DCP-2K4

Operator Manual

Version 1.0

Table of Contents

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1 Introduction

1.1 Purpose

The purpose of this document is to provide guidance on how to operate the DCP-2K4 Digital Cinema Server.

It explains how to ingest content, how to manage shows and automation events to successfully operate the DCP-2K4.

1.2 Presentation

This document is structured according to the following sections:

- **Section 1**: Introduction – Overall presentation of the document
- **Section 2**: Ingesting Content – Instructions on how to ingest content
- **Section 3**: Shows Management – Description of the CineLister interface for proper Show management
- **Section 4**: Play 2D Content in 3D Mode
- **Section 5**: Acronyms
- **Section 6**: Document Revision History

1.3 Software Version

This document complies with the DCP-2K4 software version number 0.5.2-26.

2 Ingesting Content

This section explains how to ingest content on a DCP-2K4. Note that the DCP-2K4 can only perform playback of Digital Cinema Package (DCP). Such DCP should have been generated using digital cinema mastering tools like the Doremi DMS-2000 Mastering Station or the Doremi CineAsset software.

2.1 Ingesting Through USB

This section provides instructions on how to ingest content from a USB drive into the DCP-2K4 server.

2.1.1 Preparation Phase – USB Drive

If the content to ingest is on a USB drive, then plug the drive into the DCP-2K4 and wait for the Ingest window to appear on-screen. An example of this window is shown here:
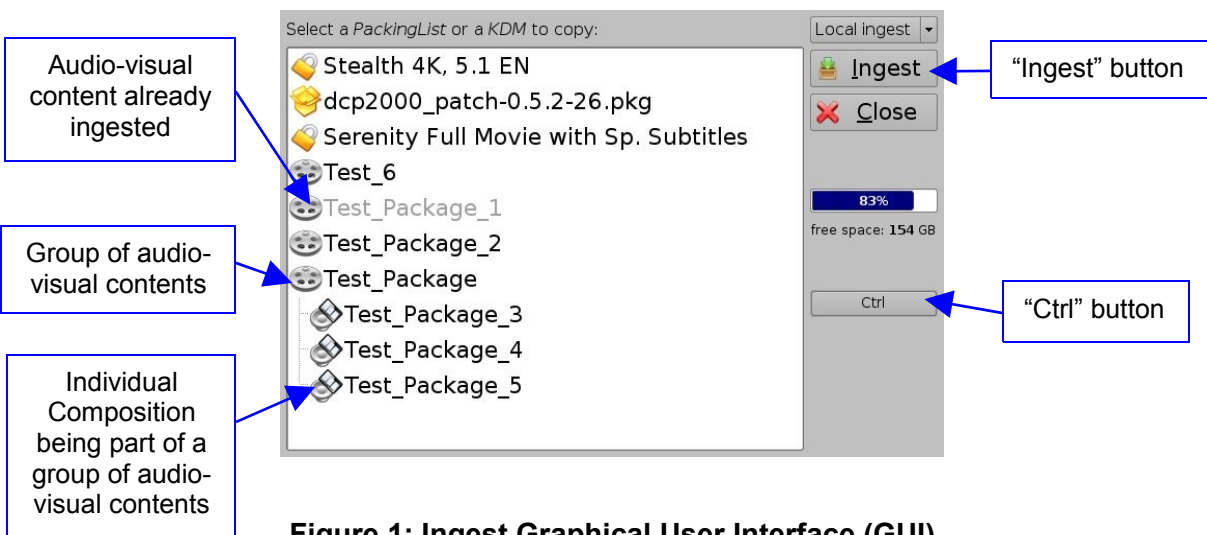

Figure 1: Ingest Graphical User Interface (GUI)

Note that if an item was already ingested, its name will appear in gray as illustrated above.

2.1.2 Ingest Phase

2.1.2.1 Item Types

Different types of content can be displayed in the Ingest window presented above. Audio-visual content (e.g. features, trailers, etc.) is identified with the reel icon or with the "Speaker and Film" icon whereas KDMs (containing the required decryption keys allowing playback of the corresponding CPLs) are identified with a lock icon.

Figure 2: Reel Icon   **Figure 3: "Speaker and Film" Icon**   **Figure 4: "Lock" Icon**

Software packages are identified using a box as presented below:

Figure 5: "Box" Icon

Note that an audio-visual item may correspond to a group of Compositions (CPLs) – see Figure 1. Then, clicking on the selected audio-visual item should make all the contained Compositions (CPLs) visible as presented in Figure 1 above.

2.1.2.2 Ingesting

In order to ingest an item into the DCP-2K4, select it on the Ingest GUI – see Figure 1. The selected line will be reverse highlighted in the Ingest window.

After having selected an item to ingest, click on the "Ingest" button at the top right corner of the graphical user interface. The ingest process will start.

Note: You can also select multiple items by clicking the "Ctrl" button on the right side of the Ingest GUI and then clicking on multiple items to ingest. When pressing on the "Ingest" button, all the selected items will be ingested.

2.1.2.3 Package Validation

After the file loading is complete, the server scans and validates the package (DCP). The Hard Disk Drive access LED on the DCP-2K4 front panel will remain lit until the validation process is finished. This may take between a few seconds (for software updates, etc.) and up to 20 minutes for a full movie. At the end of this process, the content will be available on the server.

2.2 Ingesting Using a CRU Carrier

To ingest content from a CRU carrier into the DCP-2K4 server, follow the steps below:

1. Insert the CRU carrier into the CRU receiver located on the left-middle side of the front panel – behind the door.

2. Keep the CRU power button pressed during 1 second. The blue CRU power LED should be blinking for few seconds. Wait for the CRU power LED to become still blue.

3. The Ingest GUI should pop up automatically – if not, go to "**Menu → Doremi Labs, Inc → Doremi Labs Ingest**". Once the Ingest GUI opens, it starts scanning for the content available on the CRU carrier - the same window as the one presented on Figure 1 should be displayed.

4. Select the item (CPL, KDM, software package ...) you want to ingest and click on the "Ingest" button on the Ingest GUI – see Figure 1. You should be asked for a password – contact your system administrator to get the password if needed. The ingest progress window should appear, showing the ingest progress status.

5. After the ingest has finished, the ingested content should be available and visible on the left part of the CineLister Editor Tab – click on the CineLister "Refresh" button if needed (see figure 16).

Note that after ingest completion, the same package validation process as presented in section 2.1.2.3 will take place.

2.3 Ingesting Using a DVD

To ingest content from a DVD into the DCP-2K4 server, follow the steps below:

1. Press the DVD player "Eject" button, located below the DVD player door (on the left-top side of the front panel, behind the left door), to open this DVD player door

2. Insert the DVD containing the content into the DVD player

3. Press the DVD player "Eject" button again to close the DVD player door

4. Note that Ingest GUI does not pop up automatically in this case. Open it manually by going to "**Menu → Doremi Labs, Inc → Doremi Labs Ingest**". Once the Ingest GUI opens, it starts scanning for the content - the same window as the one presented on Figure 1 should be displayed.

5. Select the item you want to ingest, and click on the "Ingest" button – see Figure 1. You should be asked for a password – ask your system administrator to get the password if needed. The ingest progress window should appear, showing the ingest progress status.

6. After the ingest has finished, the ingested content should be visible on the left part of the CineLister Editor Tab – click on the "Refresh" button if needed (see figure 16).

Note that after ingest completion, the same package validation process as presented in section 2.1.2.3 will take place.

2.4 Ingesting Using the CineAsset Clip Database

Doremi CineAsset software allows you to control and transfer media files to Doremi devices like the DCP-2K4. Visit http://www.doremicinema.com/cineasset.html or contact Doremi to obtain a trial version of this software and its associated user manual.

2.4.1 CineAsset Supported File Formats and Codec's

This paragraph provides a list of file formats supported by the CineAsset application.

2.4.1.1 Supported Quick Time Codec's

- Blackmagic uncompressed 8bit and 10bit
- Component YUV uncompressed
- QuickTime uncompressed codec
- Photo JPEG. MJPEG-A, MJPEG-B
- H264
- MPEG2
- Avid DNxHD codec
- DV100 or DVCPRO HD

2.4.1.2 Supported WMV Codec's

- All WMV files are supported, except files with the WMA Pro (WMAV3) audio codec, which requires a special license.

2.4.1.3 Supported AVI Codec's

- DIVX

- XVID

- MPEG2

- DVCPro25

- Matrox MPEG2

- DV100 or DVCPRO HD

2.4.1.4 Supported MXF Codec's

- DV

- MPEG2

- DV100 or DVCPRO HD

2.4.1.5 Supported Image Sequences

- TIFF, TARGA and JPEG. Add audio to imported image sequences by using the Audio Dubbing feature.

2.4.2 File Ingest Using CineAsset

First, connect the DCP-2K4 to the CineAsset application according to the procedure below:

- On the CineAsset device tab, select the Group in which you want to add your unit – you can create a new Group if needed by clicking on the "New Group …" button, or use the "Default" group:
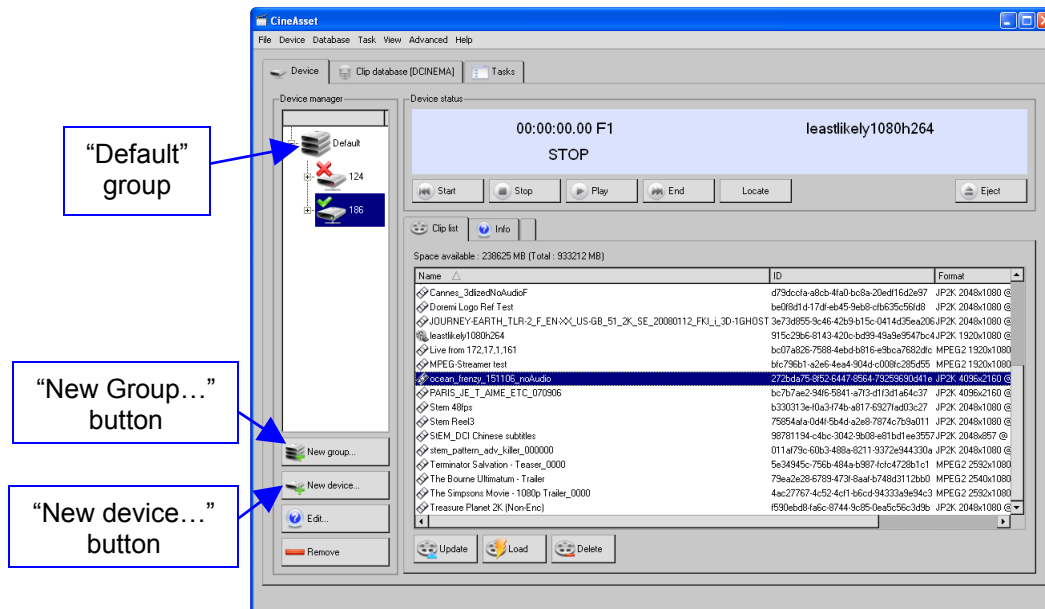
Figure 6: CineAsset – Default Group

- Then, click on the "New device …" button to add your DCP-2K4 unit to the selected Group – if not already present

- In the "New device" window, enter your device name and corresponding IP address – make sure to select "DCP" for the "Type" field, then the "Login" and "Password" fields should be filled in automatically – see Figure 7.

- Click on "Add" when you are done. Your unit should now appear on the "Device Manager" column of the "Device" tab.
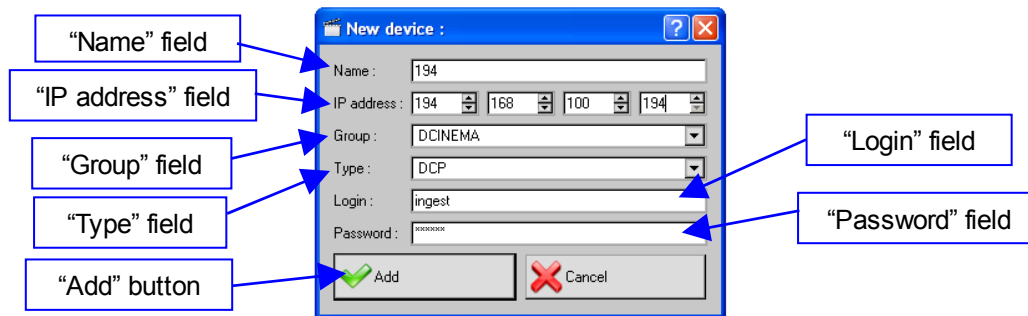
Figure 7: Doremi Asset Manager – New Device Window

To transfer a clip from the database to the DCP-2K4 server:

1. Go to the "Clip database" tab.

2. Select the clip(s) to transfer.

3. Click on the "Send to Doremi devices…" button.

4. Select all the units to send the file to.

5. Click on "Finish" button to start the transfer.

6. You can monitor the progress of your file transfer in the "Tasks" tab as shown below:
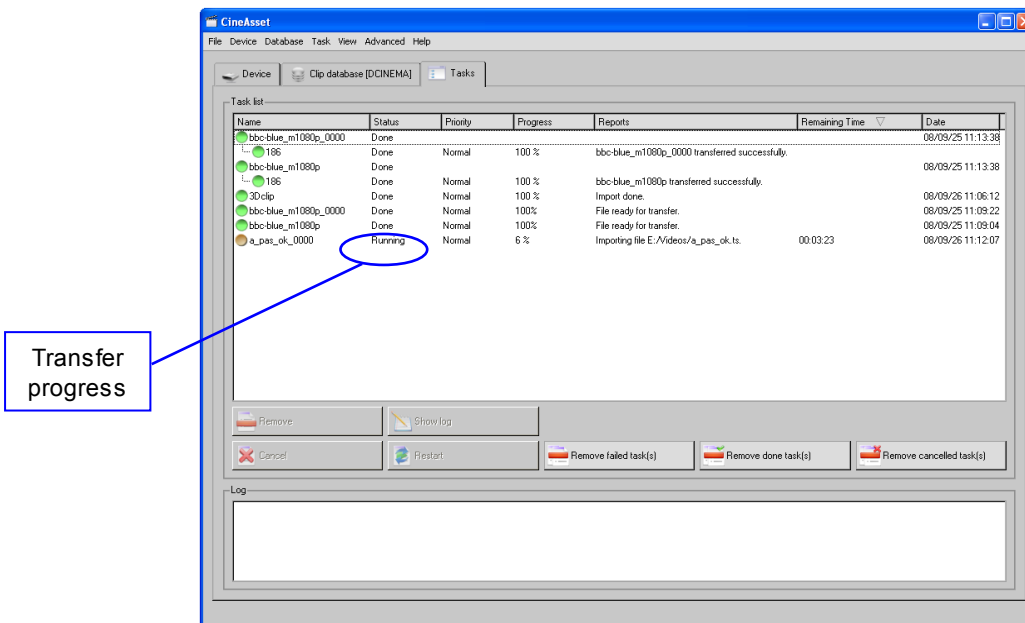
Figure 8: Clip Transfer Progress

After the transfer is complete, click on the "Device" tab and click the "Update" button to display the new files. *Note that it may take up to 30 seconds for the clip to appear in the "Clip list". It is recommended to either wait or continue to press the "Update" button until the new files show up.*

3 Shows Management

Show management in the DCP-2K4 is done using the CineLister software.

CineLister is based on a graphical user interface (GUI) that allows creation, editing and playback of a Show Playlist (SPL). It also provides for the scheduling of several Show Playlists playbacks in advance to be played automatically at scheduled times.

3.1 CineLister User Interface

In order to run CineLister, go to the "Start" Menu of the server, then to "Doremi Labs, Inc." and choose the item "CineLister".

The "Editor" tab of the graphical user interface should appear on the screen. It is presented below:
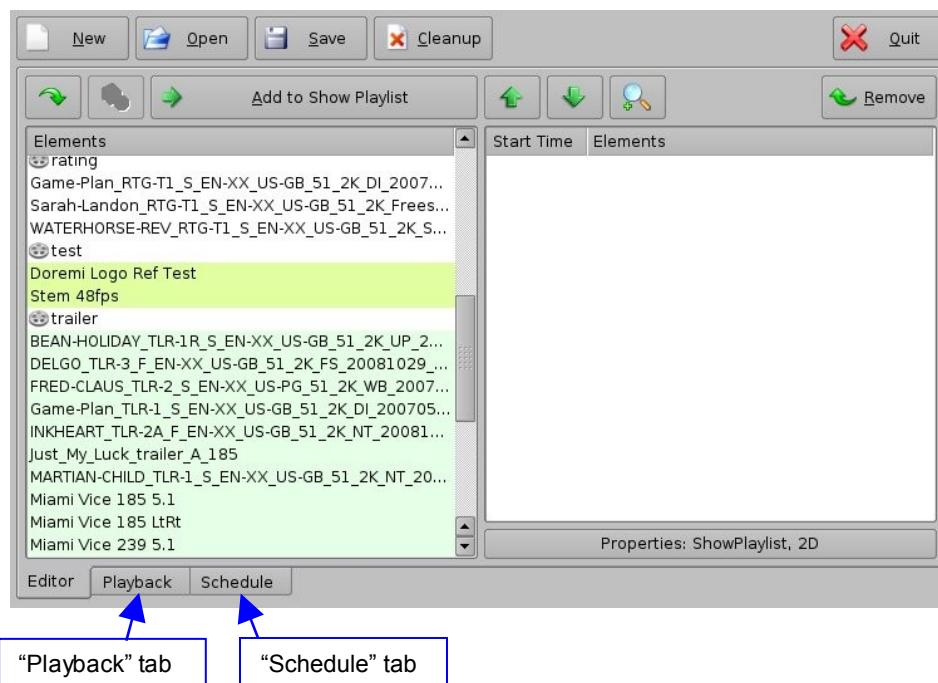
Figure 9: CineLister Graphical User Interface (GUI) – "Editor" Tab

The "Editor" tab presented above is composed of two different parts:

- The left pane displays all of the content that is available on the server (e.g. features, trailers, advertisements) together with any existing automation and trigger cues.
- The right pane is used to display the content of a given Show Playlist, as presented in section **3.2**.

The "Quit" button is used to close the CineLister user interface. Other tabs – "Playback" and "Schedule" are available. Their usage is explained in sections **3.3** and **3.4**.

3.2 Show Playlist

A Show Playlist defines a succession of Compositions and/or events associated with Automation Cues and/or Trigger Cues. It provides the events chain to be taken into account for the playback of a Show. Using CineLister, a new Show Playlist can be created or an existing Show Playlist can be opened in order to be edited and/or played as presented in the following paragraphs.

3.2.1 Show Playlist Creation

3.2.1.1 Principle

The CineLister user interface allows the user to create a specific Show Playlist from the elements listed in the left pane of the interface. To add an element to the Show Playlist, select it – the element will be reverse highlighted – and click on the "Add to Show Playlist" button.

This element will appear in the right pane. Repeating this operation with all the required elements will lead to the creation of what is called a "Show Playlist", as presented below:
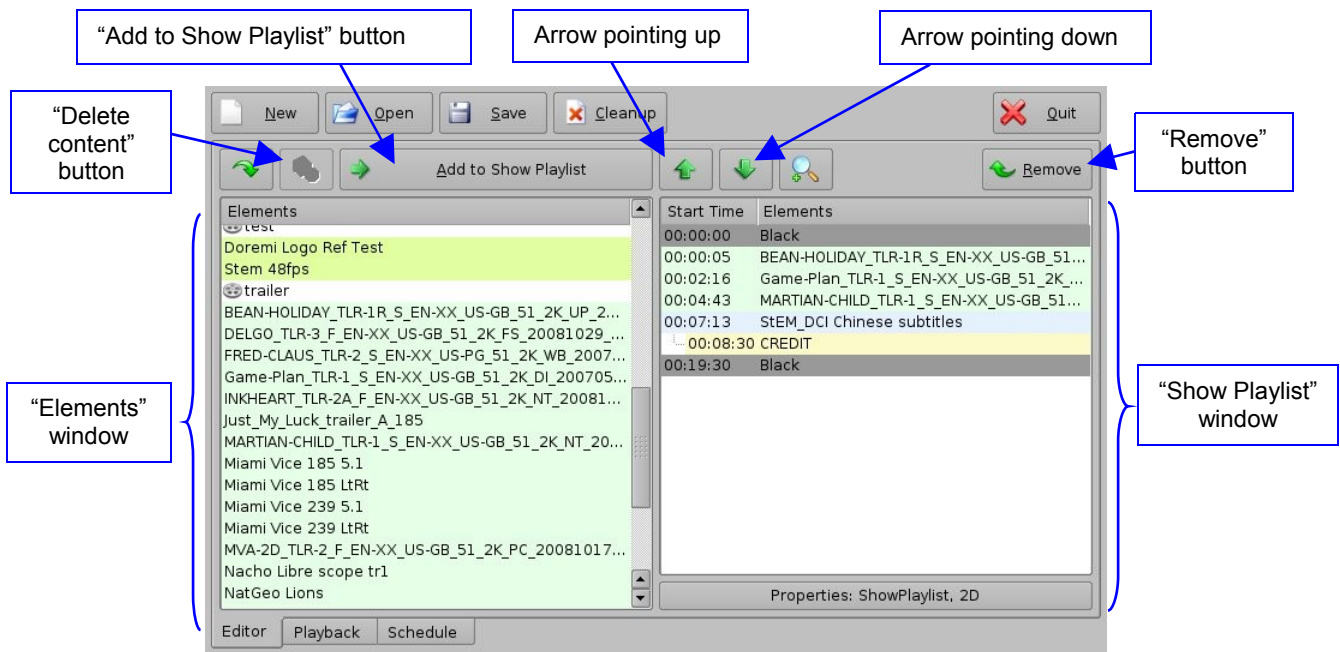
Figure 10: Show Playlist Creation

If an element needs to be removed from the Show Playlist, select it in the "Show Playlist" window and click on the "Remove" button.

3.2.1.2 Element Types

Different types of elements are available:

- Audio-visual content (e.g. features, test content, trailers, etc.)
- Automation cues (Macro automation events)
- Trigger cues

Consult your field installer to learn how to add automation and trigger cues.

3.2.1.2.1 Audio-Visual Content

To delete a Composition (e.g. feature, trailer) from the server, select it on the left part of the "Editor" tab and click on the "Delete content" button – see Figure 10. For security purposes, you will be asked for a password to complete this operation – contact your system administrator to get the appropriate password.

3.2.1.2.2 Automation Cues

Macro Automation Cues can be added to an element of the Show Playlist. Select the element in the right part of the GUI and select the appropriate Automation Cue on the left part of the GUI.

Then click on the "Add to Show Playlist" button.

You will be asked to define the offset of this automation cue (from the beginning or the end of the chosen element) using the following window:
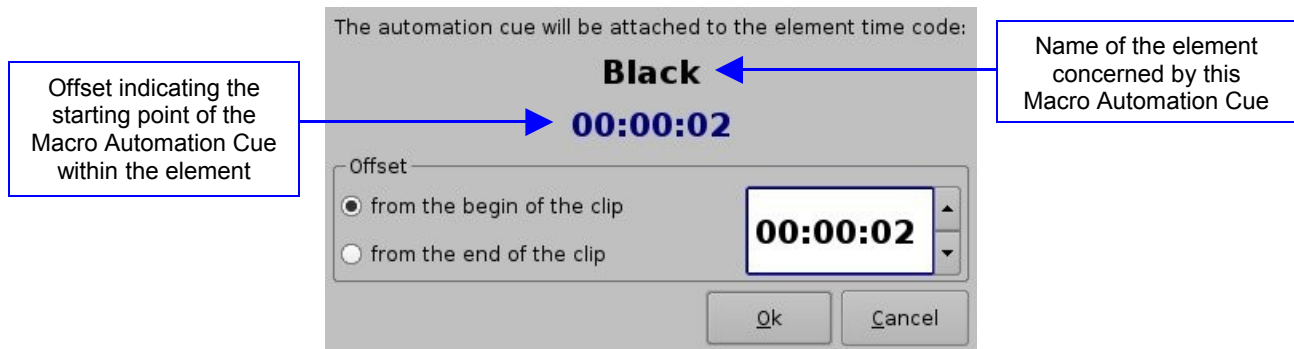
Figure 11: Automation Cue Offset Definition

Click on the "Ok" button when you are done.

The Macro Automation Cue will appear under the Elements pane in the right part of the GUI as presented below:
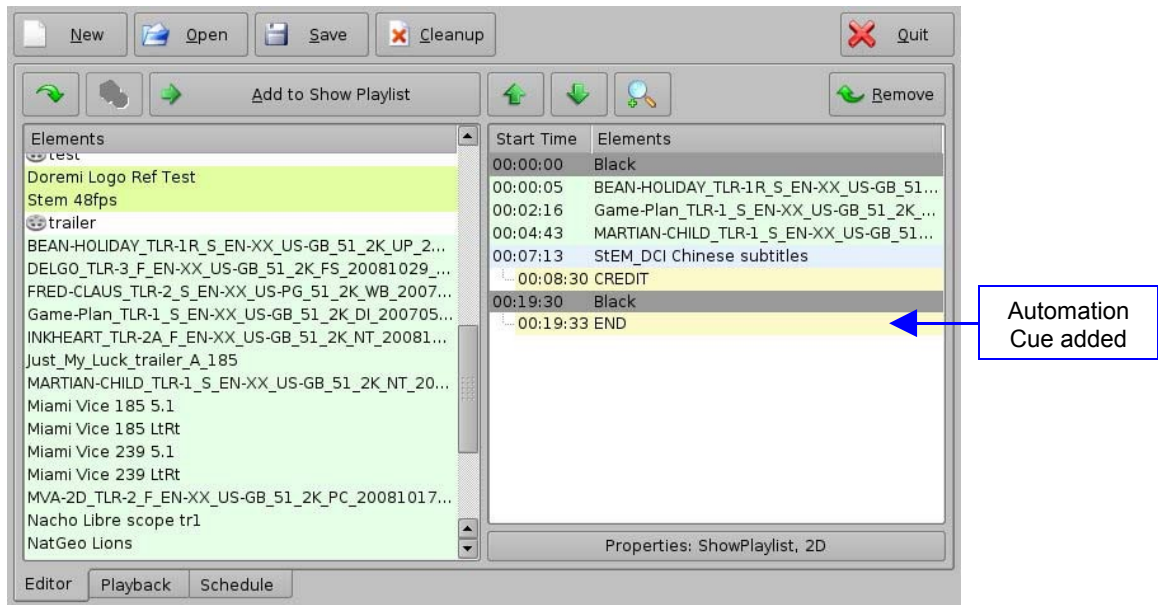

Figure 12: Automation Cue added to an Element

You can repeat this operation for the same element of the Show Playlist or for another element of the Show Playlist.

3.2.1.2.3 Trigger Cue

A Trigger Cue allows for the execution of a Macro Automation Cue when the underlying condition – connected to the Trigger Cue when it was created using Macro Editor – occurs.

For example, if a Trigger Cue is based on the condition "Wait for GPI #1 ON", you can link a specific Macro Automation Cue as presented above in order to be executed when GPI #1 is ON.

You have the choice to program Trigger Cues to be available during the whole Show Playlist or only during a specific Show Playlist element.

- **Trigger Cue for the whole Show Playlist**

  To define a Trigger Cue for the whole Show Playlist, select a Trigger Cue on the left part of the GUI and hit "Add to Show Playlist". The following window will appear:
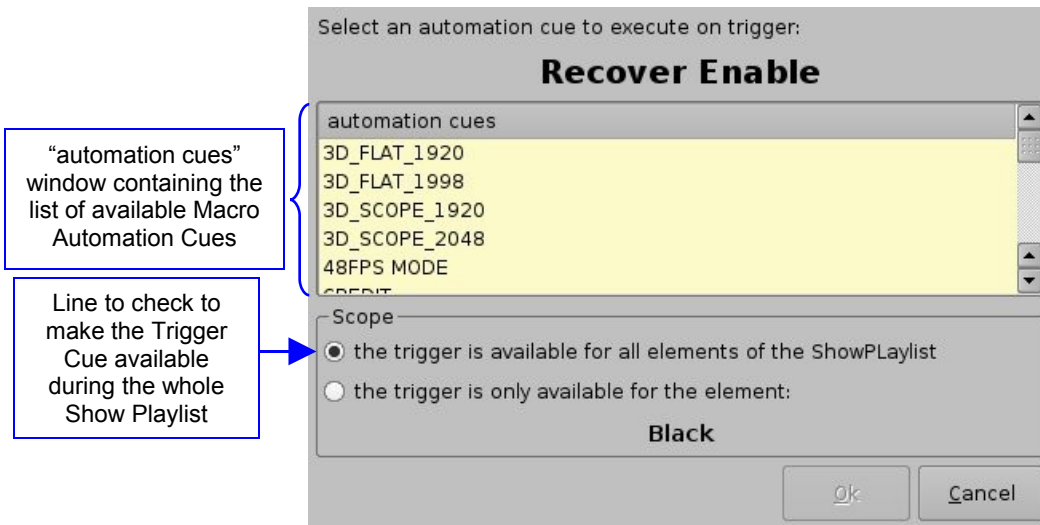
Figure 13: Trigger Cue Addition

Select the Macro Automation Cue to associate to this Trigger Cue by clicking on it in the "Automation Cues" window. The default scope of the Trigger Cue is "all elements of the Show Playlist", so you just need to click on the "OK" button.

- **Trigger Cue for only one Element of the Show Playlist**

  To create a Trigger Cue that will be available only during one specific element of the Show Playlist, select the element in the Show Playlist and then select the Trigger Cue that you want to add in the left window (the "Elements" window) of the GUI. Click on the "Add to Show Playlist" button and the same window as presented in Figure 13 will then be displayed.

  Associate a Macro Automation Cue using the same process as presented above – see Figure 13 - and check the line "the trigger is only available for the element". The line below should contain the name of the element you selected just before starting to add the Trigger Cue – the only element during which this Trigger Cue will be available.

3.2.1.3 Elements Reordering

Two arrows allow the user to change the order of the elements into the Show Playlist. They are presented below:

Figure 14: Arrow Pointing up   **Figure 15: Arrow Pointing down**

Using these arrows, each element can be moved to the top or to the bottom of the Show Playlist:

- To move an element to the top of the Show Playlist, select it and click on the arrow button pointing up – see Figure 10.
- To move an element to the bottom, select it and click on the arrow button pointing down – see Figure 10.

Repeat these steps until the required elements order is obtained.

3.2.1.4 Refresh Button

A "Refresh" button is available. When a new package has been ingested into the server, it will not be displayed automatically in the CineLister interface if it was already running. Click on the "Refresh" button at the top left in order to update the Elements pane and display the newly ingested content.
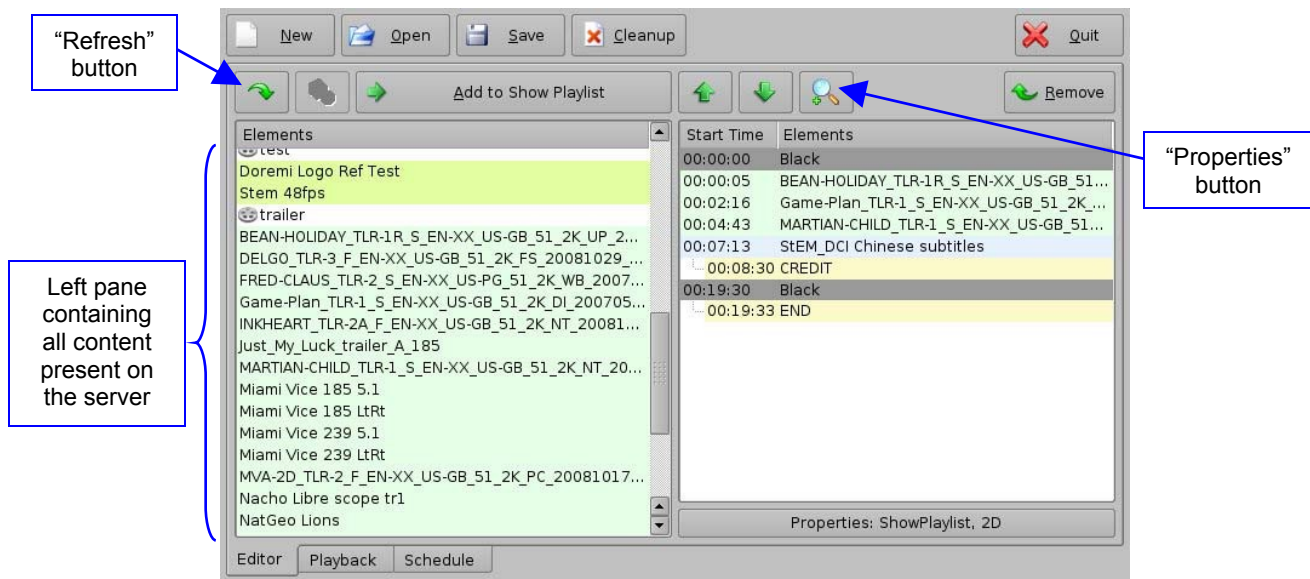
Figure 16: Refresh Button

3.2.1.5 Properties Button

You can view the properties of the elements of the Show Playlist by selecting one of them on the right part of the interface – it will be reverse highlighted - and clicking the "Properties" button presented in Figure 16.

In the case of a Trigger Cue or Automation Cue, you will be able to edit the properties you were asked to set when the event was added to the Show Playlist.

In the case of a Composition (an audio-visual element), a window showing the detail of this element will be displayed as presented below:
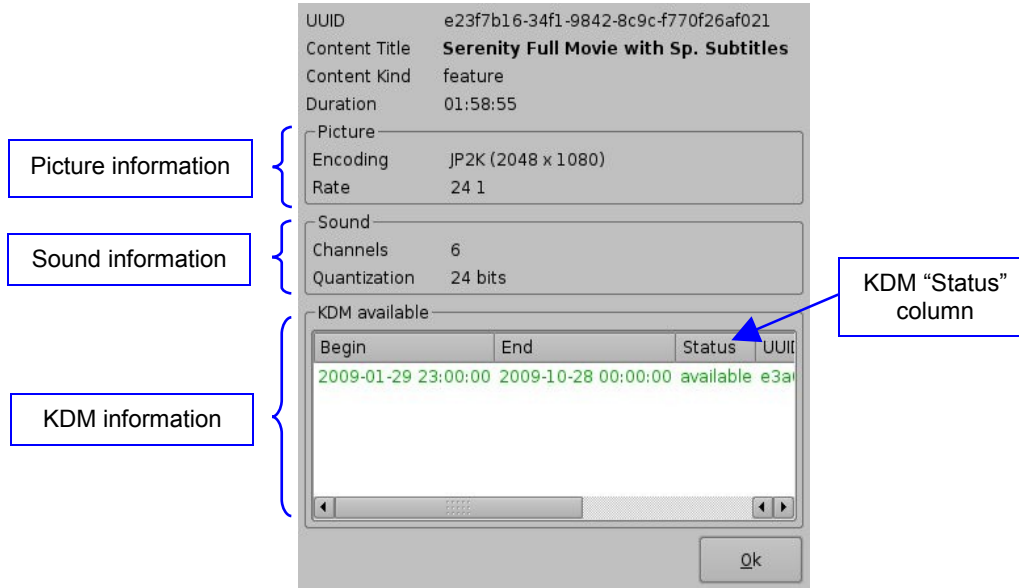
Figure 17: Properties Window Example

If a KDM for the selected Composition is available for less than 48 hours, its remaining validity time will be displayed in the "Status" column and displayed in orange (instead of green as it appears on the above picture).

For automation events, this properties window allows you to edit the event.

3.2.1.6 Show Playlist Saving

After a Show Playlist has been created, according to the procedure presented above, it can be saved using the "Save" button. Click on it to save the Show Playlist.
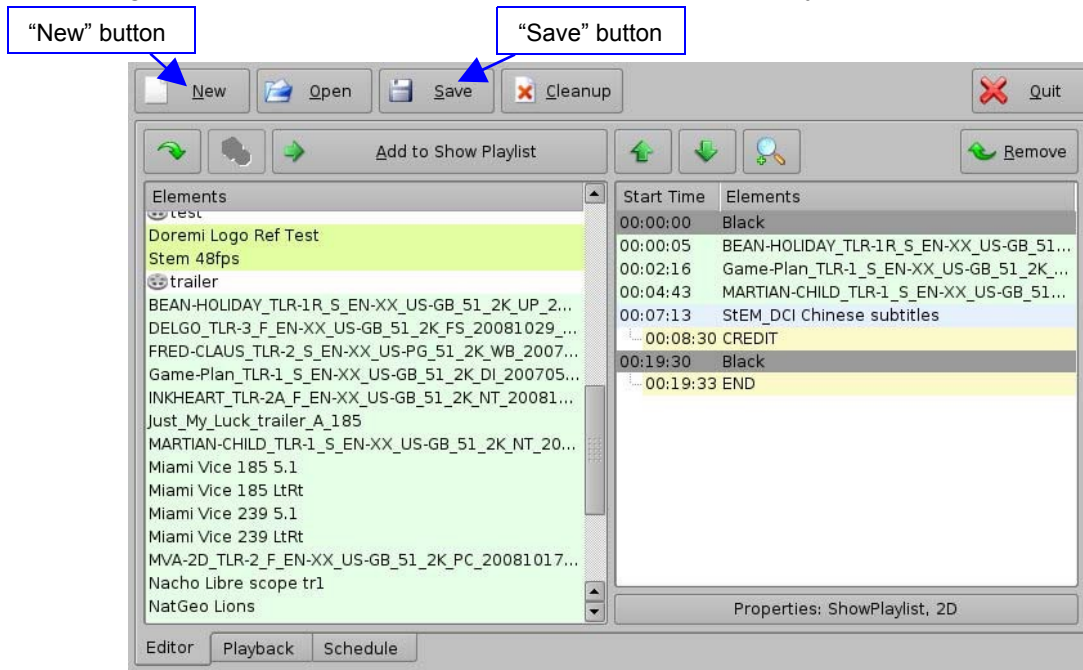
Figure 18: Show Playlist Saving

3.2.1.7 New Show Playlist

If a new Show Playlist needs to be created, click on the "New" button – see Figure 18. It will remove the current Show Playlist present in the right pane of the user interface.

Note: Make sure that the current Show Playlist was saved before clicking on the "New" button, otherwise it will be lost.

3.2.2 Show Playlist Opening

If a Show Playlist already exists, it can be opened using the "Open" button. This Show Playlist will be displayed in the right part of the user interface as if it was created according to the procedure presented above.
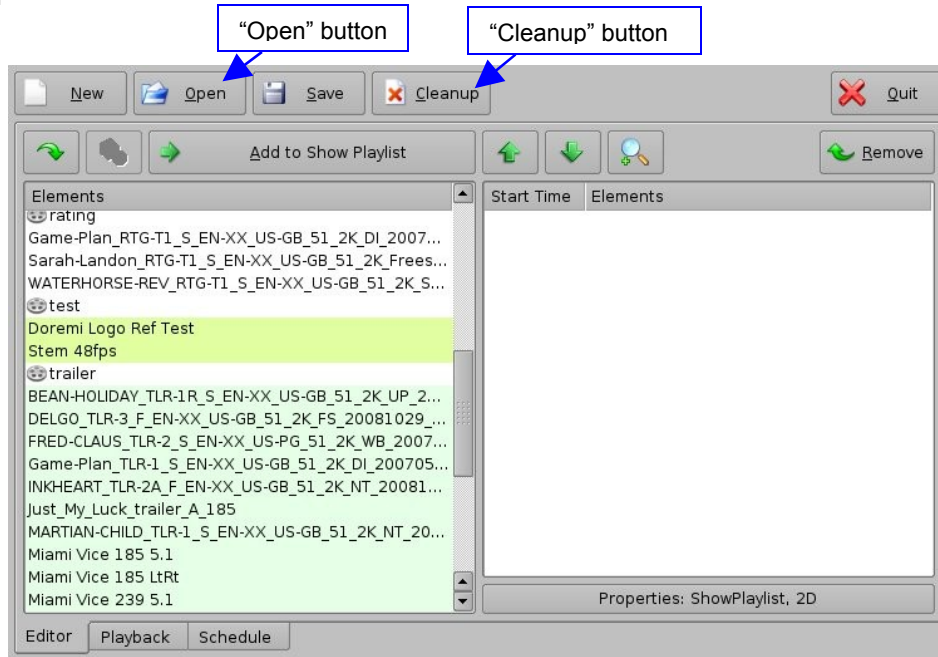
Figure 19: Show Playlist Opening

3.2.3 Show Playlist Cleaning

To delete a Show Playlist from the server, click on the "Cleanup" button – see Figure 19. You will be asked for an appropriate password to complete this operation – contact your system administrator to get the appropriate password.

Select the Show Playlist you want to delete in the "Delete" window that appears and click on the "Delete" button to permanently remove it from the server.

3.3 Show Playlist Playback

3.3.1 Playback Tab Overview

After having created or opened a Show Playlist according to Section **3.2**, the corresponding elements chain can be played. To proceed with this playback operation, select the "Playback" tab – see Figure 9. Click on the "Pause" button to load the Show Playlist currently present on the right side of the "Editor" tab.
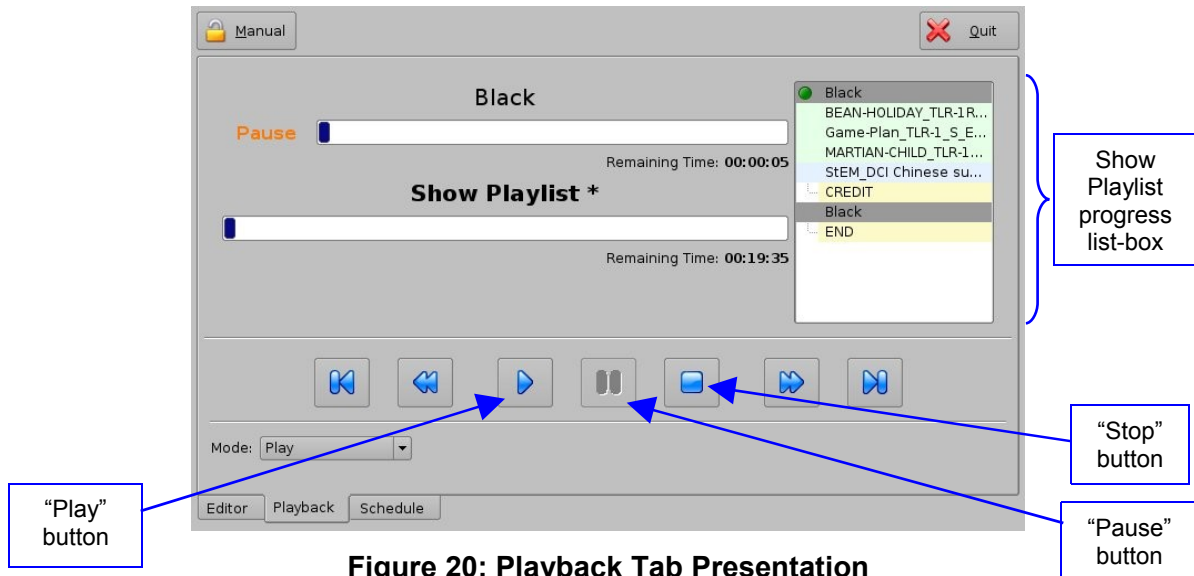

Figure 20: Playback Tab Presentation

Click on the "Play" button in order to start the Show Playlist playback. The "Show Playlist Progress Bar" indicates the progression within the whole Show Playlist, whereas the "Clip Progress Bar" indicates the remaining time within the current clip being played. The "Playback" tab will then look like the following:
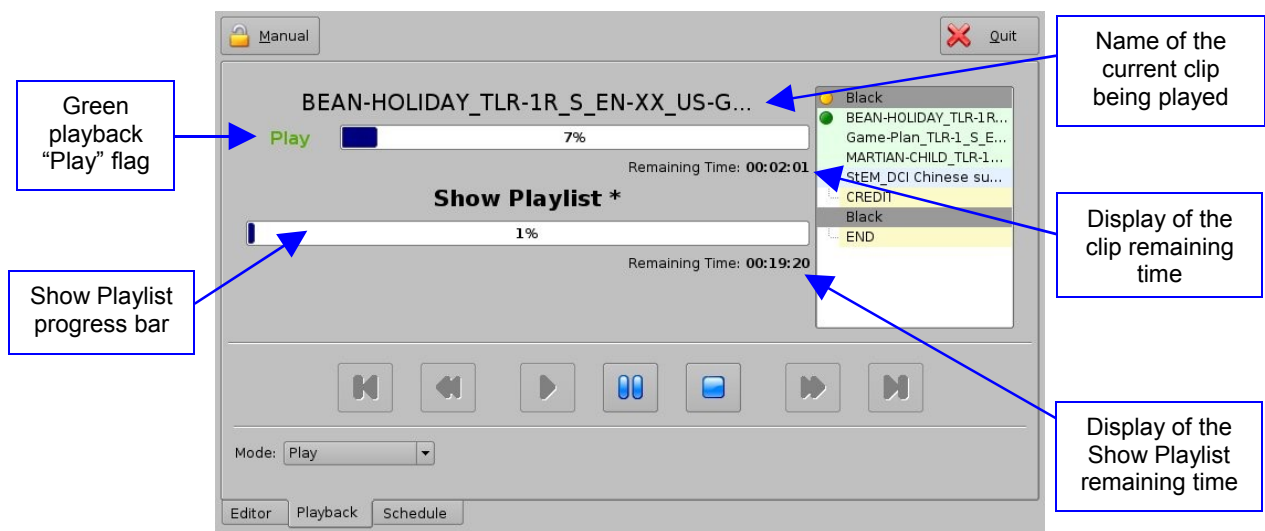
Figure 21: Playback Tab during Playback

During playback, the circular green "Play" flag is displayed and the name of the current clip appears just beside it – see Figure 21.

If the Show Playlist playback needs to be stopped, click on the "Stop" button. If the playback needs to be paused, click on the "Pause" button. The "Pause Mode" is presented in paragraph **3.3.3** below.

3.3.2 Show Playlist Progress List-Box

The right part of the "Playback" tab contains the Show Playlist progress list-box. This list-box displays the current position of the playback within the Show Playlist using a circular green flag. The elements already "played" are flagged using a circular yellow mark, whereas the elements that are not played for the moment do not have any flag at all as presented in the figure below:
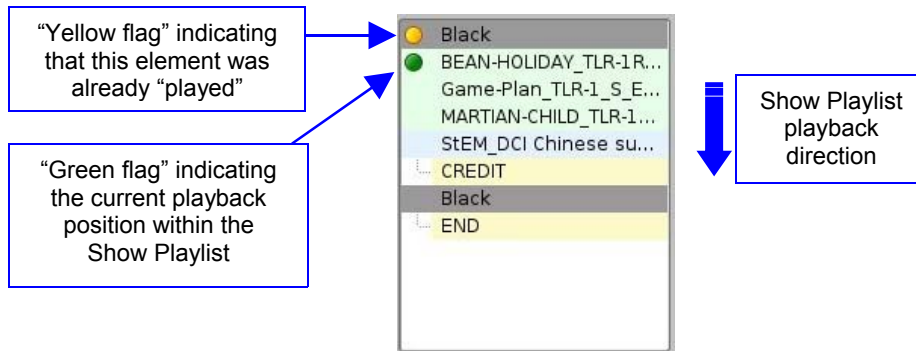
Figure 22: Show Playlist Progress List-box

3.3.3 Pause Mode

When in Pause mode, you can skip to the previous clip or to the next clip within the Show. You can also directly go to three minutes after the pause location or go back three minutes before the current pause location within the current clip – of course if allowed by the clip remaining time. The buttons required in order to perform these operations are presented on the figure below:
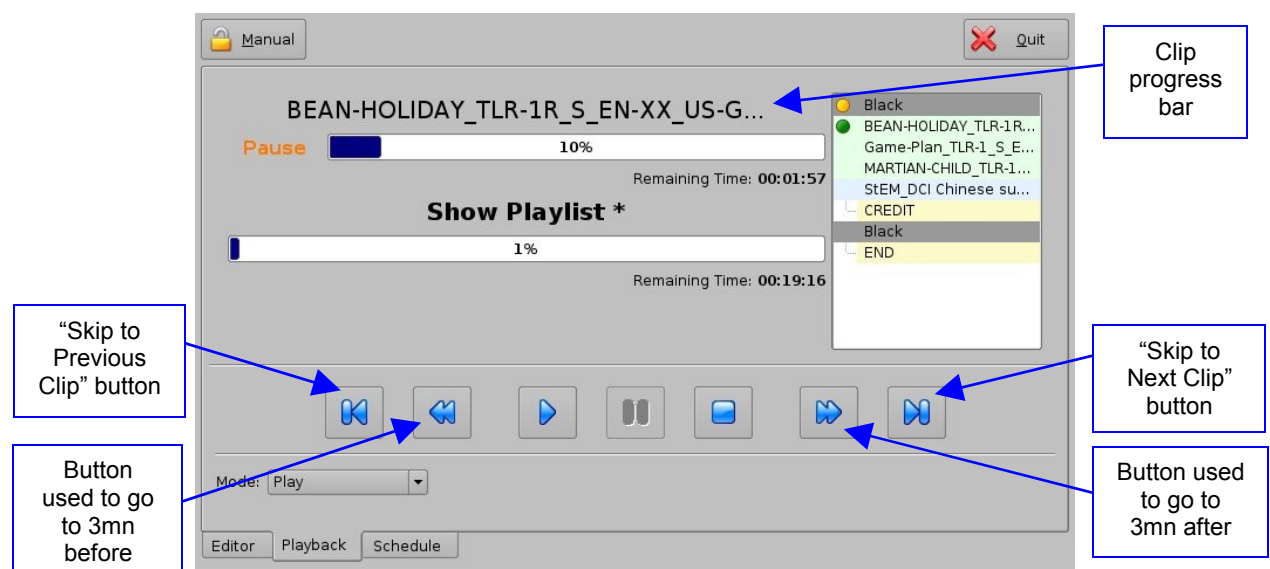

Figure 23: Playback Tab during Pause

For example, if you choose to go to the next clip from the tab presented above, the updated tab will look like the following:
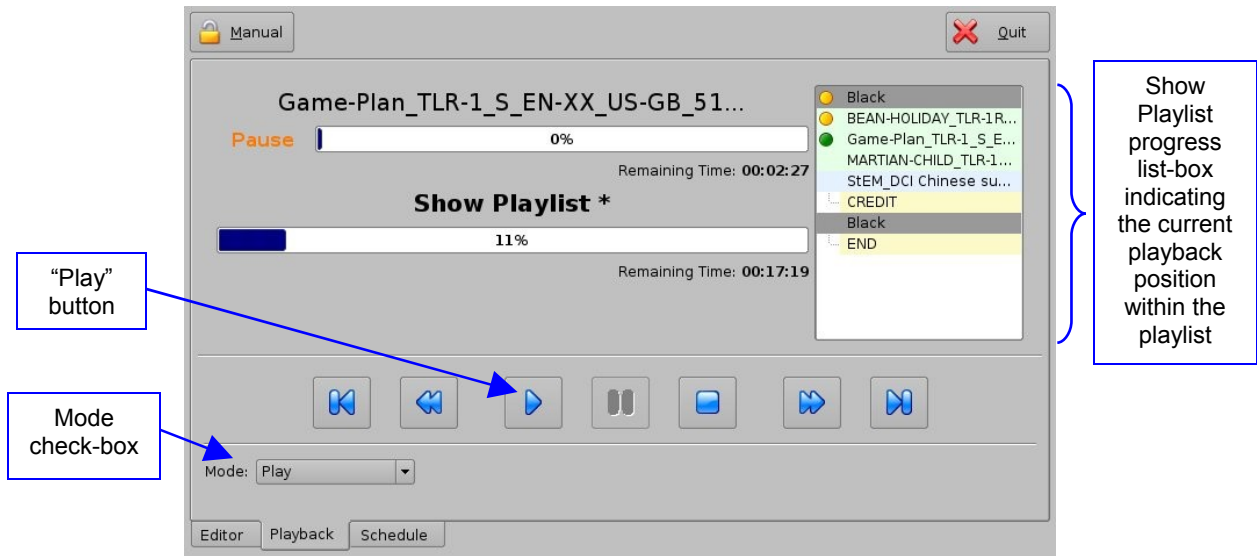

Figure 24: Playback Tab after a Clip Skip

Then, you have to click on the "Play" button in order to restart the playback from the point you have chosen.

In order to set the "Loop" mode – to loop the current playlist – select the Mode "Loop" in the check-box. You will be asked for a password to authorize the Mode change. When set to "Loop", the entire playlist will be repeated.

3.3.4 Manual Playback Locking

The manual mode can also be locked in order to avoid an accidental interruption of the show. To lock the manual mode, just click on the "Mode" button that is located beside the "Manual Playback" tag on the top of the tab.

The "Playback" tab will then look like the following:

Figure 25: Manual Playback Locked

This mode also corresponds to the Scheduled Playback presented in the next section. The playback will then only adhere to schedules.

3.3.5 Alert Messages

CineLister can display "Alert" messages in the "Playback" tab. There are currently two alerts available:

1. "Projector communication failure"
2. "Storage is degraded"

The first one is displayed when there is no projector configured or if the server is not connected to the primary configured projector – see Figure 26.

The second alert is displayed if at least one of the available the storage (RAID-md0 or RAID-md1) is degraded or faulty – see Figure 27.
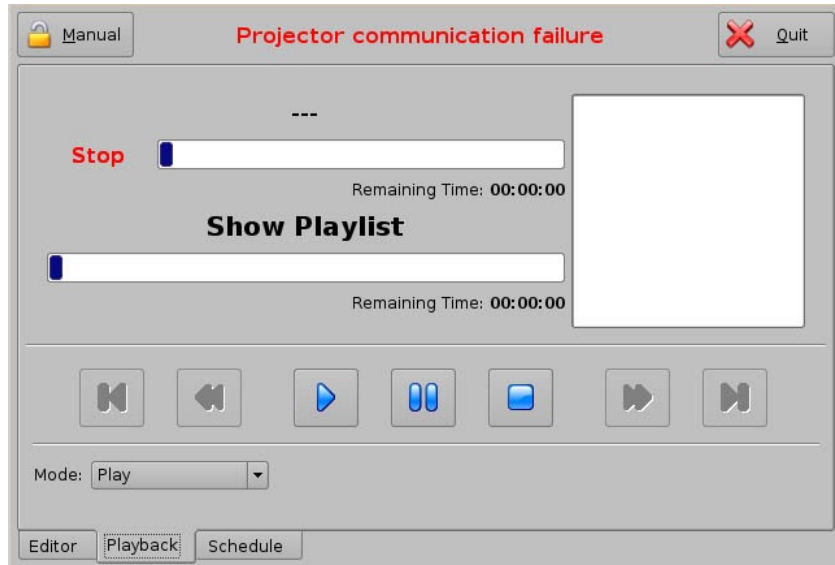
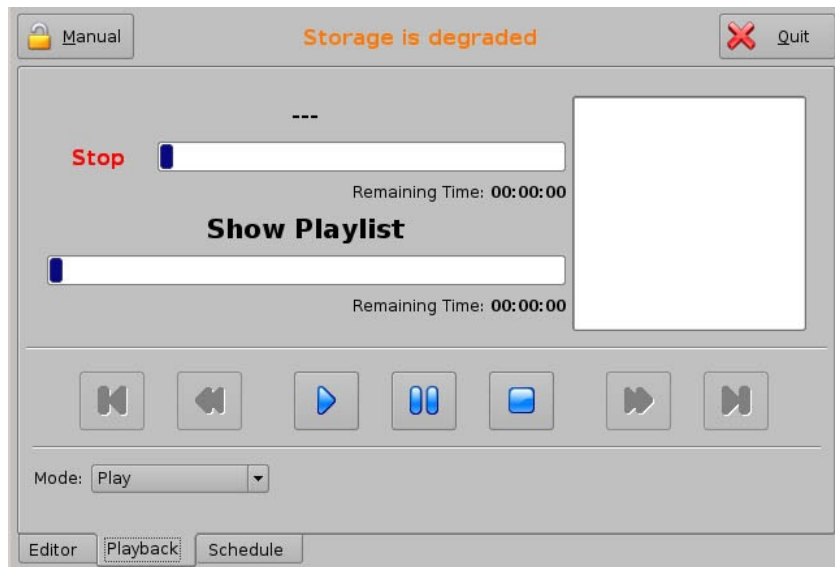**Figure 26: "Projector Communication Failure" Alert Example**

Figure 27: "Storage Degradation" Alert Example

3.4 Scheduled Playback

3.4.1 Schedule Tab Overview

The third tab is called "Schedule" and allows scheduling of Show Playlists according to their start date and time. This tab is presented below:
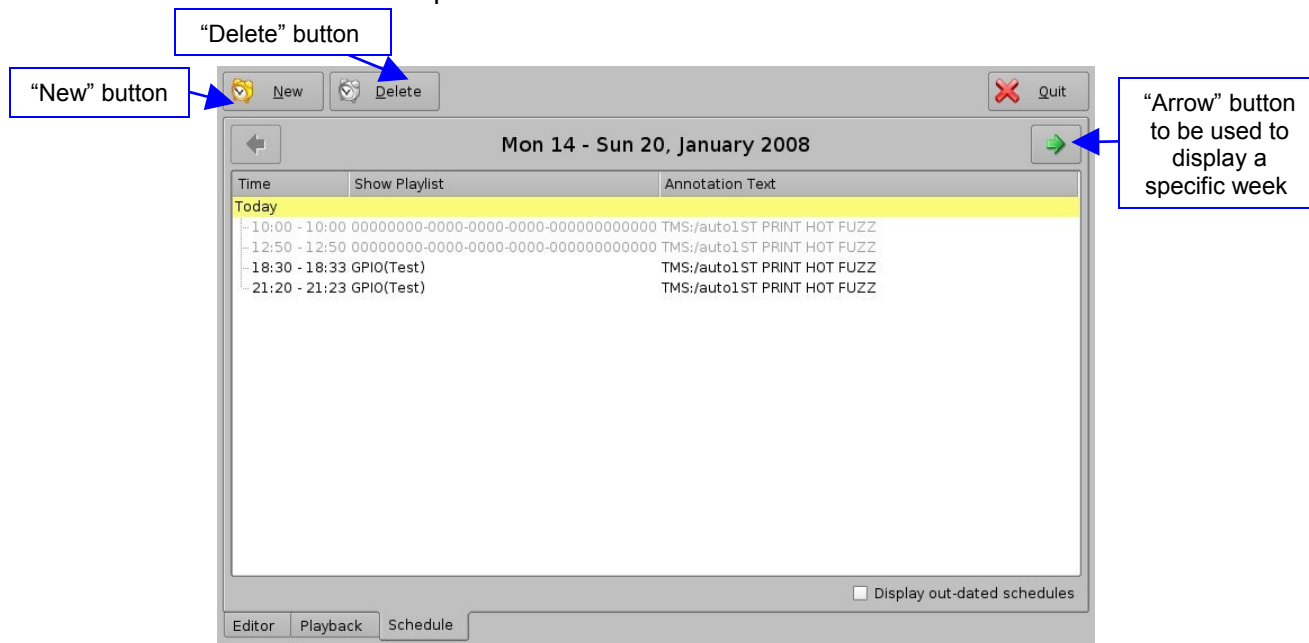

Figure 28: Schedule Tab

You can check a specific week to verify its schedules using the arrows located on the top-left and top-right of the above window. The selected week is displayed between both arrows.

3.4.2 Adding a Show Playlist

In order to add a Show Playlist in the schedule, click on the "New" button and select the Show Playlist that you want to add. You should be asked for a password. Then, the following setting window should appear:
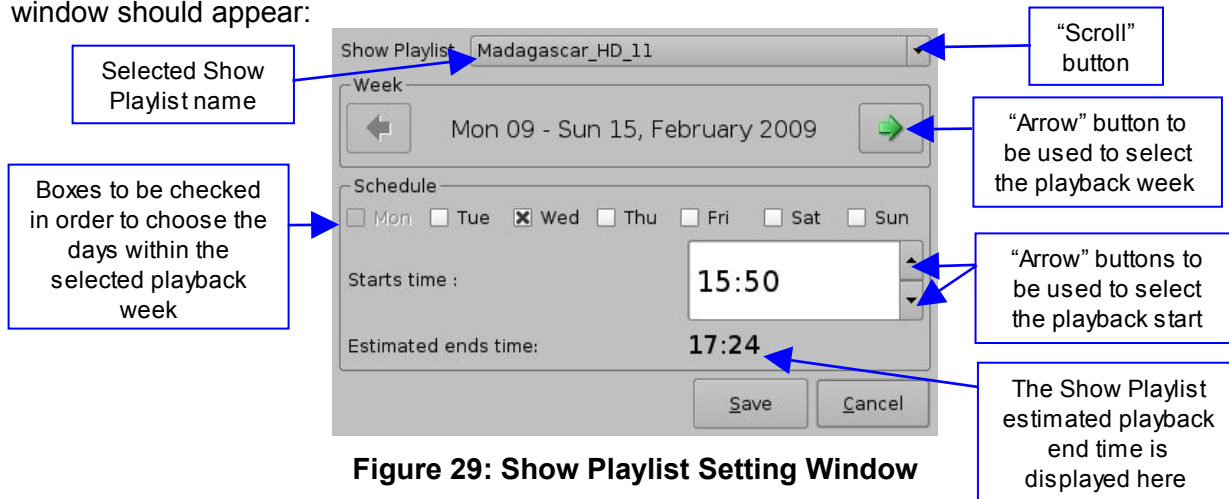

Figure 29: Show Playlist Setting Window

When you are done, click on the "Save" button and you will be back at the updated "Schedule" tab as presented below:
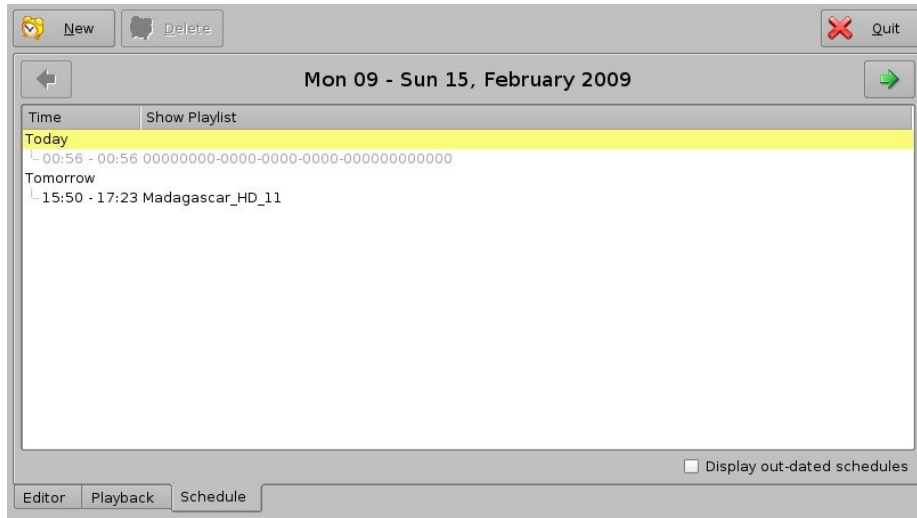

Figure 30: Schedule Tab after Playlist Addition

3.4.3 Show Playlist Removal

To delete a Show Playlist from the schedule, just select it – it will be reverse highlighted – and click on the "Delete" button. You will be asked for a password.

Assuming that the current schedule was the one listed in Figure 30, selecting "Madagascar_HD_11" and clicking on the "Delete" button will lead to the following window:

Figure 31: Schedule Tab after Playlist Deletion

3.5 Play and Ingest

The DCP-2K4 provides the feature called "Play and Ingest" that allows to ingest a composition located on another DCP-2K4 and start its playback without waiting for the ingest to be completed – the composition playback can start during its ingest.

To use this feature, open the ingest GUI: go to "**Menu → Doremi Labs, Inc. → Doremi Labs Ingest**". The ingest GUI should appear as presented below:
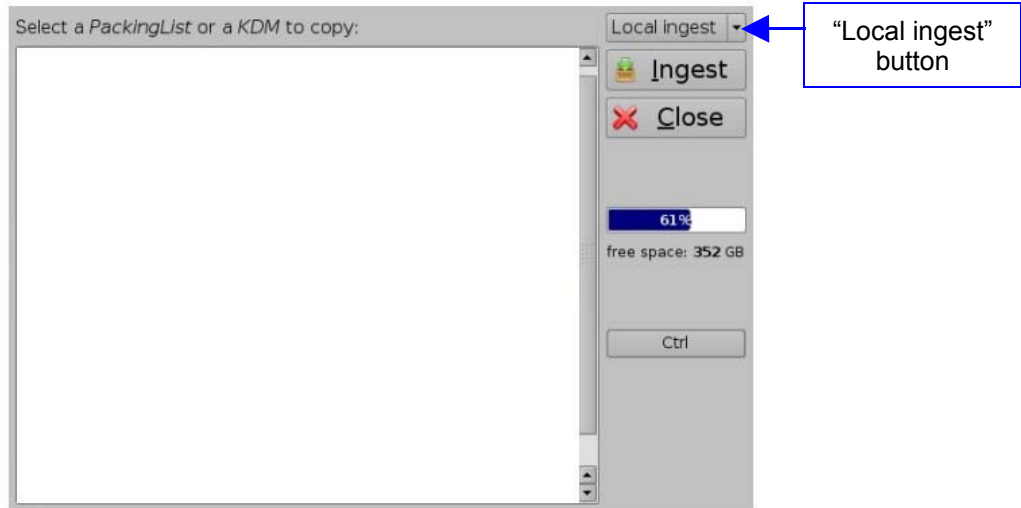

Figure 32: Ingest Graphical User Interface (GUI)

Click on the "Local ingest" button located on the top right part of the GUI and select the screen from which you want to ingest. Its content should then be displayed inside the GUI as presented below:
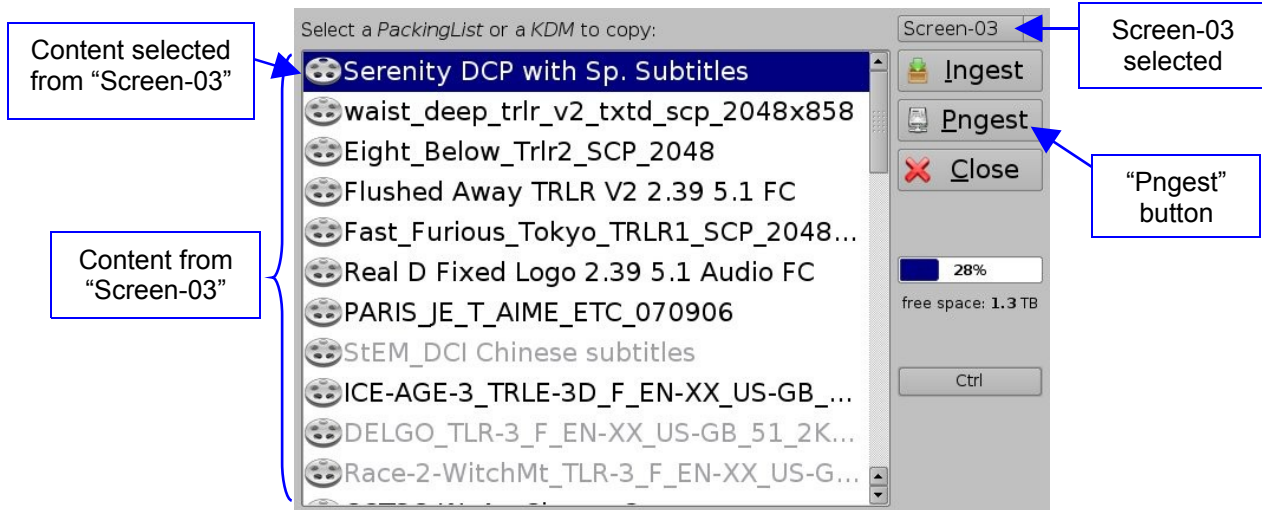

Figure 33: Ingest Graphical User Interface (GUI)

Select the composition you want to ingest and click on the "**Pngest**" button.

The ingest should start as notified by the ingest progress box that will appear as presented below:
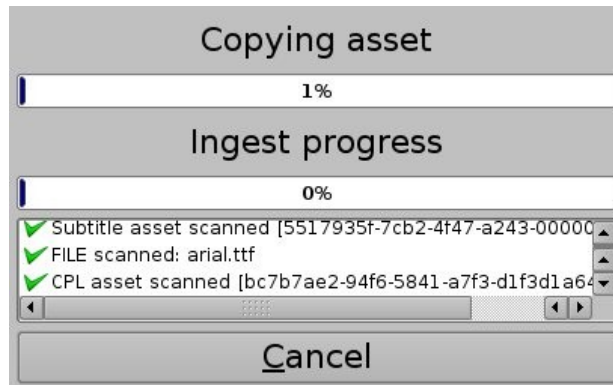

Figure 34: Ingest Progress Box

When this "Ingest Progress Box" disappears, the playback can start – this does not mean that the ingest was completed, but it means that enough material was already ingested to start the playback while the remaining part of the assets continue to ingest.

The composition will then be displayed in green inside the Ingest GUI, highlighting the fact that the content has not yet completely ingested.

NOTICE: The time to be able to start the playback depends on the network capacity. Make sure to optimize the network to have a shorter lead-time before being able to start the playback.

To start the playback of this "partially ingested" composition, open CineLister by going to "**Menu → Doremi Labs, Inc. → CineLister**". The composition being ingested should appear on the left side of the "Editor" tab – if not, click on the "Refresh" button.

You can then select it to be part of a Show Playlist, in the same way as all the other compositions already present on the unit, and start the playback – from the Playback tab as explained in section 3.3.

4 Play 2D Content in 3D Mode

4.1 3D Mode Setup

In order to play 2D content within 3D Shows, for example 2D Trailers within a stereoscopic Show, without having to generate a stereoscopic version of these Trailers, click on the "Properties" button located on the right side of the CineLister "Editor" Tab as presented below:
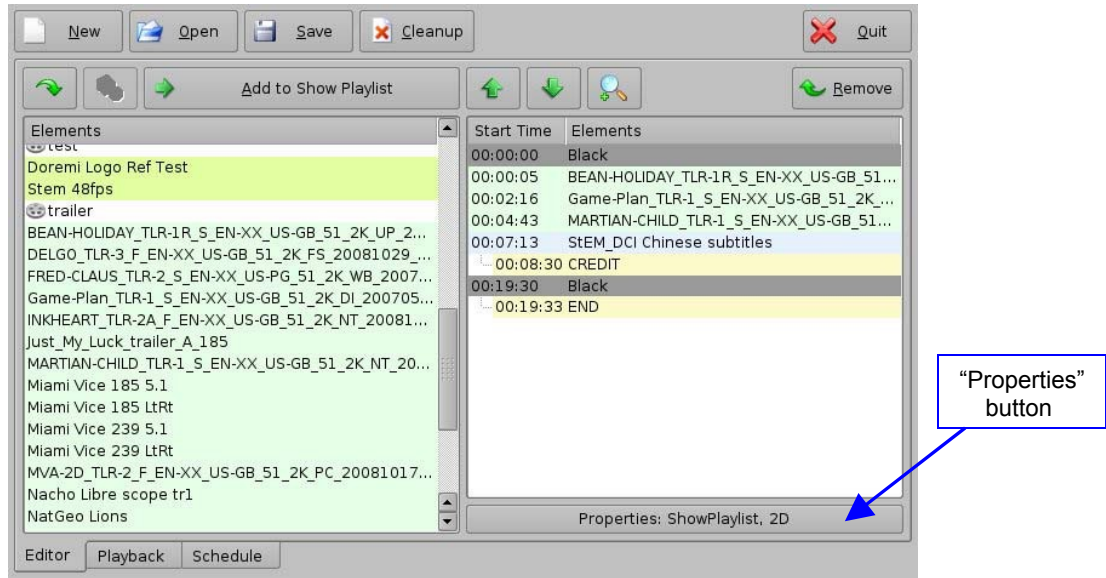

Figure 35: CineLister - Editor Tab, Properties Button

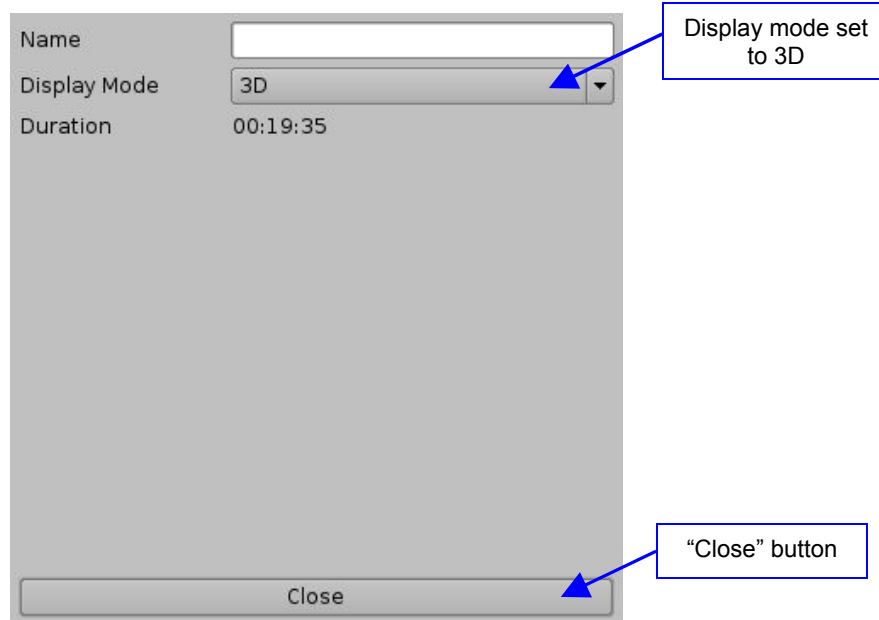The 2D/3D setup window should appear. Set the "Display Mode" field to 3D using the scroll down button:

Figure 36: CineLister - Properties Setup Window

Click on the "Close" button. The show playlist listed on the right part of the CineLister "Editor" tab should now be setup to play all content in "3D" mode - see section **4.2** for playback behavior explanations.
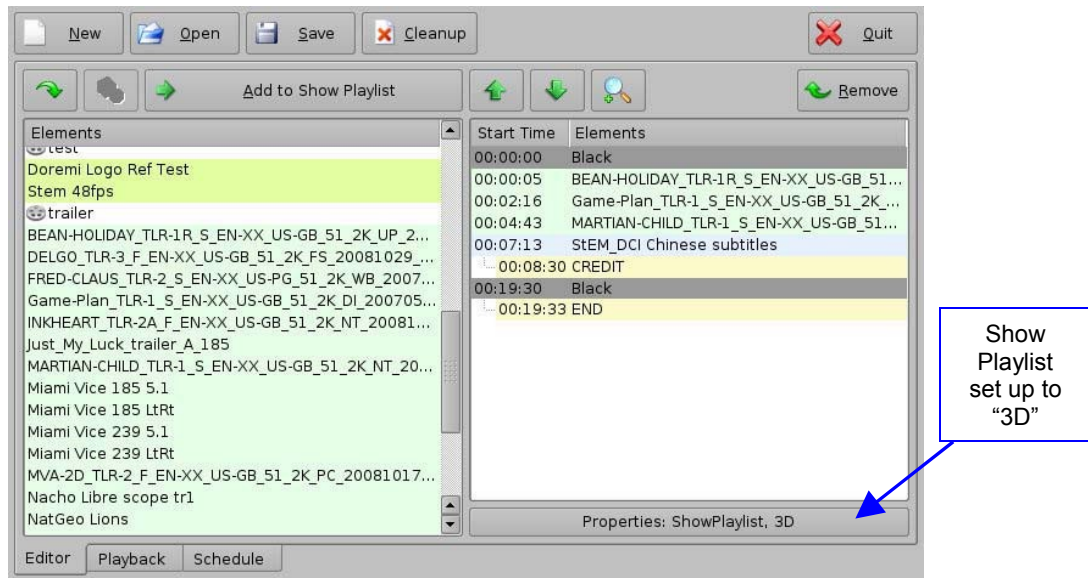

Figure 37: CineLister - Properties Setup Window – 3D

4.2 Playback Behavior

The "3D" Show Playlist Property will make all of the video content of the Show Playlist played in 48fps mode, which corresponds to the processing profile of a stereoscopic CPL – 24 frames 'stereo': 24fps left eye, 24fps right eye.

A 2D 24 frames per second CPL will have each frame duplicated and sent to both HD-SDI outputs allowing usage of the same projector setup for a full stereoscopic show, even if playing 2D content (e.g. 2D trailers).

5 Acronyms

Term	Definition
DCP	Digital Cinema Package
GPI	General Purpose Input
GPO	General Purpose Output
KDM	Key Delivery Message
SPL	Show Play List
2D	Non-stereoscopic
3D	Stereoscopic

6 Document Revision History

Date	Version	Description
03/06/2009	1.0	First version.