

# Delta Media Server StackExpress

## User Guide



Film still credit: 'Sintel', Blender Institute

## StackExpress : 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.2.4.9 or later)
- Delta Web Service 2.4 or later
- Delta Web Platform 2.1.2 or later
- Stack software
- StackExpress software
- Web browser (Chrome is pre-installed on Delta servers, and is preferred, version 51.x or later).

### 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 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](#).

There are two timeline modes in StackExpress:

- **Loop mode** (default) allows resources to be dragged onto the timeline and given playback settings of their own, including length, repeating, fading and matching audio.
- **RS422 mode** allows a selection of preset resources to be played according to external control commands.

### How it Works (Loop Mode)

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 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). A 'Generate' button sends these instructions to the timeline of the DeltaServer being addressed, where it compiles a specifically-named **show file** (*expressmode.xml*) and saved. This becomes the 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.

### How it Works (RS422 Mode)

The Express timeline is constructed by adding preset resources (i.e. with fixed play properties). Instead of populating the DeltaServer timeline to be played with the normal controls, the purpose is to address the Express timeline by external control commands.

If switching from RS422 mode to Loop mode, you will need to stop and restart StackExpress before resuming: *Web Service > Configure > Add-ons > StackExpress*.

# Installation and Setup

## Installation and Setup

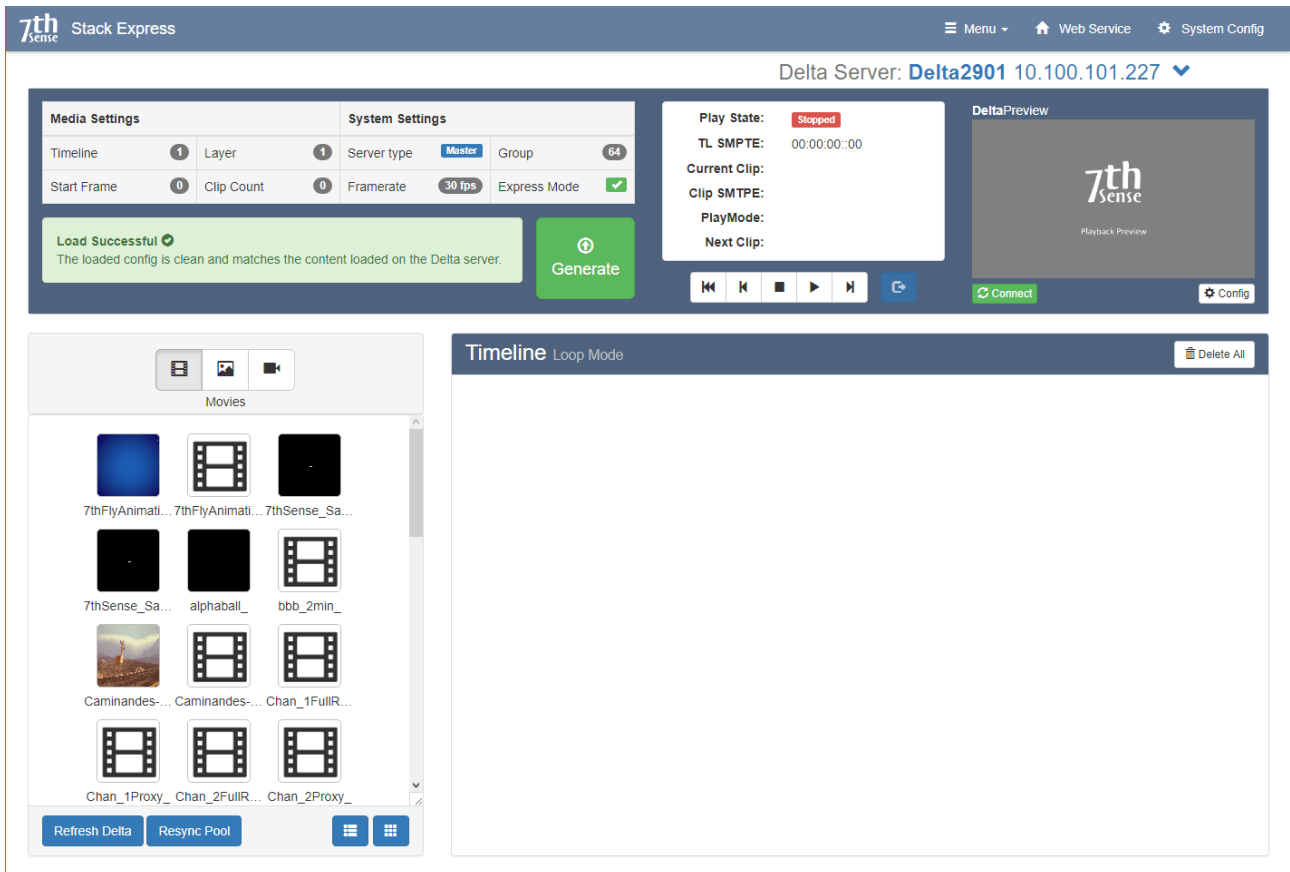
The Stack web service is included with software installed on a Delta Media Server. You will need to install the StackExpress .exe file on the server. This is a very straightforward applications installation, after which, restart the server.

### 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.

- Run up the DeltaServer software on the server.
- If accessing the Stack web interface using a web browser on the same server, use the IP address 'localhost:3000'. From a remote PC, use the IP address '[serverIP]:3000' (e.g. //10.100.101.230:3000/).
- 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'.



## Quick Check

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

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

### Is the green 'Load Successful' message there?

If this panel is 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.

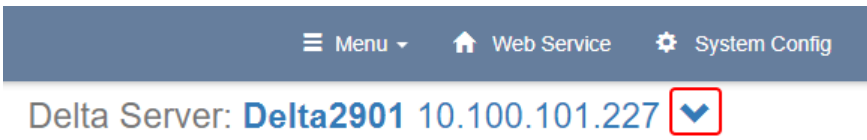
### Are the server's resources visible as expected on the left?

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

### 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 panel shows the settings made in System Config and Media Config:

The screenshot shows the 'Express / Server Information' panel. It is divided into two sections: 'As set in Media Config' and 'As set in System Config'. The 'Media Settings' section includes 'Timeline' (1) and 'Start Frame' (0). The 'System Settings' section includes 'Layer' (1), 'Clip Count' (0), 'Server type' (Master), 'Group' (64), 'Framerate' (30 fps), and 'Express Mode' (checked). Below the settings is a green notification box that says 'Load Successful' and 'The loaded config is clean and matches the content loaded on the Delta server.' To the right of the notification is a green 'Generate' button. Red arrows point from the notification box to the text below it, and from the 'Generate' button to the text below it.

As set in Media Config		As set in System Config	
Media Settings		System Settings	
Timeline	1	Layer	1
Start Frame	0	Server type	Master
		Group	64
		Framerate	30 fps
		Express Mode	✓

**Load Successful** ✓  
The loaded config is clean and matches the content loaded on the Delta server.

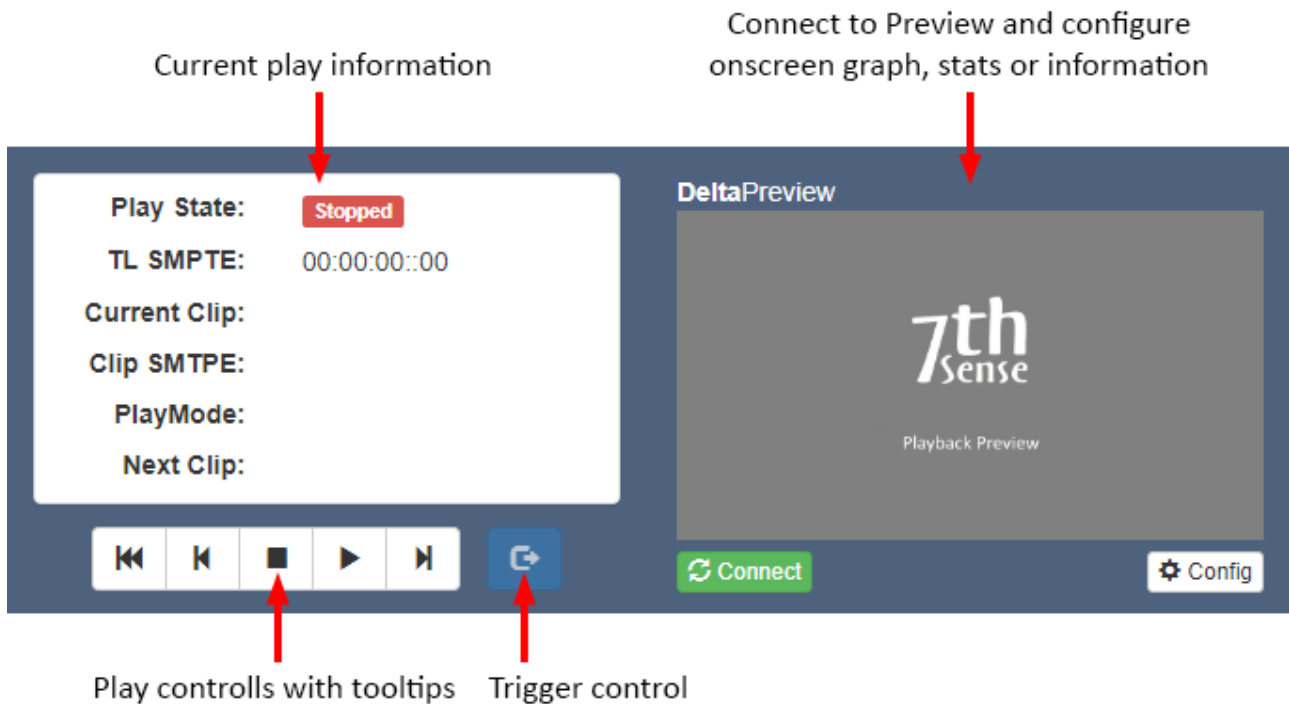
**Generate**







Compares Express Timeline with Server Timeline: warns to re-generate when changes are made.

Sends Express timeline info. to update server timeline

Any changes in StackExpress take place locally in the application. You will know this, because the green panel above will show yellow, with this advice. To update the server timeline, press **Generate**.

## Playback / Preview Control

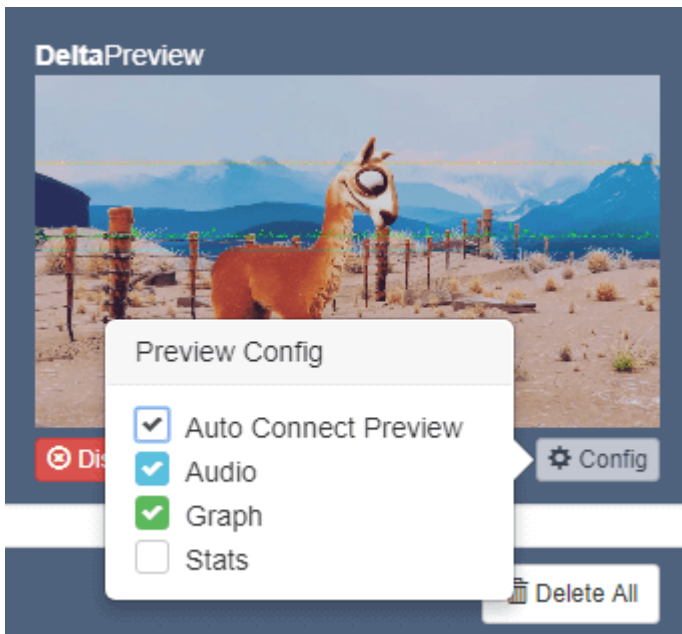


-  Rewind to start of show and stop.
-  Go back to previous clip in the playlist (will play if the show is still playing, but just go to next if the show is stopped)
-  Stop playing
-  Play
-  Go to next clip in the playlist (will play if the show is still playing, but just go to next if the show is 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.

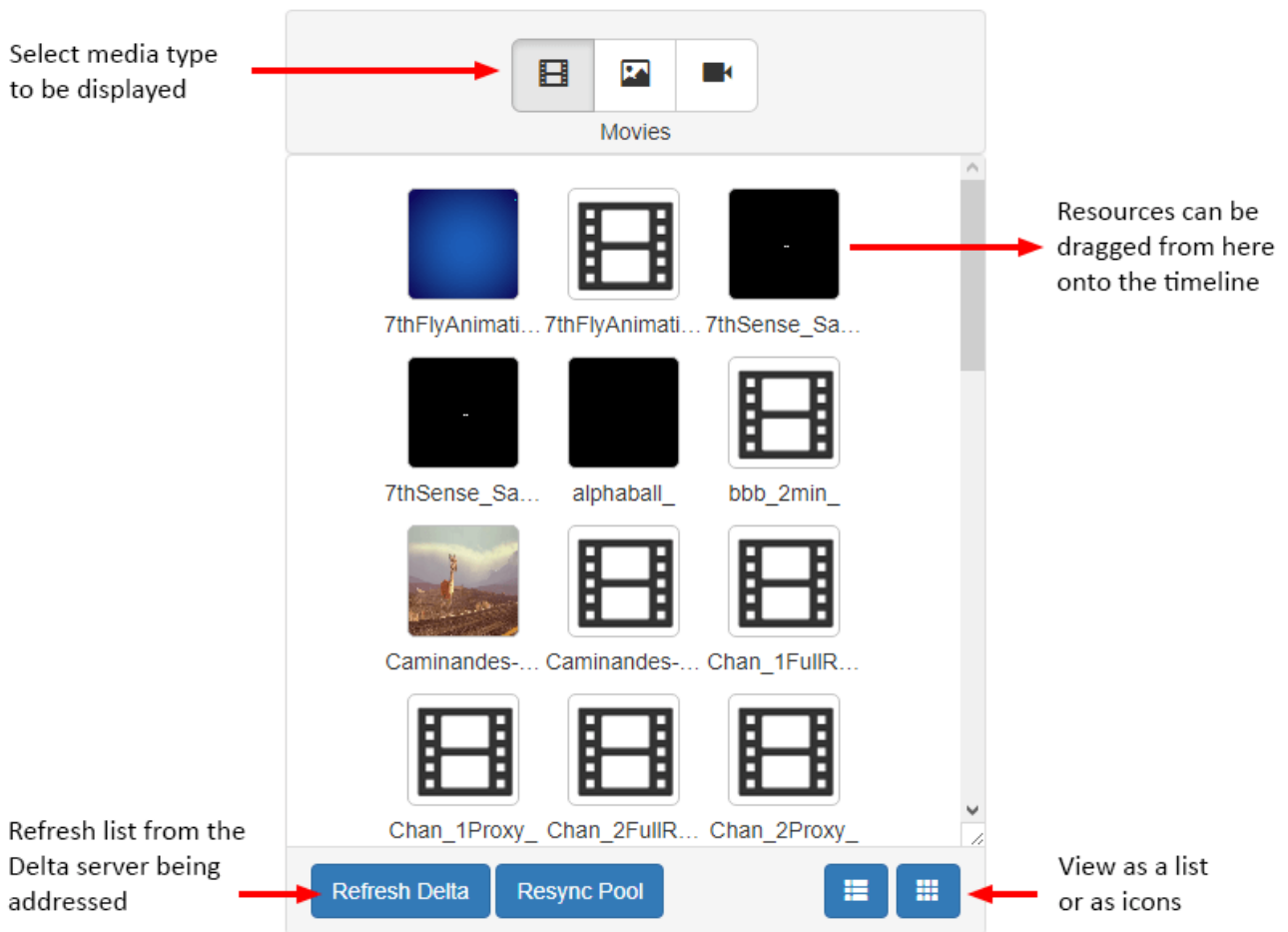
## Preview Config



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 **Generate** is pressed after any change.

## Resource Area



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 when in Loop mode, with a blue **P** in the corner. In RS422 mode they will be filtered out and listed as Available Resources in place of the Timeline.

**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 Area (Loop Mode)

When resources are dragged from the pool into the timeline area, they become bars that can be rearranged or deleted. Icons indicate the media type. Click on the resource name to expand the resource editor:

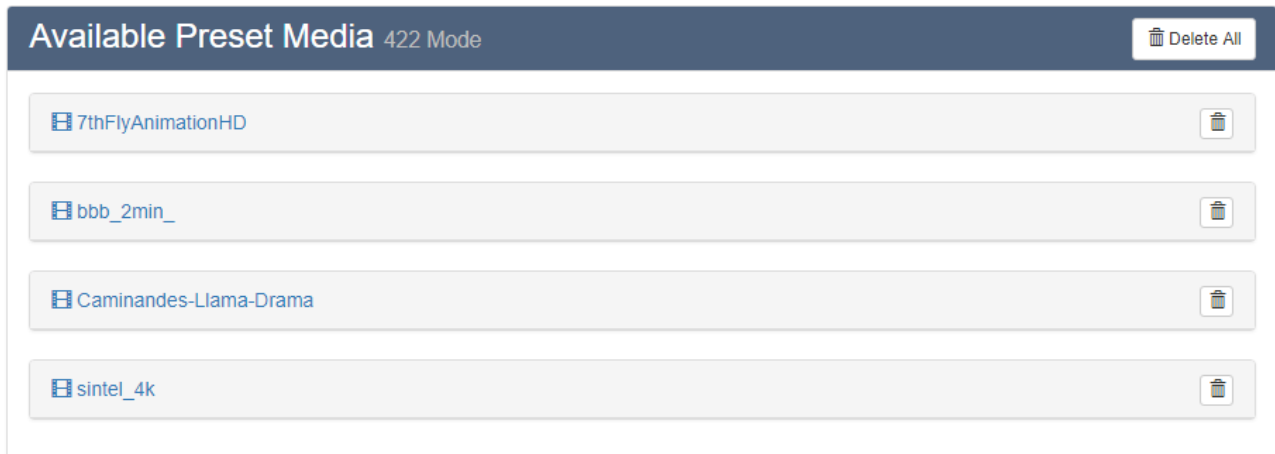
This timeline is only an instruction set in StackExpress, until the **Generate** button is pressed, to generate or update the timeline in the *expressmode.xml* show file of the Delta server being addressed.

## Available Preset Media (422 Mode)

Preset media are resources with additional playing properties. They can be created from other resources in DeltaGUI, or from Express.

In this mode, since there is no play control in Express, the same area contains a filtered list of all available Preset media on the currently selected server.

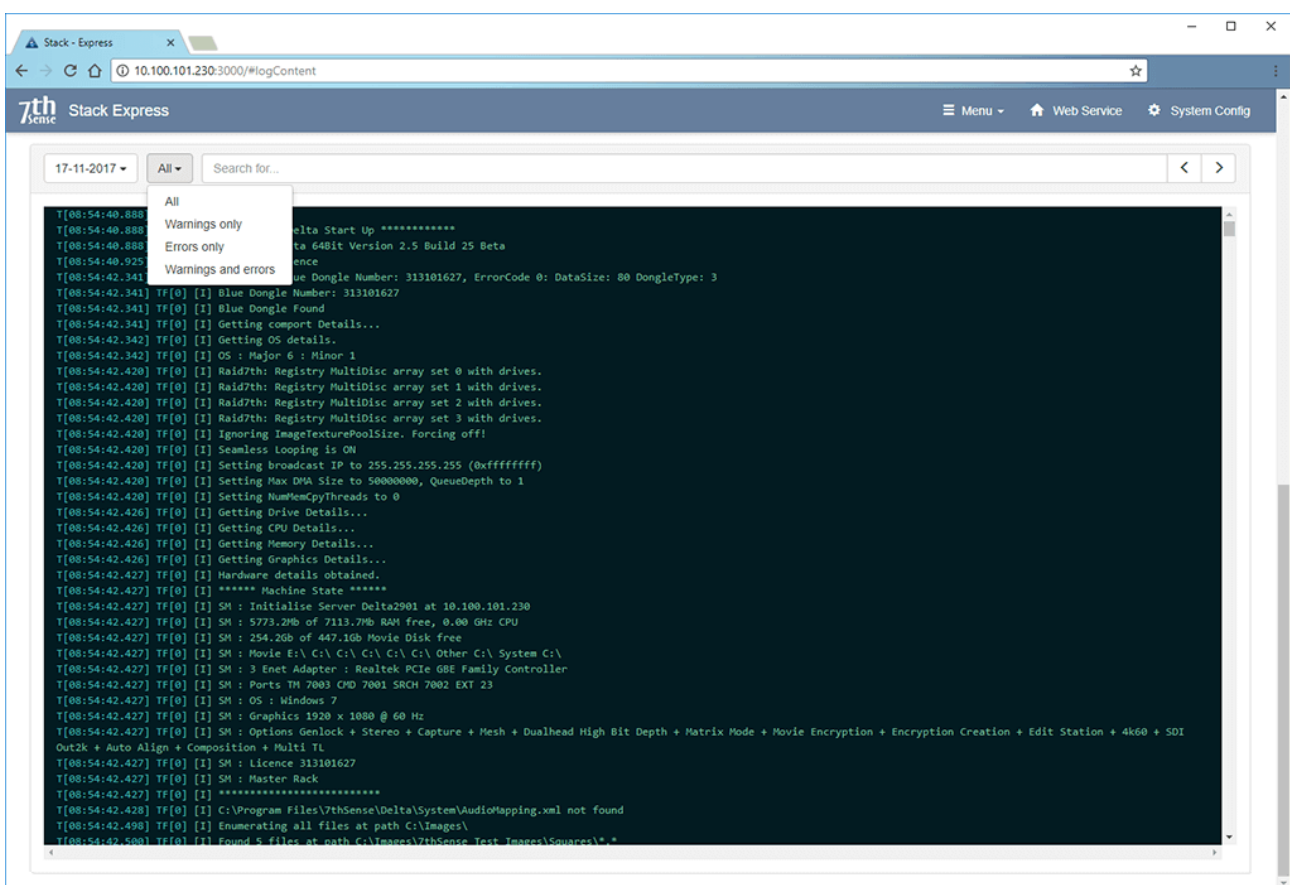
**Note:** Deleting an item here is not deleting it from a timeline: **it will delete it from the server.**



## Logs

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.

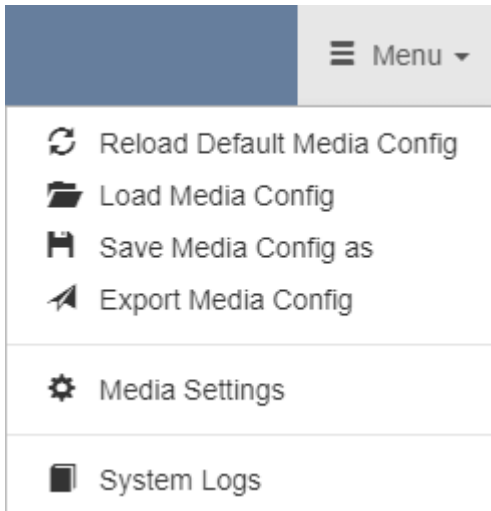
Select the date/session from the first drop-down and filter items in the second:



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

## Main Menu

From the menu bar, select 'Menu':



### What is a 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.

If you create and configure a playlist, this can be saved as a .json backup in C:\7thSense\JSON\backup. Any number of these can be saved or reloaded, but reside only in StackExpress until the green **Generate** button is clicked to pass the information to the server containing the referenced resources, and place them on the server timeline.

#### 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>(16)</sup>).

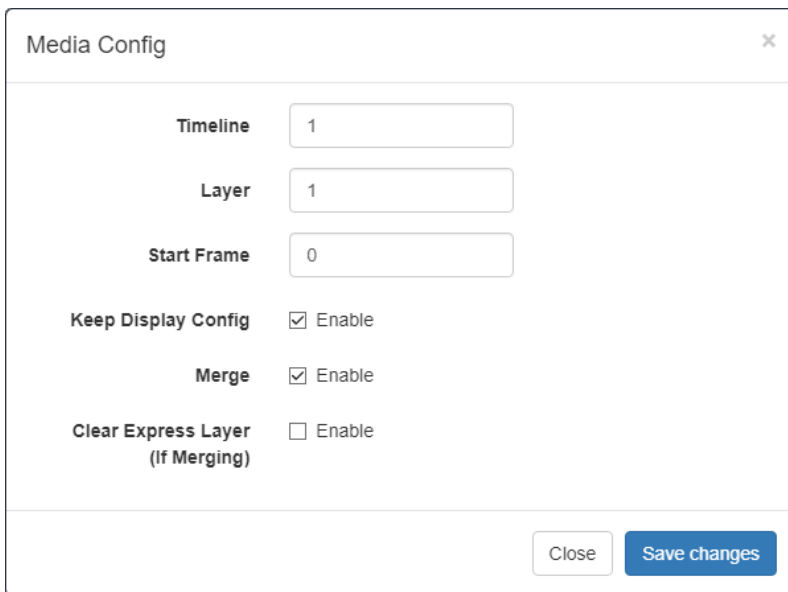
#### System Logs

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

## Media (Display) Config

These settings define where the Express timeline will be inserted on DeltaServer, in the `expressmode.xml` show file.

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



Timeline	<input type="text" value="1"/>
Layer	<input type="text" value="1"/>
Start Frame	<input type="text" value="0"/>
Keep Display Config	<input checked="" type="checkbox"/> Enable
Merge	<input checked="" type="checkbox"/> Enable
Clear Express Layer (If Merging)	<input type="checkbox"/> Enable

Close Save changes

### Timeline

The timeline on the server on which to play the Express playlist.

### Layer

The layer of this timeline to use.

### 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 Config Settings

These settings are stored on the Delta Media Server in C:\7thSense\JSON\config.json.

From the top menu, select 'System Config'.

System Config

Stack Express Version: 1.0.9 beta

RS422 Mode:  OFF

Group:

Master:

GPU Framerate:   Custom  fps

Audio Playback Device:

LTC Device:  Enable

System Logging:

Web RTC Preview:

Local LTC

Local LTC

Delta

Sony422 VTR (COM78)

Sony422 VTR BlackMagic (COM0)

Sony422 VTR BlueFish

SDI Config

SDI Enabled:

Mode:

No SDI modes found, if you have an SDI capable Delta server then contact 7thSense.

Current SDI Settings						
Device	Bitdepth	8	Outputs	0	Width	1280
BlueFish	Colour Space	RGB	Refresh	60 Hz	Height	720

Cancel Save

### RS422 Mode

Switch this on if, instead of looping, you want to control your show via external commands.

### 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**

Required for RS422 mode communications.

**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>9</sup>).

Resources are dragged out of the pool onto the timeline, where each is 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.

The screenshot displays the Stack Express interface. At the top, the '7th Sense Stack Express' logo is visible on the left, and navigation links for 'Menu', 'Web Service', and 'System Config' are on the right. The 'Delta Server' is identified as 'Delta2901 10.100.101.230'. Below this, there are sections for 'Media Settings' and 'System Settings'. A green notification box states 'Load Successful' with a checkmark and the message 'The loaded config is clean and matches the content loaded on the Delta server.' A green 'Generate' button is circled in red and labeled with a '3'. The 'DeltaPreview' window shows a '7th Sense' logo and 'Playback Preview' text. The main interface is divided into a 'Movies' resource pool on the left and a 'Timeline Loop Mode' on the right. The resource pool contains various media icons, with a red circle labeled '1' around the 'Movies' header. The timeline contains five items: 1. 7thSense Splash, 2. 7thFlyAnimationHD, 3. sintel\_4k (with an audio icon), 4. Caminandes-Llama-Drama (with an audio icon), and 5. 7thSense Splash. A red arrow labeled '2' points from the resource pool to the timeline. At the bottom of the resource pool are 'Refresh Delta' and 'Resync Pool' buttons.

Items on the timeline can be rearranged. 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 **Generate** button to be clicked. 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, it will stop.

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

## Media Properties

Click a resource name to open its play properties:

The screenshot shows a 'Timeline Loop Mode' interface with a 'Delete All' button. The timeline contains five resources:

1. 7thSense Splash
2. 7thFlyAnimationHD
3. sintel\_4k (with a music icon)
4. Caminandes-Llama-Drama (with a music icon)
5. 7thSense Splash

The 'sintel\_4k' resource is selected, and its 'Resource Details' panel is open. The panel has tabs for 'Length', 'Play Mode', 'Fade Mode', 'Audio', and 'Misc.'. The 'Play Mode' tab is active, showing the following settings:

- Play Mode:** Play Until Triggered (dropdown menu)
- Count:** 1 (input field)
- End Transition:** Stop (dropdown menu)
- End of this Clip
- Start of next clip

## Properties: All Resources

### Length Tab

This is the duration that the resource will play, in SMPTE format. Movie resources also offer a Start and/or an End point, either times within the length of the movie, or using the clip start and/or end.

### 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

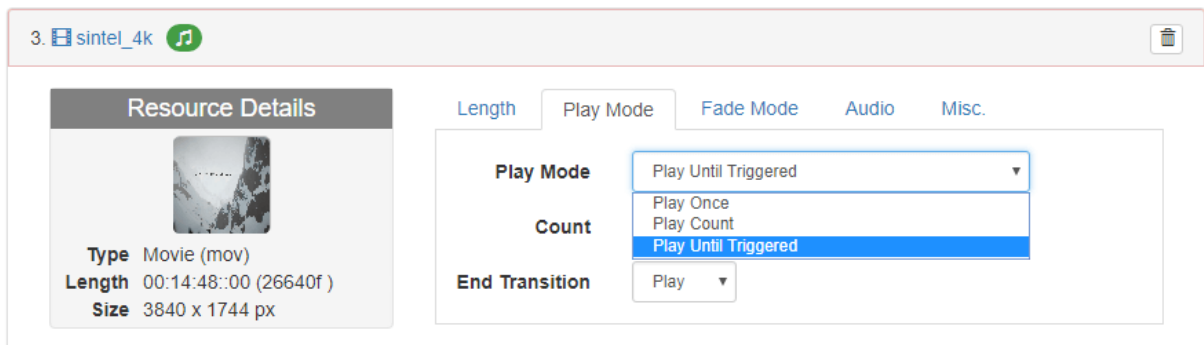
### Misc. Tab

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.

## Properties: Movies

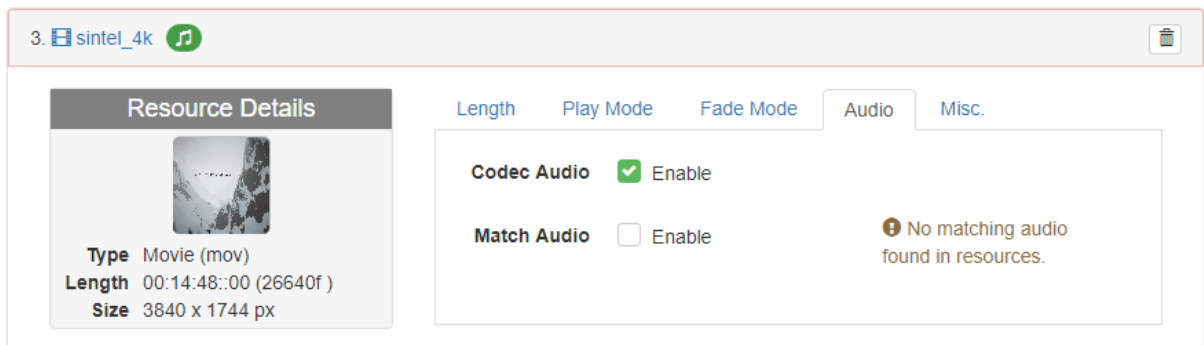
### Play Mode Tab

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.



### Audio Tab

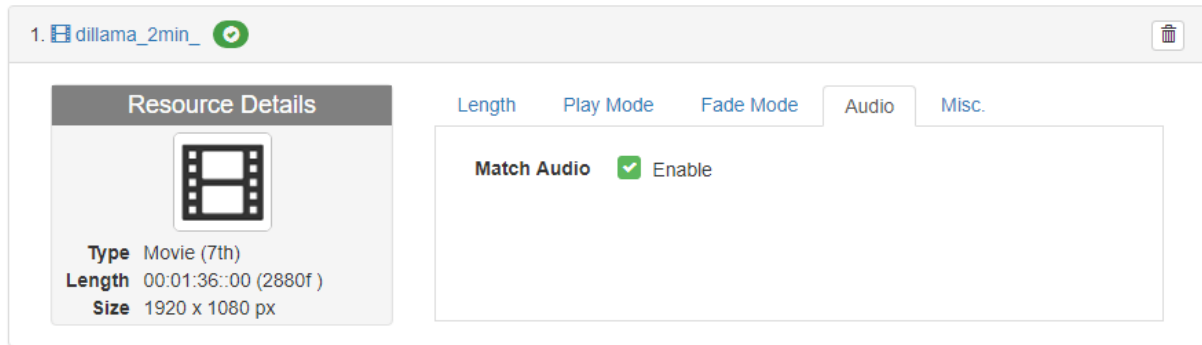
Next to the movie name above, a green audio icon is showing. This indicates that codec audio is present and enabled:



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 grey.



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.



## RS422 mode

In this mode, all resources are controlled by being addressed by external controls. The play controls, and generate button are disabled, with this blue explanation panel:

Media Settings		System Settings	
Timeline	1	Layer	1
Start Frame	0	Clip Count	0
		Server type	Master
		Group	64
		Framerate	30 fps
		Express Mode	<input checked="" type="checkbox"/>

**422 Mode** →

The system is in 422 mode and is being controlled dynamically by 422 commands dynamically inserting media.

Generate

Play State: Stopped

TL SMPTE: 00:00:00:00

Current Clip:

Clip SMPTE:

PlayMode:

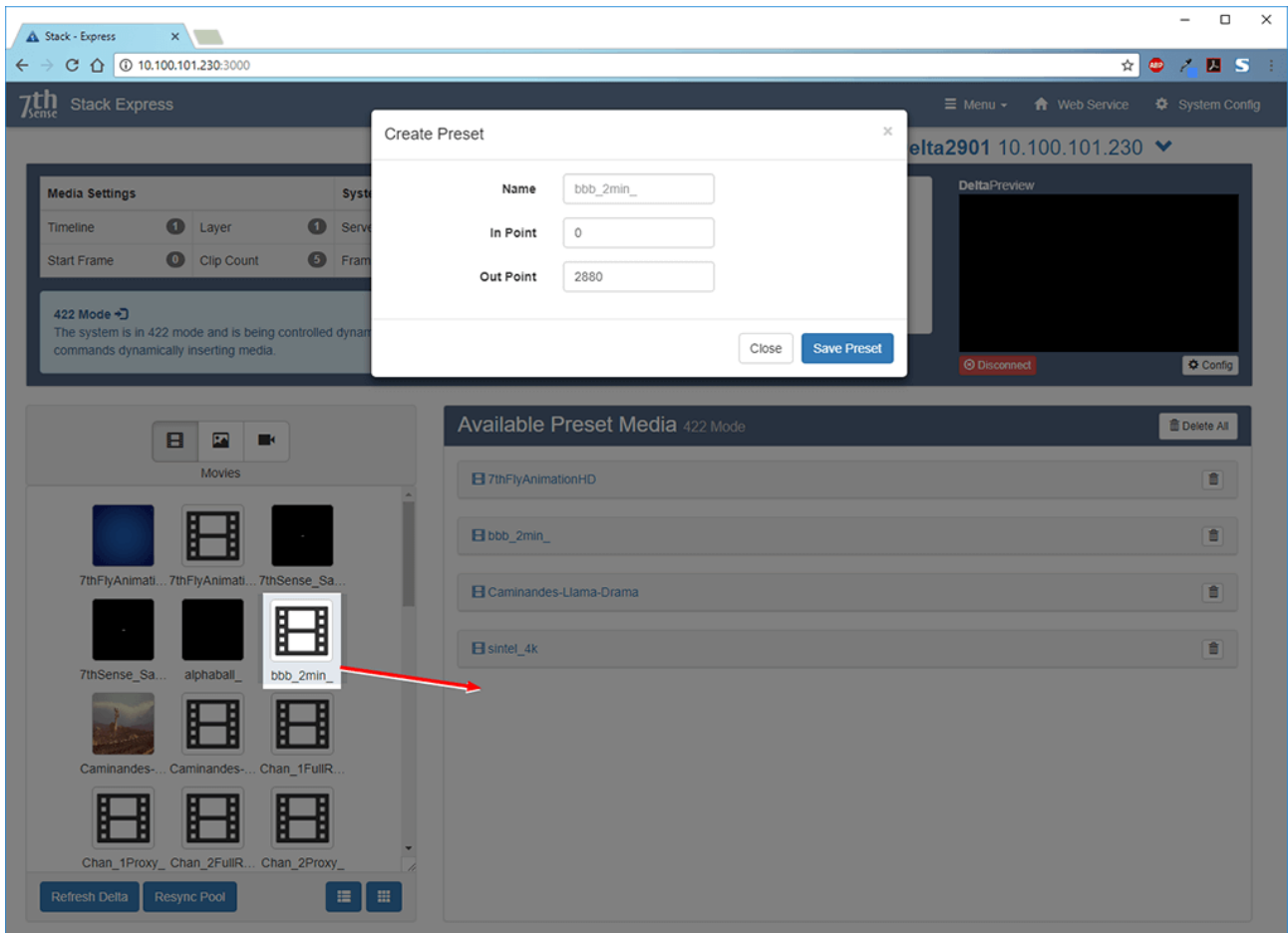
Next Clip:

⏪ ⏩ ⏹ ⏮ ⏭

The 422 'timeline' area instead will be populated by all available preset media resources, i.e. media defined only by which part will play. An image is just one frame, a movie extent can be defined by a start frame number and an end frame number. Since a timeline is not available, nor are volatile resource properties. Instead the required resources are configured, and stored as presets.

➤ For using DeltaGUI for Presets, see [Creating Presets](#) in the Delta User Guide.

In StackExpress, create a new preset resource by dragging it from the pool into the Available Preset area and complete the dialog (in and out points are frame numbers):



The preset will be created on the currently-addressed server. You can click on the resource name to reveal its properties, but not edit them. Different presets can, however be created from the source media and renamed.

If a preset is deleted using DeltaGUI, it will still be seen here until you resync the pool.

## RS422 Commands

When Delta is set to operate RS422 in Legacy Emulation mode, the following Legacy-specific commands are processed against any incoming RS422 command from the controller. If the received command is not in the list below, then processing continues against the 'standard' list of RS422 commands as shown.

### Legacy Specific Commands

Command	Action
Still	Stops playback. Displays the frame at the stopped location.
Stop	Stops playback. Displays the frame at the stopped location.
Play	Begins playback from the current position.
Step Forward	Steps forward 1 frame.
Eject	Clear all 422 added media. This action actually removes all media and controls from the timeline that are tagged as 'autodelete'.
Auto Mode	<i>* It is not clear from the limited documentation how this should be used.</i>  Control whether media should autoplay.  When this mode is on, the system uses Preview In/Out Preset media.
Loop Mode	When enabled, the system will loop the clip forever. When disabled, the clip will play to the end of the file.
In Preset	Specifies the InPoint and ClipID for the next clip.  InPoint is the SMPTE frame reference for an offset from the start of the clip.  ClipID is the ASCII name for the clip (<= 8 CHARS in length).  This command will cause the movie with the same name to be dynamically inserted as the next clip to play.  e.g. Setting the InPoint to be 00:01:02:03 will cause the clip to start playing 1 minute, 2 seconds and 3 frames into the clip. If Loop Mode is on, then the clip will loop back to the InPoint and continue playing.
Out Preset	Specifies the OutPoint for the currently selected ClipID.

	<p>InPoint is the SMPTE frame reference to set an offset to the start of the clip.</p> <p>e.g. Setting the OutPoint to be 00:02:03:04 will cause the clip to stop playing (or loop, depending on the Loop Mode) at 2 minutes, 3 seconds and 4 frames into the clip.</p>
Preview In Preset	<p><i>* It is not clear from the documentation how this should be used.</i></p> <p>Specifies the InPoint and ClipID for the next clip ONLY when Auto Mode is ON.</p> <p>InPoint is the SMPTE frame reference for an offset from the start of the clip.</p> <p>ClipID is the ASCII name for the clip (&lt;= 8 CHARS in length).</p> <p>This command MUST have a complementary PreviewOutPreset command to action it.</p>
Preview Out Preset	<p><i>* It is not clear from the documentation how this should be used.</i></p> <p>NOTE – AutoMode MUST be on for this to action.</p> <p>Specifies the OutPoint for the currently selected PreviewPreset ClipID.</p> <p>e.g. Setting the OutPoint to be 00:02:03:04 will cause the clip to stop playing (or loop, depending on the Loop Mode) at 2 minutes, 3 seconds and 4 frames into the clip.</p>
Cue Up With Data	<p>Jump to a specific location on the Timeline.</p> <p>NOTE – If only 1 clip has been defined then this will cue to the given SMPTE time within that clip.</p>

## Standard Commands

Command	Action
Current Time	<p>Request the current playhead time.</p> <p>The current time is sent back to the controller.</p>
Status Sense	<p>Request the StatusSense bits.</p> <p>The status bits supported by Delta are:</p> <p>STATUSDATA_BYTE1_PLAYm</p> <p>STATUSDATA_BYTE1_RECORDm</p> <p>STATUSDATA_BYTE1_FFWDm</p> <p>STATUSDATA_BYTE1_FRWNDm</p> <p>STATUSDATA_BYTE1_STOPm</p>

	STATUSDATA_BYTE2_STILLm STATUSDATA_BYTE2_DIRECTIONm STATUSDATA_BYTE2_VARIABLEm STATUSDATA_BYTE2_JOGm STATUSDATA_BYTE2_SHUTTLEm
Device Type	Request the device type. The reply from Delta is device type 'Sony BVW 75'.
Stop	Stops playback. Displays the frame at the stopped location.
Play	Begins playback from the current position.
Fast Forward	Fast forward with a speed of 32.
Fast Reverse	Fast rewind with a speed of 32.
Frame Step Forward	Move on 1 frame.
Frame Step Reverse	Move back 1 frame.
Shuttle Forward	Shuttle forwards with a given speed.
Shuttle Reverse	Shuttle backwards with a given speed.
Cue Up With Data	Jump to a specific location on the Timeline.

## Document Information

Date	Document edition	Software version	Revision Details	Author/Editor
September 2016	1	StackExpress 1.0.2	New release	Helen Ward
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