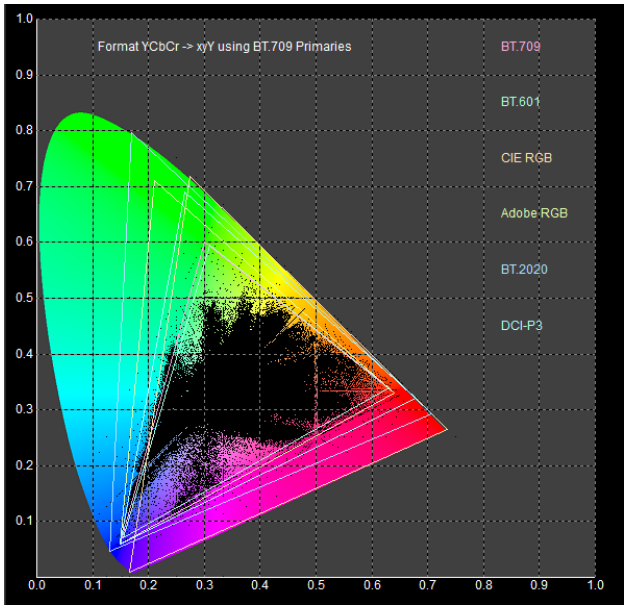
The “Line Range” checkbox when enabled overrides the global “Line Range” settings from the Video Selection toolbar.

Graticules are available for reference color spaces of BT.709, BT.601, CIE RGB, Adobe RGB, BT.2020 and DCI-P3.

Color Primaries can be automatically detected or manually selected for reference levels.

The trace is displayed in real time as the video is played and the trace can be set to “accumulate” mode to see the range of colors used across any clip.

The inverse trace on the CIE 1931 “horse shoe” diagram can also to shown.

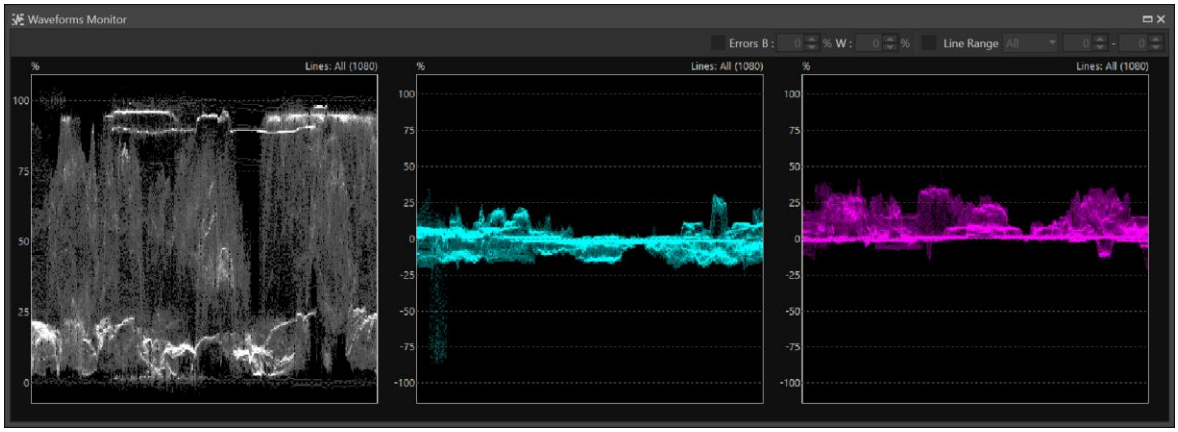


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The Spectrascope converts the video color space to xyY but it only plots the 2D values of x and y. The 3rd dimension of Y which is the luminance is omitted because it is difficult to visualize the “brightness” level of the combined trace. The “Use RGB color” provides a means of visualizing all three dimensions by plotting the actual RGB color value at the x and y coordinate. This gives the variations of color value as the video is played.

4.3.16.3.3 Waveforms Monitor

This toggles the video Waveforms Viewer on and off.

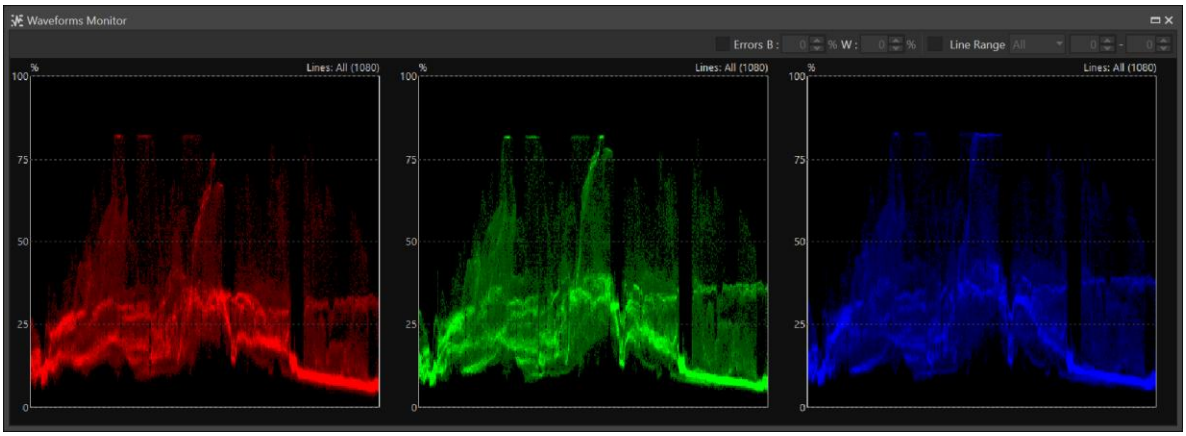


The waveform monitor provides a convenient way to visualize the video across the width of the screen with each line overlaid on top of each other over the time period of one frame. The markers of 0%, 75% and 100% represent the video levels according to the source file resolution and its video standard. YCbCr formats are displayed as Y – Luminance (white), Cb – Blue-Green (cyan) and Cr – Red-Green (magenta). RGB formats are displayed as Red, Green and Blue.

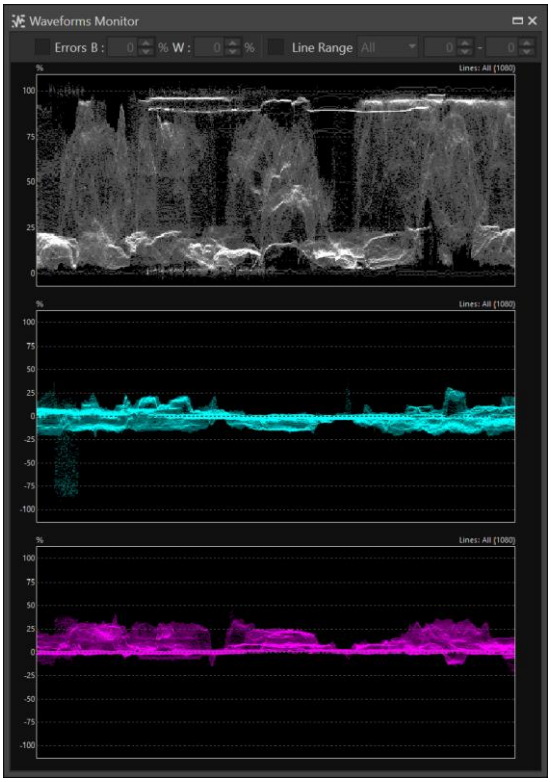
When the “Errors” checkbox is enabled, levels that are outside of the 100% (White) and 0% (Black) boundary markers are shown in yellow. The white and black limits can be adjusted within the range of -50% to +50%. A positive value is percentage higher than white/black levels, a negative value is percentage below the white/black levels. Errors are also logged to the “Timeline” window.

The “Line Range” checkbox when enabled overrides the global “Line Range” settings from the Video Selection toolbar.

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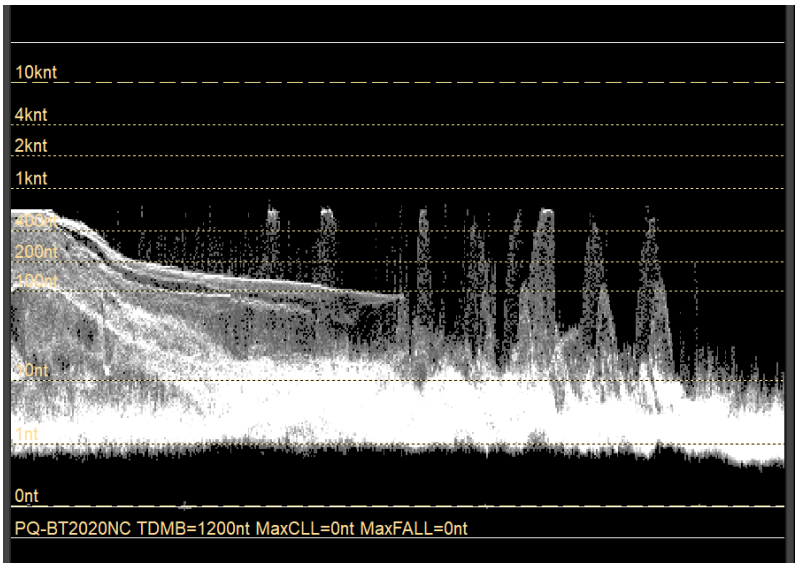


The context menu allows the user to select between ‘Auto mode’, ‘Vertical Parade’ or ‘Horizontal Parade.’

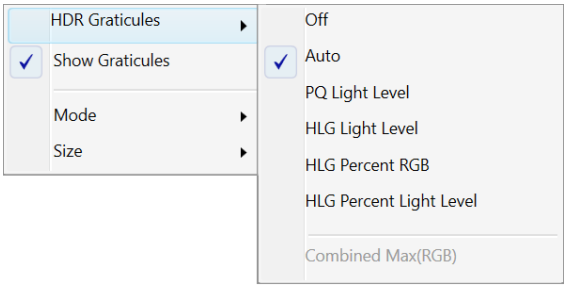


HDR Display

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When content is encoded with an Electro-Optical Transfer Function (EOTF) of PQ (ST 2084) or HLG, the waveform display has the additional menu options to show the HDR encoded data converted into “Light Levels”.

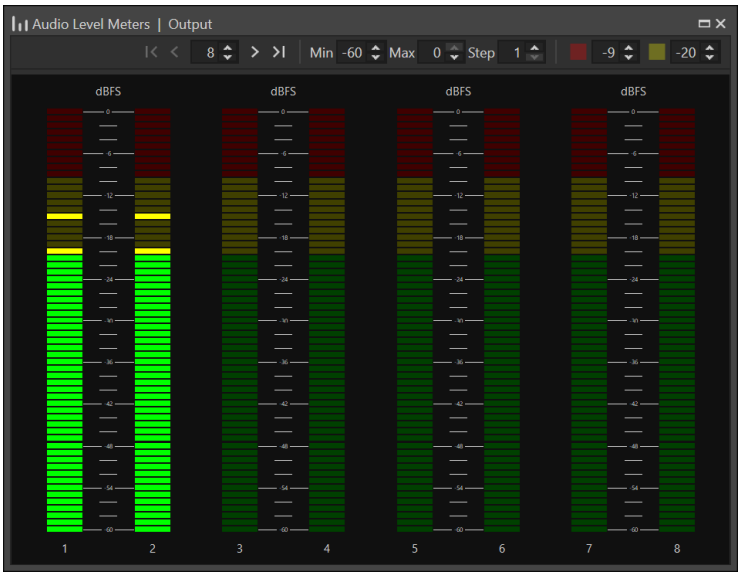


For PQ, the light level is defined as nits (cm/d2) and for HLG, it is defined as percentage of light level. The waveform can display the combined maximum of all three RGB components or as separate RGB waveforms.

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4.3.16.4 *Audio*

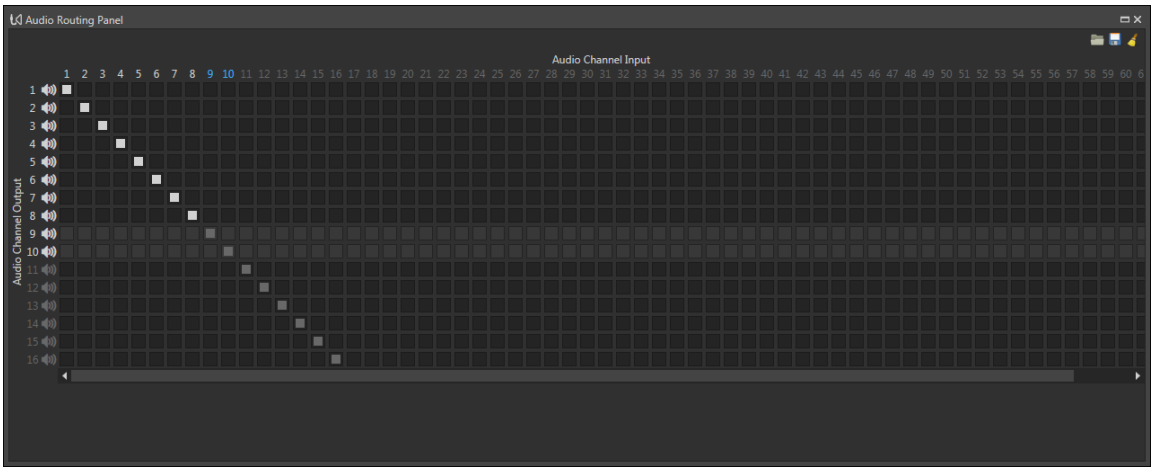
4.3.16.4.1 Audio Level Meters



Each meter represents the audio levels of the corresponding output channel. The scale is calibrated relative to 0dBFS (full scale). A context menu on the window has the option to display ‘peak hold’ at its maximum detected level.

The controls at the top of the Audio Level Meters tool window allows the number of audio channel meters on the tool window to be changed and allows scrolling of the audio meters. The minimum and maximum range can be set from -90dBFS to 0dBFS. The dB steps per segment can be set from 1 to 6 dB.

4.3.16.4.2 Audio Router Panel



Each row represents an output channel. Each column represents an input channel. Selecting a cross-point in the router matrix will route that input to the output. An input channel can only be routed to an output channel that already exists. A context menu on the window allows the window to be “Always on top.” Routings could be saved as profiles.

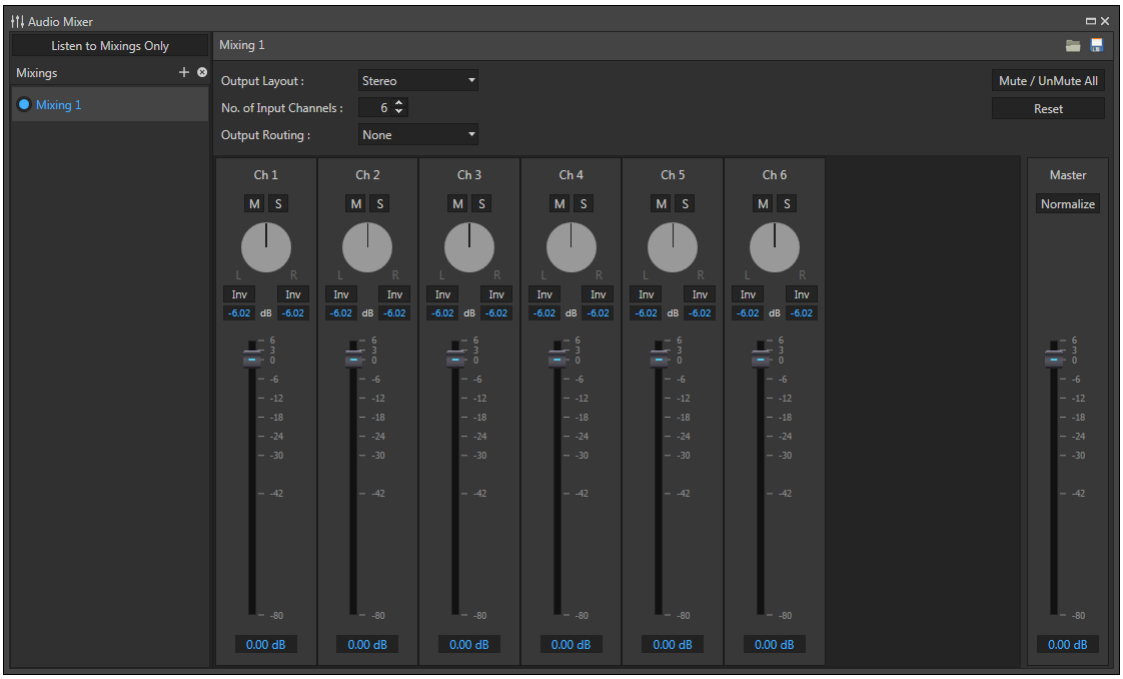
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Input audio channels displayed in blue represents the channels that were created by the Audio Mixer.

4.3.16.4.3 Audio Mixer

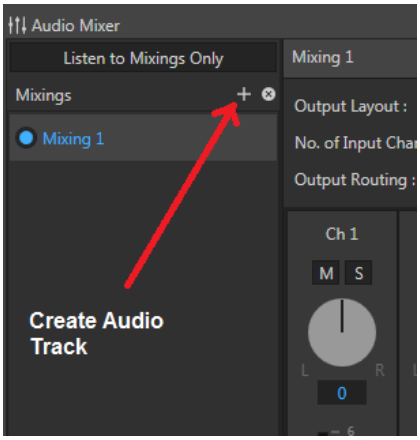
This tool allows the input audio channels to be mixed into mono or stereo for output, for instance, down-mixing 5.1 audio to the 2 channels of stereo. The resultant mixed channels will be incorporated into a new audio track available for selection from the Audio context menu as per Section 4.3.10

The Audio Mixer tool is shown below with the left hand side showing the audio tracks that will be created as a result of the channel mixing. The right hand side lists the input channels to be mixed.

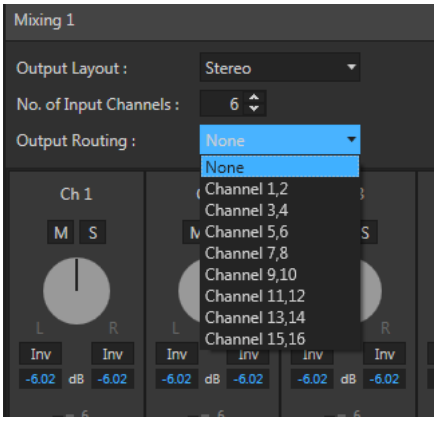


The first step in mixing audio is to create a profile of an audio track that encapsulates the output audio channels. Click the “+” button to create an audio track (by default it will be called Mixing n where n is a number):

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When the audio track is created it will be called “Mixing n” where n is a number. This can be renamed by right clicking on the name and selecting “Rename” from the context menu. The Output Layout will default to “Stereo” and the default mixing properties for stereo will be applied. This can be changed to “Mono” which will have its own default mixing properties. The number of input channels defaults to 6 but can be changed to a maximum of 64. The Output Channels Routing defaults to “None” but this can be changed to a pre-defined pair of output channels from the drop down list box as shown below:



Each channel can be muted by clicking the “M” button. A channel can be selected as “Solo” by clicking the “S” button. When a channel is selected as “Solo”, it means that it is the active channel and all other channels are muted. To select more than one channel as Solo, hold down the CTRL key while clicking the “S” button of the required channel.

Individual input channels can be configured by altering the balance and/or loudness. The amount of signal at the left and right of each channel is represented by a value in dB that range from 0 dB to -∞ dB. 0 dB on the left implies the balance is 100% at the left and 0% at the right. Conversely, ∞ dB implies the balance is 100% at the right and 0% at the left. The balance defaults to -6.02 dB at the left and -6.02 dB at the right. This is equivalent to 50% left and 50% right. The balance can be changed by rotating the balance control and double clicking the values of the balance at either the left or right, will reset the balance to its default.

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When setting the balance, the values for each left/right pair of each channel can be set to invert phase by clicking the “Inv” button. In effect, this changes the downmix from an LoRo downmix to an LtRt downmix.



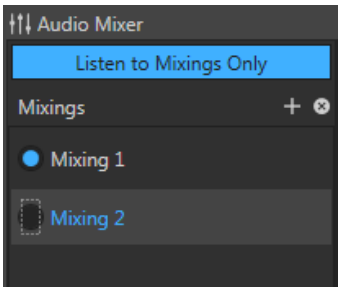
The sliders below the balance control can be used to adjust the volume of the channel. On the far right of the window, there is a “Master” slider. This applies the specified volume to the result of the mixed channels. Hence, if the sound from downmixing is too quiet, the Master slider can be used to increase the volume of the downmixed audio.

The “Normalize” button that appears in the Master Slider control can be used to normalize the audio levels to a ratio of 1.

There are two buttons on the top right. The “Mute/UnMute All” button will mute or unmute all channels. The “Reset” button will reset all settings.

The settings can be saved to a profile and when saved, those settings can be applied to the audio track. Therefore, when creating a new audio track, a saved settings profile can be loaded and those settings will be applied to the audio track. The controls to save and load a profile appear on the top right of the window.

The Audio Mixer contains a button to “Listen to Mixings Only” which will disable the original audio track and only play the downlix tracks. In this mode, individual mixing tracks can be enabled or disabled. The screenshot below shows Mixing 1 enabled and Mixing 2 disabled:



4.3.16.4.3.1 Save Audio Mixer Settings

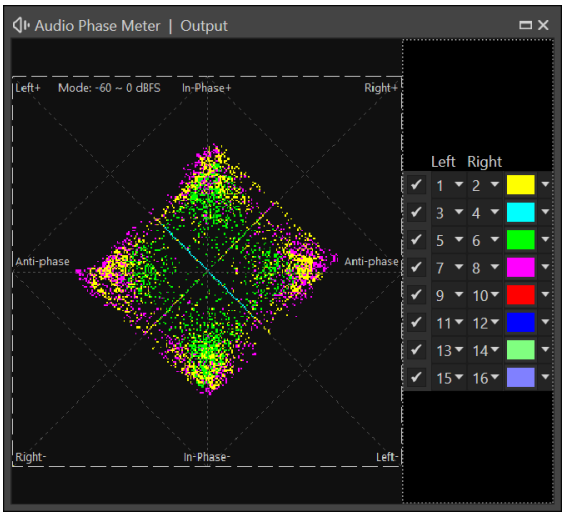
To save the audio mixer settings, click the top right Save button. You will be presented with a choice of destinations to save to, prior to the save. These are:

- Local – save the settings locally on the computer
- Online – save the settings to the database

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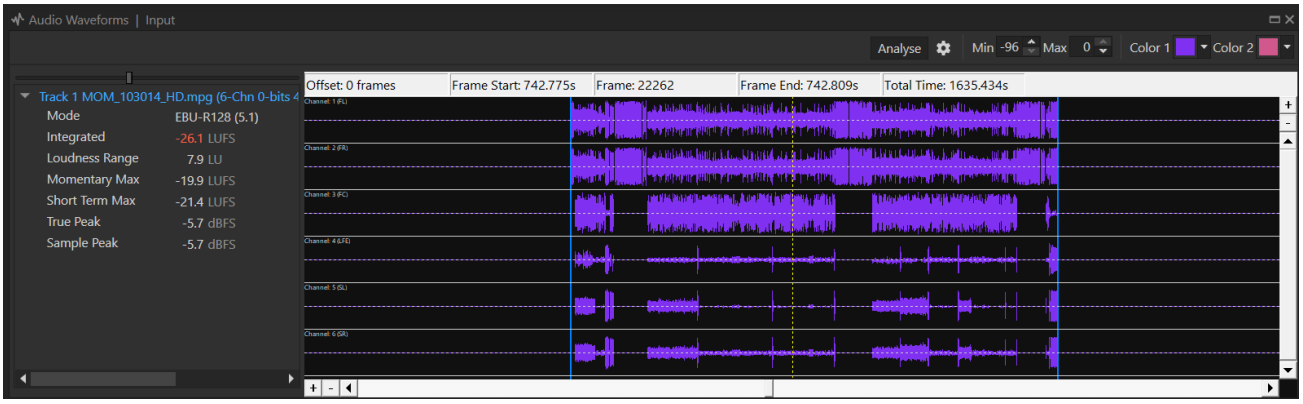
- Group (only applies to logged in accounts) – save to the group in which the current logged in user belongs to (if applicable).

4.3.16.4.4 Audio Phase Meter



The audio phase meter shows the phase relationship between any two audio channels. There are 8 traces available for display. Each trace can select between any two channel between 1 and 16. When the two channels are in phase, the trace appears vertically (y-axis). When the two channels are out of phase (anti-phase) the trace appears horizontally (x-axis). Predominantly left or right channels appear in the diagonals (45 degree) positions.

4.3.16.4.5 Audio Waveforms



The Audio Waveforms window shows the analog waveform across the channels at the same time position. The center position of the green dotted line represents the top of the current frame, and the yellow dotted line represents the end of the current frame. The distance between the green and yellow markers represents the period of 1 frame. The scale can be zoomed in and out by the use of the + and – buttons on the horizontal scroll bar. The number of channels to display on the screen can be zoomed in using the + and – buttons on

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the vertical scroll bar. The context menu allows the switch between the input and output channels and the levels in linear or dB scale (from 0dBFS to -96dBFS).

On the left-hand side of the Audio Waveforms window are the loudness levels of each input track. This represents the levels measured at the input to the router. The loudness measurement mode (EBU-R128, BS1770-1 etc) is set up in the Options box based on the channel layout (2.1, 5.1,7.1 etc) of the track. The output loudness, measured at the output of the router is configured in “Options->Loudness->Speaker Config for Output Loudness Measurement” and can be selected for automatic or manual channel layout. In automatic mode, if the channel layout is not specified in the metadata, the number of channels will map to a default mapping up to 16 channels as below:

1: 1.0 (FC) mono

2: 2.0 (FL, FR) stereo

3: 3.0 (FL, FR, FC)

4: 4.0 (FL, FR, SL, SR)

5: 5.0 (FL, FR, FC, SL, SR)

6: 5.1 (FL, FR, FC, LFE, SL, SR)

7: 6.0 (FL, FR, FC, SL, SR, BL, BR)

8: 7.1 (FL, FR, FC, LFE, SL, SR, BL, BR)

9: 7.1 (FL, FR, FC, LFE, SL, SR, BL, BR, nu)

10: 7.1.2 (FL, FR, FC, LFE, SL, SR, BL, BR, LTM, RTM)

11: 7.1.2 (FL, FR, FC, LFE, SL, SR, BL, BR, LTM, RTM, nu)

12: 7.1.4 (FL, FR, FC, LFE, SL, SR, BL, BR, LTF, RTF, LTR, RTR, nu)

13: 7.1.4 (FL, FR, FC, LFE, SL, SR, BL, BR, LTF, RTF, LTR, RTR, nu, nu)

14: 7.1.4 (FL, FR, FC, LFE, SL, SR, BL, BR, LTF, RTF, LTR, RTR, nu, nu, nu)

15: 7.1.4 (FL, FR, FC, LFE, SL, SR, BL, BR, LTF, RTF, LTR, RTR, nu, nu, nu, nu)

16+: 9.1.6 (FL, FR, FC, LFE, SL, SR, BL, BR, WL, WR, LTF, RTF, LTM, RTM, LTR, RTR)

Only a maximum of the first 16 channels are used for loudness measurement. “nu” means “not used”.

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The loudness measurement parameters are as follows:

- Integrated (also known as Program Loudness) – the average loudness of the entire audio.
- Loudness Range – Specifies the overall range of the audio levels from the quietest part to the loudest part.
- Momentary Max – For each 400ms window of time (called a “Momentary Window”), the maximum loudness is taken. The greatest of all these values taken over the entire duration of the audio is the “Momentary Max”.
- Short Term Max – For each 3000ms window of time (called a “Short Term” window), the maximum loudness is taken. The greatest of all these values taken over the entire duration of the audio is the “Short Term Max”.
- True Peak – The loudest value of all inter-sample peaks (4 times over-sampled) over the duration of the audio across all channels. To view the peak values for each channel, enable the “Show Loudness Overlay” context menu to see additional information.
- Sample Peak – The loudest value of each digital sample of audio over the duration of the audio across all channels. To view the peak values for each channel, enable the “Show Loudness Overlay” context menu to see additional information.

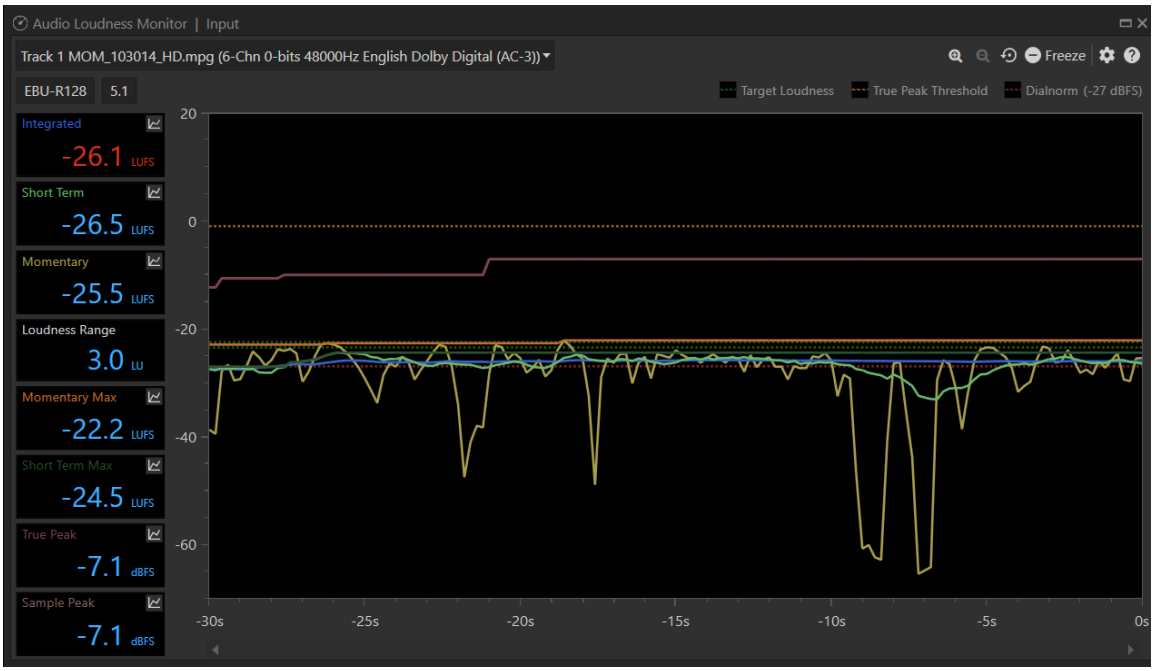
Loudness will be measured from the “Mark In” to the “Mark Out” cursors (see 4.1.1)

The task bar buttons provide quick access to the loudness settings in the Options box, adjustment of the minimum and maximum values of the waveform and colors between 2 adjacent tracks for easier identification of tracks.

4.3.16.4.6 Audio Loudness Monitor

Whereas the loudness measurements of the Audio Waveforms Window in section 4.3.16.4.5 applies to the entire duration of the audio, the Loudness Monitor provides loudness measurements of the audio in real time. Therefore, the measurements are based on loudness levels up to the current position during playback.

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On the left-hand side are the loudness measurements of which are described in the Audio Waveforms Section (see 4.3.16.4.5). Additionally, there are two further measurements – “Short Term” and “Momentary”. “Short Term” describes the maximum loudness within the past 3000ms (called the “Short Term” window). “Momentary” describes the maximum loudness within the past 400ms (called the “Momentary” window). The Integrated Loudness measurement will turn red when its value is outside the range specified by the Target Loudness and its tolerances. For example, for a Target Loudness of -24 LKFS and a Target Loudness Tolerance of +2 and -2 LKFS (giving a range of -22 LKFS and -26 LKFS), the Integrated Loudness will be shown in red if it is outside the range between -22 LKFS and -26 LKFS.

The graph represents the different types of loudness measurement with each line of the graph being color-coded corresponding to the colors of the loudness measurements on the left. For example, the yellow line on the graph represents Momentary loudness. Individual lines on the graph can be toggle on and off by clicking the graph icon for each loudness measurement on the left hand side.

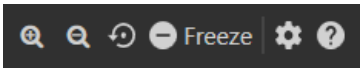
Dotted lines on the graph represents certain limits that are of interest. The legend at the top of the tool window specifies the meaning of the dotted lines.

If viewing the input tracks, a drop-down list will appear to allow selection of the track to monitor. If viewing the output channels, the channel layout and measurement mode will be defined by the option “Options->Loudness->Speaker Config for Output Loudness Measurement”.

4.3.16.4.6.1 Loudness Monitor Toolbar Icons

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There are various icons available on the top right:



The first 2 buttons allow zooming in and out of the horizonal time scale.

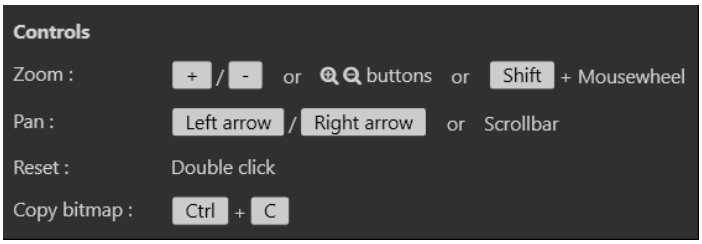
The 3rd button resets all loudness measurements. This is useful when measuring the audio loudness starting from a certain position. For example, if the user wishes to start measuring the loudness starting at 20 seconds into the audio, click the reset button while the playback position is 20 seconds into the audio.

The 4th Freeze button pauses loudness measurements. This is a toggle button therefore clicking it again un-pauses it.

The 5th button provides quick access the Options box (as described in 4.3.16.4.5). In the Options->Loudness page, the Historical Period defines the number of seconds to keep history of loudness measurements. The Loudness Axis Range specifies the minimum and maximum loudness to show on the vertical scale of the graph. Display Value Decimal Place specifies the accuracy of the loudness values to a specified number of decimal places.

As with the Audio Waveforms Window (section 4.3.16.4.5), the loudness measurements are based on algorithms such as EBU-R128, A85/BS1770-1 and A85/BS1770-2 standards (or based on a custom profile). The Loudness Measurement settings are described in the Audio Waveforms Section 4.3.16.4.5.

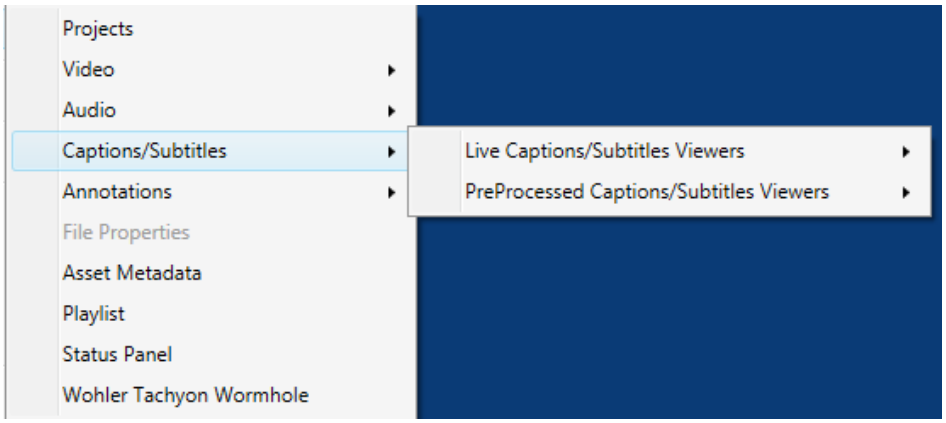
The 6th "?" button provides help on mouse and shortcut key navigation around the graph.



4.3.16.5 *Captions/Subtitles*

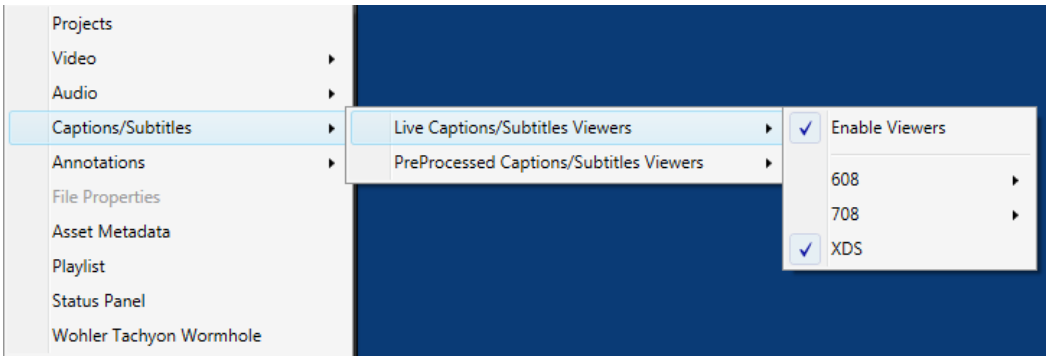
There are two types of captions/subtitles tool viewers – Live Captions/Subtitles Viewers and Pre-processed Captions/Subtitles Viewers:-

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4.3.16.5.1 Live Captions/Subtitles Viewer

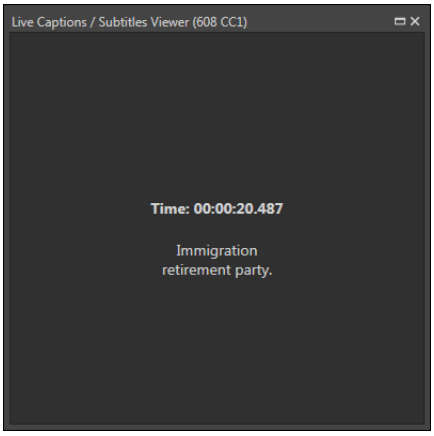
The Live Captions/Subtitles Viewer shows the caption/subtitle text at the current position of video playback. Only text is shown and positioning, colors, fonts and other attributes are ignored. There is one viewer for each subtitle format (608 CC1, 608 CC2, 708 Service 1, 708 Service 2, XDS, etc). During video playback, subtitles/captions of each format will appear in the corresponding Viewer. Each Viewer can be opened in the Tools context menu as shown below:



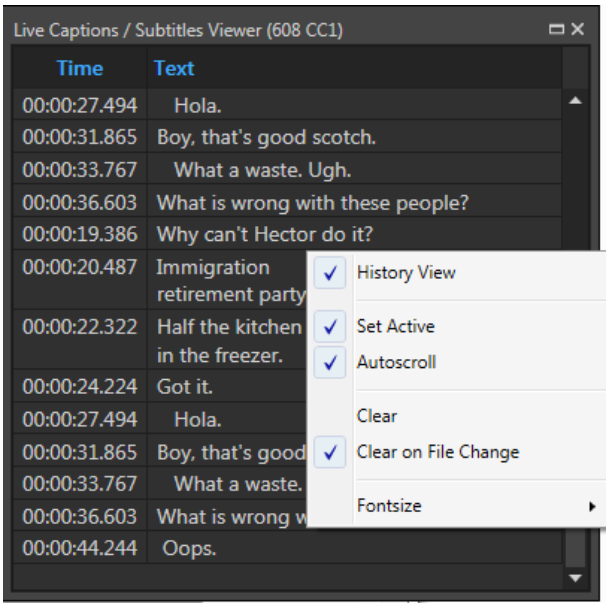
The Viewers can be disabled or enabled by checking or unchecking the “Enable Viewers” option in the context menu.

There are two modes of operation in the Live Captions/Subtitles Viewer. The default mode of operation is to show the time and text at the current playback position. The screenshot below shows the time and text for 608 CC1 captions.

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The second mode of operation is to use “History View”. History View can be enabled or disabled by right-clicking the viewer and enabling or disabling the “History View” menu option. The screenshot below shows the viewer set to History View along with various options in the context menu.



The Live Captions/SubtitlesViewer context menu consists of the following options:

- History View – toggles History View on and off
- Set Active – the subtitle format of the Live Captions/Subtitles Viewer will be used as the current format for display in the player
- Autoscroll – Enable or disable automatic scrolling of History View
- Clear – Clear the contents of the Viewer (History View only)
- Clear on File Change – Clear the contents of the Viewer upon loading of a new video file
- Fontsize – Change the font size to small, medium or large

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4.3.16.5.2 Pre-processed Captions/Subtitles Viewers

The option to display pre-processed Captions/Subtitles Viewers under the “Tools” context menu work in the same way as described in Section 4.3.11.3 except that when selected under the “Tools” context menu, the selected captions/subtitles do not become active i.e. they do not replace the existing on-display captions/subtitles as being the currently active one. Captions/Subtitles Viewers can be enabled and disabled from within this context menu by toggling the “Enable Viewers” option.

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4.3.16.6 *Annotation*

4.3.16.6.1 Annotation Toolbox



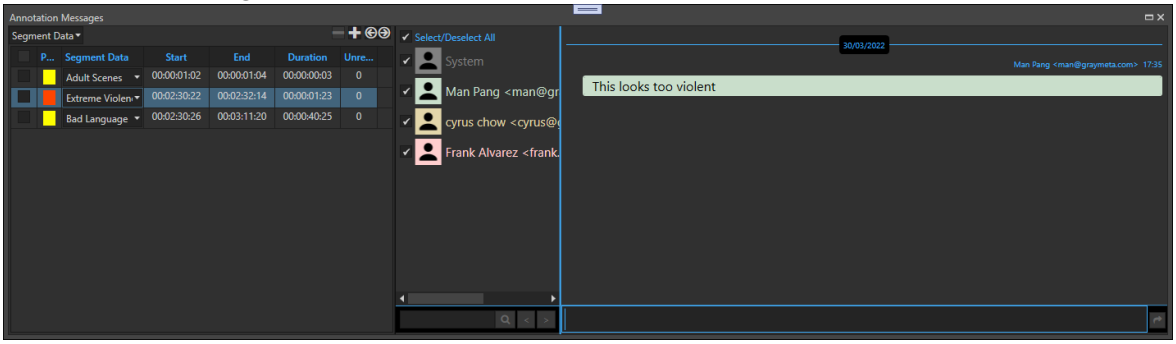
Annotation Toolbox allows user to annotate a video frame with objects such as rectangles, ellipses, lines, arrows and text. Each object can be displayed in a specific color by choosing from the color drop down list box. Furthermore, except for text, each object can be drawn with specified line thicknesses and styles from the respective drop down list boxes. Annotation Mode is enabled when a video file is opened.

Selection of objects is carried out by enabling “Pointer Mode” by clicking on the “Pointer” icon and clicking an object. Pointer Mode is enabled by clicking the Pointer icon and disabled by clicking the same icon. Selected objects can subsequently be cut, copied, pasted or deleted via the icons in the Annotation Toolbox or right clicking the selected object and using the context menu that appears. Selected objects can also be moved by clicking that object and moving it around with the mouse left button pressed down. Furthermore, multiple objects can be selected by pressing the Control key and clicking the objects. All the functionality mentioned in this paragraph also apply to multiply selected objects.

It is possible to save an annotated frame using the Annotation Toolbox. The leftmost floppy disk icon represents “Save” and the adjacent floppy disk icon with a pencil represents “Save As.” Permitted saved formats are jpg, png and bmp. The icon to the right of “Save As” allows the current annotated frame to be copied to the clipboard as an image and subsequently can be pasted into any application that supports pasting of images.

The Annotation Toolbox can be docked on the top, left, bottom or right by right clicking on it and selecting the required docking position from the context menu.

4.3.16.6.2 Annotation Messages



An annotation is a collection of textual and/or drawing objects referenced by a frame position. The left-hand pane contains the list of annotations. Each annotation in the list

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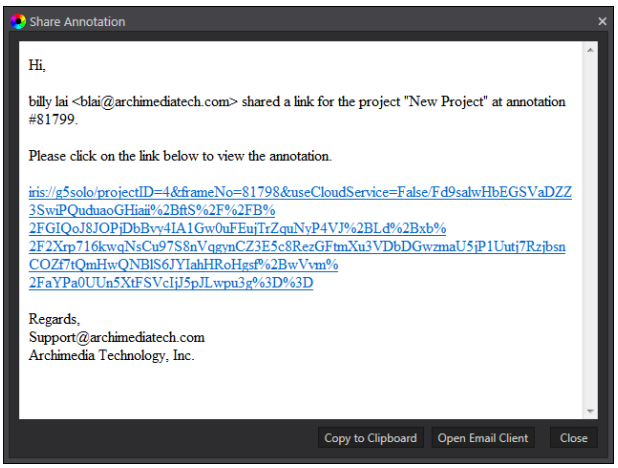
has a priority (represented by a colored rectangle), segment data (depending on the type of annotation), start time, end time, duration and number of unread messages. The segment data is used to indicate something of interest but this is only applicable if the annotation is of the Segment Data type. The drop down list box on the top left can be used to switch between Segment Data annotations or standard annotations (which do not have a Segment Data). See section 4.3.2.5 on how to import segment data annotations into a project.

The right pane shows the users in the project and their messages in a conversation, which can be filtered by selecting which user's messages to display. To start a new annotation, scrub the video to the frame you wish to annotate and then click the '+' button on the top right of the annotations pane. Text or drawing objects can be added at this position. Single clicking of an individual annotation in the list displays the conversation for that annotation. Double clicking the start or end time will cause the play back to pause and then jump to position clicked (same as clicking the diamond markers on the seek bar). Clicking the left and right arrow icons on the top right allows for navigation to the previous and next annotation respectively. This functionality is also replicated via the left and right arrow icons of the diamond markers on the seek bar. The conversation in this window is 'live' so any users in the list who are also online will receive the message instantaneously.

The start, end and duration can be modified by using CTRL + double click which sets the controls in edit mode. This allows the times to be changed. The priority can be changed by right clicking the colored priority indicator and choosing a new one from the list.

4.3.16.6.2.1 Share Annotation

Select this item to share a link to this annotation. The link contains information for sign in, project and annotation position.



4.3.16.6.2.2 Copy

Select an item of text or attachment in the window to copy. CTRL+C is the shortcut key.

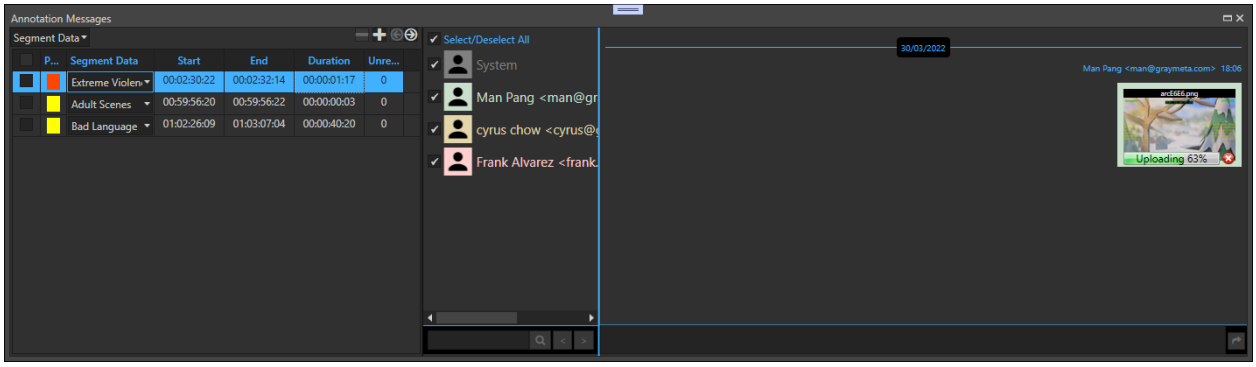
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4.3.16.6.2.3 Paste from Clipboard

Paste from the Clipboard. CTRL+V is the shortcut key. Any item in the clipboard including documents, images or simple text can be pasted into the window. This window also supports drag and drop of files from Windows Explorer.

4.3.16.6.2.4 Capture Video Frame

Captures the current video frame and save it as an attachment in this window.



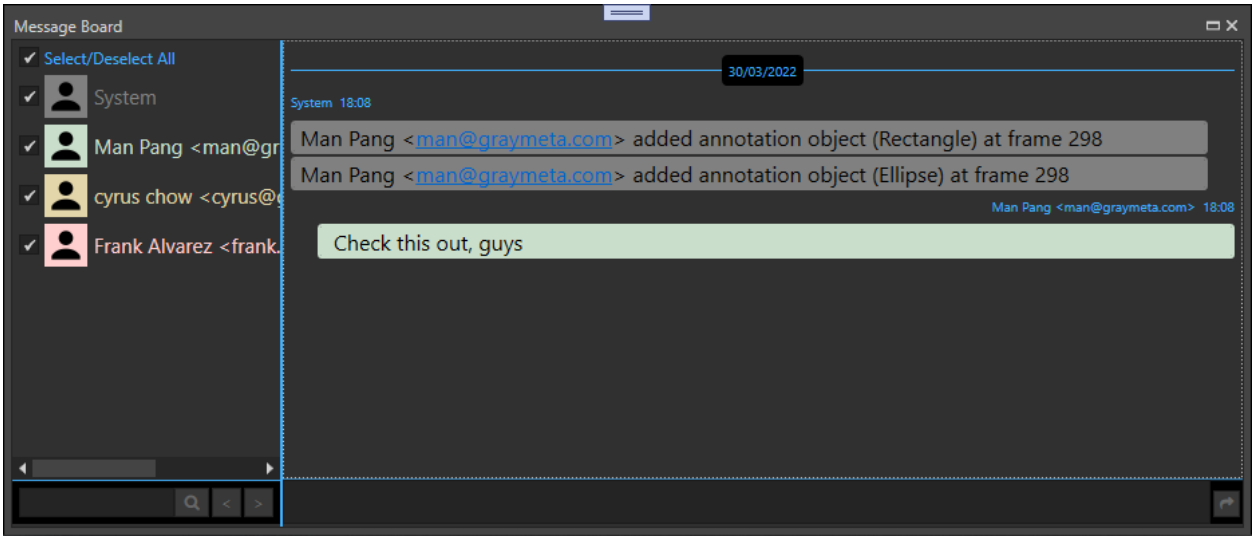
4.3.16.6.2.5 Reload Messages

Reloads the messages.

4.3.16.6.2.6 Enter key to send

Setting to send if enter key is pressed.

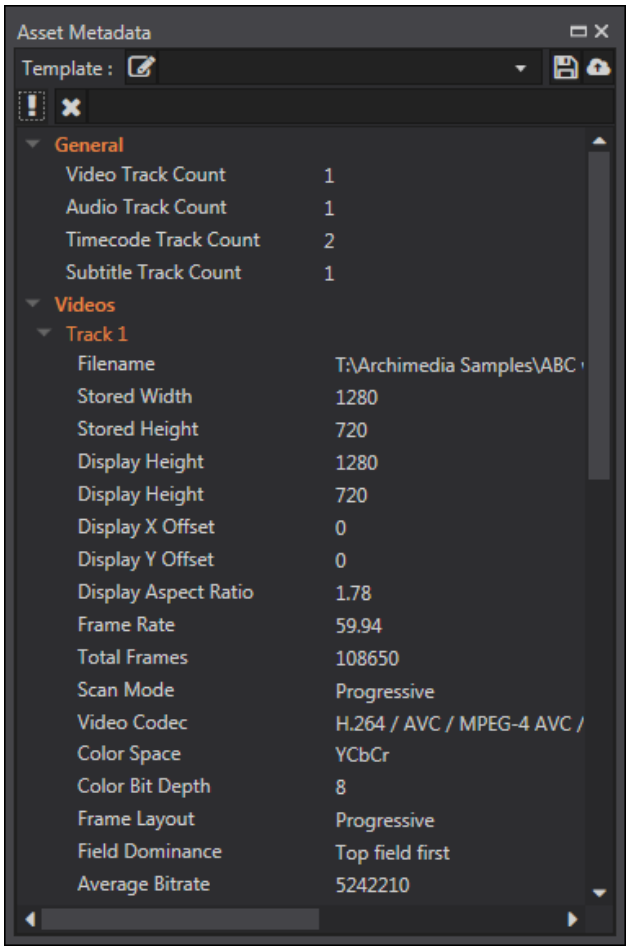
4.3.16.6.3 Message Board



The message board is a general chat window that is applicable to the entire media package. It also contains a log of events performed by each user. The window is very similar to the annotation window in that it is a 'live' chat window and supports drag and drop of attachments (if the FTP service is enabled). Messages can be filtered by users.

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4.3.16.7 *Asset Metadata*



A list of the media package's metadata is displayed in this window. Users can save the current metadata values as a template which can then be used to compare against other media packages. Any differences in the data will then be highlighted in red.

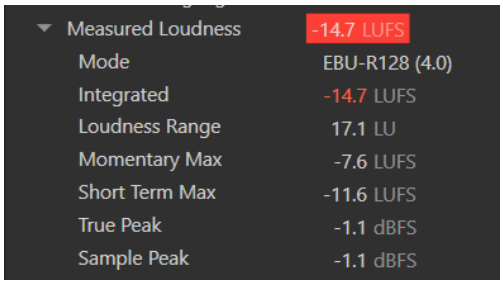
4.3.16.7.1 Format specific metadata

Some formats contain extended metadata that will only appear when loaded. These include Dolby Vision XML, Dolby Digital Plus, Dolby E and other specific formats. A new node will appear under their respective Video, Audio, Caption or Timecode track information. Expand the node to view the additional information.

Audio Measured Loudness

If enabled in "Options->Loudness->Enable loudness measurement of audio tracks in Asset Metadata", the loudness for each input track will be measured as a background task. The entire duration of the track will be measured, ignoring the mark in and out positions. When complete, the "Integrated" loudness will appear at the node level. Expanding the node will display the other loudness parameters.

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The “Integrated” loudness value will highlight in red if the level exceeds the target loudness set by the measurement mode.

Audio Detected Language

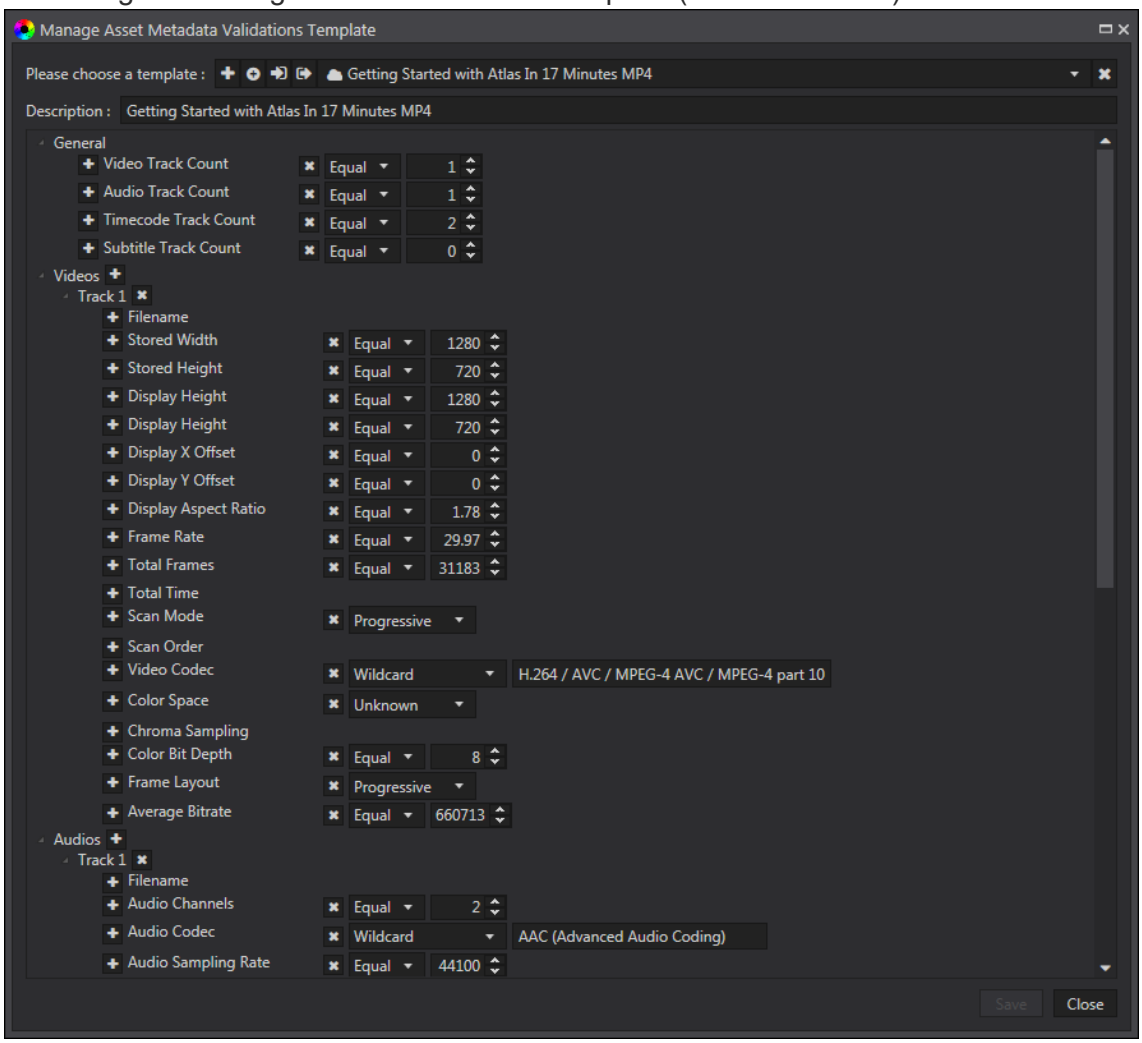
If enabled in “Options->Language Detection->Audio Language Detection”, the spoken language of the audio data (not from metadata) will be detected as a background task. See the Options for the GrayMeta Whisper API for more details. When complete, the primary detected language and its confidence percentage will appear on the node.

Subtitle / Caption Detected Language

If enabled in “Options->Language Detection->Subtitle / Caption Language Detection”, the display language of the caption text will be detected as a background task. See the Options for the GrayMeta Lingua API for more details. When complete, the primary detected language and its confidence percentage will appear on the node.

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4.3.16.7.2 Creating and editing an Asset Metadata Template (Pen icon button)

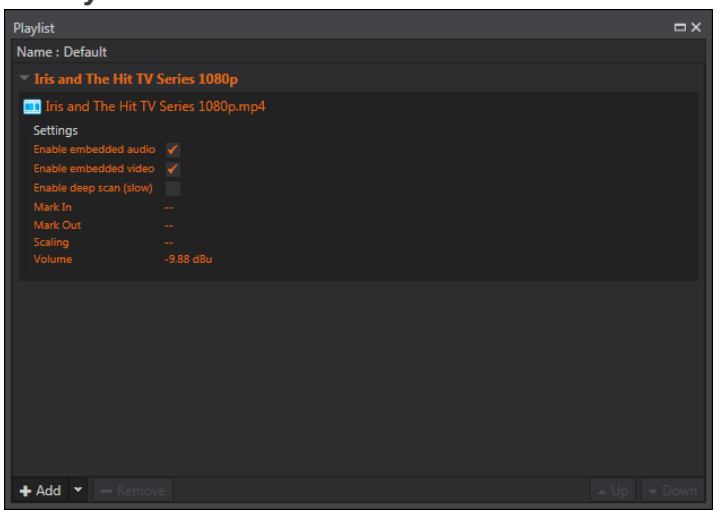


For values that have a numeric value, a range or absolute value can be set. For textual values, a wildcard or absolute value can be set. Other fields may have a drop down of known values. The template can be saved as a local file or as a shared project template. Use the Project > Projects > Settings page to set a default template for the entire project.

If a template is stored locally on disk, it must be converted to a network shared template (cloud icon before the template name) before it can be used in a project. Local templates can only be used for off-line mode.

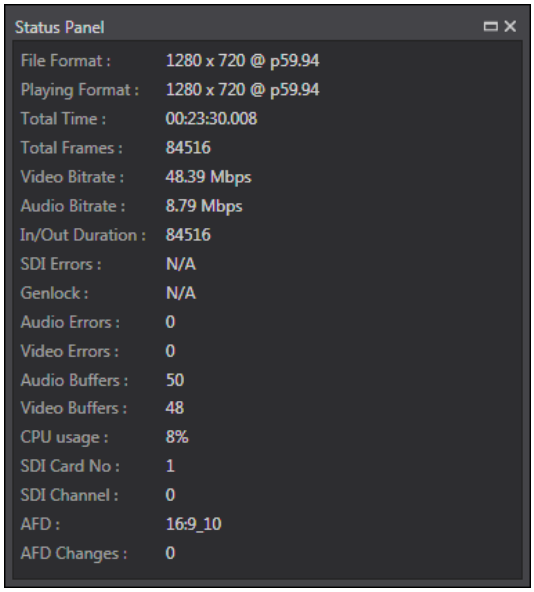
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4.3.16.8 *Playlist*



Files can be added into the play list. Each file can be played sequentially as one cycle or as a continuous cycle. Each file may have a mark in and out sequence added along with caption options, scaling and volume settings. Files can be added by clicking the “Add” button or by drag and drop from Windows Explorer.

4.3.16.9 *Status Panel*



Field Name	Description
File Format	File format.
Playing Format	Play format.

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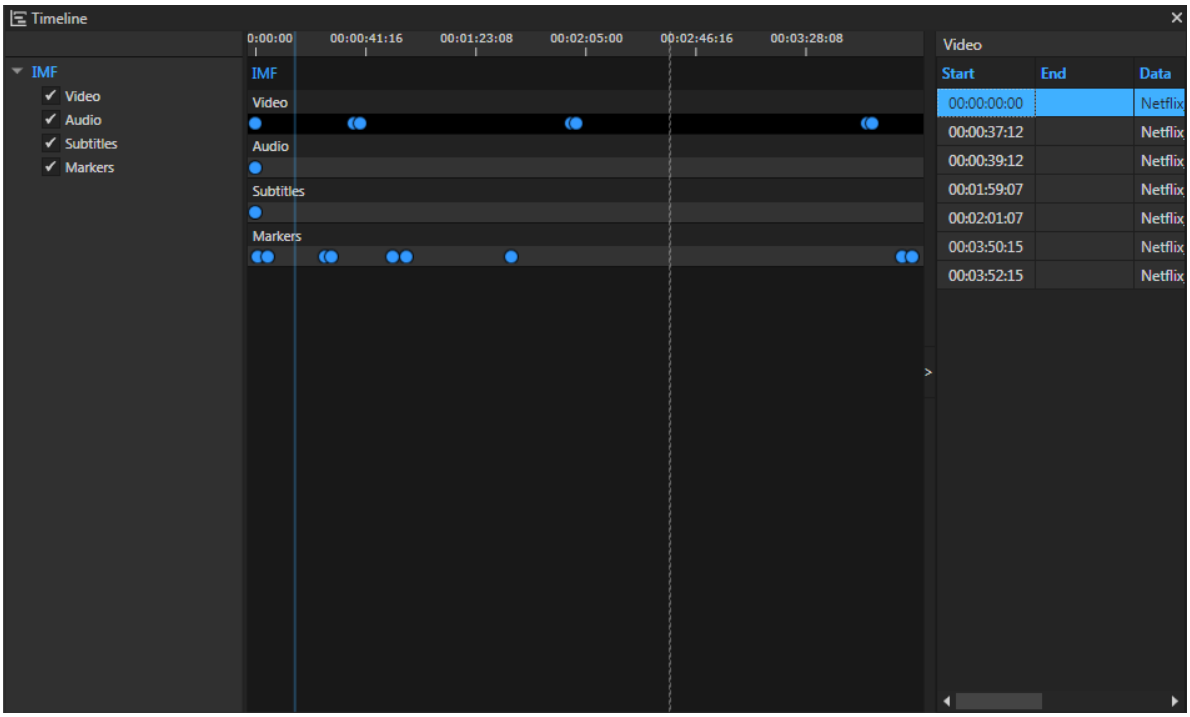
Total Time	Total length of the clip.
Total Frame	Total number of frames in the clip.
Video Bitrate	Video Bitrate
Audio Bitrate	Audio Bitrate
IN/Out Dur	Duration between the Mark in and Mark out point.
SDI Errors	Number of SDI errors (dropped frames).
Genlock	Genlock status of dual Bluefish SDI card in 4K mode
Audio Errors	Number of audio errors (dropped frames)
Video Error	Number of video errors (dropped frames)
Audio Buffers	Number of available audio buffer during playback. Video will stop when the number is 0.
Video Buffers	Number of available video buffer during playback. Video will stop when the number is 0.
CPU	CPU Usage (%)
SDI Card No.	Current SDI Card
SDI Channel	Current SDI Channel
AFD	Active Format Description
AFD Changes	Number of times where Active Format Description changed

This shows the current playback status. When there are errors such as dropped frames, that item will be shown in red.

NOTE Windows bug: If the CPU Usage is always 0, please start a command prompt (cmd.exe) and then type “lodctr /r”. This will rebuild the performance counter settings to its initial state.

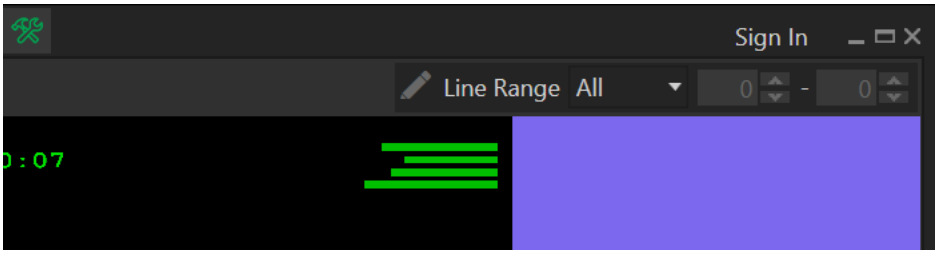
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4.3.16.10 *Timeline*



List of series of markers (e.g. Segment indicators in DCP/IMF, Dolby Vision markers from metadata) are shown in Timeline window. The right side panel which is collapsible is used to show detail information of markers.

4.3.16.11 *Video Selection Toolbar*



This toolbar allows the global selection of the line range to process for the video waveform, vectorscope and spectrascope tools. Toggle the “Pen” icon to see a green (start) marker and yellow (end) marker overlaid on the video.

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The markers positions can be adjusted by hovering the mouse over the green or yellow dotted marker and then grabbing the marker and dragging it up or down. They can also be adjusted by setting the line numbers directly in the number controls. The first active is numbered as 0.

4.3.17 Toolbar

The toolbar, located on the title bar, provides single-click operations to enable/disable tool windows.



From left to right, the icons in the Toolbar represents:

- Open File window.
- Projects tool window.
- Vectorscope tool window.
- Spectrascope tool window.
- Video Waveforms Monitor tool window.
- Audio Level Meter tool window.
- Audio Routing tool window.
- Audio Mixer tool window.
- Audio Phase Meter tool window.
- Audio Waveforms tool window.
- Audio Loudness Measuring tool window.
- Asset Metadata tool window.
- Playlist tool window.
- Timeline tool window.
- Status Panel tool window.

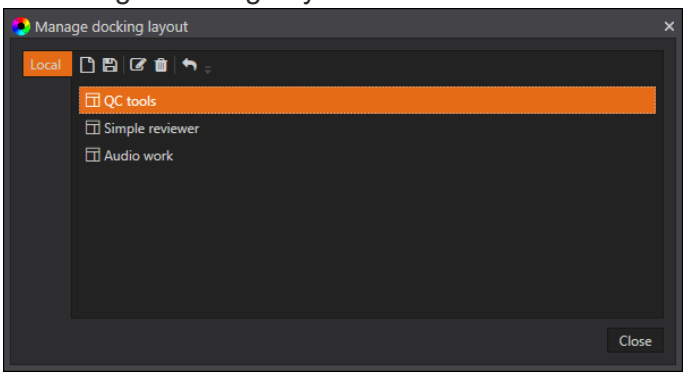
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- Pre-processed Captions/Subtitles Viewers window.
- Live Captions/Subtitles Viewer window.
- General and Instant Messaging tool window.
- Annotations editor toolbar.
- Video selection toolbar.

4.3.18 Environment

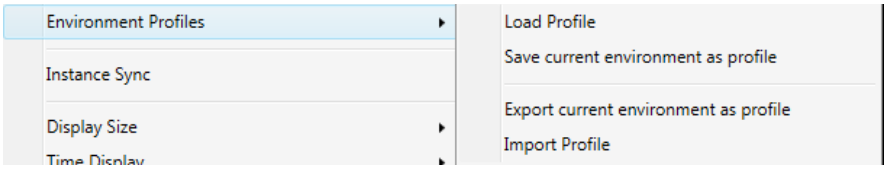
4.3.18.1 *Docking Layout*

4.3.18.1.1 Manage Docking Layout



This option allows the user to create a new window layout based on the current window positions, overwrite an existing layout with the current window positions, rename a layout and to delete a layout. To apply, select the layout required then click on the ‘Apply Layout’ button.

4.3.18.2 *Environment Profiles*



An Environment Profile consists of a set of Iris system-wide settings, tool window positions and sizes, and settings within tool windows. An Environment Profile can be saved, so different profiles can be loaded, depending on the type of usage. Environment profiles can also be exported, copied to another computer and then imported from within Iris on the other computer. Furthermore, Environment Profiles can be associated with the group that the user belongs to. When a user logs in, if that user belongs to a group that has an associated profile, that profile will be applied. For more on group-based Environment Profiles please consult the Iris Admin user manual.

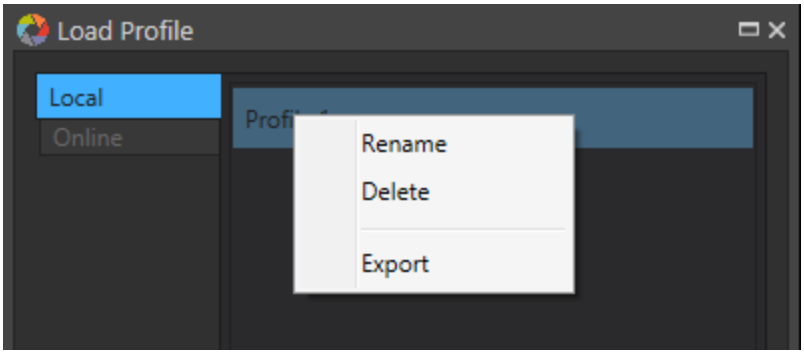
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The list of settings in Environment Profile:

- Docking Layout
- Audio Mixer settings
- Audio Level Meters settings
- Audio Phase Meter settings
- Audio Waveforms settings
- Loudness Monitor settings
- Vectorscope settings
- Spectrascope settings
- Waveforms Monitor settings
- Document Viewer settings
- Playback settings
- Overlays settings
- Playlist settings
- MXF settings
- HDR settings
- Dolby settings
- DCP settings
- DCP / KDM Manager settings
- Performance settings
- SDI Output settings
- DVI / HDMI / Digital Audio settings
- Captions / Subtitles settings
- Asset Search Paths settings
- Shortcut Keys Mapping

4.3.18.2.1 Load Profile

This loads an Environment Profile that had previously been saved. The profile can be loaded from local storage or online. The online option is only available for a user who is logged into Iris because an online profile is user-specific only.



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To rename, delete or export a profile, right click on the profile name to bring up a context menu. Exporting a profile, allows the exported profile to be saved as a file, which can be copied to another machine and re-imported from within Iris.

4.3.18.2.2 Save Current Environment as Profile

The current Environment Profile (i.e. most system-wide settings, tool windows size and position, and settings within tool window) can be saved locally or online. Multiple Environment Profiles can be created this way to allow each profile to be associated with specific Iris usages. Saving the profile online is only applicable when a user is logged in because online saving is user-specific.

4.3.18.2.3 Export Current Environment as Profile

Use the export to save the environment profile as a file with the extension ".profile". This file can be copied to another machine and re-imported from within Iris on the other machine.

4.3.18.2.4 Import Profile

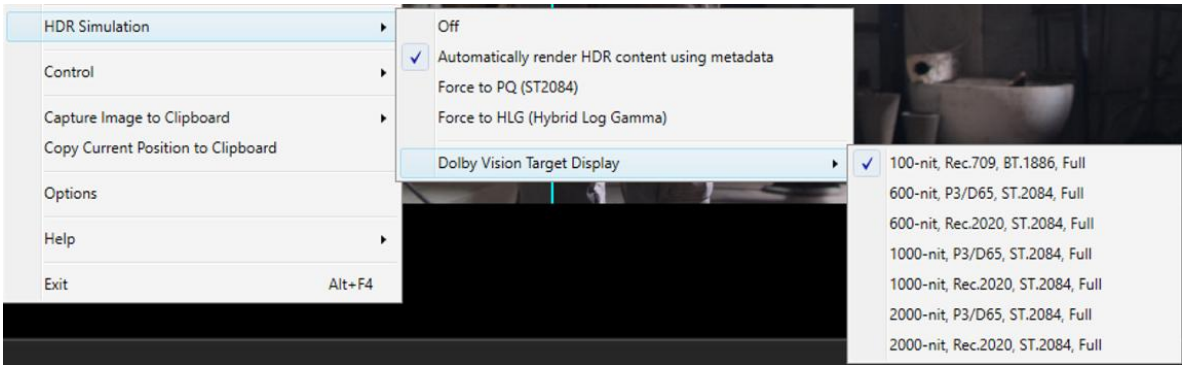
A previously exported profile can be imported using this option.

4.3.19 HDR Simulation

These settings allows for HDR Simulation. They are a repeat of the HDR Simulation settings in the Options Page. Please consult section 4.3.23.9.1 for an explanation of the settings.

4.3.19.1 *Dolby Vision® Target Display*

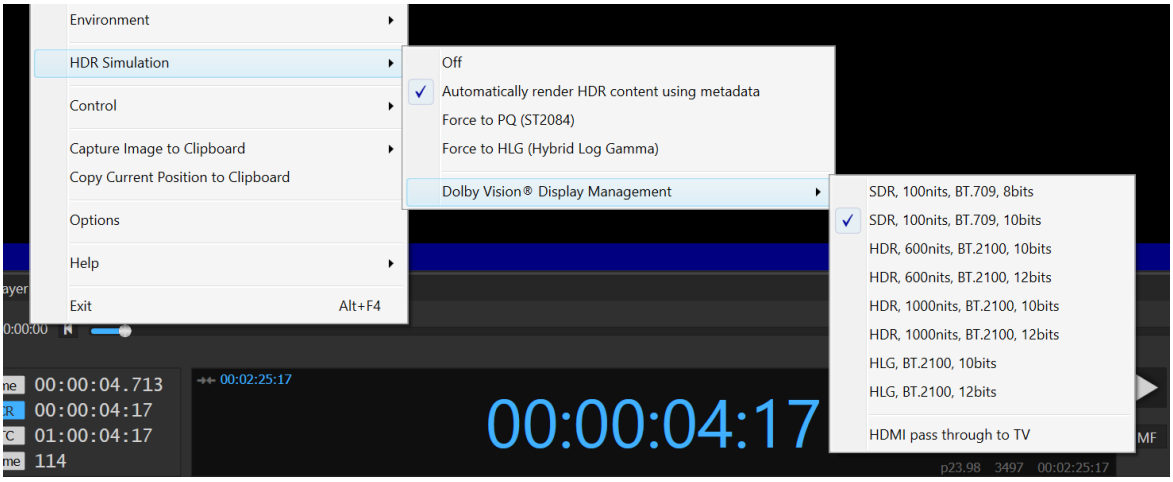
This menu will only appear when HDR Simulation is set to Auto and the file is a Dolby Vision mastering file. Select one of the target display devices to simulate and Iris will apply all necessary content mapping and trims defined by the metadata.



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4.3.19.2 *Dolby Vision® Display Management*

This menu will only appear when HDR Simulation is set to Auto and the file is a Dolby Vision HEVC stream. Select one of the Display Management formats to simulate and Iris will apply all necessary content mapping and trims defined by the metadata.



Select ‘HDMI pass-through to TV’ to view the content on a Dolby Vision capable television or monitor attached to the PC graphics card’s HDMI port. After selecting this menu, playback must be restarted. The picture will appear pink and yellow on the PC display, this is normal and not corrupted. To view on the TV, full screen the video by using the menu ‘Display Size->Full Screen->Monitor x’ where x is the monitor number with the attached Dolby Vision TV (Primary monitor is always 0).

Also in this pass-through mode, if there is an AJA Kona 4 or 5 SDI card installed in the system, a Dolby Vision capable television or monitor can be attached to its on-board HDMI port and it will also display native Dolby Vision content correctly. The SDI operation does not require the PC display to be in full screen mode.

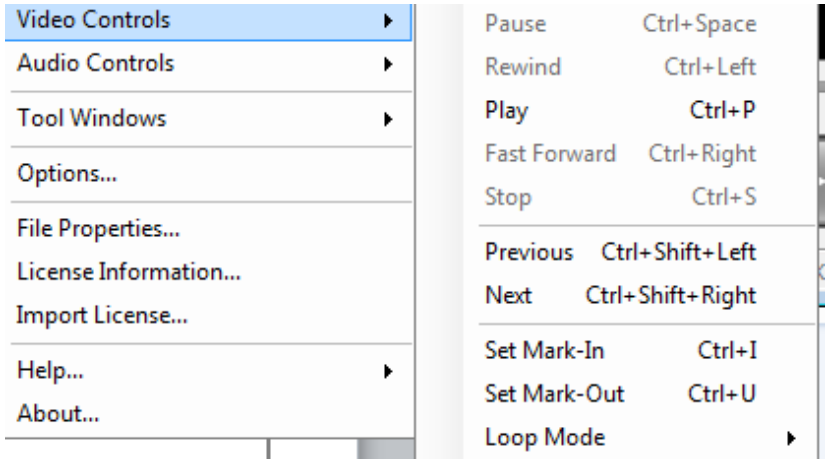
IMPORTANT NOTE: For this release, there are some known limitations listed below:

1. Supported graphics card is Nvidia GTX-1070 or newer.
2. Nvidia driver version 419.67 or newer for Window 10/11.
3. Exiting from PC full screen operation, the HDMI port does not turn off Dolby Vision mode correctly, hence the Windows desktop does not reappear and the TV will go black. This implies that a minimal of 2 monitors must be used, a primary monitor for the Iris application and the Dolby Vision TV as the secondary on a HDMI port (Display Port, DVI, VGA will not work). This is a bug in the Nvidia driver and needs to be fixed by Nvidia.
4. In order for the AJA Kona 4 or 5 HDMI port to work in UHD/4K correctly, the SDI option ‘Two sample interleave’ must be enabled for driver version 15 or higher. This is a limitation in the AJA firmware.

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4.3.20 Control

4.3.20.1 *Video Controls*



4.3.20.2 *Pause*

Freeze playback of the video.

4.3.20.3 *Rewind*

Rewind the playback. Support the following speeds: 2x, 4x, 8x, 16x, 32x and 64x.

4.3.20.4 *Play*

Begin playing the video.

4.3.20.5 *Fast Forward*

Fast forward the playback. Support the following speeds: 2x, 4x, 8x, 16x, 32x and 64x.

4.3.20.6 *Stop*

Stop the playback and reset position to the beginning.

4.3.20.7 *Set Mark in*

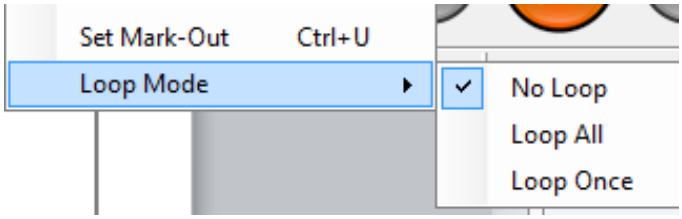
Set the current play head position as the Mark in.

4.3.20.8 *Set Mark out*

Set the current play head position as the Mark out.

4.3.20.9 *Loop mode*

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Enable/disable the playback of loop mode.

4.3.20.10 *Audio Controls*



4.3.20.11 *Increase Volume*

Increase the volume.

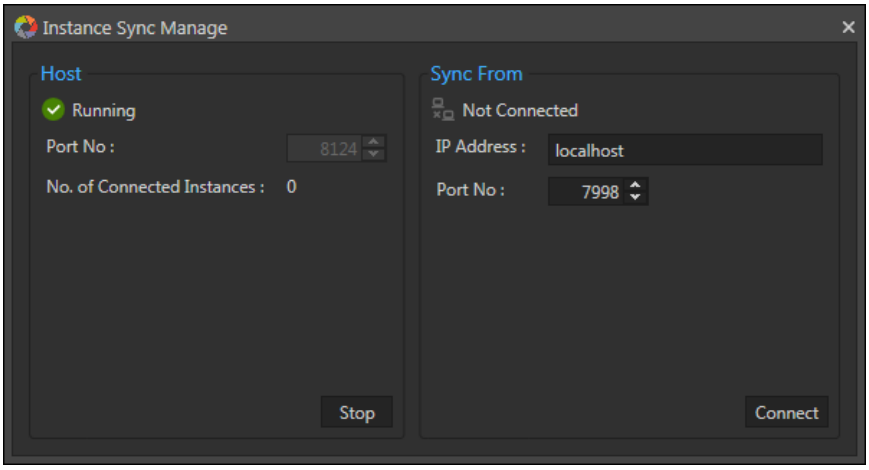
4.3.20.12 *Decrease Volume*

Decrease the volume.

4.3.20.13 *Mute / Unmute*

Mute/unmute the audio.

4.3.20.14 *Instance Sync*



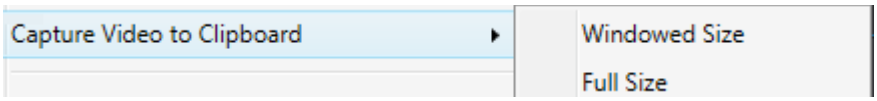
Instance Sync allows synchronization of video playback with 2 instances of Iris. In particular, when the video is playing, paused or scrubbed, another instance of Iris will replicate this. To achieve this one instance of Iris is the “master” and the other is the “slave”.

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The above dialogue allows the IP address and port number of another instance of Iris to sychronize its play, pause and scrubbing. In essence, **it is instructing another instance of Iris to be the "master" as that will be the instance of Iris that will take control**. To determine the port number of the "master", launch the same Instance Sync dialogue on the master and observe the port number in the "Host section."

The Host port number can be changed by stopping the synchronization service (click the stop button), and then changing the port number, then clicking the start button to restart the service.

4.3.21 Capture Image to Clipboard



Use this option to capture the current video frame as an image to the clipboard. The image can be pasted to any application that supports pasting of images.

There are two ways to capture the current video frame – windowed size and full size.

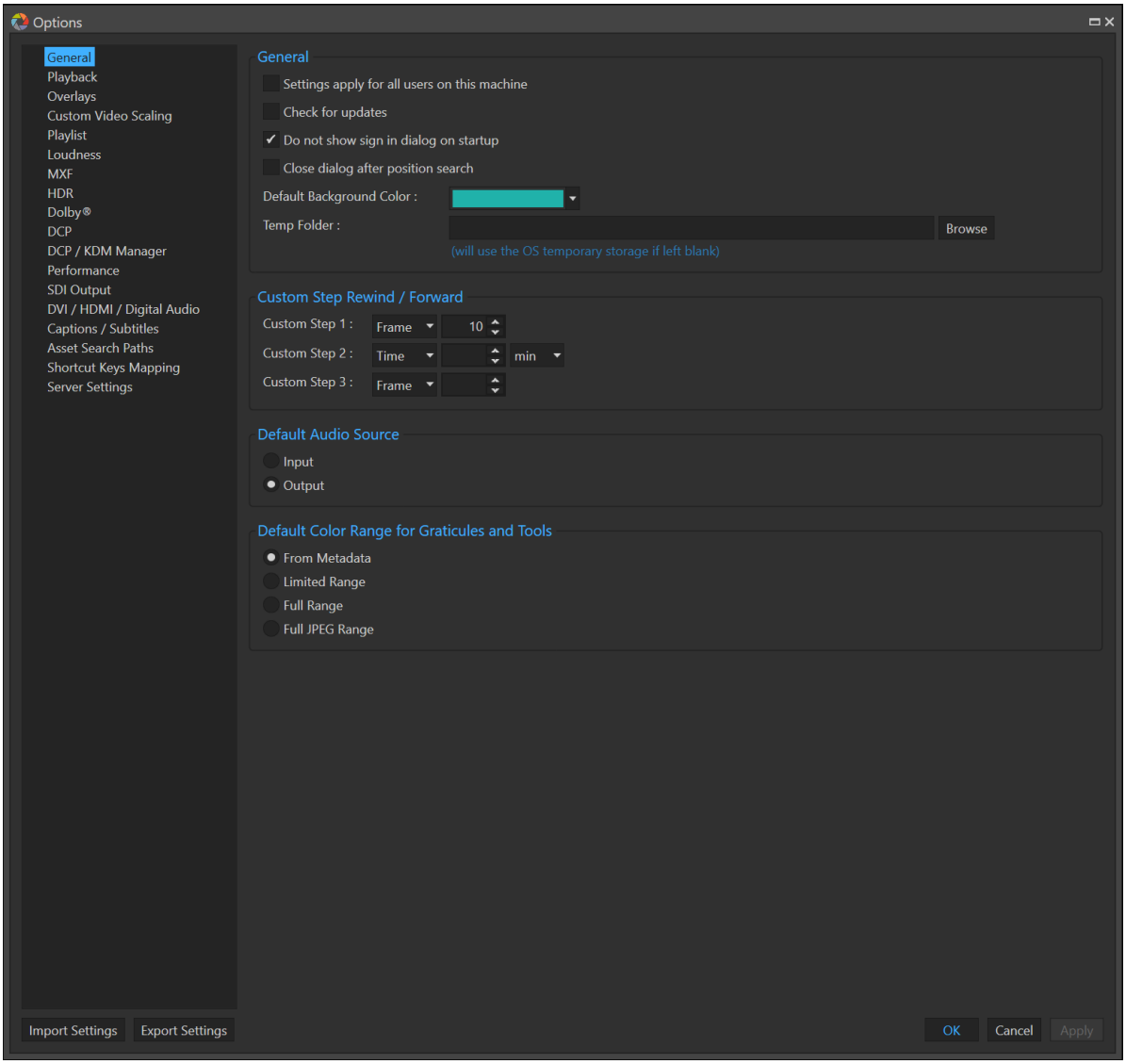
4.3.22 Copy Current Position to Clipboard

Use this option to copy a textual representation of the current video position to the clipboard. Depending on the current setting, this will be a time, timecode, CTC or frame number.

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4.3.23 Options

System options for the player.



4.3.23.1.1 Settings apply for all users on this machine

When checked, all settings are stored in the C:\Users\Public\Documents\GrayMeta\Iris folder, otherwise the settings are stored on a per user basis in C:\Users\XXX\AppData\Roaming\GrayMeta\Iris.

4.3.23.1.2 Check for update

Notify user when a newer version is available online.

4.3.23.1.3 Do not show sign in dialog on startup

Enables or disables the sign in dialog on startup.

4.3.23.1.4 Close dialog after position search

When enabled, the time code search window automatically close after a search.

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4.3.23.1.5 Default Background Color

Choose the background color.

4.3.23.1.6 Temp Folder

Choose Iris temporary folder. Certain processing within Iris requires a fast and large local drive to store temporary data to improve performance. If blank, the system default temporary location is used.

4.3.23.1.7 Custom Step Rewind / Forward

Define up to three different shortcuts for stepping back and forth in the video player. Each shortcut can be mapped to a keyboard shortcut.

4.3.23.1.8 Default Audio Source

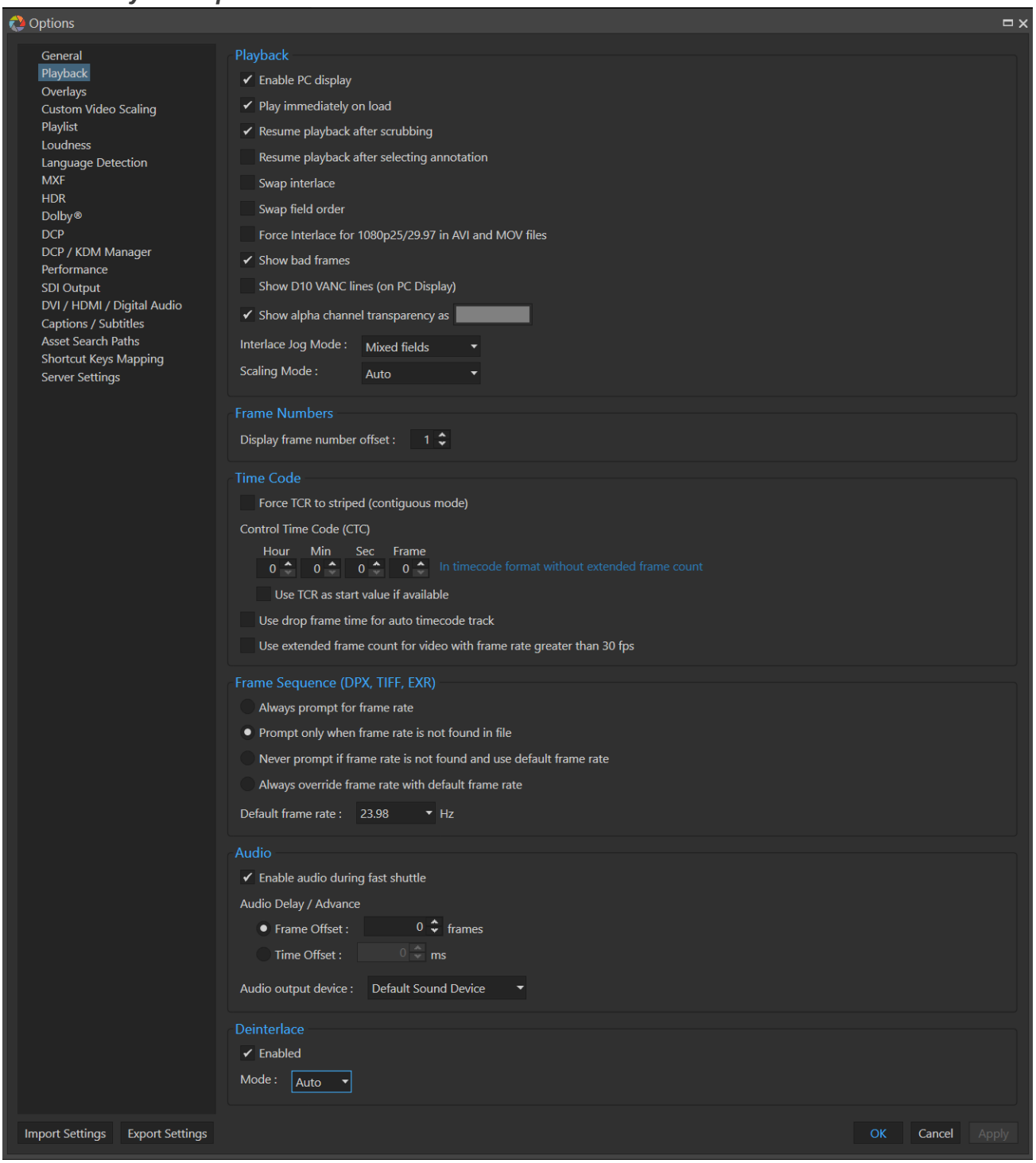
This specifies whether loudness measurements will be taken at the input or output of the audio source.

4.3.23.1.9 Default Color Range for Graticules and Tools

Sets the default setting for waveform, vectorscope, spectrascope, HDR line range, HDR histogram and other tools that have graticules. Each tools can be overridden by selecting options in their own menu.

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4.3.23.2 *Playback option*



4.3.23.2.1 Enable PC display

Allow video output on PC display.

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4.3.23.2.2 Play immediately on load

Start playing video automatically after file is loaded.

4.3.23.2.3 Resume playback after scrubbing

Continue playback after scrubbing.

4.3.23.2.4 Resume playback after selecting annotation

When selecting an annotation, playback of the video will be paused at the annotation's position, if this setting is off. If the setting is on, video will move to the annotation's position and will continue playback from that position.

4.3.23.2.5 Swap interlace

Swap the interlace order of the picture.

4.3.23.2.6 Swap field order

Reverse the time-order of field 1 and 2. This effectively reverses the 'Field Dominance' value specified in the file if any and will also swap the interlace order.

4.3.23.2.7 Force Interlace for 1080p25/29.97 in AVI and MOV files

Force interlace when playing AVI and MOV file with 1080p25/29.97 formats. Some MOV files in these formats are actually interlaced formats but are indicated as progressive formats.

4.3.23.2.8 Show Bad Frames

Enabling this option will display un-decodable frames as a grey frame. Disabling this option skips bad frames effectively repeating the last good frame.

4.3.23.2.9 Show D10 VANC Lines (on PC Display)

When content is encoded as SD D10 format (720x512 and 720x608), the top 32 lines of VANC data can be hidden or shown on the PC screen.

4.3.23.2.10 Show Alpha Channel Transparency

If enabled, content that has an alpha channel will be mixed with the color indicated and shown on the PC screen. If disabled, no mix is performed and the alpha channel is ignored, effectively any transparency will be shown as black.

4.3.23.2.11 Interlace Jog Mode

Set the interlace Jog mode (Mixed field, Field 1 only, Field 2 only or alternative field)

4.3.23.2.12 Scaling Mode

Set the Scaling Mode.

4.3.23.2.13 Display Frame Number Offset

This sets the number value of the very first frame. Iris defaults to 1 but other systems may use 0 to represent the very first frame.

4.3.23.2.14 Force TCR to striped (contiguous mode)

This setting will ensure TCR is contiguous by ignoring breaks in any embedded TCR.

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4.3.23.2.15 Control Time Code (CTC)

Set the starting Control Track Time code (CTC) value for frame 1. The CTC is always contiguous.

4.3.23.2.16 Use TCR as Start Value if Available

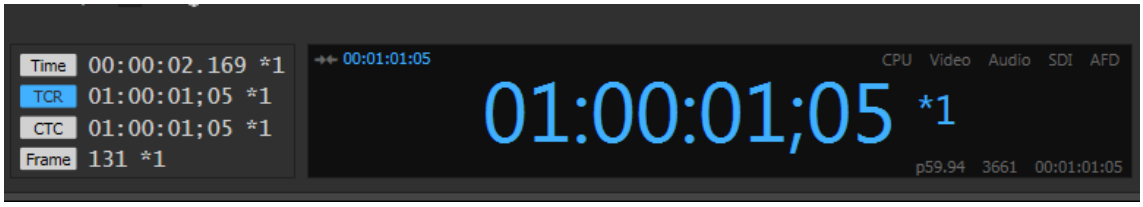
Enabling this sets the starting Control Track Time code (CTC) to the same value as the TCR.

4.3.23.2.17 Use Drop Frame time for Auto Timecode Track

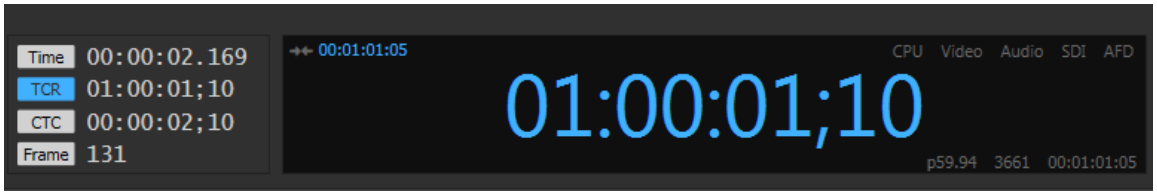
Defaults to use drop frame timecode for auto-generated timecode tracks when no physical timecode track is available.

4.3.23.2.18 Use Extended Frame Count for Video with Frame rate Greater than 30 fps

For video frame rates greater than 30 fps, the default is to show timecodes with a frame number that is half the actual frame number, suffixed with “*1” to indicate field 1 or “*2” to indicate field 2 as shown below



When this option is enabled, then the timecode is represented as the actual frame number as shown below



4.3.23.2.19 Frame Sequence (DPX, TIFF, EXR, BMP, JPG, TGA)

Frame rate options for Frame Sequences: Always prompt for frame rate, Prompt only when frame rate is not found in file, Never prompt if frame rate is not found and use default frame rate and Always override frame rate with default frame rate. Sets the default frame rate.

4.3.23.2.20 Enable audio during fast shuttle

Enable audio during fast shuttle. This only applies to fast forward and fast rewind modes.

4.3.23.2.21 Audio Delay / Advance

Set the Audio delay or advance relative to the video in frames.

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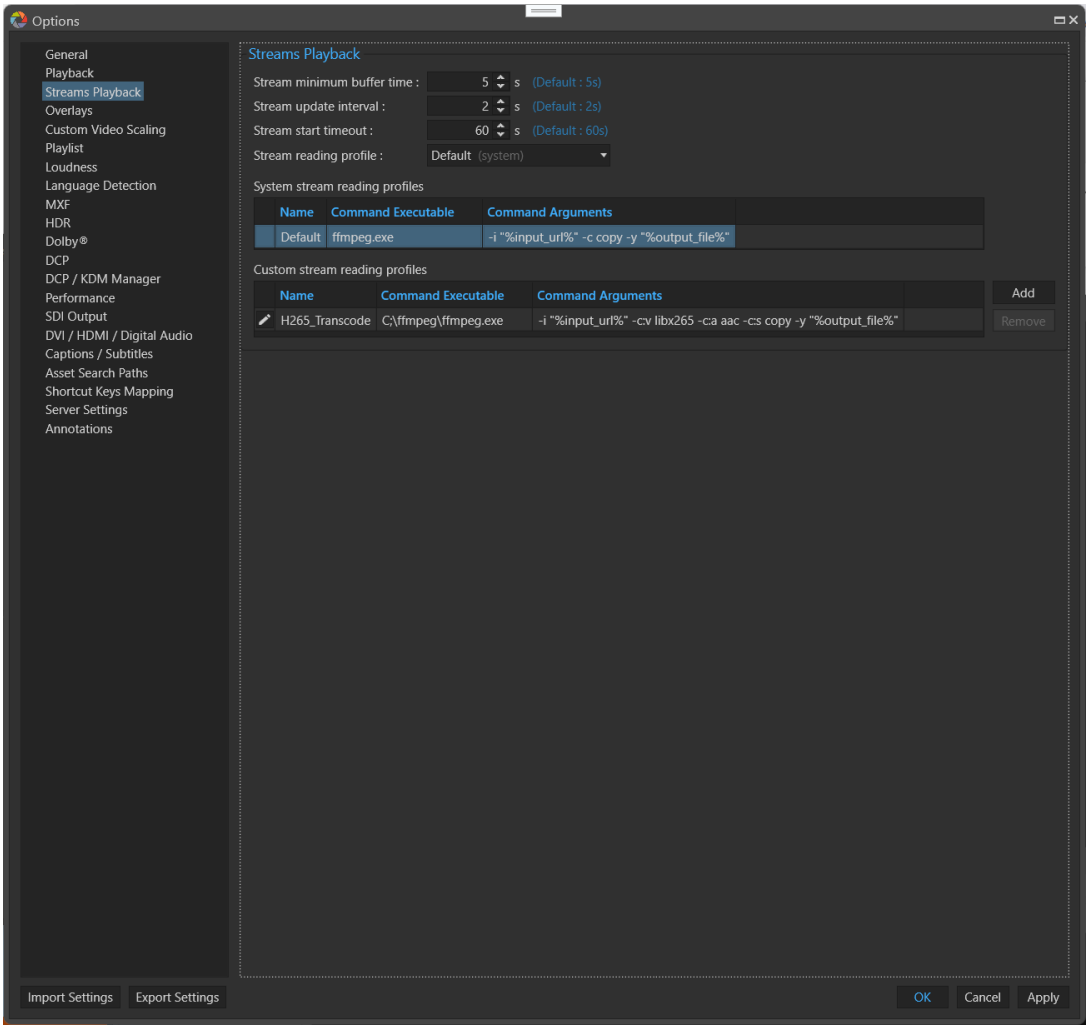
4.3.23.2.22 Audio Output Device

This sets the PC sound device to use for audio playback. Default uses the assigned device in the system otherwise select a specific device in the list.

4.3.23.2.23 De-interlacer

Enable or disables the de-interlacer. Bob and Blend are the modes available. The default (Auto) is Bob.

4.3.23.3 ***Streams Playback***



The following settings control playback of network streamed content.

1. The “Stream minimum buffer time” determines the minimum duration of content to buffer before playback is started. The default is 5 seconds. Decreasing this value (minimum is 1s) will reduce the latency of the playback but any delays in the network or host will cause video and audio dropouts. Increasing this value will provide more stable playback but with higher latency (delay).

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2. The “Stream update interval” specifies the frequency in seconds in which the UI updates its metadata such as duration, bitrate and other fields that may change as the stream is cached.
3. The “Stream start timeout” specifies the period in which opening of the stream has failed if playback cannot be achieved within the specified period of time.

Stream Reading Profiles

Iris provides a “Default” profile for stream playback using a specially compiled version of FFmpeg version 4.4.0 that has no “non-free” codecs and features in accordance with GPL v3 licensing. Therefore, this version has limited functionality that may not work with all stream protocols, demuxer and essence types.

The user may use their own version of FFmpeg or any other command line application that can read streams and output to a transport stream file (.ts) by adding a profile which defines the application name, folder location and its command line parameters.

The FFmpeg command line for the “Default” profile uses the “-c copy” parameter which copies all tracks exactly as is without any transcoding. If a stream is in a format that cannot be played natively, it may require transcoding to another format that is supported.

To use a different version of FFmpeg or another command line application, place the executable into an accessible folder such as “C:\ffmpeg_8.0\ffmpeg.exe”. Click the “Add” button to create a new profile. Specify the full executable path and command line parameters that will handle the stream. Save the profile and then select the profile as the “Stream reading profile”. Multiple profiles can be added with different executable paths and parameters.

Example Profiles

1. Transcode to H265 and AAC using FFmpeg 8.0.

Download and place FFmpeg.exe version 8.0 into “C:\ffmpeg_8.0” folder. Create a new profile called “H265_Transcode”. Set the executable path to “C:\ffmpeg_8.0\ffmpeg.exe” with the following parameters:

-i "%input_url%" -c:v libx265 -c:a aac -c:s copy -y "%output_file%"

“%input_url%” parameter will be replaced at run time with the input stream URL. Enclose in double quotes to ensure spaces are accepted.

“%output_file%” parameter will be replaced at run time with the output transport stream filename. Enclose in double quotes to ensure spaces are accepted.

-c:v libx265 forces the output video essence to be transcoded to H.265 using the libx265 encoding library.

-c:a aac forces the output audio essence to be transcoded to AAC.

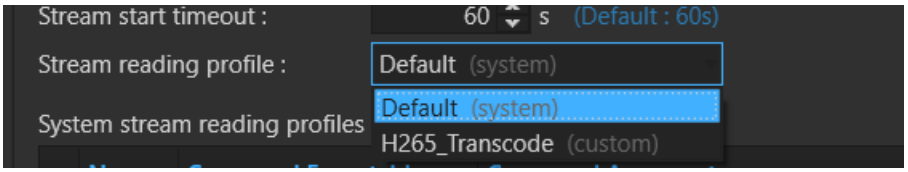
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-c:s copy copies all subtitle tracks without transcoding.

-y forces overwrite of the output file otherwise FFmpeg may block prompting the user to overwrite file.

See FFmpeg documentation for full command line parameters options.

Select this profile as the active profile.



2. Receive SRT stream in listener mode

Using the same FFmpeg version 8.0 as the above example, most common essence types (H.264, H.265 and VC1) encapsulated in SRT are supported natively in Iris so no transcoding is required. The default command line parameters of “-c copy -y” can be used.

Select “Open Network Stream” from the main context menu in Iris and enter the following URL:

srt://localhost:9000?mode=listener&latency=500000

9000 is the listening IP port number.

mode=listener is the mode of operation.

latency is the latency in micro-seconds (500000 = 0.5s).

& is used to separate each SRT parameter.

For the source, SRT must be configured for “caller” mode and similar latency value.

e.g using FFmpeg as the SRT source, its command line would be as follows:

ffmpeg.exe -i c:\file.mp4 -c copy -f mpegts srt://localhost:9000?mode=caller&latency=500000

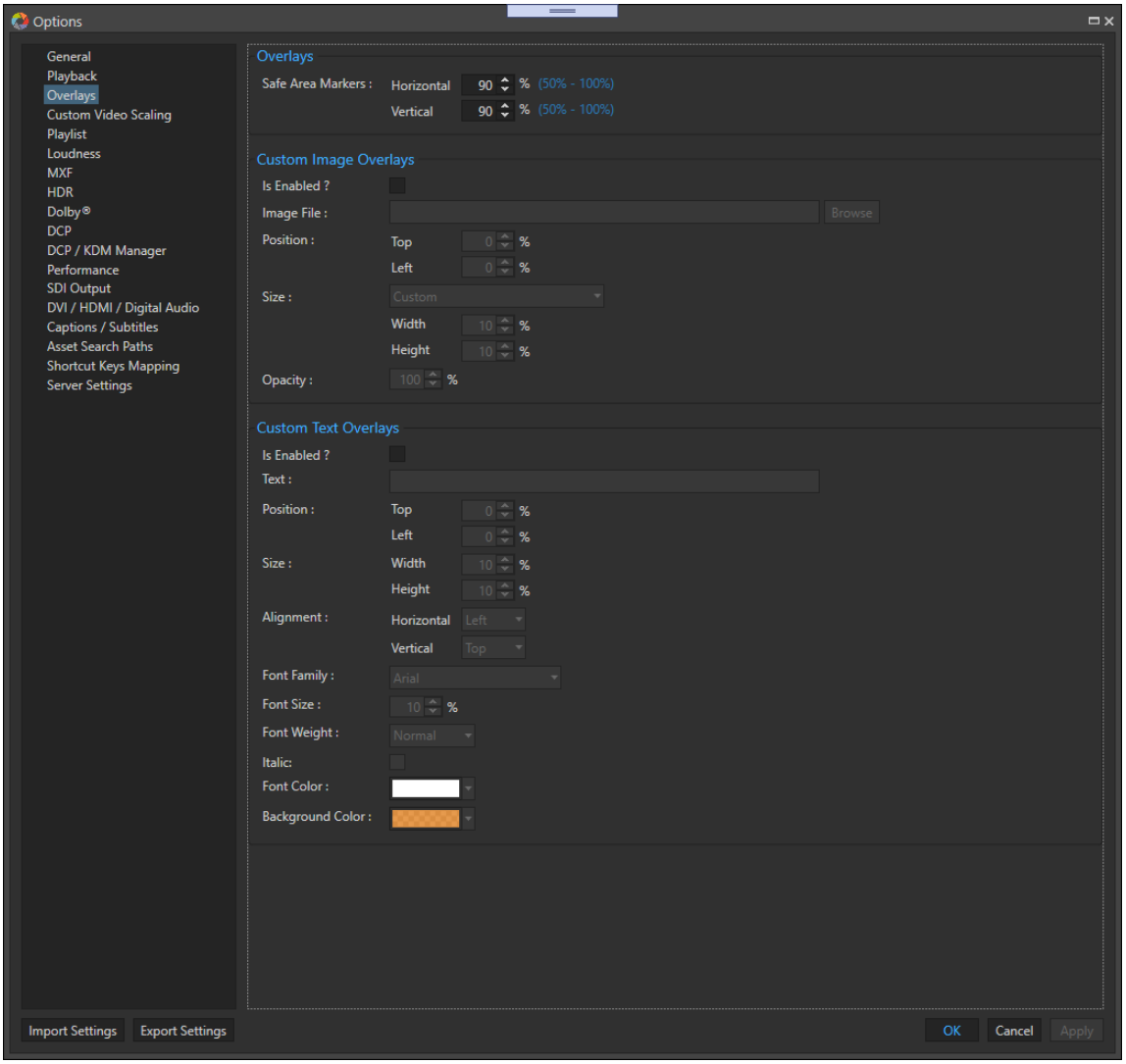
-c copy, copies all tracks from file.mp4 to the SRT stream.

-f mpegts, this forces the SRT stream to use the mpegts format.

9000 must match the Iris listening port number.

Overlays Option

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4.3.23.3.1 Safe Area Markers

Set the size of the safe area marker for the PC overlay. Both the horizontal and vertical dimensions of the safe area marker can be set.

4.3.23.3.2 Custom Image Overlays

Allows adding an image (bmp, jpg, png, dib, tga, tif, gif) to be added to the overlay. Positioning, size and opacity can be changed.

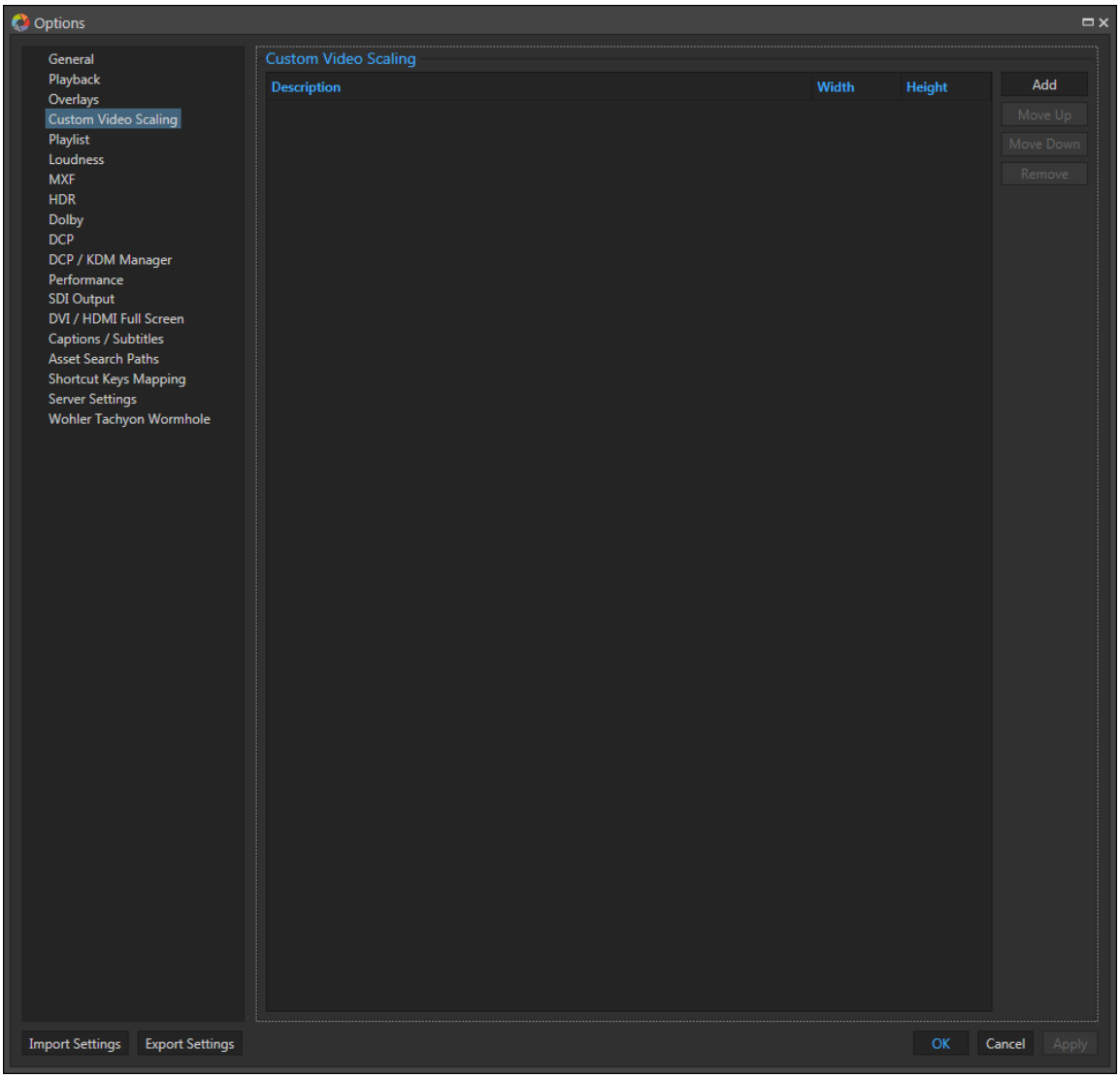
4.3.23.3.3 Custom Text Overlays

Allow text to be added to the overlay. Positioning, size, alignment, font and font attributes, background color and foreground color can be changed.

4.3.23.4 *Custom Video Scaling*

This enables custom resolutions to be defined and allows video to be scaled to these custom resolutions.

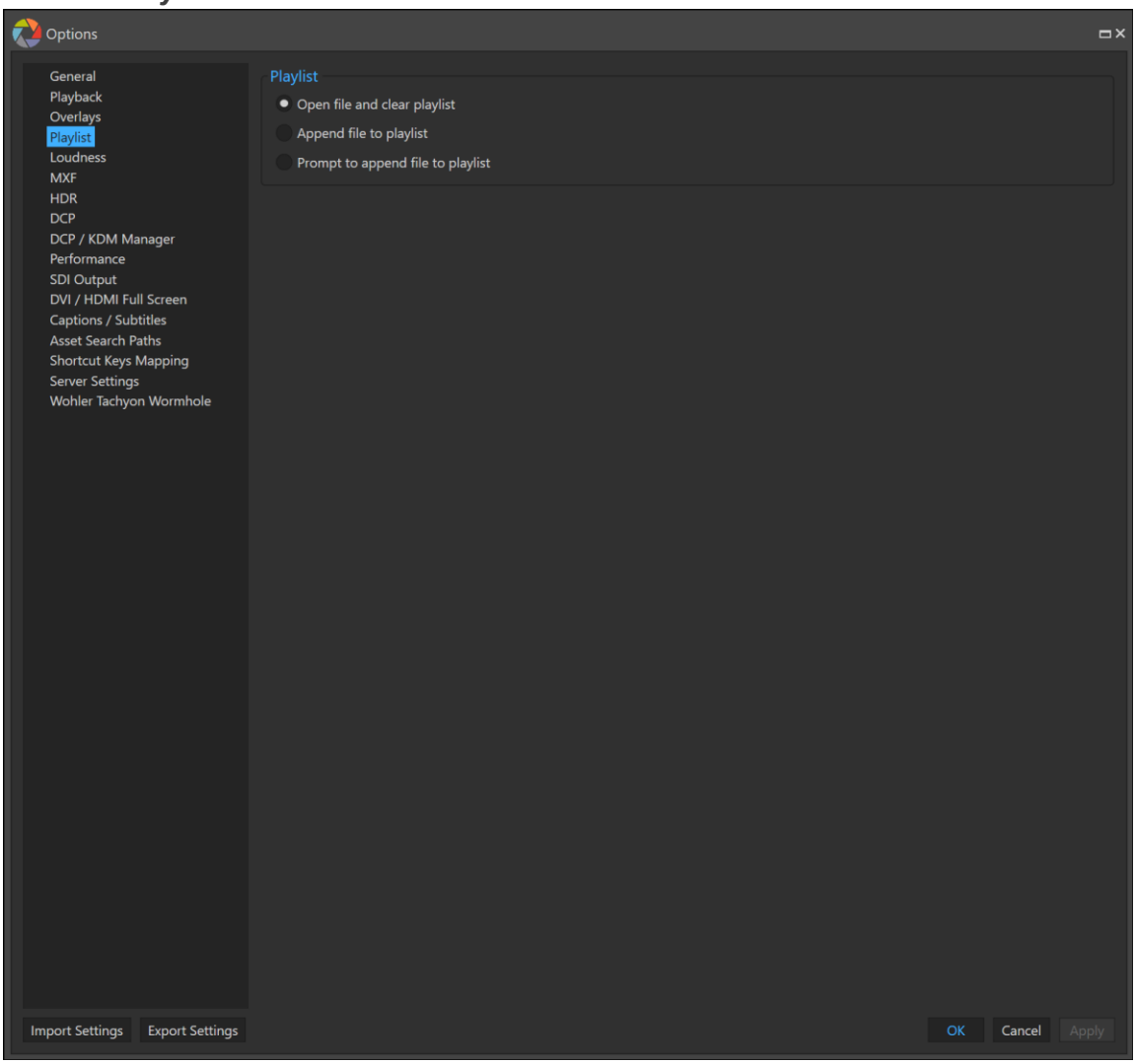
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To create a new custom resolution profile, click the “Add” button and fill in the details of the custom resolution when prompted. Defined custom resolution profiles will appear under the Video Scaling context menu option. Use the “Remove” button to remove an existing custom resolution profile.

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4.3.23.5 ***Playlist***

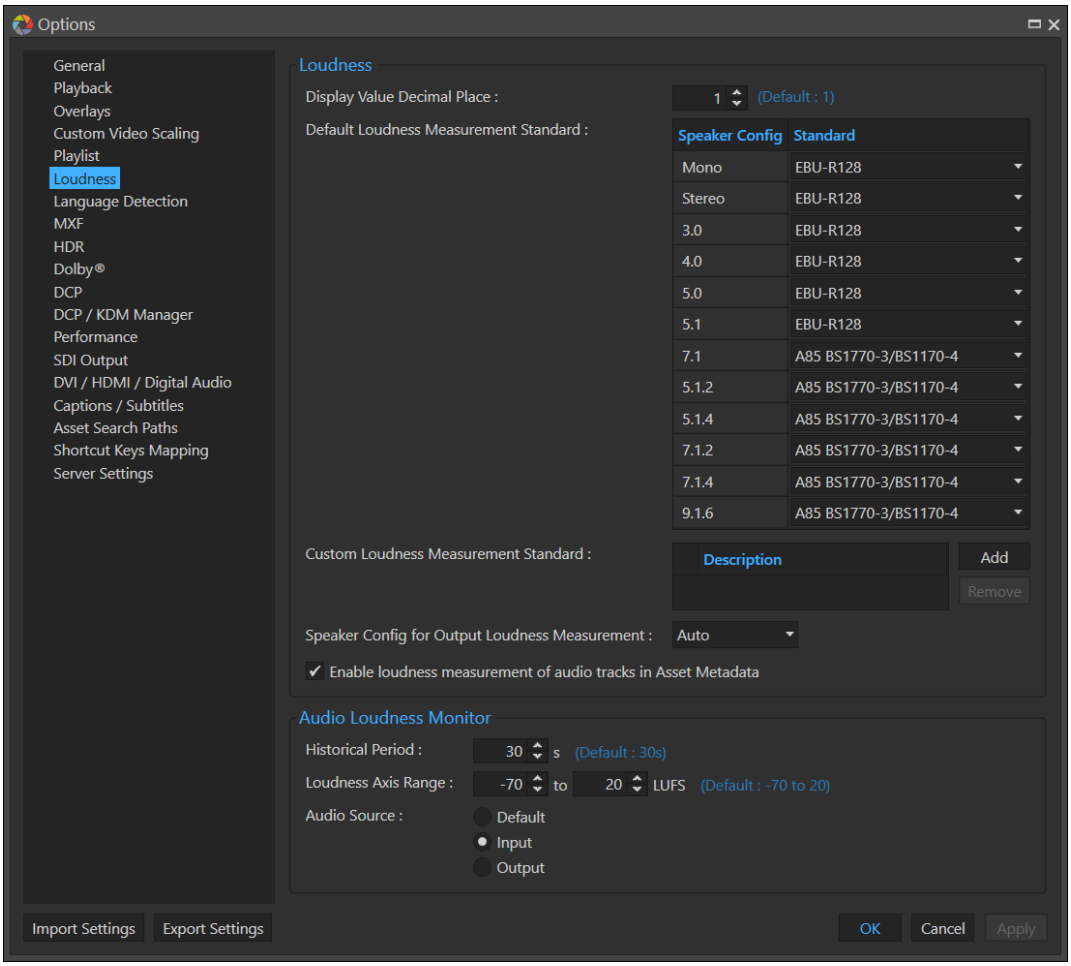


4.3.23.5.1 Playlist

Sets the default mode for the playlist.

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4.3.23.6 *Loudness*



Loudness can be measured with or without Dolby Dialogue Intelligence™. Dialogue Intelligence uses speech-gating to detect dialogue and only measure loudness on channels where dialogue is detected.

There are a set of options available to specify how loudness is measured and the options differ depending on whether loudness measurement is using standard loudness or Dolby Dialogue Intelligence. Standard loudness supports the following standards:

- EBU-R128
- A85/BS1770-1
- A85/BS1770-2
- A85/BS1770-3
- A85/BS1770-4
- Custom setting allowing for customizing parameters that are fixed in the above standards.

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Each of the loudness measurement standards are based on the following parameters

	EBU-R128	A85/BS1770-1	A85/BS1770-2	A85/BS1770-3 and A85/BS1770-4
Short Term Window (ms)	3000	3000	3000	3000
Momentary Window (ms)	400	400	400	400
Target Loudness (LUFS/LKFS)	-23	-24	-24	-24
Target Loudness Tolerance (LUFS)	+1/-1	+2/-2	+2/-2	+2/-2
Gating (LUFS)	-10	0	-10	-10
True Peak Threshold (LUFS)	-1	-2	-2	-2
Use BS1770 3 FIR Filter	Yes	No	No	Yes

The following table describes the parameters used in the loudness measurements:

Short Term Window	This is specified as a time window for measuring the past 3000 ms worth of loudness. It must always be greater than the momentary window.
Momentary Window	This is specified as a time window for measuring the past 400 ms worth of loudness. It must always be less than the short term window.
Target Loudness	This is the threshold in which the integrated loudness (an average loudness over the duration of the video) would trigger if exceeded. Target Loudness tolerances can be specified to trigger upon a value which is within the tolerances. For example, a Target Loudness of -23 with tolerances of +/-2, will trigger when the integrated loudness is between -21 and -25.
Gating	This is a value that was introduced to overcome long passages of silence or low volume noise that can affect the average loudness over the duration of the video. When the audio level drops below this value, the loudness measurement will not account for this.
True Peak Threshold	Upon the audio level reaching this value, this will trigger.

In addition to the loudness standards, there is also a custom setting allowing for any of the parameters in the above table to be set.

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Dolby Dialogue Intelligence supports the following:

- BS1770-1 + Dialogue Intelligence
- BS1770-2 + Dialogue Intelligence
- Leq(A) + Dialogue Intelligence.

In addition to the parameters available for standard loudness, Dolby Dialogue Intelligence also uses the following parameters:

Speech detection threshold	The percentage threshold, from 0 to 100%, at which the dialogue loudness results will be used as the overall loudness.
True peak emphasis	Boolean indicating whether the emphasis filter is used for true peak measurements
True peak DC block	Boolean indicating whether the DC blocking filter is used for true peak measurements

Standard loudness currently supports up to 5.1 channels and Dolby Dialogue Intelligence supports 7.1 channels. Each channel requires mapping from the audio source – either at the input side or output side. This allows requisite audio channels to be specified for use in the loudness calculations.

The loudness measurements can measure up to 8 channels of audio, either at the input or at the output. The acceptable channel configurations for measurement are:

Channel Configuration	Channel(s) used for Loudness Measurement
Mono	FL
Stereo	FL + FR
3.0	FL + FR + FC
4.0	FL + FR + SL + SR
5.0	FL + FR + FC + SL + SR
5.1	FL + FR+ FC + LFE + SL + SR
7.1	FL + FR+ FC + LFE + SL + SR + BL + BR
5.1.2	FL + FR+ FC + LFE + SL + SR + LTM + RTM
5.1.4	FL + FR+ FC + LFE + SL + SR + LTF + RTF + LTR + RTR
7.1.2	FL + FR+ FC + LFE + SL + SR + BL + BR + LTM + RTM
7.1.4	FL + FR+ FC + LFE + SL + SR + BL + BR + LTF + RTF + LTR + RTR
9.1.6	FL + FR+ FC + LFE + SL + SR + BL + BR + WL + WR + LTF + RTF + LTM + RTM + LTR + RTR

The table above shows which channels are used for the loudness measurement where:

- FL = Front left channel
- FR = Front right channel
- FC = Front center channel
- SL = Side left channel

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- SR – Side right channel
- BL – Back left channel
- BR – Back right channel
- WL – Wide left channel
- WR – Wide right channel
- LTM – Left top middle channel
- RTM – Right top middle channel
- LTF – Left top front channel
- RTF – Right top front channel
- LTR – Left top rear channel
- RTR – Right top rear channel

In order to measure the audio loudness (at either the input or output), the audio track's channels need to be assigned to FL, FR, C, SL, SR, BL, BR as used by the loudness measurement. The table below shows the default assignment of the audio source channel numbers to the loudness measurement channels:

Channel Configuration	Default Channel Assignment
Mono	FL = channel 1 of audio track
Stereo	FL = channel 1 of audio track FR = channel 2 of audio track
3.0	FL = channel 1 of audio track FR = channel 2 of audio track FC = channel 3 of audio track
4.0	FL = channel 1 of audio track FR = channel 2 of audio track SL = channel 3 of audio track SR = channel 4 of audio track
5.0	FL = channel 1 of audio track FR = channel 2 of audio track FC = channel 3 of audio track SL = channel 4 of audio track SR = channel 5 of audio track
5.1	FL = channel 1 of audio track FR = channel 2 of audio track FC = channel 3 of audio track SL = channel 5 of audio track SR = channel 6 of audio track
7.1	FL = channel 1 of audio track FR = channel 2 of audio track FC = channel 3 of audio track SL = channel 5 of audio track SR = channel 6 of audio track BL = channel 7 of audio track BR = channel 8 of audio track

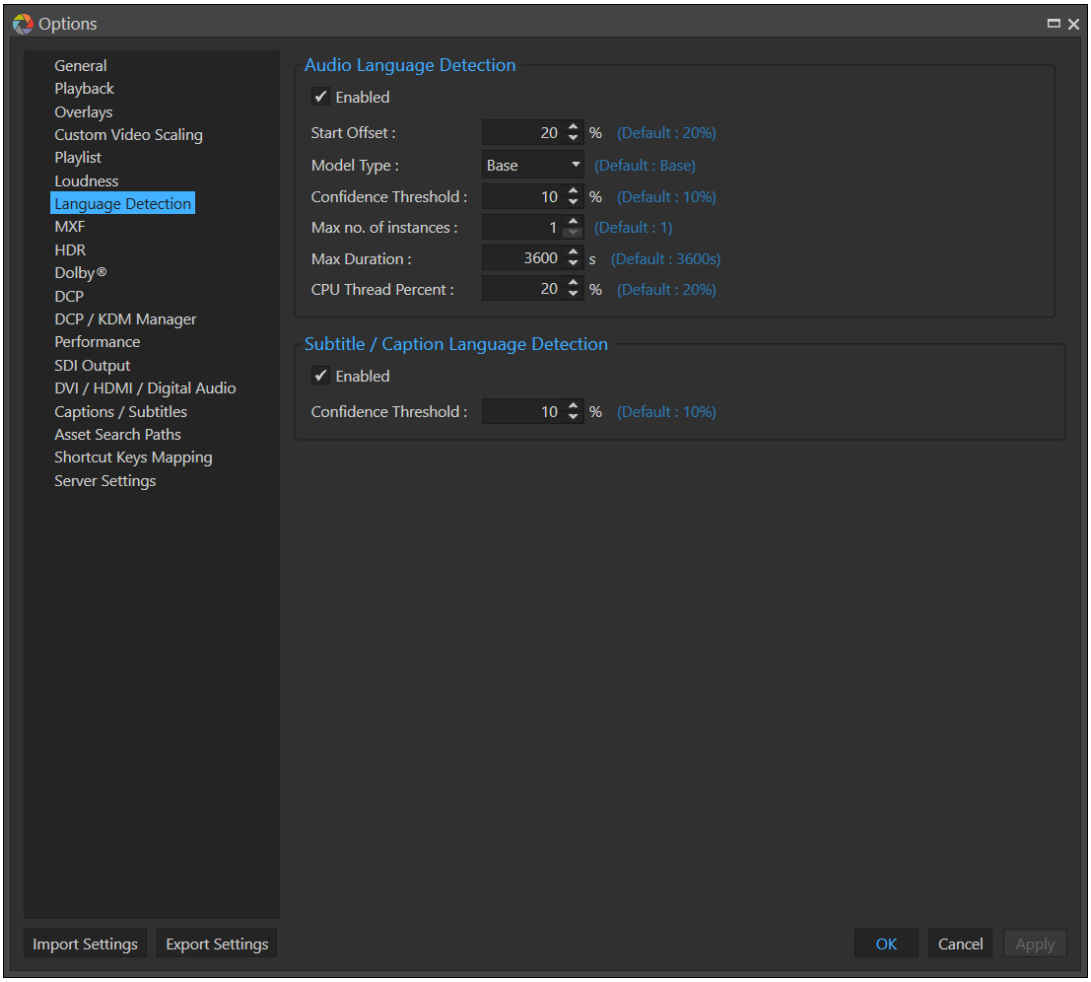
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The Asset Metadata window and Audio Waveform window can display the loudness of all input tracks based on the track's channel layout. Only the Audio Waveform window has the option to measure the "output" channels (post-router) based on the user assigned "Speaker Configuration for Output Loudness Measurement". Measurement channel always starts from channel 1.

Use the checkbox to enable or disable the automatic loudness measurement for the Asset Metadata window. For the Audio Waveform window, loudness measurement only occurs when the window is active and visible.

The remaining parameters in the Loudness Options are Historical Period, Loudness Axis Range. The Historical Period defines the number of seconds to keep history of loudness measurements. The Loudness Axis Range specifies the minimum and maximum loudness to show on the vertical scale of the graph used in the Loudness Monitor Tool Window (see 4.3.16.4.6).

4.3.23.7 ***Language Detection***



Audio Language Detection

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The language of the audio tracks can be automatically detected by processing the audio PCM data. This requires the “GrayMeta Whisper API” package to be installed in the computer. If installed, these options will be enabled.

Start Offset – This sets the start offset as a percentage of the duration of the track. This allows skipping over slates like bars and tone to avoid detection errors.

Model Type – Types include Tiny, Base, Small, Medium, Large, Large V2 and Large V3. Each type contains trained models for specific languages. The bigger the model type, the more languages it can detect. See OpenAI’s Whisper documentation for details on which model supports which language.

Confidence Threshold – A percentage threshold used by the detection algorithm. The smaller the value, the languages it can detect but with less accuracy. The higher the value, the less languages it can detect but with more accuracy.

Max no. of Instances – Each track can be processed independently as a background task. However, since the Whisper process is fairly CPU/GPU (CUDA) intensive, it may affect the normal operation of playback if more than one instance is used.

Max Duration – The maximum duration in seconds of content to process. Using a combination of the Start Offset and maximum duration, specific regions of audio can be processed.

CPU Thread Percentage – This sets the maximum number of threads as a percentage to use for the Whisper API. The actual number of threads is dependent on the physical number of threads in your system. If a Nvidia graphics card with CUDA capabilities is present in the system, the Whisper API will automatically use the CUDA hardware and minimize CPU usage and ignores this parameter.

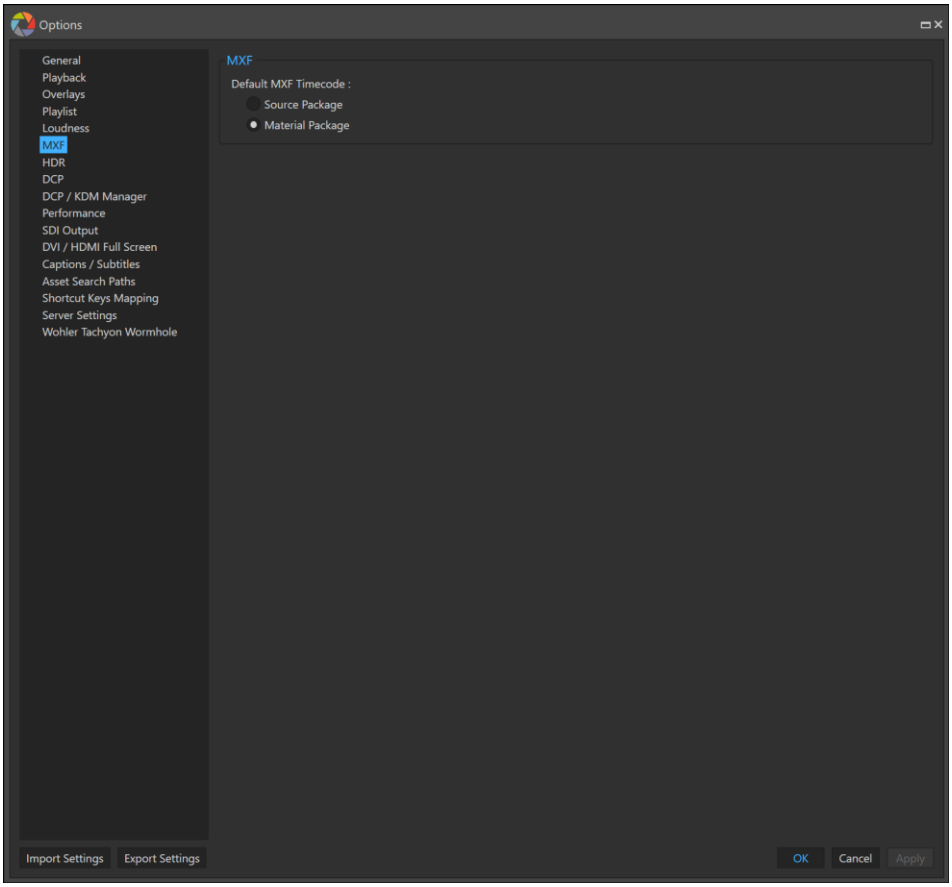
Subtitle / Caption Language Detection

This requires the “GrayMeta Lingua API” package to be installed. If installed, this option will be enabled.

Confidence Threshold – This value is used by the Lingua API. The lower the value, the more languages it can detect but with less accuracy. The higher the value, the fewer languages it can detect but with more accuracy.

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4.3.23.8 ***MXF (Material Exchange Format) option***

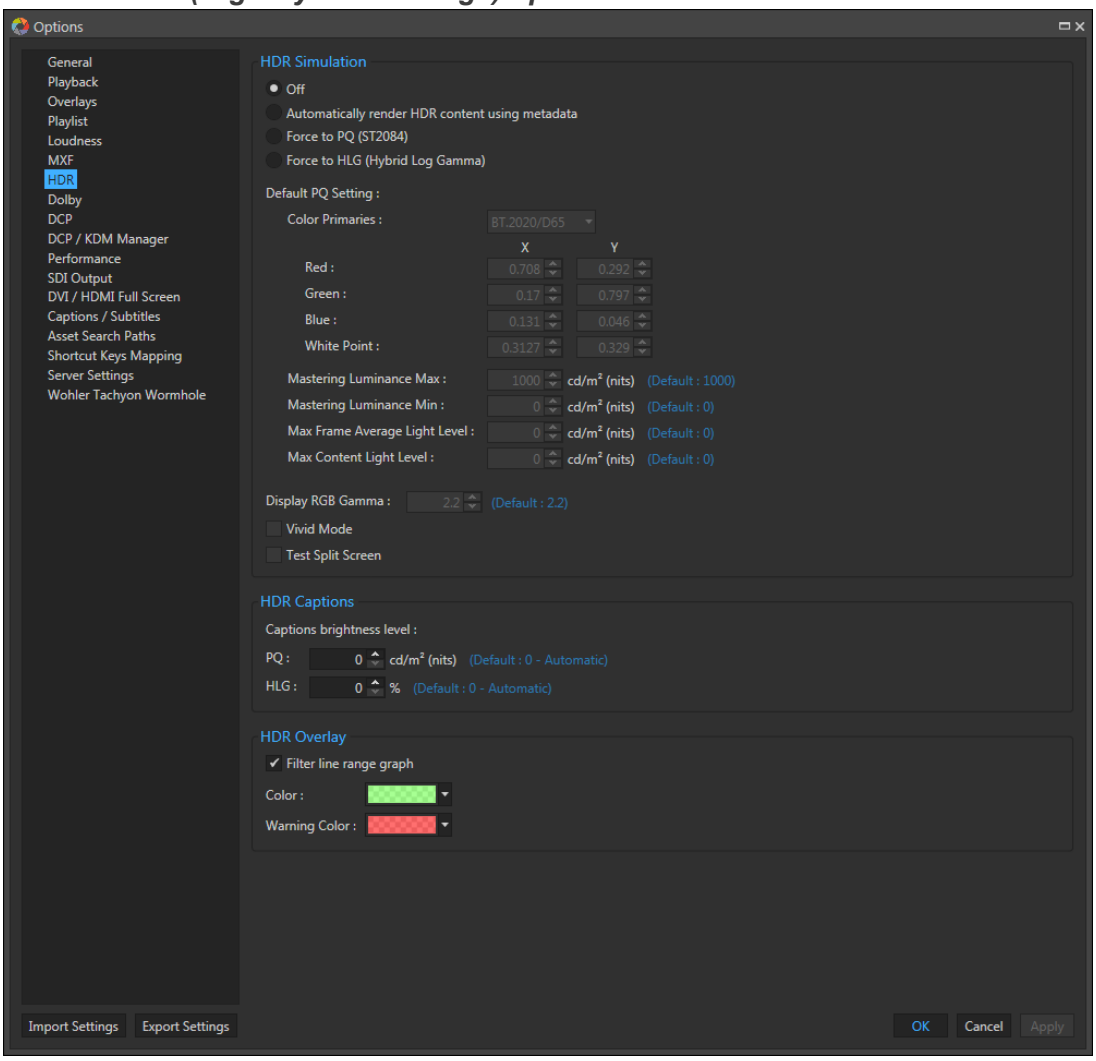


4.3.23.8.1.1 Default MXF timecode track

Select between the Source Package (usually embedded and may be non-sequential) and the Material Package (Striped and always sequential) timecode track on loading a MXF file.

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4.3.23.9 *HDR (High Dynamic Range) option*



4.3.23.9.1 HDR Simulation (SMPTE ST 2084 “PQ”)

This option provides a HDR simulation (HDR to SDR conversion) of what the content would look like on a HDR monitor. The simulation is only available for the PC display. The SDI output is unchanged so that it can be fed to a HDR compatible monitor.

Off – Turns off all HDR processing for the PC display.

Automatically Render HDR Content using Metadata – Enabling this option will perform a YCbCr to RGB conversion if the source is YCbCr, then apply an EOTF of PQ or HLG based on the metadata extracted from the file.

Force to PQ (SMPTE ST2084) - This converts all YCbCr content to RGB and applies the PQ log gamma correction to perform a HDR to SDR simulation. The default PQ values below define the LUTs used in the simulation.

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Force all HLG (Hybrid Log Gamma) - This converts all YCbCr content to RGB and applies the HLG correction to perform a HDR to SDR simulation. The Color Primaries, Mastering Luminance Maximum/minimum, MaxFALL and MaxCLL are not used for HLG.

Color Primaries – If “Force to PQ’ is selected, this sets the Color Primaries for the PC simulation and metadata passed to the SDI. Default values for BT.2020/D65, P3/D65 and BT.709/D65 are provided or user may enter custom values.

Mastering Luminance Maximum – This is the maximum brightness level that the HDR content was graded at in nits. This value has a maximum value of 10,000 as specified by SMPTE ST2084.

Mastering Luminance Minimum – This is the minimum brightness level that the HDR content was graded at in nits. This value has a minimum value of 0.

Maximum Frame Average Light Level (MaxFALL) – This value is not used by the PC simulation but is passed through to the SDI as metadata. This value is normally obtained by scanning the entire clip during the mastering process.

Maximum Content Light Level (MaxCLL) – This value is not used by the PC simulation but is passed through to the SDI as metadata. This value is normally obtained by scanning the entire clip during the mastering process.

Display RGB Gamma - This is the target PC display gamma for the simulation. Increasing the gamma produces a brighter picture whereas lowering the gamma produces a darker picture.

Vivid Mode – For true PQ or HLG simulation this option should be turned OFF. However, the resultant picture may look rather dull or dark when viewed on a standard BT.709 computer screen. Enabling this function applies saturation gain and black level shift to enhance the picture.

Test Split Screen – This is a test feature to allow visual comparison of the original HDR content (left-side) versus the converted HDR content (right-side).

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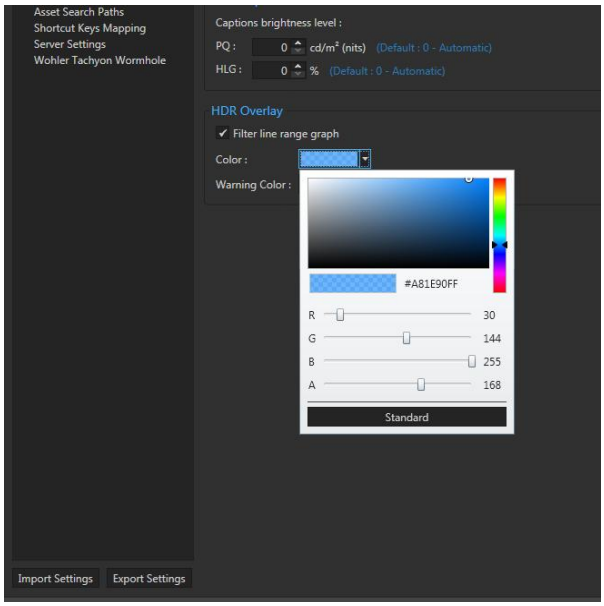


4.3.23.9.2 HDR Captions

On HDR content, captions can sometimes appear too bright. This option allows the brightness of the captions to be changed.

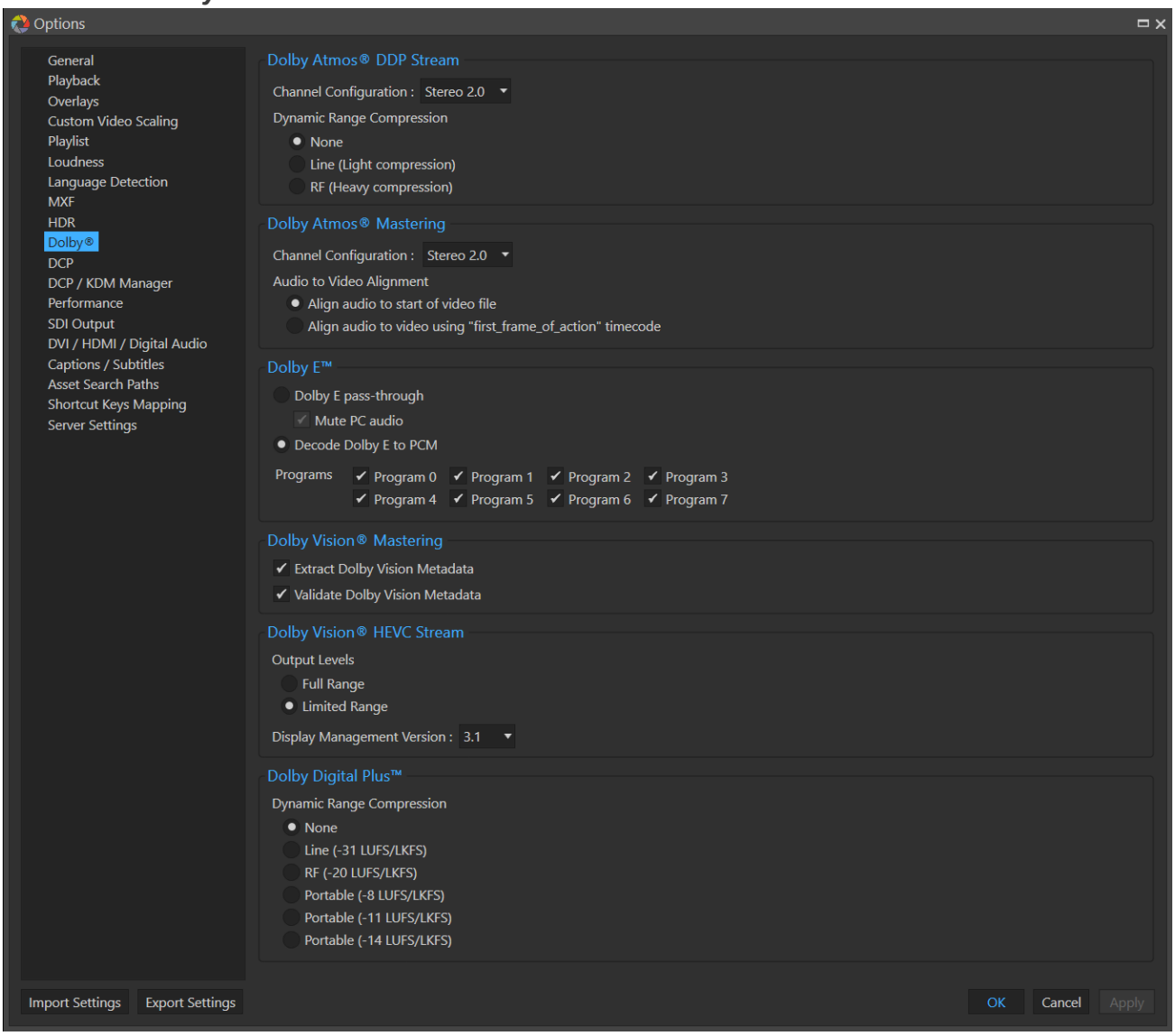
4.3.23.9.3 HDR Overlay

This section enables the colors of HDR Line Range and HDR Histogram to be specified (see 4.3.14.11 HDR Line Range and 4.3.14.12 HDR Histogram). There are 2 colors that can be defined. One of them is the standard color for the HDR Overlay and the other is a warning color which defines the color to be shown in the event of a warning. The colors can also be specified with transparency by switching the color picker to the advanced color picker as shown below:



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4.3.23.10 *Dolby®*



4.3.23.10.1 Dolby Atmos® DDP Stream

Channel Configuration – This selects the PCM output channel configuration. The number of channels is implied by the layout. E.g. 5.1.2 means there are 5 front and surround speakers, 1 LFE and 2 overhead speakers, making a total of 8 channels. Dolby Atmos streams are carried using Dolby Digital Plus™ (E-AC3) so if Dolby Atmos decoding is turned off, it will fall back to a 5.1 (6 channel) configuration.

Dynamic Range Compression – Enables dynamic range compression when decoding.

4.3.23.10.2 Dolby Atmos® Mastering

Supported formats include ADM, DAMF, DCP-IAB and IMF-IAB. Select the output speaker configuration required.

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There is an option to align the audio to the video using the metadata field “First frame of Action” timecode. Otherwise audio will align with the first frame of video.

4.3.23.10.3 Dolby E™

Dolby E can be set to decode to PCM or passed-through the PC sound device and SDI. Please note, if Dolby E pass-through is selected, the compressed Dolby E data will generate full volume random noise on the PC sound device if it does not support Dolby E decoding. This can be disabled by checking the “Mute PC audio” checkbox. The compressed data will be passed in the SDI as though it was uncompressed PCM audio.

Eight checkboxes are available for enabling or disabling any of the Dolby E programs.

4.3.23.10.4 Dolby Vision® Mastering

Option to extract metadata embedded in Dolby Vision MXF files and use it for Dolby Vision simulation. The extracted metadata is formatted as XML and is also displayed in the Asset Metadata tool window. The metadata can also be validated based on Dolby’s recommended constraints.

For Iris versions prior to 9.1.0, Iris performs CMU v2.9 simulation but can process v4 XML metadata and convert backward compatible v2.9 metadata for simulation. XML version 5.x is not supported. The “HDR Simulation” option must be set to “Automatically render HDR content using metadata” for processing to occur.

For versions from 9.1.0 onwards, CMU v4 is processed natively without any metadata conversion. XML version 2.0.5, 4.0.2 and 5.1.0 are supported.

Disclaimer: Due to real time playback performance constraints, CMU v2.9 and v4 processing does not apply the “Multiscale” sharping filter on the output picture and hence “Iris’ content mapping preview is not certified for Visual QC of Dolby Vision assets”.

4.3.23.10.5 Dolby Vision® HEVC Stream

Iris can perform HDR simulation of Dolby Vision HEVC streams. Currently only profiles 4, 5 and 8 are supported. Output can be simulated using Display Management version 3.1 or 4.0 to the following target formats (options on main context menu):

“SDR, 100nits, BT.709, 8-bits”

“SDR, 100nits, BT.709, 10-bits”

“HDR, 600nits, BT.2110, 10-bits”

“HDR, 600nits, BT.2110, 12-bits”

“HDR, 1000nits, BT.2110, 10-bits”

“HDR, 1000nits, BT.2110, 12-bits”

“HLG, BT.2110, 10-bits”

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“HLG, BT.2110, 12-bits”

All formats have the option of “Full Range” (0-1023 for 10-bits) or “Limited Range” (64-940 for 10-bits) output regardless of the input encoded format.

The simulated output can be displayed on the PC display or passed through to a Dolby Vision capable TV connected via the HDMI port of the graphics card and/or an AJA Kona 4/5 SDI card.

The “HDR Simulation” option must be set to “Automatically render HDR content using metadata” for processing to occur.

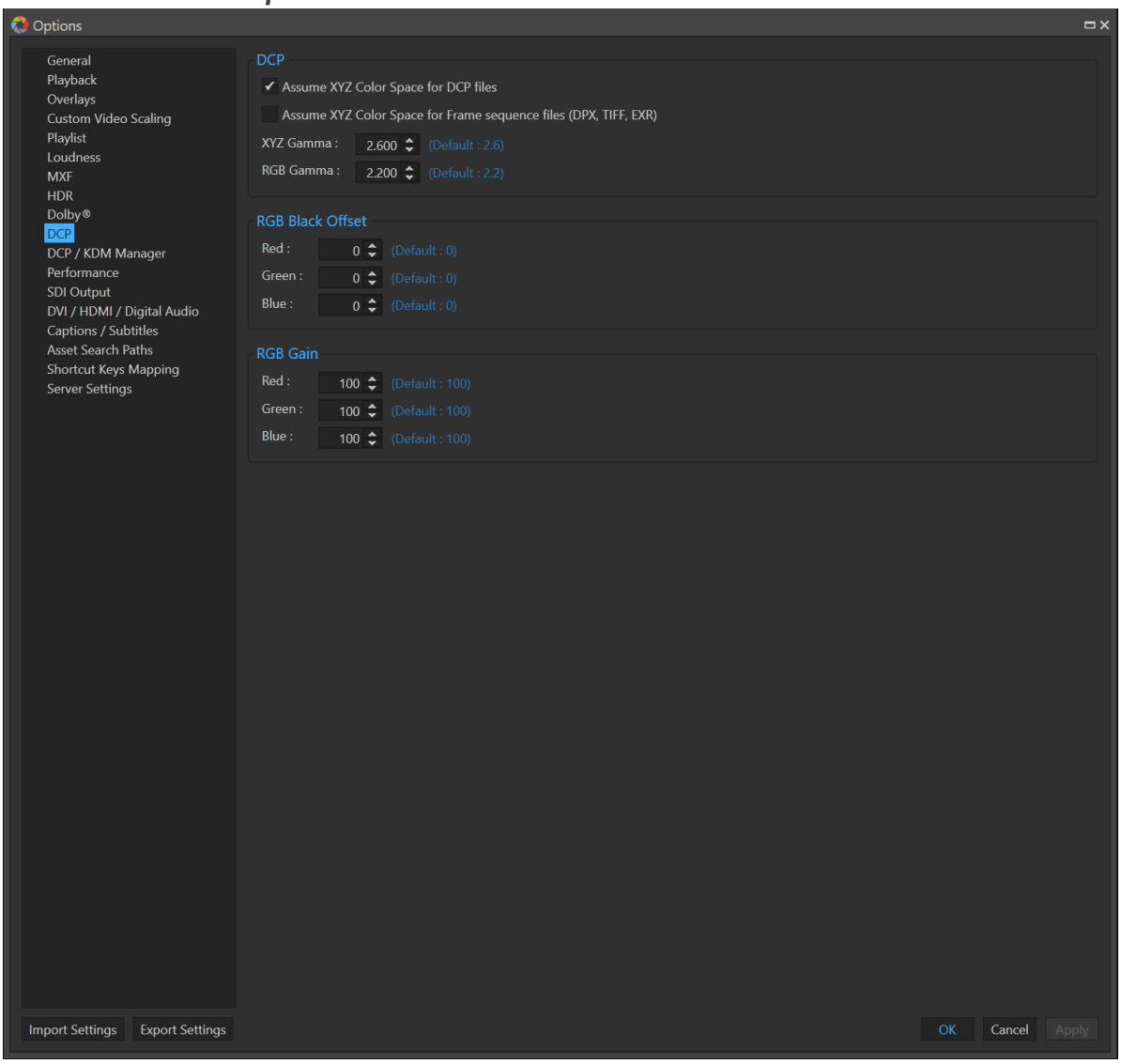
4.3.23.10.6 Dolby Digital Plus™ Dynamic Range Compression

This option selects the dynamic range compression parameters for various listening levels. Available options are:

- None (No compression, full output level)
- Line -31 LKFS
- RF -20 LKFS
- Portable -8 LKFS
- Portable -11 LKFS
- Portable -14 LKFS

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4.3.23.11 *DCP option*



4.3.23.11.1 Assume XYZ Color Space for DCP files

Enable XYZ to RGB Color Space conversion for DCP JPEG2000 files.

4.3.23.11.2 Assume XYZ Color Space for Frame Sequence Files

Enable XYZ to RGB Color Space conversion for DPX, TIF, EXR, BMP, JPG, TGA and PNG image sequences.

4.3.23.11.3 XYZ Gamma

Set the XYZ Gamma value to use for the conversion. Default is 2.6.

4.3.23.11.4 RGB Gamma

Set the RGB Gamma value to use for the conversion. Default is 2.2.

4.3.23.11.5 RGB Black Offset

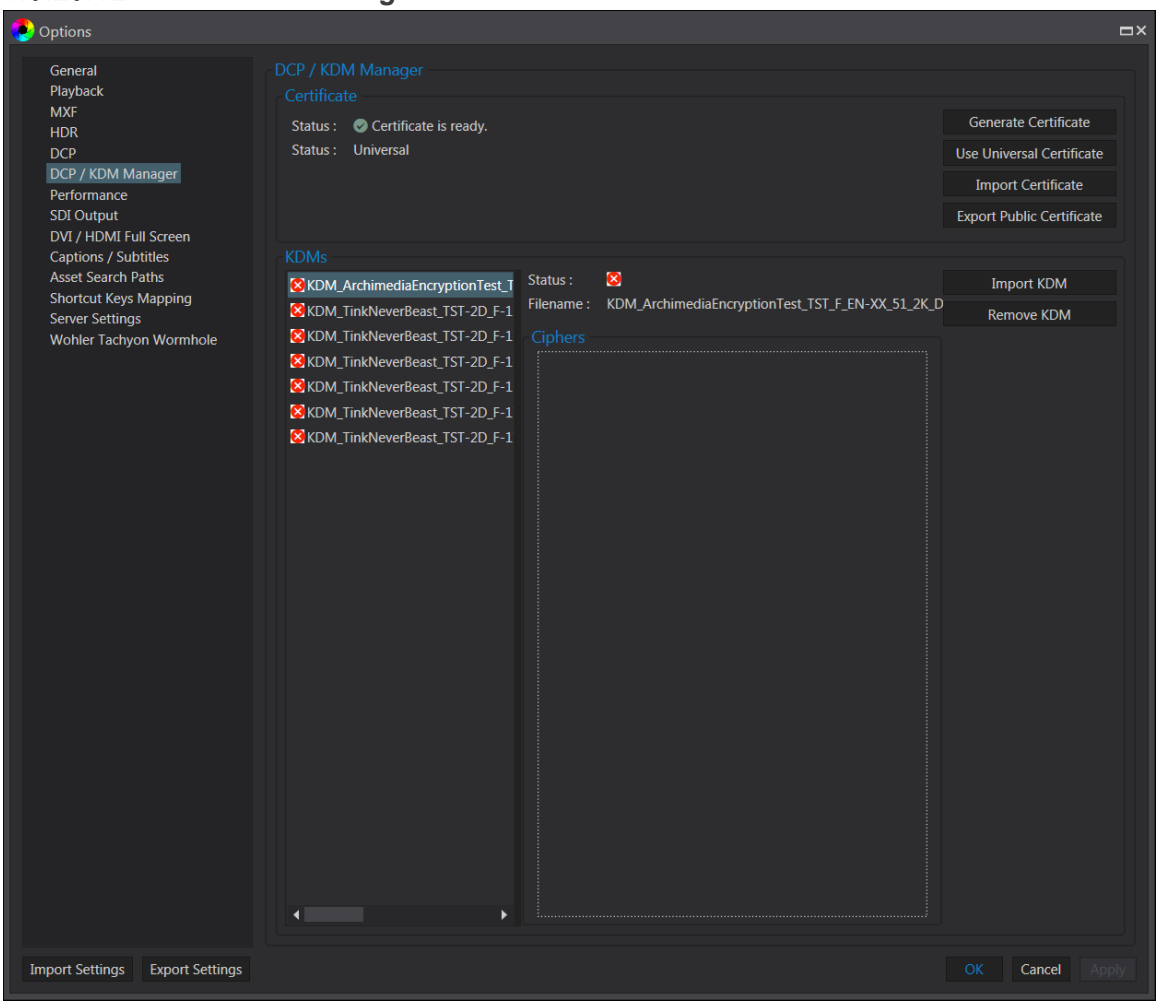
Set the RGB black offset value. Default is 0. Increasing this value gives a darker picture.

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4.3.23.11.6 RGB Gain

Set the gain on RGB channels. Default is 100%.

4.3.23.12 *DCP/KDM Management*



4.3.23.12.1 Certificate

Generate Certificate – This generates a digital certificate tied to this PC only. This certificate can be passed to the DCP publisher to create the KDM and the DCP will only be playable on the device that created the certificate.

Use Universal Certificate – This generates a Universal certificate for Iris and the KDM and DCP content can be played on all Iris applications.

Import Certificate – Allows import of a certificate created by a 3rd party.

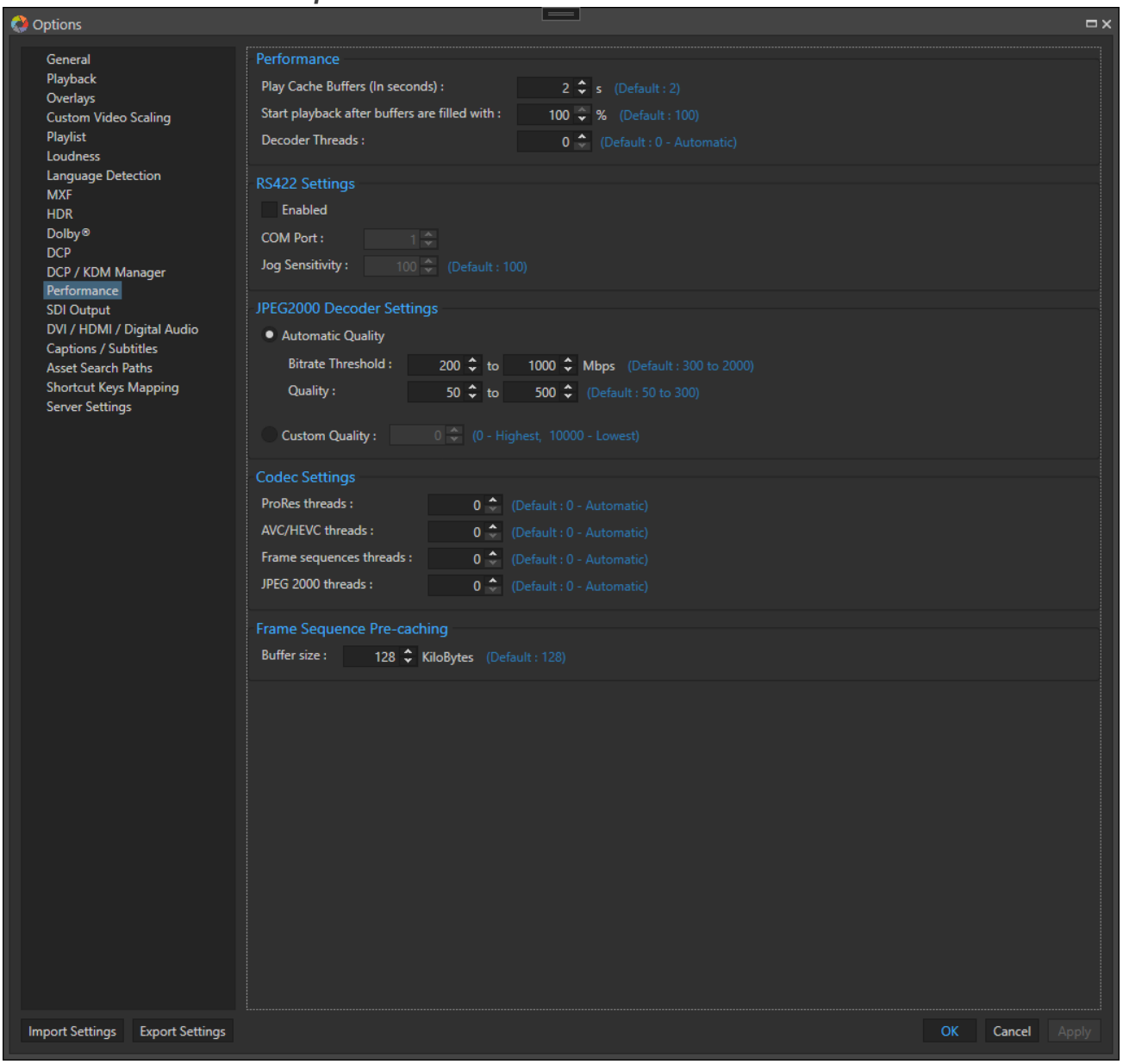
Export Public Certificate – Exports the certificate and is to be given to the DCP publisher and a matching KDM is expected in return.

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4.3.23.12.2 KDM

Import and Remove KDMS. The KDM file is provided by the DCP publisher. When a KDM is successfully imported, the key types and restrictions if any will be displayed.

4.3.23.13 *Performance option*



4.3.23.13.1 Play cache buffers

Set the cache buffers to use during playback. A high value can cause high memory consumption. Playback must be restarted for the new value to take effect. The default is 2 seconds and the maximum is 10 seconds.

4.3.23.13.2 Start playback after buffers are filled with

Start playback when selected percentage buffer is reached. This can speed up the time to start playback.

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4.3.23.13.3 Decoder Threads

This setting controls the number of decoder threads used during playback. Default to 0 for automatic setting.

4.3.23.13.4 RS422 Settings

Enable RS422 COM port for Sony RS422 '9-pin' control. The system must have a serial COM port that supports the RS422 interface at 38400 baud, 8 bits, odd parity.

4.3.23.13.5 Jog Sensitivity

This setting controls sensitivity of the jogging control. A low value uses a progressive range from x1/8 to x1/2, a medium value uses a range of x1/4 to x1/2 and a high value uses the range of x1/2.

4.3.23.13.6 J2K decoder settings

Set Automatic Quality or Custom Quality for J2K decoder.

4.3.23.13.7 J2K Decoder Quality

This setting controls the J2K decoder quality by reducing the number of decoder passes. Playback must be restarted for the new value to take effect.

Value	Picture Quality
0	Lossless
1-20	Virtually Lossless
21-50	Good Quality
51-100	Visually Acceptable
101-200	Visually Poor

For bitrates that exceed the performance of the CPU, the automatic control of quality can provide an acceptable way to play back the content maintaining constant play back speed without dropping frames. The minimum and maximum bitrate threshold defines the bitrates that require a reduction in quality in a linear scale until the maximum threshold is reached. After that, all frames exceeding the maximum will be capped at the lowest quality.

4.3.23.13.8 ProRes threads

Set the number of threads for the ProRes codec.

4.3.23.13.9 HEVC threads

Set the number of threads for the HEVC codec.

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4.3.23.13.10 Frame sequence threads

Set the number of threads for Frame sequences

4.3.23.13.11 JPEG 2000 threads

Set the number of threads for the JPEG 2000 codec.

4.3.23.13.12 Frame Sequence Pre-caching

This option is for frame sequences such as DPX files. Enabling this option allows the player to pre-cache the frames by reading ahead of playback. This option is particularly useful when the media is located on SSD or networked drives.

Buffer size determines the read block size. This should be in multiples of the disk block size. Default is 128 KB.

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4.3.23.14 *SDI Output Options*



4.3.23.14.1 Default Card No & Default Channel

Sets the default card and output channel to use. The maximum number of cards supported is 2 (1 to 2) and the maximum number of channels per card is 4 (0=A to 3=D). This can be overridden using command line variables as follows:

/i=*cardno* where *cardno* is 1 or 2.

/c=*channel* where *channel* is 0 to 3.

Example shortcut to use the first card, connector C:

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iris.exe /i=1 /c=2

NOTE: The Bluefish Supernova / S+ cards have a frame rate limitation that channel pairs 0-1 and 2-3 must have a common frequency. i.e 29.97Hz and 59.94Hz or 25Hz and 50Hz.

4.3.23.14.2 Always use dual cards for 4K/UHDTV formats

This setting forces video to appear on both cards regardless of whether the format can be supported on 4 channels of a single card. The 4 quadrants of video will appear on BNCs A and B on both cards. This avoids the need to change cabling depending on format.

4.3.23.14.3 CGI RGB range (otherwise uses SMPTE RGB range)

Use CGI RGB range 0-255 for 8 bits. SMPTE range is 16-235.

Allow VBI/VANC data

Allow VBI/ VANC data to appear. If this option is turned off, VITC timecode for SD and SMPTE 334-2 708 CDP captions will not be available.

4.3.23.14.4 Force PsF for 23-30 fps on SDI output

Force the SDI output format to PsF from 23 to 30fps.

4.3.23.14.5 Enable Dual-Link Output

Enable Dual-link Output if the video is a 3G format. Dual-link pairs are always assigned as BNC A&B and BNC C&D.

4.3.23.14.6 Use 3G Level B (defaults to 3G Level A)

Option to set to SDI 3G format to Level B. (Default is set to 3G Level A)

4.3.23.14.7 Two Sample Interleave

Enable this option if 2SI mode is required for UHD/4K formats. For the AJA range of cards, the HDMI port requires 2SI to be enabled.

4.3.23.14.8 Color Space and Component Depth

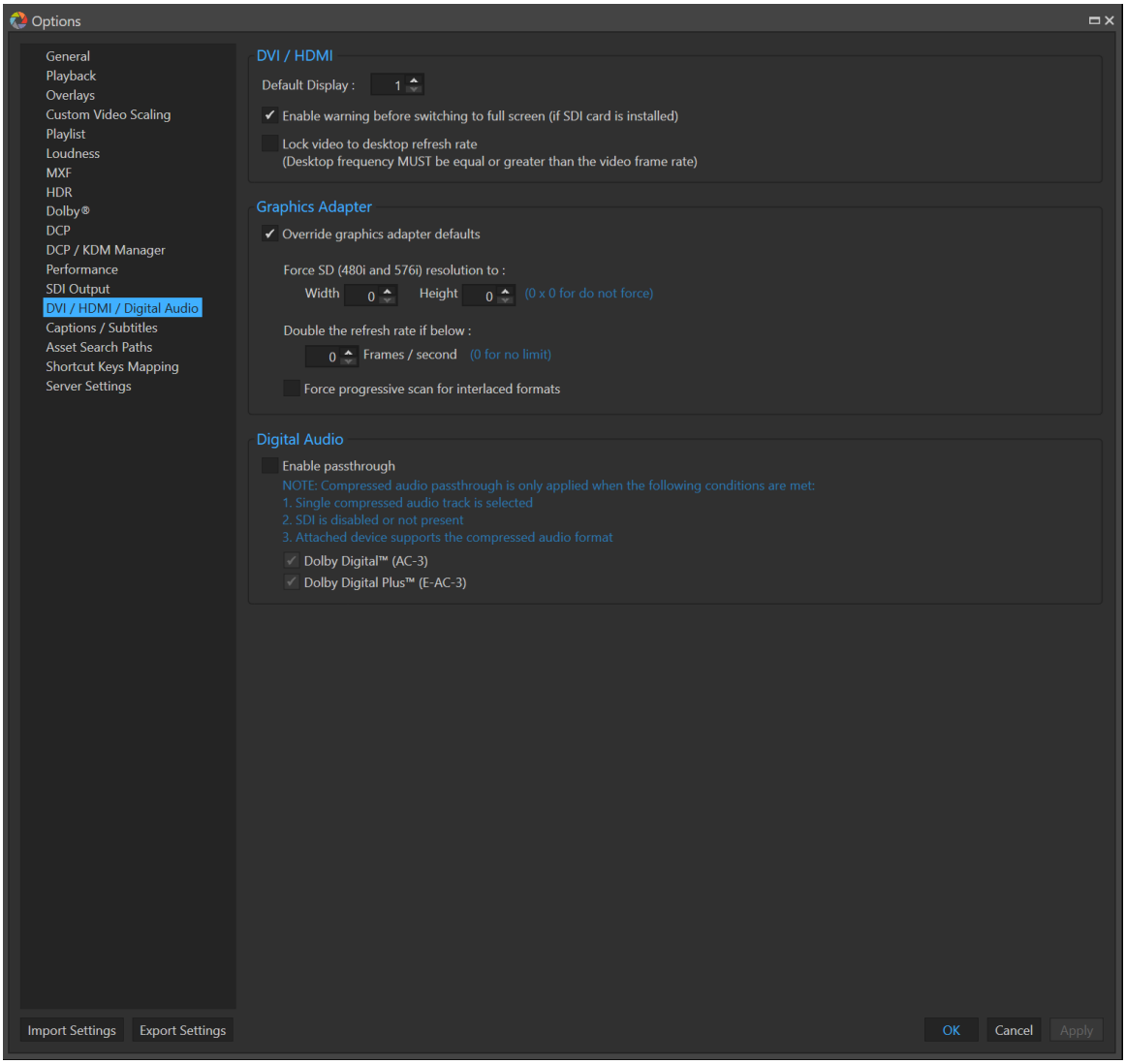
Force a Color Space depth for the selection in the list. If disabled, native color space and component depth is used.

4.3.23.14.9 Genlock

Genlock Setting for Digital or Analog genlock Input. Horizontal and vertical phases can be adjusted.

4.3.23.15 *DVI /HDMI /Digital Audio Options*

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4.3.23.15.1 Default Display

Set Default Display.

4.3.23.15.2 Enable warning before switching to full screen

Display a warning message when switching between full screen if an SDI card is installed.

4.3.23.15.3 Lock video to desktop refresh rate

Lock video to desktop refresh rate. Desktop rate must be equal or higher than media frequency otherwise video will drop frames.

4.3.23.15.4 Override graphics adapter defaults

Enable this option to give the highest quality video output in full screen mode if the output can display in native video format (a HDTV connect to capable graphics card through HDMI interface). Otherwise the default desktop resolution and frequency will be used for full screen display.

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4.3.23.15.5 Force SD (480i and 576i) resolutions to

This will force the video to display in a support resolution. Enable this option if the monitor does not support SD formats. Use 0x 0 to run at the native SD resolution and refresh rate.

4.3.23.15.6 Double the refresh rate if below

Set this value if the monitor does not support a low enough frequency refresh rate. The refresh rate is doubled if the monitor's frame rate is lower than this value. (Example: For 1080p25 video, the frame rate will double and be played back at 1080p50 if this value is set to 30). Use a value of 0 to run at the native refresh rate.

4.3.23.15.7 Force progressive scan for interlaced formats

This forces video to run in progressive mode as some monitors do not support interlace formats. This will produce smoother motions but create interlace artifacts.

4.3.23.15.8 Enable pass-through

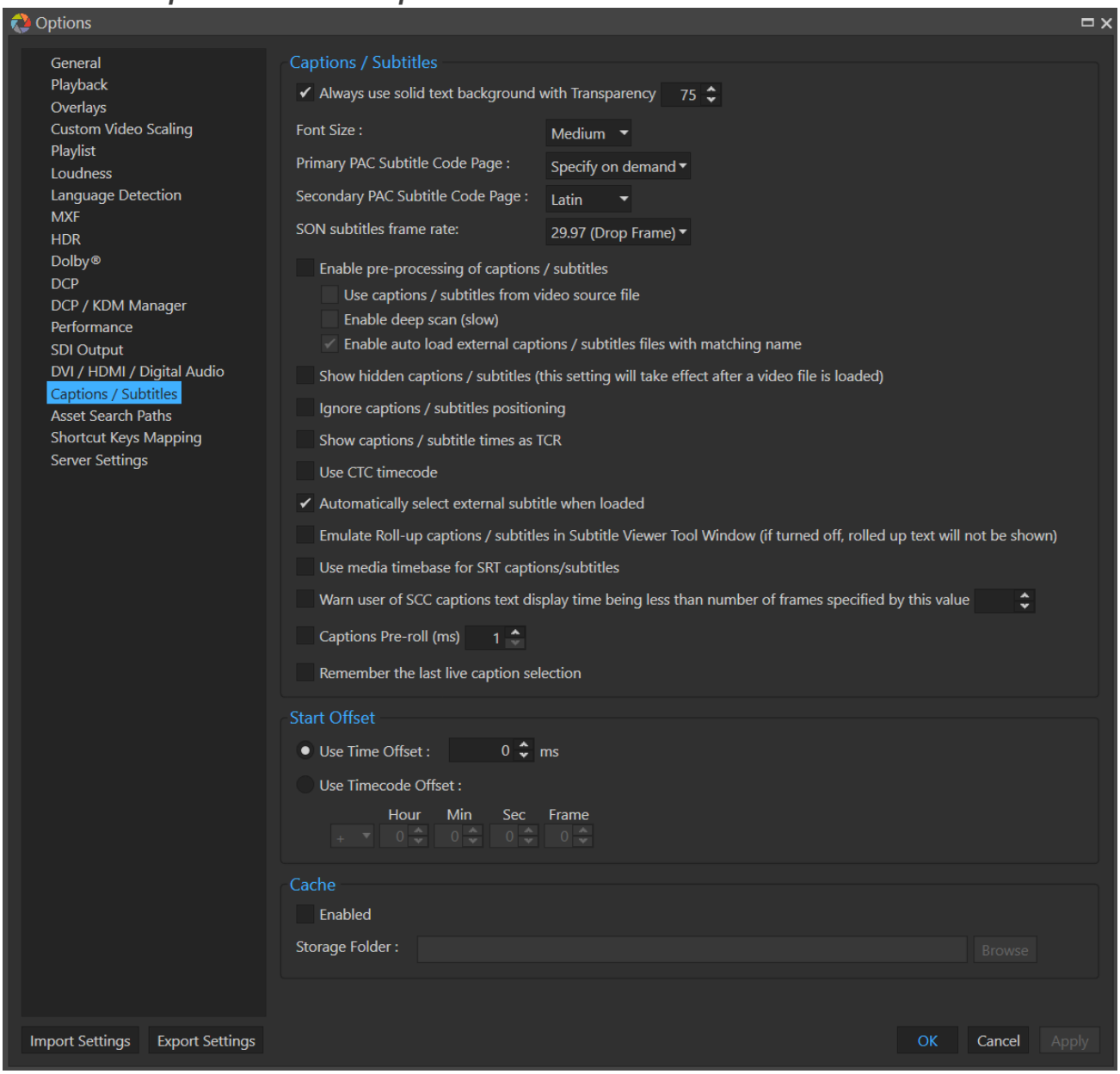
This option, when selected allows compressed digital audio to pass through the PC HDMI. Currently, the digital audio formats that can be passed through are Dolby Digital™ (AC-3) and Dolby Digital Plus™ (E-AC-3).

NOTE: Compressed audio pass-through is only applied when the following conditions are met:

5. Single compressed audio track is selected
6. SDI is disabled or not present
7. Attached device supports the compressed audio format

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4.3.23.16 *Captions / Subtitles Options*



4.3.23.16.1 Always use solid text background

Enable this option to use solid text background. Set the Background Transparency percentage if this option is enabled.

4.3.23.16.2 Font size

Set the font size to small, medium and large.

4.3.23.16.3 PAC Subtitle Code Page

The PAC subtitle format supports different code pages for extended character sets. Set this to the required language code page for the subtitles to appear correctly.

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4.3.23.16.4 Secondary PAC Subtitle Code Page

Set the secondary PAC code page.

4.3.23.16.5 SON subtitle frame rate

Specifies the default frame rate for SON files.

4.3.23.16.6 Enable pre-processing of captions / subtitles

This setting will determines captions / subtitles pre-processing. If it is enabled, the captions / subtitles are extracted and shown in the Subtitle Viewer tool window. If the setting “Use captions / subtitles from video source file” is enabled, then embedded captions / subtitles, such as EIA608, CEA708, Teletext and so on, will be extracted and they will be shown in the Subtitle Viewer window.

For deep scan setting, it allows for a more thorough scan of embedded captions. If certain captions and subtitles are embedded in the video stream and are located near the end of the file, then the player’s quick scan process may not find these captions as they only scan a certain amount of data from the beginning of the file. Enable this option to perform a full scan but it may be slow for large files since this will force a scan of the whole file. Note, the time to extract the subtitles will be the same no matter if deep scan is turned on or off, because deep scan is used for *detecting* subtitles.

The setting to “Enable auto load external captions / subtitles files with matching name” means that upon loading a video file, any sidecar captions / subtitle files that have filenames that match the video file will also be loaded. Therefore, opening a video file called myfile.mov will also open a subtitle file called myfile.srt, if it exists in the same location.

4.3.23.16.7 Show hidden captions/subtitles

Show hidden captions/subtitles. This setting will take effect after a video file is loaded. It is used to enable captions/subtitles that are embedded in the video stream but are not signaled for output to the display. This option forces them to the display.

4.3.23.16.8 Ignore captions/subtitles positioning

Ignore captions/subtitles positioning and places them at the bottom of the display.

4.3.23.16.9 Show captions / subtitle times as TCR

Shows TCR timecode instead of time in the Subitile Viewer windows.

4.3.23.16.10 Use CTC timecode

Uses the CTC timecode track as the reference of captions/subtitle display.

4.3.23.16.11 Enable auto load external captions / subtitles files with matching name

Automatically loads captions / subtitles files that have the same file name as the video file

4.3.23.16.12 Emulate Roll-up captions / subtitles in Subtitle Viewer Tool Window

Roll up captions / subtitles are shown in the Subtitle Viewer Tool Window. This means that the window will show text that includes previous rolled up text.

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4.3.23.16.13 Warn user of SCC captions text display time being less than number of frames

If enabled, checks whether the display duration of the text is less than this number of frames.

4.3.23.16.14 Caption Pre-roll (ms)

By default, double clicking the start or end times in the captions viewer causes the player to seek to the exact position denoted by the start or end times. This setting will apply a negative offset to the start and end times. Therefore, specifying a value of 1000 ms means that the seek will occur 1000 ms in advance of the actual start or end time of the captions text.

4.3.23.16.15 Remember the last live caption selection

This setting will remember the last live caption type that was selected and upon opening a video file, Iris will automatically select the last remembered type. For example, if the video is showing 708 Service 1 captions, then opening a new video will cause Iris to select 708 Service 1 captions rather than the default of 608 CC1 captions.

4.3.23.16.16 Start offset

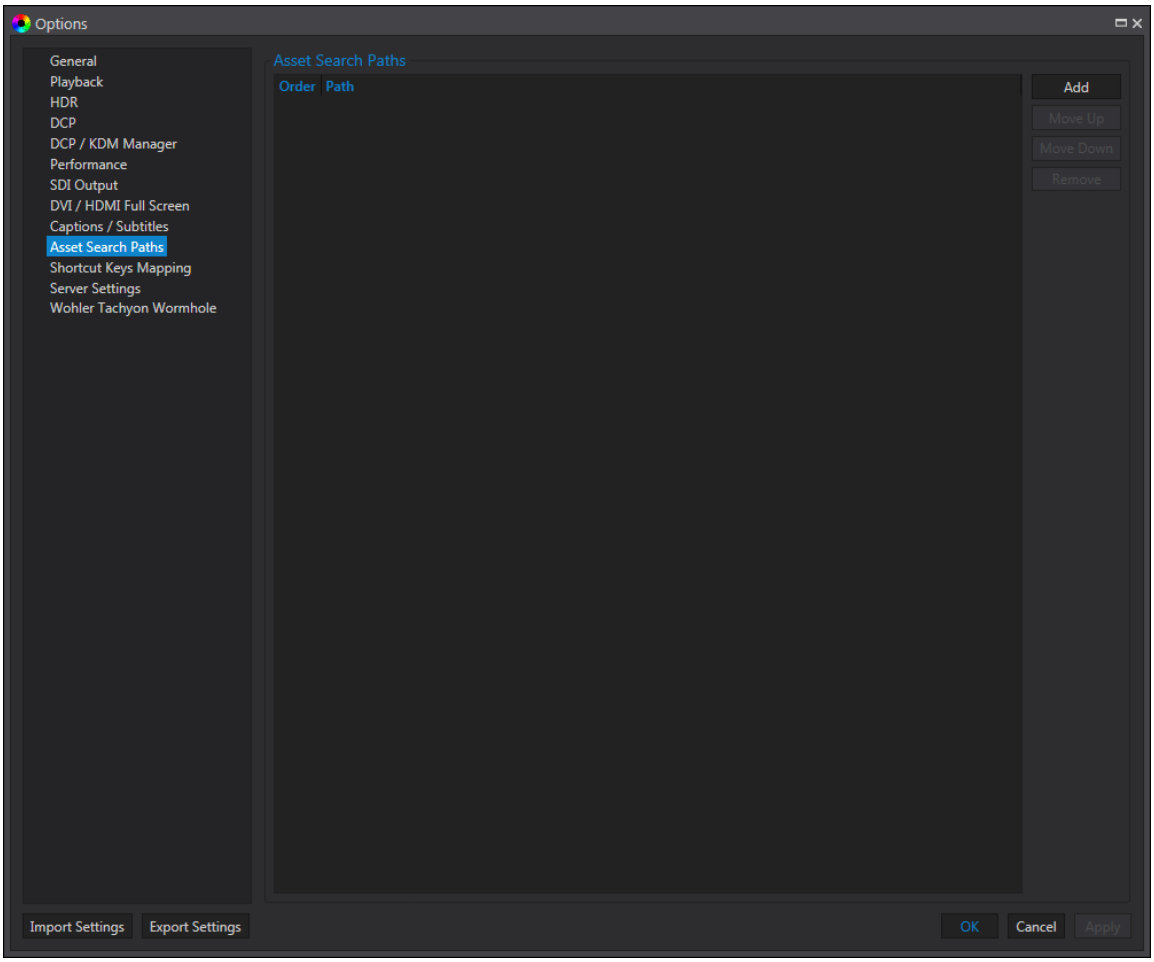
Use time offset (in milliseconds) or Timecode offset (HH:MM:SS:FF) to offset the timings of the captions. Negative values can be used to offset them to an earlier time.

4.3.23.16.17 Cache

Enable and set the cache storage folder. This option allows pre-processing of captions to save an .AST file in the cache folder so that it can be reused on subsequent calls to re-process the file, hence reducing the processing time for startup.

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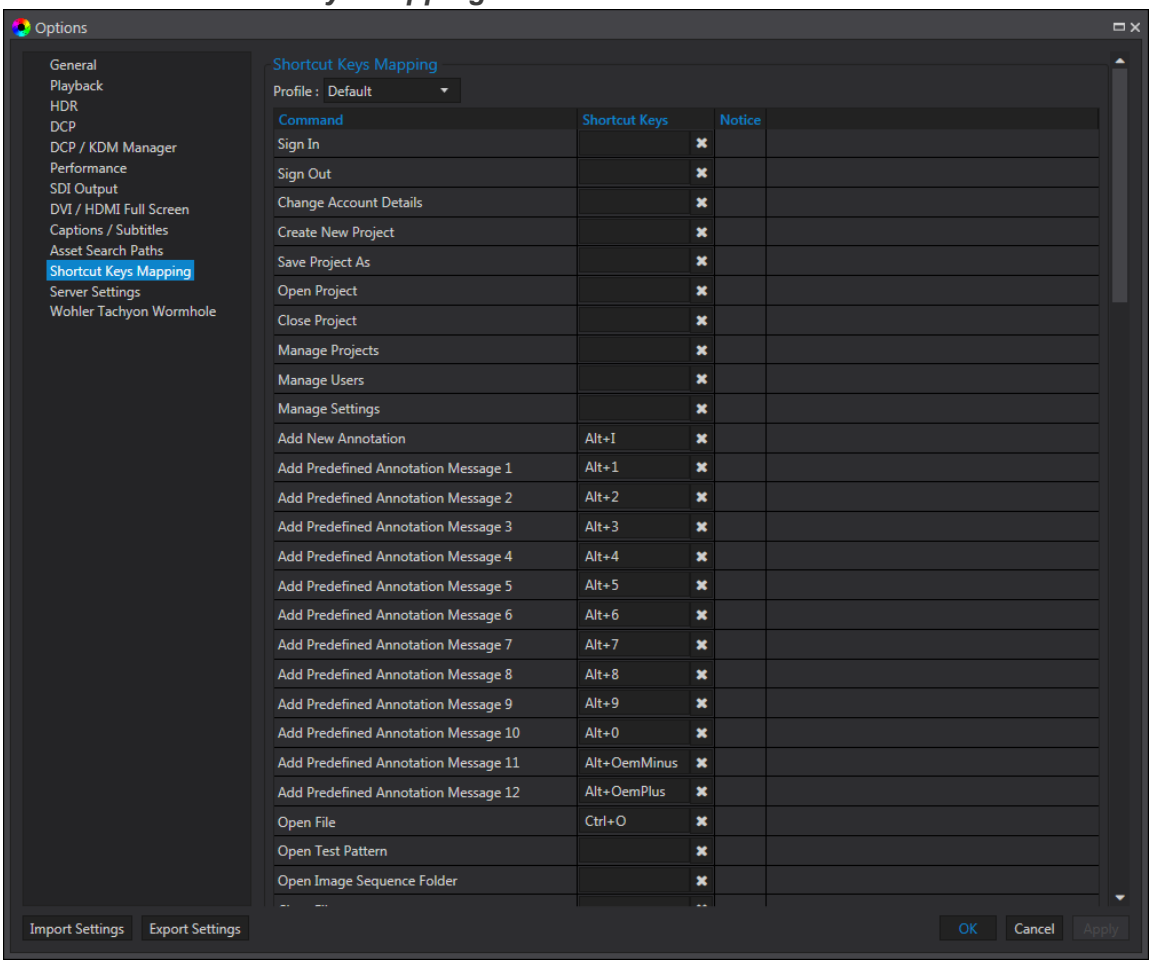
4.3.23.17 *Assets Search Paths*



This sets the asset search paths for the IMF/ DCP supplemental folders. Assets are searched from the top downwards. Click the “Add” button to add a parent folder to search from.

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4.3.23.18 *Shortcut Keys Mapping*



4.3.23.18.1 Profile

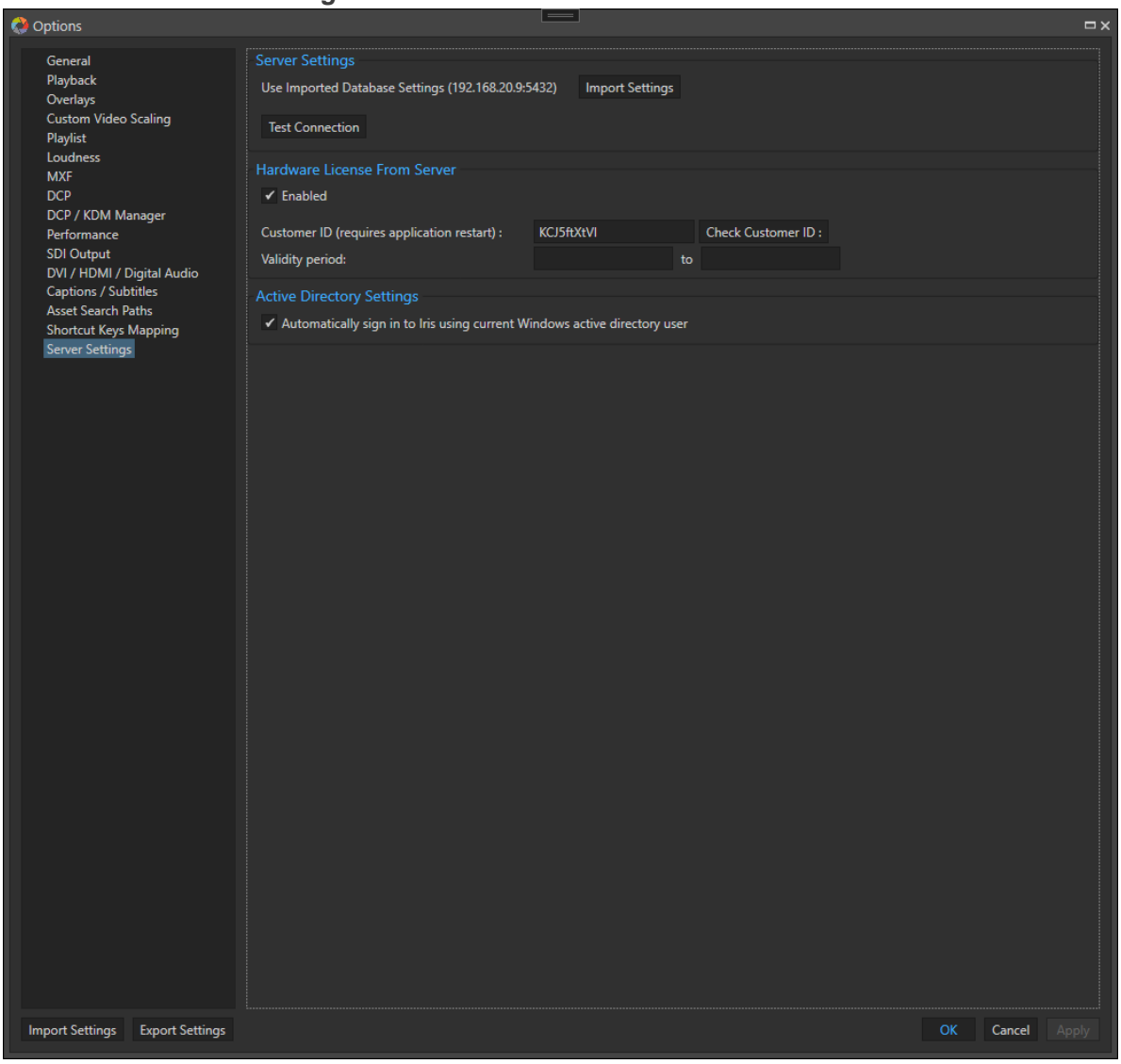
Choose a Shortcut Key Profile: Adobe, Default, Final Cut Pro and User Defined.

4.3.23.18.2 Command

This shows all commands with the Shortcut Key. Click **Set** to change the command with a new Shortcut Key. **Clear** will remove the shortcut key from the command.

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4.3.23.19 *Server Settings*



4.3.23.19.1 Server Settings

This specifies the database connection credentials need to be imported. These are in a file with the .dbs extension and are generated by Iris Admin GUI. For further information on generating the .dbs file, please consult the Iris Admin user manual.

4.3.23.19.2 Hardware License From Server

This allows a Customer ID to be specified in order to License Iris for use in stand alone playback mode. A local license can also be used for the same purpose (see section 4.3.26) and if both types of licenses exist, the local license takes precedence.

The button labelled “Check Customer ID” enables the validity of the Customer ID to be checked and will also report the start and end dates of the license validity period.

Note: When the Customer ID has been changed, Iris needs to be restarted for the change to take effect.

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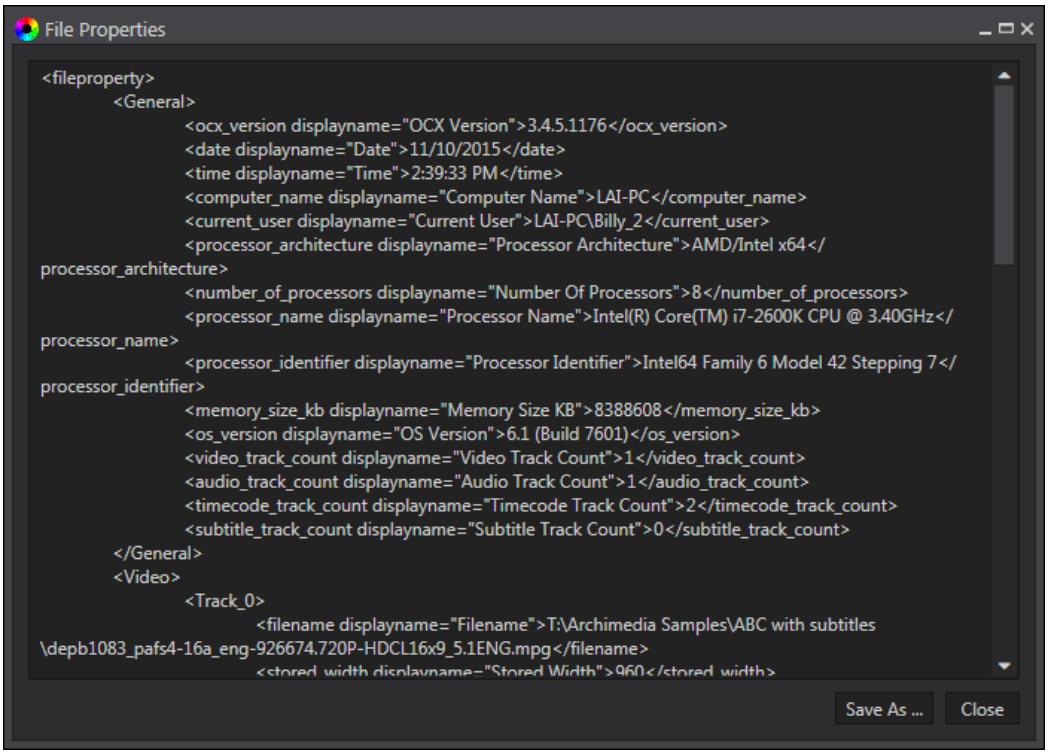
4.3.23.19.3 Active Directory Settings

In this section there is an option to allow an Active Directory user to automatically sign in to Iris. When this option is enabled and the current Windows user has signed in using Active Directory credentials, Iris can use this user to automatically sign in.

4.3.23.20 ***Import/ Export Setting***

The entire options settings can be imported and exported to and from a .json file.

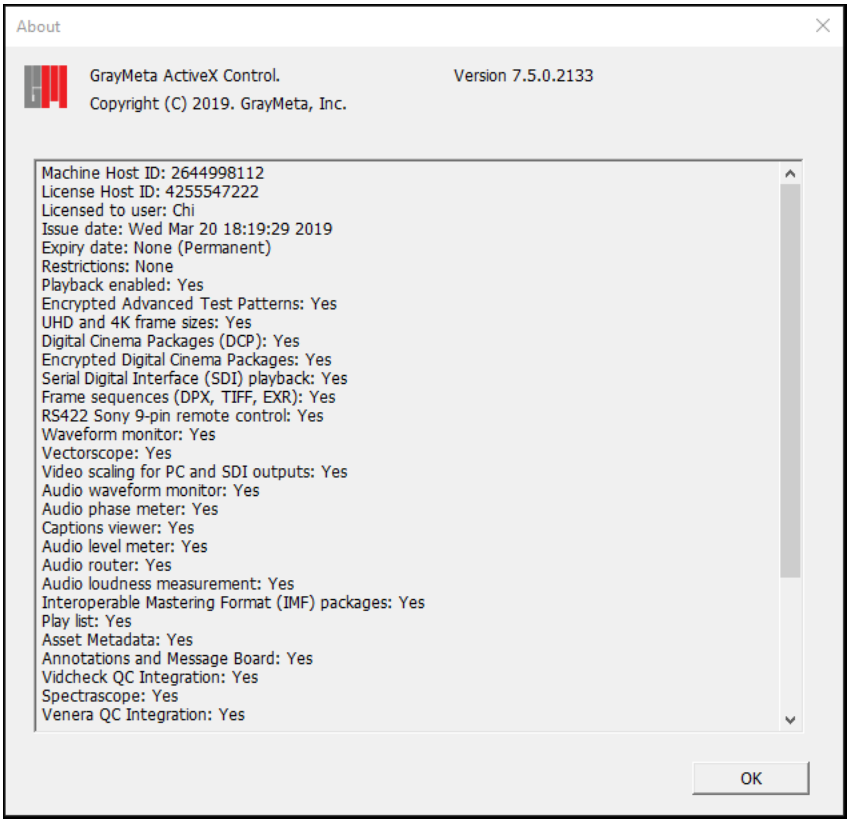
4.3.24 File Properties



This option displays a XML file containing all the properties of the currently loaded package. It is useful as a machine-readable file and can be exported by using the Save As button.

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4.3.25 License Information



This shows the ‘Offline hardware’ license information (expiry time and the Host ID of the machine).

Each license needs to be registered to a machine (in particular, the Host ID). Only one Host ID can be registered at any one time for each license.

4.3.26 Import license

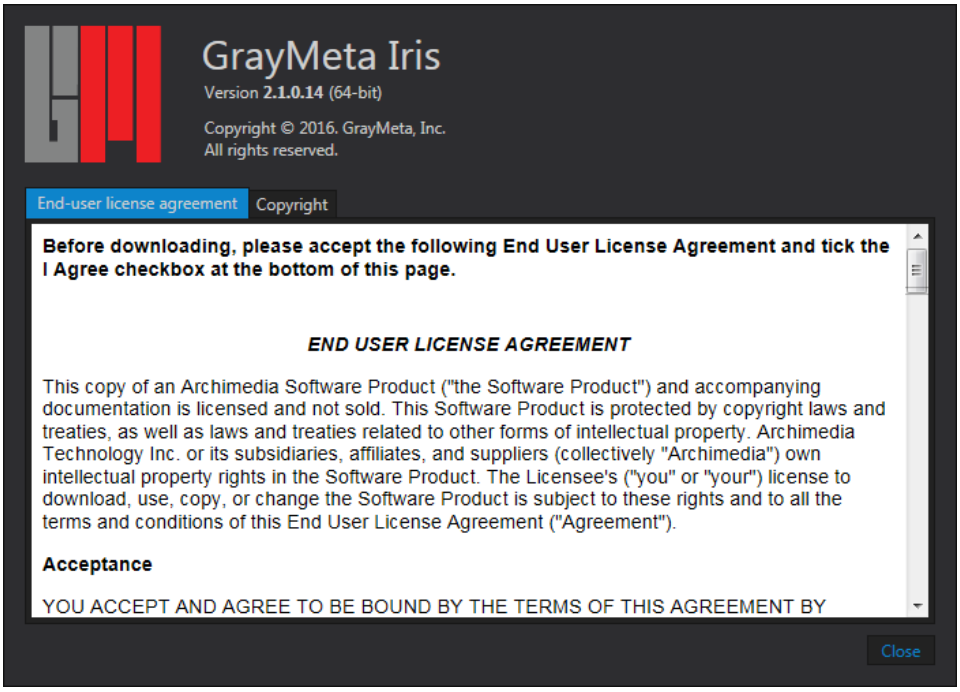
Select the license file (.lic) to import.

4.3.27 Help

This displays the User Manual.

4.3.28 About

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Opens the **About** window. This is useful for verifying the version number of the GrayMeta Iris installation running.

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4.4 GrayMeta Iris Keyboard Shortcuts

Button	Description
Ctrl + O	Open a MXF file to play
Ctrl + Space	Pause
Ctrl + Left	Rewind/previous frame
Ctrl + P	Play
Ctrl + Right	Fast forward/next frame
Ctrl + S	Stop
Ctrl + R	Reset mark-in/out markers
Ctrl + I	Set mark in
Ctrl + U	Set mark out
Ctrl + L	Enable/disable loop mode
Alt + Up	Increase volume
Alt + Down	Decrease volume
Alt + Del	Mute/unmute
Ctrl + F	Swap field order
Ctrl + Y	Enable overlay
F4	Toggle RS422 remote focus
F6	Toggle between TCR/CTC/TIME/FRAME mode
F7	Display auto size
F8	Display 1:1 pixel size
F9	Hardware mode full screen (default monitor)
F10	Search
F11	Window mode full screen
ESCAPE	Exit full screen mode
F1	Show about box

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5 Appendix A: SDI playback Card

With an optional SD/HD-SDI PCI-Express I/O card, the Master Player provides 8, 10 or 12-bit uncompressed baseband video and up to 16 channels of 24-bit PCM audio through BNC connectors for SDI monitoring, distribution or VTR dubbing. Please ensure the card driver and firmware are installed from the installer before use.

The SDI output supports both SD and HD formats:

- Supports SD 720x480i to HD 1920x1080p59.94 (1-Channels I/O)
- Supports 2K to 4K (4-Channels I/O)
- Time code for SD using D-VITC or ATC-VITC and ATC-LTC.
- Time code for HD using ATC-VITC and ATC-LTC (Digital Ancillary Time Code) only
- Provides 8, 10 or 12-bit uncompressed baseband video
- Up to 16 channels of 24-bit PCM audio

Non-standard picture sizes will be centered with black borders.

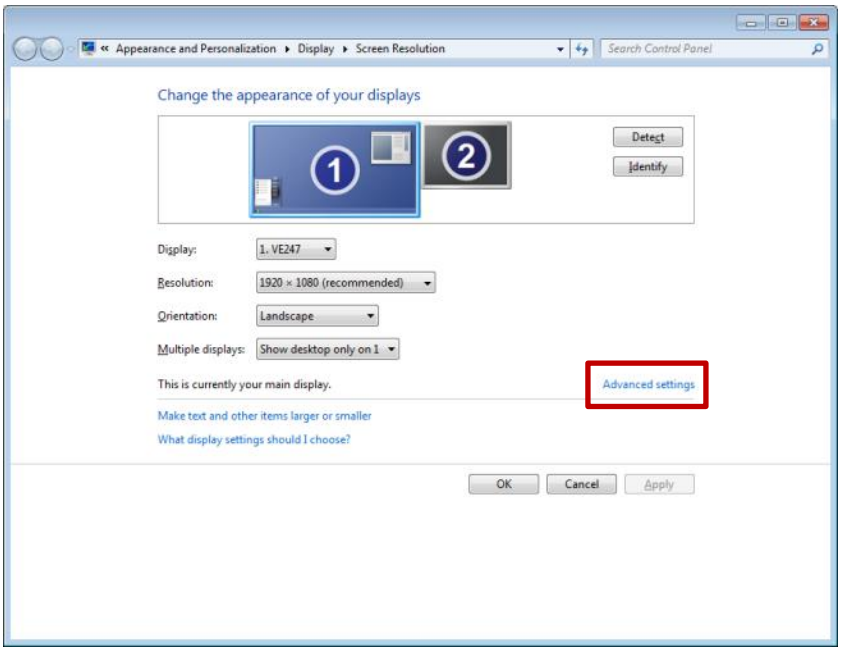
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6 Appendix B: Computer HDMI Output

One of the unique features of the GrayMeta Iris is the ability to drive the HDMI interface in full-screen mode at the native resolution and frame rate of the file content. When viewed on a true HDTV, video motion will appear as intended without any cross frame-rate interference. Picture resolution can also be scaled to whatever your HDTV supports. This is the most cost effective way of displaying the true quality of your video without the use of an SDI card.

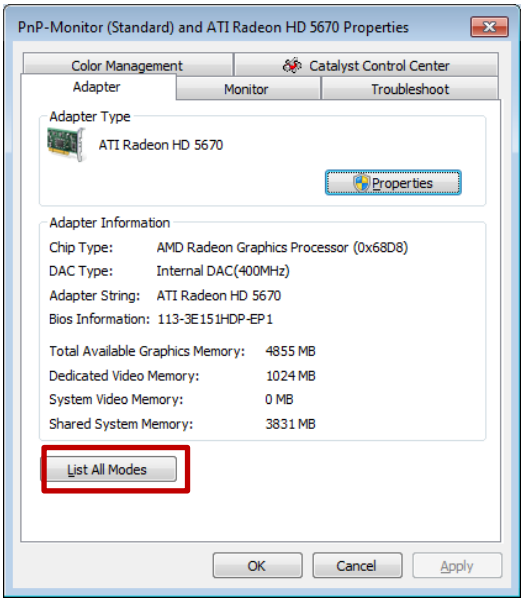
6.1 Checking if the resolution and refresh rate is supported

a) Right click on the Desktop and select **Screen Resolution**.
b) Select **Advanced Settings** in Display properties.

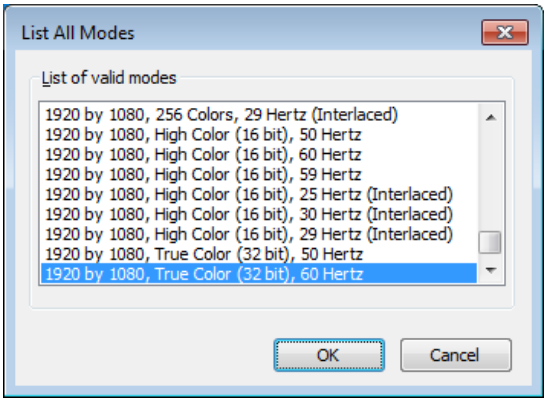


c) Select **List All Modes** in **Adapter** tab.

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d) Here is the list of resolution and refresh rate supported by the current graphics card and attached monitor. For best performance, True Color (32 bit) color mode should be selected.



1. Adding custom resolutions and refresh rates

   The method to add custom resolutions and refresh rates for modes not supported natively by the graphics card or monitor can vary between graphics card manufacturers and models. Critical damage can occur while trying to exceed the capabilities of the graphics card.

   To ensure the format is supported and is working, manually switch the desktop to the required format to see if the Windows desktop is displayed correctly. The Player can only switch to modes that are supported by Windows display.

2. Special formats

   There are some common formats that will not be supported unless you have a high-end HDTV monitor and graphics card.

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- 576i50 / 480i59.94 / 486i59.94. These SD formats use 720 pixel widths and may require manual override (Advanced Options Box) to 800x600 resolution. This gives the minimum amount of oversampling artifacts if the native mode is not supported.
- 720p23.98 / 720p24 / 1080p23.98 / 1080p24 / 1080p25. These low frequencies require a high-end HDTV usually labeled as supporting '1080P24' cinematic format.

6.2 Interlaced and progressive formats

Some monitors may not support interlaced formats. Enabling the option 'Force progressive scan for interlaced formats' in the **Advanced Options** will force formats 1080i50 to 1080p50 and 1080i59.94 to 1080p59.94. This will NOT de-interlace the picture to form a progressive picture. Only the refresh rate will run twice as fast to enable viewing on the monitor.

6.3 Simple BOB de-interlacer available

When in windowed mode and the picture is resized to fit the window, interlace artifacts may be visible due to the sub-sampling aliasing of the interlaced picture. To avoid this artifact, view the playback as 'Actual Size' or in full screen mode or by enabling the BOB de-interlacer. In full screen mode, an interlaced picture will be de-interlaced by the monitor if it can switch to an interlace mode.

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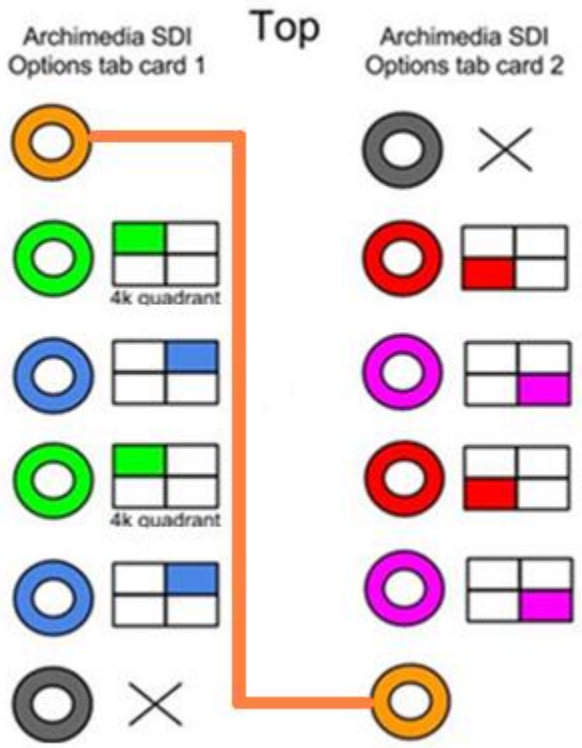
7 Appendix C: 4K SDI configuration – Bluefish444 Supernova S+ Cards

When 4K playback through dual SDI cards is required, **both cards must have the "Quad_out"** firmware loaded so that they can be genlocked together for synchronous operation.

The firmware can be loaded from the: \Bluefish444_Epoch_Supernova\Driver_x_x_x_x\Firmware\SuperNova folder. Run the corresponding installer and select the card number to program. After loading, the computer must be powered down and cold rebooted (removal of power for 30 seconds).

The following diagram shows the wiring for dual Supernova S+ cards.

Archimedia 4K Quad link 3G SDI card wiring. If your cards have a different number of BNCs, this is the wrong diagram. This view is from the back of the Archimedia 4K / UHD Workstation. Requires four BNC cables to 3G SDI destination, and one short BNC jumper.



BNC numbers found in Bluefish444 docs.	Archimedia Options, SDI tab, Outputs.
Card 1 BNC 1 (out), genlock to card 2.	n/a
Card 1 BNC 2 (out). BNC 4 (out).	0
Card 1 BNC 3 (out). BNC 5 (out).	1
Card 2 BNC 2 (out). BNC 4 (out).	2
Card 2 BNC 3 (out). BNC 5 (out).	3
Card 2 BNC 6 (in)	n/a

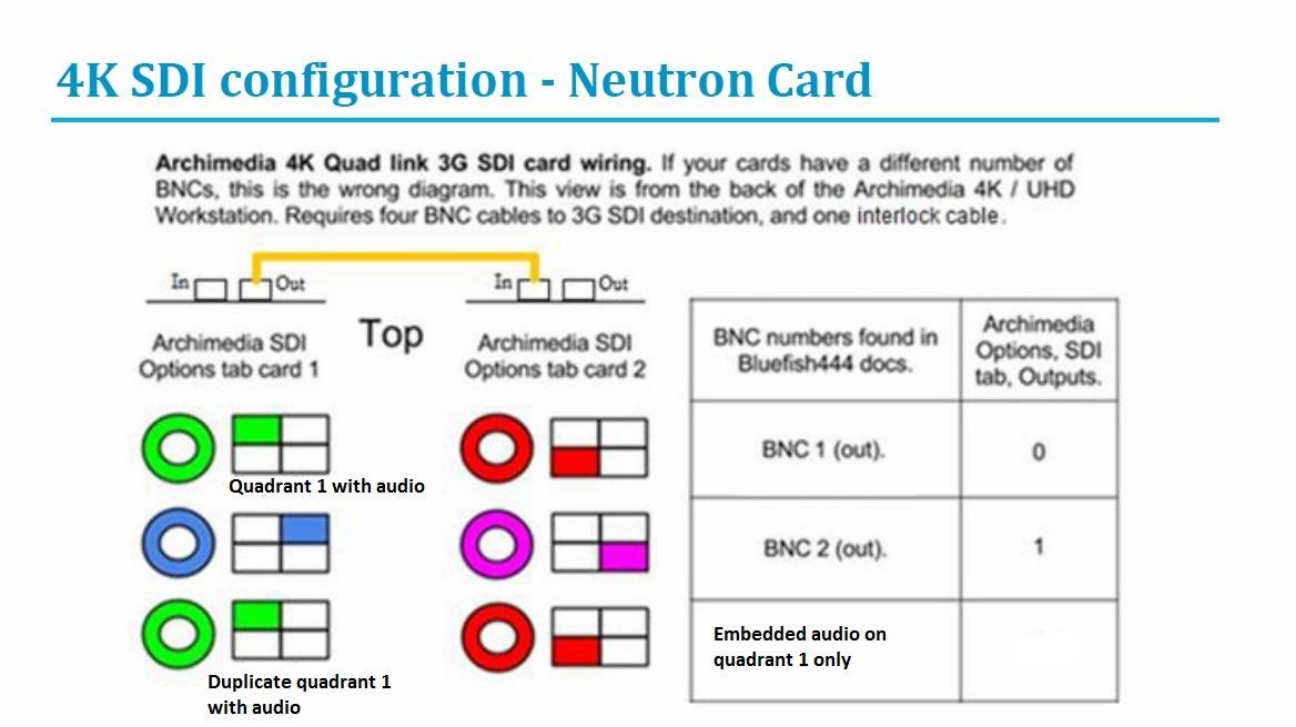
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8 Appendix D: 4K SDI configuration – Bluefish444 Neutron Cards

When 4K playback through dual SDI cards is required**, both cards must have the "3 Out"** firmware loaded so that they can be genlocked together for synchronous operation.

The firmware can be loaded from the: \Bluefish444_Epoch_Supernova\Driver_x_x_x_x\Firmware\Neutron folder. Run the corresponding installer and select the card number to program. After loading, the computer must be powered down and cold rebooted (removal of power for 30 seconds).

The following diagram shows the wiring for dual Neutron cards.



The following picture shows interlock cabling for dual Neutron cards.

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9 Appendix E: Command Line Interface (CLI) Usage

Argument	Function
i	SDI Card Number (if available)
c	SDI Channel Number (if available)
p	COM Port Number (if available)
startframe	Start and jump to frame “n”
starttc	Start and jump to timecode “hh:mm:ss:ff”
startctc	Start and jump to control timecode “hh:mm:ss:ff”
starttime	Start and jump to time “hh:mm:ss.ms”
markinframe	Sets mark in frame “n”
markoutframe	Sets mark out frame “n”
markintc	Sets mark in from timecode “hh:mm:ss:ff”
markouttc	Sets mark out from timecode “hh:mm:ss:ff”
markinctc	Sets mark in from control timecode “hh:mm:ss:ff”
markoutctc	Sets mark out from control timecode “hh:mm:ss:ff”
markintime	Sets mark in from time “hh:mm:ss.ms”
markouttime	Sets mark out from time “hh:mm:ss:ms”
imagesequencefolder	Set the image sequence root folder
video	Start with selected video file
audio	Start with selected audio file
subtitle	Start with selected subtitle file
enableembeddedaudio	“1” to enable embedded audio
enableembeddedsubtitle	“1” to enable embedded subtitle
enablesubtitlepreprocessing	“1” to enable pre-processing of caption files
enablesubtitledeepscan	“1” to enable deep scan of subtitles
volume	Set the volume level. 0 is maximum, -100dB minimum
addtoplaylist	“1” to add video to playlist
repeatmode	“repeat_current”, “repeat_all”, “repeat_off”

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audiorouting	“-1,-1;i,o” where i is the input channel and o is the output channel mapping. Use -1,-1 to reset all channels. Each mapping is separated by a semi-colon.
mute	“-1” to mute all channels, “1,2” to mute channels 1 and 2 only
unmute	“-1” to unmute all channels. “1,2” to unmute channels 1 and 2 only.
deleteimportreport	Automatically delete the imported XML report when video content is closed.
importvidchecker	Import Vidcheck Vidchecker XML report file
importvenerareport	Import Venera Pulsar XML report file
importbatonreport	Import Interra Baton XML report file.
importaurorareport	Import Tektronix Aurora XML report file.
importqscanreport	Import QScan XML report file.
closefile	Closes the currently loaded file.
dockinglayout	Name of stored layout to load

All commands are preceded with the “/” (forward slash) character. The command and value is separated by the “=” (equals) character. Each command and value pair must be separated by a space. All text string values (like filename or paths) that contain a space must be enclosed with double quote.

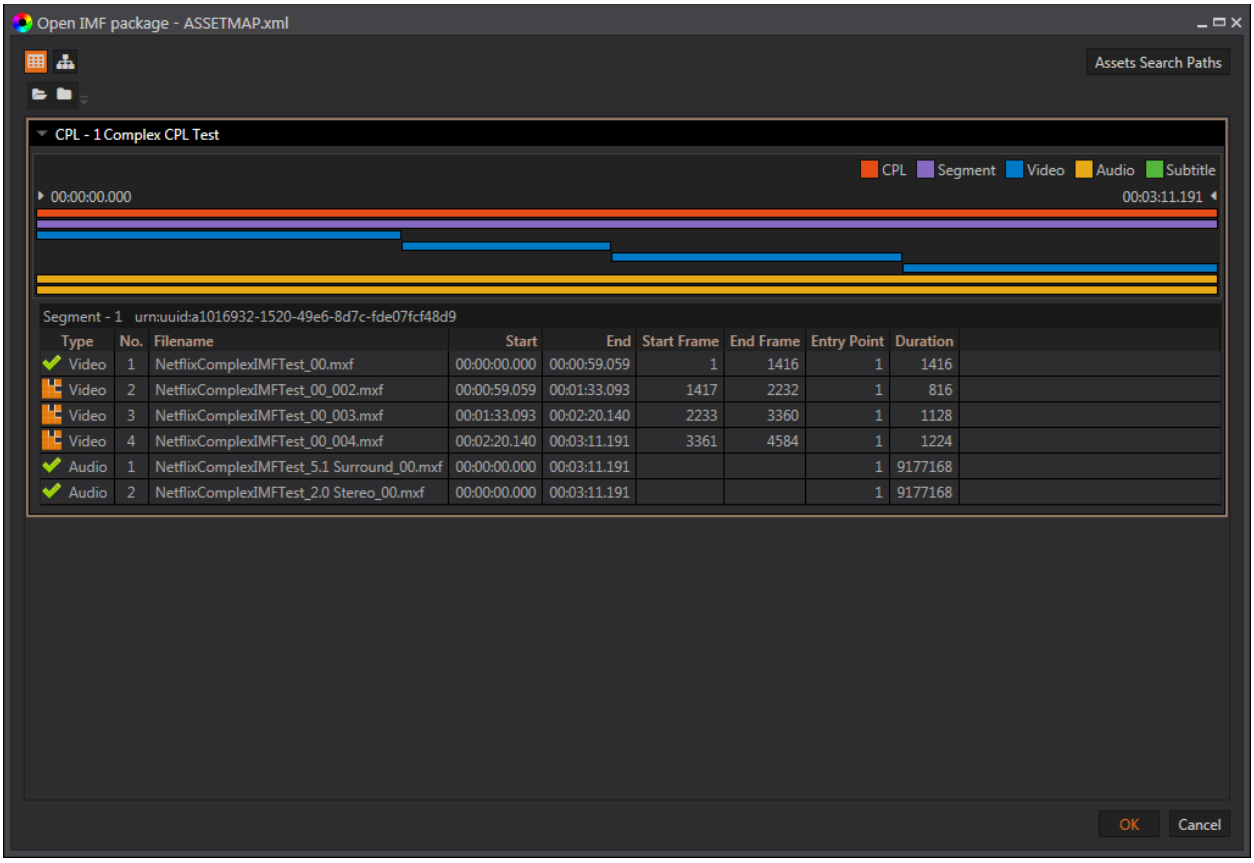
Example:

To launch Iris from the CLI, and add the file to the playlist and start the playback at frame 100, run the following:

Iris.exe /video=”my filename.mov” /addtoplaylist=1 /startframe=100

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10 Appendix F: Playing IMF Files



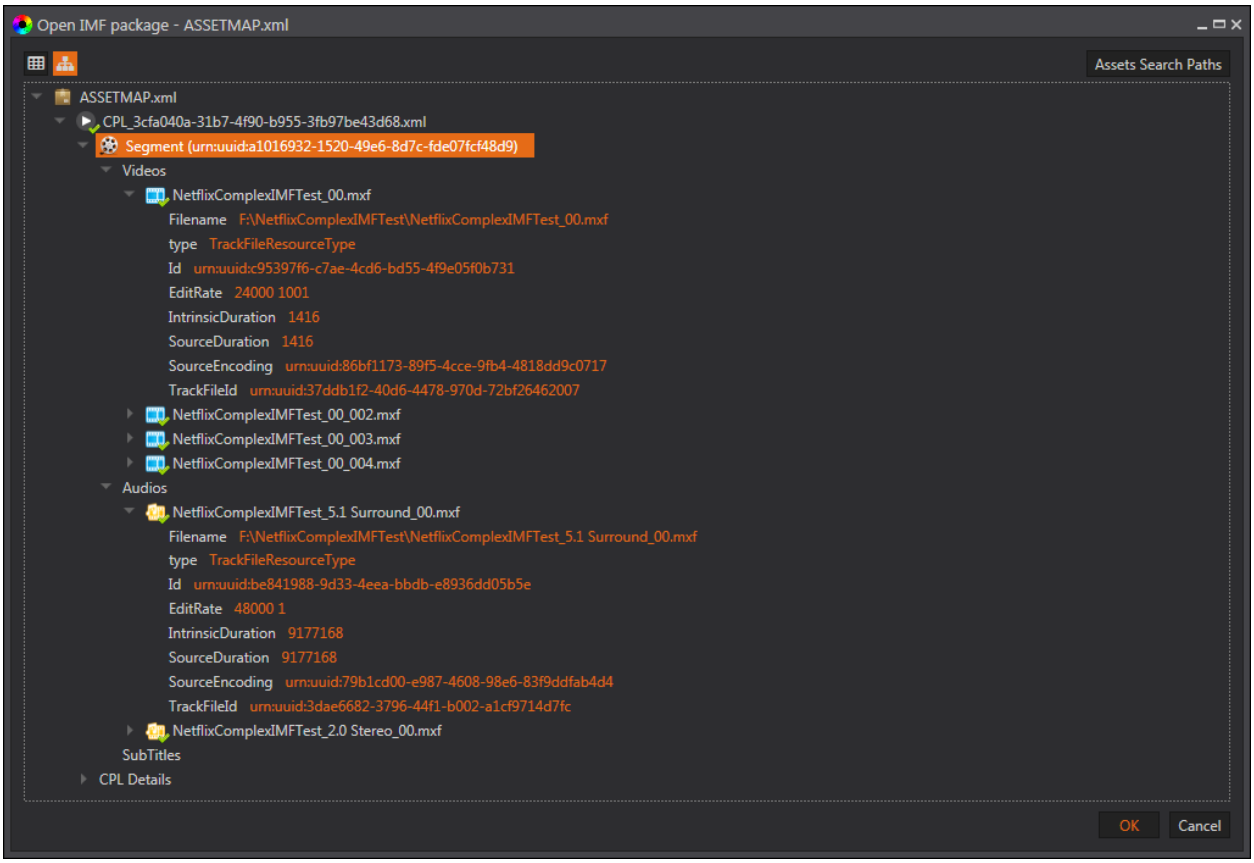
To open an IMF package, open the ASSETMAP.xml file. This is the highest-level hierarchy of the CPL(s) (Composition Play List) in the package. You can also open each CPL file separately.

The Iris IMF viewer displays a time line of how the package is built up to make a segment which in turn makes up a CPL. The colored lines indicate where the joins of video, audio and caption source files occur and their relative and absolute positions are listed in the grid control.

The left hand ‘tick’ icons indicates the validity of the checksum against the checksum stated in the package.

To play the entire ‘Segment’, select the CPL group and then press OK.

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Selecting the ‘Tree View’ icon displays the CPL information as an expandable tree. This provides a more in-depth display of its metadata.

From this view, the required group of video and audio can be chosen for playback by double clicking on the parent item encapsulating the video, audio and subtitle assets. As with the CPL dialog box, optional audio streams may also be selected by use of CTRL and left click. Note that the chosen audio streams are not required to be within the same playlist as the video. Furthermore, it is possible to select more than one audio stream from different playlists. Press OK to play the entire segment.

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11 Appendix G: Captions/Subtitles Formats

The player can support both captions/subtitles that are embedded in the video file and captions/subtitles that exist on separate files. The following is a list of all the formats that are currently supported:

- Internal/ Embedded captions/subtitles
    - 3GPP Timed Text (.TX3G)
    - EIA-608 (DVTCC SCTE128) text stream
    - EIA-708 (DVTCC SCTE128) text stream
    - EIA-608 (DVTCC SCTE20) text stream
    - EIA-708 (DVTCC SCTE20) text stream
    - EIA-608 (Ancillary CDP) in MXF
    - EIA-708 (Ancillary CDP) in MXF
    - Teletext
- External/ Embedded captions/subtitles
    - Comma Separated Files (.CSV)
    - D-Cinema Interop (.XML) external files
    - DLP Cinema (.XML)
    - European Broadcasting Union (.STL)
    - Scenario Closed Captions (.SCC)
    - Screen Electronics (.PAC)
    - SMPTE 428-7 (.XML)
    - Sonic Solutions (.SON)
    - Spruce (.STL)
    - Subrip (.SRT)
    - Timed Text (v1.0) (.DFXP)
    - iTunes Timed Text (.ITT)
    - Videotron Lambda Cap (.CAP)
    - Web Video Track (.VTT)

If captions/subtitles are requested, the opening of a video file will result in existing text streams to be scanned for captions/subtitles. External captions/subtitles files will also be processed.

After the video has been loaded, any captions/subtitles will be displayed in the Captions/Subtitles Viewer (see below) and also in the player. If there is more than one captions/subtitles track, then any of them can be selected from the right-click context.

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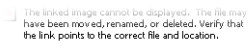
11.1 Editing Captions/Subtitles (European Broadcasting Union STL format only)

Editing feature that enables captions/subtitles in the European Broadcasting Union STL format (not to be confused with the Spruce STL format) to be modified. This feature is enabled when the captions/subtitles viewer is displaying EBU STL captions/subtitles.

This section describes how subtitles in EBU STL format can be edited.

11.2 Editing Time In, Time Out and Subtitle Text Using the Context Menu

Right click on the captions/subtitle editor and options for Edit, Set Current Timecode, Apply Changes, Save and Save As will be available.



When the Edit option is selected on a row in the captions/subtitles viewer, edit mode is initiated. Note that right clicking to choose edit from the context menu is location dependent, so right clicking a row under the time in column and selecting Edit will initiate Edit Mode for Time In. Right clicking under the Time Out column and selecting Edit will initiate Edit Mode for Time Out. Similarly, editing the text requires right clicking under the Text column and selecting Edit.

Once in Edit Mode, the new information can be typed in and the new changes are inserted by pressing Enter or clicking away. The Escape key can be used to cancel the edit. However, the changes will not be reflected in the player until the Apply Changes option is chosen from the context menu.

Rather than typing in time in and time out values, the current timecode indicated in the player can be used. This is carried out by selecting the Set Current timecode option in the context menu. To set the time in to use the current timecode, right click a row under time in column and select Set Current Timecode to set the player's timecode as the new Time In value. To set the current timecode for time out, right click under the time out column and choose Set Current Timecode in the context menu.

11.3 Editing Time In, Time Out and Subtitle Text Using Shortcut Keys

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There are 5 shortcut keys that can also be used to edit. First, a row on the captions/subtitles viewer needs to be selected by a single left click. It will be highlighted in green. When the row is selected, the following shortcut keys can be used:

- CTRL + 1 – Select Edit Mode for the Time In column of the selected row.
- CTRL + 2 – Select Edit Mode for the Time Out column of the selected row.
- CTRL + 3 – Select Edit Mode for the Subtitle Text column of the select row.
- CTRL + 4 – Set the Time In value to be the player's current timecode.
- CTRL + 5 – Set the Time Out value to be the player's current timecode.

Note that the above operations require the Apply Changes context menu option to be carried out for the changes to be reflected in the player.

11.4 Saving Changes

The edited STL can be saved back to the original STL file or saved to a new file. The context menu options for 'Save' and 'Save As' will perform these respective functions.

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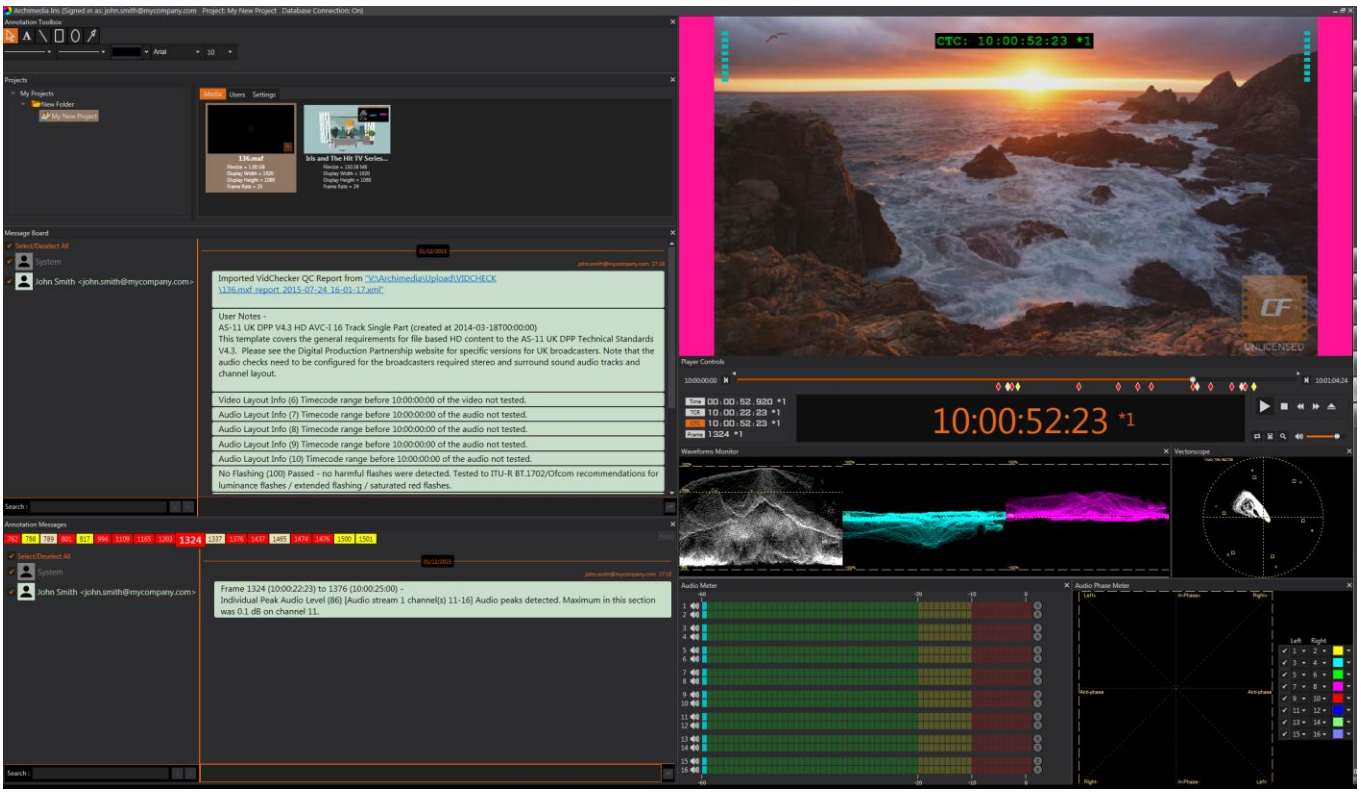
12 Appendix H: 3rd Party XML QC Report Import

Iris currently supports the following automated QC reports:

- Vidcheck Vidchecker .xml files
- Venera Pulsar .xml files
- Interra Baton .xml files
- Tektronix Aurora .xml files
- Telestream Vidchecker .json files
- Telestream Cloud .json files
- GrayMeta Iris .json and .xml files

Each QC report identifies positions in the file where it highlights an issue with the content or file metadata or its structure. Importing the report into Iris along with the media file allows easy verification of the alerts.

To use the QC import feature, first load the source media file that has been analyzed by the automated QC application into a Project. Then from the Open QC Report context menu, select the matching report file.



After importing, the Message Board and Annotation Message windows will be populated with the detected alerts. The colors in the annotation tabs are specific to the QC vendor. The same color

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alerts are placed in the time-line control as diamond markers. You can jump to the alert position by clicking the diamond markers or by double clicking the annotation tabs. The imported information is automatically saved for the media in the project.

A Vidchecker XML report file can also be imported via the command line using option:

/importvidchecker=”file.xml”

A Venera Pulsar XML report file can also be imported via the command line option:

/importvenerareport=”file.xml”

An Interra Baton XML report file can also be imported via the command line option:

/importbatonreport=”file.xml”

A Tektronix Aurora XML report file can also be imported via the command line option:

/importaurorareport=”file.xml”

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13 Appendix I: Known Issues

13.1 Use of Active Directory Groups in an environment consisting of a mixture of Iris 6.x and Iris 7.x clients

We highly recommend that you don't use a mixture of Iris 6.x and Iris 7.x clients connected to the same Iris Sever. There is a known problem in an environment consisting of a mixture of Iris 6.x and Iris 7.x clients and use of Active Directory groups. The problem manifests itself when user 1 adds a group to a project in Iris 7.x. User 2, who is a member of that group, logs in using Iris 6.x but User 2 will not see the project. The workaround is that User 2 has to log in using Iris 7.x for the project to appear. However, once this has been done, User 2 can go back to Iris 6.x, log in and now see the projects.

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