



# Delta Media Server

## StackExpress 2.0

User Guide



## StackExpress 2.0 : User Guide

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## About StackExpress

Designed for flat-plane displays, simple playlist sequences can be configured and run on a Delta Media Server via the Stack web interface. StackExpress is an add-in to the Stack core modules, and can be run on the same server as the DeltaServer software as 'localhost', or from a remote PC to port 3000 of the server's IP address. StackExpress shows can be built and saved, replayed, or used simply in real-time.

## Minimum Requirements

- Delta Media Server running DeltaServer software (v. 2.6.73 or later)
- Stack software
- Delta Web Service 2.4.16 or later
- Delta Web Platform 2.1.3 or later
- StackExpress 2.0 software
- Web browser (Chrome is pre-installed on Delta servers, and is preferred).

## Browser Support

The Stack web service aims to provide a modern and powerful web-based interface to the Delta Media Server, using a selection of web technologies to allow advanced user interfaces and real-time feedback. Some of these are not implemented in older web browsers. Whilst Delta Web Service may run without major issues in older browser versions, we do not actively test these versions and do not fix bugs or support issues that appear in them. If in doubt, use an up to date browser and version for the most reliable performance.

## How StackExpress 2.0 Works

StackExpress provides the show, using the Stack web interface, and DeltaServer provides the display configuration. For the Stack web interface in general see the [Stack User Guide](#). For all features of Delta display configurations, channels, alignments, warps and blends, see the [Delta User Guide](#).

StackExpress allows resources to be dragged onto the timeline and given playback settings of their own, including length, repeating, fading and matching audio. Resources can be applied to up to 8 Timelines, with triggering of actions.

## How it Works

StackExpress interacts with the Delta Media Server over the Stack web interface. The Stack web interface also provides the core play controls and preview, in the StackExpress web page.

The StackExpress page reads and lists movie, image and capture resources that are available on the server being addressed, which, in similar manner to the DeltaGUI interface, can be dragged into a simple timeline order-of-play.

These resources can be given properties of length, repeat, fade, aspect and relative play speed, and they can be dragged to re-order them. Together they form a single sequential layer.

The destination layer and position are defined similarly in a user-configurable system file, and the Express timeline can either stand alone, or be merged with another show file on the server.

All this assembly creates a complete instruction set *in StackExpress* (the **Media Config** .json file). An 'Upload Timeline' button sends these instructions to the same-number timeline of the DeltaServer being addressed, to compile a specifically-named **show file** (*expressmode.xml*) and saves it. This becomes the DeltaServer default show (see DeltaGUI, *Config > Preferences > Startup & File Load*). Changes can be made and the show file regenerated at any time.

Any number of instruction sets (.json) files can be saved and reloaded, to recreate the DeltaServer show, as required. StackExpress can load these .json files to generate different *expressmode.xml* shows on multiple servers, set them running and interact with them, from a single remote PC.

## Installation and Setup

### Installation and Setup

The Stack web service is included with software installed on a Delta Media Server (C:\7thSense\web\data\app\StackExpress). You will need to install the StackExpress .exe file on the server. This is a very straightforward applications installation, after which, restart the media server.

#### **Not using StackExpress any more?**

Installation will include a registry setting, and if you subsequently want to discontinue StackExpress, this may need to be reset. From the Windows search, find Regedit, and under *Software > 7thSense > Delta*, find 'ExpressMode' and reset it to 0.

Nothing needs to be added for reaching StackExpress from the server or a remote PC than a web browser.

## Languages

StackExpress is supplied with an English-language interface. Other languages can be made available by contacting 7thSense. New language translations can involve user collaboration over expressions and available space in the interface.

## Registry Edits (Thumbnails)

By default, DeltaServer creates a thumbnail of the first frame of every movie whenever the Resource Pool is refreshed, and stores these in C:\7thSense\web\data\thumbnails. Thumbnails are used in DeltaGUI as resource pool icons and on the timeline to help identify assets.

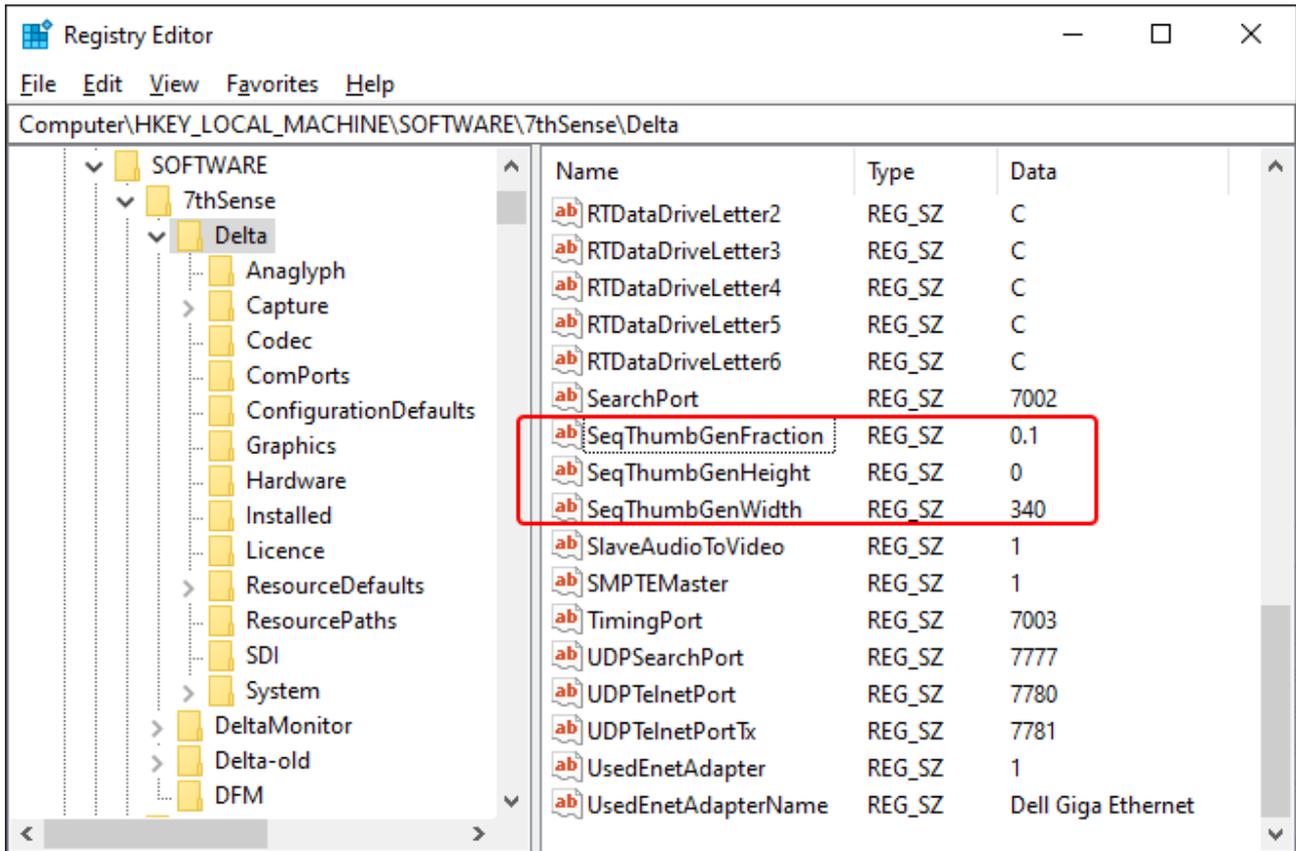
Thumbnails of selected frames can also be created for use in scrubbing through movie clips on the StackExpress timeline. Currently-supported formats are 7th 4:2:2, and YCoCg.

### Registry Edits

7thSense software uses the Windows Registry extensively, and on occasion we make recommendations for changes.

- Before making any changes, close DeltaGUI and DeltaServer.
- DeltaServer can take up to 10 seconds to fully close in the background, even if it appears that all the Windows have closed. Ensure that Delta has *fully* closed before opening and/or refreshing, and finally editing. The best way to ensure this, is to watch Windows Task Manager > Details list. You will see 'DeltaServer.exe' in this list if DeltaServer is still running. If it won't close for any reason, you can right click on it in the list and choose 'End Process Tree'.
- Make a note of any setting before you change it, in case you want to change it back.
- Only make the changes as recommended and only to those registry keys.

To use the thumbnails feature for the StackExpress timeline, two registry edits must be made. Make sure DeltaServer is not running and in Windows search find 'Regedit':



### How many thumbnails

Double-click the name and set the value of **SeqThumbGenFraction**. For any value other than 0, when DeltaServer starts it will look for a folder: C:\7thSense\web\data\thumbnails\sequences. If this does not exist, it will create the folder and the required thumbnails for all movie assets on the server. If you choose a large number of thumbnails, this will take some time.

Example	Result
2	A thumbnail every second frame
1	1 thumbnail per frame
0	No thumbnail creation
0.1	10 thumbnails distributed evenly across all frames
0.01	100 thumbnails distributed evenly across all frames

### Thumbnail size

For best resolution, set the value of **SeqThumbGenWidth** to 340 (the width of the resource preview window in the StackExpress web page; for height, the aspect ratio is maintained automatically if no value is added).

## Sequence Filtering

StackExpress has a config.json file on the server, held in C:\7thSense\web\data\app\Express\app

This file contains two lines enabling filtering of sequences by prefix or suffix. By default, only sequences with names starting with 'SE\_' will be revealed in Stack Express. You can edit this file if you want to use an alternative prefix, or add a suffix instead (see [Media Properties](#) <sup>(22)</sup>).

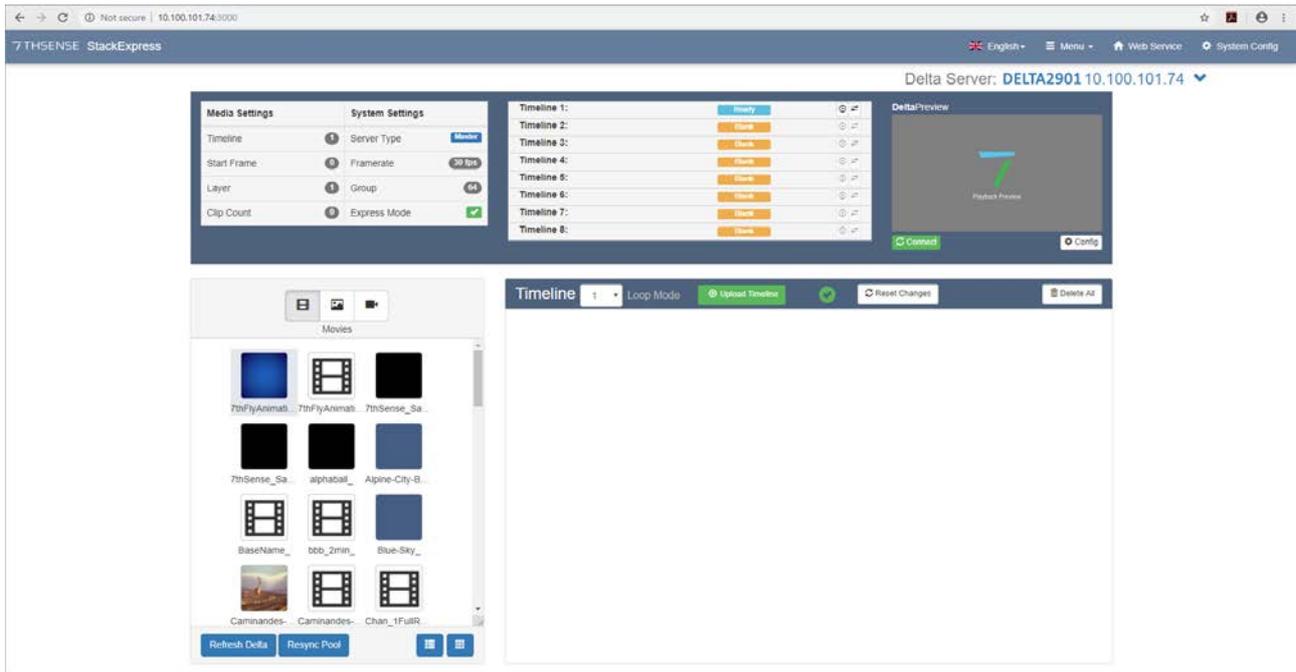
```
{
  "client":
  {
    "dateDisplayFormat": "DD-MM-YYYY",
    "logNameDateFormat": "DDMMYYYY",
    "backupThumbnailFraction": 0.01,
    "maxTimelines": 8,
    "disableRS422": true
  },

  "logPath": "%PROGRAMFILES%\7thSense\Delta\Logs\",
  "backupMediaPath": "C:\\7thSense\\JSON\\backup\\",
  "sequence_prefix": "SE_",
  "sequence_suffix": ""
}
```

## Start StackExpress

Start DeltaServer software on the server.

- If accessing the Stack web interface using a web browser on the same server, use the IP address 'localhost/ws/'. From a remote PC, use the IP address '[serverIP/ws]' (e.g. //10.100.101.74/ws).
- The initial username and password for the Stack web service are both 'admin'. See the [Stack User Guide](#) for changing this.
- From the top menu 'Configure', select 'Add-ons' from the left-side menu and click the green **Start Service** button next to 'Stack - Express'.
- On the top menu, click 'StackExpress'.
- Once running, the StackExpress web pages communicate via port 3000, so the direct url is: [serverIP]:3000.



## Quick Checklist: Ready to go?

### In System Settings, is Express Mode ticked?

Check that the StackExpress service shows green in 'Add-ons' (as above)

### Is the green tick next to the 'Upload Timeline' button message there?

If there is a yellow !, press F5 to refresh the page. If still yellow, you may need to go to *DeltaServer > File > New* to clear an old timeline.

### Can you **Connect** to DeltaPreview?

If everything else is OK, this is unlikely, but check your IP connection, and under 'System Config' (top menu) that WebRTC is enabled.

### Are the server's movie resources visible as expected on the left?

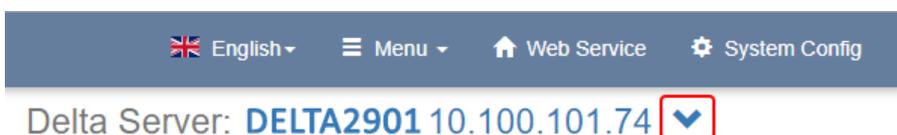
If not, and everything else is OK, try 'Refresh Delta' followed by 'Resync Pool'. If you add resources at any time, you will also need to do this.

## Express Page Elements

### Top Menu Bar

If implemented, select alternative [Languages](#)<sup>5</sup>; use the StackExpress [Main Menu](#)<sup>15</sup> for configuration options; go to the [Web Service](#) home page and to the StackExpress [System Config Settings](#)<sup>19</sup>.

### Server Selection



Click the down arrow in the top-right of the Express page to select alternative connected (available) servers. For this and other Stack connectivity information, see the [Stack User Guide](#).

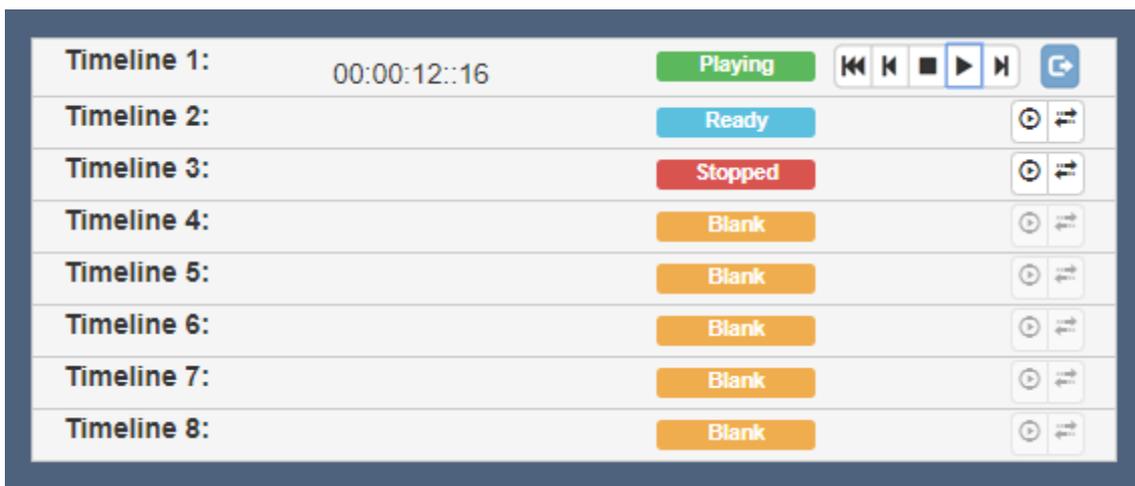
### Express / Server Information

This top left panel shows the settings that are made in Media Config and System Config:

Media Settings		System Settings	
Timeline	1	Server Type	Master
Start Frame	0	Framerate	30 fps
Layer	1	Group	64
Clip Count	1	Express Mode	✓

### Timeline Controls

In the centre is the timelines control panel:



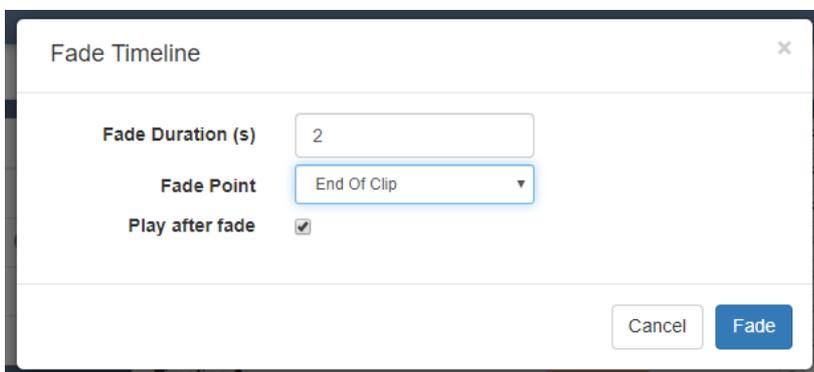
StackExpress can operate up to 8 timelines. Each timeline can show 'Ready' (blue), 'Playing' (green), 'Stopped' (red) or Blank – i.e. unused (yellow).

To start playing any timeline immediately, click its start button:



To fade the current playing timeline to transparency and then fade in the selected timeline, click the

selected timeline fade button



The fade point is immediate, end of clip or end of timeline.

When a timeline is playing, the switch controls are replaced by the play controls:



Rewind to start of show and stop.



Go back to previous clip in the playlist (will play if the show is still playing, but just go to next if the show is stopped)



Stop playing

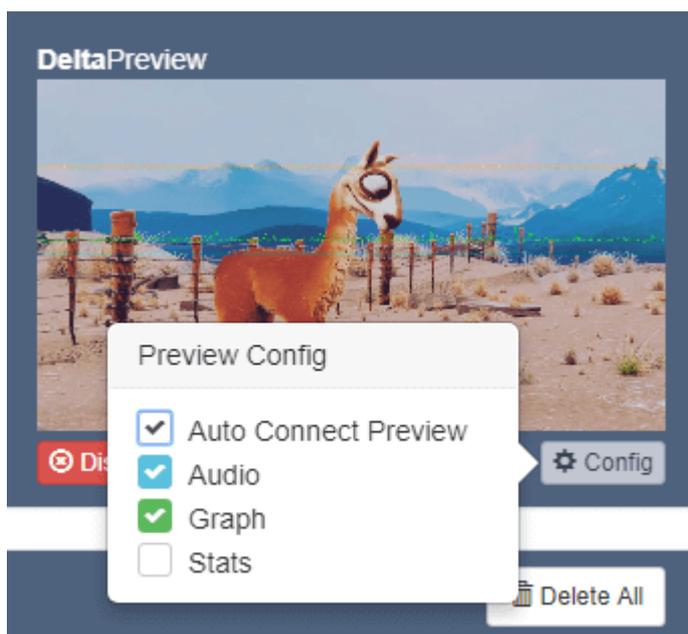
-  Play
-  Go to next clip in the playlist (will play if the show is still playing, but just go to next if the show is stopped)
-  Stop looping a 'Play Until Triggered' resource (next action is configurable).

If the Express timeline is merged with another show, previous and next clip buttons will only go to the Express resource start points.

In Loop mode, the timeline will repeat (this is a GOTO command to the first clip) until stopped.

## Preview Config

To the right is the DeltaPreview window, a feature common to the Stack interface modules. Playing Preview adds to traffic and needs not be connected continuously.

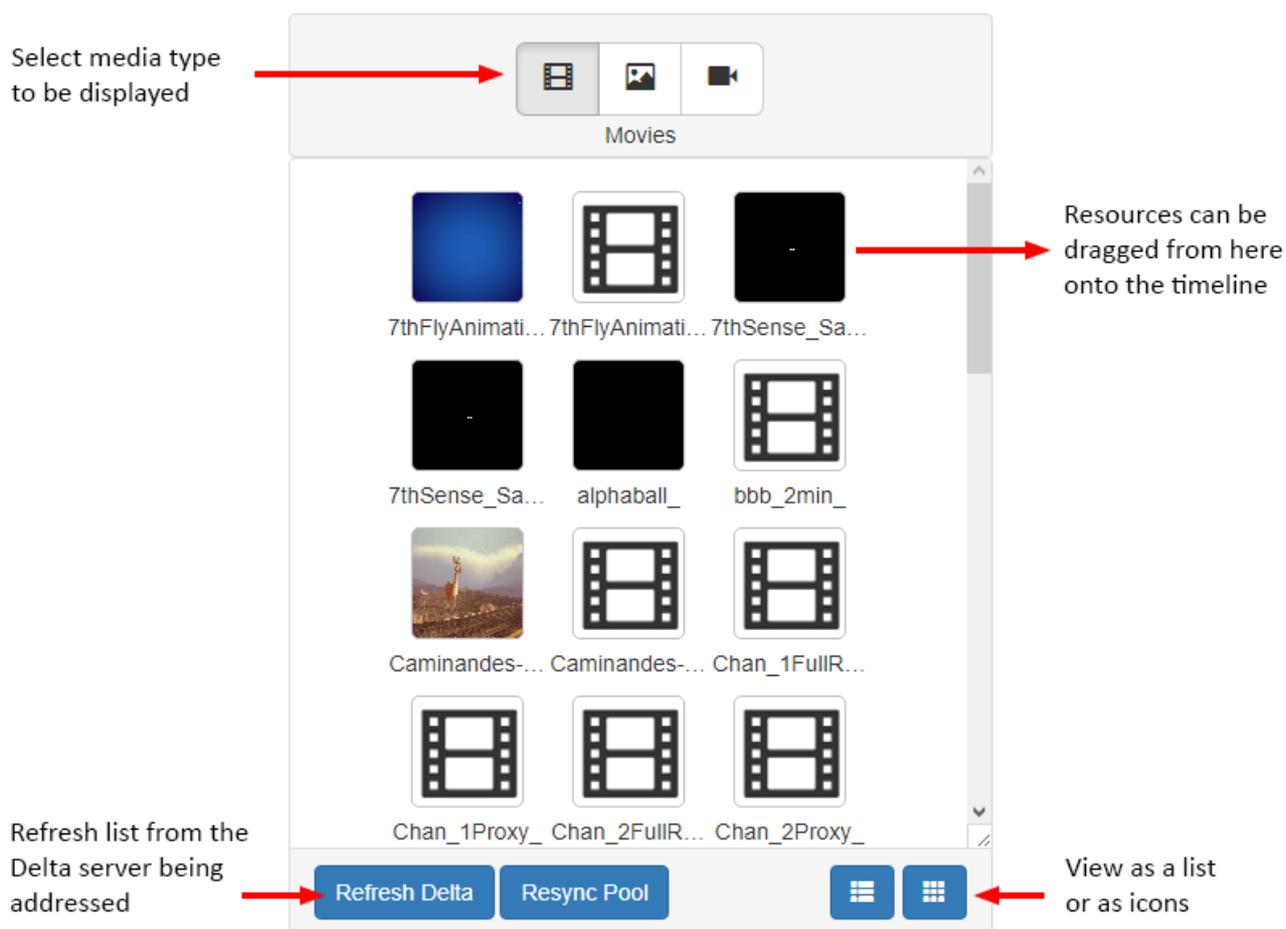


Display options for the preview window allow the superposition of audio bars, performance graph or playback stats. For full details on Preview functions, see under Preview in the [Stack User Guide](#).

**Note:** Preview shows you what is currently playing on the Delta server being addressed. It will not show your current Express show settings until **Upload Timeline** is clicked after any change.

## Resource Pool

The lower part of the screen belongs to available resources (movies, images and capture sources) and populating timelines.



If new media resources are added to, or deleted from, the server being addressed, two actions are required:

1. Refresh the Delta server.
2. Resync StackExpress with the server.

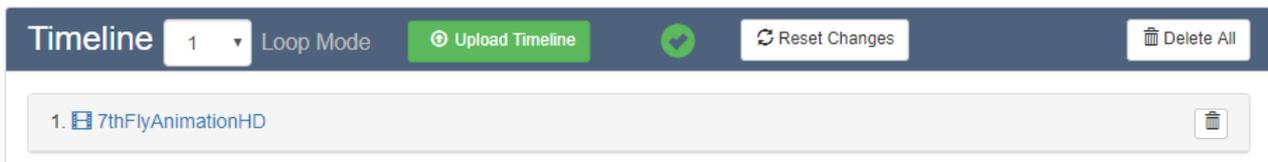
The resource pool will now reflect all available media. **Preset** resources that have been created here or in DeltaGUI, will be displayed here, with a blue **P** in the corner.

**Capture devices** are live, not recorded, and simply play back on-screen as they are streamed. To record capture devices, use the DeltaGUI preview recording facility (refer to the [Delta User Guide Recording](#) section).

**Note** that audio resources are not available as separately configurable files, but codec audio and matched resources (with the same name as visual media) will be found.

## Timeline (Show) Creation

Resources are dragged from the pool on the left into the Timeline area. First select which timeline you want to populate.



At first you will see a yellow exclamation icon appear. This indicates a mismatch between this Delta timeline and the equivalent StackExpress timeline. Click the green **Upload Timeline** button, and the icon will change to a green tick as shown above. Changes can be reset, and the timeline can be cleared.

If you see a red exclamation icon, this is a warning that the loaded config does not represent the content loaded on the Delta server. Go to *Menu > Reload Default Media Config* (or load a specific) config, and then **Upload Timeline**.

## Timeline Area (Loop Mode)

When resources are dragged from the pool into the timeline area, they create headline bars that can be rearranged or deleted. Icons indicate the media type.

This timeline is only an instruction set in StackExpress, until the **Upload Timeline** button is pressed, to generate or update the timeline in the *expressmode.xml* show file of the Delta server being addressed.

Click on the resource name to expand the resource editor (see [Media Properties](#))<sup>(22)</sup>:

Timeline 1 Loop Mode Upload Timeline Reset Changes Delete All

1. Delta splash screen
2. 7thFlyAnimationHD
3. sintel\_4k
4. Caminandes-Llama-Drama
5. visitor-welcome-panel-left-words

**Resource preview**

Length Actions Play Mode Fade Mode Misc.

**Play Mode** Play Once

**Count** 1

**End Transition** Stop

End of this Clip

Start of next clip

Resource Frame: 0

Timeline Frame: 810

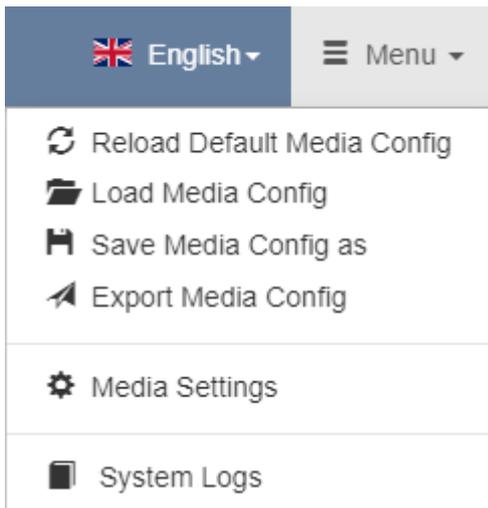
Type Movie (mov)

Length 00:14:48:00 (26640f)

Size 3840 x 1744 px

## Main Menu

From the menu bar, select 'Menu':



## Media Config

In StackExpress, this is a JSON file containing the playlist, and parameters of resources to be used in an Express show. Essentially it is the complete instruction set to recreate a previous show.

Any StackExpress show (Media Config) can be saved as a .json file backup in C:\7thSense\JSON\backup. Any number of Media Configs can be saved and reloaded. Once reloaded, click the green **Upload Timeline** button to pass the information to the Delta server. Resources referenced in the config file must already exist on the server so that they can play on the server's timelines.

### Reload Default Media Config

Loads the show currently generated on the server (expressmode.xml).

### Load Media Config

Loads a saved .json file, which replaces the current StackExpress timeline.

### Save Media Config as

Creates a backup .json file of the current resources and their parameters, in C:\7thSense\JSON\backup on the Delta Media Server.

### Export Media Config

Creates a backup .json file of the current resources and their parameters, in another destination.

### Media Settings

Access the general media settings that locate the Express show on the destination server (see [Media Settings](#)<sup>(17)</sup>).

**System Logs**

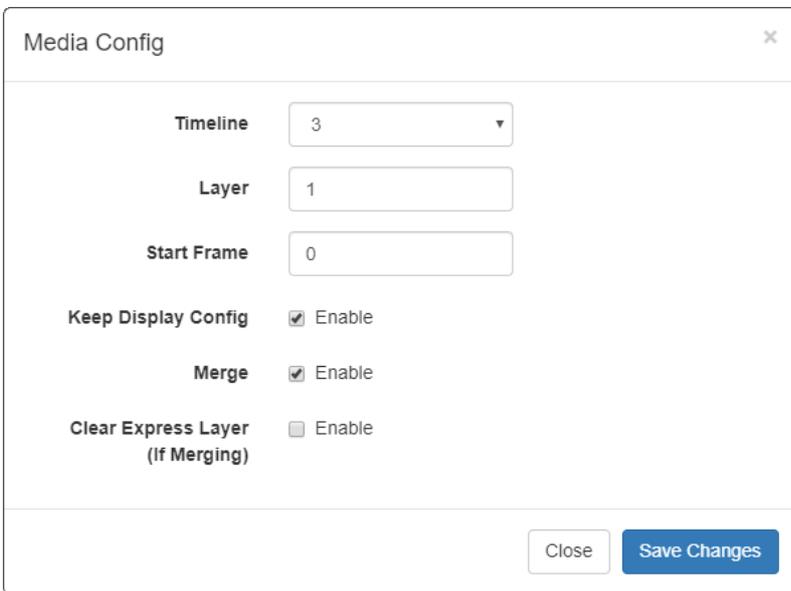
Opens and goes to the logs panel in the Express web page. Logging is enabled in System Settings.

## Media (Display) Settings

---

These settings configure the Express timelines to be inserted on DeltaServer, in the expressmode.xml show file.

From the top 'Menu', select 'Media Settings':



Media Config

Timeline 3

Layer 1

Start Frame 0

Keep Display Config  Enable

Merge  Enable

Clear Express Layer (If Merging)  Enable

Close Save Changes

**Timeline**

The timeline on the server to be configured.

**Layer**

The layer of this timeline to use to play the Express playlist. Audio will be added to this layer+4.

**Start Frame**

The timeline frame to use as a start position.

## Merge Show Options

StackExpress can be used to combine a dynamic element (expressmode.xml) with a regular Delta .xml show.

**Keep Display Config**

In a merged show, there may be background layer display configurations. These may have been devised for a different display.

**Merge**

Add an existing show into the StackExpress show (i.e. to show with it). The existing show must first be loaded. The Express show will be inserted at the configured timeline, layer and frame, and the show name will remain *expressmode.xml*.

**Note** that the start and end of the merged show are that of the Express timeline, not any merged resources outside of its scope.  
*expressmode.xml* itself can also be set as 'Merge Permanent Show File' in DeltaGUI: *Configure > Preferences > Startup & File Load*, to play its latest generated content. However, any other existing permanent merge file will not be merged into *expressmode.xml* when it is loaded.

**Clear Express Layer (if Merging)**

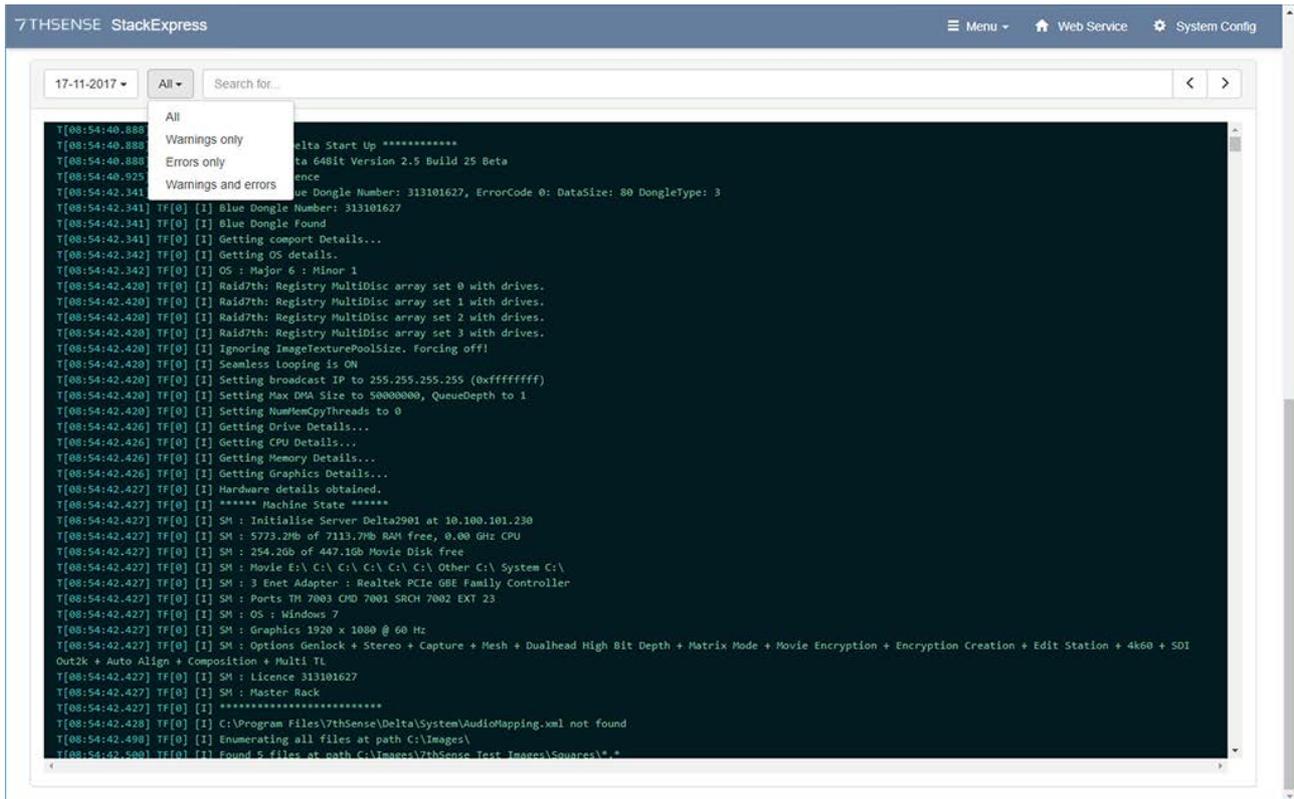
Clear any existing Express layer in a merged show before remerging.

## System Logs

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If *System Config > System Logging* is enabled, these can be retrieved. Open and jump to the Logs panel in the StackExpress page from the top Menu > *System Logs*.

Select the date/session from the first drop-down and filter items in the second:

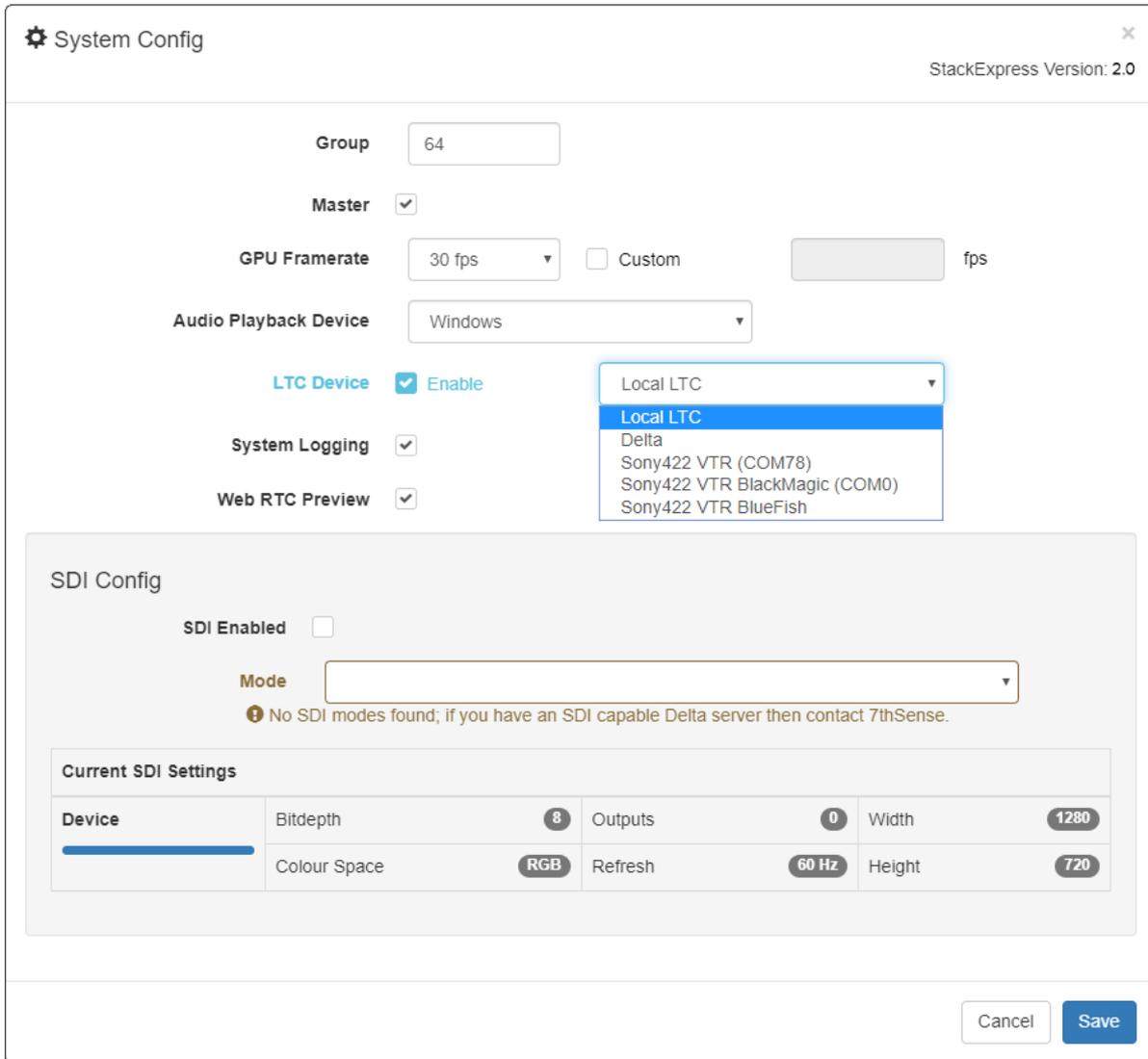


The Logs panel is dismissed again by refreshing the browser page.

## System Config Settings

The Delta Media Server being address can be managed from here for some basic configurations when running StackExpress. These settings are stored on the Delta Media Server in C:\7thSense\JSON\config.json.

From the top menu, select 'System Config'.



**Group**

The Group set for the server in *DeltaServer > Preferences > System*.

**Master**

The server type as set in *DeltaServer > Preferences > System*.

**GPU Framerate**

Select the appropriate framerate.

**Audio Playback Device**

Select which device to use.

**LTC Device**

If chasing a timecode, this will set the device for all timelines. (For LTC in more detail, see [ChasingLTC](#).)

**System Logging**

Tick to enable. StackExpress will store system logs by date, which help diagnose any problems, or be used to review activity. The logs appear at the bottom of the StackExpress page, and are cleared when the browser window is refreshed.

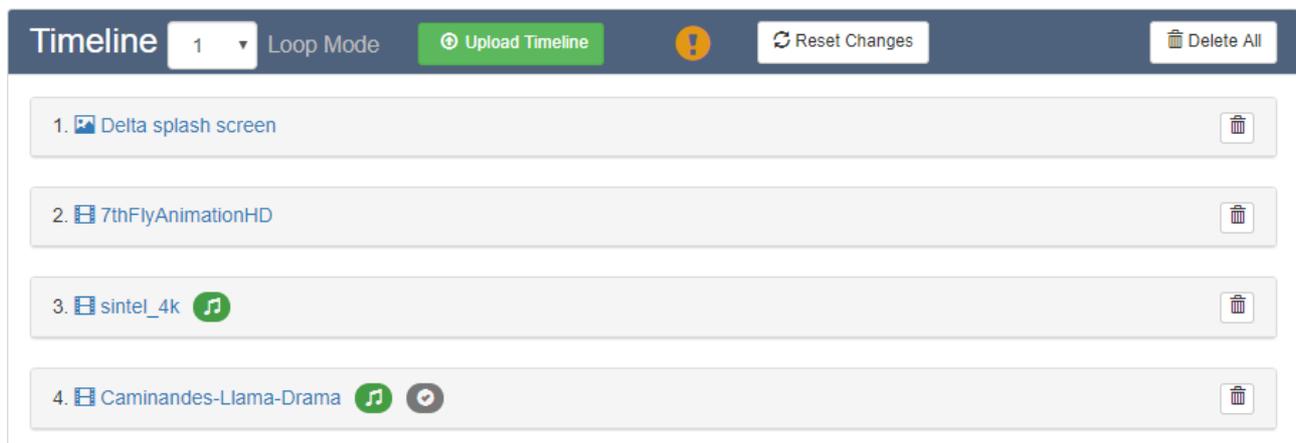
**WebRTC Preview**

This must be enabled for the DeltaPreview to work.

## Populating the Timeline

The resource pool shows what is available on the currently connected server according to the latest refresh and resync (see [Express Page Elements](#)<sup>(10)</sup>).

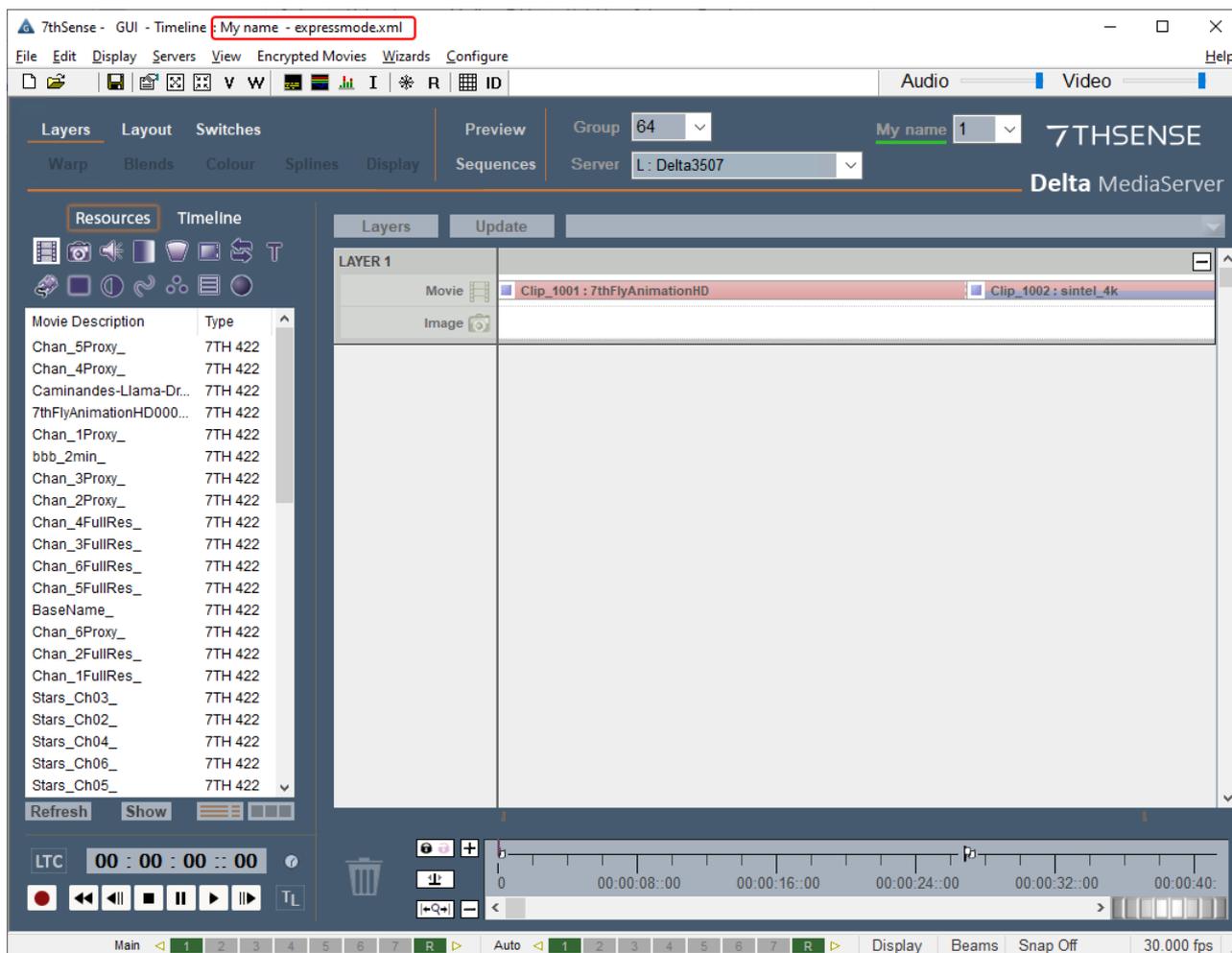
Resources are dragged out of the pool onto the timeline, where each becomes represented by a bar showing order of play number, media type (icon), resource name, an audio indicator (where applicable) and, to the right, a delete button to remove it.



Items on the timeline can be rearranged by dragging the order. New items are always added to the end, so to insert anywhere else, drag them into the correct position.

Changes of any kind will require the green **Upload Timeline** button to be clicked *for the timeline that has changed*. This will send the StackExpress instruction set to the currently selected server's timeline, in the `expressmode.xml` show file. If this file is not present it will be created. If it exists it will be updated.

If an Express show is playing the same timeline that is being uploaded, a warning message is given before the upload can be completed, that play will be stopped.



You are now ready to address the properties of any of your resources.

## Media Play Properties

Click a resource name to open its play properties:

The screenshot displays the 'Timeline' interface with the following elements:

- Timeline Header:** Includes 'Timeline 1', 'Loop Mode', 'Upload Timeline', 'Reset Changes', and 'Delete All' buttons.
- Timeline Items:** A list of five items:
  - Delta splash screen
  - 7thFlyAnimationHD
  - sintel\_4k (selected, with a music icon)
  - Caminandes-Llama-Drama (with music and video icons)
  - visitor-welcome-panel-left-words
- Resource Preview (for sintel\_4k):**
  - Shows a video frame with a green border.
  - Resource Frame: 0
  - Timeline Frame: 810
  - Type: Movie (mov)
  - Length: 00:14:48:00 (26640f)
  - Size: 3840 x 1744 px
- Play Mode Settings:**
  - Play Mode: Play Once
  - Count: 1
  - End Transition: Stop
  - End of this Clip:
  - Start of next clip:

## Thumbnails and Movie Scrubbing

Movie frames in YCoGc and 7th format generate thumbnails for scrubbing in this view when DeltaServer is started. Other formats will just display the thumbnail of the first frame.

Frame thumbnails shown in the preview are the subset (e.g. 1 in 10 or 1 in 20 frames) as defined in registry settings during [Installation and Setup](#)<sup>5</sup>. As you scroll through frames, the border will be green when the thumbnail is in view and red when between them. Under the thumbnail you will see a count of frames from the current thumbnail. Go to a specific frame by typing a frame number in. This view allows you to scrub through the movie; it is not a play preview. You can use this to place an action.

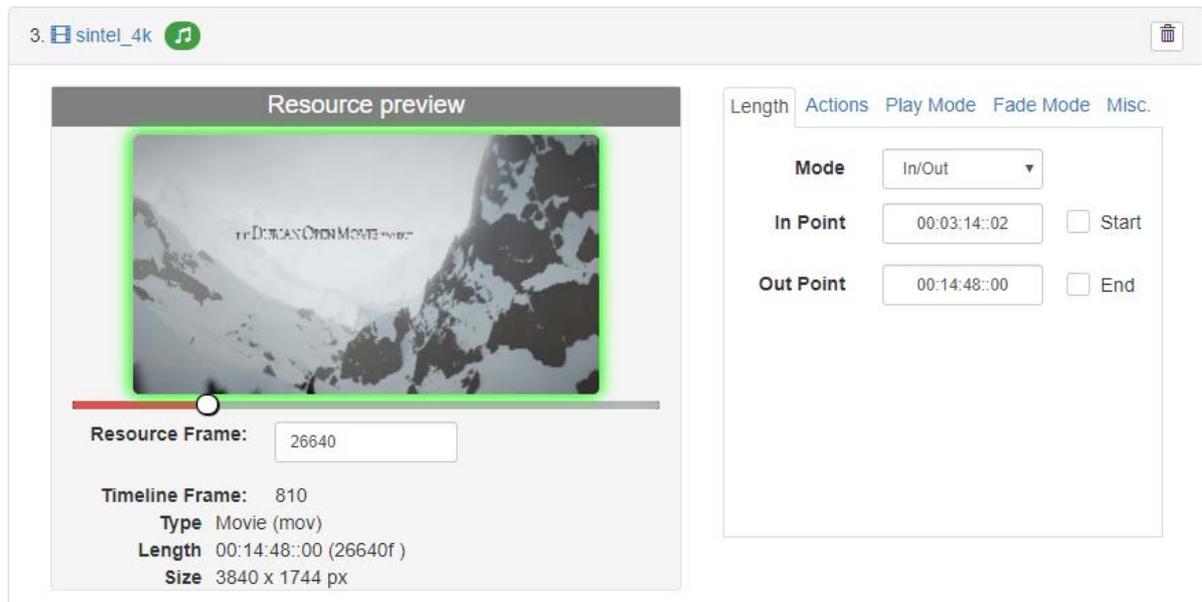
## Properties: All Resources

### Length Tab

This is the segment and duration that the resource will play, in SMPTE format.

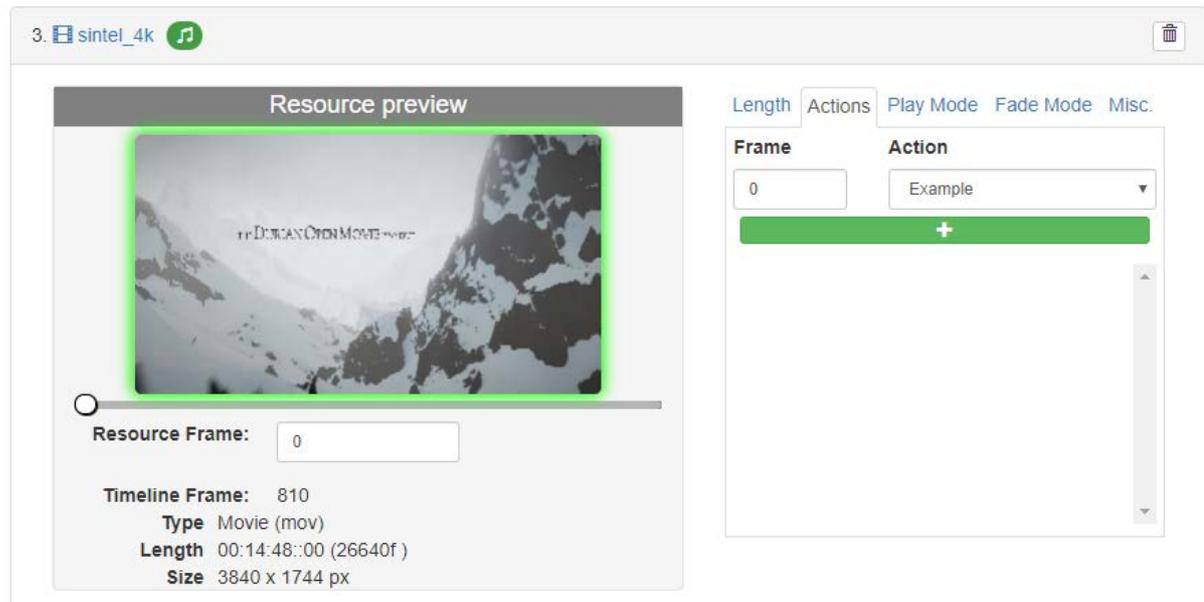
Mode: Length = length from start

Mode: In/Out = starting and/or ending at particular frames



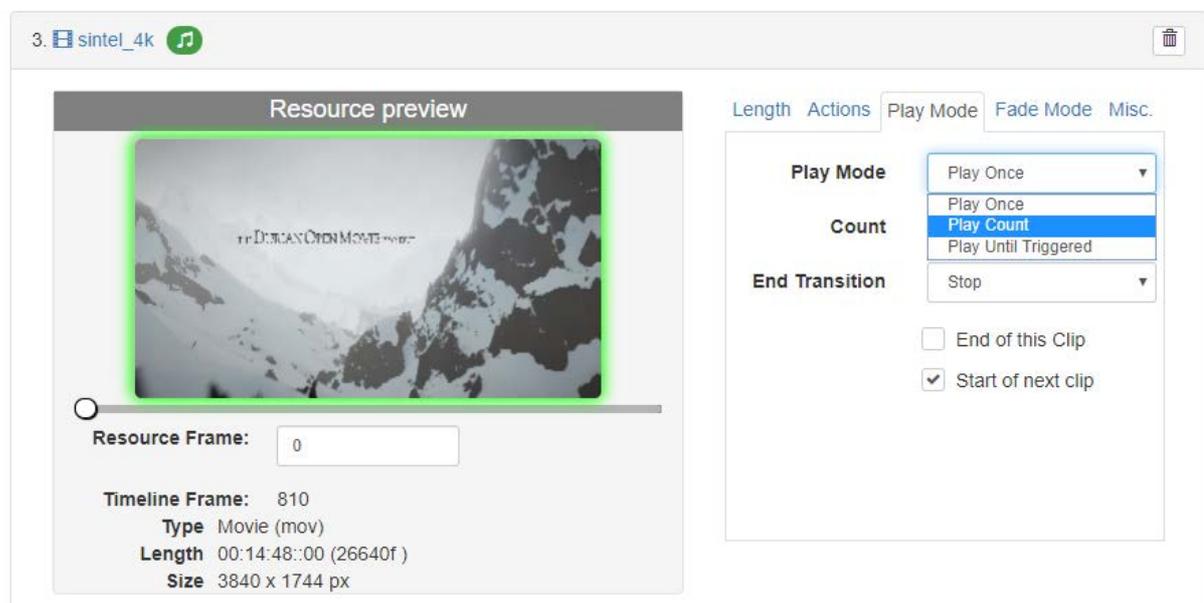
### Actions tab

Actions are instruction to play Delta sequences at specific frames along a clip (this position is not relative to the overall timeline in Delta). Sequence names pertinent to StackExpress are filtered according to the sequence name prefix (default 'SE\_'). This is configurable (see: [Installation and Setup](#)<sup>(5)</sup>).



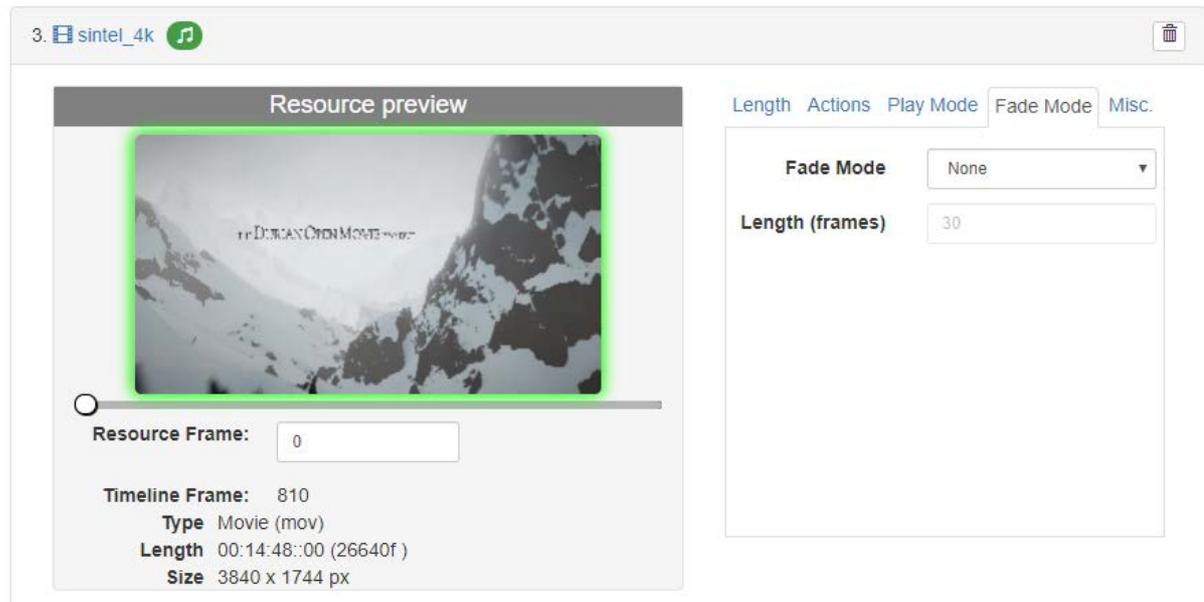
### Play Mode Tab

A movie can be played just once, looped a number of times, or set to play until triggered (the blue button to the right of the Express play controls). When triggered it can be set to complete the current play loop including any end fade, or stop immediately.



### Fade Mode Tab

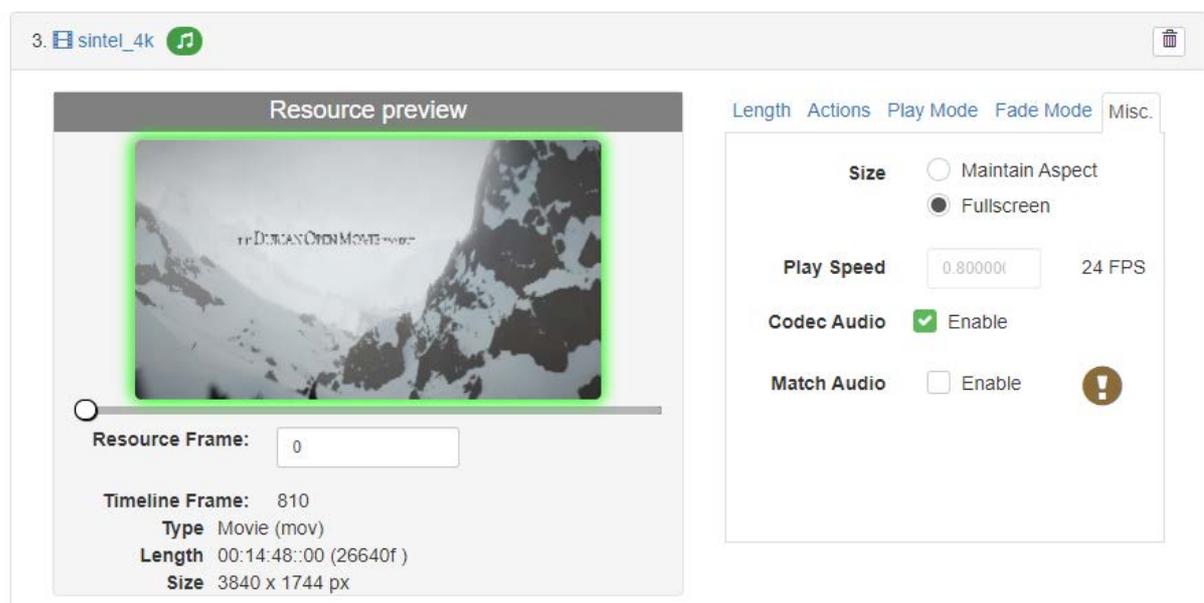
Media can be faded to transparent over a set number of frames (default is 30). This will apply a fade in and a fade out between clips.



### Misc Tab

**Size:** Media can be forced to fullscreen, otherwise it will maintain its aspect ratio. For frame-based movies (non-codec), play speed can also be incrementally adjusted. Resource length and time points as displayed, remain according to original framerate.

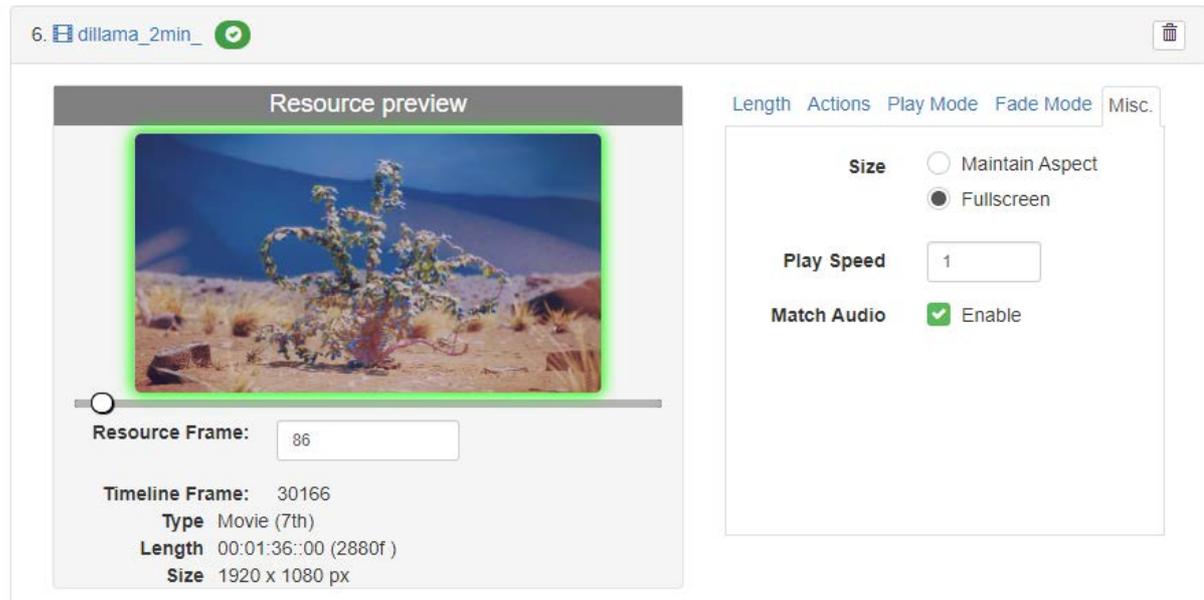
**Audio:** Next to the movie name above, a green 'music' audio icon is showing. This indicates that codec audio is present and enabled:



If disabled, the icon will be grey.

Separate audio files will be detected as **matched** if they share the same filename stem of a frame-based (e.g. 7th, sth, or .tga) movie. Movies extracted using DFM ([Distributed File Manager](#)) will already have channel ID suffixes in their filenames.

If matched audio is found, it can be enabled. The resource bar will show a green tick. Disabled matched audio will show a grey tick.



Example of matched files:

C:\Audio\Caminandes-Llama-Drama\Caminandes-Llama-Drama\_L.wav  
 C:\Audio\Caminandes-Llama-Drama\Caminandes-Llama-Drama\_R.wav

will match:

E:\Movies\Caminandes-Llama-Drama\Caminandes-Llama-Drama\_00000.7th  
 E:\Movies\Caminandes-Llama-Drama\Caminandes-Llama-Drama\_00001.7th  
 E:\Movies\Caminandes-Llama-Drama\Caminandes-Llama-Drama\_00002.7th  
 etc.

## Playing Express Timelines

StackExpress is interactive over the Stack web interface using the Delta web preview. The preview is a feed back from DeltaServer, so you can see the show as it plays, including any merged show. The play controls allow you to skip to next and previous clips in the Express show, stop and play, or return to the start and then play again. An unattended timeline without triggered items will reach the end and go back to the start, continuously.

The timeline you see in Express is created as a show (*expressmode.xml*) on the Delta server being addressed, and the Stack web interface allows you to view and interact with any server visible on the network. This means that you can play an Express timeline on one server and still look across at another server simply playing its own timeline, using web preview as normally available.

- If any information seems incomplete, try refreshing the web page (F5). This will not create any interaction with the Delta server.
- If you want to manually move a show along to another clip, then the next clip button whilst playing, will bring in the next clip and continue playing.
- Different transition effects can be achieved by applying fade to a solid colour image between clips, but unlike the more sophisticated DeltaGUI features, resources within a StackExpress timeline cannot overlap.
- If you want to change the playing properties of a clip, or the order of play, then the timeline must be regenerated on the server; this will stop the show playing until restarted. Play will resume at the SMPTE point at which it stopped. If this is beyond the new show end (GOTO start) point, playing will resume out of scope of the timeline resources. It can therefore be better to return the play at least to the previous clip before Generating and restarting play.
- DeltaGUI can be used simultaneously, if you want to manage the display configuration, merged shows, or control an Express show from there.

## Document Information

Date	Document edition	Software version	Revision Details	Author/Editor
September 2016	1	StackExpress 1.0.2	New release	Helen Ward
November 2017	2	StackExpress 1.0.10 DeltaServer 2.5	New edition	Andie Davidson
November 2019	3	StackExpress 2.0 DeltaServer 2.6.73	Revised with new features	Andie Davidson

## Windows Registry Settings

This document is supplied for informational purposes only. Any modification to Windows Registry values that are not exposed via the DeltaServer or DeltaGUI application interfaces – or otherwise advised by 7thSense personnel – may result in performance degradation and/or complete instability of the products. Any attempt to engage 7thSense for support in troubleshooting may result in the reversal of all Registry settings to the factory default or last known good 7thSense-approved configuration. **The customer assumes all risk when manually editing any Windows Registry values on any 7thSense product.**

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