



Dolby CineAsset Player

User's Manual

22 July 2019
CAS.OM.005071.DRM Issue 6

Notices

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Dolby CineAsset Player software is based in part on the work of the Qwt project (qwt.sf.net).

This software uses libraries from the FFmpeg project under the LGPLv2.1.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (openssl.org).

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Expat 2.0.1: expat.sourceforge.net

libcurl 7.39.0: curl.haxx.se/libcurl

portaudio: portaudio.com

qextserialport: github.com/qextserialport/qextserialport

quazip: quazip.sourceforge.net

zlib 1.2.8: zlib.net

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1

Introduction to the Dolby CineAsset Player User's Manual

This documentation provides instructions for operating the Dolby CineAsset Player software.

- [Contacting Dolby](#)

1.1 Contacting Dolby

You can contact Dolby Cinema Solutions and Support using email or regional telephone numbers. You can also access documentation by visiting the Dolby customer portal.

Contact Dolby Cinema Solutions and Support

- Send an email to cinemasupport@dolby.com.
- Call:

Americas: +1-415-645-4900

Europe/Middle East/Africa (EMEA): +44-33-0808-7700

Asia-Pacific (APAC): +86-400-692-6780

Japan: +81-3-4540-6782

Access documentation

Visit www.dolbycustomer.com.

Submit feedback about this documentation

Send an email to documentation@dolby.com.

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Dolby CineAsset Player overview

Dolby CineAsset Player is a software-based media player that enables you to review and validate a Digital Cinema Package (DCP) without a digital cinema server. Dolby CineAsset Player includes two applications: CineAsset Player and CineInspect. It can play back any DCP, including a DCP not created using Dolby mastering products. It supports encrypted and nonencrypted DCPs.

- [CineAsset Player](#)
- [CineInspect](#)

2.1 CineAsset Player

CineAsset Player can play back encrypted or unencrypted DCPs generated by any digital cinema mastering solution, as well as any video file or audio file supported by the Dolby CineAsset software.

In addition to playing back a DCP, Dolby CineAsset Player can play back many popular video file types and can perform quality checks on an encrypted or nonencrypted DCP.

CineAsset Player is intended for quality control purposes and is not meant to replace a cinema server playback system. As such, many content distributors will not grant keys to playback their content.

2.2 CineInspect

CineInspect inspects the DCP files by running a number of tests designed to verify the integrity of the DCP makeup. You can choose from various validation levels to inspect an unencrypted or encrypted Digital Cinema Package.

After you inspect the DCP file, you can export a set of log messages that display the tests performed and the results obtained from the inspection.

3

Software and hardware requirements

The software and hardware system requirements for Dolby CineAsset Player provide useful information to help you verify setup options and avoid performance issues.

- [Hardware system requirements for Microsoft Windows](#)
- [Hardware system requirements for Apple Mac OS X](#)
- [Hardware system requirements for Linux](#)
- [Minimum hardware system requirements for Dolby CineAsset Player](#)
- [Minimum hardware system requirements for HD-SDI output](#)
- [USB dongle and license requirements](#)

3.1 Hardware system requirements for Microsoft Windows

The hardware system requirements for Microsoft Windows provide useful information to help you verify setup options and avoid performance issues.

- Operating systems: Windows 7, Windows 8.1, or Windows 10 (64 bit)
- Random-access memory (RAM): 4 GB minimum, 8 GB recommended
- Intel Core 2 Duo minimum, Core i7 recommended
- Graphics adapter with minimum 512 MB dedicated memory (Intel integrated graphics not recommended)

3.2 Hardware system requirements for Apple Mac OS X

The hardware system requirements for Apple Mac OS X provide useful information to help you verify setup options and avoid performance issues.

- Operating systems: Apple Mac OS X 10.8.x to 10.12.x
- RAM: 4 GB minimum, 8 GB recommended
- Intel Core 2 Duo minimum, Core i7 recommended
- Graphics adapter with minimum 512 MB dedicated memory (Intel integrated graphics not recommended)

3.3 Hardware system requirements for Linux

The hardware system requirements for Linux provide useful information to help you verify setup options and avoid performance issues.

- Operating systems: CentOS 6 or CentOS 7 (64 bit)
- RAM: 4 GB minimum, 8 GB recommended
- Intel Core 2 Duo minimum, Core i7 recommended
- Graphics adapter with minimum 512 MB dedicated memory (Intel integrated graphics not recommended)

3.4 Minimum hardware system requirements for Dolby CineAsset Player

When you use Dolby CineAsset Player for real-time playback of a 2K, 24 fps DCP with color conversion, we recommend these minimum hardware system requirements.

- Central processing unit (CPU) with 12 physical cores or six cores with Intel Hyper-Threading Technology (HT Technology)
- 8 GB RAM
- Graphics adapter with 1 GB dedicated memory
- Fast local storage dedicated to content, such as a 7,200 RPM SATA III disk drive or solid-state drive

 **Attention:** Real-time playback of any high-frame-rate 3D DCP or 4K DCP may not be attainable.

3.5 Minimum hardware system requirements for HD-SDI output

Dolby CineAsset Player supports and was tested with DeckLink HD Extreme 3D+ and DeckLink 4K Extreme PCIe models.

 **Attention:** Real-time playback of a 4K DCP may not be attainable.

These are sample configurations for Microsoft Windows 7:

- Six core processors (Intel Xeon X5650 2.67 GHz)
- 24 GB RAM
- Nvidia Quadro 2000D (1 GB RAM)
- DeckLink 4K Extreme
- SSD for media
- This configuration is capable of playing 2D, 2K at 24 fps, with color conversion enabled, to a high-definition serial digital interface (HD-SDI) output, without dropping frames (standard computer monitor output disabled).

These are sample configurations for Apple Macintosh Pro:

- Twelve core processors (Intel Xeon dual 2.4 GHz)
- 12 GB RAM
- AMD ATI Radeon HD 5770 (1 GB RAM)
- DeckLink 4K Extreme
- 2x SATA drives (RAID 0) for media
- This configuration is capable of playing 2D, 1080p at 24 fps, with color conversion enabled, to HD-SDI, without dropping frames (standard computer monitor output disabled).

When a supported card is recognized by Dolby CineAsset Player, it displays under the **Device** menu.

These three playback options are provided to maximize performance:

- Plays only to the HD-SDI output
- Plays only to a standard computer monitor
- Plays to both a standard computer monitor and the HD-SDI output

3.6 USB dongle and license requirements

The Dolby CineAsset Player license is included on a Universal Serial Bus (USB) dongle. Dolby CineAsset Player provides you with a Standard version for unencrypted material and a Professional version for encrypted material.

Since the license is located on the USB dongle, make sure the USB is always plugged in when operating the Dolby CineAsset Player.

3.6.1 USB dongle for encrypted content

Use the professional version to playback unlimited encrypted content. The USB dongle for the professional version uses a unique private key stored on the USB dongle.

3.6.2 USB dongle for unencrypted content

Use the standard version to play back an unencrypted DCP and to inspect and validate a DCP. The standard version does not support 3D or 4K content.

3.6.3 Evaluation version

Use the evaluation version to play back an unencrypted DCP, at up to 15 seconds. The evaluation version does not support 3D or 4K content.

4

Installing the Dolby CineAsset Player software

The Dolby CineAsset Player software requires the USB dongle for installation and operation. The USB dongle includes the license for either the professional or standard version.

- [Installing the Dolby CineAsset Player on Microsoft Windows](#)
- [Installing the Dolby CineAsset Player on Mac OS X](#)
- [Installing the Dolby CineAsset Player on Linux](#)
- [Viewing the Dolby CineAsset Player software version](#)

4.1 Installing the Dolby CineAsset Player on Microsoft Windows

You can install Dolby CineAsset Player on Microsoft Windows operating systems.

Prerequisites

To receive the software package, contact Dolby Cinema Solutions and Support at cinemasupport@dolby.com.

Procedure

1. Double-click the installation package file, and follow the onscreen prompts.
The software package for Microsoft Windows operating systems uses the *DolbyCineAssetPlayer-8.x.x-Win-64.exe* file.
2. After you install the package, reboot the workstation.

4.2 Installing the Dolby CineAsset Player on Mac OS X

You can install Dolby CineAsset Player on Mac OS X operating systems.

Prerequisites

To receive the software package, contact Dolby Cinema Solutions and Support at cinemasupport@dolby.com.

Procedure

1. Double-click the installation package file, and follow the instructions to mount the image.
The software package to mount the image for Mac OS X operating systems uses the *DolbyCineAssetPlayer-8.x.x-macOS.dmg* file.
2. Double-click the installation package file, and follow the onscreen prompts.
The software package for Mac OS X operating systems uses the *DolbyCineAssetPlayer-8.x.x-macOS.pkg* file.
3. After you install the package, reboot the workstation.

4.3 Installing the Dolby CineAsset Player on Linux

You can install Dolby CineAsset Player on Linux CentOS operating systems.

Prerequisites

To receive the software package, contact Dolby Cinema Solutions and Support at cinemasupport@dolby.com.

About this task

You can also install this package from a command-line interface (CLI).

Procedure

1. Double-click the installation package file and follow the onscreen prompts.
The software package for Linux CentOS 6 operating systems uses the *DolbyCineAssetPlayer-8.x.x-CentOS6.x86_64.rpm* file.

The software package for Linux CentOS 7 operating systems uses the *DolbyCineAssetPlayer-8.x.x-CentOS7.x86_64.rpm* file.

2. After you install the package, reboot the workstation.

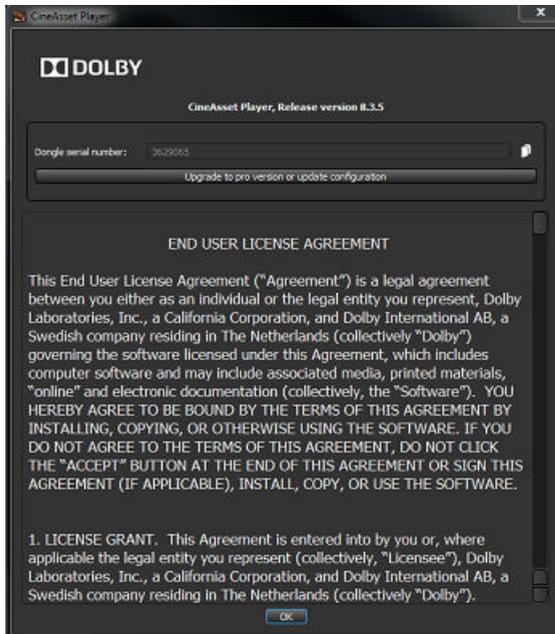
4.4 Viewing the Dolby CineAsset Player software version

You can view the Dolby CineAsset Player software version from the **CineAsset Player** main window.

Procedure

1. In the **CineAsset Player** main window, click **Help**, and then click **About**.
2. In this window, view the software version, and then click **OK**.

Figure 1: Software version



5

Playing back content with CineAsset Player

CineAsset Player enables you to view content and perform playback of a DCP. In addition, you can modify the CineAsset Player settings for content playback and content validation (through CineInspect).

- [Playing back a DCP](#)
- [Playing back a multimedia file](#)
- [Playing back separated video and audio files](#)
- [Creating a playlist with CineAsset Player](#)
- [Loading and playing a playlist with CineAsset Player](#)
- [Modifying CineAsset Player settings](#)

5.1 Playing back a DCP

You can open and play back a DCP.

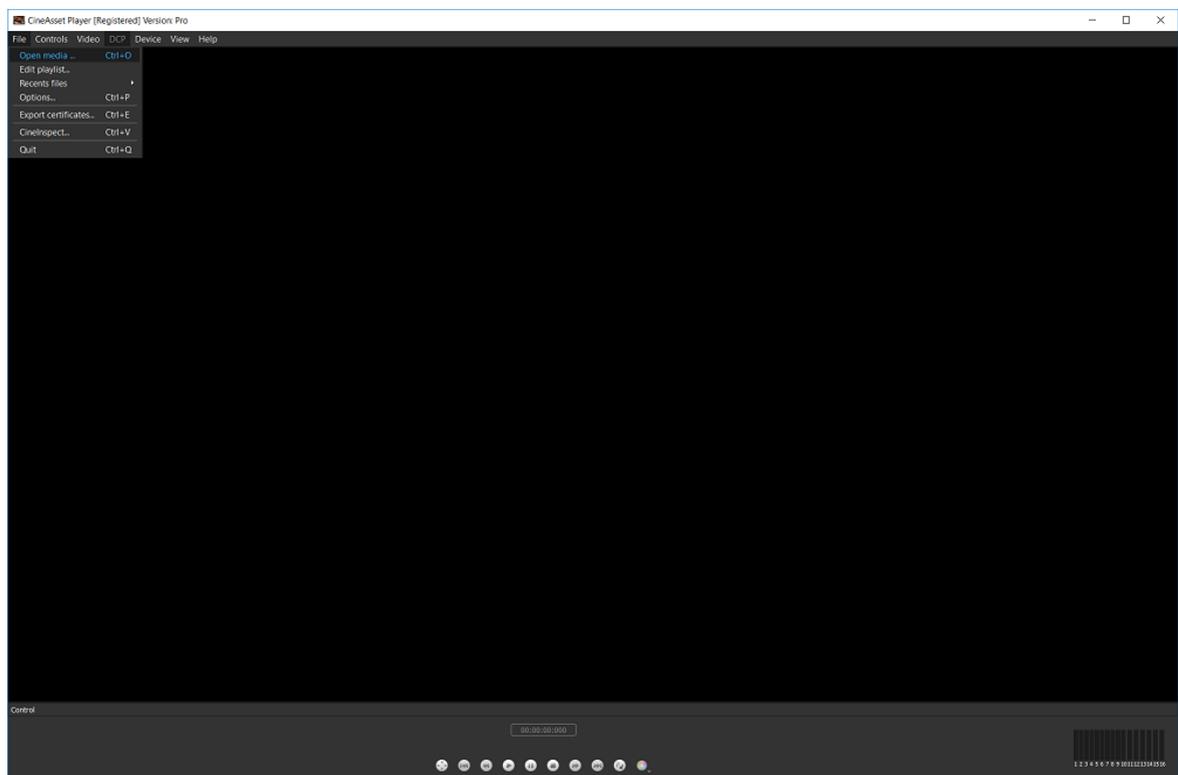
Procedure

1. At the top-left section of the **CineAsset Player** main window, click **File**, and then select **Open media** in the drop-down menu.

i **Tip:**

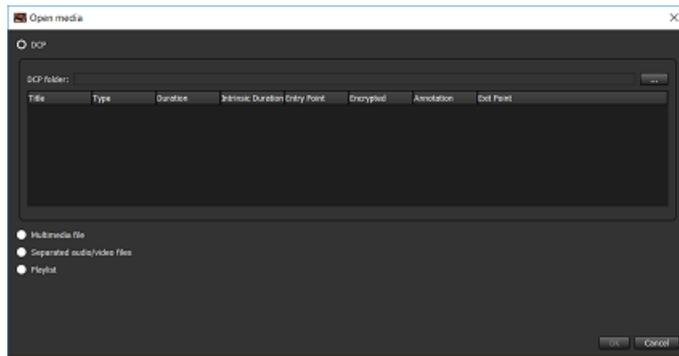
You can also open a DCP by dragging and dropping a file or folder into the **CineAsset Player** main window.

Figure 2: CineAsset Player main window



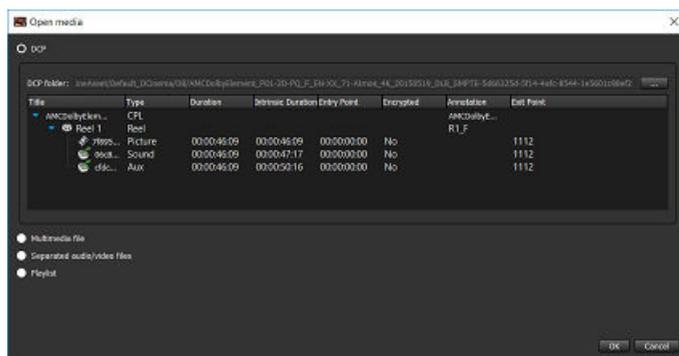
2. In the **Open media** window, select **DCP**.

Figure 3: Open media window



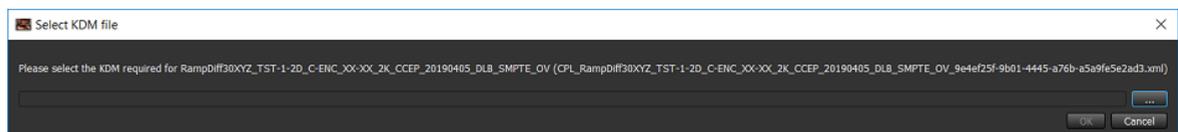
3. Browse to the DCP by using the browse (...) button at the top-right section of the **Open media** window.
4. For an encrypted DCP, browse for the Key Delivery Message (KDM) using the browse (...) button at the top-right section of the **Open media** window.
5. After you find the DCP and KDM, click **OK**.

Figure 4: Open media window



If you drag and drop an encrypted DCP onto the **CineAsset Player** main window, you will need to locate the corresponding KDM in this window:

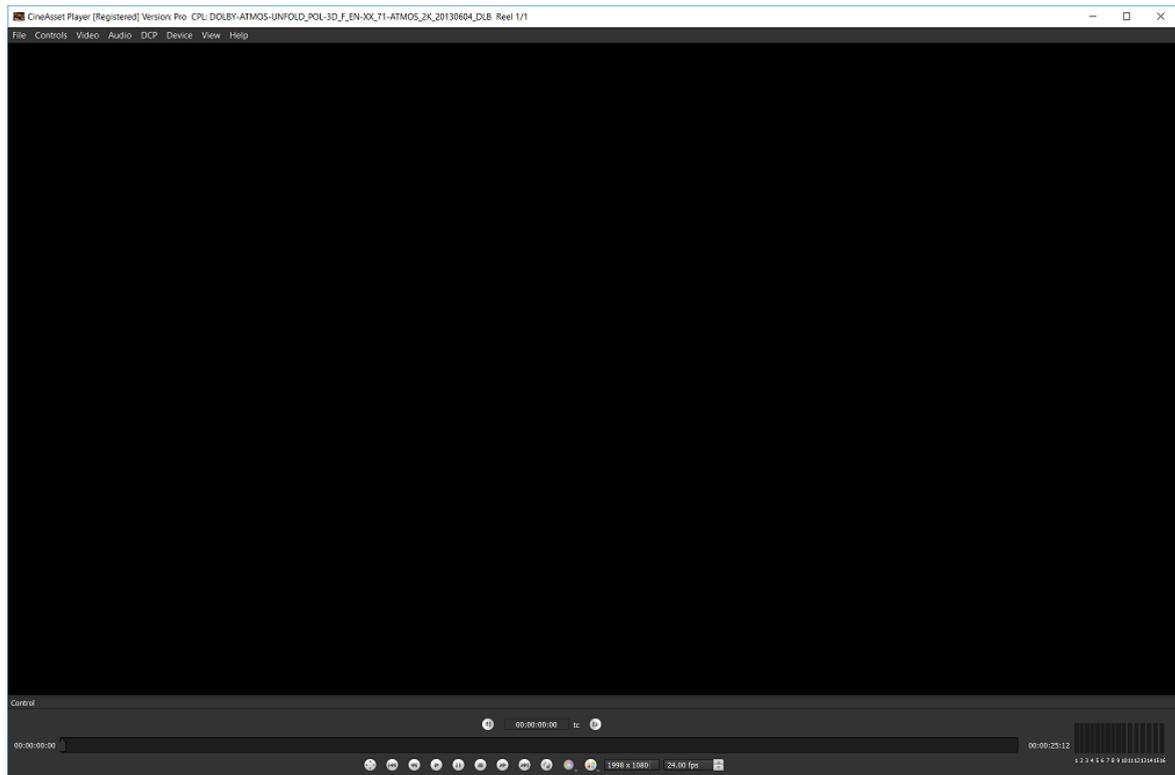
Figure 5: KDM search window



The DCP opens in the **CineAsset Player** main window.

6. Click **Play** to play back the DCP.

Figure 6: CineAsset Player main window



5.2 Playing back a multimedia file

You can open and play back a multimedia file.

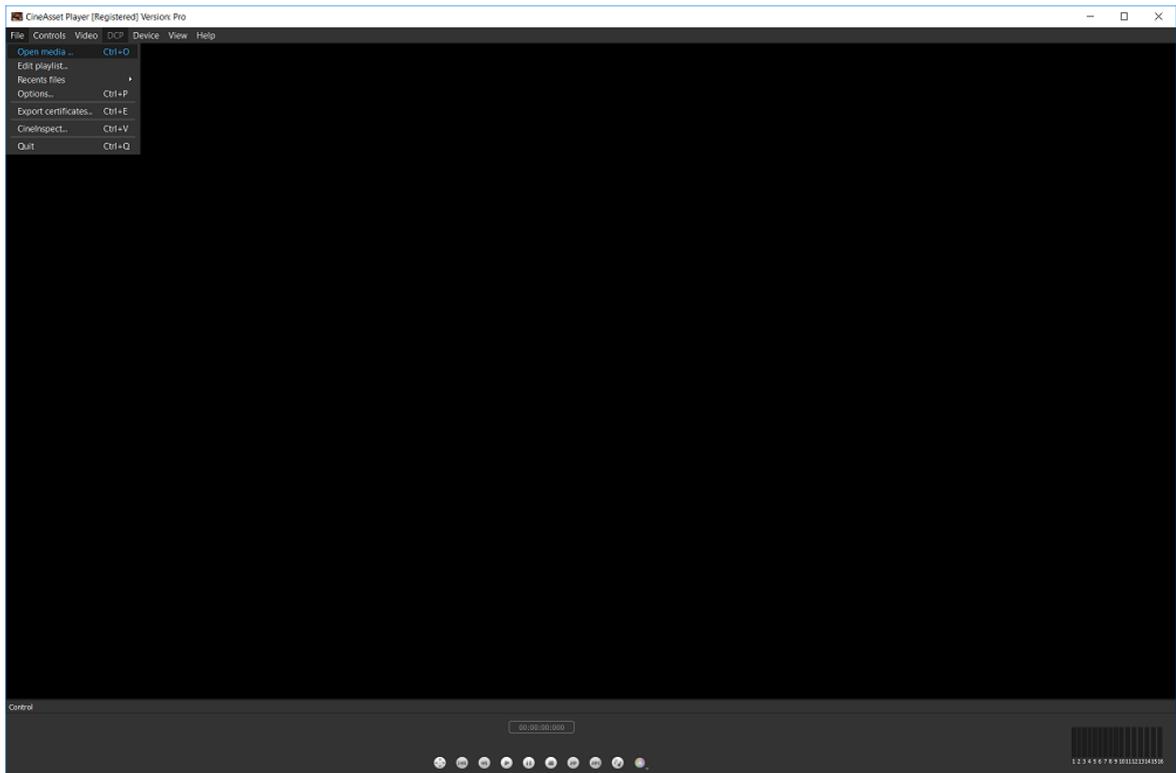
Procedure

1. At the top-left section of the **CineAsset Player** main window, click **File**, and then select **Open media** in the drop-down menu.

i **Tip:**

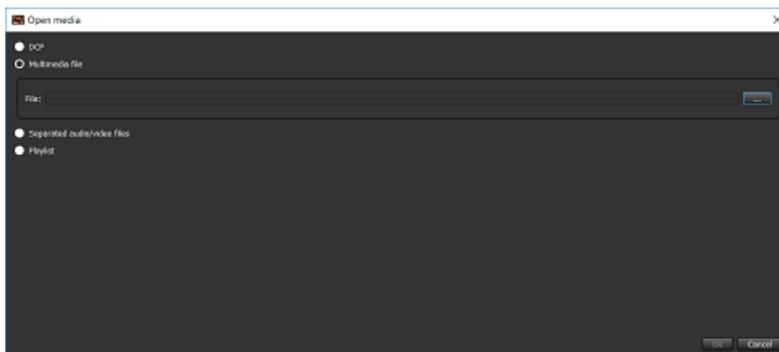
You can also open the multimedia file by dragging and dropping a file or folder into the **CineAsset Player** main window.

Figure 7: CineAsset Player main window



2. In the **Open media** window, select **Multimedia file**.

Figure 8: Open media window



3. Browse to the multimedia file by using the browse (...) button at the top-right section of the **Open media** window.
4. After you find the multimedia file, click **OK**.
The multimedia file opens in the **CineAsset Player** main window.
5. Click **Play** to play back the multimedia file.

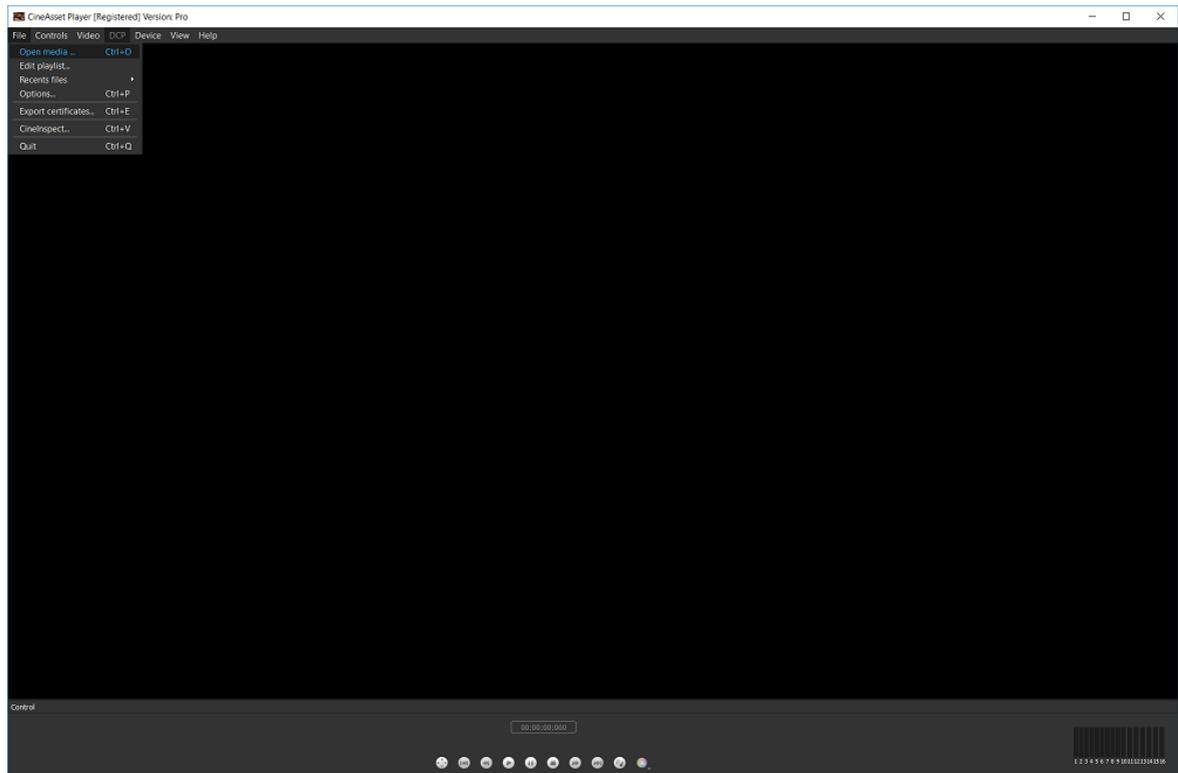
5.3 Playing back separated video and audio files

You can simultaneously open and play back separated video and audio files.

Procedure

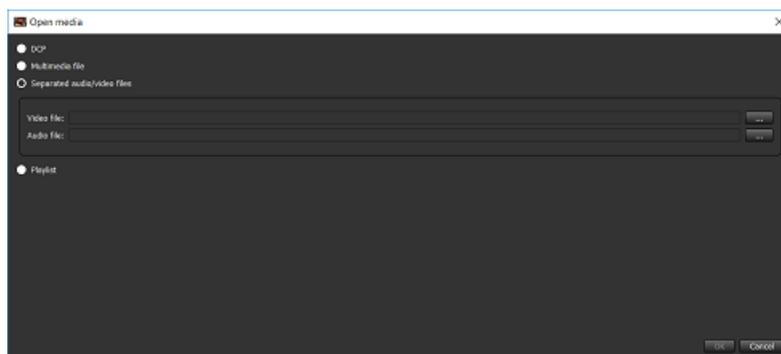
1. At the top-left section of the **CineAsset Player** main window, click **File**, and then select **Open media** in the drop-down menu.

Figure 9: CineAsset Player main window



2. In the **Open media** window, select **Separated audio/video files**.

Figure 10: Open media window



3. Browse to the separated video and audio files using the browse (...) buttons in the **Open media** window.
4. After you find the separated video and audio files, click **OK**.

The separated video and audio files open in the **CineAsset Player** main window.

5. Click **Play** to play back the separated video and audio files simultaneously.

5.4 Creating a playlist with CineAsset Player

You can use CineAsset Player to create a playlist containing multiple and varying composition playlist (CPL) files.

Procedure

1. In the **CineAsset Player** main window, click **File**, and then click **Edit playlist**.
2. In the **Edit Playlist** window, click **New** to begin creating a new playlist.
3. Click **Add**.
4. To select a DCP, select the **DCP** radio button, and then search for the file.
5. To select a multimedia file, select the **Multimedia file** radio button, and then search for the file.
6. To select separate audio and video files, select the **Separated audio/video files** radio button, and then search for the files.
7. Click **OK**.
8. In the **Edit Playlist** window, use **Move up** and **Move down** to arrange the sequence of CPLs added in the playlist.
9. To remove a CPL from the playlist, click **Remove**.
10. When you finish, click **Save**.

5.5 Loading and playing a playlist with CineAsset Player

You can use CineAsset Player to load and play a playlist containing CPLs.

Procedure

1. In the **CineAsset Player** main window, click **File**, and then click **Edit playlist**.

 **Tip:**

You can also drag and drop the playlist onto the **CineAsset Player** main window, or you can use the **Open media** window to open the playlist.

2. In the **Edit Playlist** window, click **Open** to open the playlist.
3. In the explorer window, browse for and then open the playlist.
4. In the **Edit Playlist** window, click **Play** to begin playback of the playlist.

5.6 Modifying CineAsset Player settings

CineAsset Player allows you to modify the DCP playback and DCP validation settings.

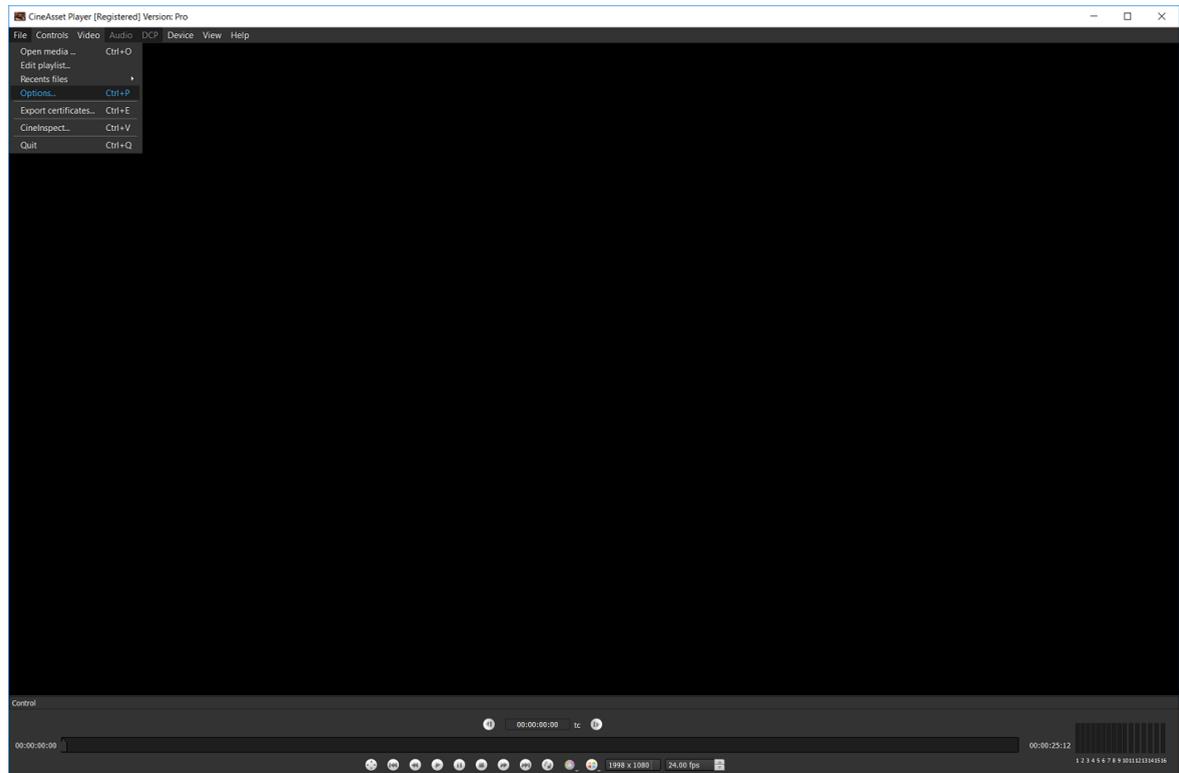
5.6.1 Modifying CineAsset Player playback settings

You can modify the CineAsset Player DCP playback settings.

Procedure

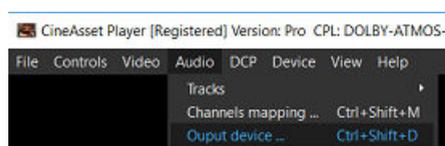
1. In the **CineAsset Player** main window, click **File**, and then click **Options**.

Figure 11: CineAsset Player main window



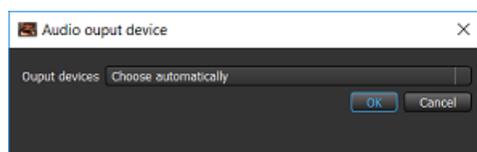
2. In the **Options** window, select one or all of the settings you want to modify:
 - a) To allow frames to drop during playback, select the **Drop frame allowed** check box.
 - b) To use the DeckLink option, select the **Auto detect DeckLink card** check box.
 - c) To disable GPU color conversion, unselect the **Use GPU for color conversion** check box.
 - d) To run a validation check each time the DCP is opened, select the **Enable dcp validation check** check box.
3. To change the output audio device, click **Audio** in the **CineAsset Player** main window.

Figure 12: Output device



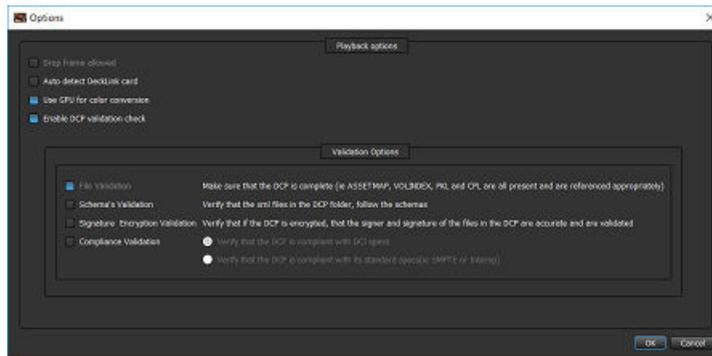
4. In the **Audio output device** window, from the **Output devices** list, select your source audio device, and then click **OK**.

Figure 13: Audio output device window



5. After you finish, click **OK**.

Figure 14: Options window



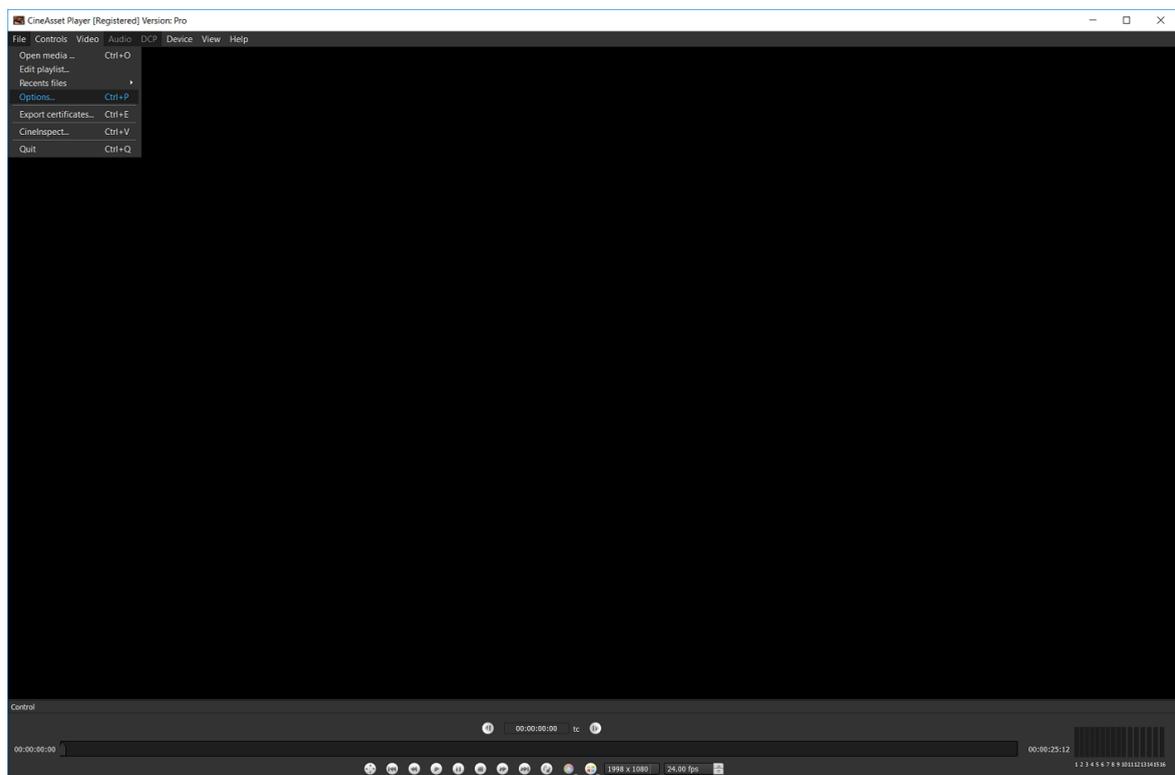
5.6.2 Modifying CineAsset Player DCP validation settings

You can modify the CineAsset Player DCP validation settings.

Procedure

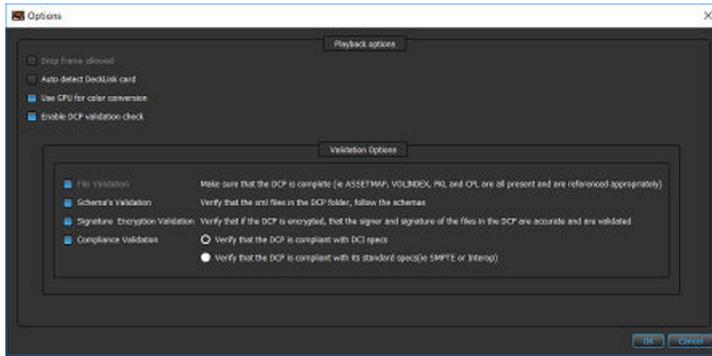
1. In the **CineAsset Player** main window, click **File**, and then click **Options**.

Figure 15: CineAsset Player main window



2. In the **Options** window, select one or all of the settings you want to modify:
 - a) To verify the DCP components, select the **File Validation** check box.
 - b) To verify that the XML files follow the appropriate schema, select the **Schema's Validation** check box.
 - c) To verify that the encrypted DCP includes a valid signature, select the **Signature Encryption Validation** check box.
 - d) To verify that the DCP complies with Digital Cinema Initiatives, LLC (DCI) or standard specifications, select the **Compliance Validation** check box.
3. After you finish, click **OK**.

Figure 16: Options window



6

Modifying the viewing options with CineAsset Player

CineAsset Player enables you to modify the viewing options while playing back a DCP.

- [Adding color conversion](#)
- [Adding custom color conversion](#)
- [Selecting an image resolution layer](#)
- [Changing the playback frame rate](#)
- [Enabling side-by-side mode for a 3D DCP](#)
- [Changing the JPEG 2000 image quality](#)
- [Disabling playback to a standard computer monitor](#)
- [About the HD-SDI output](#)

6.1 Adding color conversion

You can add real-time color conversion while playing back a DCP.

About this task

The **XYZ'/YCxCz to RGB** option converts the color space from XYZ to red green blue (RGB), and the **XYZ'/YCxCz to RGB legal range** option converts the color space from XYZ to RGB legal range.

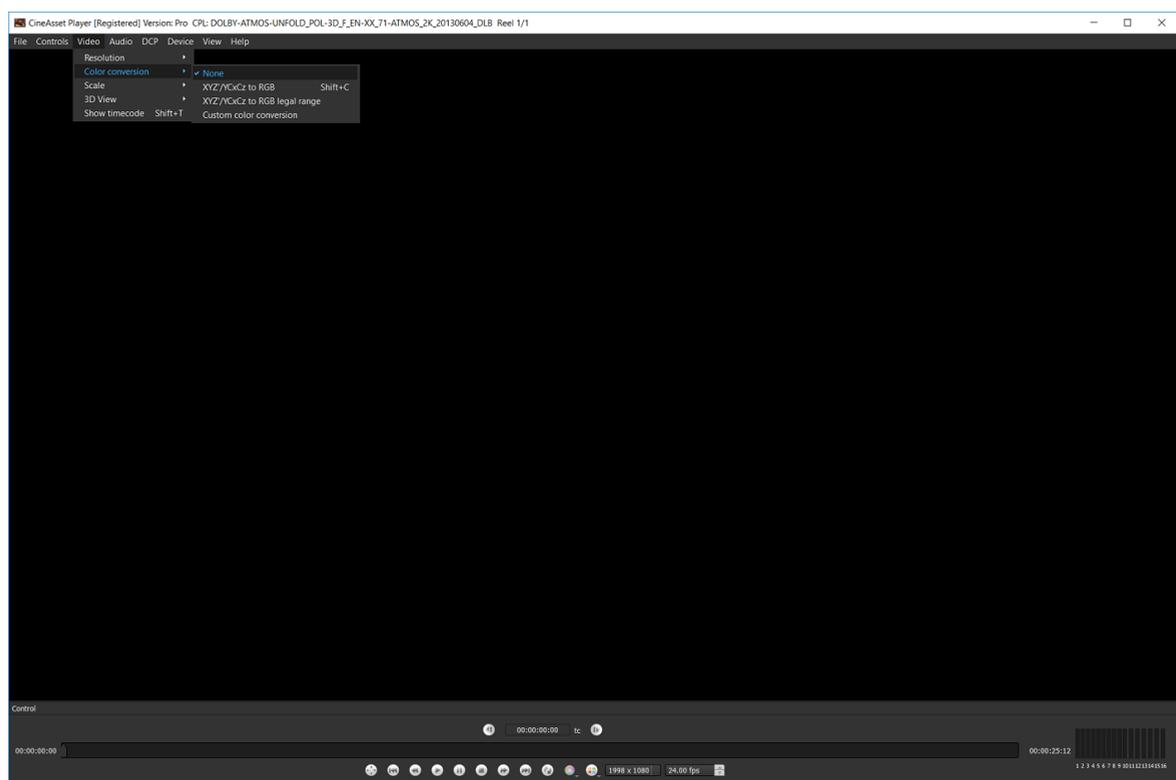
Prerequisites

Load the DCP in the **CineAsset Player** main window.

Procedure

In the **CineAsset Player** main window, click **Video**, click **Color conversion**, and then select either **XYZ'/YCxCz to RGB** or **XYZ'/YCxCz to RGB legal range**.

Figure 17: CineAsset Player main window



Results

The color conversion automatically applies to the DCP.

6.2 Adding custom color conversion

You can add custom color conversion while playing back a DCP.

Prerequisites

Load the DCP in the **CineAsset Player** main window.

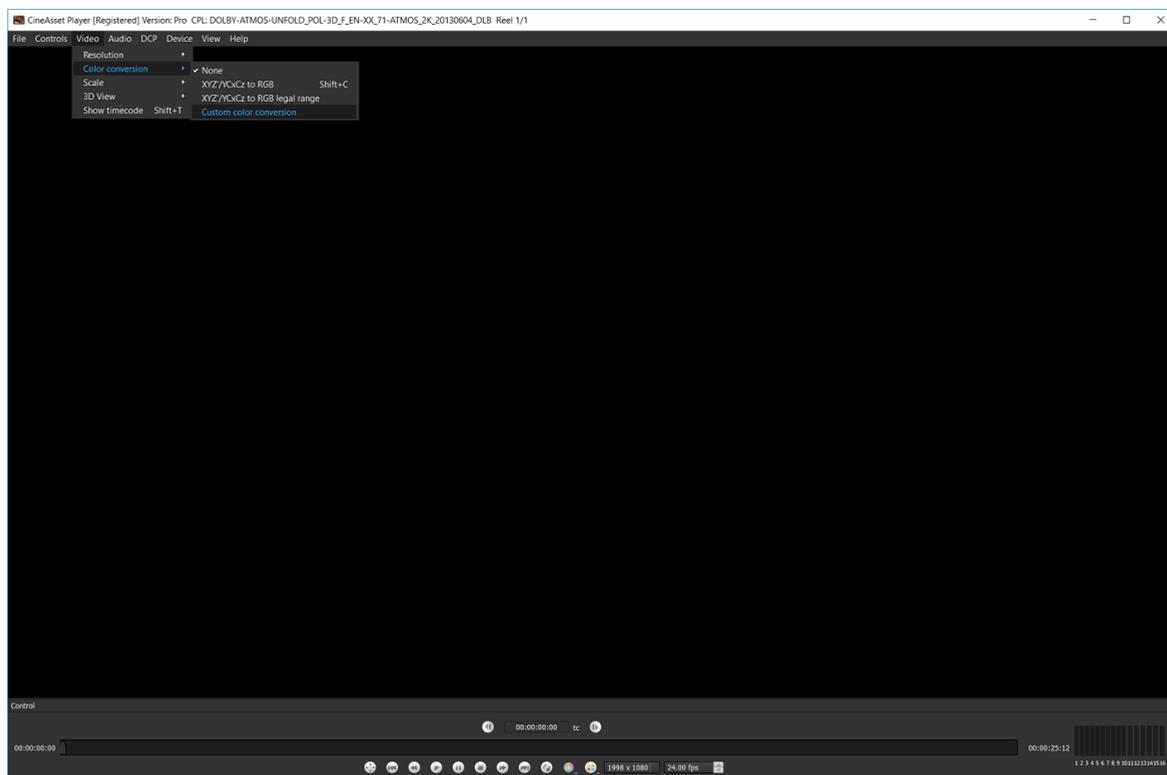
About this task

This option converts the color space to a user-defined setting.

Procedure

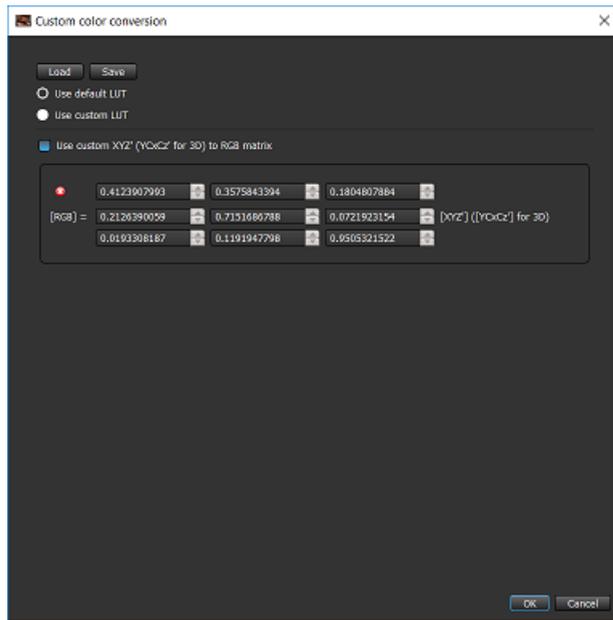
1. In the **CineAsset Player** main window, click **Video**, click **Color conversion**, and then click **Custom color conversion**.

Figure 18: CineAsset Player main window



2. In the **Custom color conversion** window, choose one of these options:
 - **Use default LUT**
 - **Use custom LUT**
3. After you select an option, modify the settings accordingly.
4. If desired, click **Use custom XYZ' (YCxCz for 3D) to RGB matrix**.

Figure 19: Custom color conversion window



5. After you finish, click **Save** first, and then click **OK**.

6.3 Selecting an image resolution layer

You can select an image resolution layer for a DCP.

About this task

CineAsset Player supports the multiple resolution layers of JPEG 2000–encoded DCPs.

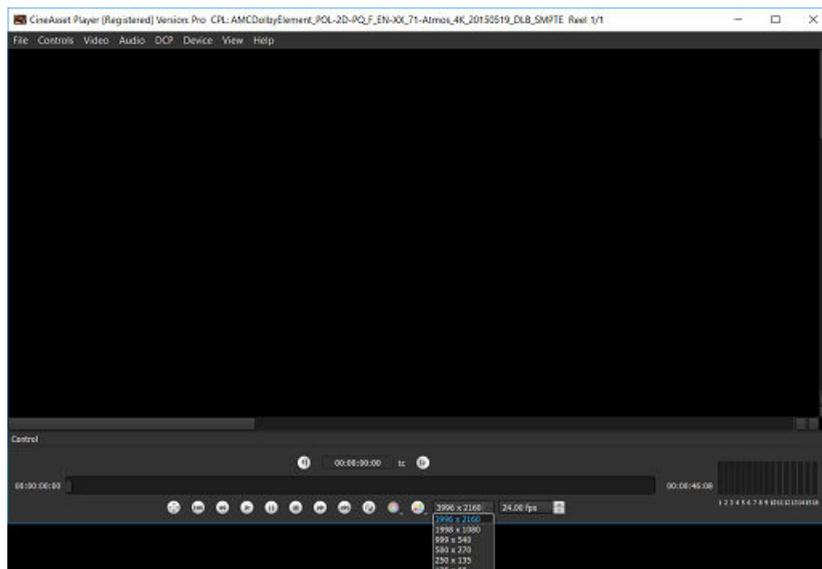
Prerequisites

Before selecting a new image resolution layer, make sure the DCP is loaded and is not playing.

Procedure

In the **CineAsset Player** main window, click the JPEG 2000 image resolution drop-down menu, and select an image resolution.

Figure 20: CineAsset Player main window



Results

The DCP automatically updates to the new image resolution layer.

6.4 Changing the playback frame rate

You can change a DCP playback frame rate prior to playing a loaded DCP.

Prerequisites

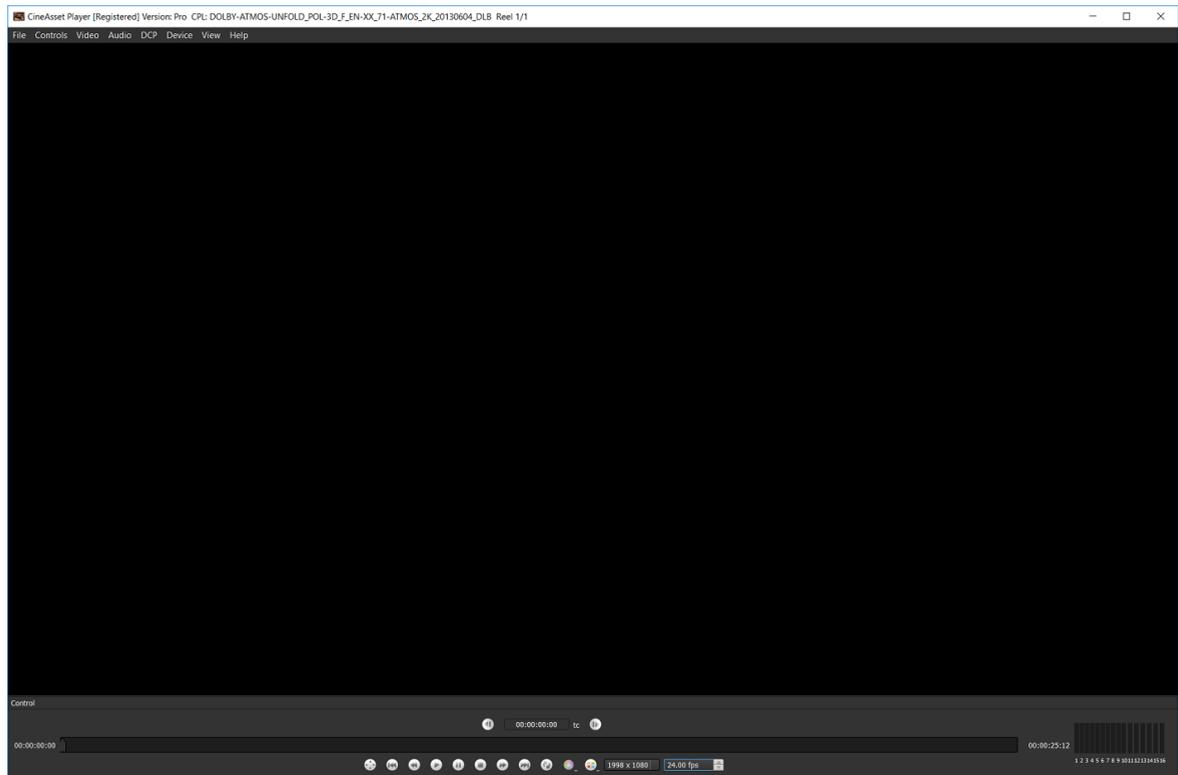
Make sure the DCP is loaded in the **CineAsset Player** main window.

Procedure

1. In the **CineAsset Player** main window, click in the playback frame-rate adjustment field, and then enter a new frame rate.

You can also use the up and down arrows to find a new frame rate.

Figure 21: CineAsset Player main window



2. After you enter a new frame rate, press the Enter key.

Results

The DCP automatically updates to the new playback frame rate.

6.5 Enabling side-by-side mode for a 3D DCP

You can enable side-by-side mode when playing back a 3D DCP.

About this task

You can enable side-by-side mode only for a 3D DCP. When this mode is selected, the **CineAsset Player** main window splits the view and/or DCP playback into two sections. You can also enable left eye only and right eye only.

Procedure

1. Load the 3D DCP in the **CineAsset Player** main window.
2. Click **Video**, click **3D View**, and then click **Side by side**.
The **CineAsset Player** main window splits into two sections.

Figure 22: CineAsset Player main window



6.6 Changing the JPEG 2000 image quality

You can change the JPEG 2000 image quality for slower computers.

Prerequisites

Before changing the JPEG 2000 image quality, make sure the DCP is loaded and is not playing.

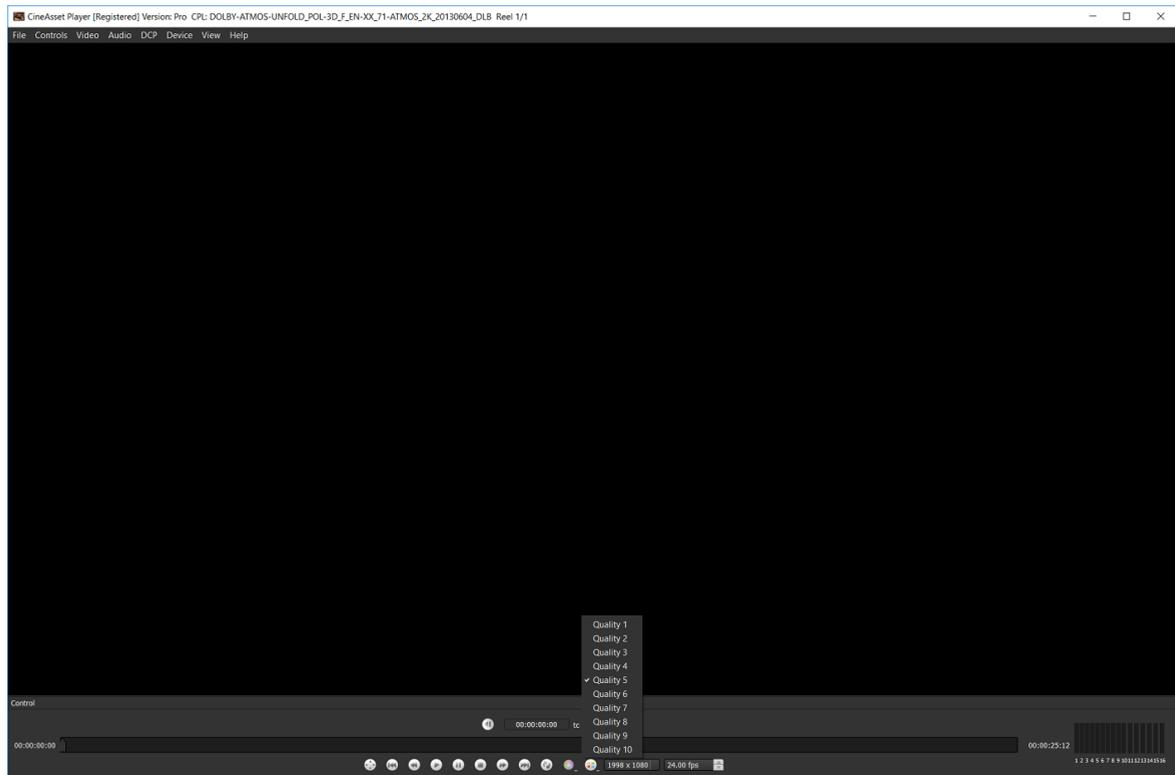
About this task

The image-quality setting can save processing power by reducing the rendering quality. The JPEG 2000 image-quality selection range is from 10 (best quality) to 1 (lowest quality). The default setting is 5.

Procedure

In the **CineAsset Player** main window, click the **JP2K image quality** list, and then select an image-quality setting.

Figure 23: CineAsset Player main window



Results

The image-quality setting updates automatically in the **CineAsset Player** main window.

6.7 Disabling playback to a standard computer monitor

You can disable playback to a standard computer monitor in the **CineAsset Player** main window when using HD-SDI output.

Procedure

1. In the **CineAsset Player** main window, click **Device** and select the card.
2. Uncheck **Enable local preview**.

6.8 About the HD-SDI output

Dolby CineAsset Player supports certain Blackmagic Design DeckLink series cards for HD-SDI output.

⚠ Attention: Specific performance depends on the host computer. We cannot guarantee full-quality, real-time playback when using these output cards. Currently, 4K playback on serial digital interface (SDI) is not supported.

7

Validating a DCP with CineInspect

We recommend you validate each DCP using CineInspect. You can choose from various validation levels to inspect each nonencrypted or encrypted DCP. You also have the option to export the inspection results after the validation process.

- [About the CineInspect DCP inspection process](#)
- [Validating a DCP](#)
- [Exporting a log file](#)

7.1 About the CineInspect DCP inspection process

CineInspect has four levels of validation. The higher levels perform more checks, but take more time and are more thorough. For the higher levels of validation (as in, compliance validation), two options are provided when inspecting a DCP.

DCI specification validation performs these checks:

- Checks *ASSETMAP.xml*. CineAsset can read **ASSETMAP** (without *.xml*), but this is considered an error with DCI.
- Checks *VOLINDEX.xml*. CineAsset can read **VOLINDEX** (without *.xml*), but this is considered an error with DCI.
- If an encrypted packing list (PKL)/CPL is not signed, an error appears. If an unencrypted PKL/CPL is not signed, a warning appears instead of an error.
- Verify the CPL key ID if SMPTE DCP. No verification for Interop DCP.
- An error appears if a DCP is Interop (because DCI requires a SMPTE DCP).
- Checks the DCP for all JPEG 2000 frames that can be extracted/read (that is, with no corrupted data). Note that this does not perform any additional testing. For example, for bit rate, no check is performed to verify that the code stream complies with DCI specification compression requirements.
- Checks if the universal label (UL) of Material Exchange Format (MXF) files are valid.
- Checks if universally unique identifier (UUID) valid (complies with UUID specification).

Standard specification validation performs these checks (on Interop or SMPTE DCP):

- Checks *ASSETMAP.xml*. Gives a warning only if *.xml* is missing.
- Checks *VOLINDEX.xml*. Gives a warning only if *.xml* is missing.

Important:

DCI specification validation performs more checks and is stricter than standard specification validation (for example, errors instead of warnings).

7.2 Validating a DCP

You can validate a DCP in the **CineInspect** main window.

About this task

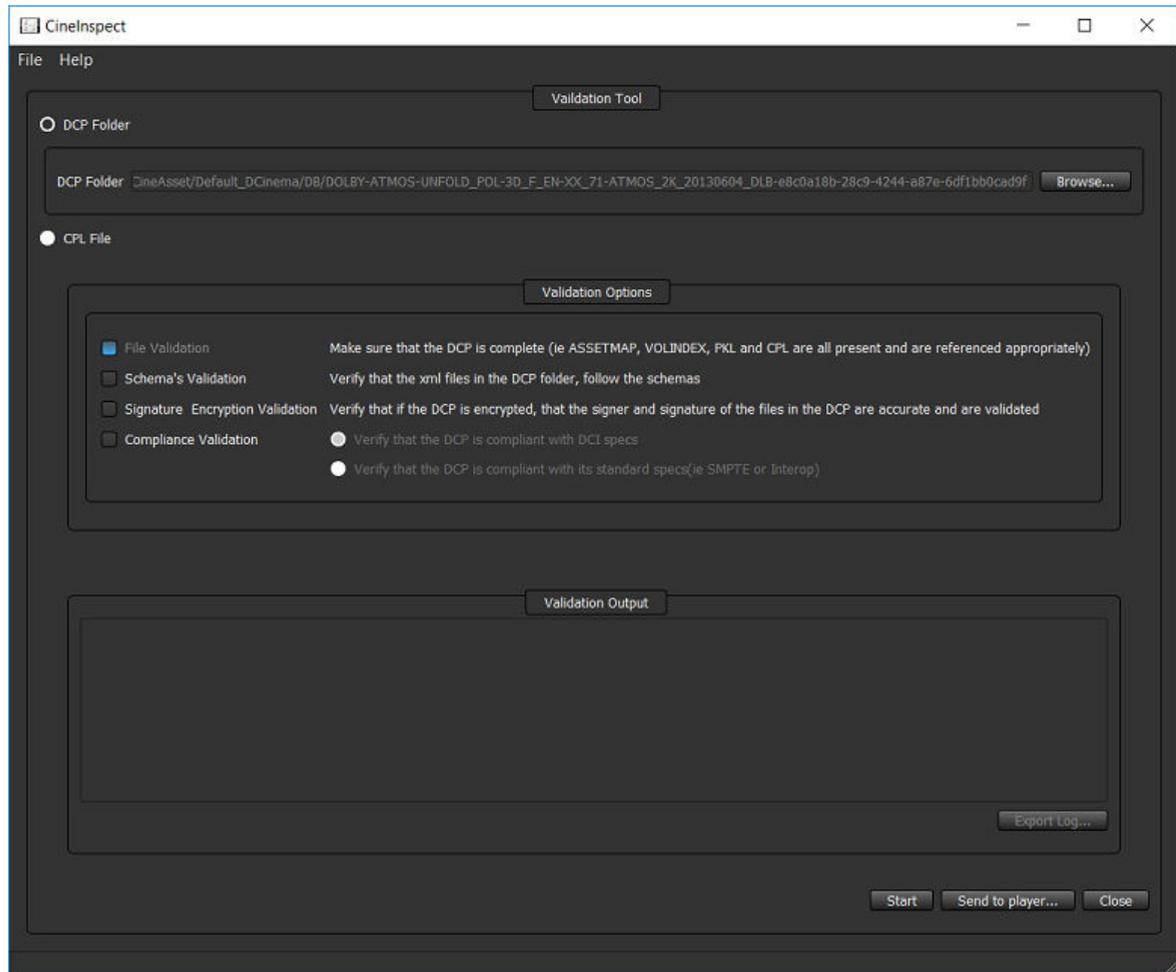
CineInspect enables you to validate an unencrypted or encrypted DCP (even if no KDM is provided).

In addition to a DCP, you can also validate a CPL.

Procedure

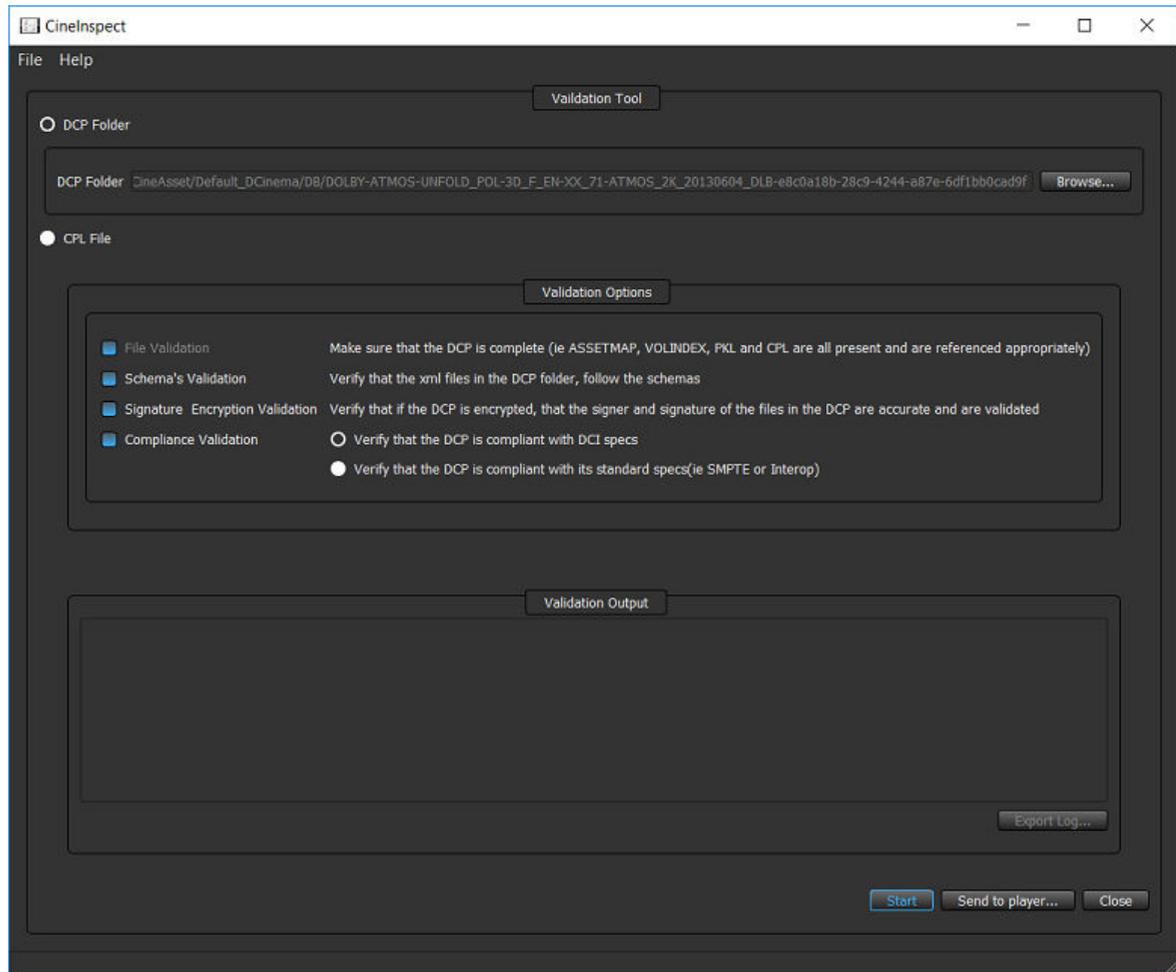
1. Open the **CineInspect** main window. Browse for and load the DCP.

Figure 24: CineInspect main window



2. Select options for the validation process, and then click **Start**.

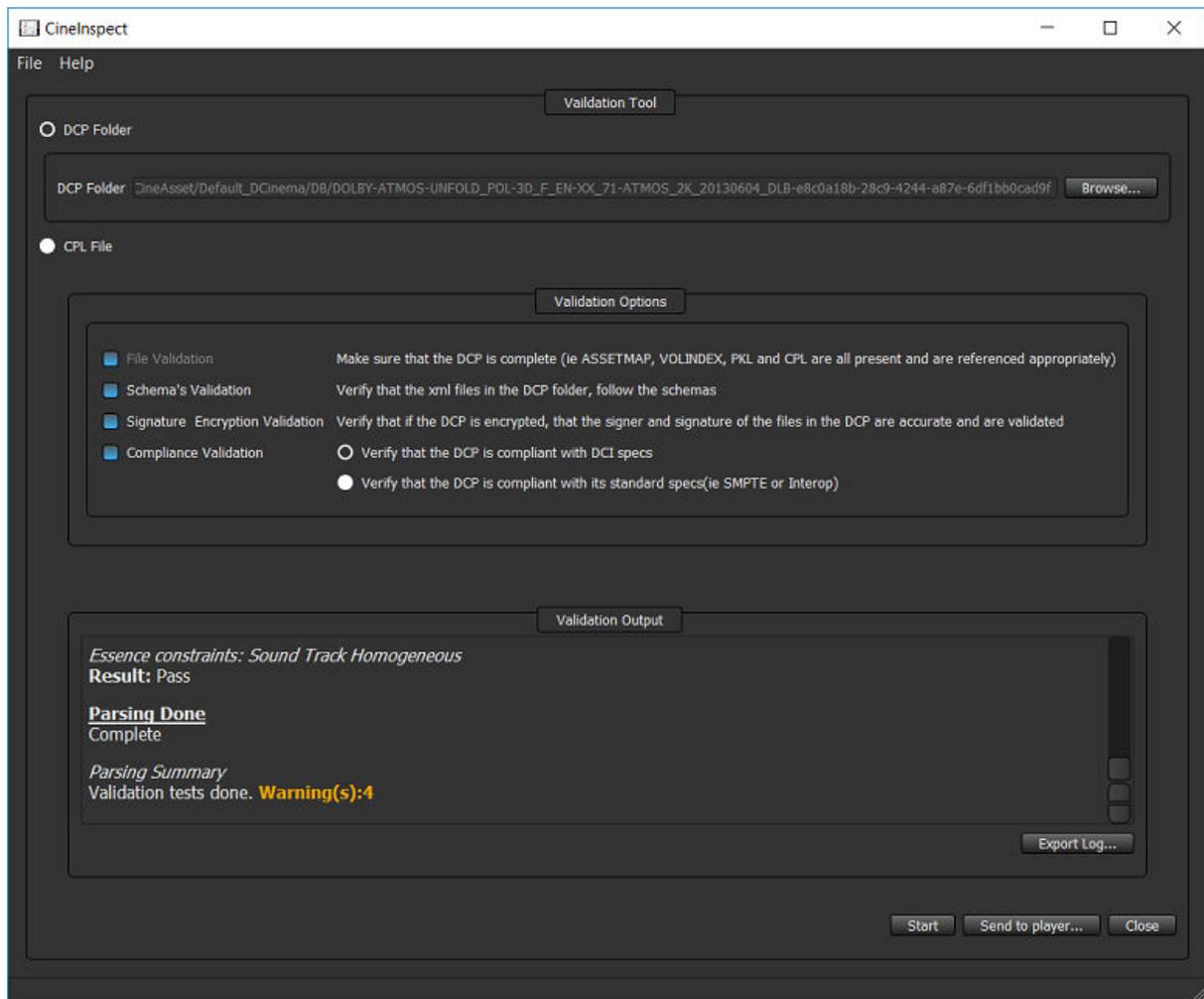
Figure 25: CineInspect main window



Results

CineInspect runs the DCP validation test and then displays the results in the **Validation Output** section.

Figure 26: CinelInspect main window



7.3 Exporting a log file

You can export log files after CinelInspect validates a DCP.

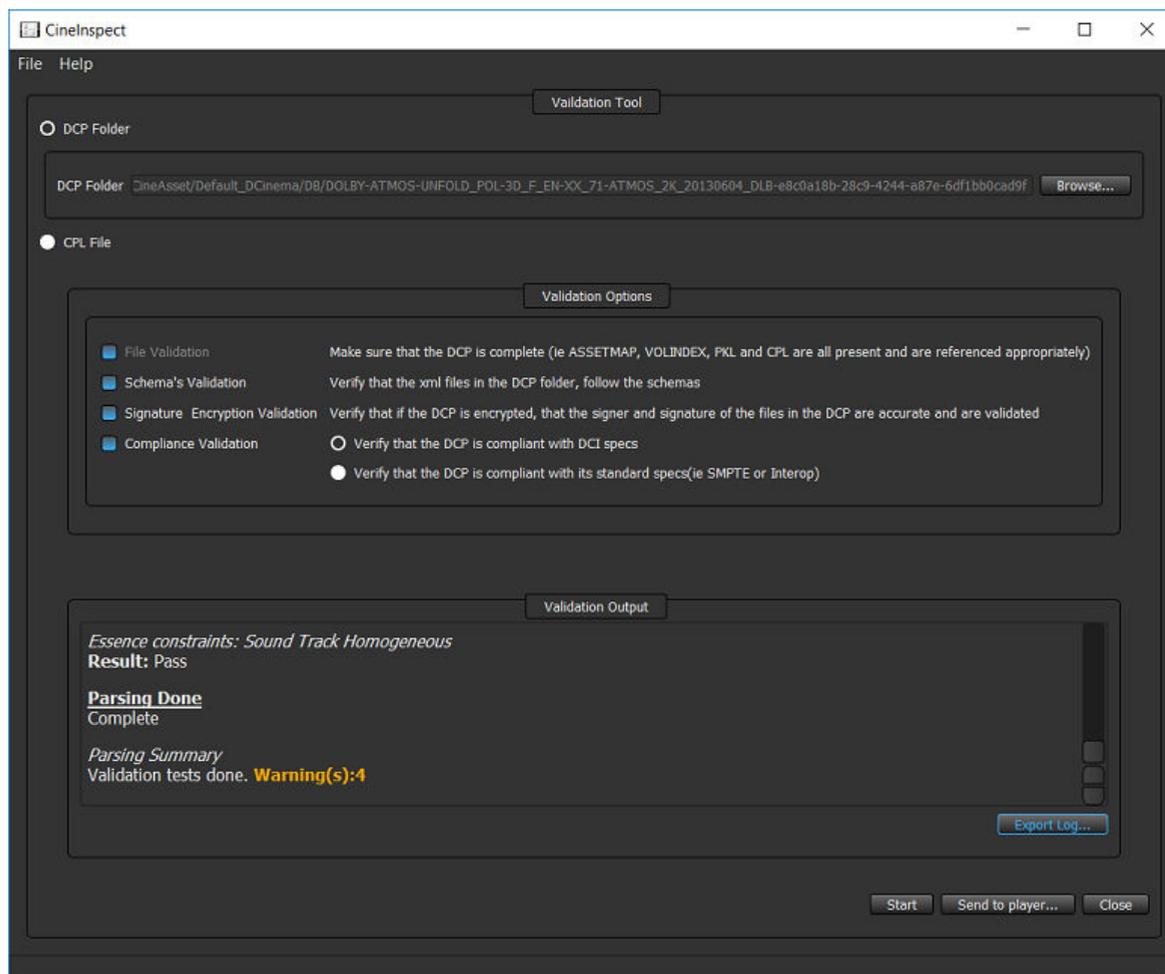
About this task

After you export the log file, you can send the validated DCP to CineAsset Player for a visual review.

Procedure

1. In the **CinelInspect** main window, click **Export Log**.

Figure 27: CineInspect main window



2. In the dialog that appears, select a location to save the log file, enter a new name for the log file, and then click **Save**.

 **Remember:**

CineInspect automatically names the log file according to the current date and content title of the CPL.

3. In the **CineInspect** main window, click **Close**.

8

Dolby CineAsset Player user interfaces

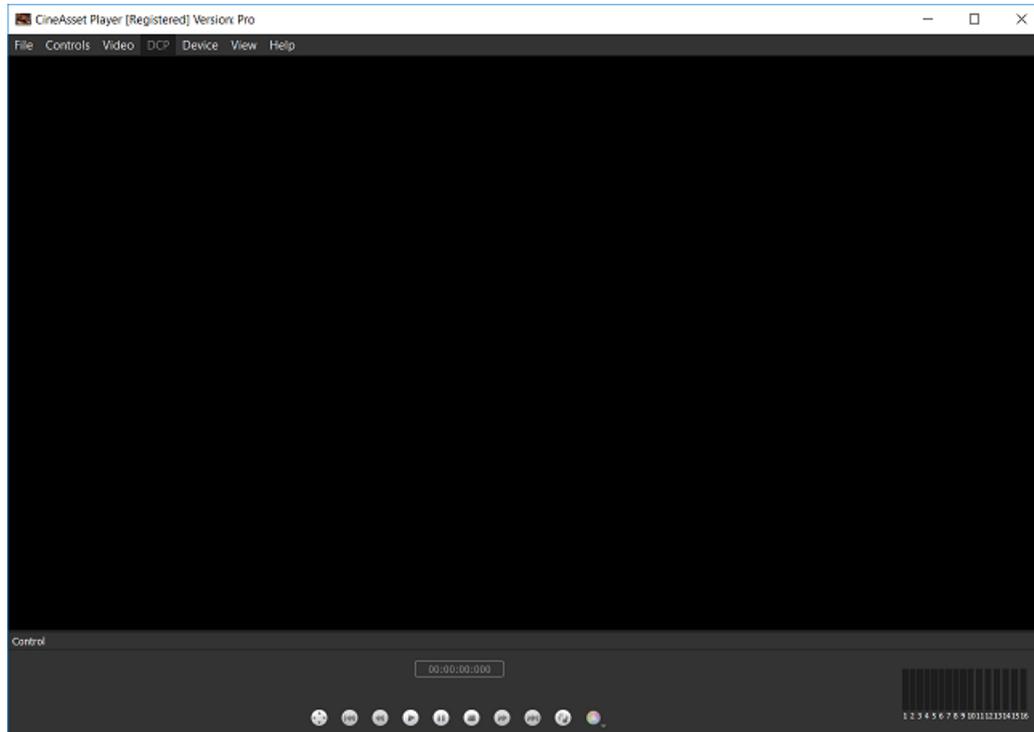
Dolby CineAsset Player contains two applications with separate user interfaces to use for different functions as you play back a DCP.

- [CineAsset Player main window](#)
- [CineInspect main window](#)

8.1 CineAsset Player main window

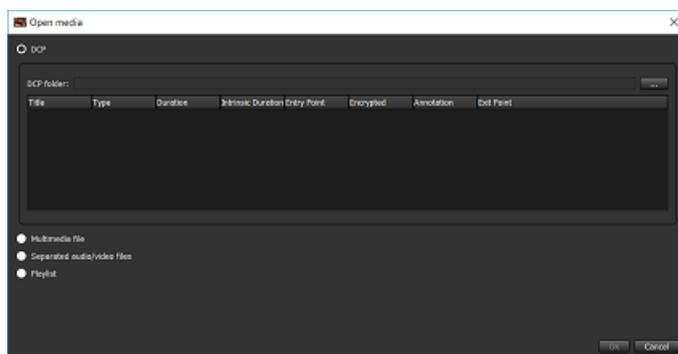
The **CineAsset Player** main window includes a menu bar at the top-left section that provides access to multiple functions for opening DCPs and media files and controlling the DCP playback process.

Figure 28: CineAsset Player main window



If no file is loaded, the **Open media** window appears, where you can filter content to locate the files quickly. You can filter DCPs, audio files, and video files, and then sort the files according to type, making it easier to locate and open specific content.

Figure 29: Open media window



8.1.1 Menu-bar options

The **CineAsset Player** main window provides menu-bar options when playing back a DCP.

These menu-bar options are available in the top-left section of the **CineAsset Player** main window:

- **File:** Opens a new or recent DCP file, launches CineInspect, and exports certificates.
- **Controls:** Controls the playback of DCPs. You can play, pause, load, eject, and so on.
- **Video:** Modifies the image resolution and color-conversion properties.

- **Audio:** Maps the audio tracks in a DCP file. Available only if a DCP file contains audio tracks.
- **DCP:** Views the DCP properties. Also sends a DCP file directly to the **CineInspect** main window for schema validation.
- **Device:** Available only when a DeckLink card is detected.
- **View:** Switches between regular mode and full-screen mode.
- **Help:** Provides you with the CineAsset Player software version and user manual.

8.1.2 Control buttons

The **CineAsset Player** main window provides playback control buttons and other options to modify DCP playback.

These playback control buttons are available when a DCP is loaded in the **CineAsset Player** main window:

- Full screen: Toggles between full-screen mode and regular mode
- Go to beginning: Forces playback to begin from the start of a video or DCP file, even while playback is in progress
- Fast rewind: Rewinds quickly
- Play/Pause: Performs two functions, to begin playback or to pause playback
- Stop: Stops all playback of video and audio
- Fast-forward: Speeds up the playback of video
- Go to end: Pushes the playback process to the end of the time sequence
- Loop: Activates continuous loop play for playback files
- JP2K image resolution layer: Provides a drop-down menu with multiple resolution layers for JPEG 2000–encoded DCPs
- Color conversion: Provides a drop-down menu with multiple color-conversion options
- JP2K image quality: Provides a drop-down menu with multiple options for adjusting the image quality of JPEG 2000 DCPs

Figure 30: CineAsset Player main window



8.1.3 Options window

The **Options** window allows you to modify DCP playback and DCP validation settings.

These options are provided for modifying CineAsset Player DCP playback settings:

- **Drop frame allowed:** Drops frames when playing a file in real time. When this box is unchecked, CineAsset Player plays every frame available. If system performance is low, the playback may be slower when compared to real time.
- **Auto detect DeckLink card:** Automatically detects the DeckLink I/O card. When the DeckLink I/O card is not used, system performance is improved when playing a file directly to your computer monitor.
- **Use GPU for color conversion:** By default, this option is set to use the graphic adapter GPU when performing color conversion. If there is an issue with playback when color conversion is enabled, you can uncheck this box to disable GPU support.
- **Enable dcp validation check:** Performs a validation check on each loaded DCP. If this box is unchecked, CineAsset Player does not run a validation check each time a DCP is loaded for playback. Once selected, the **Options** window expands and the **Validation Options** section appears.

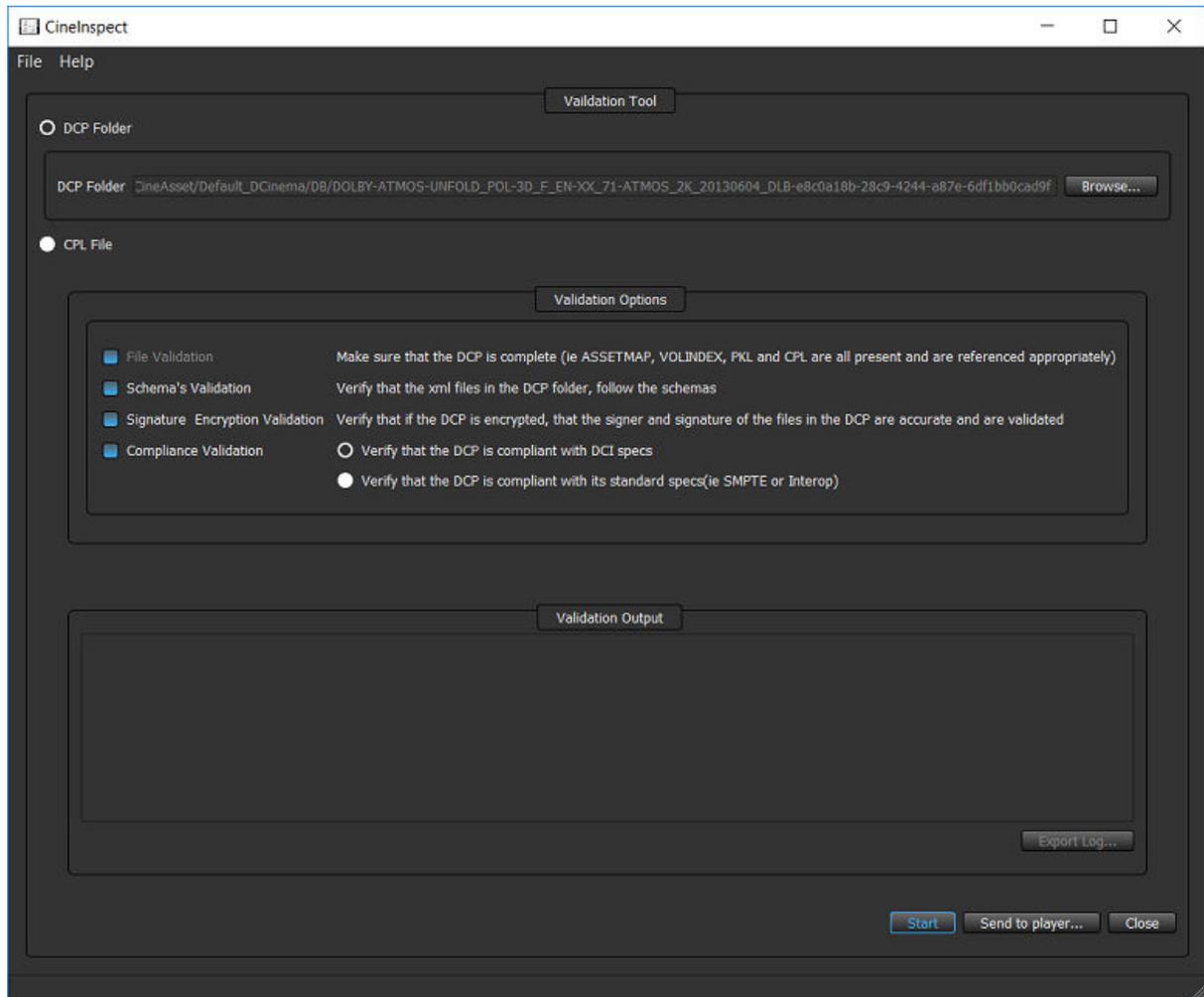
These options are provided for modifying CineAsset Player DCP validation settings:

- **File Validation:** Verifies that DCP components are present and referenced appropriately
- **Schema's Validation:** Verifies that the XML files in a DCP folder follow the appropriate schemas
- **Signature Encryption Validation:** Verifies that an encrypted DCP includes the accurate and valid signature
- **Compliance Validation:** Verifies that a DCP complies with either the DCI or standard specifications (SMPTE or Interop)

8.2 CineInspect main window

The **CineInspect** main window enables you to select the settings and display the results of a DCP inspection. The **CineInspect** main window includes three sections: **Validation Tool**, **Validation Options**, and **Validation Output**.

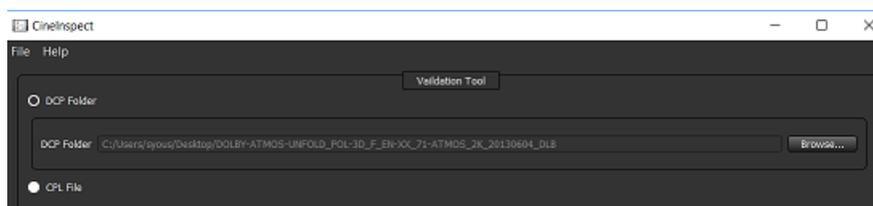
Figure 31: CineInspect main window



8.2.1 Validation Tool

The **Validation Tool** section in the **CineInspect** main window enables you to navigate to a DCP for testing.

Figure 32: Validation Tool section



8.2.2 Validation Options

The **Validation Options** section in the **CineInspect** main window allows you to select the level of validation for a DCP. CineInspect splits the validation inspection into various options.

These validation options are available in the **CineInspect** main window:

- **File Validation:** Verifies whether a DCP includes all of the files required for a valid DCP, and verifies that the files were not altered (for example, size verification)
- **Schema's Validation:** Verifies all the XML files in the selected DCP to validate against their corresponding schemas, according to the standard of the DCP (SMPTE or Interop)
- **Signature Encryption Validation:** Verifies the integrity of the signatures present in the XML files
- **Compliance Validation:** Verifies a DCP with two options:
 - DCI specification: Runs a number of tests specified in the DCI specifications to verify that a DCP follows the standardization. Valid only for SMPTE DCPs.
 - Standard specification: Runs a number of tests to verify that a DCP follows the DCP specification standard for SMPTE or Interop.

Figure 33: Validation Options section



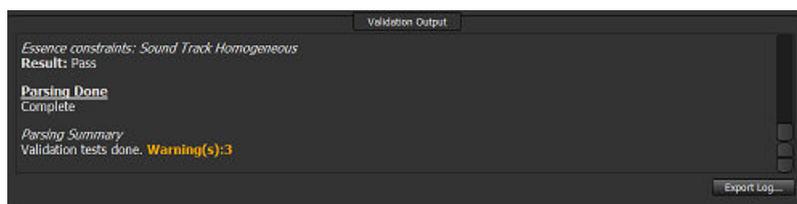
8.2.3 Validation Output

The **Validation Output** section in the **CineInspect** main window displays a detailed set of log messages specifying the tests performed and the results obtained from a DCP inspection process. A summary of the total number of tests that passed, failed, or displayed warnings also appears in this section.

These log messages include descriptions specifying the tests performed and the results obtained:

- **Pass:** Indicates that the tested aspect of a DCP is within the respective specification
- **Fail:** Indicates that the tested aspect of a DCP is not within the respective specification and will likely cause problems with other DCP software or digital cinema players
- **Warning:** Indicates that the tested aspect of a DCP is not within the respective specification, but is not likely to cause problems with other DCP software or digital cinema players

Figure 34: Validation Output section



9

Dolby CineAsset Player CLI options

Dolby CineAsset Player provides you with the option to perform playback and validate a DCP, and generate a KDM from a CLI.

- [CineAsset Player CLI](#)
- [CineInspect CLI](#)

9.1 CineAsset Player CLI

You can operate CineAsset Player from a CLI.

9.1.1 CineAsset Player CLI syntax

You can use this syntax to operate CineAsset Player from a CLI.

```
CineAssetPlayer.exe \[input file 1]\[input file 2] {-fullscreen}
```

9.1.2 CineAsset Player input files

The maximum number of input files is two. If you specify two input files, only the audio track is taken from input file 1, and only the video track is taken from input file 2. An input file is a video or audio file of any format supported by CineAsset.

An input file can also be a folder containing DCP files or a folder containing an image sequence.

9.1.3 CineAsset Player CLI examples

These examples provide audio, video, and DCP files for full-screen playback with CineAsset Player from a CLI.

This example opens *audio.wav* and *video.ts* for full-screen playback in CineAsset Player.

```
CineAssetPlayer.exe G:\audio.wav G:\video.ts -fullscreen
```

This example opens *Example_DCP* for full-screen playback in CineAsset Player.

```
CineAsset Player.exe G:\Example_DCP\ -fullscreen
```

9.2 CineInspect CLI

You can operate CineInspect from a CLI.

9.2.1 CineInspect CLI syntax

You can use this syntax to operate CineInspect from a CLI.

```
CineInspect.exe <command> [dcpFolderDir] [validation_level] start [outputfile]
```

9.2.2 CineInspect commands available

You can use these commands to operate CineInspect from a CLI.

-show

Displays the validation tool

-hide

Hides the validation tool

9.2.3 CineInspect input options

You can use these input options for the destination folder of the DCP to inspect *dcpFolderDir*. When entering a location, be sure to include it in quotation marks, so that spaces are accounted for.

These input options are for the validation level of the DCP:

- 1 = File validation

- 2 = Schemas validation
- 3 = Signature encryption validation
- 4 = Compliance with DCI specification validation
- 5 = Compliance with standard (SMPTE or Interop) specification validation

These input options are for opening the **CineInspect** main window:

- Optional, and is valid only when `command = show`
- If not present, then displays the graphical user interface (GUI) and does not start the validation
- If present, then displays the GUI and starts validation automatically

These input options are for the log-generation output.

- Optional, and is valid only when `command = hide`. It is the destination path file name.
- If not present, then hides the GUI and outputs the log to the standard output window.
- If present, then hides the GUI and outputs the log to the specified output file.

9.2.4 CineInspect CLI examples

You can use these examples to validate a DCP from a CLI.

This example displays the Inspection Validation GUI, and sets the DCP path to *G:/Mpeg2_Interop_UnEncrypted* and the validation level to Signature Encryption Validation.

```
CineInspect.exe -show G:/Mpeg2_Interop_UnEncrypted 3
```

This example displays the Inspection Validation GUI and sets the DCP path to *G:/Mpeg2_Interop_UnEncrypted*. Validation level is set to Signature Encryption Validation, and the validation process starts automatically.

```
CineInspect.exe -show G:/Mpeg2_Interop_UnEncrypted 3 start
```

This example hides the Inspection Validation GUI and automatically sets the DCP path to *G:/Mpeg2_Interop_UnEncrypted* and the validation level to Compliance, with standard specification validation. It starts the validation process automatically and outputs the log to the standard output.

```
CineInspect.exe -hide G:/Mpeg2_Interop_UnEncrypted 45
```

This example hides the Inspection Validation GUI, and automatically sets the DCP path to *G:/Mpeg2_Interop_UnEncrypted* and the validation level to Compliance, with standard specification validation. It starts the validation process automatically and outputs the log to the *test_log.txt* file. If there is no extension, the output file format is automatically considered a *.txt* file format.

```
CineInspect.exe -hide G:/Mpeg2_Interop_UnEncrypted 5 G:/temp/test_log
```

This example hides the Inspection Validation GUI and automatically sets the DCP path to *G:/Mpeg2_Interop_UnEncrypted* and the validation level to Compliance, with standard specification validation. It starts the validation process automatically and outputs the log to the *test_log.txt* file (which outputs to *.txt* file format).

```
CineInspect.exe -hide G:/Mpeg2_Interop_UnEncrypted 5 G:/temp/test_log.txt
```

This example hides the Inspection Validation GUI and automatically sets the DCP path to *G:/Mpeg2_Interop_UnEncrypted* and the validation level to Compliance, with standard specification validation. It starts the validation process automatically and outputs the log to the *test_log.xml* file (which outputs to *.xml* file format).

```
CineInspect.exe -hide G:/Mpeg2_Interop_UnEncrypted 5 G:/temp/test_log.xml
```

File formats and codecs

The Dolby CineAsset Player file formats and codecs provide useful information to help you verify options and avoid performance issues.

- [Container import formats](#)
- [Video codec import formats](#)
- [Image sequence import formats](#)
- [Audio import formats](#)

10.1 Container import formats

Dolby CineAsset Player supports specific container import formats.

Table 1: Container import formats

Container import formats	Linux CentOS	Microsoft Windows	Mac OS X
Audio Video Interleave (AVI)	Yes	Yes	Yes
MOV	Yes	Yes	Yes
MXF	Yes	Yes	Yes
MPG	Yes	Yes	Yes
TS	Yes	Yes	Yes
M2TS	Yes	Yes	Yes
MTS	Yes	Yes	Yes
MP4	Yes	Yes	Yes
MKV	Yes	Yes	Yes

10.2 Video codec import formats

Dolby CineAsset Player supports specific video import codecs.

Table 2: Video codec import formats

Video codec import formats	Linux CentOS	Microsoft Windows	Mac OS X
JPEG 2000	Yes	Yes	Yes
DNxHD	No	Yes • In MOV container, with Apple QuickTime installed and with Avid QuickTime codecs installed	Yes • In MOV container, with QuickTime installed and with Avid QuickTime codecs installed
DNxHR	No	Yes • In MOV container, with QuickTime installed and with Avid QuickTime codecs installed	Yes • In MOV container, with QuickTime installed and with Avid QuickTime codecs installed
ProRes	Yes	Yes	Yes
YUV uncompressed	Yes	Yes	Yes
Xvid	Yes	Yes	Yes
MPEG-4	Yes	Yes	Yes
Advanced Video Coding (AVC)/H.264	Yes	Yes	Yes
High-Efficiency Video Coding (HEVC)/H.265	Yes	Yes	Yes

Table 2: Video codec import formats (continued)

Video codec import formats	Linux CentOS	Microsoft Windows	Mac OS X
VC-1	Yes	Yes	Yes
MPEG-2	Yes	Yes	Yes
DVCPPro25/50	Yes	Yes	Yes
DVCPProHD	Yes	Yes	Yes
Photo JPEG	Yes	Yes	Yes
MJPEG-A&B	Yes	Yes	Yes
DV	Yes	Yes	Yes

10.3 Image sequence import formats

Dolby CineAsset Player supports specific image sequence import formats.

Table 3: Image sequence import formats

Image sequence import formats	Linux CentOS	Microsoft Windows	Mac OS X
BMP	Yes	Yes	Yes
Tagged Image File Format (TIFF)	Yes	Yes	Yes
TGA	Yes	Yes	Yes
DPX	Yes	Yes	Yes
JPG	Yes	Yes	Yes
J2C	Yes	Yes	Yes

10.4 Audio import formats

Dolby CineAsset Player supports specific audio import formats.

Table 4: Audio import formats

Audio import formats	Linux CentOS	Microsoft Windows	Mac OS X
Waveform Audio Format (WAV)	Yes	Yes	Yes
MP3	No	Yes • With QuickTime installed	Yes • With QuickTime installed
MP2	Yes	Yes	Yes
Advanced Audio Coding (AAC)	Yes	Yes	Yes
AIF/AIFF	Yes	Yes	Yes
Dolby AC-3	Yes	Yes	Yes

11

Documentation revision history

The documentation revision history lists the date, issue number, and description of all publications of the *Dolby CineAsset Player User's Manual*.

Date	Issue	Description
21 March 2016	1	Release for software v7.2
17 November 2016	2	Release for software v8.0
09 June 2017	3	Release for software v8.2
11 September 2017	4	Modifications made to several sections
14 June 2018	5	Release for software v8.2.16
22 July 2019	6	Release for latest software

Glossary

1080p

See [full high definition](#).

AAC

Advanced Audio Coding. A perceptual audio coding system that is described by ISO/IEC 14496-3.

AVC

Advanced Video Coding. See [H.264](#) on page 54.

AVI

Audio Video Interleave. A Microsoft multimedia container format that supports streaming audio and video.

container

A formatted file (such as an MP4 file) comprising one or more multiplexed elementary streams and including format-specific metadata.

CLI

Command-line interface.

CentOS

Community Enterprise Operating System.

CPL

Composition playlist. A composition playlist represents a complete digital cinema work, which may include features, trailers, teasers, and advertisements.

CPU

Central processing unit.

DCI

Digital Cinema Initiatives, LLC. A joint venture of several motion picture studios that defines an open architecture based on voluntary standards for digital cinema systems.

DCP

Digital Cinema Package. A packing list (PKL) file and all of the files that it references.

fps

Frames per second. The number of unique consecutive audio or video frames an audio or imaging device produces in one second.

frame rate

The number of frames decoded per second in real-time operation.

GUI

Graphical user interface.

HD-SDI

High-definition serial digital interface.

H.264

Also known as Advanced Video Coding (AVC), ISO/IEC MPEG-4 AVC, and ISO/IEC 14496–10:2012. An MPEG standard for video compression most commonly used for high-definition video, such as Blu-ray Disc. The standard was developed jointly by the International Telecommunication Union (ITU) and ISO/IEC MPEG.

H.265

Also known as High Efficiency Video Coding (HEVC), ISO/IEC 23008-2, and ITU-T H.265. An MPEG standard for video compression that improves on the H.264 (AVC) video compression standard and extends support to 10-bit ultra-high-definition video. The standard was developed jointly by the Moving Picture Experts Group (MPEG) and Video Coding Experts Group (VCEG).

HEVC

High-Efficiency Video Coding. See [H.265](#) on page 54.

HT Technology

Hyper-Threading Technology. A technology developed by Intel that enables a processor to run two threads, or sets of instructions, simultaneously (in parallel). The operating system sees the HT Technology processor as two separate processors.

ISDCF

Inter-Society Digital Cinema Forum. A group of professionals that meets to discuss issues related to enhancing technical and operational cooperation in the digital cinema industry.

KDM

Key Delivery Message. An XML file that is used to provide decryption keys for a specific composition playlist (CPL) containing encrypted content. A KDM also specifies the time window during which the keys remain valid, as well as trusted equipment information to ensure that the CPL playback is possible only on authorized equipment and for an approved period of time.

MXF

Material Exchange Format. A file format used to transfer and store different types of content (for example, audio, video, data, or metadata). MXF currently supports various compression and encoding formats, and its specification can be extended to new essence formats, if needed.

MP4

A digital multimedia container format defined in MPEG-4 (ISO/IEC-14496, parts 12 and 14) most commonly used to store video and audio streams.

TIFF

Tagged Image File Format.

SMPTE

Society of Motion Picture and Television Engineers.

SPL

Show playlist. A playlist that defines one digital cinema show and is made up of a sequence of composition playlists (CPLs) that are associated with automation events, inserts (black pattern and others), or both.

PCM

Pulse code modulation. A method that is used to convert analog signals into digital, binary, coded pulses by sampling the analog signal, quantizing each sample independently, and converting the resulting quantized values into a digital signal.

PEM

Privacy-enhanced Electronic Mail. A file format for security certificates in email communication.

PKL

Packing list. An XML file that describes a set of files in one digital cinema package (DCP).

RAID

Redundant array of independent disks.

RAM

Random-access memory.

RGB

Red green blue. Red green blue color model.

SDI

Serial digital interface.

USB

Universal Serial Bus. A standard that defines the cables, connectors, and communications protocols used in connections between computers and electronic devices.

UUID

Universally unique identifier. A 128-bit string used to identify a software component.

.wav

Waveform Audio Format. An audio bitstream file format.

XYZ

XYZ color space.

YUV

A file format that is encoded using the YCbCr color space.