Delta Media Server

Managing Delta Media Servers

User Guide

THSENSE

Managing Delta Media Servers : User Guide

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Introduction

Introduction

There are several ways to interact with a Delta Media Server, or a network of Delta Media Servers.

- As a **Windows** device, some operations will be via the desktop, and of course the box switches, buttons and ports.
- As a server, some control is available via the **front panel**
- This is replicated in an interactive web page in **Delta Web Service**.
- **DeltaMonitor** is a utility that manages the front panel of the server it is on, including network connections and graphic settings. This also has a link to Delta Web Service, which offers more control than the DeltaMonitor application.

The **R-Series** and **P-Series server ranges** move us forward from Infinity, Nucleus and Proton to integrate with the world of Compere. A new behind-the-scenes **Watchdog** app and a high-resolution colour touch-screen control and display, allow for much greater control and monitoring. See M750 Operating R-Series, P-Series Media Servers.

The following parts of this Guide will help you in each approach:

Infinity, Nucleus, Proton, Nano servers

➢ Delta Media Server Front Panel 20

➢ DeltaMonitor 46

R-Series and P-Series servers

➢ Front Panel Touch Screen 10

All server types

➢ Delta Web Service 98

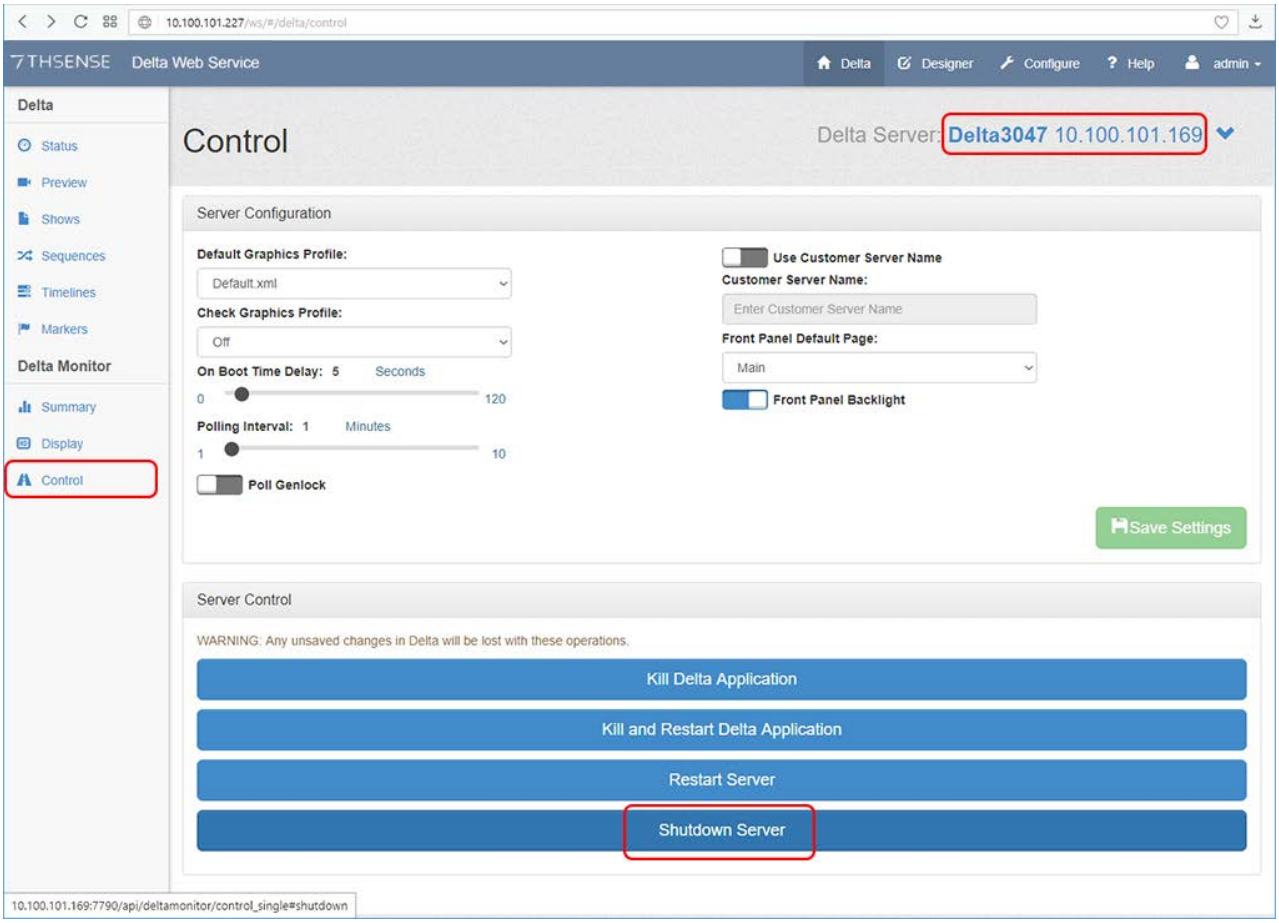
Shutting down a Delta Media Server

As an example of this flexibility, we are sometimes asked: what is the best way of properly shutting down a Delta Media Server?

Delta Media Server runs on Microsoft Windows. As such, it requires that the server is properly shut down to prevent the operating system image and hardware from becoming corrupt. This can be done in one of several ways:

- Initiate a standard Windows shut-down from the Start Menu
- Press (do not hold) the power button on the front of the server once

- Call the **`shutdown_pc`** command within Delta Media Server via an internal sequence or external control (see DeltaGUI sequence editor or external control help documentation) [available for Delta Media Server v2.0.5 beta or 2.1.x release or later]
- Initiate a shut-down from the Delta Web Service (available at http://**[serverIP]**/ws, with default user name = admin; password = admin). Click on the Control option on the left side menu and select Shutdown Server.



R-Series, P-Series Front Panel Touch Screen

R-Series, P-Series Front Panel Touch Screen

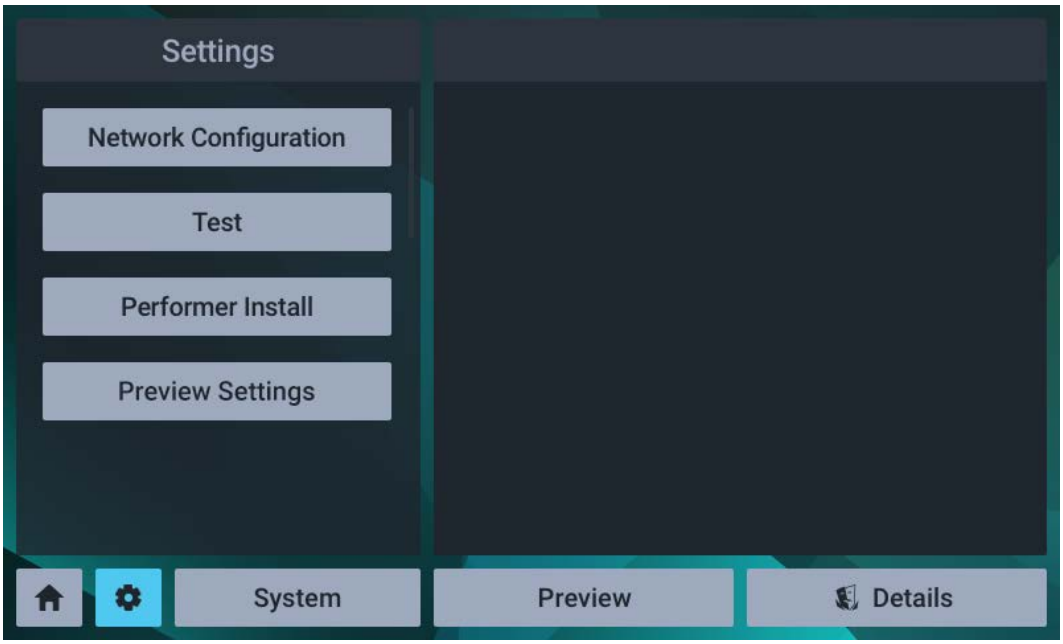
The front panel display is a touch-screen controller for the server. It is used for configuration, monitoring and play control. Touch and swipe navigation provides selection menus, and NDI media display in user-selectable layouts. The panel can itself be tested and adjusted for sensitivity.

Landing Page

When the server is powered on, the home/landing page for the front panel display shows that Delta is running and in what role (Leader/Follower).

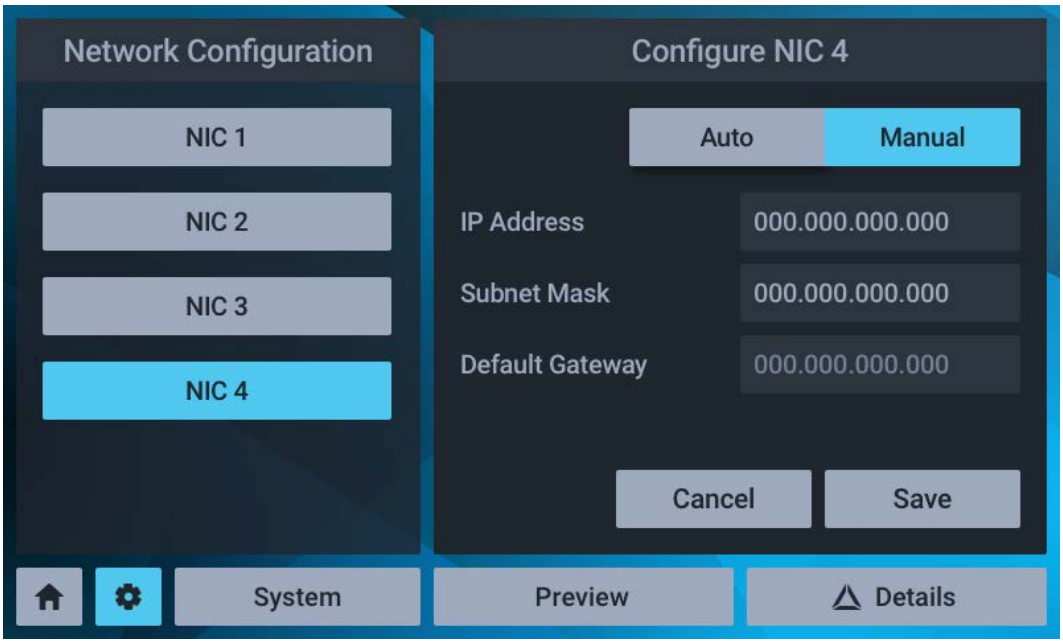
Also displayed: the server group, the server name and IP addresses.

Settings



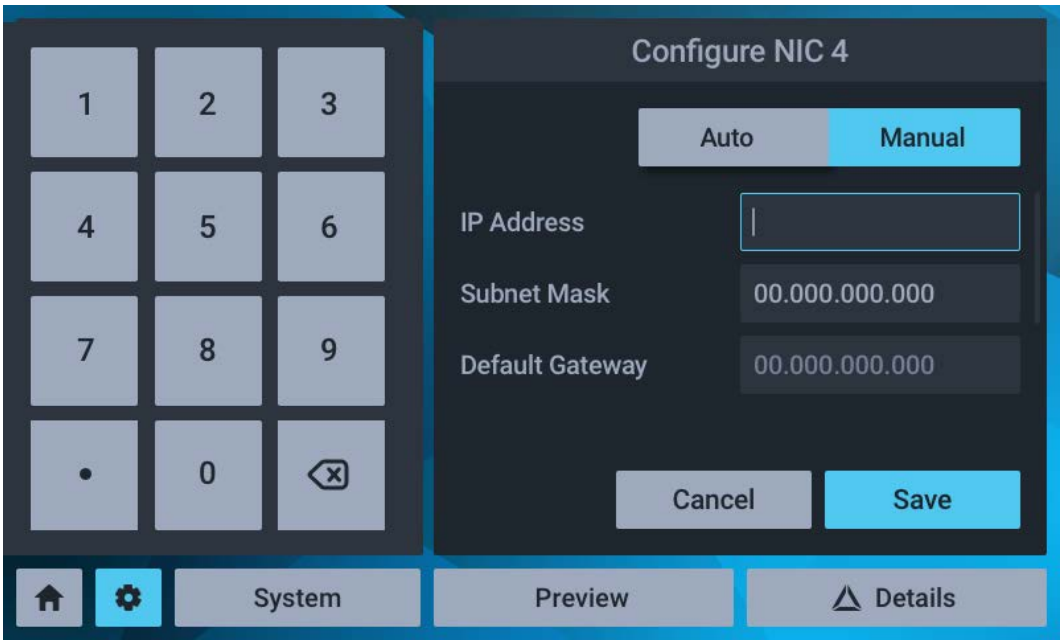
Settings > Network configuration

This shows all IP addresses and allows manual NIC configuration:



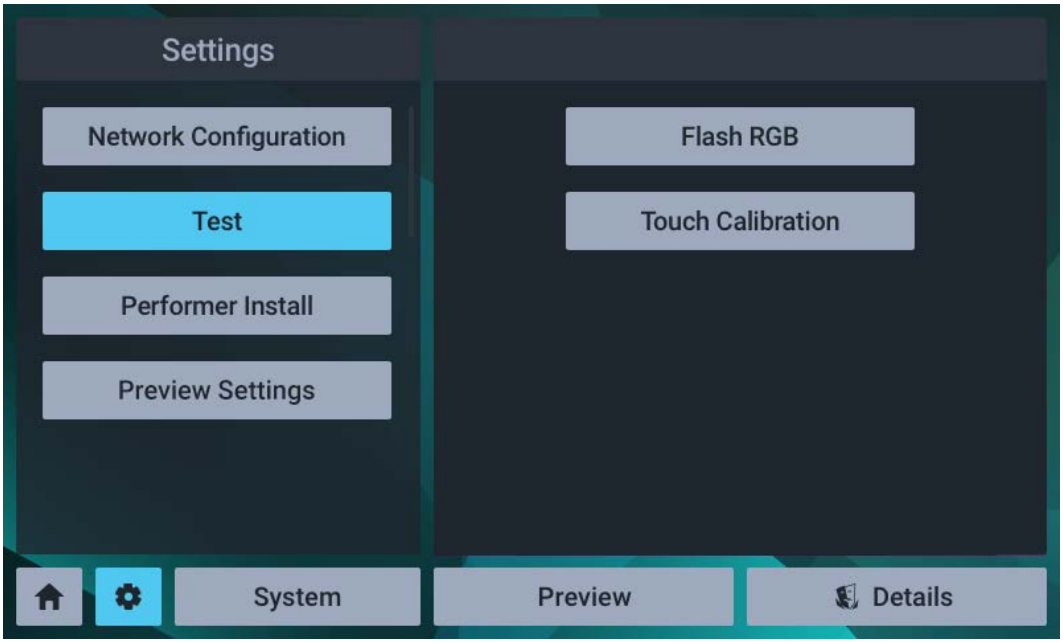
The naming of NICs follows the names assigned in the Delta Preferences.

For manual edit of a selected NIC, select manual and touch the required field:



Edit the required octet(s) and save.

Settings > Test



The **Test** button has two functions, to cycle all outputs once through solid red, blue, green, and to calibrate the touch function.

The touch calibration simply requires a touch to be traced across the range of the display panel:

If insufficient data is collected you will be prompted to try again, otherwise a success message will briefly be displayed.

Settings > Screensaver

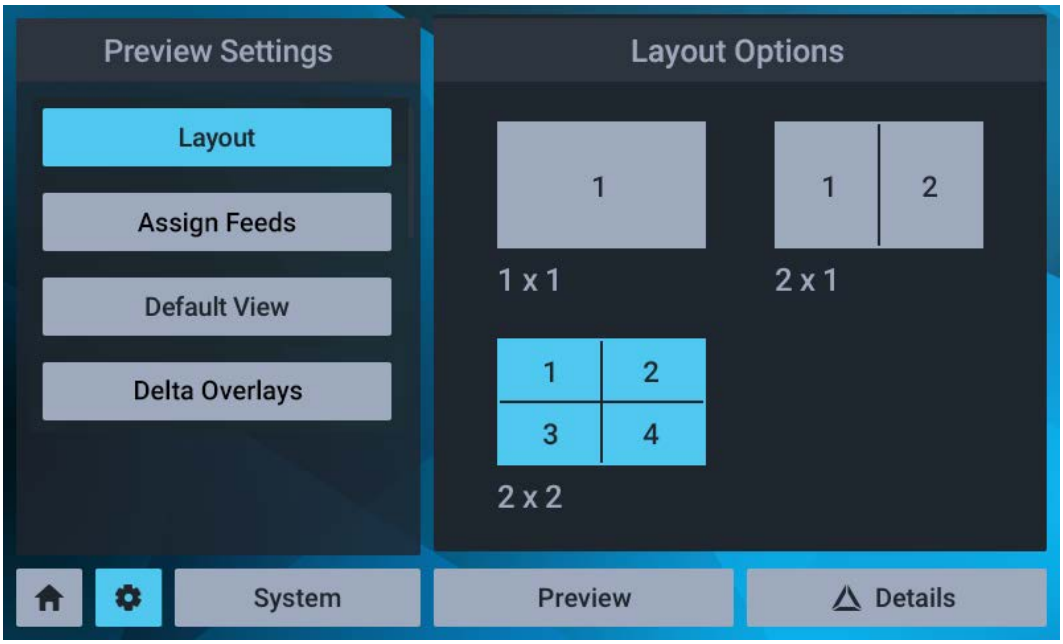
[This option is not yet implemented.]

Settings > Performer Install

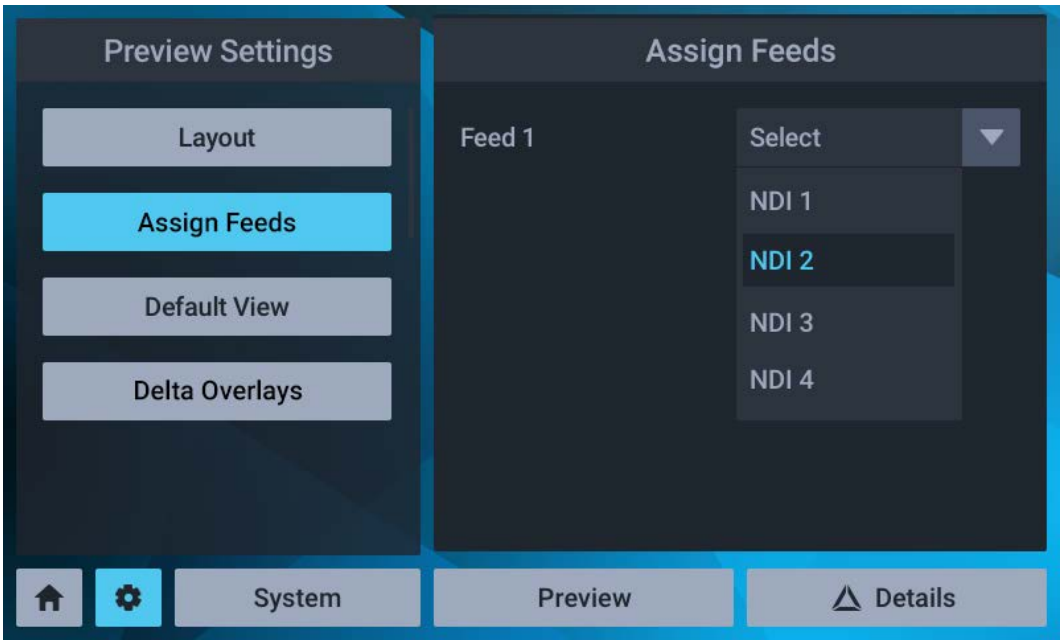
This is a service function for the configuration of the Compere software.

Settings > Preview Settings

Note: Delta has only one NDI feed representing timeline playback, which will appear in the assigned position:



Assign Feeds: Allocate which feeds to assign to each part of the display.



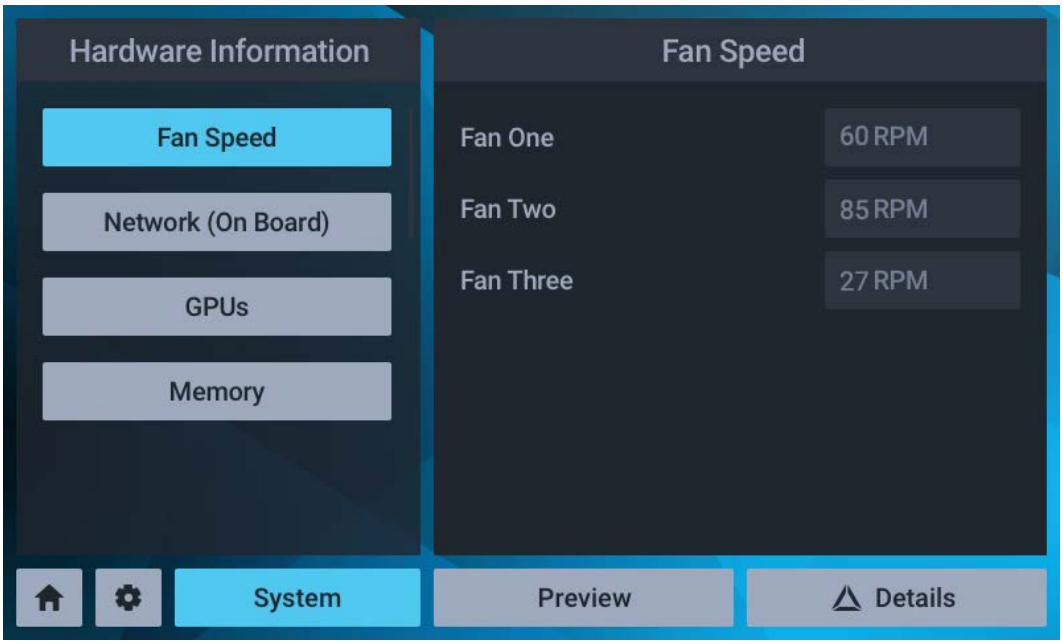
Custom controls

Custom buttons can be added to the Settings menu, that pull web pages from other servers as HTML iframes. This enables the server front panel to access non-Compere parts of a system, including Medialon show control and other custom control surfaces. These pages can then contain further remote controls and information.

➢ see: Operating R-Series, P-Series Servers

System

This service function provides some key hardware information about what is in the unit and how it is performing:

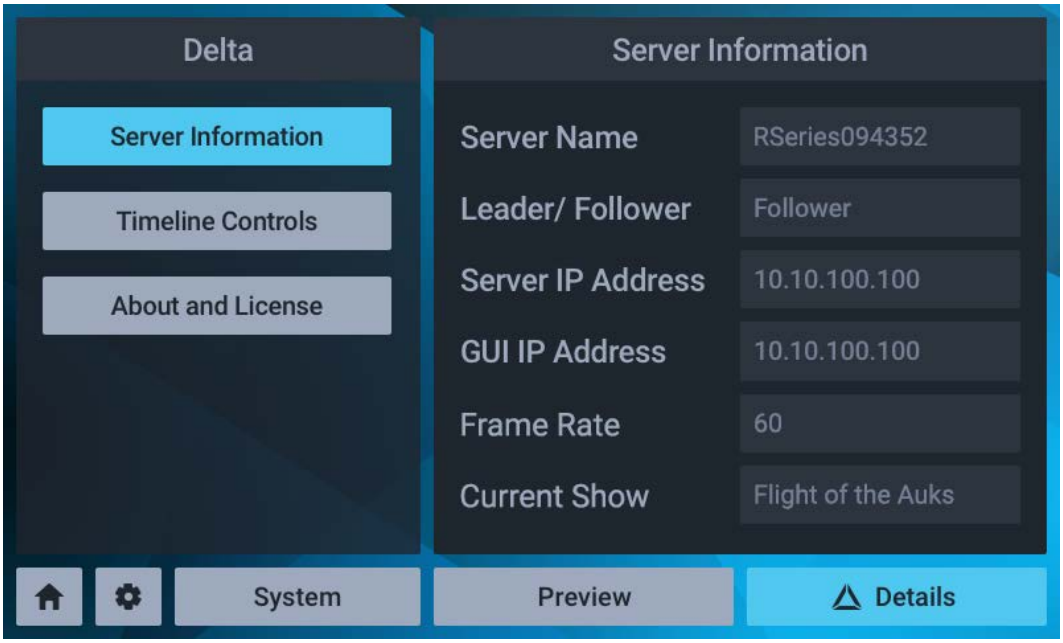


Preview

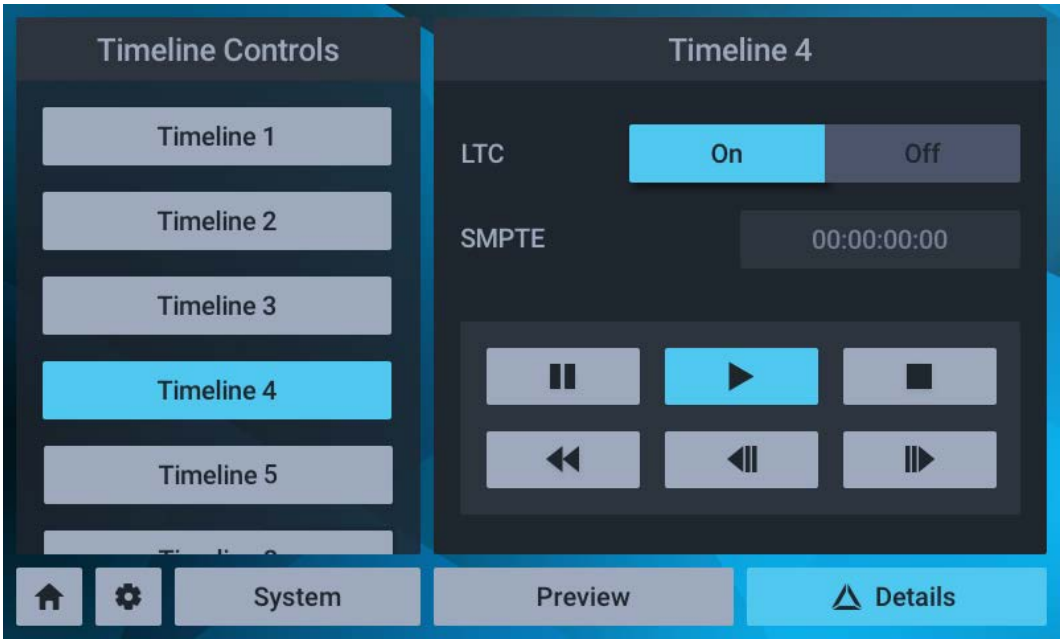
Select the Preview button to see NDI feed available in Delta, positioned as in *Settings* > *Preview Settings* > *Layout*.

Details

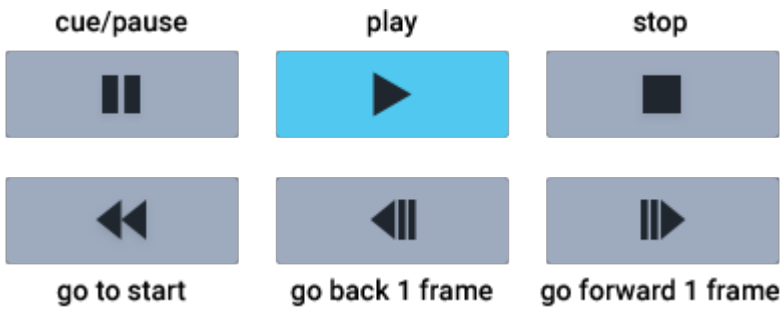
Here you access server information, version and licence details.



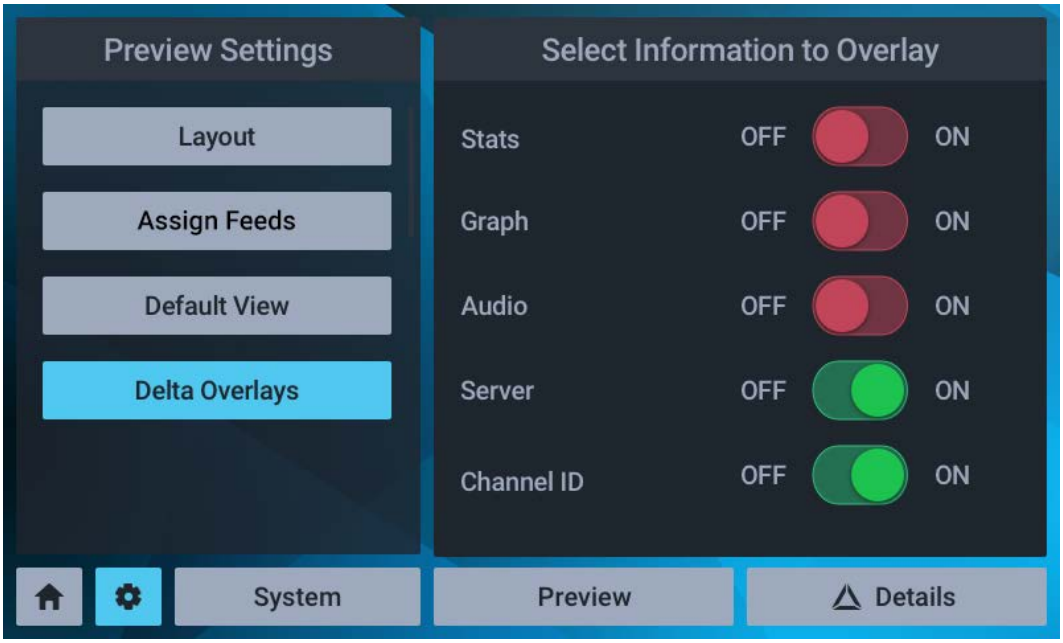
In addition, Timelines in the current project can be selected, time/sync controls edited, and play controls operated.



Timeline names are as assigned in Delta.



For Delta units, overlay of stats, information or performance graphs can be added:



Delta Media Server Front Panel

Delta Media Server Front Panel

In Delta Media Servers (Infinity, Nucleus, Proton, Nano) the front panel display and interaction is controlled by the **DeltaMonitor** application.

On Delta 1.5 servers the functionality is limited. Delta 2 added a significant amount of additional functionality. Delta 2.4 saw more software changes to allow for NICs to be modified in all servers (including Nano) without having to enter Service Mode, and with further options for NIC modification throughout. From DeltaMonitor v. 3.0.30 a Konami code was added to lock the front panel controls, and from v.3.0.31, the DeltaGUI connection was added, and warning of licence expiry.

Terminology

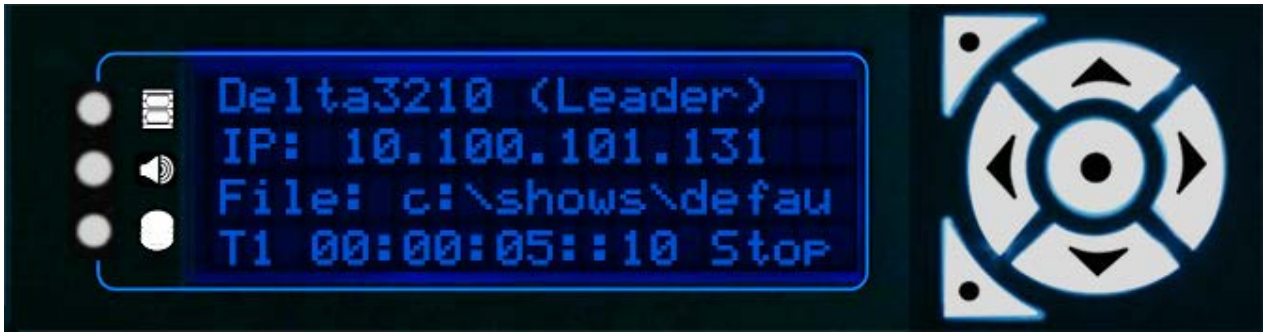
Embedded Server – This refers to the Operating system on the server. The embedded servers include: **Nano, Nano4K and Duo II pre-2016**, and **Nano1, Nano2, Nano3, Nano4K in the 2016** server range. (For further information see the Service Mode Section.)

Pico servers

Pico servers do not share the same front panel controls, and have a single LED indicator on the left:

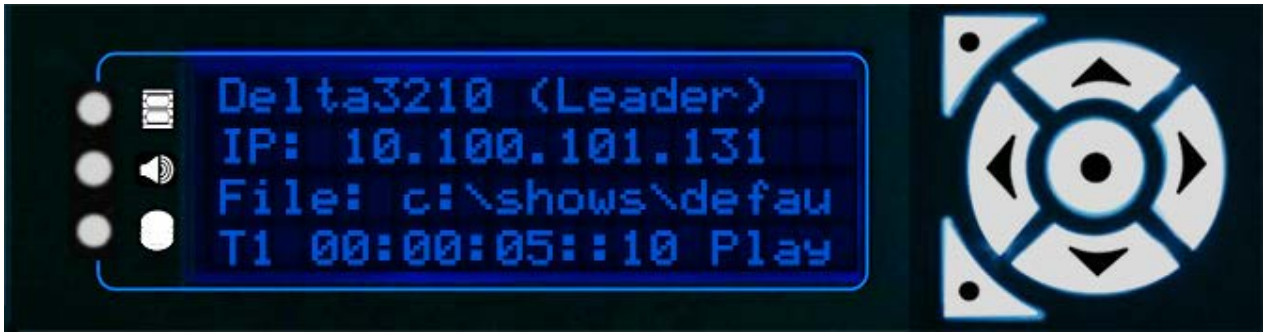
🟢	Green	The Pico is on and Delta is running.
🟠	Amber	The server is on and Delta is not running.
🟢/🟠	Flashing green and amber	Server identification state – the IP has been called externally with a GPIO_ID command (works only when Delta is running). after 15 seconds reverts to green. The DeltaFinder [90] utility operates this mode.

Panel Features



LED lights
These provide a quick view of graphics, audio and disk status of the server. Note: they will only be 'on' whilst a show is running. Whilst there is no show running, the LEDs will reflect the backlight colour.

Panel text information
Information is presented as a set of pages providing status information and control of the server. When you switch on the server, it will show basic status information including the server name, Leader/Follower, IP address and details of any show that is running.



These buttons are used to navigate through the pages of information and amend settings where available. The buttons light up for a short while when in use.

◤	top left	used to move forward into a sub-menu or apply a change according to the menu that you are in
◣	bottom left	navigates back to the previous page
◀ ▶	left / right	moves between pages; can move the on-screen cursor where appropriate

▲	up / down	navigation up/down the page that is in view
▼		
●	centre	equivalent to 'Enter'

Lock the front panel controls ('Konami' code)

When Delta is running on a server, the front panel controls can be locked from interaction with DeltaMonitor.

From DeltaMonitor v. 3.0.30, a locking code has been introduced. Use this button sequence to disable and re-enable the controls:

[top left], [bottom left], [top left], [bottom left], [centre]

Now, when any button is pressed 'Locked' will be displayed. Re-enter the same code to unlock.

Please note: From 2020 7thSense deprecated the terms master and slave for the dependencies between devices. We now refer throughout to 'Leader' and 'Follower' in our products.

To maintain functionality, both terminologies continue to work internally, but our documentation no longer uses the former terms. Users of pre-2020 products will need to observe the equivalence and continue to use the previous legacy terms.

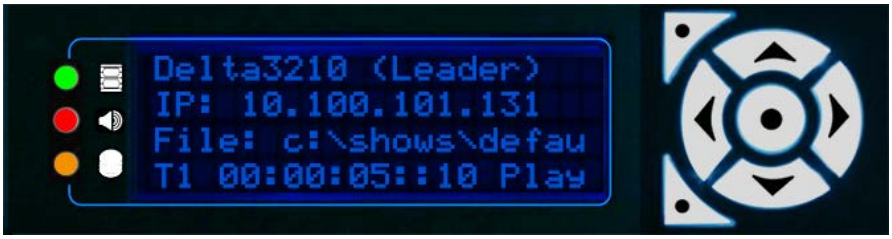
LED Status Information

The LEDs light up when a show is playing. Colour indicates the status of graphics, audio and playback disks.

Green OK – performing correctly

Amber Warning – not running smoothly, e.g. audio time drifting

Red Error – e.g. dropping frames; needs resolving



Graphics Status
Indicates whether the server is able to playback at the specified rate. Corresponds with the yellow line on the debug graph.

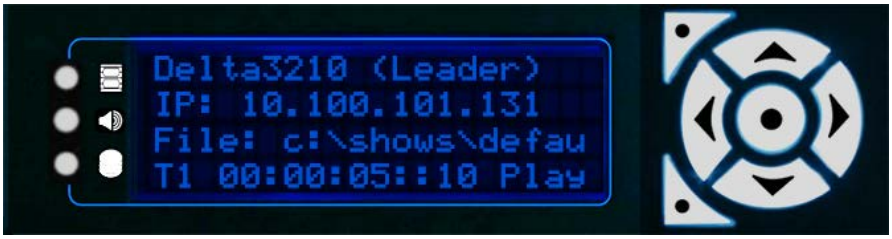
Audio Status
Indicates whether audio playback is at the correct rate. Corresponds with the cyan line on the debug graph.

Disk Status
Indicates whether the server disks are able to playback all movies currently in scope on the timeline.

Display Text Colours

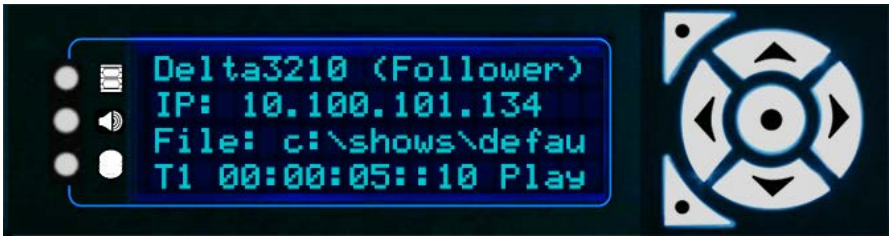
Blue

The standard colour of all text on a Delta Leader Server.



Cyan

The standard colour of all text on a Delta Follower Server

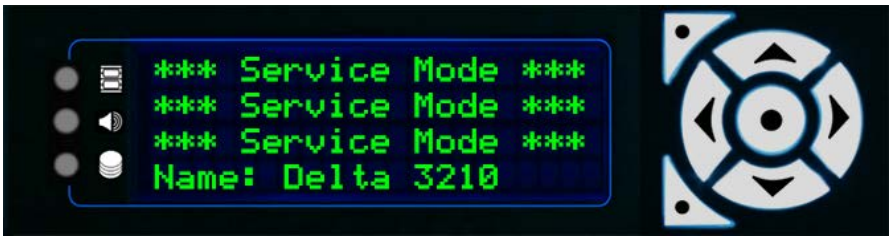


Red

Indicates the Delta Server application has stopped running. It can also indicate lack of Genlock or AMD grouping if the Delta monitor application has been configured to monitor these states.

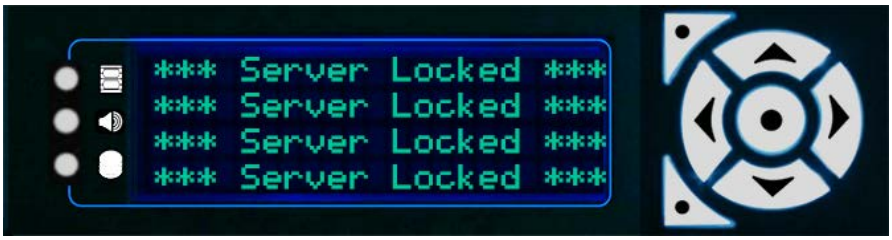
Green

Indication that the server is in Service Mode. This mode is only available on Embedded Delta Servers.



Dark Green

With Windows 10 LTSB, Unified Write Filter (UWF) replaces Service Mode, and is available on all servers using this operating system. When UWF is enabled, the server shows that it is locked:



Note that if the server is a Follower, the colour for this state will be cyan (as shown above). UWF is explained more in the Delta User Guide from version 2.6.

Others

Other colours are used for Alert mode. This mode flashes the display on certain actions and is intended to aid programming and debug.

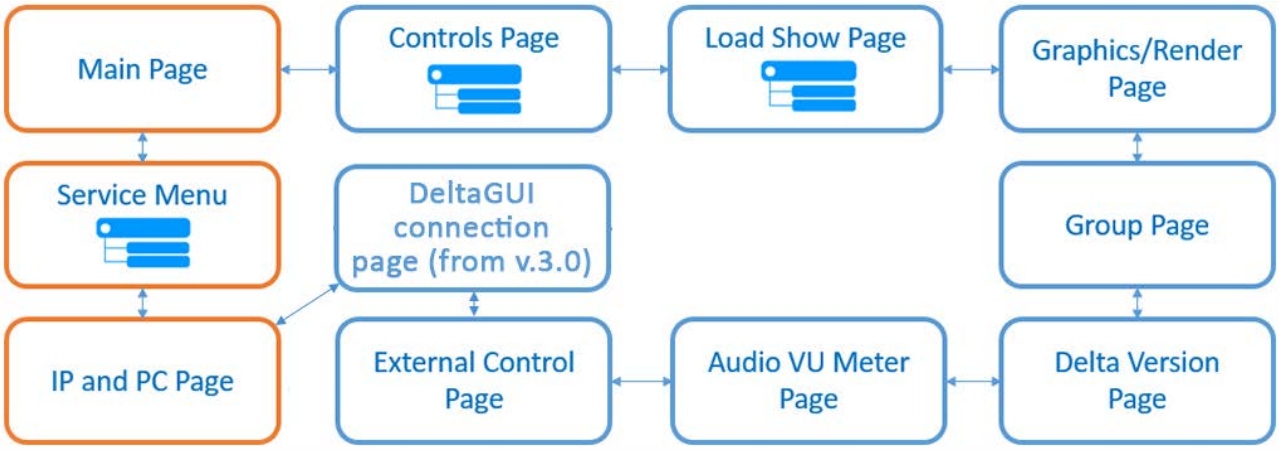
You will see this warning flashing every 30 seconds, if the server Delta licence is expiring within the next 30 days:

The DeltaServer licence has an output bandwidth element. If this is exceeded, there will be a warning displayed in the output, and in DeltaGUI. The server display will show every 30 seconds for 3 seconds:

Menu Structure

The menu structure is navigated using the left and right control keys. The Right Arrow button takes you clockwise around the pages, the Left Arrow takes you anticlockwise.

For example, press the **Right Arrow** button twice to go to the **Load Show** page, or the **Left Arrow** once to go to the **Service Menu**.

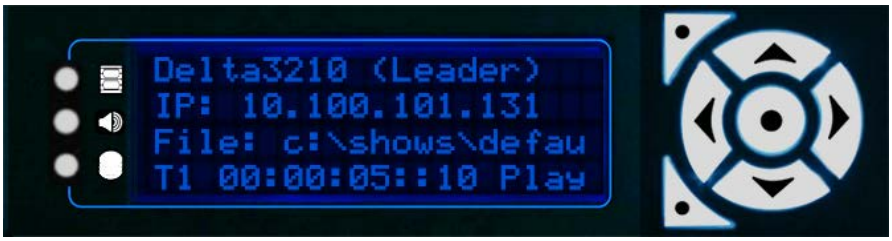


Note: Servers running Delta 1.5 are only capable of showing the pages marked with an orange border

Pages with this icon have sub-menus/pages. Press the **Enter** button to open, and the **Up/Down** buttons to navigate. The **Bottom Left** button is the **Back** button.

Using Delta Front Panel Menus

Main Display

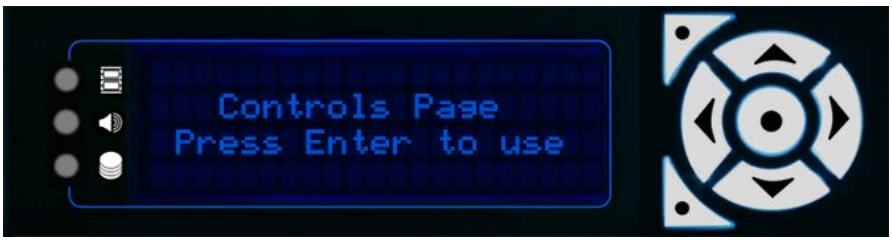


The main display shows the server's Windows configuration name, its IP address, and the filename of the current show. The last line shows which timeline is running, the position of the playhead and the play status (Play, Stop, Ready).

Press the **Right** or **Left** arrow buttons to navigate to other pages.

Controls

Note: The Controls page is only available to Delta servers configured as a Leader.



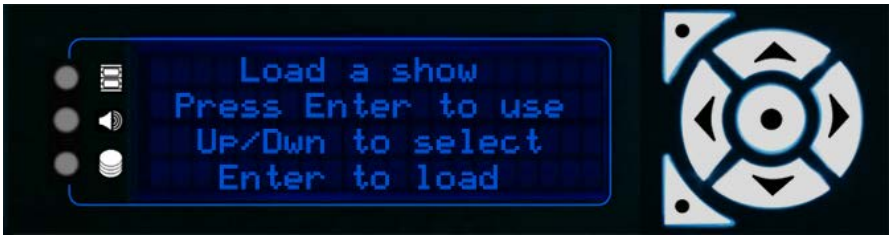
Press the Right Arrow button, then Enter (centre button) to use the controls page:

Once in the control page, all buttons have a function:

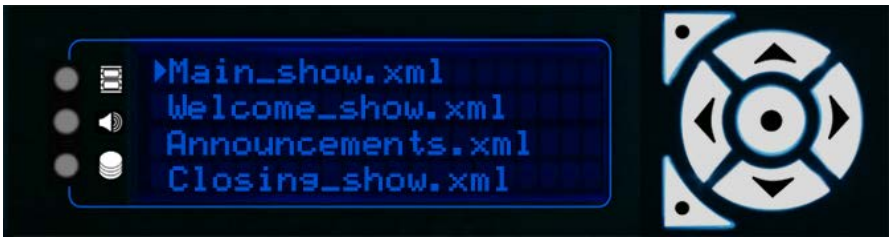
Bottom Left Steps back out of the control page into the main pages

Top Left	Rewinds current timeline to frame 0
Left	Stop playing (if running) and press to step back one frame at a time
Right	Stop playing (if running) and press to step forward one frame at a time
Top	Play
Bottom	Cue, ready to play
Enter	Stop

Load Show



Press Enter (centre button) to list available shows:



The cursor arrow indicates the currently selected show.

Scroll through items with the Up and Down buttons, and select the one you want with Enter. (Bottom Left button goes back to the Load Show page.)

Graphics/Render

Gfx Current desktop resolution and refresh

Aud Available Audio

Gfx Available graphics output i.e. DVI, SDI

Cache Current disk cache level

Group

This page indicates whether the server is a Leader or Follower, the server group it is in, how many servers are in this group, and the current timing mode.

Delta Version

Shows the current DeltaServer application version installed on the server.

Audio VU Meter

This page shows the audio playing on the current timeline. If audio is current playing, a VU meter shows, with a vertical line for each channel of audio:

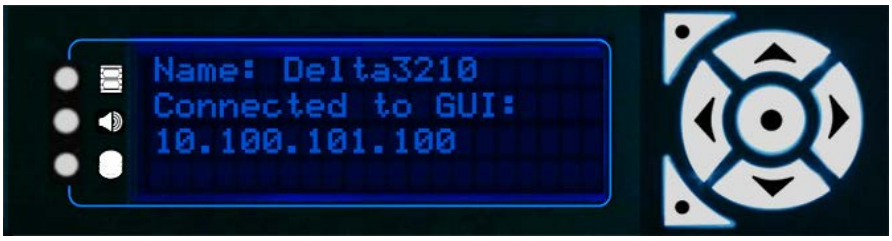
If no audio is currently in scope the display will read ‘Silence’.

External Control

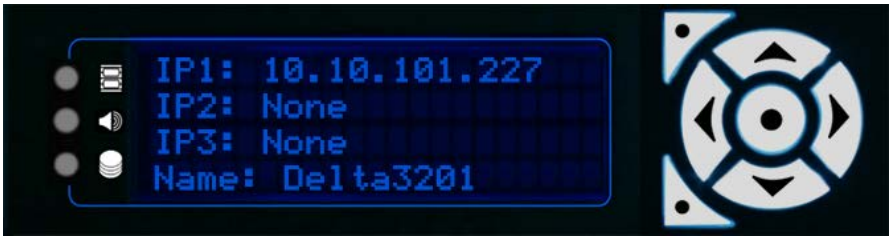
Lists the current TCP and UDP ports for external control, and the last external control message received.

GUI Connection

From DeltaMonitor 3.0, if an instance of DeltaGUI is connected to this server, this additional page shows its IP:



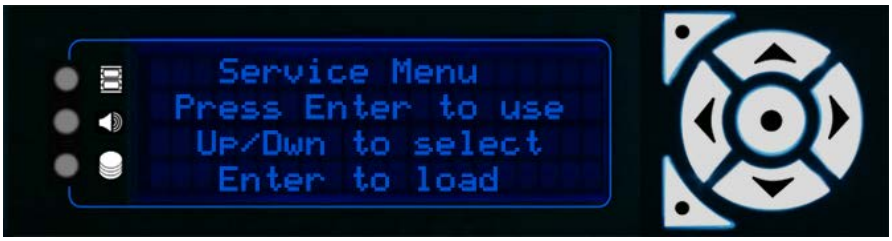
IP and PC Name



This page shows a list of the current server network IP addresses (first, second and third adapters) and the server's Windows configuration name.

The '**s**' or '**d**' at the end of each line indicates whether the network address is static or dynamic.

Service Menu



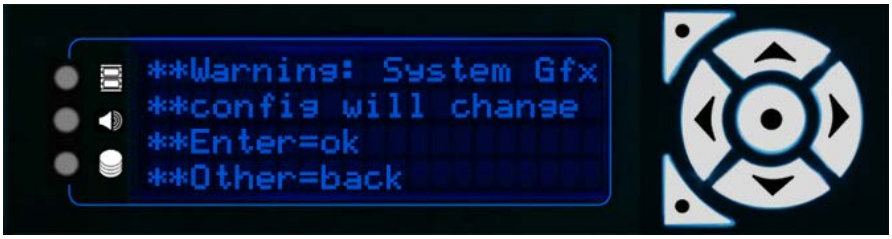
The Service Menu provides configuration functionality for the server. Once in the Service Menu, you will be presented with a list of all the functions available on that Delta server. Move the cursor through the options with the Up and Down buttons and select the required item using Enter.

Restart Delta

Select restart Delta. Press Enter to restart the Delta server. Confirm twice before the system will restart.

Reset EDIDs

Select Reset EDID. Press Enter to delete all forced EDID graphics configurations from the server. Confirm twice before any EDIDs are reset.



Manage Network

The Manage Network menu includes: Set DNS; Set Gateway; and Auto IP/DNS/Gateway.

Note from Delta vs 2.4 and DeltaMonitor 3.0

Embedded servers no longer need to be in Service Mode to set NIC values. They do, however, still require Service Mode for other tasks such as upgrading the software.

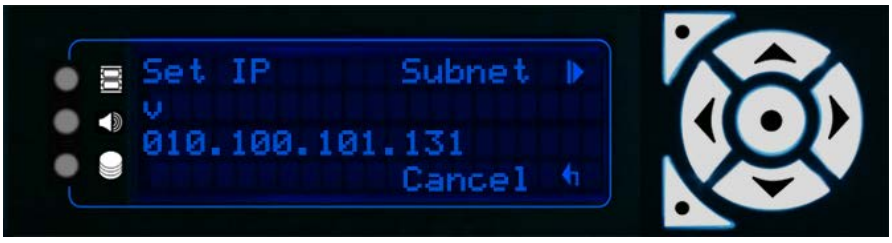
When you enter the Manage Network menu, the display will alternate between IP address and friendly name of the corresponding NIC:

To make changes to the NIC information, press Enter. The Manage Network sub-menu will open.

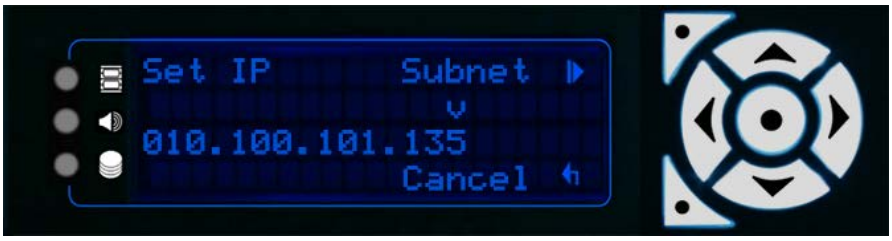
Set IP

Note: DHCP off means that the server is set to a static IP, which is the recommended setting for Delta servers, to allow them to communicate only over the selected network.

Press Enter to open the Set IP option:



Use the left/right buttons to move the cursor along the numbers, and the up/down keys to change the numbers:



Once you have set the IP, you need to open and check/amend the Subnet. Press the top-left button to enter the Subnet screen.

Note: 255 fixes that part of the address so that the server will only see other devices on that same network. 000 allows the server to see any other device (numbered 000 to 255) on that network.

Press the top-left button to Apply any IP and Subnet changes. The system will return to the Manage Network menu.

Set DNS

If your server is using a DNS network, you can set details in this menu:

Select Set DNS and press Enter:

Use the left/right buttons to move the cursor along the numbers, and the up/down keys to change the numbers to a valid DNS. Once set, press the top-left button to check/amend the DNS2 address:

Press the Top Left button to Apply the changes to DNS1 and DNS2 and return to the Manage Network menu.

Set Gateway

Note that this option is only available if there is a static IP address.

Select Set Gateway and press Enter:

Use the left/right buttons to move the cursor along the numbers, and the up/down keys to change the numbers to the required Gateway address. Press the Top Left button to Apply.

Switch DHCP On (Auto IP/DNS/Gateway)

If you want the server to select an IP automatically, you can switch DHCP on by selecting the Auto/IP/DNS/Gway option:

Press Enter to switch to automatic selection.

Note: You may need to use this setting if you want your server to temporarily switch networks to, for example, allow access to the internet. To switch back to a static IP, and switch DHCP off, you should set the IP/DNS/Gateway manually, following the steps above as required.

Service Mode

Note: Service Mode is only available/required on Embedded Servers. From Delta Monitor v. 3.0 it is no longer necessary to put the server in Service Mode to change NICs.

This function allows you to cycle in and out of service mode on an Embedded Server.

Selection of Service Mode results in the menu below. The Enter key is used to agree to either put the server into or out of Service Mode. You will be warned twice before the system does the restart.

All Nano, Nano 4k and Duo II servers use a Windows Embedded Operating System. This offers the advantage of file write protection on loss of power.

By default, all embedded servers are shipped out of service mode. When an embedded server is not in service mode its menu is Blue/Cyan as per any normal Delta server.

When not in service mode, the operating system disk is locked. Anything that is saved to the OS disks when not in service mode, will be lost on reboot.

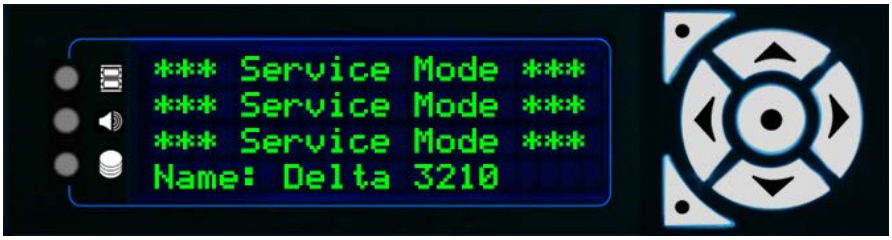
There are some exceptions to this rule which are the following:

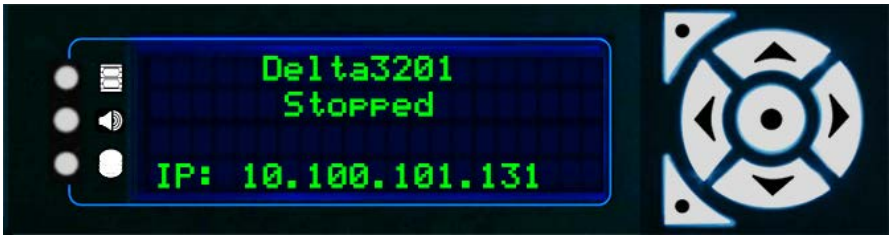
- Delta registry settings, including any changes made to preferences within Delta through Delta GUI, will hold after a reboot.
- The Delta/System area is read/write
- All major media locations on the OS disks such as:

  C:\7thSense
  C:\Audio
  C:\Blends
  C:\Colour
  C:\Geometry
  C:\Images
  C:\Meshes
  C:\Sequences
  C:\Shows
  C:\Splines
  C:\Text

When in Service Mode, the server OS disk is completely open and writeable with full Administrator access. If you have a need to install drivers or additional software, you need to be in service mode to do this.

In this mode the Front Panel text is permanently green and rotates flashing the Service Mode text below.





It is not advised to leave the server in service mode during normal operation.

Once you have made any required changes to the server you should always switch back out of Service mode to Normal mode.

Reset Audio and Front Panel

Systems that have Windows Embedded (the Nano series), may experience a registry corruption in the event of a power interruption. This can disable audio or render the front panel (Matrix Orbital) inoperable. If this happens, you may need to reset the server without access to the front panel controls.

In all of these procedures you will:

- **enable Service Mode** on the server (this will restart it)
- **restart** the server while in Service Mode (this will reset the server registry)
- **disable Service Mode** (this will restart it again).

Resetting a Server from DeltaMonitor

1. Start up the server and plug a mouse and keyboard into the server. (Alternatively, use VNC to log in to the server from another networked machine.)
2. Press 'F' to take the playback window out of full screen in order to access the server Windows desktop.
3. Open DeltaMonitor:

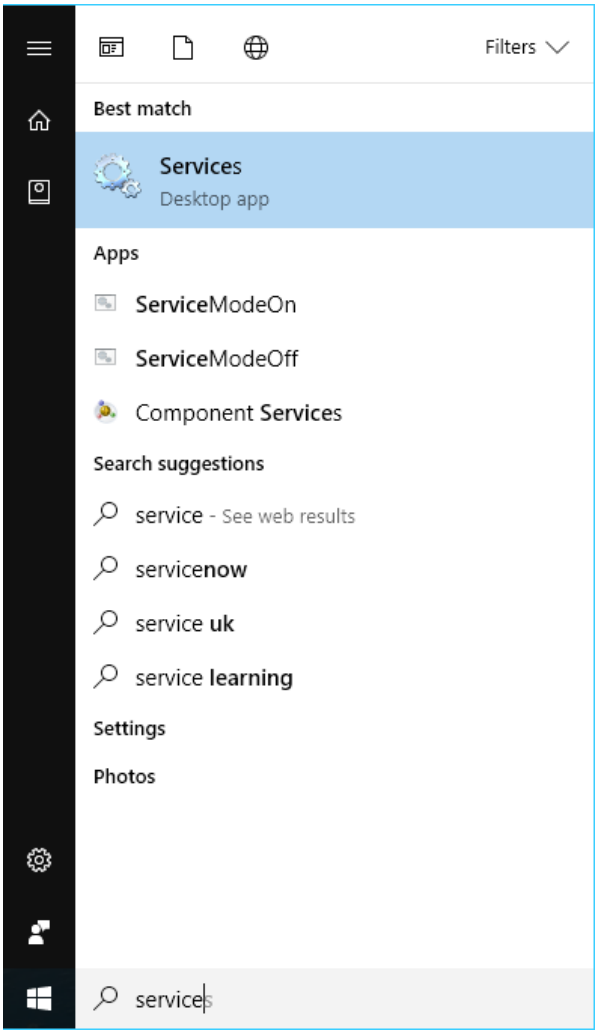
   Look for the DeltaMonitor icon in the Windows 7 system tray (bottom right of the screen) or Windows 10 'hidden icons'.

   - Right click on the icon, and select 'show'.
   - From the top menu of this DeltaMonitor dialog, select 'Service Mode', and then 'Enable'.
   - The server should prompt you to restart. Select OK. If it doesn't prompt you, manually restart the machine from the Windows Start button.
4. Restart the server again, manually.
5. Return to DeltaMonitor as before, and exit Service Mode. This will restart the server once more.

Your Delta Front Panel should now be reset.

Resetting a Server from Windows Start

1. Type 'service' into the Windows 7 or 10 Start search box:

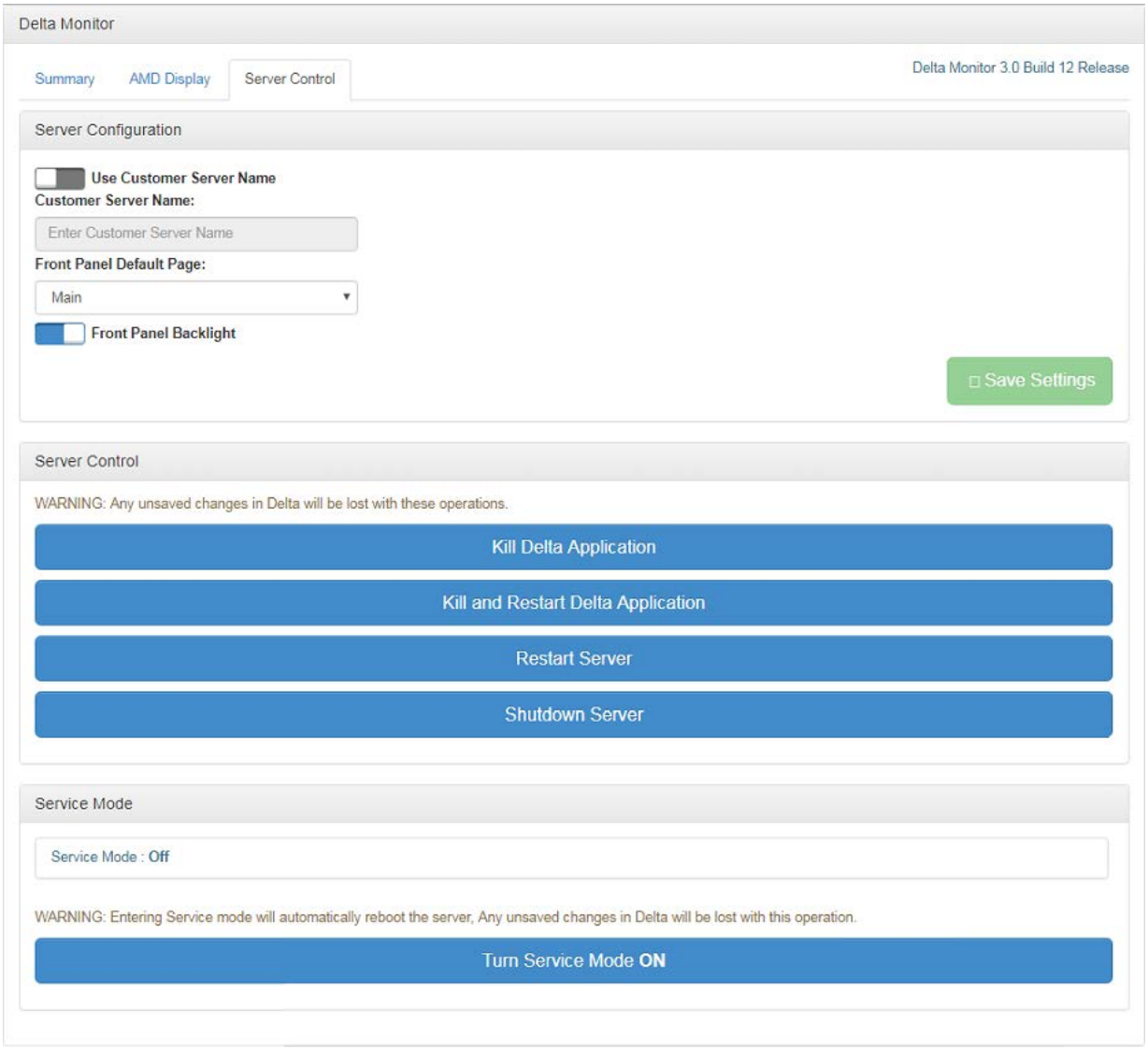


2. You should see listed: ServiceModeOn and ServiceModeOff. Select ‘On’.
3. Restart the server from the Windows Start button.
4. Restart the server again, manually.
5. Go back to Windows Start > **ServiceModeOff**, and restart manually.

Your Delta Front Panel should now be reset.

Resetting a Server from Delta Web Service

1. On this server add the URL: http://localhost:7790/api/deltamonitor to a web browser window. From any other server, enter the IP of the server to reset, http://[serverIP]:7790/api/deltamonitor and select the Server Control menu tab:



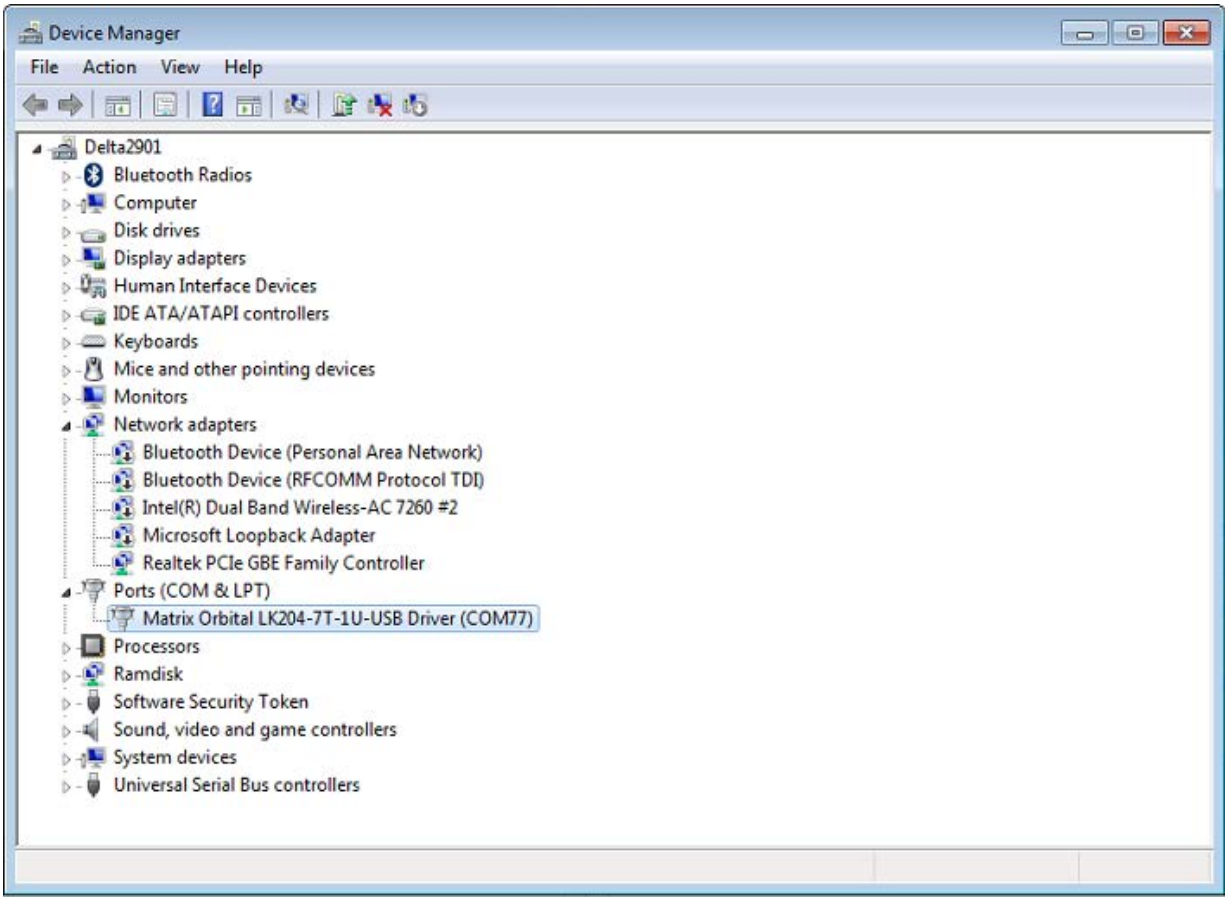
2. Click ‘Turn Service Mode ON’ to put the server into service mode, and click OK to confirm. If the server doesn’t restart automatically, do this manually from the Windows Start button.
3. Restart the server again, manually.
4. Go back to Delta Monitor > Control and turn Service Mode Off. This will restart the server a final time.

Your Delta Front Panel should now be reset.

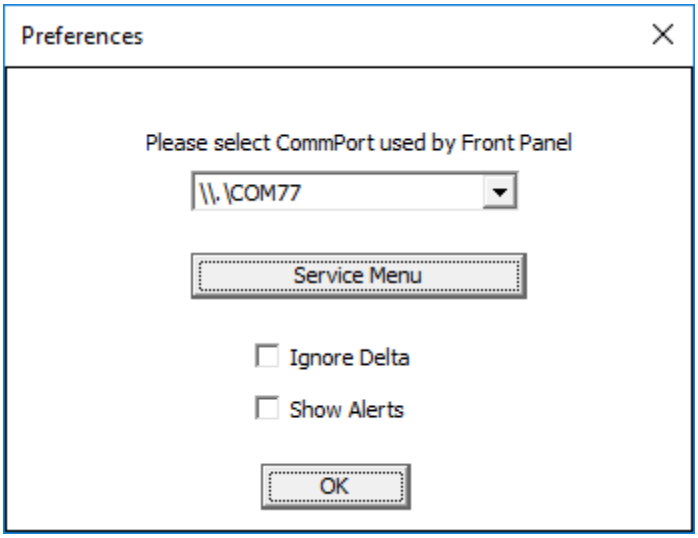
If the front panel is still not working

Try the following steps:

1. Click on the Windows Start button and type Device Manager. In the Device Manager window, click on Ports and ensure that the Matrix Orbital is set to port 77:



2. If it is not set to 77, double-click to open the Matrix Orbital properties. Select the 'Port Settings' tab, click 'Advanced', then select COM77 from the 'COM Port Number' drop-down menu.
3. Click OK to accept and save changes, and close the Device Manager window. If you are prompted that a device is already utilizing COM77, please follow prompts to override the current device.
4. Once restarted, open the DeltaMonitor interface (as above), and select *Edit* > *Preferences*
5. In the preferences dialog, check that COM77 is selected in the drop-down menu. If not, click and select from the drop-down menu.



DeltaMonitor

DeltaMonitor

DeltaMonitor is a single utility used to manage the Delta Media Server front panel, network connections and graphic settings for a Delta Media Server system (Infinity, Nucleus, Proton, Nano). R-Series and P-Series servers, introduced in 2023 and 2024, running Delta do not use DeltaMonitor.

The Utility has two separate interfaces, a dialog window local to the server itself and via Delta Web Service, accessed via a web browser.

The **Dialog interface** is accessed from the notification icon in the system tray on the windows task bar: to open, right click this icon and select 'Show' from the menu.

Some functionality is only available in the dialog window: these capabilities are primarily for engineering tasks and are not intended for most users. The dialog window is designed to give some basic information and functionality, although the majority of DeltaMonitor's capabilities are accessed from the web interface.

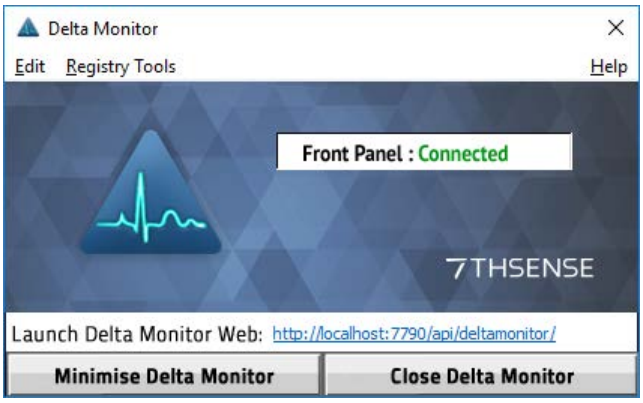
Delta Web Service can be accessed via two methods:

- Right click on the DeltaMonitor icon in the Windows notification tray, and select 'Launch Web Interface' from the menu.
- Click the 'Launch DeltaMonitor Web' link on the DeltaMonitor dialog window.

Delta Web Service has more status information and functionality. It is designed for users with a varied technical knowledge. The display page should be where users set up first set up their systems, once set up, the display settings should not need to be changed again unless their display set-up changes.

DeltaMonitor Dialog

The DeltaMonitor dialog provides some status information on the Delta server.



Front Panel
Indicates whether the LED front panel on the front of all Delta servers is connected successfully or not.

Control of Delta (via Ethernet) (older versions of DeltaMonitor only)
Indicated whether the LED front panel has a connection to the DeltaServer software and is able to control Delta. This is required for transport control.

Launch DeltaMonitor web
Provides a link to DeltaMonitor Web [50].

Minimize DeltaMonitor
Minimizes DeltaMonitor to the notification tray in the taskbar, this is the default state for the system.

Close DeltaMonitor
Kills the application and will also stop driving the server's front panel.

Note: Click the windows close (X) Button will minimize rather than kill the application, as this is the default state.

For Delta server front panel controls, see the Delta Server Front Panel User Guide.

Service Mode

This main menu item appears only, and first, on Nano servers with Windows embedded.

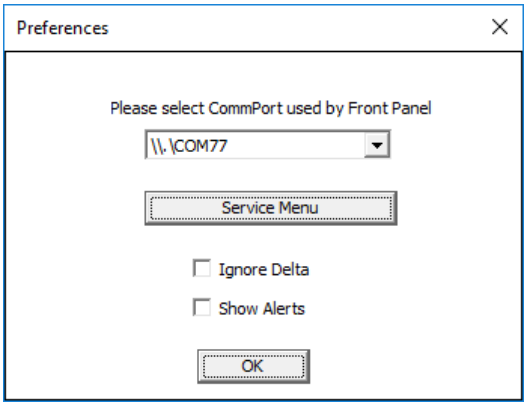
DeltaMonitor > Service Mode > Enable/Disable

This feature is only for embedded systems to allow them to be put into ‘Service Mode’. Service Mode allows the user to make changes to the systems configuration or setup.

Edit: Preferences

DeltaMonitor > Edit > Preferences

The preferences menu provides controls for some of the configurable settings within DeltaMonitor.



Front Panel Com Port Selection

Allows the user to select the Com Port which Delta Monitor will attempt to communicate to the LED front panel via. The drop down list is populated with all active comports, and Delta Monitor will always default to Com Port 77.

Ignore Delta

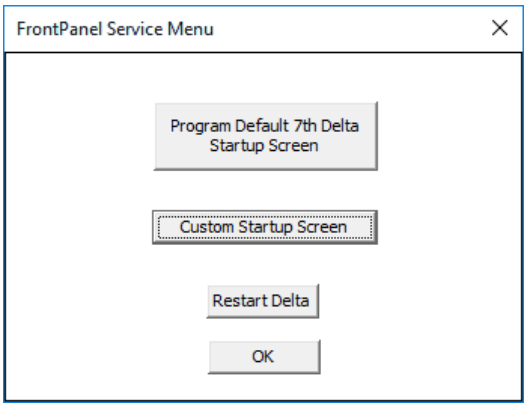
DeltaMonitor communicates between the DeltaServer software and the Media Server front panel. If you have rolled back to an older version of DeltaServer from a time when Media Servers did not have a matrix orbital front panel, the front panel will not be able to communicate with DeltaServer. DeltaMonitor, not knowing that DeltaServer is running, will fall into a red ‘alert’ display. This option stops DeltaMonitor listening to the DeltaServer software on this server, and prevents the apparent error state from showing. A default message is displayed instead.

Show Alerts

Users can select this option to allow visual indications of incoming external controls. When external controls are received the front panel will change to a different block colour dependent on which control was received.

No alert:	Black
Play:	Green
Stop:	Red
Rewind:	Cyan
Forward:	Cyan
Cue Alert:	Orange
External Control Alert:	Purple
Marker Alert:	Light Cyan

Service Menu



Program Default 7thDelta Start up Screen
allows the user to program the Matrix Orbital with the default 7thSense start up screen.

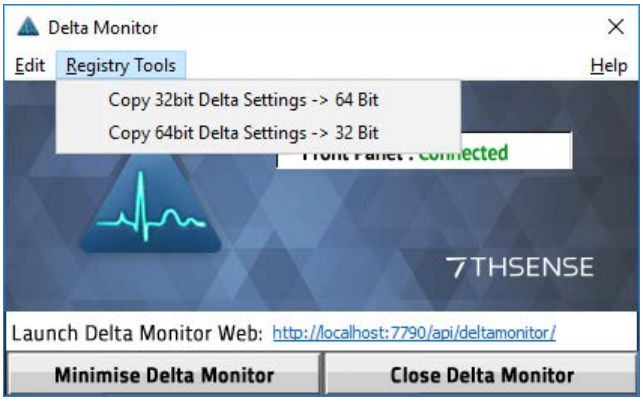
Program Server Serial Number
functionality for 7thSense engineers only, allows the server serial number to be recorded. This functionality is password protected.

Restart Delta
kills and restarts DeltaServer application.

Registry Tools

Some legacy Delta systems may have been running a Delta version in 32-bit. To ensure all Delta settings are not lost when transitioning between Delta versions, DeltaMonitor provides the facility to copy the registries between 64- and 32-bit.

This functionality should only be carried out by a 7thSense engineer or under the instruction of one. For this reason the functionality is password protected.

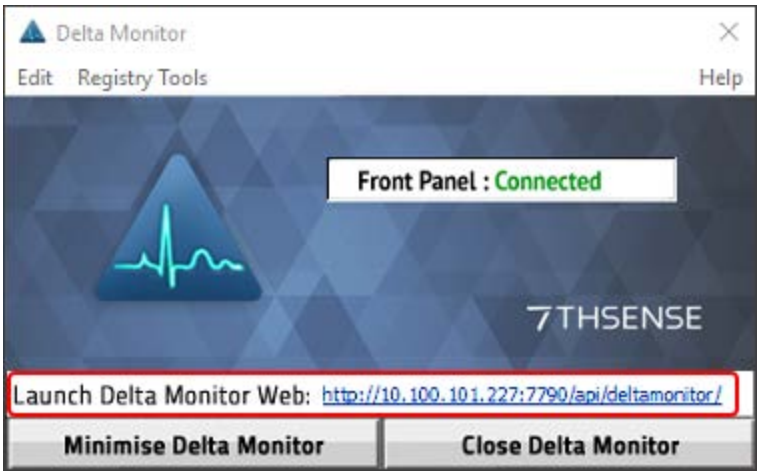


DeltaMonitor Web

Any networked DeltaMonitor can be addressed remotely by browser at:

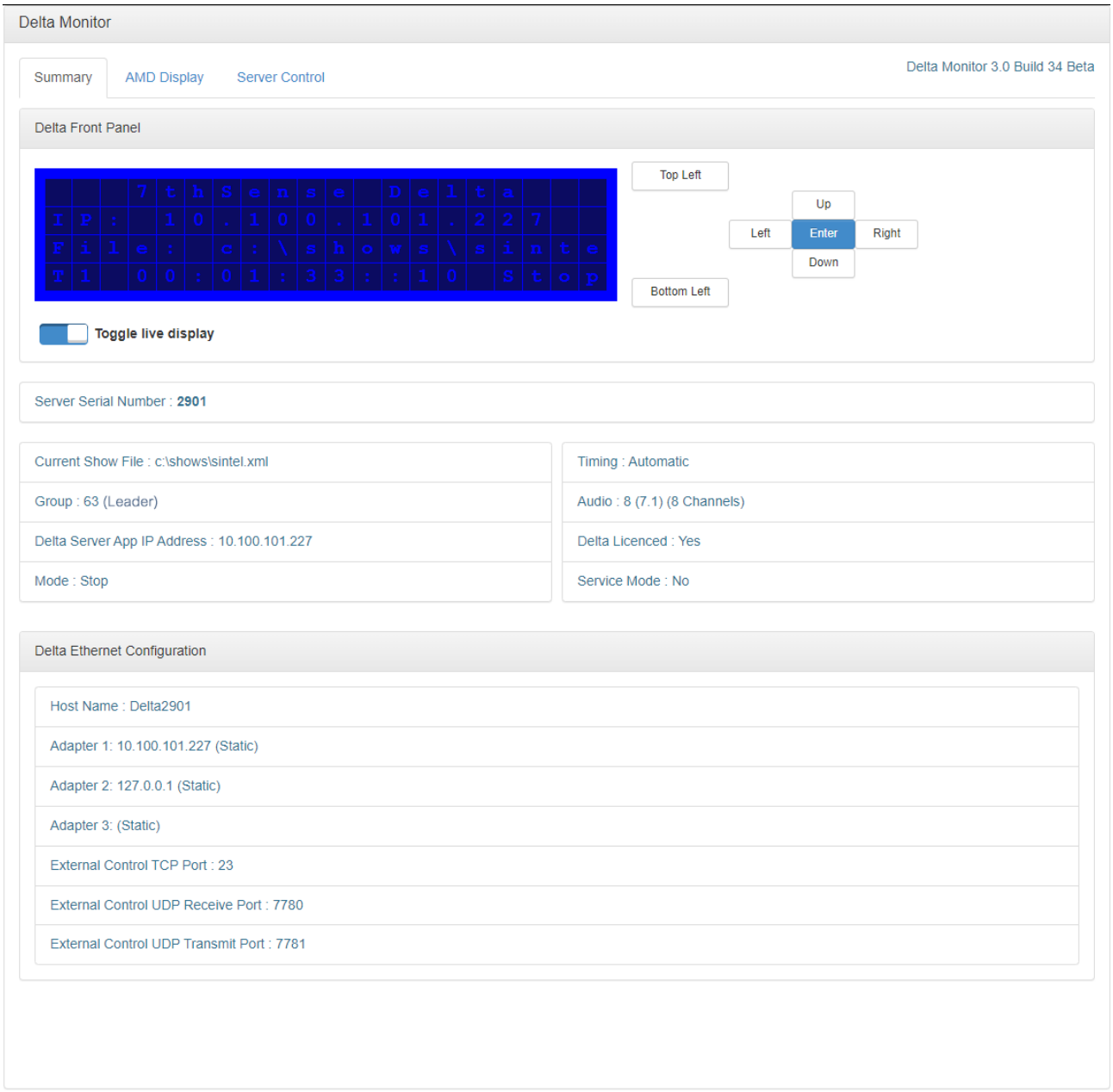
http://[serverIP]/api/deltamonitor/

Or from the server itself, you can ‘Launch Web Interface’ as localhost from the system tray icon, or right-click the icon to ‘Show’ and ‘Launch DeltaMonitor Web’ from the DeltaMonitor window:

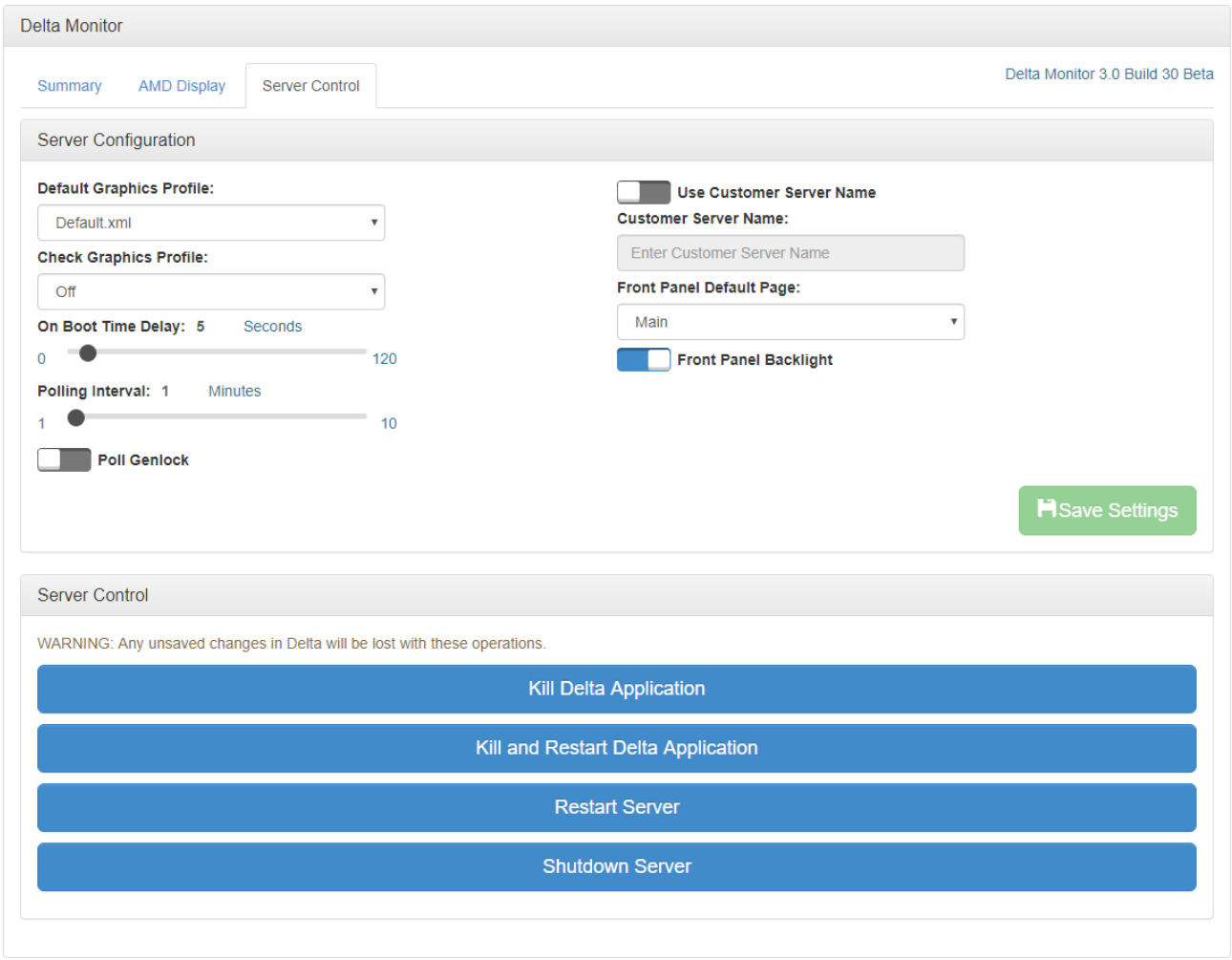


Note the build number on the top right, since not all controls are available in earlier versions.

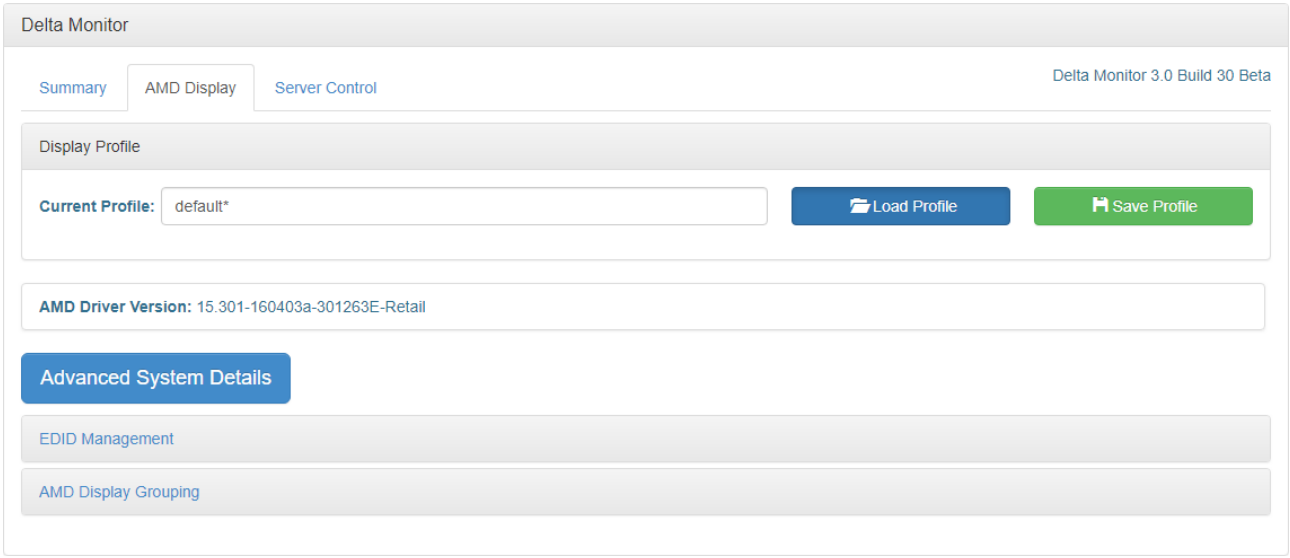
There are three tabs. **Summary** is the same as in Delta Web Service > *DeltaMonitor* > *Summary*:



Server Control is the same as in Delta Web Service > *DeltaMonitor* > *Control*:



The **Display** tab shows any installed GPUs, e.g. AMD / NVIDIA, and is the same as in Delta Web Service > *DeltaMonitor* > *Display*:



External Control Commands

These commands can be used as calls on any networked server directly to DeltaMonitor, producing the returns and/or actions as shown below.

Status

http://[serverIP]/api/deltamonitor/server/status

Returns:

```
{
   "data" : {
      "status" : {
         "isembedded" : "no",
         "servicemode" : "no"
      }
   }
}
```

GPU Temperature

http://[serverIP]/api/deltamonitor/server/gputemp

Returns a JSON object containing a list of the gpus in the server and their temperatures:

```
{ "GPUS": [{"GPU_Id" : 0, "Temperature": 50},{"GPU_Id" : 1, "Temperature": 49}]}
```

Server Restart

http:// [serverIP]/api/deltamonitor/server/restart

Restarts the server. Returns:

```
“restart”
```

Server Shutdown

http://[serverIP]/api/deltamonitor/server/shutdown

Shuts down the server. Returns:

```
“shutdown”
```

Server Status

http://[serverIP]/api/deltamonitor/delta/status

Returns JSON data about Delta Server:


```
"data" : {
      "audio" : "2 (Stereo) ASIO",
      "audionumchannels" : 2,
      "cache" : 0,
      "chaseltc_tl1" : 0,
      "currentshow" : "default.xml",
      "deltaip" : "10.100.101.85",
      "dvisdi" : "Gfx: DVI",
      "externalcontroltcp" : 23,
      "externalcontroludprx" : 7780,
      "externalcontroludptx" : 7781,
      "graphicsheight" : 1080,
      "graphicsrefresh" : 60,
      "graphicswidth" : 1920,
      "group" : 1,
      "is32bit" : false,
      "isembedded" : false,
      "isstereo" : 0,
      "lastexternalcontrolmsg" : "fullstatusjson",
      "licenced" : 0,
      "leader" : 1,
      "mode_tl1" : "Stop",
      "rendermode" : "Flat",
      "serverinfo" : "DESKTOP-S1892E3 (Leader)",
      "serversingroup" : 1,
      "timelineframerate" : 30,
      "timing" : "Automatic",
      "version" : "2.5 Build 36 Release "
   }
```


Kill Delta

http://[serverIP]/api/deltamonitor/delta/killDelta

Closes Delta Server. Returns:

```
“killDeltaApp”
```

Kill Delta and Restart

http://[serverIP]/api/deltamonitor/delta/killandrestart

Restarts Delta Server. Returns:

```
“killandrestart”
```

DeltaMonitor Version

http://[serverIP]/api/deltamonitor/version

Returns the current Delta Monitor version:

```
“{"major":"3","minor":"0","patch":"Build 28 Nvi-Beta"}”
```

Program Defaults

http://[serverIP]/api/deltamonitor/frontpanel/programdefaults

Equivalent to clicking the ‘program defaults’ button in the service menu. Returns JSON:

```
“{Status: "Successful"}”
```

JSON DeltaMonitor Profile

http://[serverIP]/api/deltamonitor/helpjson

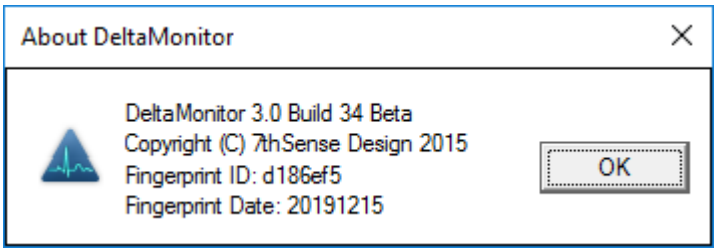
Returns a JSON list of all the available urls and their input details:

```
{
   "data" : {
      "availableurls" : {
         " 0" : [
            {
               "url" : "/frontpanel/left"
            },
            {
               "inputdetails" : "None"
            }
         ],
         " 1" : [
            {
               "url" : "/frontpanel/right"
            },
            {
               "inputdetails" : "None"
            }
         ],
            ……
         "34" : [
            {
               "url" : "httpGetGraphicsProfiles"
            },
            {
               "inputdetails" : "None"
            }
         ],
         "35" : [
            {
               "url" : "httpGetEdidInfo"
            },
            {
               "inputdetails" : "None"
            }
         ]
      }
   }
}
```

Help

Help > About

Displays a dialog window showing the DeltaMonitor version.



From version 3.0 Build 34 (and Delta 2.6.74), a version ‘fingerprint’ has been added for precise version identification.

External Control of Delta Media Servers

External Control of Delta Media Servers

Delta Media Servers can be controlled remotely using **TCP external controls** to and from the Delta timeline using serial or Telnet controllers.

In addition, Delta Web Service has a fully-featured **HTTP API** for interacting with servers over a local network.Enter topic text here.

- Delta Web Service API [118]

External Control Commands

Notes on the External Controls help page

- Commands are not case sensitive, and individual commands are activated by Carriage Return (Hex 0D, decimal 13)
- If paths are used the character \ must be escaped with a second \, e.g.: path="Images\ \foldername".
- To specify a timeline for a command, add TL=X in the command, X=Timeline number or R for Reserve timeline.
- If you have named the timelines, you can also use TL=myname (note that timeline naming enforces unique names)
- Some commands (**marked !**) : are non-realtime which could interrupt playback if playing, or will stop playback as part of the command.
- Non-realtime commands (**marked with an additional ***) : if Seamless Loop mode is enabled will not interrupt playback.
- Non Sequence commands (**marked E**) : Some commands are external control commands only, not sequence commands .
- Sequence Only commands (**marked S**) : Some commands are sequence commands only, not external control commands .
- Optional parameters or choices between parameters are enclosed in [ ].

For the complete list available to **your version of Delta**, go to DeltaGUI menu, *Help > External Control*.

➢ To see the latest Help file online go here.

Delta Media Servers can be controlled remotely using external controls to and from DeltaServer using serial or IP-based controllers.

This is a set of built-in English-language commands, allowing an external controller to control the timeline. You can also add custom events to the timeline which output strings on the external control COM port / Telnet port.

To specify a timeline for a command, add TL=X where X is the timeline in the range 1-32 or use R to specify the Reserve timeline. You can also use TL=ALL to specify all timelines.

In addition, by using *View > Timeline Names*, you can give a unique name to each timeline, this shows in DeltaGUI and you can also use TL=myname to address a specific timeline.

Note: File names or marker names must be enclosed in double quotes if there is a space in the name.

Some commands only work with a Leader server, since Follower units receive these commands from the Leader:

PLAY	Play the show (instant start if cue already done)
CUE	Cue the show and wait for the Play command
STOP	Stop the show
ADVANCE n	Step forward n frames
STEPBACK n	Step back n frames
REWIND	Rewind the show to frame zero
RATE n	Set the framerate to n frames per second
RATESCALE factor	Change the rate of the timeline by a multiple (1.3, 0.75 etc.)
LOADALL "file name"	Load the filename on all servers
MERGEALL "file name"	Merge the filename on all servers
SEQUENCEALL sequencename	Run the sequence on all servers
LAYERFADEALL [layer /name] opacity	Set the transparency of this layer/resource
DISPLAYALL [fullscreen/windowed/minimized]	Set all server's playback windows
GOTOMARKER "marker name" [play]	Move to a named marker on timeline, and optionally start playing from there.
GOTOFRAME framenumber [play]	Move to the framenumber specified and optionally start playing from there
GOTOTIME timecode framerate [play]	Move to a timecode at a specific framerate, optionally play. So "Gototime 0:1:0:15 30.00" will move to 1hour and 15 frames for a framerate of 30 fps, if your timeline is set to 24 fps, the same command will move to 1 hour and 12 frames (12 frames is 50% of 24 fps).
MARKERSEARCH direction=[next / previous] play=[true / false]	Stop, search for the next or previous marker in the timeline, move to that marker and optionally play
CLIPSEARCH clip=[next / previous] [play=true/false] [currentstart=true/false]	Search for the start of the next or previous clip (any visual resource such as movies, images, videocapture), optionally play immediately if currentstart is true, it will find the start frame of the current visual resource. By default, currentstart is false, meaning it will find the start of the clip prior to the visual resource which is currently in scope and also loop round to the first or last resource.

Please note: From 2020 7thSense deprecated the terms master and slave for the dependencies between devices. We now refer throughout to ‘Leader’ and ‘Follower’ in our products.

To maintain functionality, both terminologies continue to work internally, but our documentation no longer uses the former terms. Users of pre-2020 products will need to observe the equivalence and continue to use the previous legacy terms.

Return Codes

When first connected to Delta, External Control returns a statement such as:

```
ApplicationName Deltaserver.exe↵
Welcome to the 7thSense Delta Telnet interface, Help[CR] for commands↵
SERVER: ServerNode1↵
READY↵
```

Where ↵ is the 0x0d 0x0a Carriage Return / Linefeed Pair

Note the **SERVER** name is taken from the PC.

If a command is not recognised by Delta, it will return:

```
BAD↵
```

If a command is identified (no checks are run on parameters), it will return:

```
OK↵
```

Certain commands return more information:

STATUS will return a string such as this:

```
SERVER  : ServerNode1 (Leader)↵
FILE    : stratosphere show1.xml↵
MODE    : Stopped↵
CURRENTFRAME: 2646↵
FRAMERATE: 30.0↵
LICENCE : Permanent↵
MOVIEDRIVES: C E↵
OTHERDRIVE: C↵
GRAPHICS: 1920 X 1080 60 HZ↵
SMPTE : OFF↵
AUDIOLEVEL: 100↵
VIDEOLEVEL: 100↵
↵
OK↵
```

In this return information:

The SERVER is taken from the PC, and will be (Leader) or (Follower)
The FILE is the current loaded filename
The MODE can be Stopped, Preparing to Play or Playing
The CURRENTFRAME is the current frame number
The FRAMERATE is the current framerate
The LICENCE can be Permanent or will show a date for time expired licences
LOAD "file" will return the STATUS information after the load

LISTSHOWS [path] will return a list of XML files in the path specified such as:

```
Show List ↵
```

```
08newsting.xml ↵
08newsting.xml.xml ↵
showcase 2006 novidcap.xml ↵
HD Test 1.xml ↵
tile 2006 hd3.xml ↵
OK ↵
```

LISTMARKERS

```
Marker List ↵
Start: 5 ↵
Images: 420 ↵
Movies: 780 ↵
Audio: 1382 ↵
Video Capture: 1980 ↵
Text: 1680 ↵
Crossfades: 2280 ↵
OK ↵
```

Example Dialog

```
ApplicationName Deltaserver.exe
Welcome to the 7thSense Delta Telnet interface, Help [CR] for commands
SERVER: athlon2600
READY
```

status↵

```
SERVER  : Server1 (Leader)
FILE    : ball bounce.xml
MODE    : Stopped
CURRENTFRAME: 311
FRAMERATE: 25.0
LICENCE : Permanent
MOVIEDRIVES: C C C C
OTHERDRIVE: C
GRAPHICS: 1920 X 1080 60 HZ
SMPTE : OFF
AUDIOLEVEL: 100
VIDEOLEVEL: 100
OK
```

listshows↵

```
Show List
08newsting.xml
test.xml
test2.xml
TILE.xml
OK
```

load " TILE.xml "↵

```
SERVER  : athlon2600 (Leader)
FILE    : TILE.xml
MODE    : Stopped
CURRENTFRAME: 0
```

```
FRAMERATE: 25.0
LICENCE : 30.12.2006
MOVIEDRIVES: C E V W
OTHERDRIVES: C
OK
```

play↵

```
OK
```

status↵

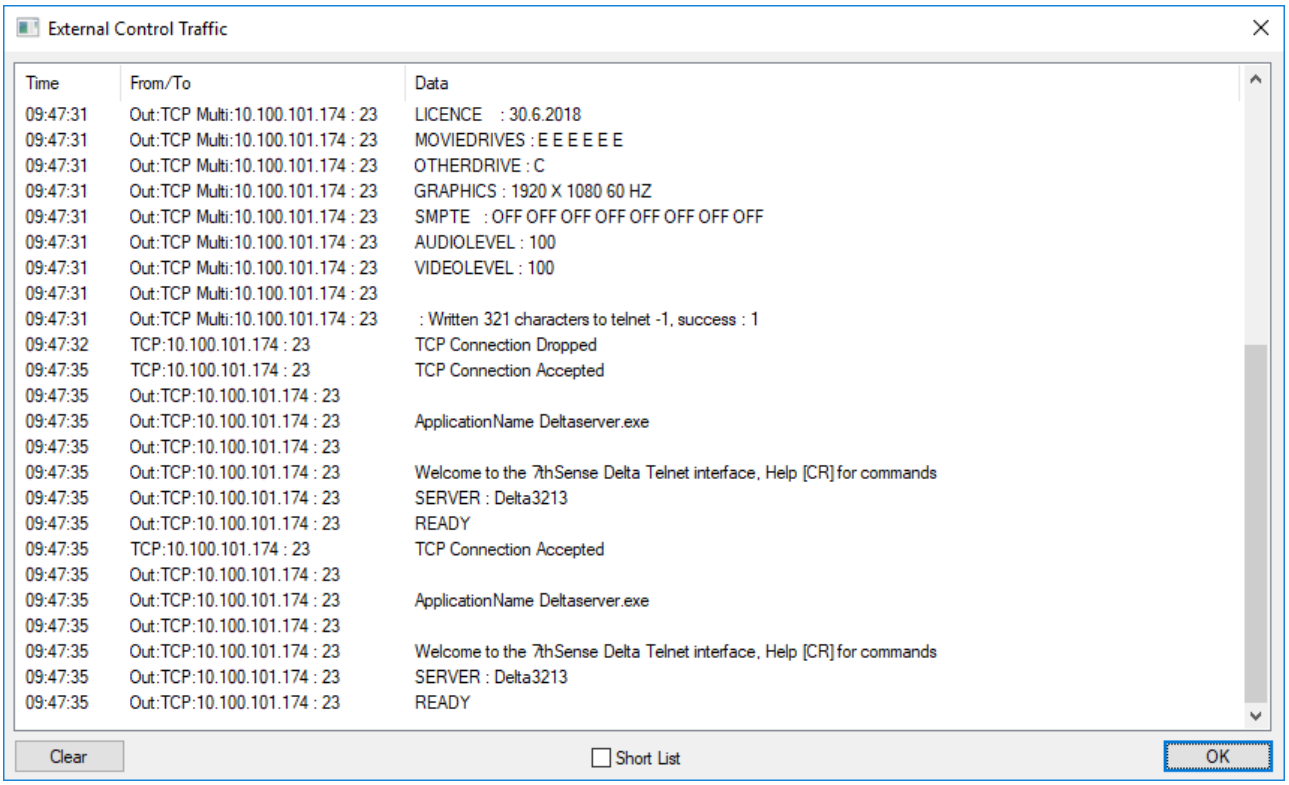
```
SERVER  : athlon2600 (Leader)
FILE    : test.xml
MODE    : Playing
CURRENTFRAME: 22
FRAMERATE: 37.5
LICENCE : 30.12.2006
MOVIEDRIVES: C E V W
OTHERDRIVES: C
OK
```

stop↵

```
OK
```

Troubleshooting External Control

To see what communication is taking place from your control system to the server, on the DeltaServer dialog, see *About > External Control Traffic*:



By default, this dialog shows the last 2000 lines of communication (both input & output), if you enable the Short List checkbox, only the last 200 lines are retained, which speeds up display.

7thUDPAppLauncher

7thUDPAppLauncher

Delta can make use of this small utility to launch or kill apps via UDP commands. It will have been installed already on your server.

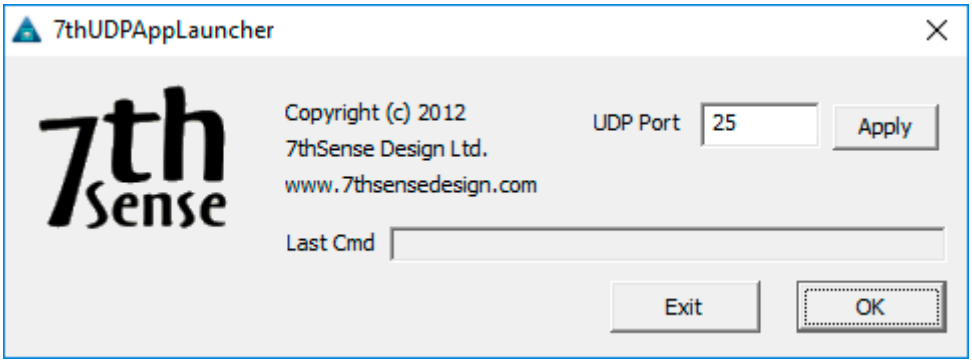
7thUDPAppLauncher is a basic remote UDP application for sending commands to a Delta Server to run or kill applications. It runs completely independently from other 7thSense software. Add it to the server Windows Startup folder if you want it always to run with Delta.

The executable can be found at C:\Program Files\7thSense\Delta\Utilities\7thUDPAppLauncher.exe with Delta build 2.6.3 or newer installations.

It can be used on systems running older DeltaServer builds (or no DeltaServer build for that matter); it just doesn't automatically install with older installation packages. Contact support@7thsense.one if you wish to acquire it for use on an older system.

When you run the application, it appears in the Windows system tray. Double click on its tray icon, and you will see a UDP port assignment. Default port is 25, and you can modify this if it causes any conflicts for other controls on your system or network.

Be sure 7thUDPApplauncher.exe (minimally UDP port 25 incoming) are allowed through the system's firewall.



The **Last Cmd** field shows the last incoming UDP command recognized. This is helpful for troubleshooting.

The commands that can be sent to 7thUDPAppLauncher (as of version 1.3) include:

Launch=path\x0D

Kill=path or taskname\x0D

The trailing \x0D is the required ASCII hexadecimal carriage return character. The actual means of sending this character will vary depending on the application or device you're using to send the

command (for example PacketSender utility would interpret both \0D and \n as the carriage return character).

Example (launch)

To launch a batch script located at C:\Batch Scripts\7thSense ASCII Art.bat, this packet would be sent to UDP port 25 at the IP address of the server:

```
Launch=C:\\Batch Scripts\\7thSense ASCII Art.bat\x0D
```

Notes

- The backslash \ character in the path must be replaced by \\. This is because the backslash itself is a reserved 'escape' command character that makes any following reserved character literal instead of command-meaningful.
- There are no spaces between Launch= and the path, or the command won't work.
- Please note that on older builds of this utility, it was necessary to include a space before the \x0D. This is fixed as of build 1.3.

Example (kill)

If you then want to kill a running task prematurely, you would send a kill command. If you test launch a batch script as in the example above, you may note that the actual title bar of the running batch script reads C:\WINDOWS\system32\cmd.exe rather than the path of the batch script itself. This is because a batch script is not a direct Windows executable, it is opened with a particular application, and that particular default application is Window Command Prompt. So if you wanted to kill this batch script, you would send kill to the path C:\WINDOWS\system32\cmd.exe or simply its running task name cmd.exe Either of these strings would work:

```
Kill=C:\\Windows\\system32\\cmd.exe\x0D
```

```
Kill=cmd.exe\x0D
```

DeltaShowControlInterface

DeltaShowControlInterface

DeltaShowControlInterface is a small utility that provides a control logic for the Advantech ADAM-6060 interface module so that Delta shows can be controlled from simple remote switches. A 'dry' digital input (switch or pulse) to the ADAM-6060 will send a UDP trigger over Ethernet to the IP of the required Delta Server to either perform a simple timeline command or trigger a Delta sequence.

There are two Control Logic Modes [82], one to operate simple load/loop/stop timeline commands, the other to trigger prenamed Delta sequences. Any sequence can be written in Delta under a name that belongs to each input switch.

The Advantech ADAM-6060 illustrated here is a data acquisition and control module with 6 channels of digital input and 6 channels of relay outputs using Modbus TCP over Ethernet. Please refer to the specification of this unit for full details and suitability. Use the Advantech .NET utility supplied with your unit or downloaded from Advantech. Please refer also to the manual supplied with your Advantech ADAM-6060 unit.

- Advantech ADAM-6000 series User Manual (2018)

Required Components

- DeltaShowControlInterface Software v.1.0
- Advantech ADAM-6060 Interface Unit + Ethernet cable
- Adam/Apax .NET Utility

Principle

The **Advantech ADAM-6060** converts digital inputs to output commands over Ethernet.

DeltaShowControlInterface provides a control logic to convert this output to meaningful DeltaServer commands.

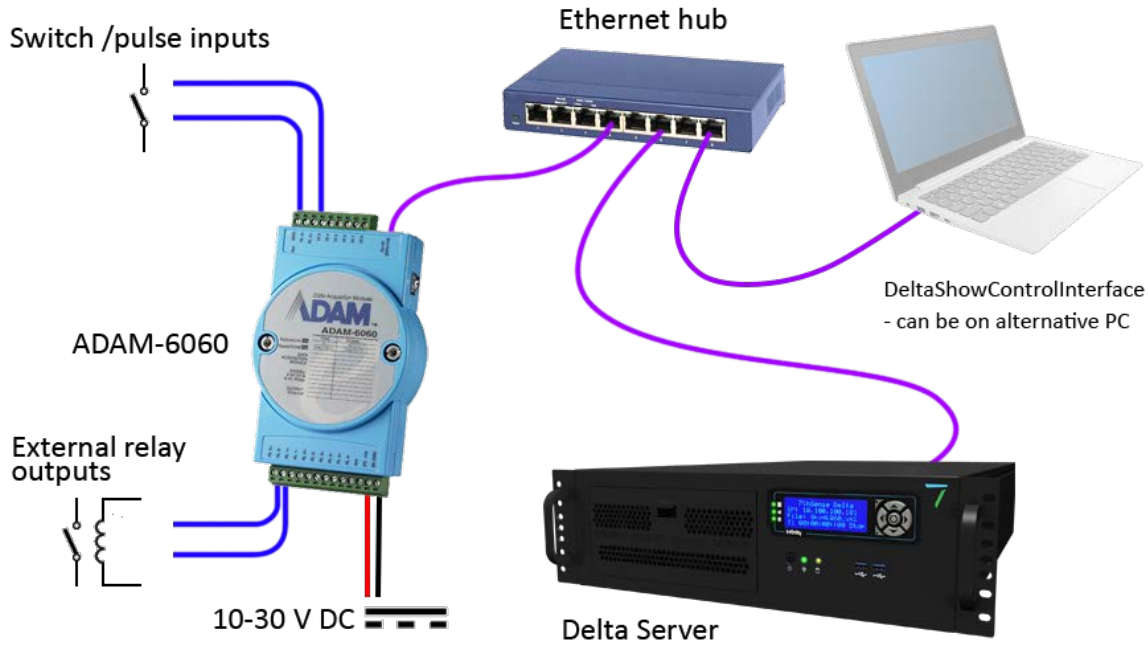
The **Adam/Apax .NET** utility enables communication between the ADAM-6060 and the Delta playback server.

The DeltaShowControlInterface configuration **.xml file** enables communication between the DeltaShowControlInterface utility and the DeltaServer application.

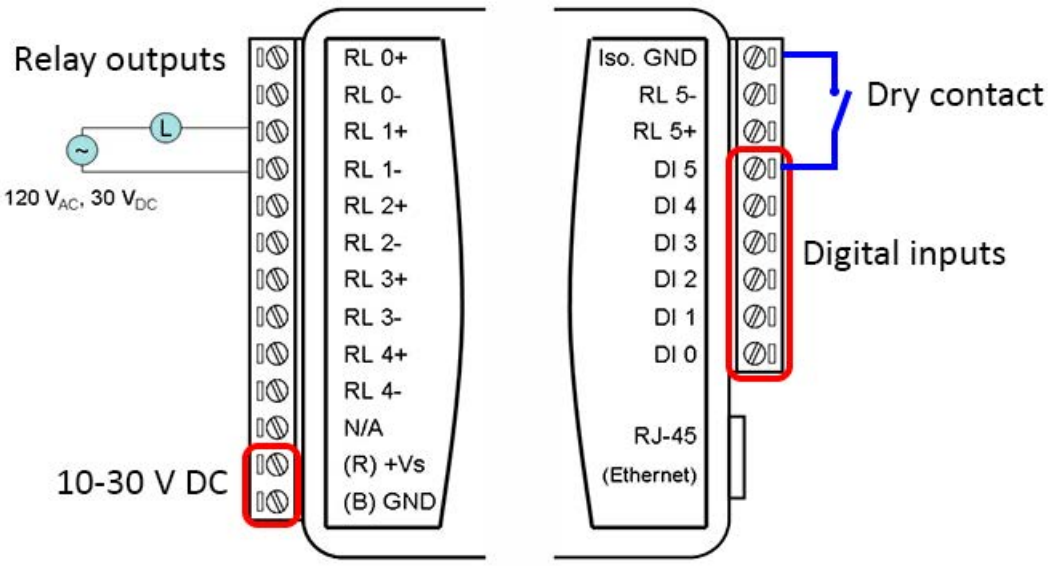
Combination switch operations into the ADAM-6060 are interpreted as playback controls, or instructions to run specifically-named sequences.

Workflow

1. Install **DeltaShowControlInterface** software on the Delta Server or another networked PC where you wish to use it.
2. Connect the Advantech **ADAM-6060** to the server Ethernet network.*



3. Connect and switch on the power supply.
4. Install and run the **Adam/Apax .NET utility** on the Delta server playing the shows to be controlled.
5. Configure the ADAM-6060 comms [75] so that the Delta server and the ADAM-6060 talk to each other.
6. Connect the switches to be used with the **Digital Inputs** on the ADAM-6060:*



7. Configure **DeltaShowControlInterface** so that DeltaServer communicates with it.
8. In **DeltaGUI**, configure the Delta show(s) to communicate with DeltaShowControlInterface, and/or create sequences with the sequential names that are integral to DeltaShowControlInterface. Which of these two modes is used is set in the Control Logic 82 of DeltaShowControlInterface.

* **Note.** The Advantech ADAM-6060 is a very versatile unit being used in a very specific way with the DeltaShowControlInterface utility to provide simple show control switching for Delta servers using the digital inputs.

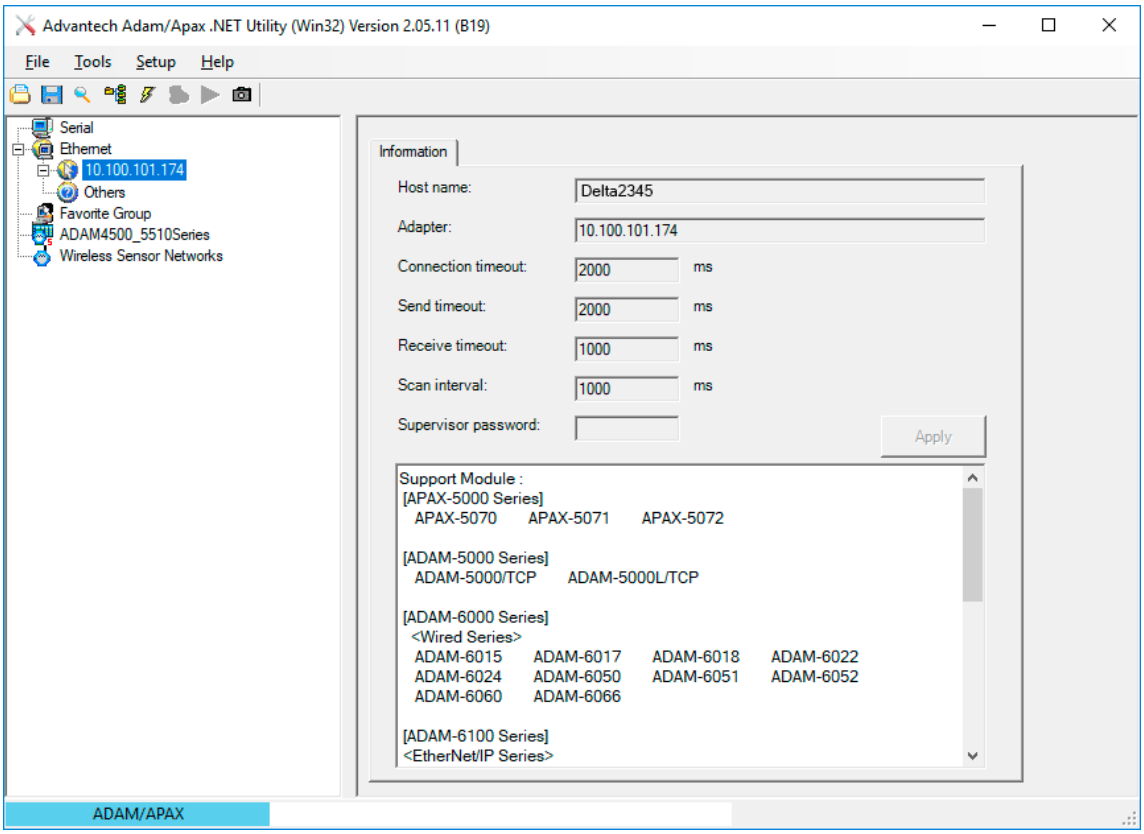
Shown here are connections that include the relay **outputs**. It is also possible to send ASCIIUDP *from* a Delta sequence to operate a relay switch for other equipment. This does not require the DeltaShowControlInterface. See Appendix: Sending ASCII to ADAM-6060 85.

Configure the ADAM-6060 Comms

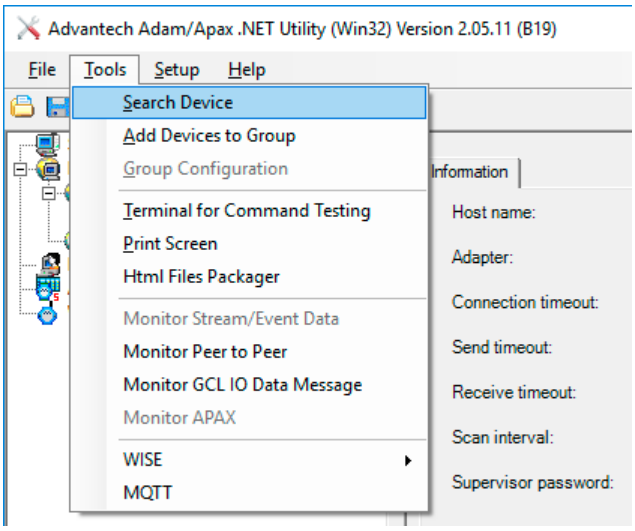
Open the Adam/Apax .NET Utility and configure the communications between the Delta server playing the show and the ADAM-6060 receiving the switch signals.

Note: Some parts of configuration use a password. The default is eight zeros: 00000000.

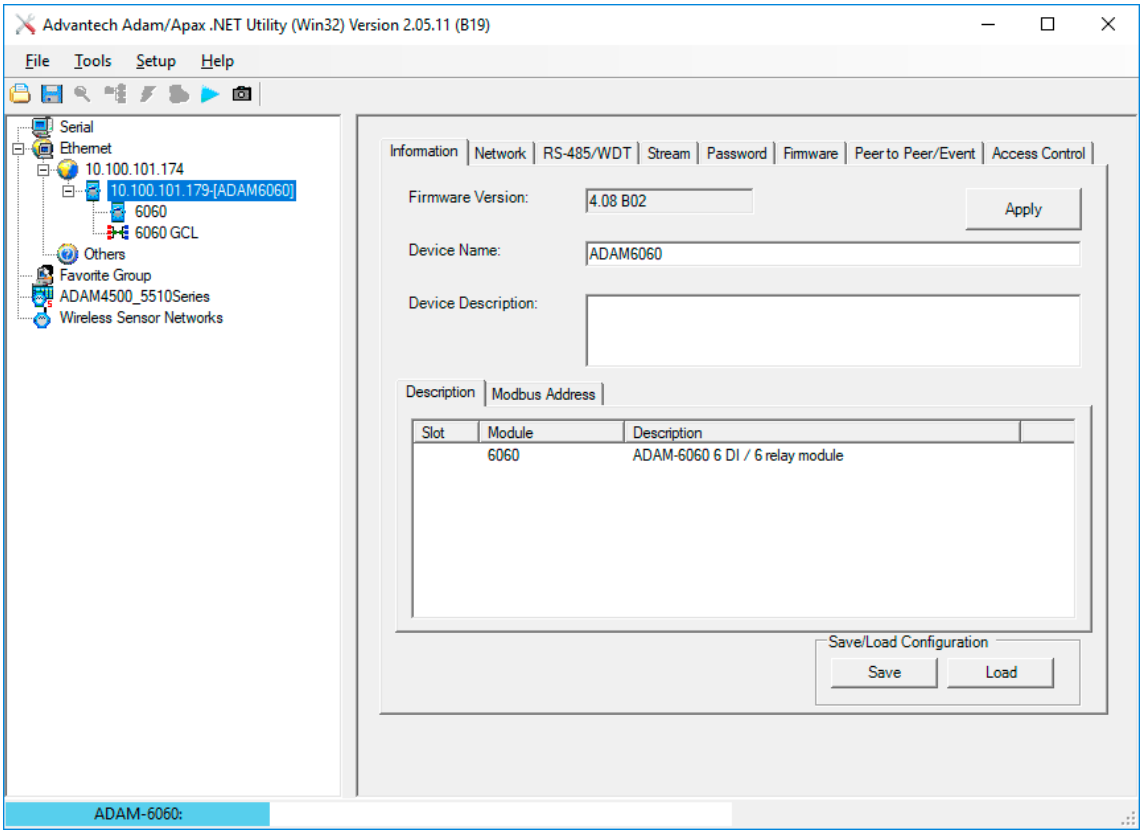
Identify the Delta server NIC (IP) to receive the control from the ADAM-6060 (example: 10.100.101.174) and click on it.



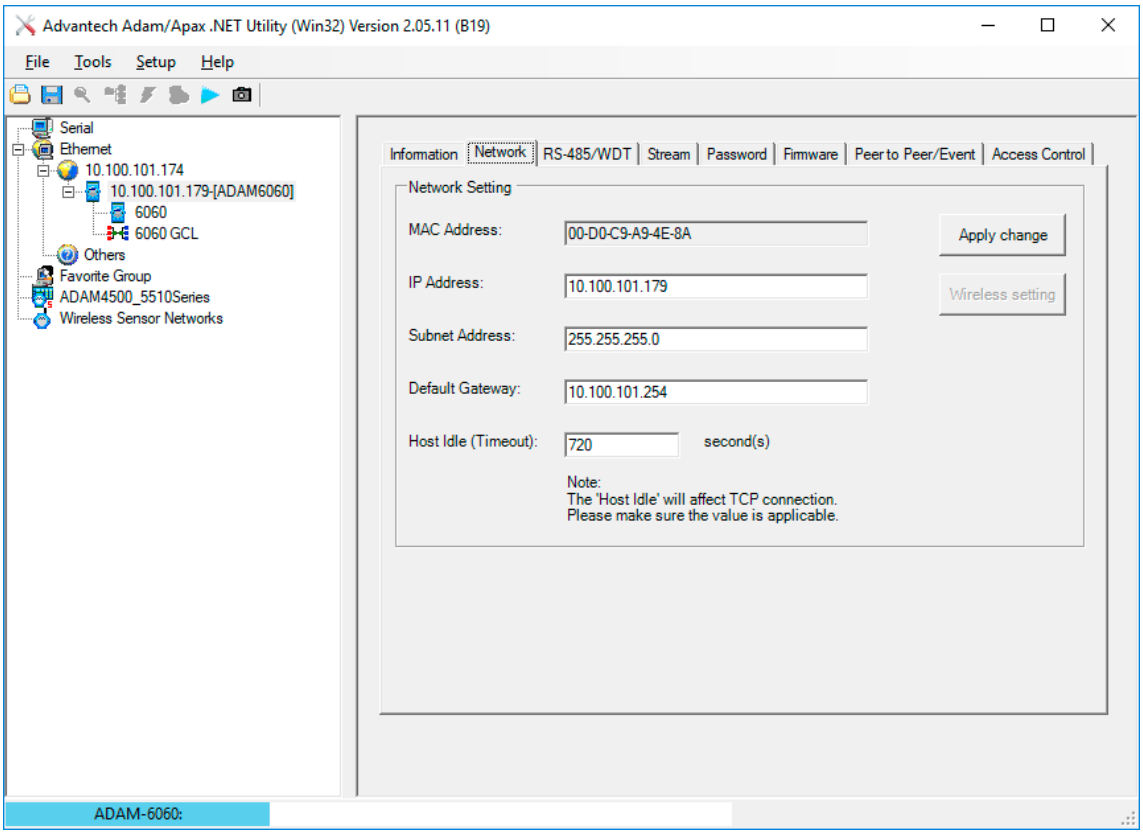
From the top menu, click on *Tools* > *Search* to find the connect ADAM-6060 module:



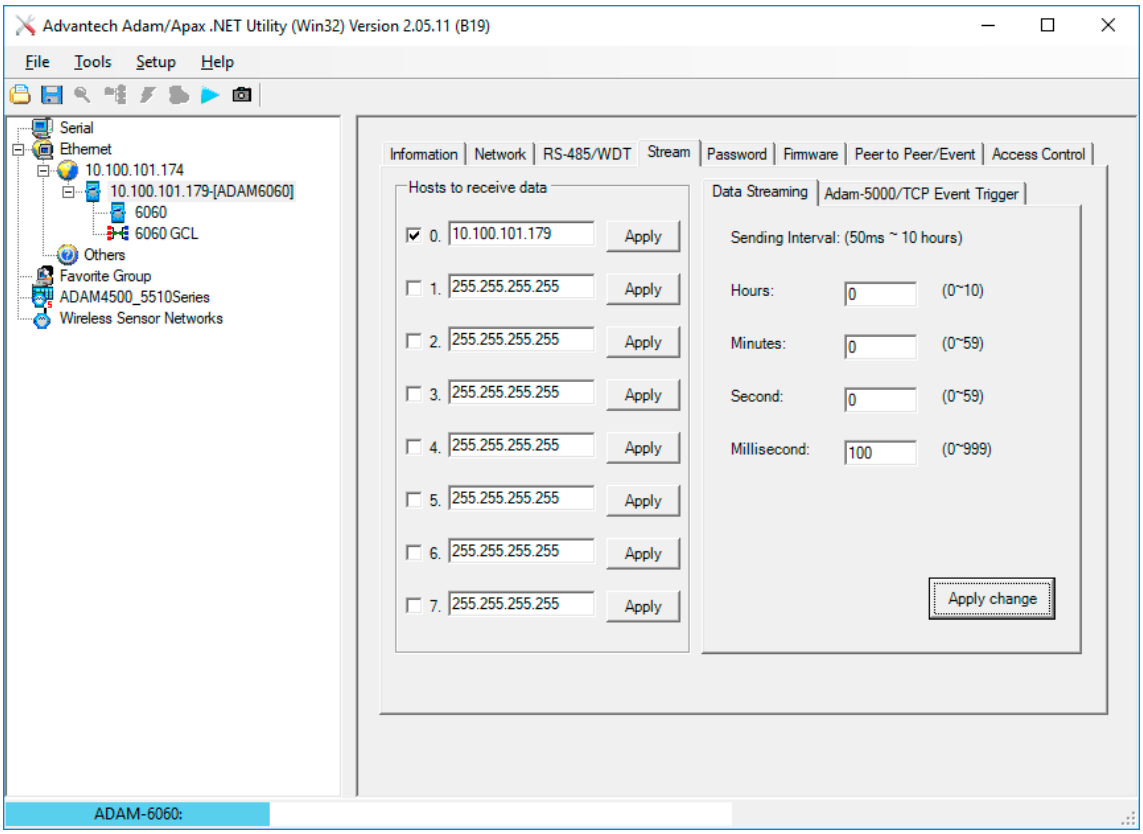
This will find the unit. Click on it to show the configuration tabs:



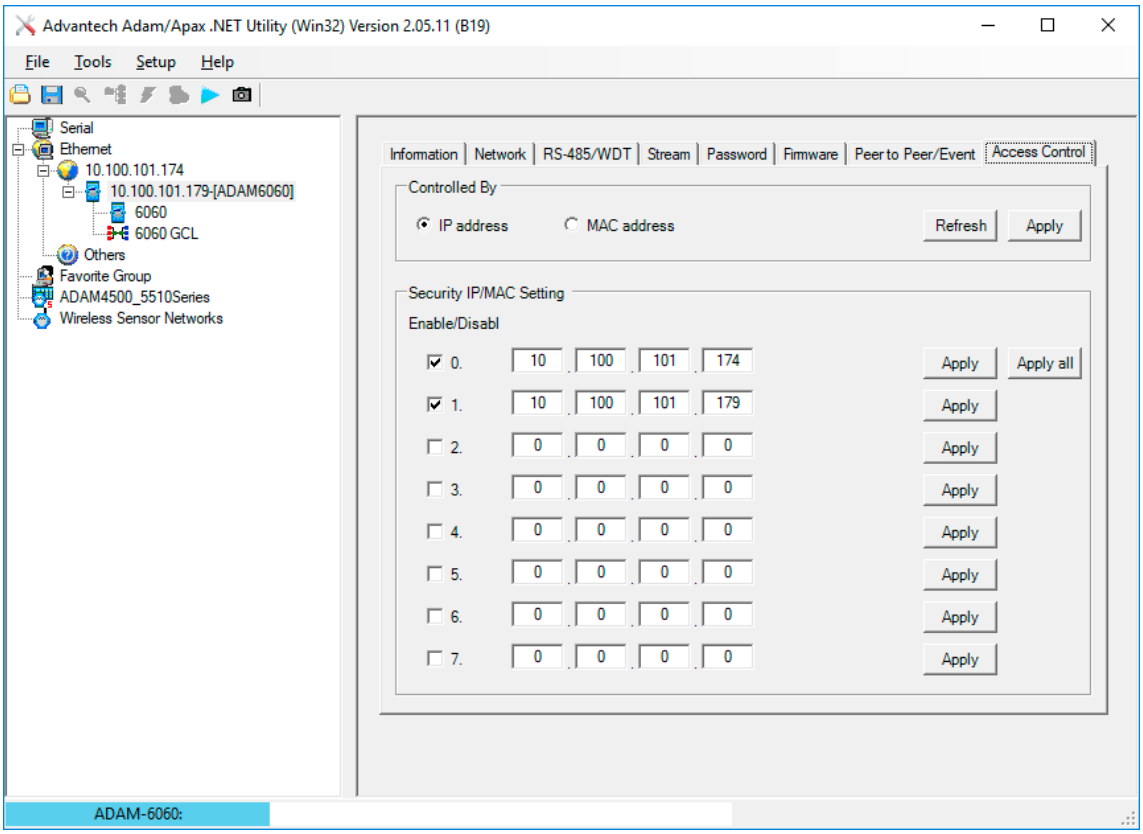
Select the **Network** tab and note or change the ADAM-6060 IP address as required (example: 10.100.101.179). The ADAM-6060 must be on the same subnet range as the Delta server.



Select the **Stream** tab, where the module IP address needs to be a Host to receive data:

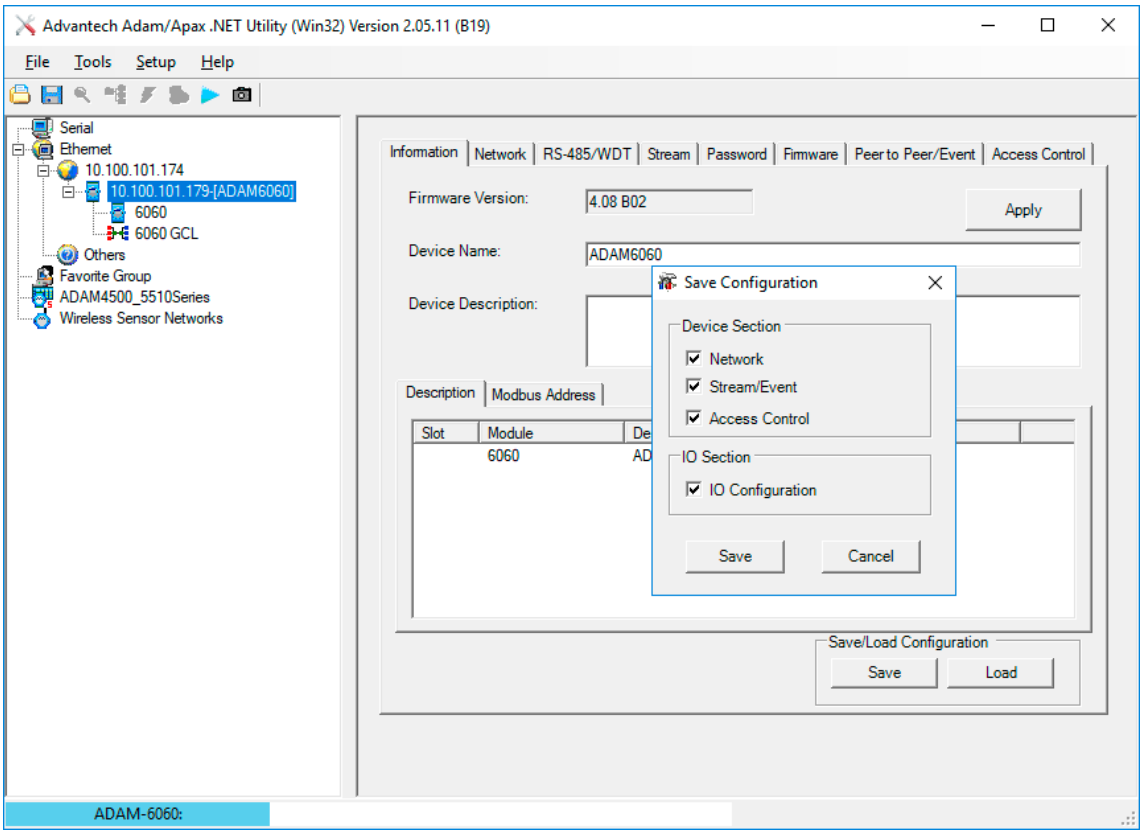


Next go to the **Access Control** tab, where the ADAM-6060 IP address and that of the Delta server it links to, should be listed and enabled:



In the **Password** tab, the default password of 00000000 (eight zeros) can be changed, but for our purposes here, there is no need to do so.

Go to the **Information** tab and Save the configuration:



The ADAM unit is now configured to communicate with the Delta PC.

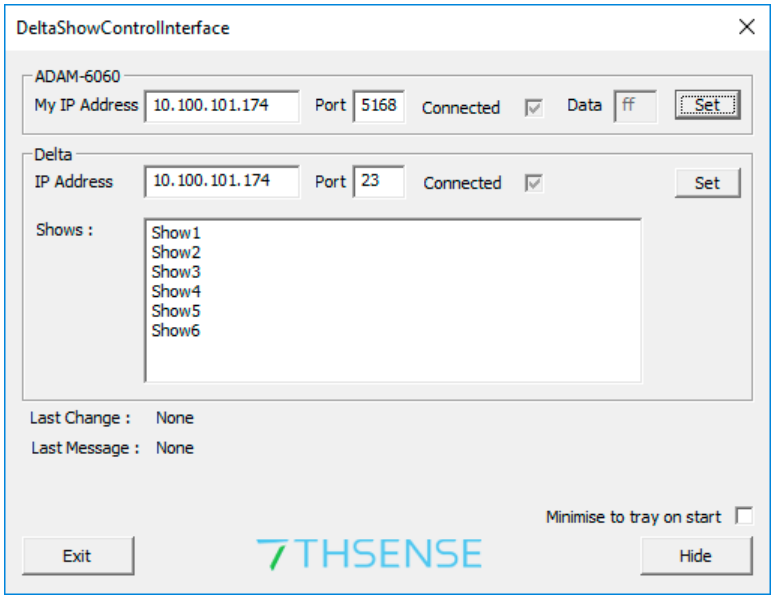
Close the Adam/Apax .NET utility.

Configure DeltaShowControlInterface

Open the **DeltaShowControlInterface** software. This will link its control logic with DeltaServer.

ADAM-6060

- In the 'My IP address' box, type in the IP address of the Delta server (or other PC) on which you are currently using the **DeltaShowControlInterface**.



- Click the 'Set' button on the right. You should now see the checkbox ticked to show you are connected to the Delta port to receive the ADAM-6060 commands.

Delta

- In the Delta 'IP Address' box, type in the IP address of the Delta Server playing the show (this can be the same as above), and press the 'Set' button on the right. If DeltaServer is currently running, you should now see the 'Connected' checkbox ticked.
- Type the file names of your Delta shows into the 'Shows' box. Up to 8 can be added. The names Shows1-6 are used here just for example.
- Press the Set button to save the newly-typed show names.

Press the hide button to minimise it to the system tray.

Control Logic for Direct Control (Mode=0)

DeltaShowControlInterface has a configuration xml file:

C:\7thSense\Software & Drivers\Delta\Utilities\DeltaShowControlInterface.xml

which features a Mode switch. When set to Mode=0, it will use Delta load, loop, and stop timeline commands. When set to Mode=1, it will trigger Delta sequences. For clarity, the connection for the DeltaShowControlInterface server (or PC) is shown in green, the Delta server (playback) in orange, and the mode is in red. The Shows section is populated when **DeltaShowControlInterface** show names are added.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<DELTA_SHOWCONTROL_INTERFACE_CONFIG>
<COMMENT>Copyright(c) 2010 - 7thSense Design Ltd.  :
DeltaShowControlInterface</COMMENT>
<DATE>28.11.2018  17:8:12</DATE>
<VERSION>3516868</VERSION>
<WINDOW>
<MinimiseOnStart>0</MinimiseOnStart>
</WINDOW>
<DIGITAL_INPUT>
<MyIP>10.100.101.174</MyIP>
<AdamPort>5168</AdamPort>
</DIGITAL_INPUT>
<DELTA_ETHERNET>
<IP>10.100.101.174</IP>
<Port>23</Port>
</DELTA_ETHERNET>
<DELTA_SHOWS>
<Shows>Show1
Show2
Show3
Show4
Show5
Show6
Show7
Show8
</Shows>
</DELTA_SHOWS>
<MODE_OF_OPERATION>
<Mode>0</Mode>
</MODE_OF_OPERATION>
</DELTA_SHOWCONTROL_INTERFACE_CONFIG>
```

Mode=0, Direct Show Control

The software control is configured using the logic table (DI = digital inputs) below:

DI 0 (pulsed)	= load show
DI 1 (pulsed)	= stop show
DI 2 (on)	= loop show

DI 3-5 (on)	= show selection

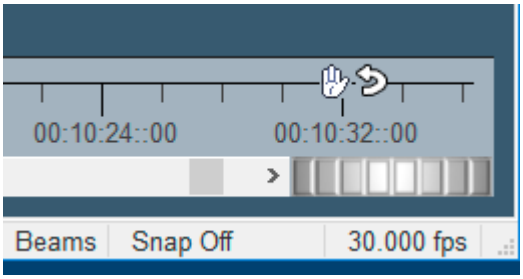
Note: P = Pulsed

Which show (up to 8) is addressed depends on the binary array of DI 3 to DI 5:

Input no.	DI 0	DI 1	DI 2	DI 3	DI 4	DI 5
Stop Show		P				
Loop Show			On			
Load Show 1	P					
Load Show 2	P			On		
Load Show 3	P				On	
Load Show 4	P			On	On	
Load Show 5	P					On
Load Show 6	P			On		On
Load Show 7	P				On	On
Load Show 8	P			On	On	On

Enabling the show to listen to show control

To use this mode requires adding a ‘Stop’ and a ‘Loop’ Control resource to each show that is to be controlled:



Control Logic for Sequences (Mode=1)

Delta sequences can be written and saved to the filenames shown below. The name is addressed and the sequence is run.

The software control is configured using this logic table (DI = digital inputs):

DI 0 (pulsed)	= load sequence “digitalinput_b0_s1” (on) = load sequence “digitalinput_b0_s0” (off)
DI 1 (pulsed)	= load sequence “digitalinput_b1_s1” (on) = load sequence “digitalinput_b1_s0” (off)
DI 2 (pulsed)	= load sequence “digitalinput_b2_s1” (on) = load sequence “digitalinput_b2_s0” (off)
DI 3 (pulsed)	= load sequence “digitalinput_b3_s1” (on) = load sequence “digitalinput_b3_s0” (off)
DI 4 (pulsed)	= load sequence “digitalinput_b4_s1” (on) = load sequence “digitalinput_b4_s0” (off)
DI 5 (pulsed)	= load sequence “digitalinput_b5_s1” (on) = load sequence “digitalinput_b5_s0” (off)

Appendix: Sending ASCII to ADAM-6060

It is also possible to send an ASCII UDP command to an Advantech ADAM-6060 to address a relay output.

This is not part of DeltaShowControlInterface.

A typical string would be:

SENDASCIIUDP [IP_Address] [Port] [ASCII_Command]\x0D

Example:

SENDASCIIUDP 10.100.101.179 1025 **#011001**\x0D

#01 identifies that we are addressing an ADAM-6000 series device.

10 is which of the 6 channels (relay outputs) to address: the first digit should always be 1, the second digit is the channel 0-5 (base 0), so 'channel 4' is 13.

01 is the on/off trigger: 00 = Off; 01 = On

\x0D is the carriage return to send the command

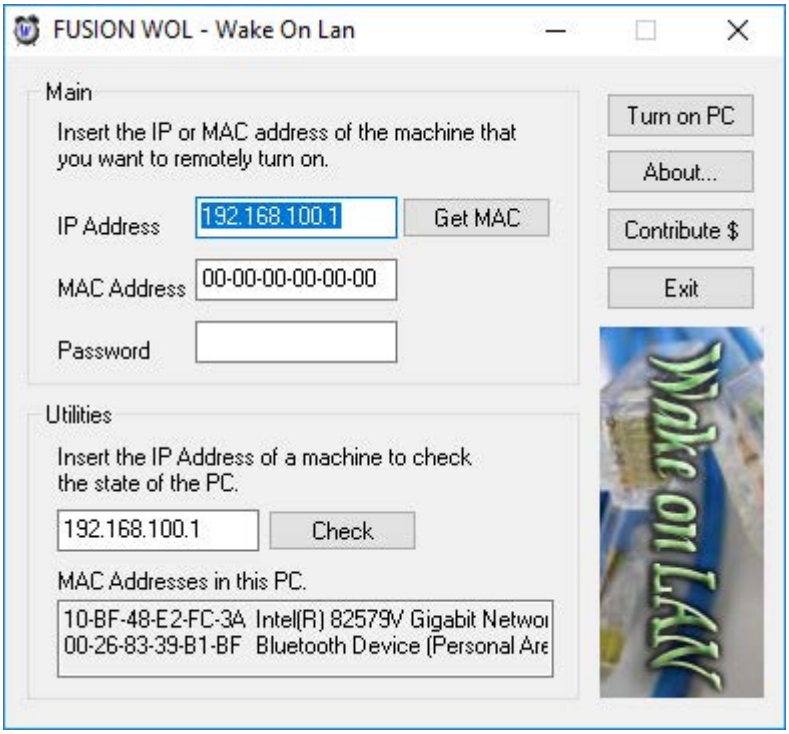
WakeOnLan

WakeOnLan

Delta Media Servers can be woken remotely using the Windows Wake On LAN utility. This is enabled by default on all Delta Media Servers.

You can then sent ‘Magic Packets’ from any WOL software installed on a remote PC. Free apps are available; you can use whichever provides the functionality you need.

7thSense uses Fusion WOL (https://fusion-wol.software.informer.com/) to test Delta Media Servers before they go out. This free utility has the advantage of finding the MAC addresses you need from their IP addresses:

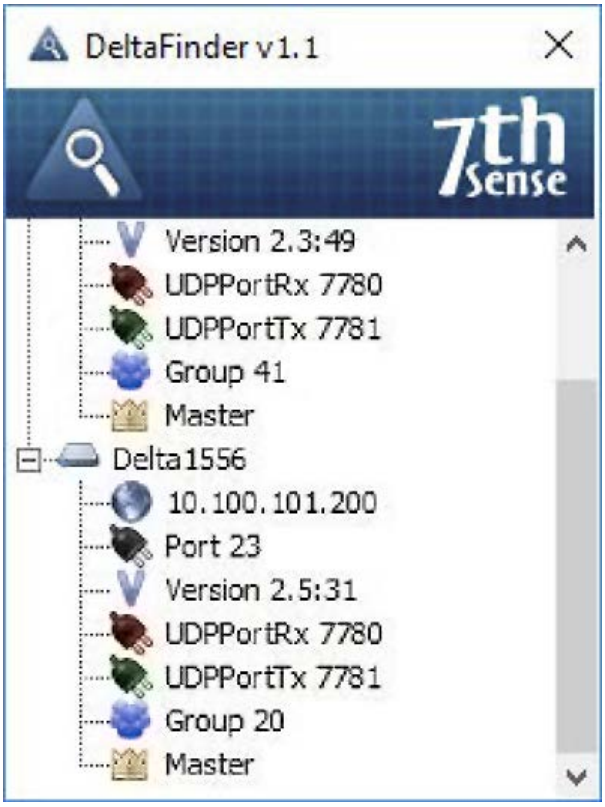


DeltaFinder: Finding Servers

DeltaFinder: Finding Servers

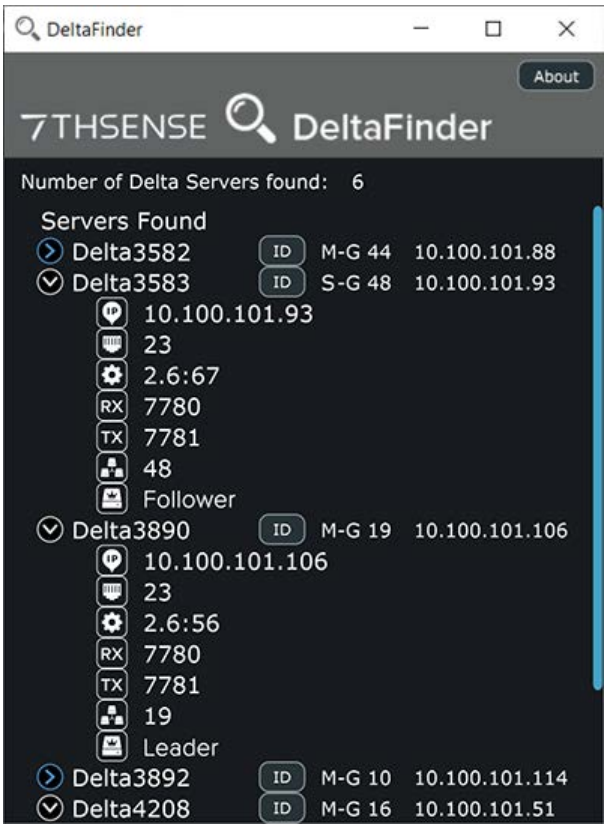
From any network connection, you can identify and obtain a network profile of every Delta Media Server *that is running Delta*. The small DeltaFinder utility should be found in C:\7thSense\Software & Drivers (x64)\Delta\Delta Utilities\DeltaFinder. If you don't have this utility installed, please contact support@7thsense.one.

Simply run the .exe from any network-connected PC, and all Delta Media Servers are located and listed; expand any to show its IP address, ports, Delta software version, group number and Leader/Follower (Master/Slave) status:



DeltaFinder 2.0

From Delta 2.6.67, DeltaFinder 2.0 is installed. It works the same way, but has more features, including physical identification of servers. The details of each server found *that is running Delta* can be expanded, and each icon has a tooltip for IP, UDP Port, Delta version, Receive and Transmit UDP ports, Group and Leader/Follower status. This is summarised in the one-line descriptor to the right of each server name (Leader/Follower-Group and IP address).



Pico Servers

The [ID] button will identify Pico servers (which have no front panel display) by flashing their LED indicators green < > amber for 15 seconds (see Overview of the Front Panel 20). If another [ID] button is pressed, the LED on the first Pico will revert to green and the LED of the new selected Pico will flash.

R-Series and P-Series Servers

The R-Series and P-Series touch-screen front panel home screen displays all devices on the network. All Delta servers are identified, with their Group identifier, IP addresses and Leader/Follower role.

A Separate NIC for Leader/Follower Timing

A Separate NIC for Leader/Follower Timing

Please note: From 2020 7thSense deprecated the terms master and slave for the dependencies between devices. We now refer throughout to 'Leader' and 'Follower' in our products.

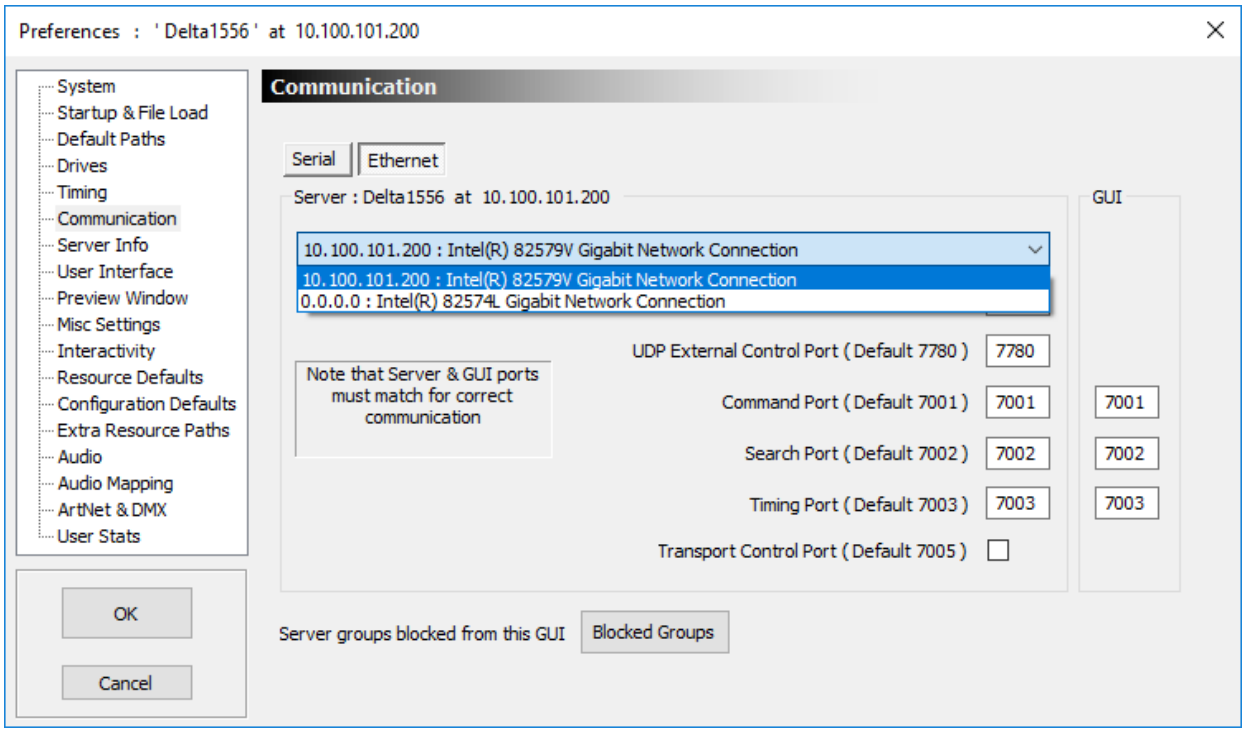
To maintain functionality, both terminologies continue to work internally, but our documentation no longer uses the former terms. Users of pre-2020 products will need to observe the equivalence and continue to use the previous legacy terms.

Delta Group Leader/Follower timing communication packets can introduce a healthy amount of traffic onto the network. If there is only one Follower in the Group, then the Leader/Follower will communicate via unicast traffic, and if more than one Follower is in the group, then there will be broadcast traffic from the Leader.

If these communications cause undue congestion on the control network a separate network interface connector (NIC) can be used for Leader/Follower communications. Delta remains bound to the primary NIC for all other communications. These separate NICs are connected to a separate VLAN, or separate physical network, so that this traffic won't congest the primary control network. Delta Media Servers (except Nano) are provided with 2 × NIC (RJ45) ports, and others can be added.

IMPORTANT: Just like any devices on an IP network, the chosen Timing NICs on each server in the group must be set to the same network IP range so that they can communicate with each other! If each server can't successfully ping each other server's timing NIC's IP address, then you will have servers that don't Leader/Follower properly (on a Follower this would present itself as the playhead appearing to be just stuck at frame 0).

1. In Delta GUI: *Configure* > *Preferences* > *Communications*, Ethernet tab, there is a drop-down list of all available NICs in the system:



Behind the scenes this list is indexed from 0 to n, depending on how many NICs are available, with 0 being the first NIC in the list. The NIC selected in this list is the NIC that DeltaServer generally binds to for all traffic.

Take note of which NIC DeltaServer is bound to, and take note of the index # of which NIC to which you would like to segregate off the Leader/Follower timing.

2. Now close DeltaGUI.exe, and on the remote server close DeltaServer.exe (and DeltaGUI.exe if open there). Ensure that DeltaServer.exe is definitely no longer running in the Windows Task Manager (otherwise the settings we're about to set will revert).
3. Download this zip file, and unzip it: Force the Delta Ethernet Timing NIC.
4. Transfer the batch file 'Force the Delta Ethernet Timing NIC.bat' from the zip file to any folder on the remote server on which you wish to change the Timing NIC setting.
5. On the remote server, right click the batch file and choose 'Run as Administrator'.
6. You will be prompted to enter NIC's index. These notes are then offered:

> Enter the index of the NIC that you would like DeltaServer to use for Group Leader/Follower timing traffic.
>
> Setting this to -1 tells DeltaServer to run Leader/Follower comms on whichever is the primary control NIC that Delta is bound to. This is the factory default setting.
>
> (To return to this factory setting, enter -1.)

The batch file will close when complete.

7. Start DeltaServer.exe

You will need to repeat this process on each server in the Leader/Follower group. Once finished, be sure and confirm that the Leader/Follower communications are behaving. If there are any issues,

step back and confirm that the new timing NICs can indeed all communicate with one another using ping, and rectify any issues found.

Please note: this batch file sets this value for both 32-bit and 64-bit installations of Delta 2 or later.

Delta Web Service

Delta Web Service

Delta Web Service (with its 'Stack'-prefixed application modules) is our web browser-based User Interface, running on Apache web server, that allows full interaction with a network of Delta Media Servers and associated resources. It is installed on all Delta servers along with a series of core modules. Additional 'Stack' modules can be added, including StackSignage (digital signage) and StackCaptioning (closed captioning) solutions, as well as dynamic content such as RSS or Twitter Feeds. StackExpress is a rapid show creation tool for basic dynamic control.

The core modules provide functionality to remotely control the day-to-day operation of a typical Delta Media Server installation in a theme park, visitor attraction, museum or advertising setting. An extensible API and SDK is also available for more advanced use by developers to create more complex interactive projects.

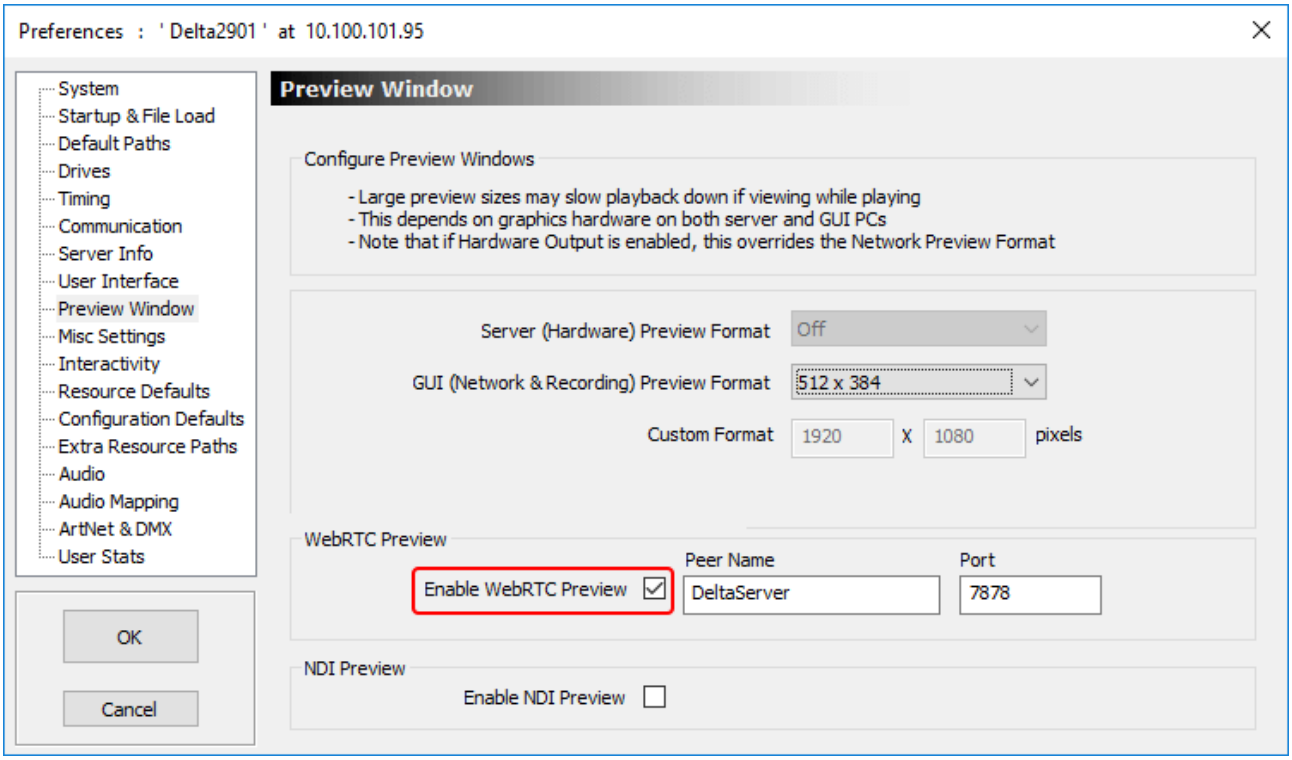
Dynamic content modules enable real-time content to be used within your media shows, whilst the content management modules enable full customisation of your displays.

Introduction

No software other than a web browser is required to access Delta Web Service. Recommended browsers include latest versions of Google Chrome, Mozilla Firefox or Opera. Safari and older versions of Internet Explorer may not work.

WebRTC Connection

Ensure that 'WebRTC Preview' is enabled in DeltaServer by connecting to the target machine with DeltaGUI. Go to *Preferences > Preview* and tick 'WebRTC Enabled'. You may need to restart Delta for this to take effect.



To access **Delta Web Service**, point your web browser to any Delta server IP in your Local Network: it can be accessed from anywhere within the network / subnet. This will resolve to http://[IP]/ws/#/delta/status.

Browser Support

The Delta 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.

Log on

Delta Web Service requires a login. The default username and password are both ‘admin’. It is recommended that you change these and do not allow the browser to save them. To change the password, click on **Admin** in the main menu of any web service page.

To reset a forgotten password navigate to http://[IPAddress]/api/auth/reset which will prompt you to reset to the default user credentials.

Security note

The authentication system is designed as a mechanism to lock-out terminals and control tablets from unauthorised use by a person unfamiliar with the system, such as an attraction guest who may find an unattended console. To ensure the integrity and security of the network and Delta Media Servers, adequate protection methods such as setting wireless keys and VPN authentication/encryption should instead be relied upon to prevent malicious access.

Core Modules

The Delta Media Server web browser interface offers Core and Optional modules.

The core modules include:

- Designer [113] enables you to create a bespoke browser interface for remote show control
- Stack Control [101] enables remote control of any networked Delta server
- Scheduler [117] allows sequences to be scheduled and repeatedly run in accordance with show requirements
- API [118] is a fully-documented HTTP API for interacting with networked servers and other web resources

Settings (Web Service pages)

Under the Web Service pages, *Configure* (top menu) > *Settings* (left menu), you can choose your default page. This could be a redirect to the Stack Overview page (example IP, but include port :8000): http://[**serverIP**]:8000/overview, or to a Designer show control page you have created.

Add-ons (Optional Modules)

From the Web Service pages, you can access any add-on optional modules that you have licensed (StackCaptioning, StackExpress or StackSignage), all of which operate vis the Stack web interface.

In addition there are:

- Stack Overview [150] (optional install) will reveal all servers available on the network, with installation details
- Stack Backup and Restore [157] (optional install) will enable any linked server to be backed up and restored

Status

Navigate to other Delta web services via the IP address of the required server, followed by /ws/.

In the example here, we have used http://**192.168.1.182**/ws/

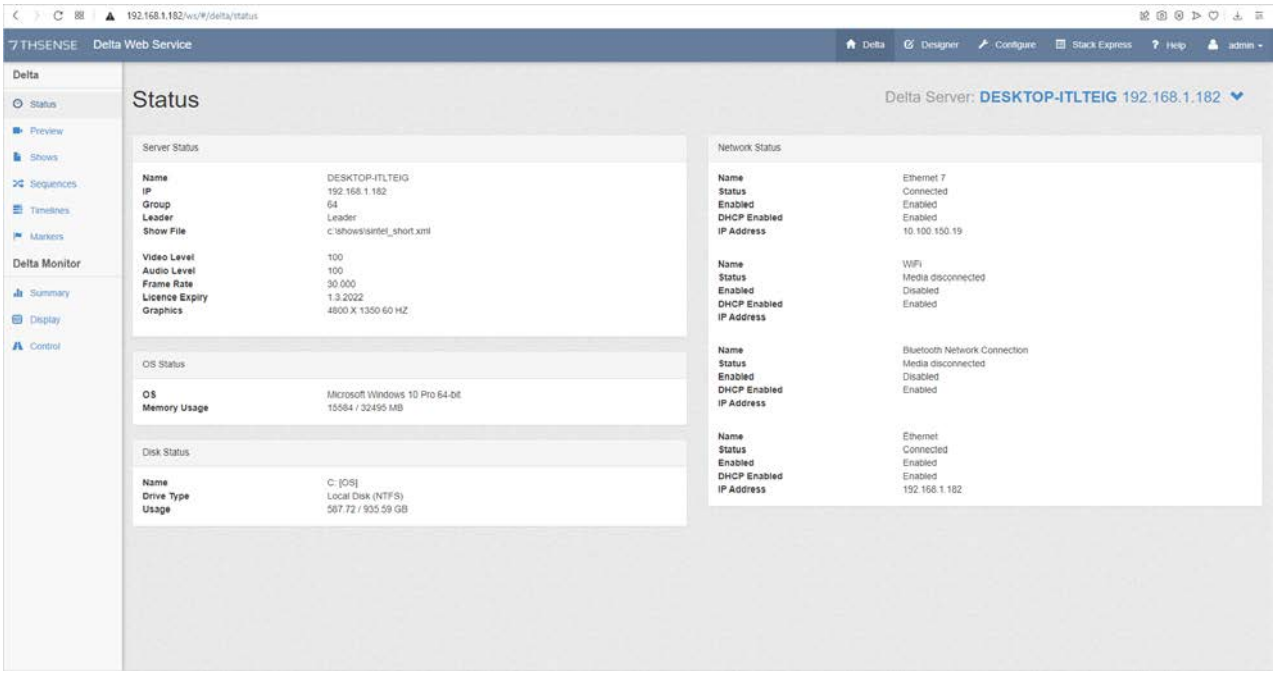
Note: Selecting another networked server does not change the host URL, rather the web service itself routes through to the other server.

The Status page is found under the Delta ‘Home’ button on the top menu bar:

Here you have access to networked Delta Servers, and to DeltaMonitor on each server. The primary objective is review, but some control is available.

Status (Delta Servers)

The **Status** page looks at individual servers, selectable from the server name/IP drop-down top-right.

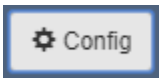


Prior to Delta 2.7, a small Preview window also appears on this page.

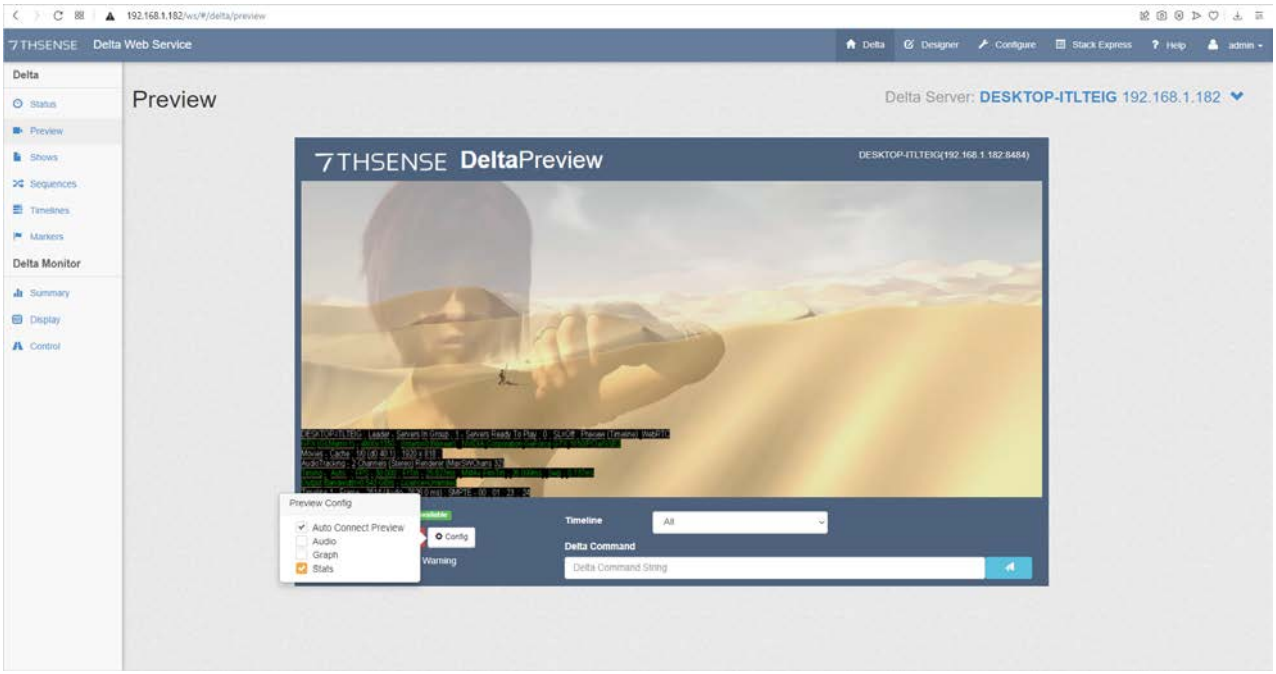
Preview

In DeltaWebService, select **Preview** on the left menu for a show Preview. This is more useful if you want to examine the playback graph or stats, or use the Delta Command line. (These features are fully documented in the Delta User Guide.) This WebRTC feature is enabled in the server’s DeltaGUI Preferences, under Preview.

- The URL of the DeltaWebService /Preview page is http://[server IP]/ws/#/delta/preview.
- From Delta 2.7, the Preview frame itself is the same content as accessed directly from DeltaGUI > Preview. The URL for this is https://[server IP]:8484



Click the Config button to add playback preview options, and click again to close the options dialog. Note that the size of the Stats text is manipulated in the Playback window, not in the browser preview page.



Shows

Select **Shows** from the left menu to see a list of shows available on the currently viewed server. Click the Load Show button for the one you want to play

Loading a show listed as ‘Ready’ will stop any show displayed as ‘Current’ and load the selected one. It will not play unless set to AutoPlay in the show’s timeline. To play a show, send a PLAY command from the **Preview**, or go to **Timelines** on the left menu, and Play, Stop or Rewind any timeline from there.

Sequences

Select **Sequences** from the left menu to see a list of sequences available on the currently viewed server. Click to start sequences running, or to stop all instances of a sequence, if it is already running.

Timelines

Select **Timelines** from the left menu, to Play, Rewind or Stop a particular timeline of the show currently playing on the server via Delta Web Service.

Markers

Select **Markers** from the left menu to see all Markers in the current show playing on the selected server. Go to a Marker (and stop), or start the show from a marker.

DeltaMonitor: Control

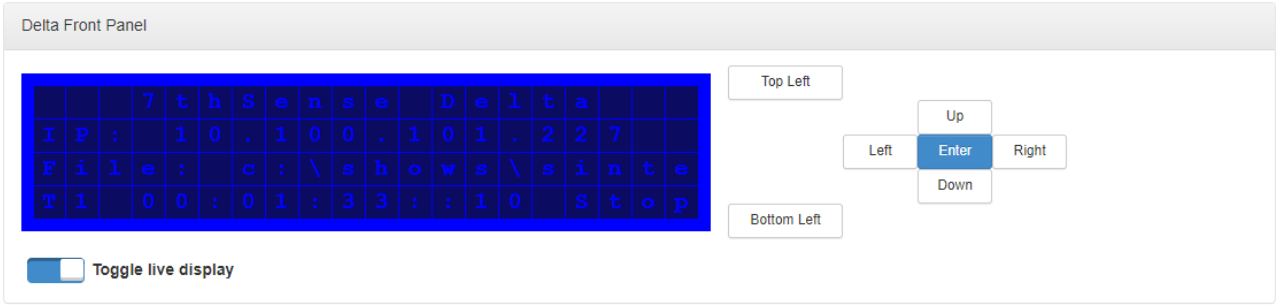
This is a web interface for DeltaMonitor, and can be called directly from DeltaMonitor at: http://[serverIP]:7790/api/deltamonitor/

At this address, the navigation tabs are at the top, rather than the left-side menu.

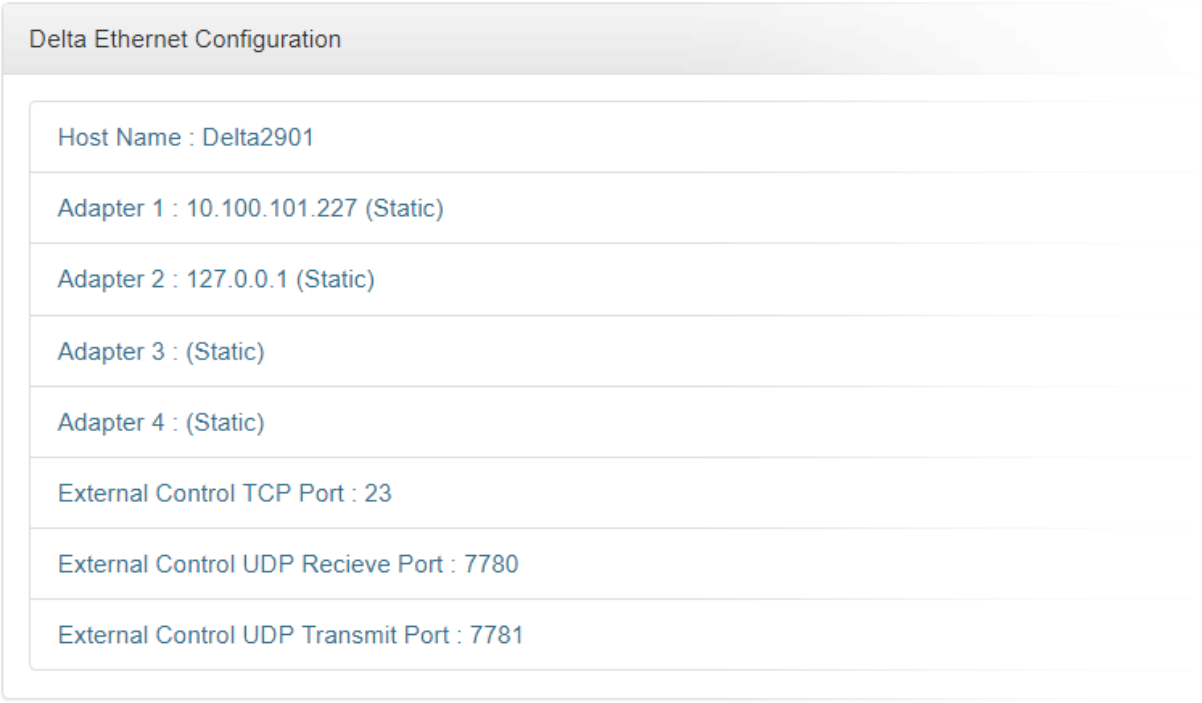
The web interface for DeltaMonitor under Delta Web Service has more status information and functionality. It is designed for users with a varied technical knowledge. The display page should be where users set up first set up their systems, once set up, the display settings should not need to be changed again unless their display set-up changes.

DeltaMonitor Summary

As well as a summary of the selected server and its Ethernet configuration, this page includes an interactive front panel of the server. (Full front panel operation details can be found in the Delta Server Front Panel User Guide.) From version 3.0.34 a toggle has been added for this to be a live display of the front panel rather than updated only on refresh.



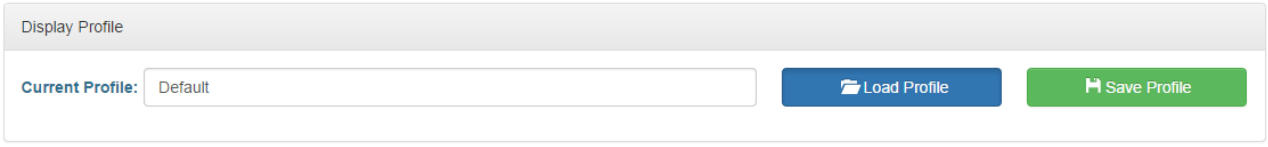
The summary tab includes information about the Server and its current state. Information is also included about the Ethernet configuration, which includes a list of all the adapters on the system and ports for external control.



DeltaMonitor AMD Display

The AMD Display page is only available for AMD systems, and full functionality is also dependant on driver version and server mode. Full functionality requires AMD 13 driver or later, and a Delta Server Trio specification or higher.

All the graphic settings for the server can be configured here, and the settings saved to a Graphics Profile. As well as enabling quick set-up of systems, DeltaMonitor can also be set to set the Graphic configuration to a default Graphics profile either on boot or to poll continuously whilst the server is running.



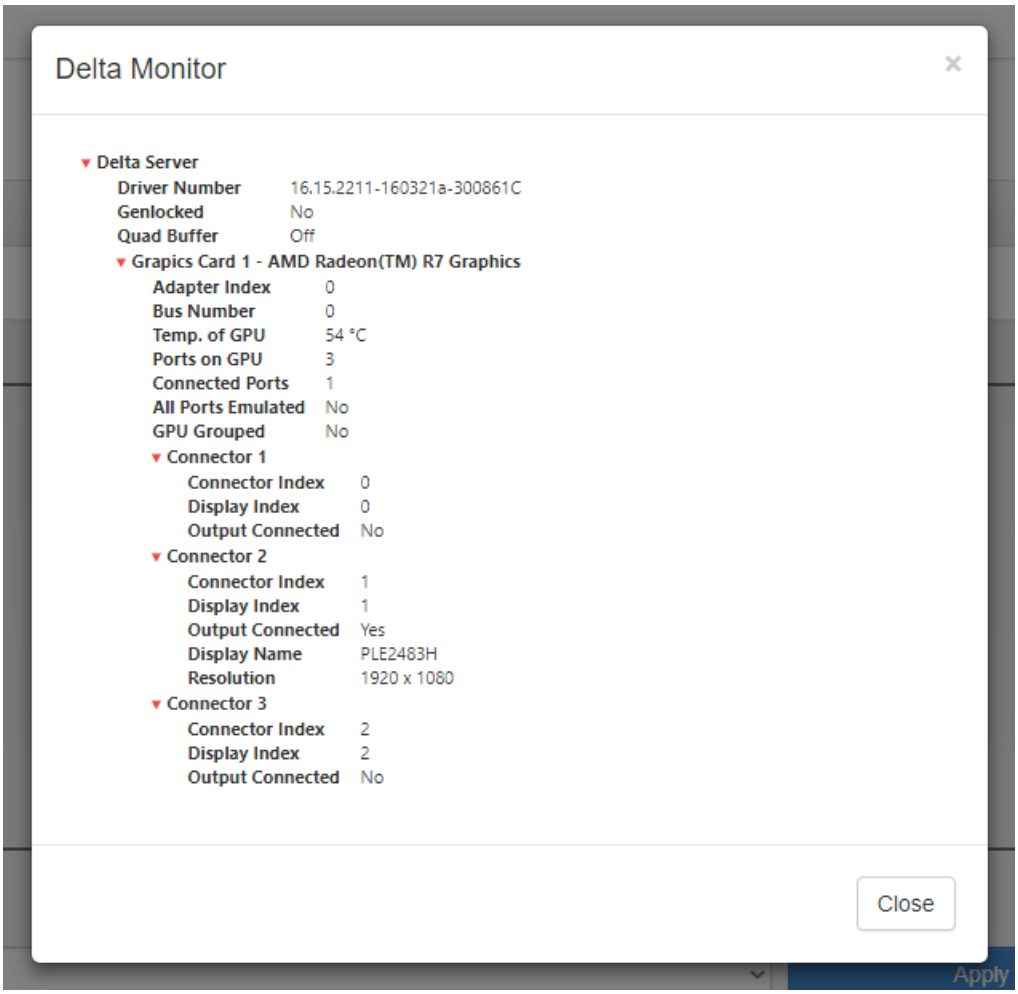
Note: This feature is not available on Delta Nano or Duo.

➢ See also Display Configuration for Delta Servers

Advanced System Details

This page gives access to **Advanced System Details**, including its display connectors, to assist 7thSense Engineers or technical users who have a greater understanding of the system.Click on the

blue button ‘Advanced System Details’, and click on on items with a red arrow to collapse or expand them:



The information is presented in a ‘tree view’ and is broken down by: *System > Graphics Card > Connector (Display)*

The three main sections of the page below the Advanced Details button are in expanding blocks: click the title bars.

> The sequence of these sections is also important when configuring the graphics. If the user is going to emulate the EDIDs for specific outputs of the system, then they must do this before grouping the display, or the grouping will be lost.

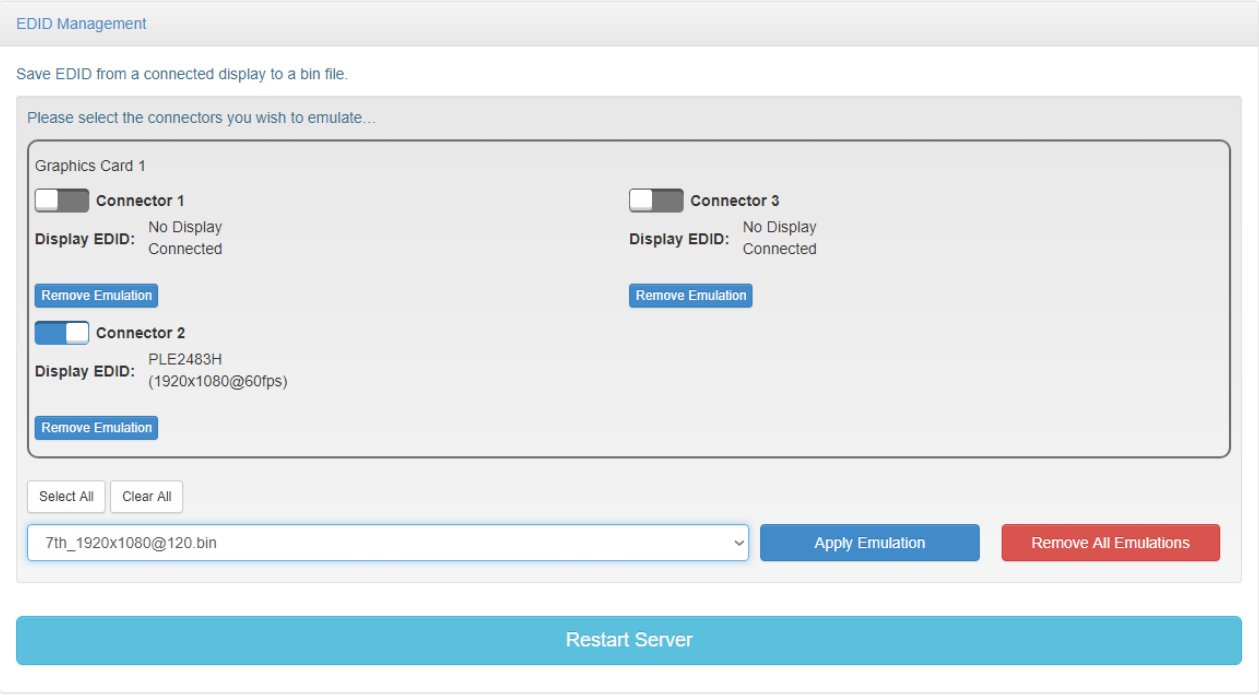
EDID Management

This section gives the user the functionality to add or remove EDID emulation on specific connectors on the system. Additionally, the user is able to save an EDID from a connected display.

A list of connectors per Graphics Card are displayed each with a selectable switch. Each Connector will show information on its Emulation Status, Display name and its current output.

Note on systems running an AMD driver earlier than v13:

- a system reboot is required after emulation
- emulation status is not available.



To emulate displays the user must select the switches (selected is blue) of the displays they wish to emulate. Then select the desired EDID from the dropdown list and then click ‘Apply Emulation’.

Emulation can be removed completely by selecting the ‘Remove All Emulations’.

The EDID file library is found on the server at:

C:\Program Files\7thSense\Delta\Utilities\EDID Files

If the user wishes to add additional EDID files they can be copied into this location and will automatically be picked up by DeltaMonitor and put into the list of files.

Note: EDID files must all be in ‘.bin’ format.

AMD Display Grouping

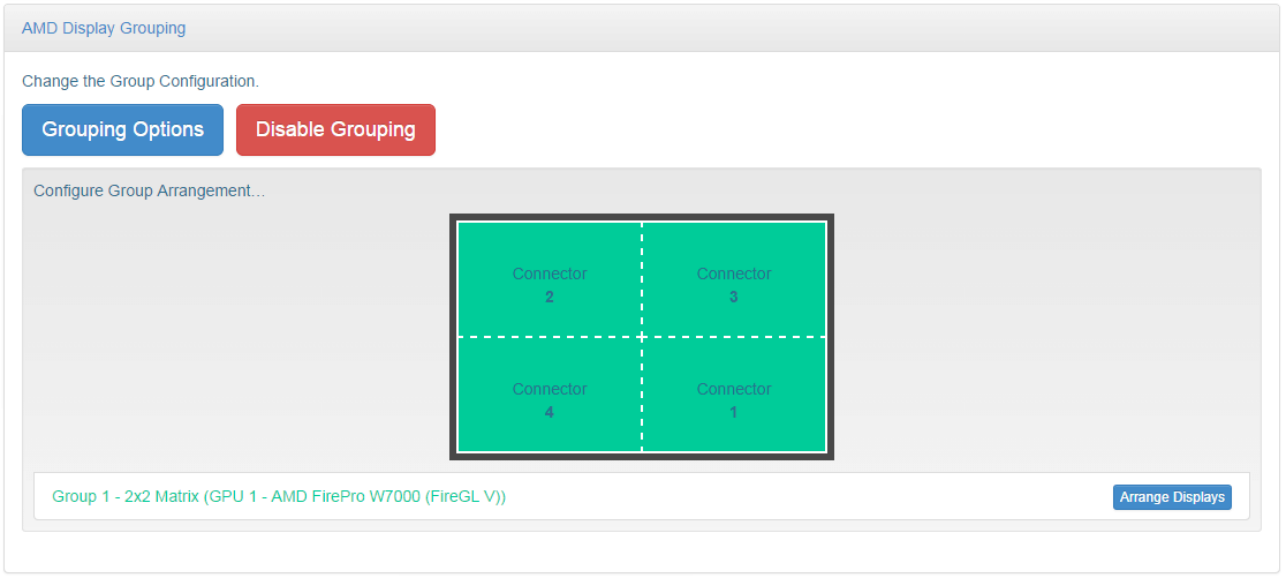
What is a Display Group?

The concept of a display group is that once created, the desktop will be one large canvas rather than multiple canvases linked together (referred to as an extended desktop). On a grouped display, maximizing a window will spread that window across all displays, whereas on an extended desktop, maximizing a window will maximize to the size of the display it's currently on.

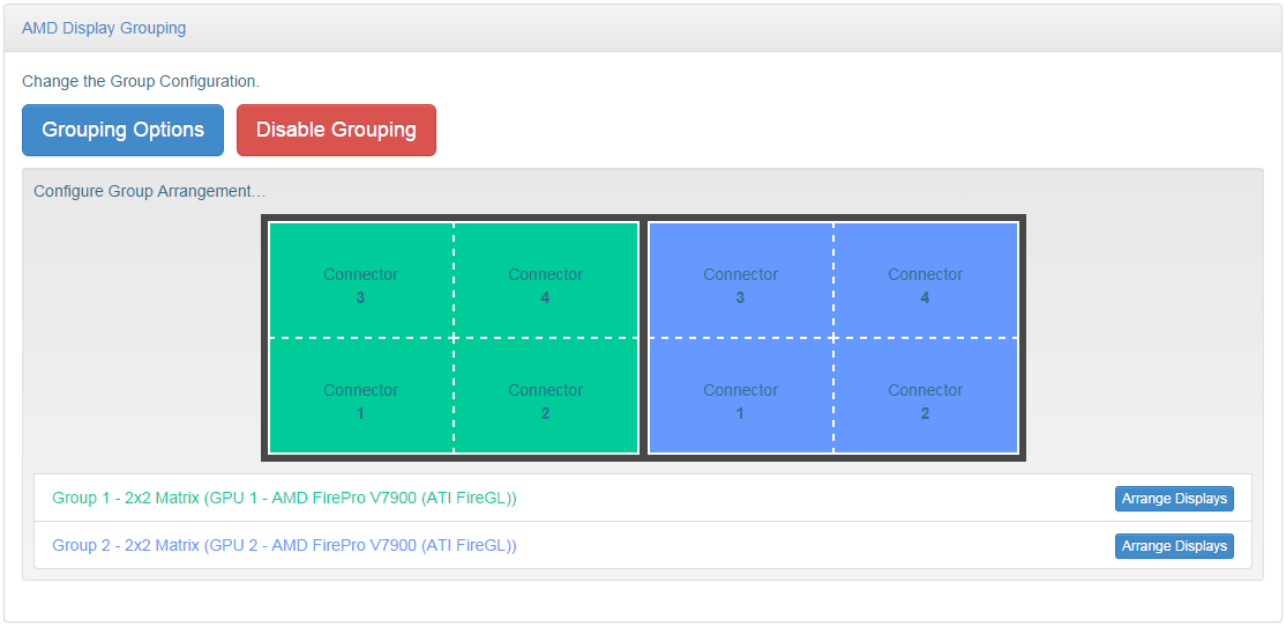
Groups are created on a graphics card basis, so displays can only be grouped with other displays from the same graphics card. To create a group there must be 2 or more displays either connected or emulated on the graphics card. When grouping, all displays must be the same resolution. If they are not, all the displays will default to the lowest resolution display in the group.

Selecting 'Grouping Options' will display a popup with a list of the possible options for each Graphics card, based on how many displays are connected or emulated on the card.

Once grouped, a graphical representation of the displays is drawn. Each group is shown in a unique colour and dashed lines are used to show how the multiple displays make up the larger canvas. Each display within the canvas also shows which connector is driving the segment of the display. (See *Advanced System Details* and *EDID Management*, above.)

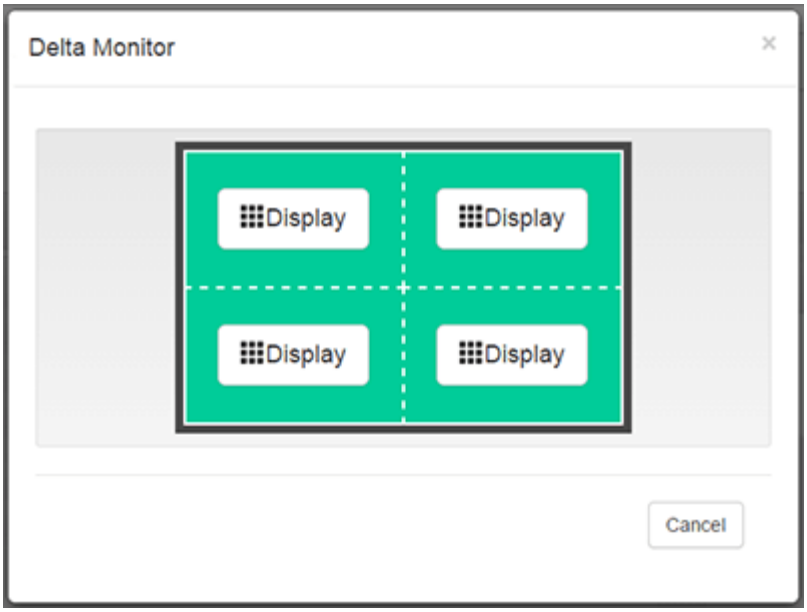


Display Grouping (Single GPU)



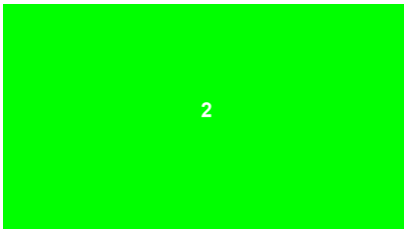
Display Grouping (Multi GPU)

Once the displays have been grouped, the user may have to re-arrange the displays to the physical layout of the outputs. To do this the user must select the 'Arrange Display' button adjacent to the group they wish to arrange. The dialog window will show the layout of the graphics card selected for arrangement:



Arrangement dialog

At the same time, a numbered green graphic overlay will appear over one of the group's displays:



Select the ‘Display’ button which corresponds to the physical position of the overlay. As a position is selected the overlay will move to the next position.

Note: The final display position is calculated automatically, so the user will only need to select the position of the number of displays in the group minus one.

Genlock and Quad Buffer

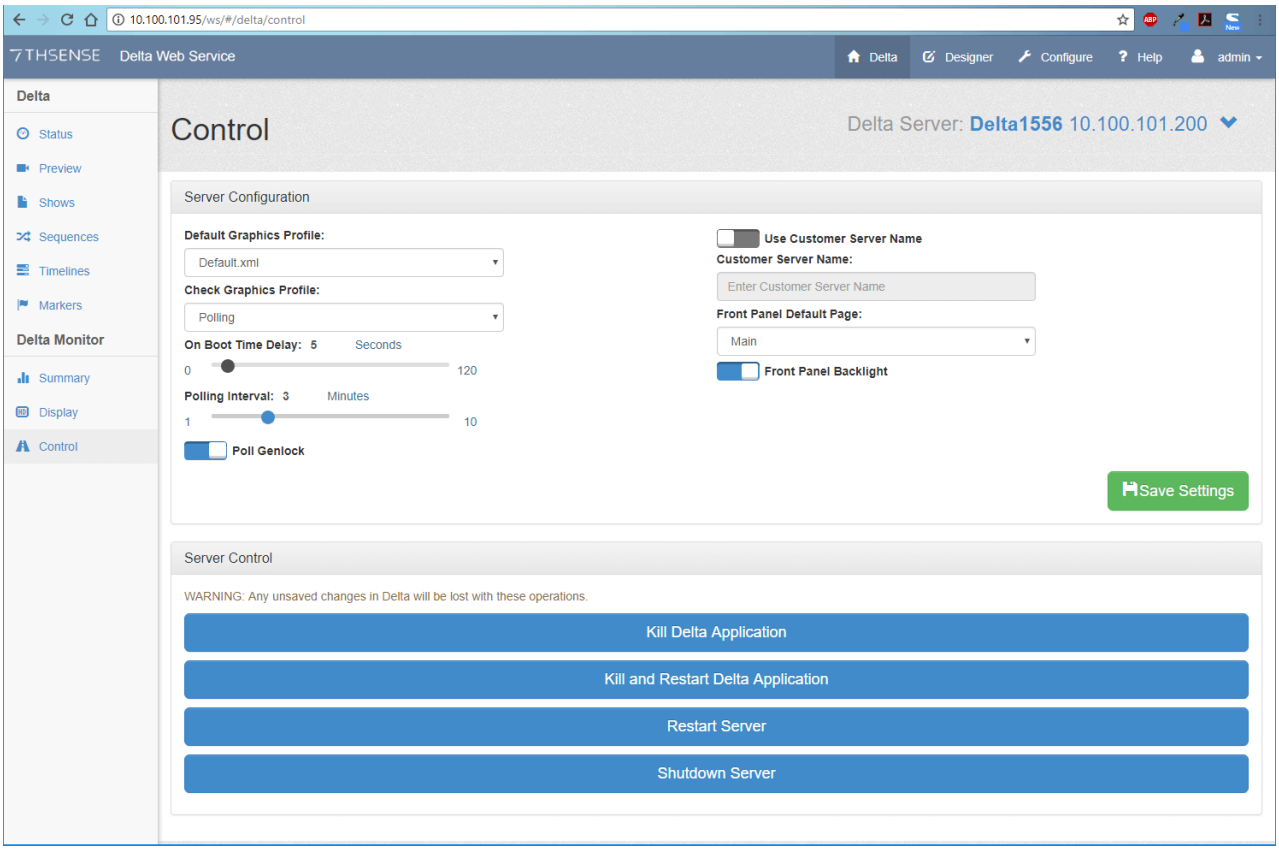
Where relevant to the server, Genlock settings are shown, and Quad Buffer (for stereo 3D), can be turned on or off. To apply Genlock, the system must be first Genlock capable, and also have a Genlock signal present. The button to apply the setting will only appear if these criteria are met.

Note: Quad Buffer changes require a server reboot to take effect.

DeltaMonitor Server Control

Further control of a remote server is given here, enabling DeltaServer to be closed or restarted, the server itself to be restarted or shut down, or (for Windows embedded systems) to place the server in Service Mode. (For full details regarding server control, see the *DeltaMonitor User Guide*.)

Genlock polling can be enabled where an AMD S400 sync card is detected.



Server Configuration

Default Graphic Profile

User can select a default profile to check the graphic settings against, either on boot or to check at regular intervals (Polling).

Check Graphics Profile

The user can select when DeltaMonitor will check the current configuration against the default profile. This has 3 states: **Off, On Boot** and **Polling.** A time delay can be specified for **On Boot** and an interval must be specified for **Polling.**

Poll Genlock

Enables polling to be switched on remotely, so that any target server with an AMD sync card searches for a sync signal, according to the graphics profile above.

Customer Server Name

A customer Server name can be entered for the server by selecting the ‘Use Customer Server Name’ switch and entering a name into the text box. When selected this name will appear at the top of the main front panel page, and replace the server’s ‘Computer Name’. This is useful for users with multiple Delta servers to help identify the servers from their physical front panels.

Front Panel Default Page

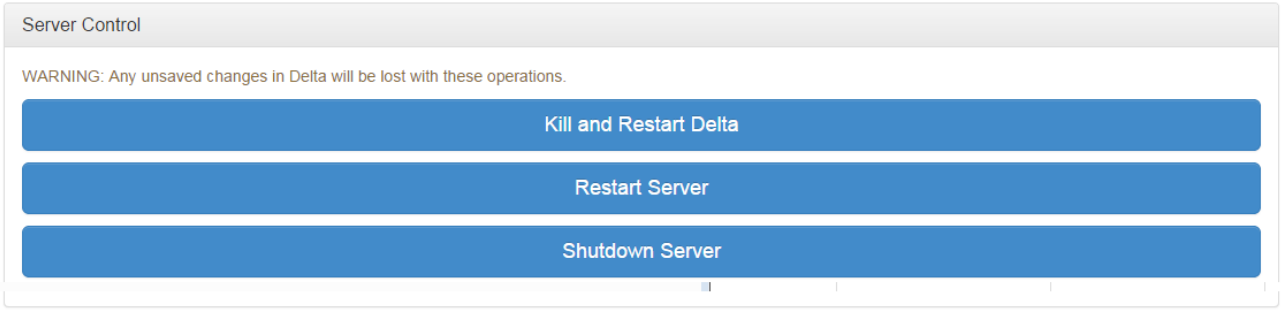
This sets the default page the front panel will go to when not in use.

Front Panel Backlight
This allows the user set the front panel backlight to off when not in use.

Once any changes to the server configuration have been made the ‘Save Settings’ button will become active, to commit those changes simply click the button.

Server Control

The server controls provide the user with the ability to carry out functionality without being logged onto the server or being able to access the physical hardware.



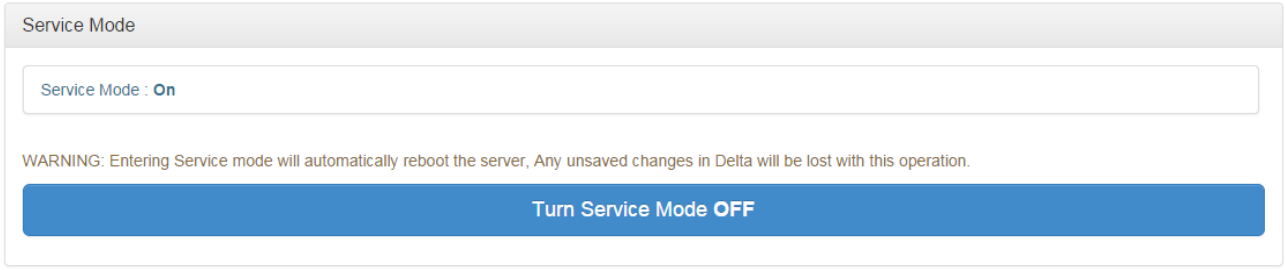
Kill and Restart Delta
will kill and restart the Delta software application on the server.

Restart Server
restarts the server hardware.

Shutdown Server
turns off the server hardware, once hardware is off access to DeltaMonitor Web will be lost.

Service Mode

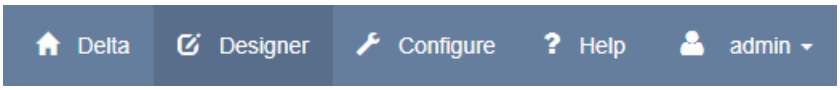
Embedded servers (Nano and Duo) need to be put into service mode when making system level configuration changes. This enables the user to turn it On/Off, when a change to the mode is invoked the server will automatically reboot.



Designer

Designer is used to create a custom interface for external control of shows, for example, from a tablet, PC or laptop. It offers a variety of drag-and-drop widgets, effects and simple text-based coding to allow you to create a bespoke user interface for remote show control from touch-screen devices.

Log in to Delta Web Service on the host server IP, and choose Designer from the main landing page, or if in other web service pages, from the top menu:



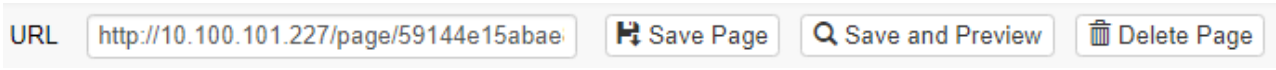
First of all you will create and name a new page, define its width and height, before adding active components. Everything works by drag-and-drop onto the canvas, delete by dragging off, and everything has a simple properties panel.

Any images you want to use must be stored in the required server, in C:\7thsense\Web\User\Images. If you have no images at the time, placeholders can be used, and images added and applied later. For a background, drag an image onto the show canvas, stretch it to fill the area, and send it backwards behind any other elements.

If you want a more professional finish, you can design the complete interface as an image, then layer active area buttons, or design the background and shinier buttons and use these rather than flat colours.

Add text to your canvas spaces or button groups with labels. Drag, or size and position these by entering dimensions, choose type size and colour (in hex code – http://htmlcolorcodes.com/ is one useful quick source).

Remember to save, or save and preview your control pages before leaving them:



The URL is not one that you can reassign, but is the id for the container file. You will notice that on preview, the displayed page URL (for this example) is http://10.100.101.227/designer/live.php?id=59144e15abae8. (In some browser preferences, the last ?variable may not show until the address bar is clicked in.) This can be made the browser's default page, or bookmark it. Alternatively, select your control page name from *Web Services > Configure > Settings*, where you pages names will now be displayed.

Where is my Designer Page?

The URL is where all the page design will be saved (\\[serverIP]\7thSense Data\7thSense (C) \web\user\pages). The page is described in a .json file, but will point to other design elements such as images via relative links, on this server in their usual locations (they are not copied).

It is therefore possible to move or copy a Designer Show Control Page to another server, taking care to copy images locally, and edit server locations as necessary.

Designer Widgets

Widgets are the elements that can be added to the Designer canvas to create an interactive page. If you are designing for a touch-screen tablet, make sure buttons are big enough and text clear enough.

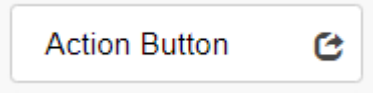
Button widgets offer these actions for a selected server, have default colours, and click-effects:

- Command to Play/Stop/Rewind (select)
- Load Show / Start Sequence / GoTo Marker / GoTo Frame / External Control (select)

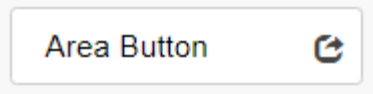
Sequences, global variables, and markers are inserted into a show in DeltaGUI. Any play feature in a show then becomes available in Designer.

Show all markers in the current show as equally-sized blue buttons, or using an image (or on-click image-pair, as Image Button) for all markers. Properties apply to all markers in the show.

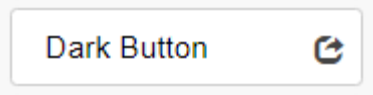
The space you allocate to the Dynamic Markers object (under Position) will arrange buttons in rows, across, and the button size (under Visual) can be set to accommodate marker names. Too small an area will not hide any markers, but allow enough canvas space for the maximum number of markers in a show. Choose to show marker names (in white text), and whether to GoTo and Play.



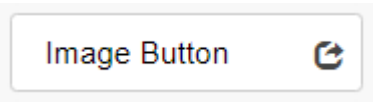
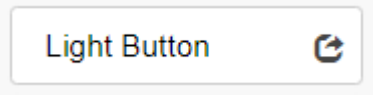
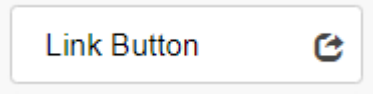
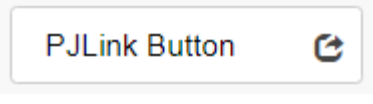
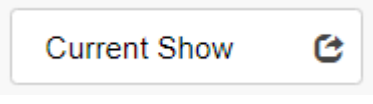
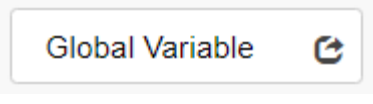
A blue button



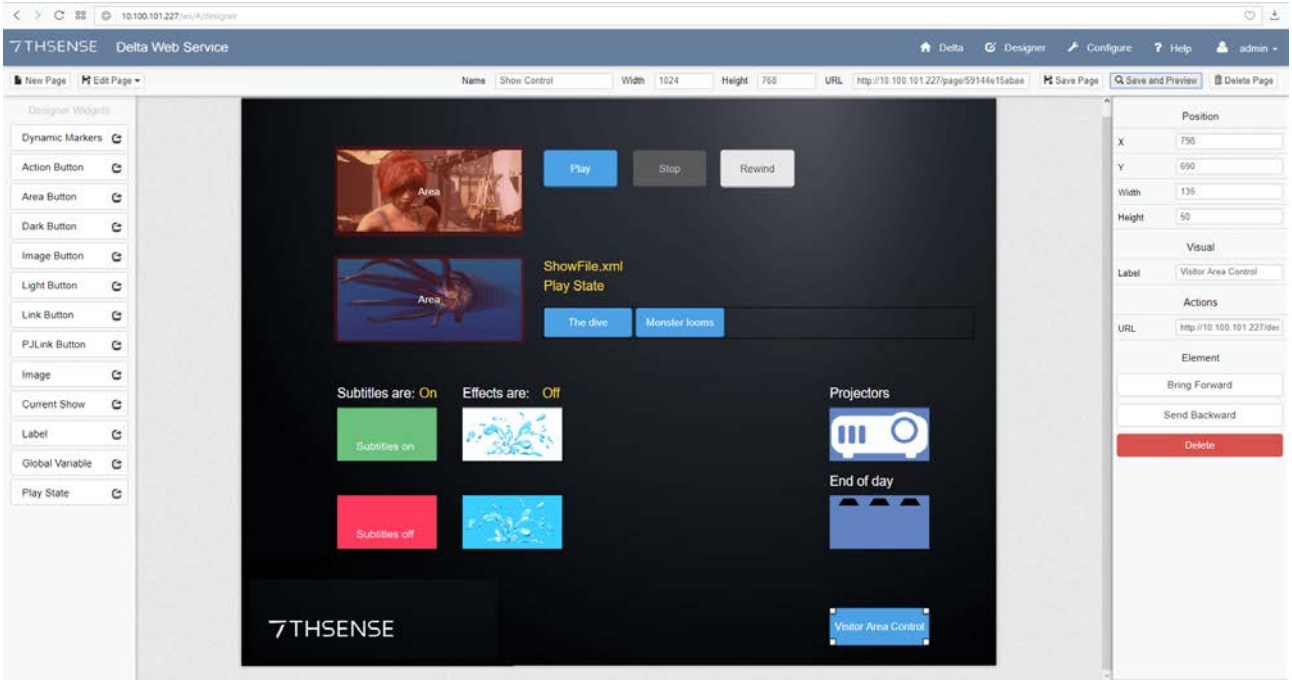
Shows pink in Design, transparent in use. Lay over a image or part of an image to create an active button. Ensure that the Area is in the top layer.



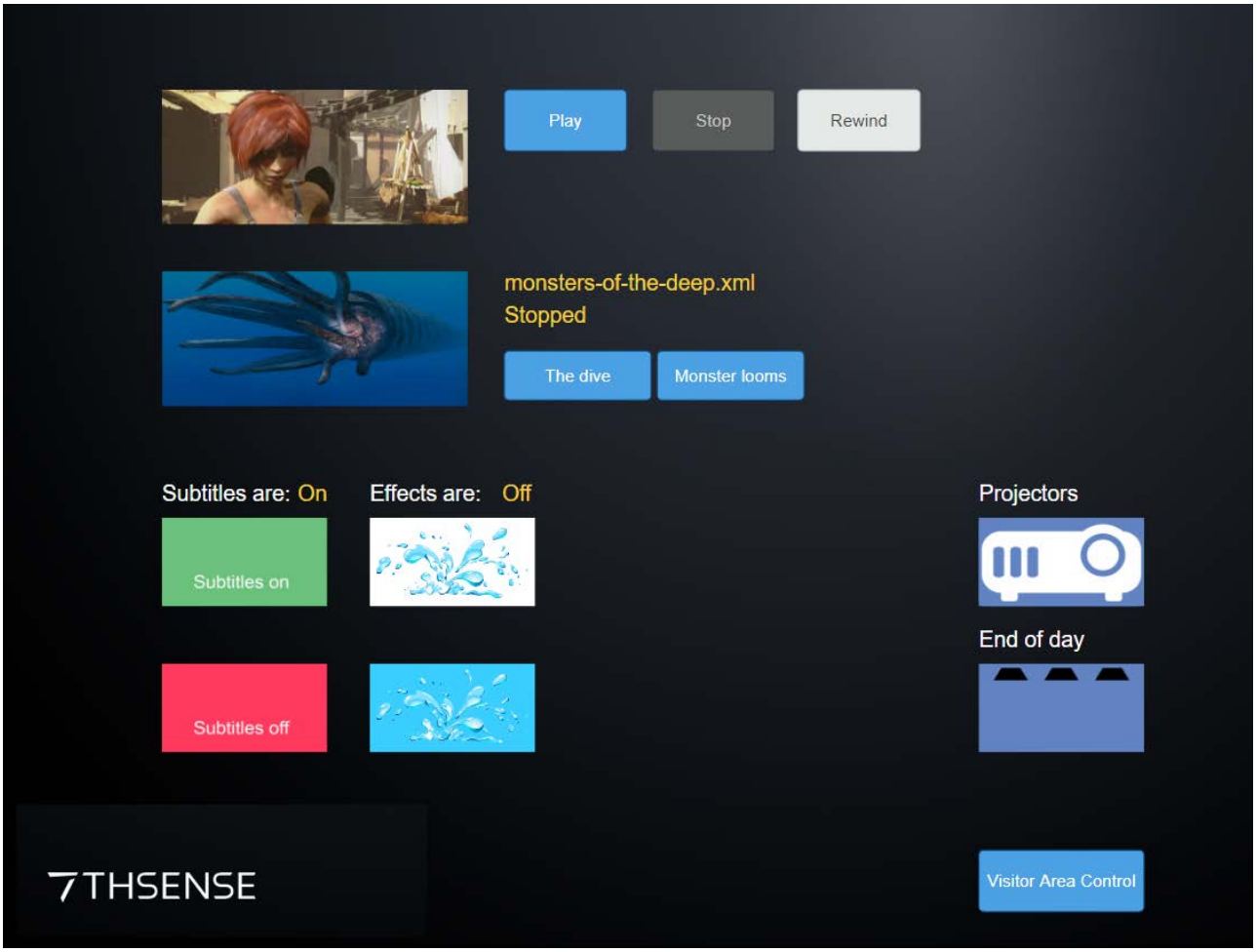
A dark-grey button

	Add an action to an image, or an image pair for normal (image up) and click-on (image down).
	A light grey button
	A blue button that can be assigned a URL (for example another Designer control page for another time, event or area)
	A blue button that can be assigned images as an image button, to operate projectors
	Add an image to the canvas, or if no images yet present, add a placeholder.
	Display the file path and .xml name of the show currently loaded.
	Add descriptive text to the canvas.
	Global sequence variables are defined in DeltaGUI, and are available here. A variable might be used to show a real-time clock, display which timeline is active, set an audio level, etc.
	Display whether the current show is Ready to play, Playing or Stopped.

Here is an example of the different widgets. It includes a background graphic, images made active with overlaid Areas, plain buttons (play button icons are an alternative), Dynamic markers, buttons for sequences to switch subtitles and effects on and off, a PJLink and a Link button to a second control page for a different visitor area.

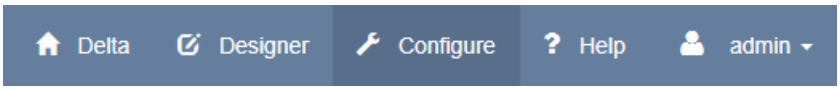


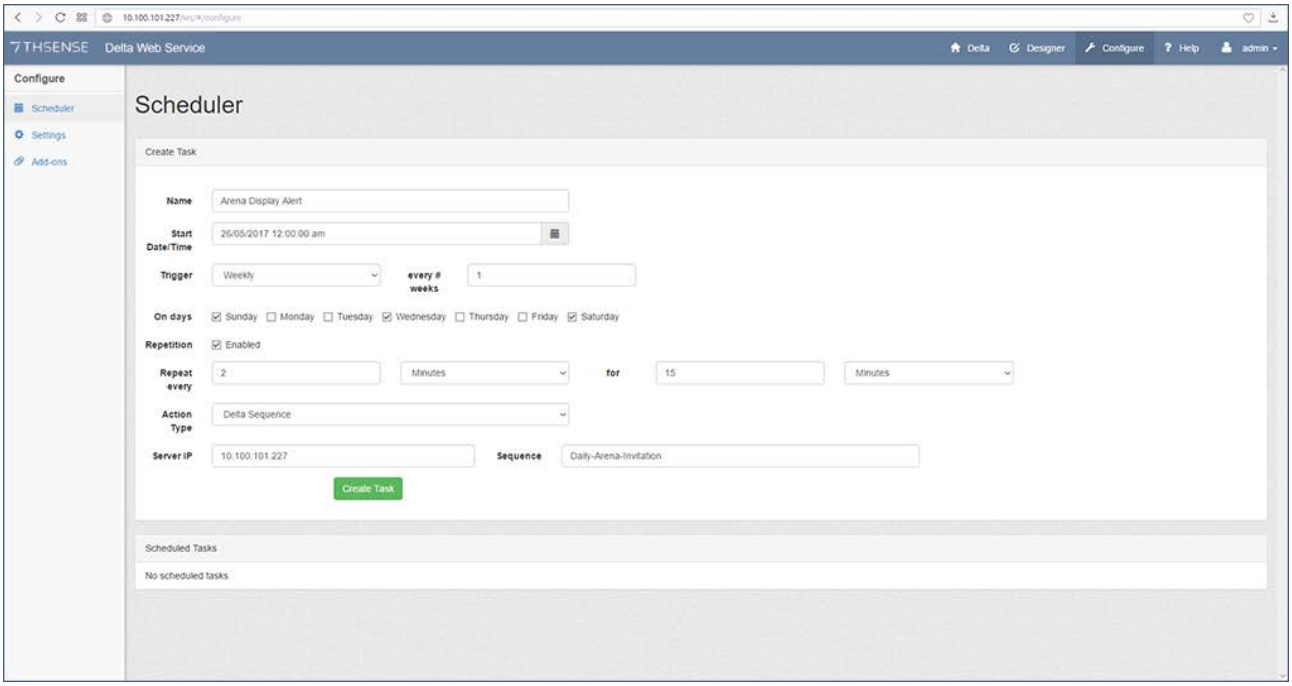
The finished browser page:



Scheduler

A flexible scheduling capability is provided to allow sequences to be scheduled and run at pre-defined times, dates and intervals, in accordance with show requirements. This can be found under the web service Configure tab:





Name

Scheduled Task must have unique names.

Start Date/Time

Use the date picker for the starting date and time (AM or PM).

Trigger

One Time: runs the task once only, at the specified Start Date/Time
Daily: runs the task every day (or every # days) at the time specified in the Start Date.
Weekly: runs the task on specific days of the week. Setting every # weeks can be used to specify alternate weeks (e.g. to run on alternate weekends).

Repetition

e.g. run the task every 2 minutes, for 15 minutes

Action Type

Choose Delta Sequence, call URL, or PJ Link command

Server IP
IP address of a Delta Media Server.

Sequence
A sequence on the server to be run at the trigger points.

PJLink Control

PJLink control is a specific standard communications protocol used by many projector brands and models. Its protocol is different from Telnet, and since it involves a short handshake, can be difficult to implement just using UDP to TCP. The strings that are sent look like this power instruction example:

"%1POWR 1" (note the space between POWR and 1).

There are options available through the Delta Web Service interface to tackle this. You can place a PJLink button on a control page (see Designer) or use the built-in Task Scheduler to schedule (for example) projector power on/off at certain times.

Alternatively, since you can send HTTP from Delta you could hook into the PJLink backend in the DWS interface directly.

These calls look like the following:

http://127.0.0.1/api/pjlink/instruction?
ip=10.100.101.105&port=10000&command=POWR&variable=0&password=JBMIAProjectorLink

(Replace 10.100.101.105 with the required projector IP and port with the projector port.)

- PJLink combines a command with a variable, so for power it is command=POWR and variable=0/1.
- Password is optional, if you aren't using authentication you can leave it off.
- For more general information about PJLink protocol, please see the JMBIA website: About PJLink

Delta Web Service API

The Delta Web Service web interface includes a fully-documented HTTP API for discovering and interacting with Delta Media Servers over a local network. It contains a PHP SDK library to integrate control of Delta Media Server directly into PHP applications with hosting capabilities on the server, and provides an add-on framework for developing fully customisable web extensions including user interfaces and interactive web resources.

Access the API add-on from any web service page under *Help* > *API Specification* > *Delta RPC*. The interface is fully interactive.

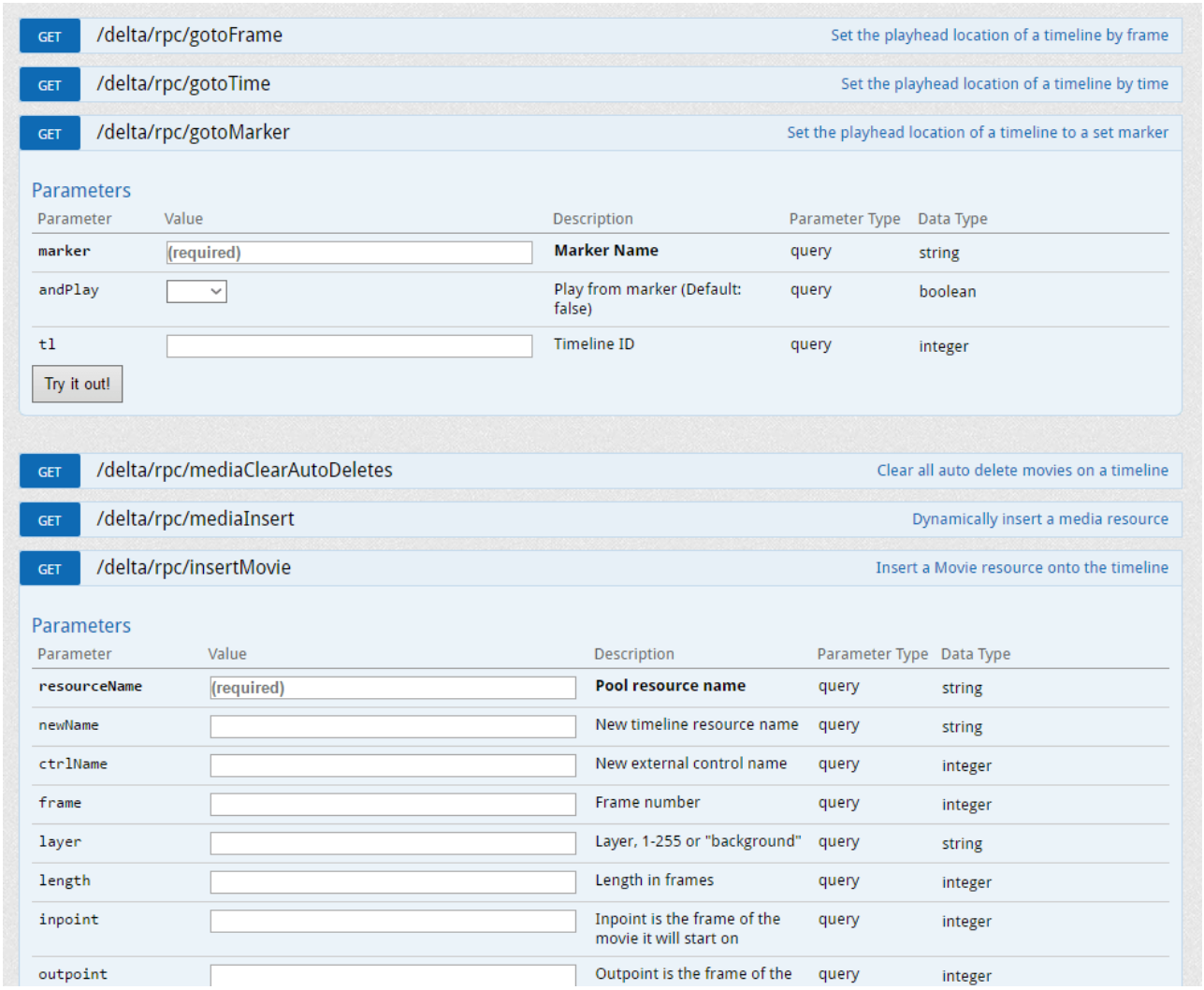
DWS API Operations

In this document: Sample Return for True/False responses

Where no Sample Response is given it should be assumed that the command returns only a true/false value in the following format:

```
{
    "status": 0,
    "msg": "Function: [commandName] called OK",
    "data": true
}
```

Interactive examples of all operations is also available embedded within the API:



Network Discovery

Route	/network/deltas
Summary	Find all Delta Servers on the local network
Sample URL	http://192.168.0.1/api/network/deltas

Sample Response	{
	"status": 0,
	"msg": "Network discovery OK",
	"data": [
	{
	"version": "2.0:5",
	"ip": "10.100.101.101",
	"tcpport": "23",
	"name": "Delta1",
	"udpporttx": "7780",
	"udpportrx": "7781",
	"group": "9",
	"leader": "1",
	"multicastport": "7776"
	},
	{
	"version": "2.0:5",
	"ip": "10.100.101.102",
	"tcpport": "23",
	"name": "Delta2",
	"udpporttx": "7780",
	"udpportrx": "7781",
	"group": "9",
	"leader": "0",
	"multicastport": "7776"
	}
	]
	}

externalControl

Route	/delta/rpc/externalControl			
Summary	Sends raw external control strings to the Delta Server			
Sample URL	http://192.168.0.1/api/delta/rpc/externalControl?msg=*[string]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	msg	External Control Command	Required	string

Sample Response	{
	"status": 0,
	"msg": "Function: externalControl called OK",
	"data": true
	}			

getHelloData

Route	/delta/rpc/getHelloData
Summary	Returns the data used when the Delta Server was discovered
Sample URL	http://192.168.0.1/api/delta/rpc/getHelloData

Sample Response	{
	"status": 0,
	"msg": "Function: getHelloData called OK",
	"data": {
	"version": "2.0:5",
	"ip": "10.100.101.114",
	"tcpport": "23",
	"name": "Delta1",
	"udpporttx": "7780",
	"udpportrx": "7781",
	"group": "9",
	"leader": "1",
	"multicastport": "7776"
	}
	}

getName

Route	/delta/rpc/getName
Summary	Returns the Delta Server's name
Sample URL	http://192.168.0.1/api/delta/rpc/getName

Sample Response	{
	"status": 0,
	"msg": "Function: getName called OK",
	"data": "Delta1"
	}

getIP

Route	/delta/rpc/getIP
Summary	Returns the Delta Server's IP address
Sample URL	http://192.168.0.1/api/delta/rpc/getIP

Sample Response	{
	"status": 0,
	"msg": "Function: getIP called OK",
	"data": "10.100.101.114"
	}

getGroup

Route	/delta/rpc/getGroup
Summary	Returns the Delta Server's group
Sample URL	http://192.168.0.1/api/delta/rpc/getGroup

Sample Response	<pre>{
	"status": 0,
	"msg": "Function: getGroup called OK",
	"data": "9"
	}</pre>

setGroup

Route	/delta/rpc/setGroup			
Summary	Set a Delta Server's group			
Sample URL	http://192.168.0.1/api/delta/rpc/setGroup?group=[integer]			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	Group	New group number	Required	integer

isLeader

Route	/delta/rpc/isLeader
Summary	Check if Delta Server is a Leader server
Sample URL	http://192.168.0.1/api/delta/rpc/isLeader

isMaster (legacy)

Please note: From 2020 7thSense deprecated the terms master and slave for the dependencies between devices. We now refer throughout to 'Leader' and 'Follower' in our products.

To maintain functionality, both terminologies continue to work internally, but our documentation no longer uses the former terms. Users of pre-2020 products will need to observe the equivalence and continue to use the previous legacy terms.

Route	/delta/rpc/isMaster
Summary	Check if Delta Server is a master server
Sample URL	http://192.168.0.1/api/delta/rpc/isMaster

setLeader

Route	/delta/rpc/setLeader
Summary	Set the Delta Server to be a Leader server
Sample URL	http://192.168.0.1/api/delta/rpc/setLeader

setMaster (legacy)

Route	/delta/rpc/setMaster
Summary	Set the Delta Server to be a master server
Sample URL	http://192.168.0.1/api/delta/rpc/setMaster

setFollower

Route	/delta/rpc/setFollower
Summary	Set the Delta Server to be a Follower server
Sample URL	http://192.168.0.1/api/delta/rpc/setFollower

setSlave (legacy)

Please note: From 2020 7thSense deprecated the terms master and slave for the dependencies between devices. We now refer throughout to 'Leader' and 'Follower' in our products.

To maintain functionality, both terminologies continue to work internally, but our documentation no longer uses the former terms. Users of pre-2020 products will need to observe the equivalence and continue to use the previous legacy terms.

Route	/delta/rpc/setSlave
Summary	Set the Delta Server to be a slave server
Sample URL	http://192.168.0.1/api/delta/rpc/setSlave

getStatus

Route	/delta/rpc/getStatus
Summary	Returns status information
Sample URL	http://192.168.0.1/api/delta/rpc/getStatus

getShortStatus

Route	/delta/rpc/getShortStatus
Summary	Returns short status information
Sample URL	http://192.168.0.1/api/delta/rpc/getShortStatus?tl=*[integer]*&smpte=*[boolean]*
Parameters	**Name** / **Description** / **Required** / **Data Type** TI / Timeline ID / / integer SMPTE / True: Return time as SMPTE, False: Return time in frames / / boolean

Sample response	{
	"status": 0,
	"msg": "Function: getShortStatus called OK",
	"data": {
	"time": "273",
	"mode": "Stopped"
	}
	}

getAudioLevel

Route	/delta/rpc/getAudioLevel
Summary	Returns the global audio level
Sample URL	http://192.168.0.1/api/delta/rpc/getAudioLevel

Sample response	{
	"status": 0,
	"msg": "Function: getAudioLevel called OK",
	"data": "100"
	}

getVideoLevel

Route	/delta/rpc/getVideoLevel
Summary	Returns the global video level
Sample URL	http://192.168.0.1/api/delta/rpc/getVideoLevel

Sample response	{
	"status": 0,
	"msg": "Function: getVideoLevel called OK",
	"data": "100"
	}

setAudioLevel

Route	/delta/rpc/setAudioLevel
Summary	Set the global audio level
Sample URL	http://192.168.0.1/api/delta/rpc/setAudioLevel?value=*[integer]*

Parameters

Name	Description	Required	Data Type
Value	Percentage	Required	integer

setVideoLevel

Route	/delta/rpc/setVideoLevel
Summary	Set the global video level
Sample URL	http://192.168.0.1/api/delta/rpc/setVideoLevel?value=*[integer]*

Parameters

Name	Description	Required	Data Type
Value	Percentage	Required	integer

getFrameRate

Route	/delta/rpc/getFrameRate
Summary	Returns the timeline framerate
Sample URL	http://192.168.0.1/api/delta/rpc/getFrameRate

Sample response	{
	"status": 0,
	"msg": "Function: getFrameRate called OK",
	"data": "30.0"
	}

getResourceXML

Route	/delta/rpc/getResourceXML
Summary	Returns current server resources in XML format
Sample URL	http://192.168.0.1/api/delta/rpc/getResourceXML

enableReserve

Route	/delta/rpc/enableReserve
Summary	Enable the reserve timeline
Sample URL	http://192.168.0.1/api/delta/rpc/enableReserve

disableReserve

Route	/delta/rpc/disableReserve
Summary	Disable the reserve timeline
Sample URL	http://192.168.0.1/api/delta/rpc/disableReserve

getShowList

Route	/delta/rpc/getShowList
Summary	Returns a list of available show files
Sample URL	http://192.168.0.1/api/delta/rpc/getShowList

Sample response	{
	"status": 0,
	"msg": "Function: getShowList called OK",
	"data": [
	"blank.xml",
	"demo show.xml",
	"test show.xml"
	]
	}

loadShow

Route	/delta/rpc/loadShow
Summary	Load a show file
Sample URL	http://192.168.0.1/api/delta/rpc/loadShow?show=*[string]*
Parameters	**Name** / **Description** / **Required** / **Data Type** Show / Show file name / Required / string

getGlobalVarList

Route	/delta/rpc/getGlobalVarList
Summary	Returns all global variables
Sample URL	http://192.168.0.1/api/delta/rpc/getGlobalVarList

Sample response	{
	"status": 0,
	"msg": "Function: getGlobalVarList called OK",
	"data": [
	{
	"key": "$var1",
	"value": "test",
	"type": "STRING"
	}
	]
	}

getGlobalVar

Route	/delta/rpc/getGlobalVar
Summary	Returns a specified global variable
Sample URL	http://192.168.0.1/api/delta/rpc/getGlobalVar?key=*[string]*
Parameters	**Name** / **Description** / **Required** / **Data Type** Key / Global variable key / Required / string

Sample response	{
	"status": 0,
	"msg": "Function: getGlobalVar called OK",
	"data": "test"
	}

setGlobalVar

Route	/delta/rpc/setGlobalVar
Summary	Set the value of a global variable
Sample URL	http://192.168.0.1/api/delta/rpc/setGlobalVar?key=*[string]*&value=*[string]*

Parameters

Name	Description	Required	Data Type
Key	Global variable key	Required	string
Value	Global variable value	Required	string

deleteGlobalVar

Route	/delta/rpc/deleteGlobalVar
Summary	Delete a global variable
Sample URL	http://192.168.0.1/api/delta/rpc/deleteGlobalVar?key=*[string]*

Parameters

Name	Description	Required	Data Type
key	Global variable key	Required	string

getMarkers

Route	/delta/rpc/getMarkers
Summary	Lists all markers
Sample URL	http://192.168.0.1/api/delta/rpc/getMarkers

Sample response


```
{
    "status": 0,
    "msg": "Function: getMarkers called OK",
    "data": [
        {
            "name": "Start Marker",
            "frame": "68",
            "tl": "1"
        },
        {
            "name": "Stop Marker",
            "frame": "119",
            "tl": "1"
        }
    ]
}
```

getAvailableSequences

Route	/delta/rpc/getAvailableSequences
Summary	Returns available sequences
Sample URL	http://192.168.0.1/api/delta/rpc/getAvailableSequences

Sample response	{
	"status": 0,
	"msg": "Function: getAvailableSequences called OK",
	"data": [
	"start of day",
	"end of day",
	"show start",
	"house lights up"
	]
	}

getActiveSequences

Route	/delta/rpc/getActiveSequences
Summary	Returns currently running sequences
Sample URL	http://192.168.0.1/api/delta/rpc/getActiveSequences

Sample response	{
	"status": 0,
	"msg": "Function: getActiveSequences called OK",
	"data": [
	"start of day"
	]
	}

startSequence

Route	/delta/rpc/startSequence			
Summary	Start a new instance of a sequence			
Sample URL	http://192.168.0.1/api/delta/rpc/startSequence?sequenceName=*[string]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	sequenceName	Sequence name	Required	string

pauseSequence

Route	/delta/rpc/pauseSequence
Summary	Pause a currently running sequence instance
Sample URL	http://192.168.0.1/api/delta/rpc/pauseSequence?sequenceName=*[string]*
Parameters	**Name** / **Description** / **Required** / **Data Type** sequenceName / Sequence name / Required / string

resumeSequence

Route	/delta/rpc/resumeSequence
Summary	Resume a paused sequence instance
Sample URL	http://192.168.0.1/api/delta/rpc/resumeSequence?sequenceName=*[string]*
Parameters	**Name** / **Description** / **Required** / **Data Type** sequenceName / Sequence name / Required / string

cancelSequence

Route	/delta/rpc/cancelSequence
Summary	Cancel a currently running sequence instance
Sample URL	http://192.168.0.1/api/delta/rpc/cancelSequence?sequenceName=*[string]*
Parameters	**Name** / **Description** / **Required** / **Data Type** sequenceName / Sequence name / Required / string

cancelAllSequences

Route	/delta/rpc/cancelAllSequences
Summary	Cancel all currently running sequence instances
Sample URL	http://192.168.0.1/api/delta/rpc/cancelAllSequences

getPoolResources

Route	/delta/rpc/getPoolResources
Summary	Returns pool resources by a specified type
Sample URL	http://192.168.0.1/api/delta/rpc/getPoolResources?pool=*[string]*

Parameters

Name	Description	Required	Data Type
Pool	Resource Type (movies, images, audio)	Required	string

Sample response

```
{
    "status": 0,
    "msg": "Function: getPoolResources called OK",
    "data": [
        "4kJenga_",
        "Line Animation_"
    ]
}
```

refreshResources

Route	/delta/rpc/refreshResources
Summary	Refreshes the resource pool
Sample URL	http://192.168.0.1/api/delta/rpc/refreshResources

reloadImages

Route	/delta/rpc/reloadImages
Summary	Forces reloading of all images on the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/reloadImages

reloadImage

Route	/delta/rpc/reloadImage
Summary	Forces reloading of a single image on the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/reloadImage?ctrlName=*[string]*

Parameters

Name	Description	Required	Data Type
ctrlName	Image resource name	Required	string

play

Route	/delta/rpc/play
Summary	Play a timeline
Sample URL	http://192.168.0.1/api/delta/rpc/play?tl=*[integer]*
Parameters	**Name** **Description** **Required** **Data Type** Tl Timeline ID integer

stop

Route	/delta/rpc/stop
Summary	Stop a timeline
Sample URL	http://192.168.0.1/api/delta/rpc/stop?tl=*[integer]*
Parameters	**Name** **Description** **Required** **Data Type** Tl Timeline ID integer

rewind

Route	/delta/rpc/rewind
Summary	Rewind a timeline
Sample URL	http://192.168.0.1/api/delta/rpc/rewind?tl=*[integer]*
Parameters	**Name** **Description** **Required** **Data Type** Tl Timeline ID integer

advance

Route	/delta/rpc/advance
Summary	Advance a timeline by number of frames
Sample URL	http://192.168.0.1/api/delta/rpc/advance?tl=*[integer]*&noFrames=*[integer]*
Parameters	**Name** **Description** **Required** **Data Type** Tl Timeline ID integer noFrames Number of frames Required integer

stepback

Route	/delta/rpc/stepback			
Summary	Stepback a timeline by number of frames			
Sample URL	http://192.168.0.1/api/delta/rpc/stepback?tl=*[integer]*&noFrames=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	Tl	Timeline ID		integer
	noFrames	Number of frames	Required	integer

gotoFrame

Route	/delta/rpc/gotoFrame			
Summary	Set the playhead location of a timeline by frame			
Sample URL	http://192.168.0.1/api/delta/rpc/gotoFrame?frameNo=*[string]*&tl=*[integer]*&andPlay=*[boolean]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	frameNo	Frame number	Required	string
	tl	Timeline ID		integer
	andPlay	Play from frame (Default: false)		boolean

gotoTime

Route	/delta/rpc/gotoTime			
Summary	Set the playhead location of a timeline by time			
Sample URL	http://192.168.0.1/api/delta/rpc/gotoTime?time=*[string]*&frameRate=*[integer]*&andPlay=*[boolean]*&tl=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	Time	Time (in format HH:MM:SS:FF)	Required	string
	framerate	Frame Rate of the time value given	Required	integer
	andPlay	Play from time (Default: false)		Boolean
	tl	Timeline ID	integer	

gotoMarker

Route	/delta/rpc/gotoMarker
Summary	Set the playhead location of a timeline to a set marker
Sample URL	http://192.168.0.1/api/delta/rpc/gotoMarker?marker=*[string]*&andPlay=*[boolean]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
marker	Marker Name	Required	string
andPlay	Play from marker (Default: false)		Boolean
tl	Timeline ID		integer

mediaClearAutoDeletes

Route	/delta/rpc/mediaClearAutoDeletes
Summary	Clear all auto delete movies on a timeline
Sample URL	http://192.168.0.1/api/delta/rpc/mediaClearAutoDeletes

mediaInsert

Route	/delta/rpc/mediaInsert
Summary	Dynamically insert a media resource
Sample URL	http://192.168.0.1/api/delta/rpc/mediaInsert?resourceType=*[string]*&resourceName=*[string]*&frame=*[integer]* &layer=*[integer]*&x=*[integer]*&y=*[integer]*&w=*[integer]*&h=*[integer]*&ctrlname=*[string]*&length=*[integer]* &mapping=*[string]*&channel=*[integer]*&cropping=*[string]*&fullscreen=*[boolean]*&autoDelete=*[boolean]* &tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceType	Resource type	Required	string
resourceName	Resource name	Required	string
frame	Frame Number		integer
layer	Layer Number		integer
x	X Position		integer
y	Y Position		integer
w	Width		integer
h	Height		integer
ctrlname	External Control Name		string
length	Length in Frames of new timeline resource		integer
mapping	“channel” or “flat”		string
channel	Channel number if channel mapped		integer
cropping	L% R% T% B%		string
fullscreen	Fullscreen (true, false)		Boolean
autodelete	Autodelete (true, false)		Boolean
tl	Timeline ID		integer

insertMovie

Route	/delta/rpc/insertMovie
Summary	Insert a Movie resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertMovie?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]* &frame=*[integer]*&layer=*[string]*&length=*[integer]*&mapping=*[string]*&x=*[integer]*&y=*[integer]*&w=*[integer]* &h=*[integer]*&channel=*[integer]*&cropping=*[string]*&feather=*[integer]*&autoDelete=*[boolean]*&autoPlay=*[boolean]* &parentCtrlName=*[string]*&itemEnabled=*[boolean]*&containerOverrides=*[string]*&duration=*[float]*&fadeUp=*[float]* &fadeDown=*[float]*&crossFade=*[boolean]*&playMode=*[string]*&noLoop=*[boolean]*&repeatCount=*[integer]* &tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceName	Pool resource name	Required	string
newname	New timeline resource name		string

	ctrlName	New external control name	integer
	frame	Frame number	integer
	layer	Layer, 1-255 or "background"	string
	length	Length in frames	integer
	mapping	"channel", "flat" or "fullscreen"	string
	x	X Position	integer
	y	Y Position	integer
	w	Width	integer
	h	Height	integer
	channel	Channel number if channel mapped	integer
	cropping	Percentage crop "L% R% T% B%"	string
	feather	Percentage edge feather	integer
	autodelete	Set autodelete	Boolean
	autoPlay	Set autoplay	Boolean
	parentCtrlName	External control name of the parent container (container items only)	string
	itemEnabled	Set container item enabled state (container items only)	Boolean
	containerOverrides	Comma separated list of property keys. Options: duration, general, features, location, animation, keying, colour, mesh, fade, playmode (containers and container items only)	string
	duration	Set the item duration in seconds (requires duration override) (containers and container items only)	float
	fadeUp	Set fade up time in seconds (requires fade override) (containers and container items only)	float
	fadeDown	Set fade down time in seconds (requires fade override) (containers and container items only)	float
	crossFade	Set crossfade (requires fade override) (containers and container items only)	Boolean
	playMode	Set the item play mode. Options: playntimes or trigger (requires playmode override) (containers and container items only)	string
	noLoop	Set item to not loop (requires playmode override) (containers and container items only)	Boolean
	repeatCount	Set item repeat count (requires playmode override) (containers and container items only)	integer
	tl	Timeline ID	integer

insertImage

Route	/delta/rpc/insertImage
Summary	Insert an Image resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertImage?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]* &frame=*[integer]*&layer=*[string]*&length=*[integer]*&mapping=*[string]*&x=*[integer]*&y=*[integer]*&w=*[integer]* &h=*[integer]*&channel=*[integer]*&cropping=*[string]*&feather=*[integer]*&autoDelete=*[boolean]*&autoPlay=*[boolean]* &parentCtrlName=*[string]*&itemEnabled=*[boolean]*&containerOverrides=*[string]*&duration=*[float]*&fadeUp=*[float]* &fadeDown=*[float]*&crossFade=*[boolean]*&playMode=*[string]*&noLoop=*[boolean]*&repeatCount=*[integer]* &tl=*[integer]*

Parameters

Name	Description	Required	Data Type
ResourceName	Pool resource name	Required	string
newname	New timeline resource name		string
ctrlName	New external control name		integer
frame	Frame number		integer
layer	Layer, 1-255 or "background"		string
length	Length in frames		integer
mapping	"channel", "flat" or "fullscreen"		string
x	X Position		integer
y	Y Position		integer
w	Width		integer
h	Height		integer
channel	Channel number if channel mapped		integer
cropping	Percentage crop "L% R% T% B%"		string
feather	Percentage edge feather		integer
autodelete	Set autodelete		Boolean
autoPlay	Set autoplay		Boolean
parentCtrlName	External control name of the parent container (container items only)		string
itemEnabled	Set container item enabled state (container items only)		Boolean
containerOverrides	Comma separated list of property keys. Options: duration, general, features, location, animation, keying, colour, mesh, fade, playmode (containers and container items only)		string
duration	Set the item duration in seconds (requires duration override) (containers and container items only)		float
fadeUp	Set fade up time in seconds (requires fade override) (containers and container items only)		float

	fadeDown	Set fade down time in seconds (requires fade override) (containers and container items only)	float
	crossFade	Set crossfade (requires fade override) (containers and container items only)	Boolean
	playMode	Set the item play mode. Options: playntimes or trigger (requires playmode override) (containers and container items only)	string
	noLoop	Set item to not loop (requires playmode override) (containers and container items only)	Boolean
	repeatCount	Set item repeat count (requires playmode override) (containers and container items only)	integer
	tl	Timeline ID	integer

insertCapture

Route	/delta/rpc/insertCapture			
Summary	Insert a Capture resource onto the timeline			
Sample URL	http://192.168.0.1/api/delta/rpc/insertCapture?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]* &frame=*[integer]*&layer=*[string]*&length=*[integer]*&mapping=*[string]*&x=*[integer]*&y=*[integer]*&w=*[integer]* &h=*[integer]*&channel=*[integer]*&cropping=*[string]*&feather=*[integer]*&autoDelete=*[boolean]*&autoPlay=*[boolean]* &parentCtrlName=*[string]*&itemEnabled=*[boolean]*&containerOverrides=*[string]*&duration=*[float]*&fadeUp=*[float]* &fadeDown=*[float]*&crossFade=*[boolean]*&playMode=*[string]*&noLoop=*[boolean]*&repeatCount=*[integer]* &tl=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	resourceName	Pool resource name	Required	string
	newname	New timeline resource name		string
	ctrlName	New external control name		integer
	frame	Frame number		integer
	layer	Layer, 1-255 or "background"		string
	length	Length in frames		integer
	mapping	"channel", "flat" or "fullscreen"		string
	x	X Position		integer
	y	Y Position		integer
	w	Width		integer
	h	Height		integer
	channel	Channel number if channel mapped		integer
	cropping	Percentage crop "L% R% T% B%"		string
	feather	Percentage edge feather		integer

	autodelete	Set autodelete	Boolean
	autoPlay	Set autoplay	Boolean
	parentCtrlName	External control name of the parent container (container items only)	string
	itemEnabled	Set container item enabled state (container items only)	Boolean
	containerOverrides	Comma separated list of property keys. Options: duration, general, features, location, animation, keying, colour, mesh, fade, playmode (containers and container items only)	string
	duration	Set the item duration in seconds (requires duration override) (containers and container items only)	float
	fadeUp	Set fade up time in seconds (requires fade override) (containers and container items only)	float
	fadeDown	Set fade down time in seconds (requires fade override) (containers and container items only)	float
	crossFade	Set crossfade (requires fade override) (containers and container items only)	Boolean
	playMode	Set the item play mode. Options: playntimes or trigger (requires playmode override) (containers and container items only)	string
	noLoop	Set item to not loop (requires playmode override) (containers and container items only)	Boolean
	repeatCount	Set item repeat count (requires playmode override) (containers and container items only)	integer
	tl	Timeline ID	integer

insertContainer

Route	/delta/rpc/insertContainer			
Summary	Insert a Container resource onto the timeline			
Sample URL	http://192.168.0.1/api/delta/rpc/insertContainer?resourceName=*[string]*&newName=*[string]* &ctrlName=*[integer]*&frame=*[integer]*&layer=*[string]*&length=*[integer]*&mapping=*[string]*&x=*[integer]*&y=*[integer]* &w=*[integer]*&h=*[integer]*&cropping=*[string]*&feather=*[integer]*&channel=*[integer]*&parentCtrlName=*[string]* &itemEnabled=*[boolean]*&startFromLastItem=*[boolean]*&containerOverrides=*[string]*&duration=*[float]* &fadeUp=*[float]*&fadeDown=*[float]*&crossFade=*[boolean]*&playMode=*[string]*&noLoop=*[boolean]* &repeatCount=*[integer]*&tl=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	ResourceName	Pool resource name	Required	string
	newname	New timeline resource name		string

	ctrlName	New external control name	integer
	frame	Frame number	integer
	layer	Layer, 1-255 or "background"	string
	length	Length in frames	integer
	mapping	"channel", "flat" or "fullscreen"	string
	x	X Position	integer
	y	Y Position	integer
	w	Width	integer
	h	Height	integer
	cropping	Percentage crop "L% R% T% B%"	string
	feather	Percentage edge feather	integer
	channel	Channel number if channel mapped	integer
	parentCtrlName	External control name of the parent container (container items only)	string
	itemEnabled	Set container item enabled state (container items only)	Boolean
	startFromLastItem	Set container start from the last played item (containers only)	Boolean
	containerOverrides	Comma separated list of property keys. Options: duration, general, features, location, animation, keying, colour, mesh, fade, playmode (containers and container items only)	string
	duration	Set the item duration in seconds (requires duration override) (containers and container items only)	float
	fadeUp	Set fade up time in seconds (requires fade override) (containers and container items only)	float
	fadeDown	Set fade down time in seconds (requires fade override) (containers and container items only)	float
	crossFade	Set crossfade (requires fade override) (containers and container items only)	Boolean
	playMode	Set the item play mode. Options: playntimes or trigger (requires playmode override) (containers and container items only)	string
	noLoop	Set item to not loop (requires playmode override) (containers and container items only)	Boolean
	repeatCount	Set item repeat count (requires playmode override) (containers and container items only)	integer
	tl	Timeline ID	integer

insertAudio

Route	/delta/rpc/insertAudio
Summary	Insert an Audio resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertAudio?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]* &frame=*[integer]*&layer=*[string]*&length=*[integer]*&audioChannels=*[string]*&audioLevels=*[string]* &autoDelete=*[boolean]*&autoPlay=*[boolean]*&parentCtrlName=*[string]*&itemEnabled=*[boolean]* &containerOverrides=*[string]*&duration=*[float]*&fadeUp=*[float]*&fadeDown=*[float]*&crossFade=*[boolean]* &playMode=*[string]*&noLoop=*[boolean]*&repeatCount=*[integer]*&tl=*[integer]*

Parameters

Name	Description	Required	DataType
ResourceName	Pool resource name	Required	string
newname	New timeline resource name		string
ctrlName	New external control name		integer
frame	Frame number		integer
layer	Layer, 1-255 or "background"		string
length	Length in frames		integer
audioChannels	Comma separated list of audio channel numbers, all if not specified, e.g: "1,2,3"		string
audioLevels	Comma separated list of audio levels (percent), corresponds with audioChannels or all channels if only one value is given. eg: "25,50,75"		string
autodelete	Set autodelete		Boolean
autoPlay	Set autoplay		Boolean
parentCtrlName	External control name of the parent container (container items only)		string
itemEnabled	Set container item enabled state (container items only)		Boolean
containerOverrides	Comma separated list of property keys. Options: duration, general, features, location, animation, keying, colour, mesh, fade, playmode (containers and container items only)		string
duration	Set the item duration in seconds (requires duration override) (containers and container items only)		float
fadeUp	Set fade up time in seconds (requires fade override) (containers and container items only)		float
fadeDown	Set fade down time in seconds (requires fade override) (containers and container items only)		float
crossFade	Set crossfade (requires fade override) (containers and container items only)		Boolean
playMode	Set the item play mode. Options: playntimes or trigger (requires		string

		playmode override) (containers and container items only)	
	noLoop	Set item to not loop (requires playmode override) (containers and container items only)	Boolean
	repeatCount	Set item repeat count (requires playmode override) (containers and container items only)	integer
	tl	Timeline ID	integer

insertControl

Route	/delta/rpc/insertControl			
Summary	Insert a Control resource onto the timeline			
Sample URL	http://192.168.0.1/api/delta/rpc/insertControl?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]* &frame=*[integer]*&layer=*[string]*&gotoFrame=*[integer]*&gotoAction=*[string]*&markerAction=*[string]* &markerName=*[string]*&markerHotkey=*[string]*&autoDelete=*[boolean]*&tl=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	resourceName	Pool resource name	Required	string
	newname	New timeline resource name	string	
	ctrlName	New external control name		integer
	frame	Frame number		integer
	layer	Layer, 1-255 or "background"		string
	gotoFrame	Frame number to go to (goto only)		integer
	gotoAction	Action to take after going to new positon, "play" or "stop" (default) (goto only)		string
	markerAction	Action to take on playing into marker, "play" (default) or "stop" (marker only)		string
	markerName	Unique name for marker (marker only)		string
	markerHotkey	Hotkey to link with this marker using keys ctrl, shift, f1-12 or 0-9, format example: "f1", "shift2" ,"ctrlshiftf3" (marker only)		string
	autodelete	Set autodelete		Boolean
	tl	Timeline ID		integer

insertEffect

Route	/delta/rpc/insertEffect
Summary	Insert an Effect resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertEffect?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]*&frame=*[integer]*&layer=*[string]*&length=*[integer]*&direction=*[string]*&autoDelete=*[boolean]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceName	Pool resource name	Required	string
newname	New timeline resource name	string	
ctrlName	New external control name		integer
frame	Frame number		integer
layer	Layer, 1-255 or "background"		string
length	Length in frames		integer
direction	Transition direction for fade or transparency effects, "up" or "down"		string
autodelete	Set autodelete		Boolean
tl	Timeline ID		integer

insertGeometry

Route	/delta/rpc/insertGeometry
Summary	Insert a Geometry resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertGeometry?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]*&frame=*[integer]*&layer=*[string]*&channel=*[integer]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceName	Pool resource name	Required	string
newname	New timeline resource name		string
ctrlName	New external control name		integer
frame	Frame number		integer
layer	Layer, 1-255 or "background"		string
channel	Channel number if channel mapped		integer
tl	Timeline ID		integer

insertBlend

Route	/delta/rpc/insertBlend
Summary	Insert a Blend resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertBlend?resourceName=*[string]*&newName=*[string]*&ctrlName=*[integer]* &frame=*[integer]*&channel=*[integer]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceName	Pool resource name	Required	string
newname	New timeline resource name		string
ctrlName	New external control name		integer
frame	Frame number		integer
channel	Channel number if channel mapped		integer
tl	Timeline ID		integer

insertSerialEvent

Route	/delta/rpc/insertSerialEvent
Summary	Insert a Serial Event resource onto the timeline
Sample URL	http://192.168.0.1/api/delta/rpc/insertSerialEvent?resourceName=*[string]*&newName=*[string]* &ctrlName=*[integer]*&frame=*[integer]*&layer=*[string]*&ipAddress=*[string]*&port=*[integer]*&repeatEnable=*[boolean]* &repeatCount=*[integer]*&repeatFrames=*[integer]*&command=*[string]*&addFrame=*[boolean]* &autoDelete=*[boolean]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceName	Pool resource name	Required	string
newname	New timeline resource name		string
ctrlName	New external control name		integer
frame	Frame number		integer
layer	Layer, 1-255 or "background"		string
ipAddress	Set ip address		string
port	Set port		integer
repeatEnable	Enable repetitions		Boolean
repeatCount	Set number of repetitions		integer
repeatFrames	Set repetition interval in frames		integer
command	Set the command string to be sent by event		string
addFrame	Append the current frame no. to the command string		Boolean
autodelete	Set autodelete		Boolean
tl	Timeline ID		integer

mediaEnable

Route	/delta/rpc/mediaEnable
Summary	Enable a media resource
Sample URL	http://192.168.0.1/api/delta/rpc/mediaEnable?ctrlName=*[string]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
ctrlName	External Control name	Required	string
tl	Timeline ID		integer

mediaMove

Route	/delta/rpc/mediaMove
Summary	Move a media resource
Sample URL	http://192.168.0.1/api/delta/rpc/mediaMove?ctrlName=*[string]*&x=*[integer]*&y=*[integer]*&w=*[integer]*&h=*[integer]*&r=*[integer]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
ctrlName	External Control name	Required	string
x	X Position	Required	integer
y	Y Position	Required	integer
w	Width	Required	integer
h	Height	Required	integer
r	Roll		integer
tl	Timeline ID		integer

mediaDisable

Route	/delta/rpc/mediaDisable
Summary	Disable a media resource
Sample URL	http://192.168.0.1/api/delta/rpc/mediaDisable?ctrlName=*[string]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
ctrlName	External Control name	Required	string
tl	Timeline ID		integer

mediaRemove

Route	/delta/rpc/mediaRemove
Summary	Remove a media resource from a timeline
Sample URL	http://192.168.0.1/api/delta/rpc/mediaRemove?ctrlName=*[string]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
ctrlName	External Control name	Required	string
tl	Timeline ID		integer

setTextParams

Route	/delta/rpc/setTextParams
Summary	Set **Parameters** of a text resource
Sample URL	http://192.168.0.1/api/delta/rpc/setTextParams?resourceName=[string]&newText=[string]&fontSize=[string]&r=*[integer]*&g=*[integer]*&b=*[integer]*&tl=*[integer]*

Parameters

Name	Description	Required	Data Type
resourceName	Resource Name	Required	string
newText	New Text Value	Required	string
fontSize	Font Size	Required	string
r Red	(0-255)		integer
g Green	(0-255)		integer
b Blue	(0-255)		integer
tl	Timeline ID		integer

globalFadeUp

Route	/delta/rpc/globalFadeUp
Summary	Timed global video fade up
Sample URL	http://192.168.0.1/api/delta/rpc/globalFadeUp?duration=*[string]*

Parameters

Name	Description	Required	Data Type
Duration	Duration of fade	Required	string

globalFadeDown

Route	/delta/rpc/globalFadeDown
Summary	Timed global video fade down
Sample URL	http://192.168.0.1/api/delta/rpc/globalFadeDown?duration=*[string]*

Parameters

Name	Description	Required	Data Type
Duration	Duration of fade	Required	string

layerFade

Route	/delta/rpc/layerFade
Summary	Set the opacity of a timeline layer
Sample URL	http://192.168.0.1/api/delta/rpc/layerFade?tl=*[integer]*&layer=*[integer]*&opacity=*[integer]*

Parameters

Name	Description	Required	Data Type
Tl	Timeline ID		integer
Layer	Layer ID	Required	integer
Opacity	Opacity %	Required	integer

layerFadeTimed

Route	/delta/rpc/layerFadeTimed
Summary	Start a timed fade of opacity of a timeline layer
Sample URL	http://192.168.0.1/api/delta/rpc/layerFadeTimed?tl=*[integer]*&layer=*[integer]*&direction=*[string]* &duration=*[string]*

Parameters

Name	Description	Required	Data Type
Tl	Timeline ID		integer
Layer	Layer ID	Required	integer
Direction	Direction of fade (up, down)	Required	string
Duration	Duration of fade	Required	string

layerFadeTimedAll

Route	/delta/rpc/layerFadeTimedAll
Summary	Start a timed fade of opacity of a timeline layer on all group servers
Sample URL	http://192.168.0.1/api/delta/rpc/layerFadeTimedAll?tl=*[integer]*&layer=*[integer]*&direction=*[string]* &duration=*[string]*

Parameters

Name	Description	Required	Data Type
Tl	Timeline ID		integer
Layer	Layer ID	Required	integer
Direction	Direction of fade (up, down)	Required	string
Duration	Duration of fade	Required	string

layerEnable

Route	/delta/rpc/layerEnable			
Summary	Enable a timeline layer			
Sample URL	http://192.168.0.1/api/delta/rpc/layerEnable?tl=*[integer]*&layer=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	TI	Timeline ID		integer
	Layer	Layer ID	Required	integer

layerDisable

Route	/delta/rpc/layerDisable			
Summary	Disable a timeline layer			
Sample URL	http://192.168.0.1/api/delta/rpc/layerDisable?tl=*[integer]*&layer=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	TI	Timeline ID	integer	
	Layer	Layer ID	Required	integer

layerEnableAll

Route	/delta/rpc/layerEnableAll			
Summary	Enable a timeline layer on all servers in a group			
Sample URL	http://192.168.0.1/api/delta/rpc/layerEnableAll?tl=*[integer]*&layer=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	TI	Timeline ID		integer
	Layer	Layer ID	Required	integer

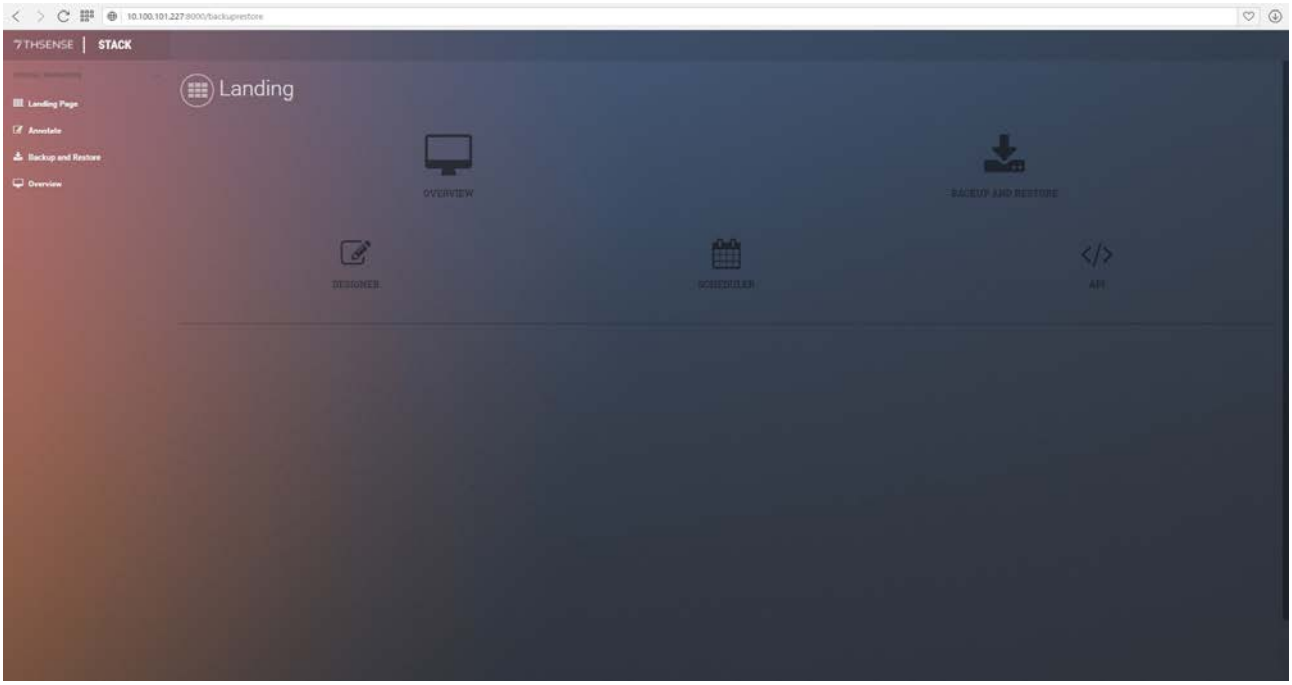
layerDisableAll

Route	/delta/rpc/layerDisableAll			
Summary	Disable a timeline layer on all servers in a group			
Sample URL	http://192.168.0.1/api/delta/rpc/layerDisableAll?tl=*[integer]*&layer=*[integer]*			
Parameters	**Name**	**Description**	**Required**	**Data Type**
	Tl	Timeline ID		integer
	Layer	Layer ID	Required	integer

Stack Overview (option)

Landing Page

Browsing to a Delta Server on http://[IP]:8000, you will land on that specific Server's 'Stack' landing page. Note that Stack will not work on 127.0.0.1 (localserver). The top two system-wide options provide overall means to see a System Overview and to be able to Backup and/or Restore any machine on the network. The bottom three options will take you back to the server's Designer, Scheduler and API pages respectively under the Delta Web Service.



The Overview is where you'll find list of all servers on the network with additional top-level information designed to enable a quick glance over your system and determine immediately if anything's wrong. Each entry supplies the Server's Name, IP Address, Grouping, whether the server's a Leader or Follower, the Health of the machine, the State and Genlock status.

Colour is important. Green denotes additional information or successes, red denotes an immediate problem, yellow provides a warning that may or may not be of importance, and blue denotes extra information.

Health is generally the most important piece to the summary page. It displays all immediate issues to you in red. So a quick glance over the page should give you a net idea of what, if any, issues your system(s) are having.

Note: Information on this page is not real-time. The maximum update rate for each server entry is once every 2 seconds.

Columns

Table columns can be ordered by pressing the respective headers in the table until a desired ordering is achieved. The following presents extra information about each column:

Column Name	Orderable	Description
Control		If a down arrow shows, click this to expand the server profile.
Server Name	Yes	If Delta is not running this will reflect the machine's hostname, otherwise it will display the Delta name.
IP Address	Yes	The active IP address of the machine is shown in white and is a live link to that server. Other NICs per server are shown, where available, in grey.
Group	Yes	The group ID of Delta.
Leader	Yes	Displays 'Leader' if the server's a Leader server or 'Follower' if it's a Follower.
Health		Displays all immediate issues with the machine side by side: In red: 'Delta Server not running'; 'Stack not running', in blue: 'Read Only'. Will only indicate 'Healthy' in green if everything's OK.
State		Reflects the front panel LED states. Tooltips in theses read 'Graphics', 'Movies' and 'Audio'.
Genlock		Displays 'Non AMD System' in blue, or 'DM not available' in red if an unsupported DeltaMonitor version is running on the machine. Displays 'Not Available' if Genlock's not available or if Genlock *is* available but not enabled, it will display 'Available' in yellow. If Genlock on this machine is available *and* turned on, then this value will state 'Enabled' in green.

Please note: From 2020 7thSense deprecated the terms master and slave for the dependencies

between devices. We now refer throughout to ‘Leader’ and ‘Follower’ in our products.

To maintain functionality, both terminologies continue to work internally, but our documentation no longer uses the former terms. Users of pre-2020 products will need to observe the equivalence and continue to use the previous legacy terms.

Installation

If Stack Overview is not installed on your system and you want to make use of it, please request the installer from 7thSense. It does incur an additional overhead on bandwidth, so is not installed as default.

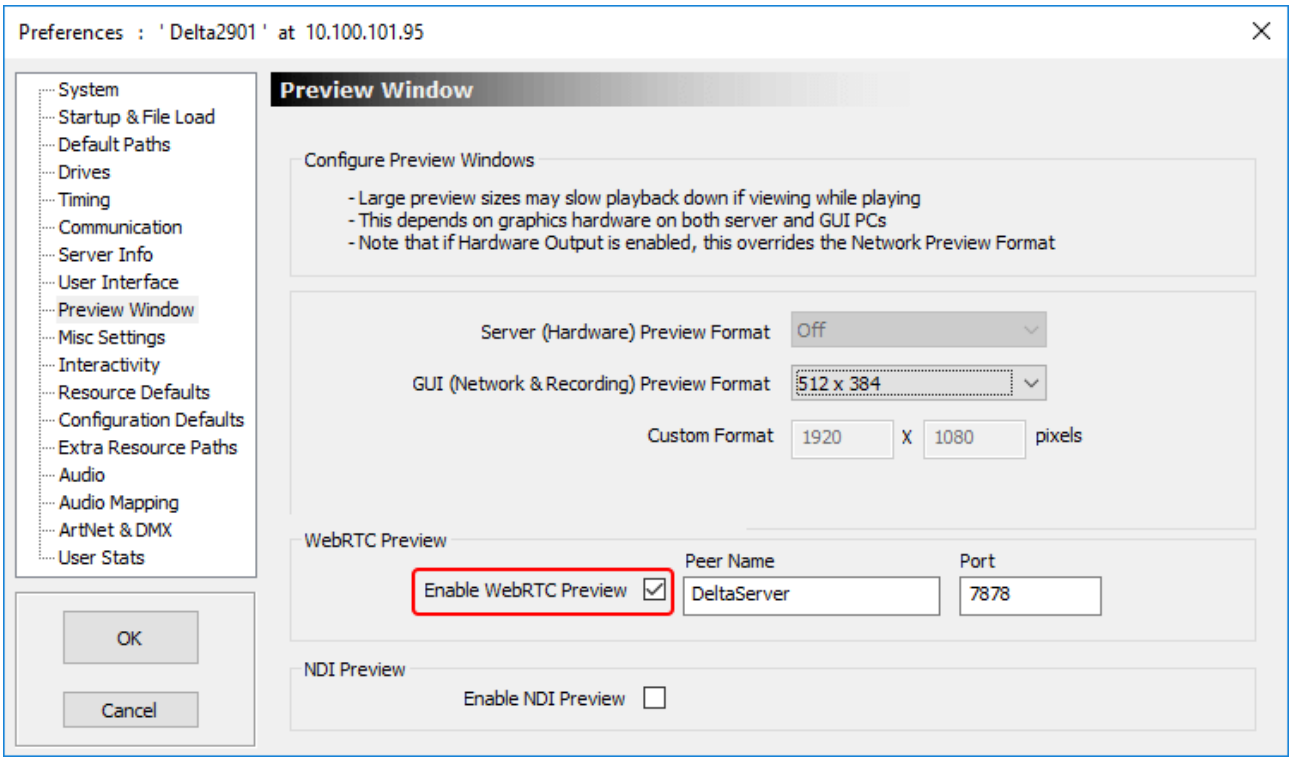
Ensure the installer is run as Admin on the required server. Double-click on the Stack installer and then ‘Install’.

Once installed, enter the required server’s IP into a web browser. This will resolve to http://[IP]/ws/#/delta/status.

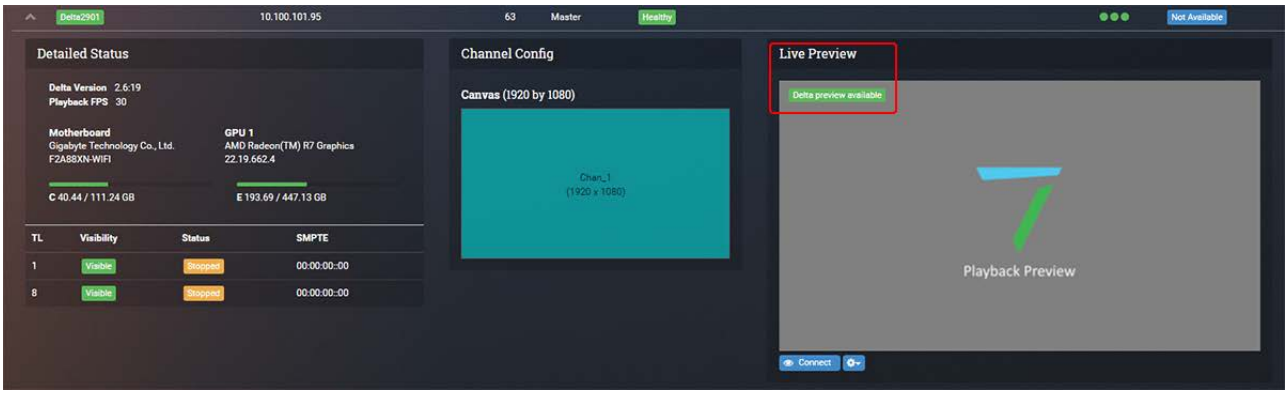
You should be presented with the landing page. If not, Stack has not installed successfully.

WebRTC Connection

Ensure that ‘WebRTC Preview’ is enabled in DeltaServer by connecting to the target machine with DeltaGUI. Go to *Preferences* > *Preview* and tick ‘WebRTC Enabled’. You may need to restart Delta for this to take effect.



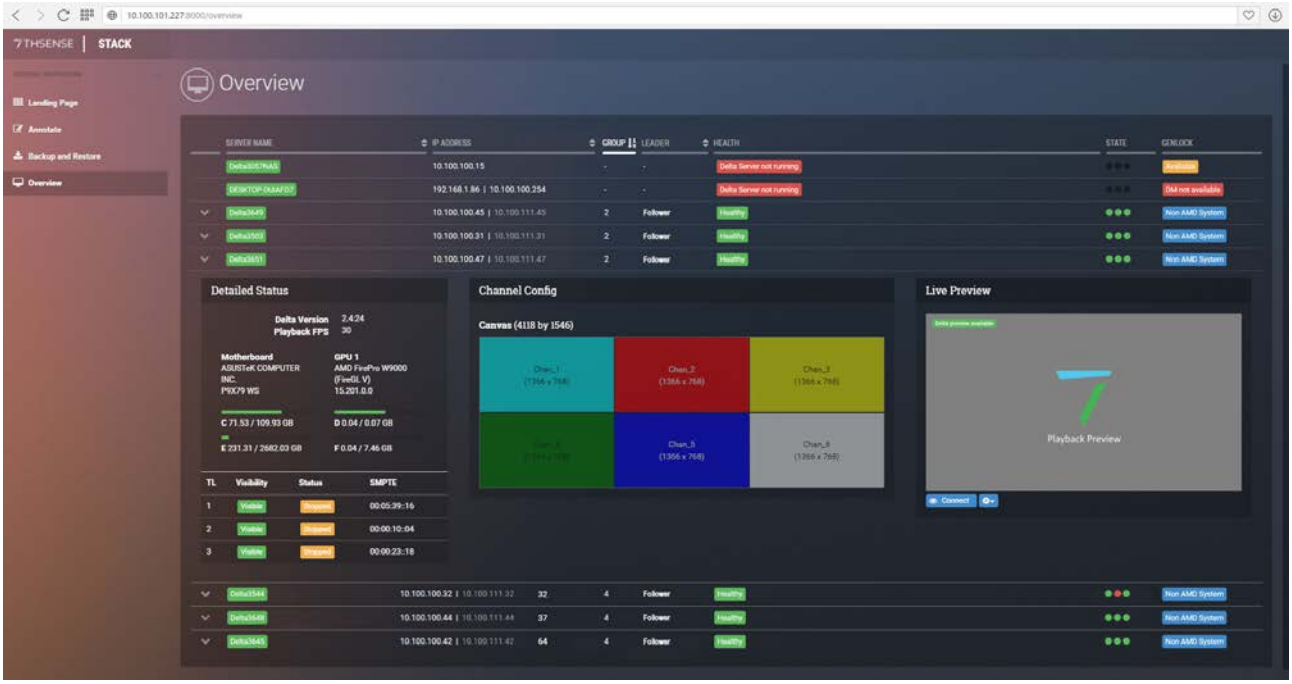
In the Stack Overview page, select the required server and 'Delta preview available' green status should be showing in the top left of the WebRTC playback preview window:



Press 'Connect' and WebRTC should connect successfully and preview the current show on the server.

Detailed Server Information

The detailed server information dropdown for each entry supplies you with an option to view more detailed information about that specific Server. This option will only appear if both Delta and Stack are currently running on the machine. Clicking on the dropdown if available will display Detailed Status, Channel Configuration and Live Preview panels.



Detailed Status

Delta Version
Displays the version of Delta that's currently running on the machine.

Playback FPS
Playback speed of Delta in frames per second.

Motherboard

Manufacturer
The manufacturer of the Motherboard.

Model
The model number of the Motherboard, set by the manufacturer.

GPU 1: Graphics card in slot 1

Manufacturer
Manufacturer of the GPU.

Model
Model number of the GPU set by the manufacturer.

Driver version
The driver information this GPU is using.

GPU 2 (if applicable)

Manufacturer

Model

Driver version

Drive information: an exhaustive list of all drives installed on the machine

Usage Bar
Displays the drive's usage in a bar format. When usage crosses the threshold this bar will turn red.

[Drive letter] Usage / Total Available
The drive's letter, usage and total Windows reported space available on this drive.

Timeline Table

TL
Timeline ID.

Visibility
Whether the timeline is visible or not.

Status
Playing / Stopped.

SMPTE
The current time the playhead is currently on.

Channel Config

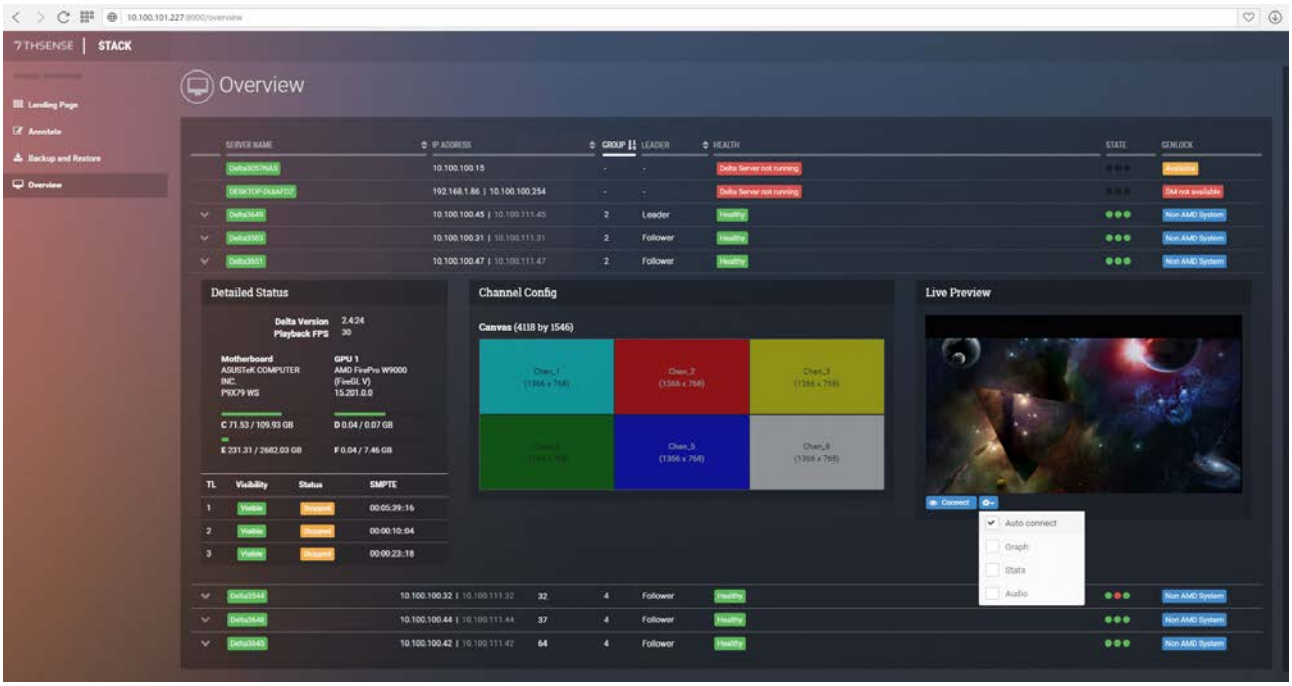
The Channel Config reflects a scaled ratio display of Delta's canvas. Canvas resolution is displayed above the canvas display. Each channel is represented by a semi-transparent rectangle along with their information about its name and resolution in the centre of each channel. This display will reflect any changes made to Delta's Channel Config in near real-time (2 second refresh rate). Any overlaps of channels will result in a visual overlapping of their respective channels in the display.

Live Preview

The Live Preview panel shows a live WebRTC playback preview of Delta. To connect the preview, simply press 'Connect'. WebRTC Preview must be enabled in Delta for the Preview to work. The

preview can show extra statistics along with the performance graph if required by selecting the relevant options in the Options dropdown at the bottom of the panel.

Detailed information about the preview's connection is displayed in the upper left portion of the preview display.



Options available

Auto Connect

toggles the automatic connection of the preview when opening the Detailed Server Information section of the server entry

Graph

toggles the display of the performance graph overlay*

Stats

toggles the display of the detailed stats information overlay*

Audio

enables / disables audio output in the preview

* These overlays are not displayed in Delta's output, they are only shown in the preview output.

Stack Backup and Restore (option)

The optional Stack Backup and Restore page is a system-wide page, and is designed to make backing up and restoring those backups easier and simpler. It has a tab for configuring Backup, and one for Restore. Servers can be backed up individually, or multiple servers set to back up simultaneously. Single servers can be restored in full or in part, from backup, and multiple servers can be set to restore in full or in part, from a single backup file.

Backup

Windows Connections Limit

If using a central NAS, ensure that the operating system can handle as many TCP connections as required. Windows 7 or 10, for example, can only handle 20 at a time.

Enter the name by which you wish to call the backup, in the 'Enter Backup Name' text box. If left blank, a standard backup name will be used.* Next, select the type of backup you want to create. Selecting 'All Configuration' will select the basic configuration of your server(s). 'All Data' will back up everything. If choosing 'Custom', then consult the table below for explanations for each custom option.

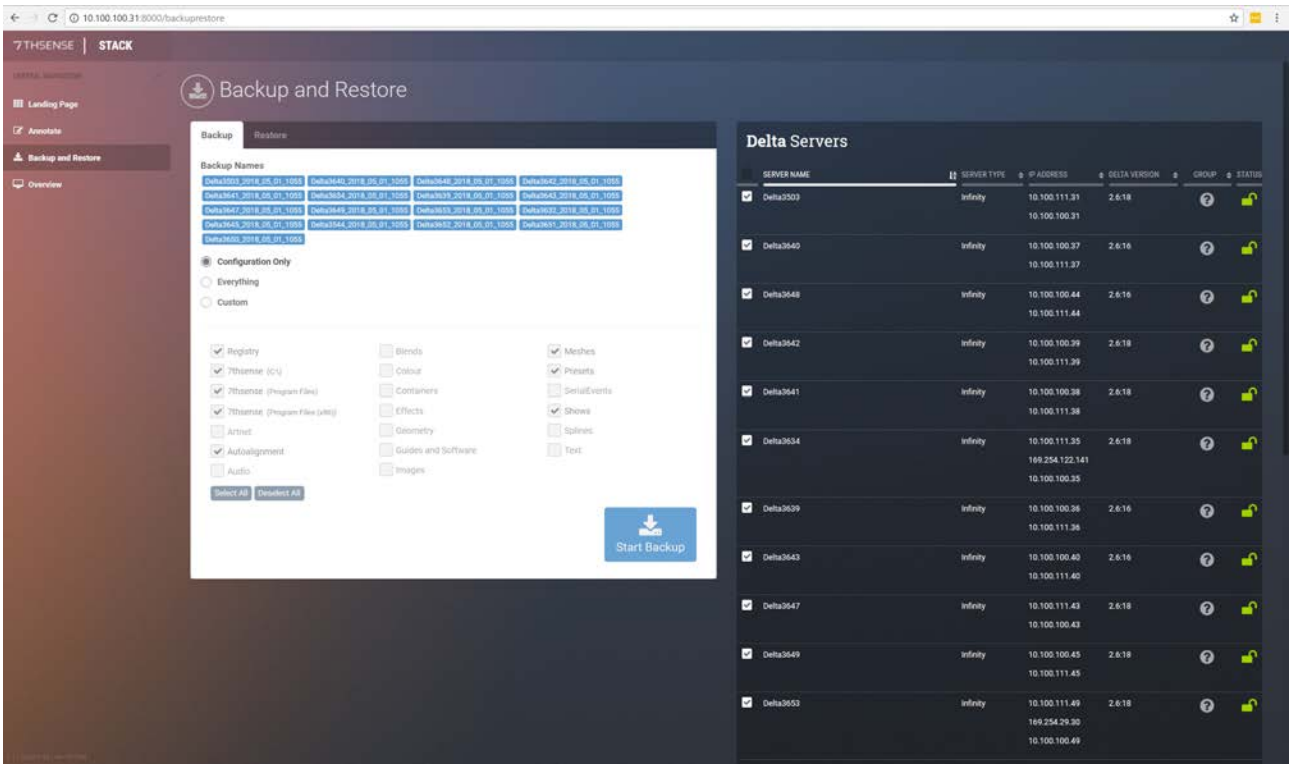
* Standardized backup names are formatted by [Server Name]_[Year]_[Month]_[Day]_[Time].zip (for example: Delta1234_2018_05_08_1217.zip). This can be reconfigured: see the Delta Server Configuration section for more information.

Selected file sizes affect backup times

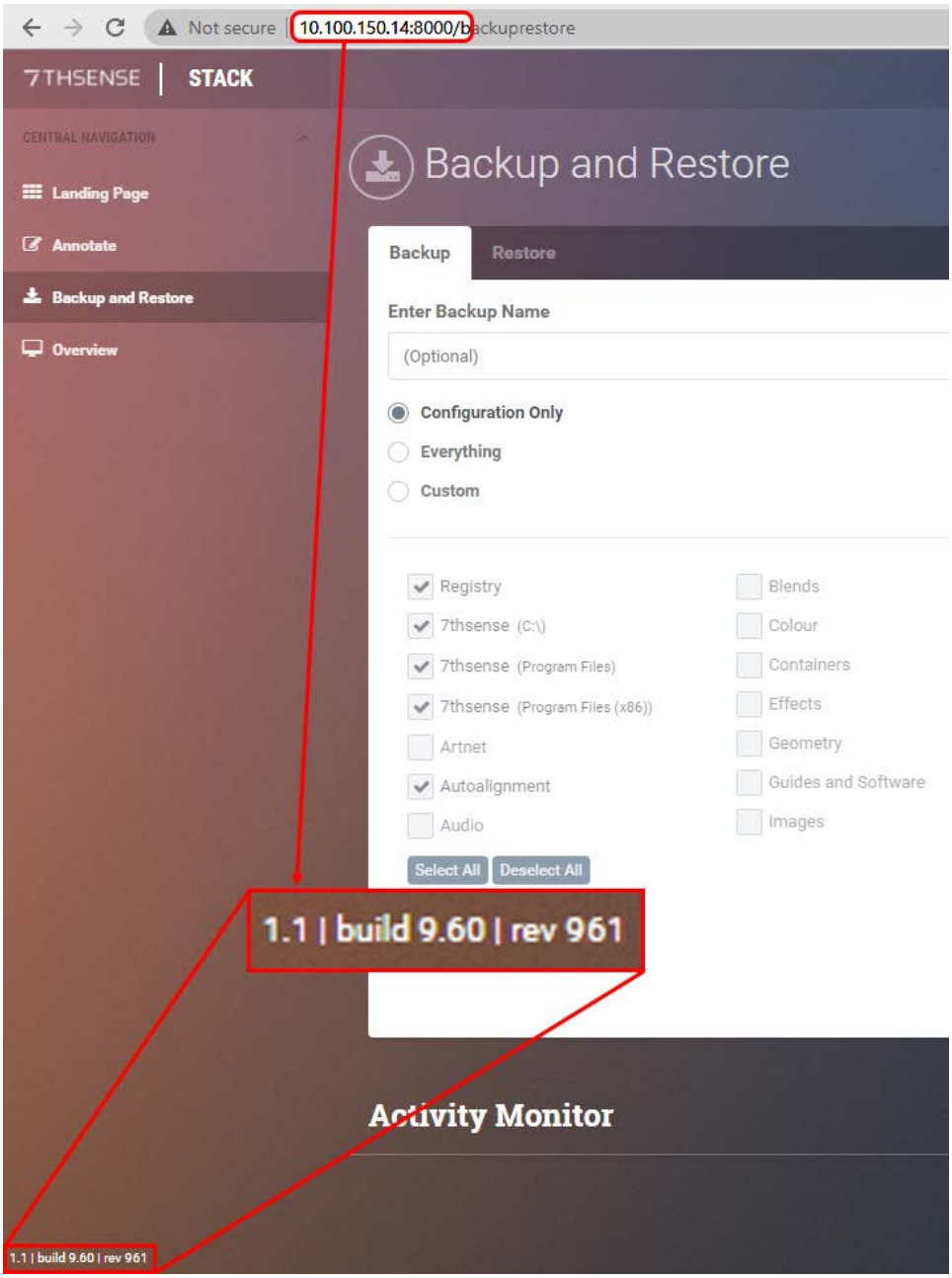
Selecting **7thSense** items (C:\) may be 5 GB or more. Program Files add about another 1 GB. Movies are not included in the backup options. These are very large volumes and copies should be already be held separately.

In the panel on the right side select the server(s) you wish to backup using the checkboxes.

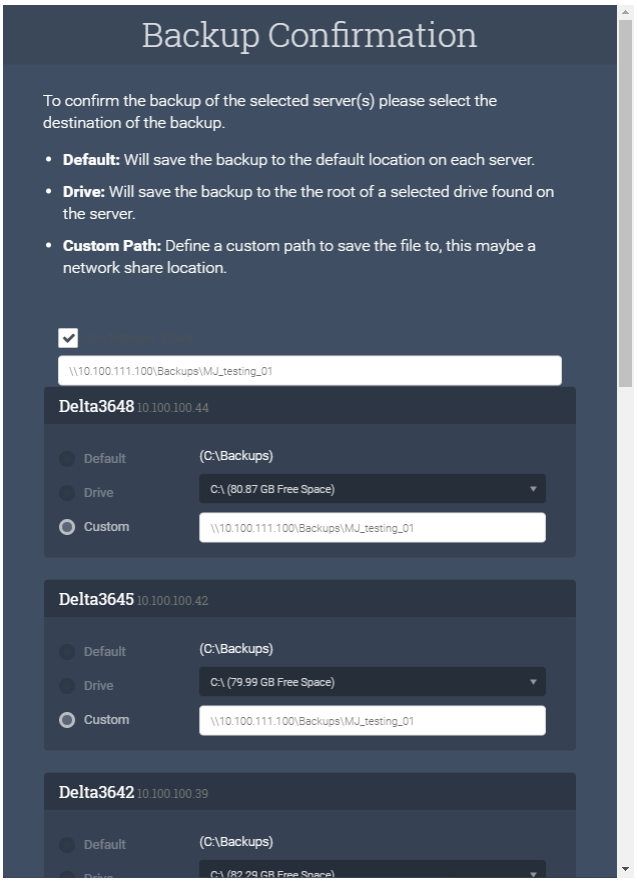
If selecting multiple servers, the backup name will become disabled and will show a list of all standard backup names in the list (in blue):



Only servers of the same major version of the software will be shown here for backup and restore. If a known server is present on the network but does not appear in the list, it is worth checking the version of the Stack installation. The software version of the server in the browser address bar can be seen in the bottom left of the browser page: mouse-over the text to highlight:



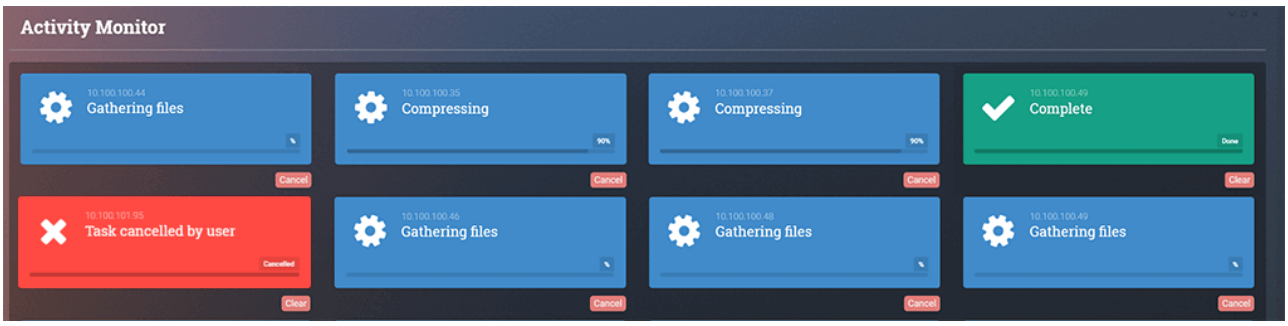
After selecting your backup options and server(s) to backup, press ‘Start Backup’. Here you can confirm the destination(s):



You can backup each server to its default location, to a named drive per server, or back up all to a NAS, for example. To do this, check the 'Use Network Share' box and enter the IP and path at the top. This will become the default destination as 'Custom' in all listed server destinations.

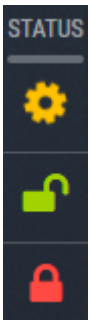
Below the server list you can Cancel, or Confirm to start the backup.

The Activity Monitor area will now populate with an activity card for each server to show status and progress. Any server's backup can be cancelled. Status will be Gathering Files, Compressing or Complete. The progress bar is per file, not overall backup stage.



When a server backup is complete, the 'Cancel' button becomes 'Clear', but any refresh of this page will clear the Complete and cancelled cards.

The activity status per server is also shown in the server list, to the right:



In progress

Unlocked

Locked (read only)

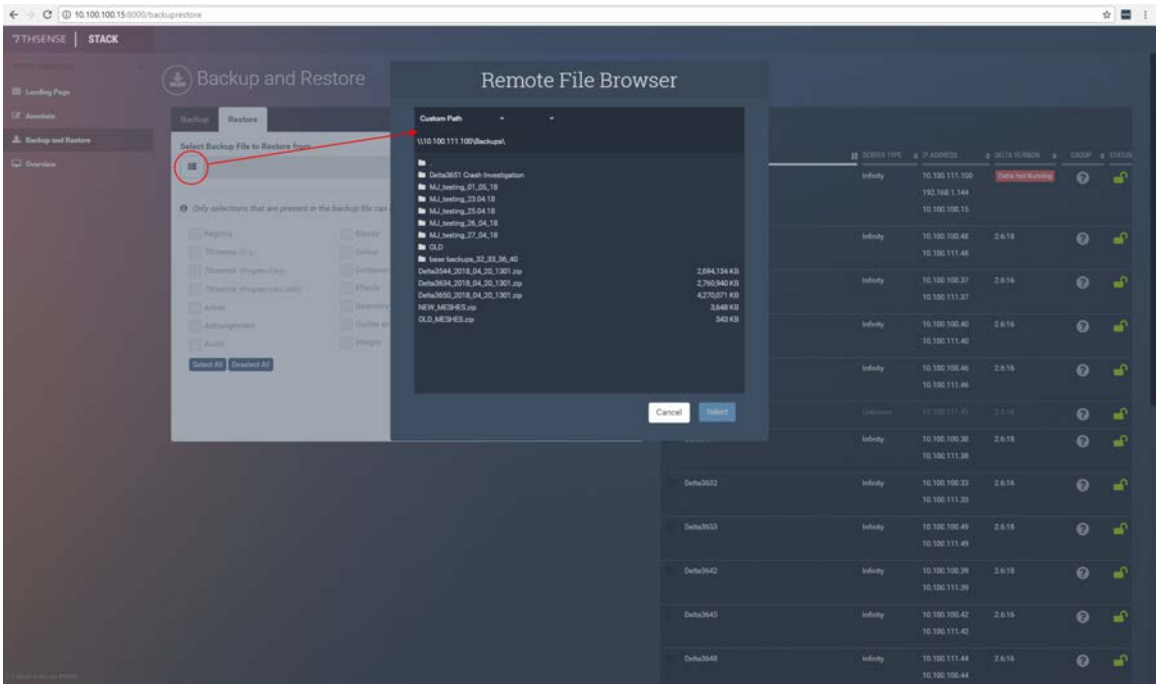
Restore

The Restore Process

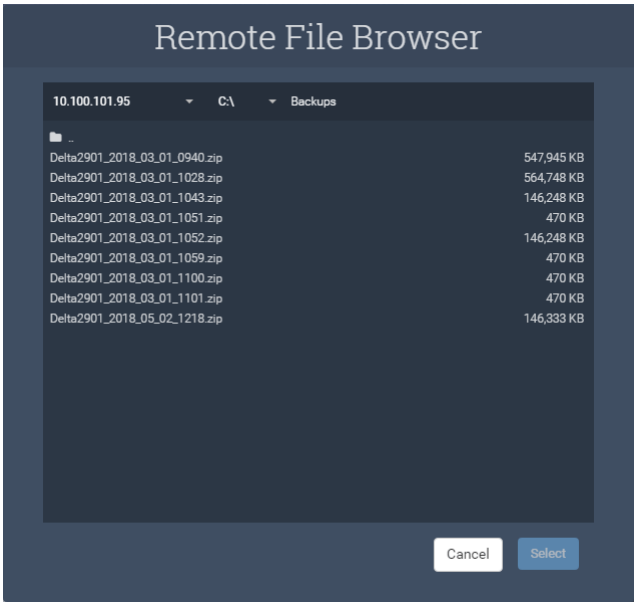
- A **source** is selected.
- From the source, a **backup** file is selected.
- From the backup file, backed up **items** are accepted or deselected.
- A server or servers to which to restore the backup (**destinations**), are selected.
- On ‘Start Backup’ backup files are restored to the destination(s) into **temporary** locations.
- When complete, the items to be replaced are deleted and the temporary (restore) files **renamed**.
- If any **7thSense~** items were selected, Stack and then the server will **restart**, ending in a ‘Complete’ activity card.

Restore Source

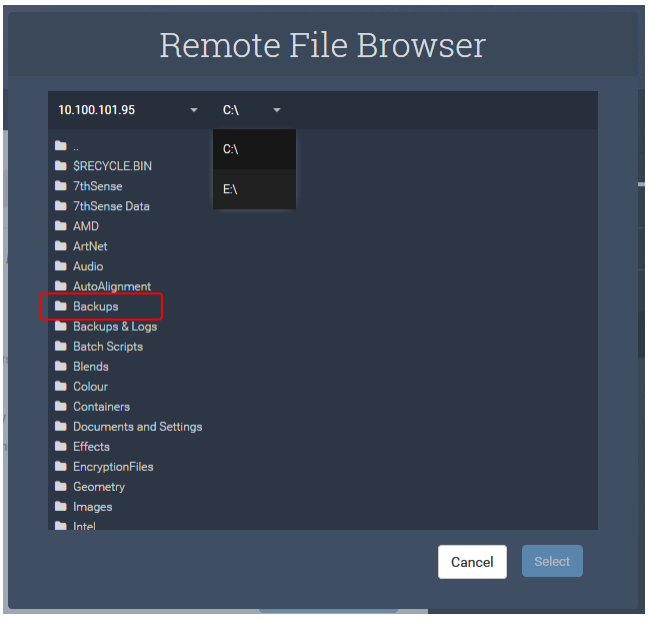
Select the server source backup file to use. This could be a server under the list of IPs, or select Custom Path (for example if you use a NAS for backups):



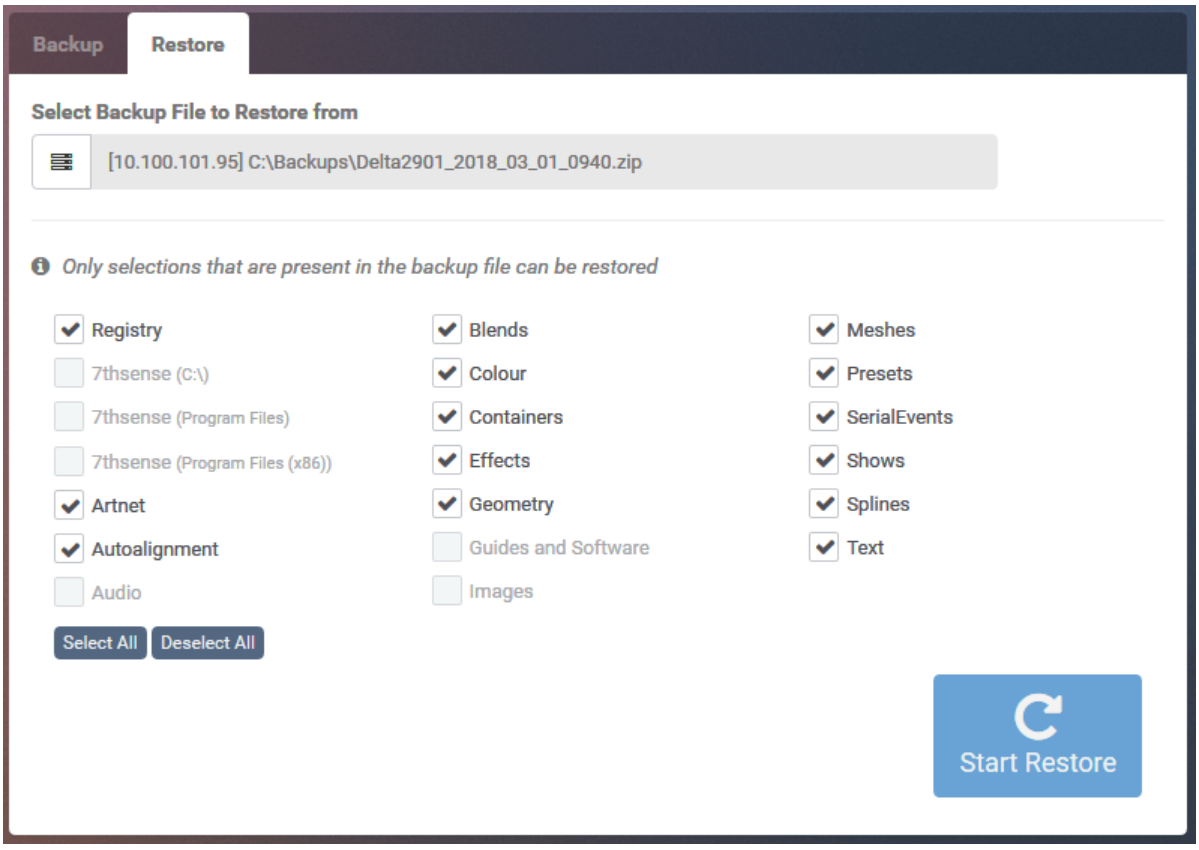
For a server IP, the default C:\Backup folder and contents are displayed:



For alternative locations, the selected server's folder structure can be expanded from the folder icon, to locate your backup folder:



Select the required folder and file, and then choose whether you want to restore everything as backed up, or deselect any items available but not needed:



Restore Destination

From the list on the right, select the Delta server or servers to which you want to restore, using the checkboxes.

Click ‘Start Restore’. As with Backup, the Activity Monitor shows progress in the form of activity cards. As with backup, progress in an activity card relates to the item being restored, not the stage of restoration.

Items to restore

Backup Option	Description
Registry	Windows registry settings relating to Delta
7thsense (C:\)	C:\7thSense
7thsense (Program Files)	C:\Program Files\7thsense (Includes Sequences)
7thsense (Program Files (x86))	C:\Program Files (x86)\7thsense (Includes Sequences)
Art-Net	C:\Artnet
Autoalignment	C:\Autoalignment
Audio	C:\Audio*
Blends	C:\Blends
Colour	C:\Colour
Containers	C:\Containers (Playlists and AV Assemblies)
Effects	C:\Effects
Geometry	Warp data in C:\Geometry
Guides and Software	
Images	C:\Images*
Meshes	C:\Meshes*
Presets	C:\Presets
Serial Events	C:\SerialEvents
Shows	C:\Shows
Splines	C:\Splines
Text	C:\Text

* These entries occupy a lot of space and take much longer to restore.

Additional Stack Modules

Other applications are available that use the Delta Web Service interface. These are all additional licensed applications, and include:

StackCaptioning

This provides automatic audio and/or visual captioning for rides and attractions, on Android devices: tablets, smart glasses, or similar mobile devices

StackExpress

Designed primarily for the NanoSDI server range, the StackExpress interface may also be used with any Delta Media Server, allowing the user to quickly and efficiently build, store and play pre-set media playlists, or administer real-time media playback.

StackSignage

StackSignage comprises several software apps, that allow a set of Delta Media Servers to interact with a Scheduler server's database, to provide continuous playback of scheduled media for multiple large-format digital displays, live events and paid display installations. These individually licensed modules include:

- **Scheduler**: app for primary and backup scheduling servers
- **Player**: app for accessing the user interface on Delta servers
- **Mediasync**: to sync media from NAS to Delta servers
- **Snapshot**: uses cameras to take snapshots of the output displays at intervals for proof-of-play

➢ For all web interface modules, see the Online User Guides.

Managing Delta User Licences

Managing Delta User Licences

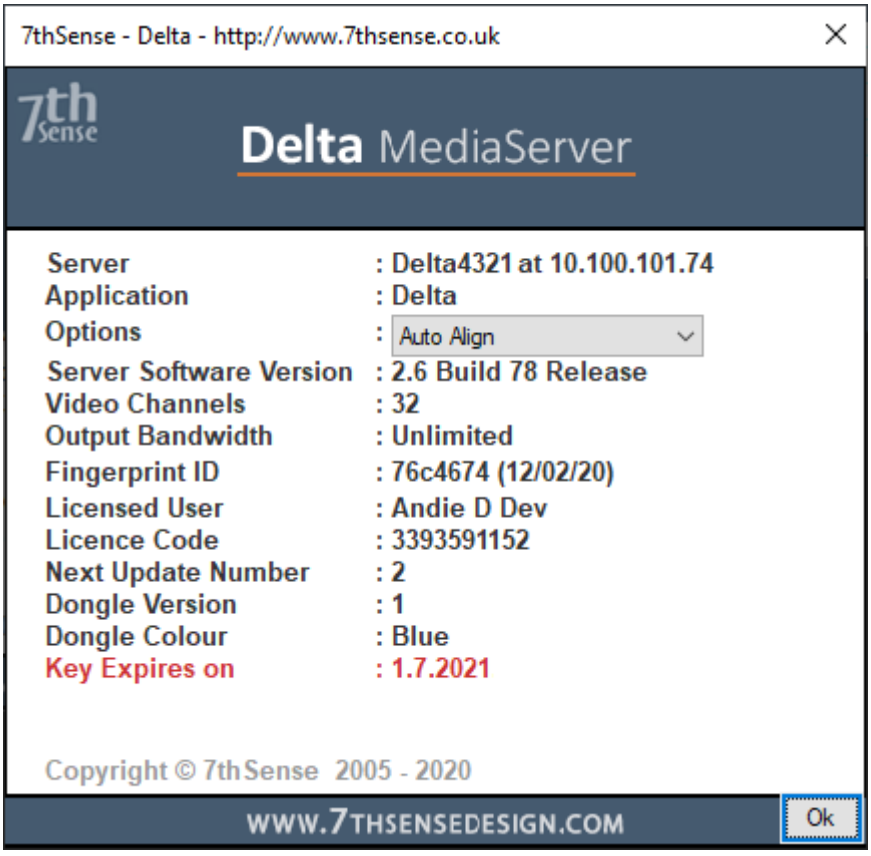
Licensing for 7thSense products serves two functions: (i) to time-limit server user (e.g. a server loaned for an event), and (ii) to enable software functionality (e.g. mesh mode; number of channels; video capture; or bandwidth [173]).

Update Licence Expiry

Licence Expiry

- Servers are generally sold by 7thSense with permanent licences and the required functionality enabled. These will not have an expiry date.
- Servers loaned by 7thSense do not have permanent licences, and will throw up an expiry warning after the expiry date.
- Users who have purchased servers that they themselves loan out for events, can (since Delta version 2.4 build 31) limit or extend a server licence expiry date, within the overall terms of the server licence, using the application Change Delta User Expiry [179].

Your licence expiry date can be found from DeltaServer, *About* > *About Server*:



When your licence expiry is within 30 days, users with Delta 2.6 or later and DeltaMonitor 3.0.31 or later, will receive a flashing warning on the Delta media server front panel:

If or when your DeltaServer licence runs out, you will see the warning:

Do you think your licence should not have expired? Many issues are caused simply by an incorrect System Date, Time, or Timezone. Check these before you contact support@7thsensedesign.com for an update.

Where is My Server Licence Key?

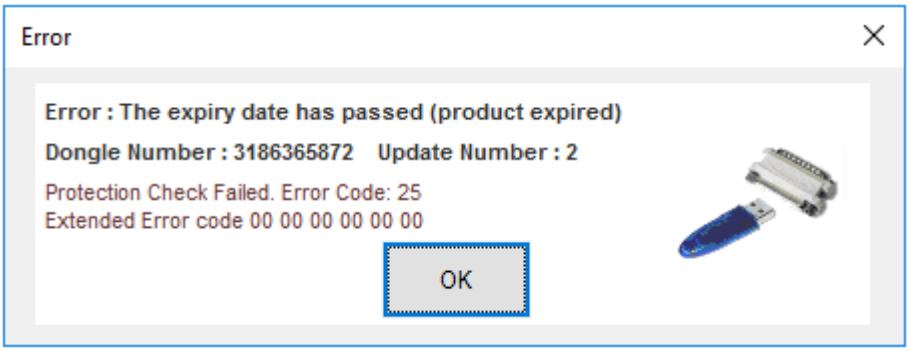
All servers except Nano-R series are fitted internally with a **USB license key** from the factory. This carries most of the licence detail, and can be reactivated in the case of expiry, or extended in terms of functionality, simply by entry of a new code obtained from 7thSense Design. These servers may also have a digital licence for some software features.

Nano-R (and earlier DuoII) servers have only a **digital licence** requiring online activation using a facility called CopyMinder.

Servers with USB Dongles: Obtaining a Licence Expiry Update

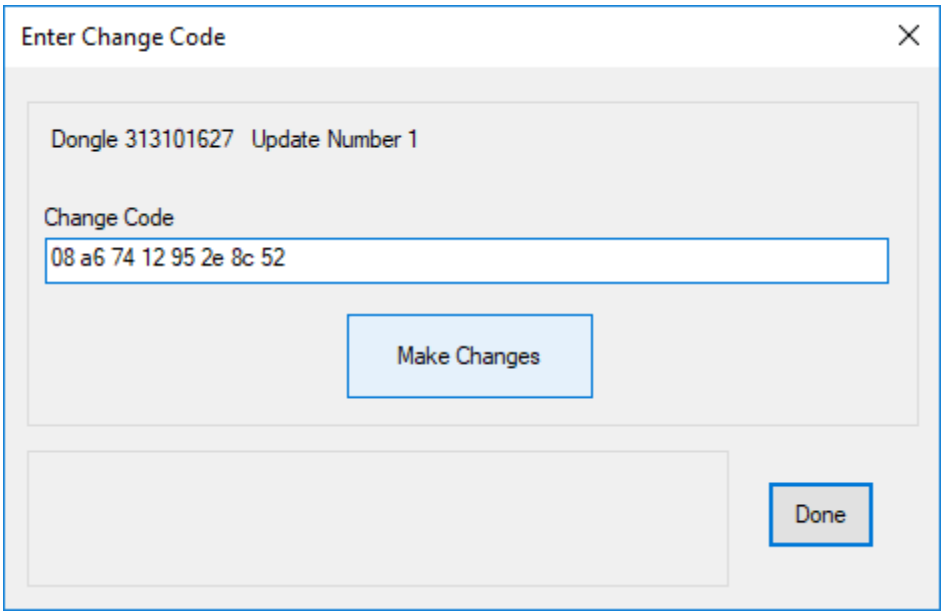
- Email the dongle number and the update number to: support@7thsense.one.

You can find these numbers from the update licence prompt:



We will then provide a code that can be entered in DeltaServer, *About* > *Update Licence*.

When you have your change code, go to DeltaServer, *About* > *Update Licence* and enter it, then press 'Make Changes'.



A prompt will appear to confirm that the change has been successful. If you enter an incorrect code, you will be prompted for the correct format and the licence update will not work.

Click 'Done', then restart the DeltaServer application to enable the changes to take place.

Servers with Digital CopyMinder Licence: Online Expiry Update

Note: For servers without a USB dongle, you must have an active Internet connection – and for the Nano-R series, be in service mode – to activate an online licence.

7thSense must first have approved the update. If your server is online, simply click on DeltaServer: *About > Update Licence*. Delta will connect with CopyMinder and update the expiry date. There is no confirmation dialog, but the server will now have a valid licence.

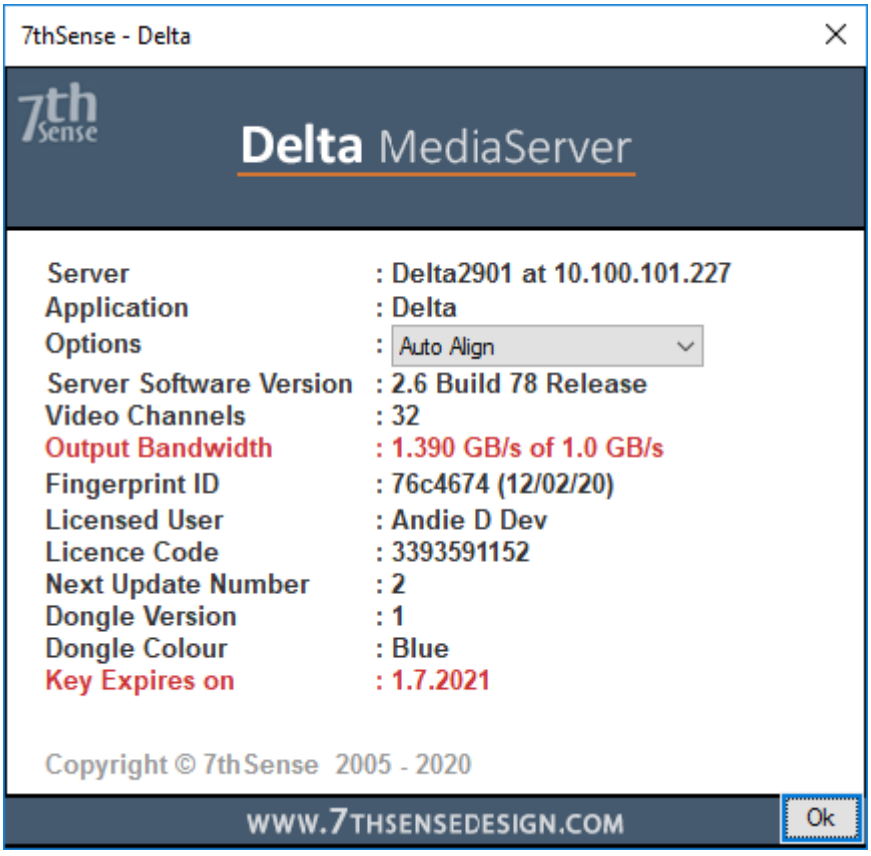
If you cannot connect online to update the server, please contact support@7thsense.one.

Output Bandwidth Licensing (from 2.6-64)

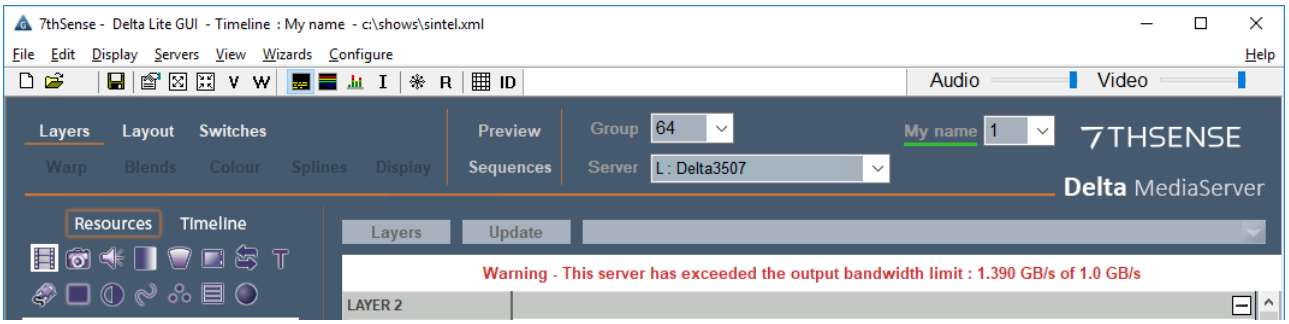
Introduced in August 2019, Delta 2.6.64 uses a new Output Bandwidth Licensing system. Each server has an Output Bandwidth Licence value set in the factory. As with any Delta licence option, it will be based on the required feature set and performance parameters defined at the point of sale for the server.

The output bandwidth is calculated based on the quantity and resolution of HDMI/DVI/ DisplayPort/SDI/ST2110 outputs along with the Delta timeline frame rate, and the colour bit depth requested during specification of the server.

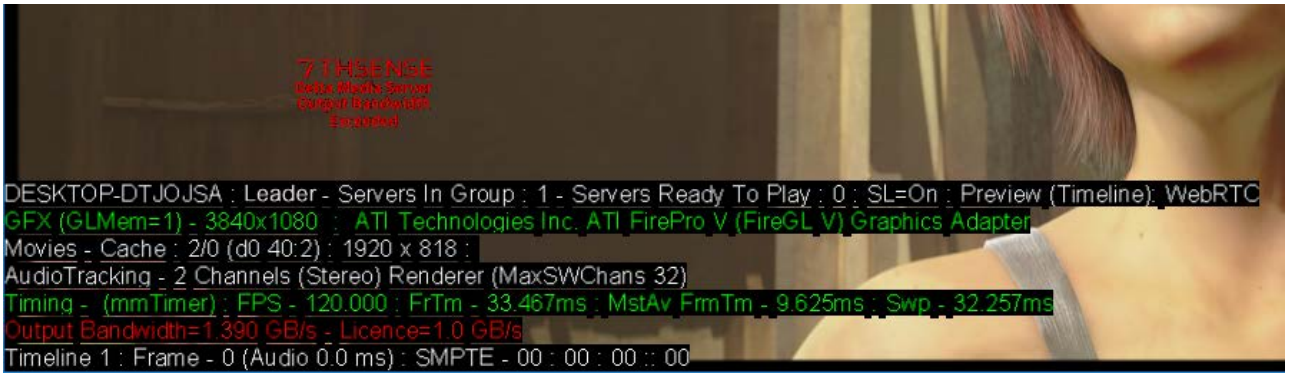
The current licensed output bandwidth for a server can be seen in the DeltaServer dialog: *About* > *About Server* (or DeltaGUI > *Help* > *About*). This will show red if it exceeds the licence limit:



If the output bandwidth is exceeded, the DeltaGUI message bar will display a corresponding warning:



Each output will also show a moving watermark stating ‘Output Bandwidth Exceeded’, and the Stats will show usage versus licence in red:



In addition, the server Front Panel display will flash a red warning every 30 seconds:

An example of when the bandwidth licence could be exceeded would be if the timeline frame rate has been changed from 30 fps to 60 fps, or the resolution of the connected display is higher than specified at the point of sale.

If you wish to operate beyond the preset bandwidth of a server, please contact us at info@7thsense.one. It will sometimes be the case that we need to supply upgraded hardware components and/or move to you into a more powerful base platform to suit increased performance requirement.

Note that if you update to a current DeltaServer software build with an old license, you may need to receive a licence update from us. Please contact us at info@7thsense.one for assistance.

Activate a Software Licence

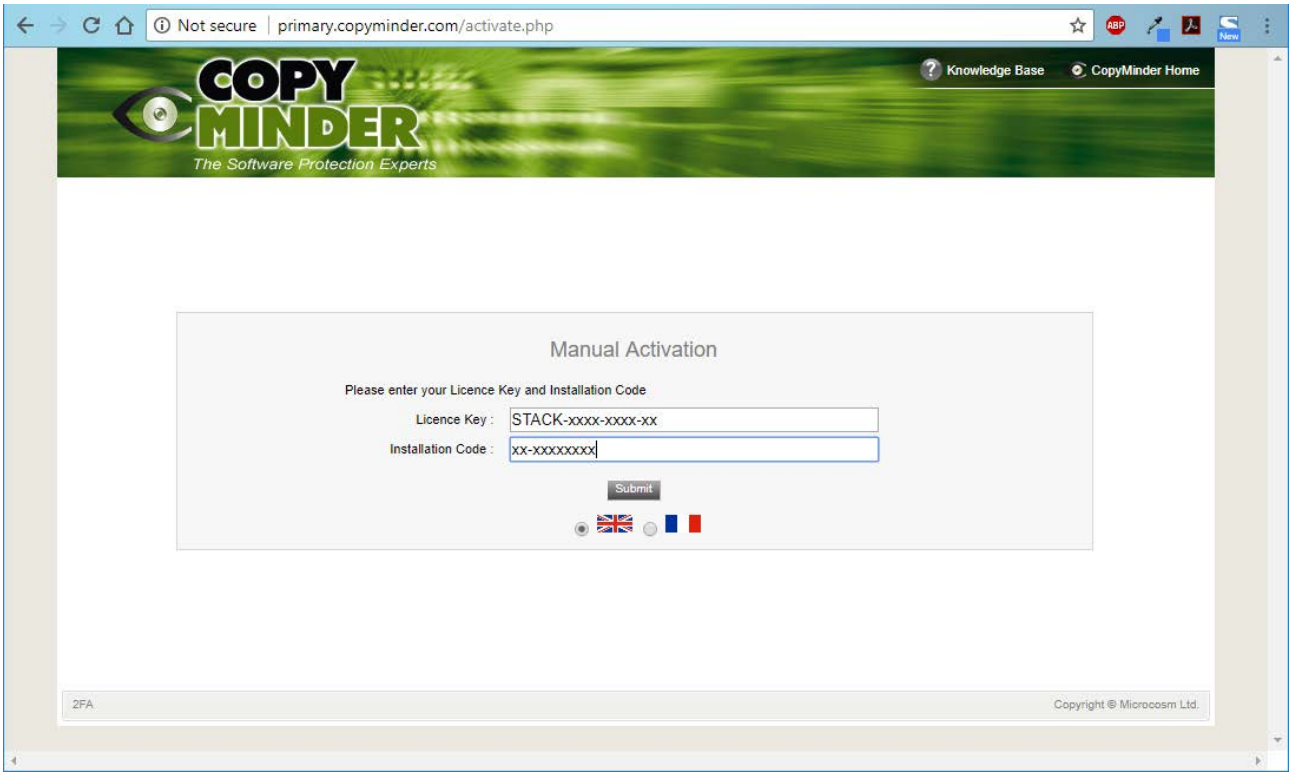
Software Feature Licences

Both USB dongle and digital license types carry individual licence details and options, depending on the application for which the server was sold. Where suitable for the server, additional features or modules can also be enabled by entry of a new code obtained from 7thSense Design.

Nano-R and DuoII servers and Delta pre-2.5: Software Activation

This requires a licence key and an installation code from 7thSense.

When you install a new 7thSense program onto your Delta Media Server, you will reach a product registration dialog. Go to CopyMinder online (http://primary.copyminder.com/**activate**.php) to enter your licence key and installation code as supplied by 7thSense.



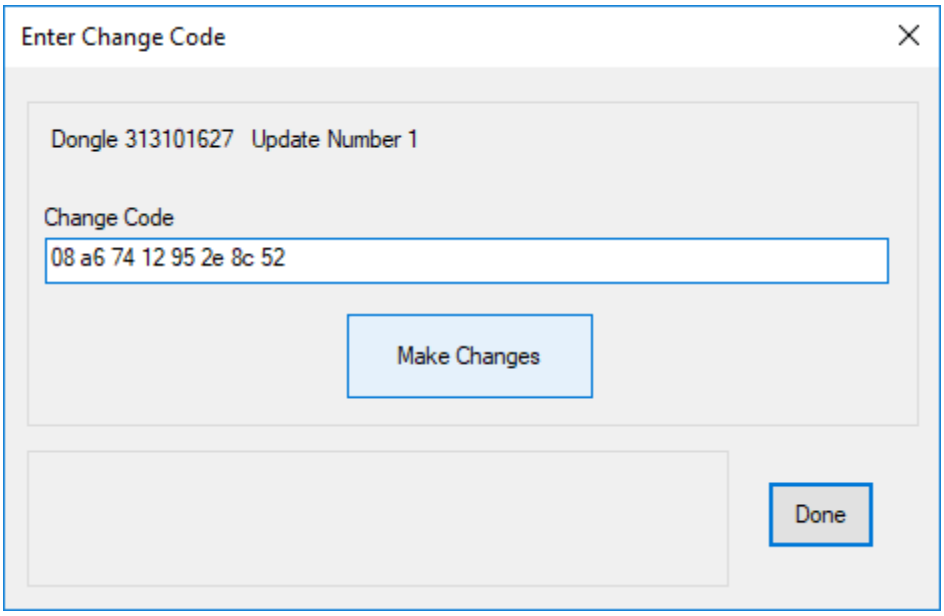
Click '**Submit**' then complete registration details, then '**Submit**' again, to receive your activation code (nine groups of four digits). Copy this into your product registration dialog, and click 'OK'.

Servers other than Nano-R with Delta 2.5 and later

From Delta 2.5, all licensing is managed through DeltaServer, *About > Update Licence*.

Contact support@7thsense.one for the required change code.

When you have your change code, go to DeltaServer, *About* > *Update Licence* and enter it, then press 'Make Changes'.



A prompt will appear to confirm that the change has been successful. If you enter an incorrect code, you will be prompted for the correct format and the licence update will not work.

Click 'Done', then restart the DeltaServer application to enable the changes to take place.

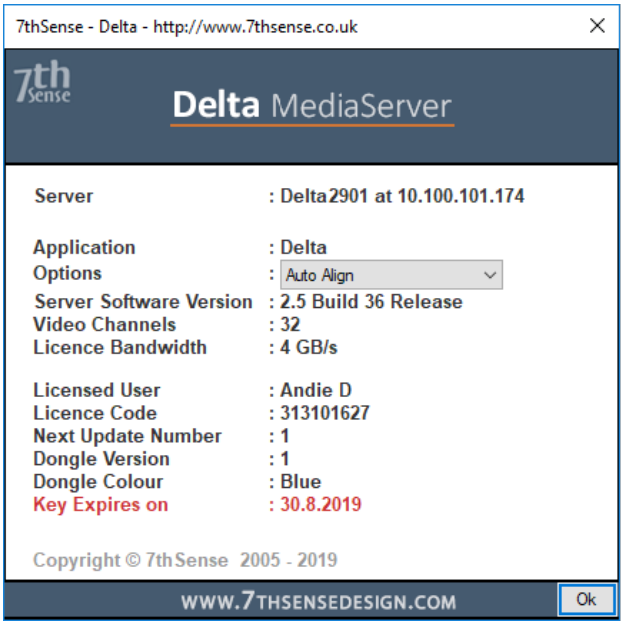
Bandwidth Licensing (pre 2.6-64)

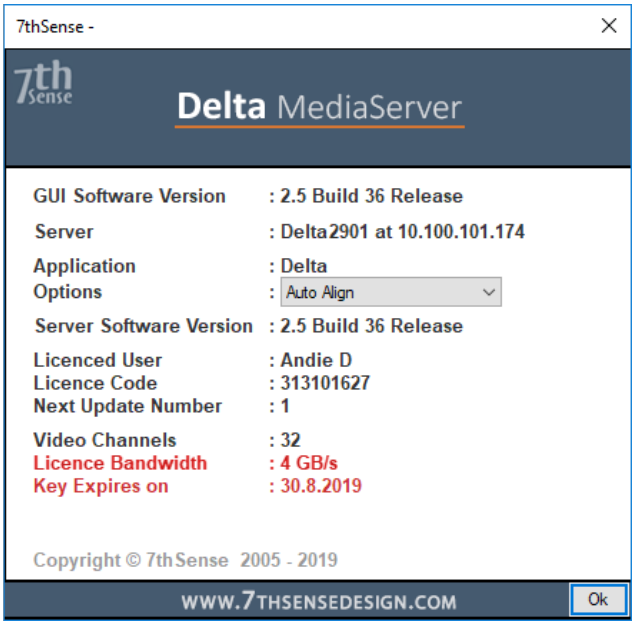
Bandwidth Licence in Delta was introduced with Delta 2.5, based on the output bandwidth (not media bandwidth). So, for example, a server driving 8 × HD 60 Hz projectors, the output bandwidth in GB/s would be calculated as (7680 × 2160 × 3[RGB] × 60) / (1024 × 1024) = 2.78 GB/s. All new servers shipped with Delta 2.5 carry an output bandwidth number relating to the bandwidth for which the server was specified at the point of sale.

The default licence value for all servers not previously specifically licensed for output bandwidth, is 4 GB/s.

The licensed bandwidth for a server can be seen in the DeltaServer dialog: *About* > *About Server* (below, left).

In DeltaGUI: *Help* > *About GUI* (below right) this will show red if it exceeds the licence limit:





If the licensed bandwidth is exceeded, each output will show a moving watermark stating 'Licensed Bandwidth Exceeded', and the Stats display will show usage versus licence in red:

An example of when the bandwidth licence could be exceeded would be if the timeline frame rate has been changed from 30 fps to 60 fps, or the resolution of the connected display is higher than specified at the point of sale.

If you wish to operate beyond the preset bandwidth of a server, please contact us at info@7thsense.one. It will sometimes be the case that we need to supply upgraded hardware components and/or move to you into a more powerful base platform to suit increased performance requirement.

Note that if you update to a current DeltaServer software build with an old license, you may need to receive a licence update from us. Please contact us at info@7thsense.one for assistance.

Change Delta User Expiry

Change Delta User Expiry is a licensed tool that provides an additional layer of control for Delta software licence providers and resellers. For example, an integrator can add an expiry date during a site build, and make a licence permanent upon approval and sign-off. The process builds a unique code element into each Delta software licence, which only they can manage.

What's Required?

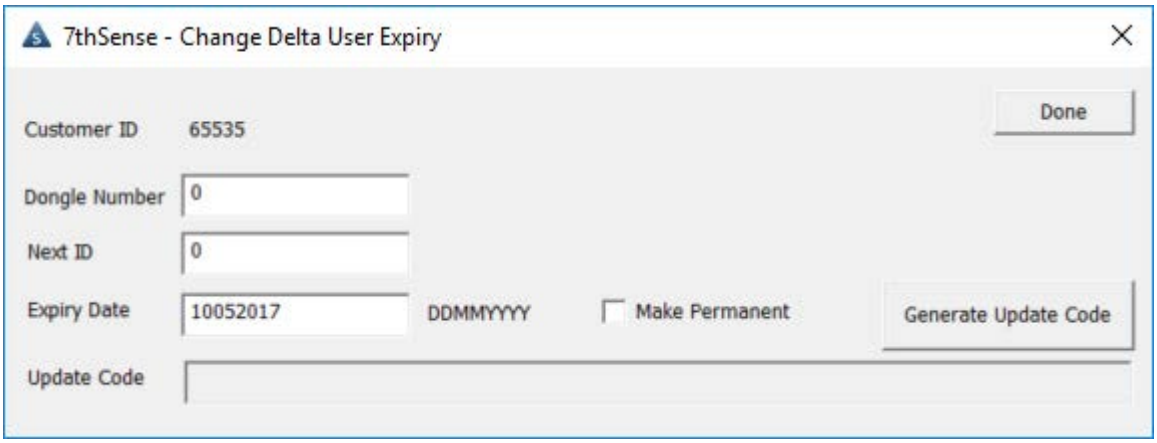
- **Change Delta Expiry** software and Licence for this software, and
  - a Windows machine on which to install it
- Delta Version 2.4 Build 31 or later
- Initial update to Licence from 7thSense if Licence predates May 2017.

Generate New Update Code

Once installed, the software can be started from the default location:

C:\Program Files\7thSense\7thChangeDeltaUserExpiry\7thChangeDeltaUserExpiry.exe

Change Delta User Expiry Software Interface



Customer ID

This unique customer identifier ensures customers can only edit the expiry of their own servers. All licences sold have this id embedded within them, and will only allow updates generated from software with the corresponding ID to change their expiry dates.

Dongle Number

This is a unique number for each dongle licence and is required for any update the user wishes to generate.

Next ID (Next Update ID)

This is an incremental id number to track updates to the licence. The current id is required to generate a new update. (This update ID is not the same as the Delta next up[date number.)

Expiry Date

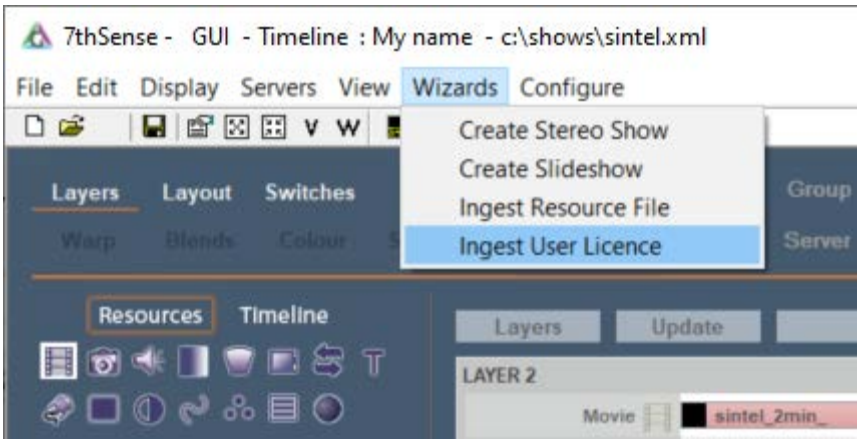
Enter the new required licence expiry date in the format: DDMMYYYY

Make Permanent

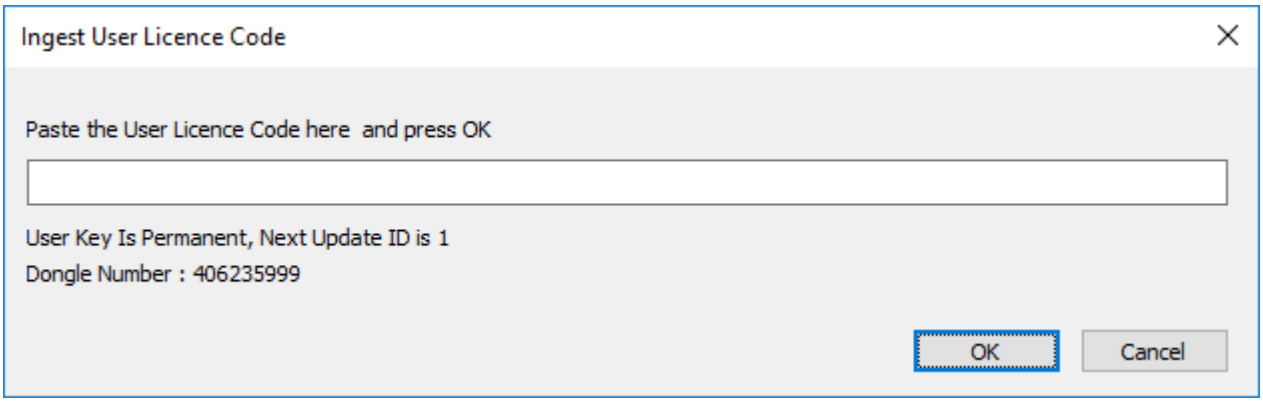
This checkbox disables the 'Expiry Date' field to produce a permanent licence.

Where to Find Your Codes

The Dongle number and Next Id (Next Update Number) can be found in the Ingest User Licence dialog of DeltaGUI:



This will bring up a dialog displaying the Dongle number and Next update ID for the currently selected server:



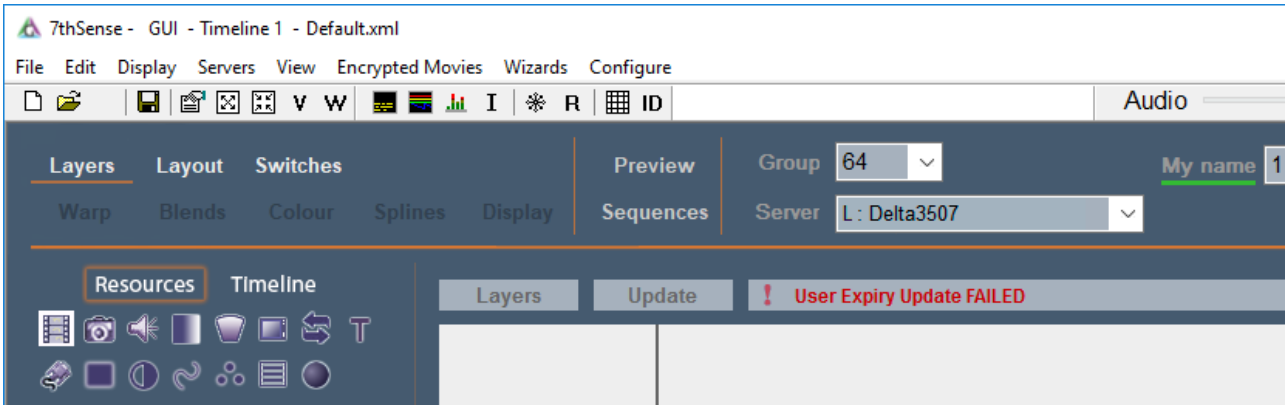
Generate the Update Code

When all change details are complete, click the 'Generate Update Code' button and a code will appear in the 'Update Code' field below. This code now needs to be entered into Delta to complete the update process.

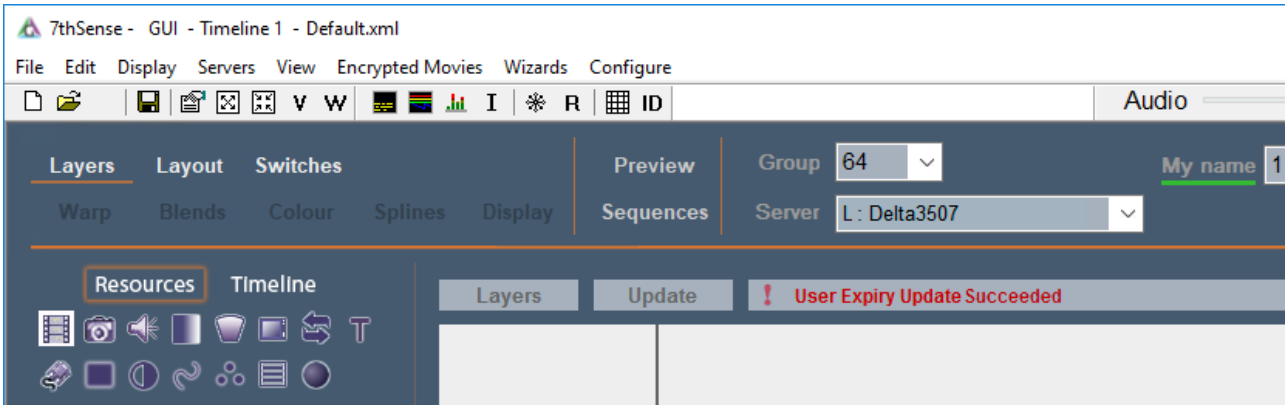
Updating Delta with new Code

To update a server's licence with a generated code, go to the update dialog in DeltaGUI by navigating to the *Wizards > Ingest User Licence* from the top menu bar. Enter the update code into the text field in the dialog and hit 'OK'.

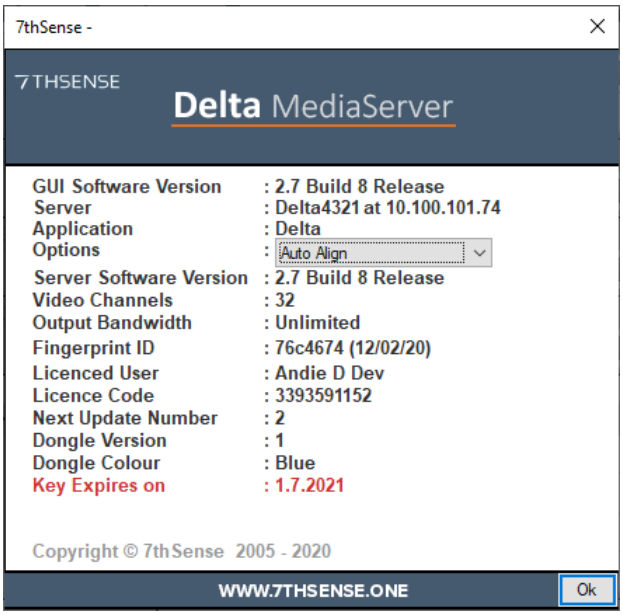
If there is a problem with the code, ingest will fail, with this message in the DeltaGUI status bar:

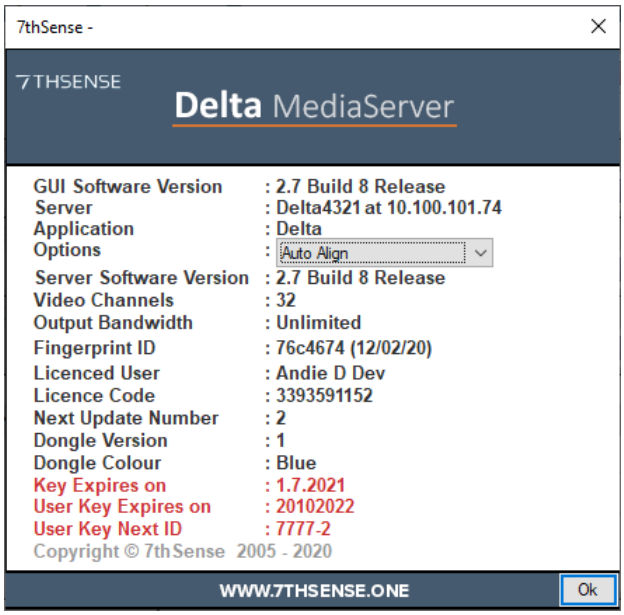


Otherwise, you should see that is has succeeded:



To ensure the changes applied are correct, navigate to the about dialog in the check that in the about dialog by navigating to *Help > About GUI*. Additional fields for 'User key expires on' and 'User Key Next ID' appear after the expiry change. Here is before and after:





Delta Media Server Shared Folders

Delta Media Server Shared Folders

These are the standard default shared folders on a Delta Media Server. Guidance on assigning alternative or additional file locations is given in the Delta User Guide for your installation version.

Network Share			Local Folder Path	Contents of Folder
\\serverip\7thSense			C:\Program Files\7thSense\	Installation folder of Delta Media Server
\\serverip\7thSense Data	\7thSense (C:)		C:\7thSense\	Collection of supporting files and web hosted resources at C:\7thSense\
	\7thSense (x64)		C:\Program Files\7thSense\	Installation folder of 64-bit Delta Media Server
	\Additional Folders	\7thSense (x86)	C:\Program Files (x86)\7thSense\	Installation folder of 32-bit Delta Media Server
		\ArtNet	C:\ArtNet\	Art-Net pixel mapping XML files
		\Backup & Logs	C:\7thSense\Backup & Logs\	Delta Media Server backup and log files
		\Batch Scripts	C:\7thSense\Batch Scripts\	Delta Media Server deployment batch scripts
		\Blends	C:\Blends\	*.7BL files for blending templates
		\Colour	C:\Colour\	*.7CO files for colour modification templates
		\Containers	C:\Containers\	

Network Share			Local Folder Path	Contents of Folder
		\Desktop (7thSense Design Ltd)	C:\Users\7thSense Design Ltd\Desktop\	Desktop folder for user 7thSense Design Ltd
		\Desktop (All Users)	C:\Users\Default\Desktop\	Desktop folder for all users
		\Effects	C:\Effects\	Collection of *.frag and *.xml files for use in Delta Media Server
		\EncryptionFiles	C:\7thSense\EncryptionFiles\	
		\Geometry	C:\Geometry\	*.7GM files for warp templates
		\Movies_C	C:\Movies\	*.7th, *.A7S, *.DPX, *.CIN, *.SGI, *.STH, or *.TGA image sequences
		\Presets	C:\Presets\	*.CLP files for Delta Media Server presets
		\ScalableDisplay	C:\ScalableDisplay\	
		\ScalableDisplay (Program Files)	C:\Program Files\Scalable Display\	
		\Sequences	C:\Sequences\	*.xml files for Delta control structure
		\SerialEvents	C:\SerialEvents\	*.7SE files for external control devices

Network Share			Local Folder Path	Contents of Folder
		\Splines	C:\Splines\	*.7BZ files for Bezier curve templates
		\Startup (7thSense Design Ltd)	%USERPROFILE%\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup\	
		\Startup (All Users)	C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Startup\	
		\Text	C:\Text\	
		\UserGuides	C:\UserGuides\	
	\Audio		C:\Audio\	Audio files for use in Delta Media Server
	\AutoAlignment		C:\AutoAlignment\	Auto alignment files for use in Delta Media Server
	\Images		C:\Images\	Image files for use in Delta Media Server
	\Meshes		C:\Meshes\	*.obj files for use in Delta Media Server
	\Movies_E		E:\Movies\	*.7th, *.A7S, *.DPX, *.CIN, *.SGI, *.STH, or *.TGA image sequences
	\Shows		C:\shows\	*.xml or *.xdl files for use in Delta

Network Share			Local Folder Path	Contents of Folder
				Media Server
	\Software & Drivers		C: \7thSense\Software & Drivers\	Local install files for drivers and software

Network Ports Used by Delta Server

Network Ports Used by Delta Server

The following is a list of network ports used by Delta Media Server and its supporting hardware and software.

Software/Hardware	Executables	Network Port(s)
DeltaServer	Deltaserver.exe	23 (TCP – Multi Telnet, default of 5 simultaneous connections) 24 (TCP – Telnet – deprecated in favour of Multi Telnet) 25 (TCP – Telnet – deprecated in favour of Multi Telnet) 26 (TCP – Telnet – deprecated in favour of Multi Telnet) 7001 (TCP – Command Port) 7002 (UDP – search port) 7003 (UDP – timing port) 7005 (UDP – transport server port) 7776 (UDP – Delta Multicast port) 7777 (UDP – Delta search) 7778 (UDP – Delta search response) 7780 (UDP – External Control Read port) 7781 (UDP – External Control Write port) 7878 (UDP or TCP – WebRTC preview video stream) 57120 (OSC, configurable, from Delta 2.8)
(group) Timing Controls Distribution (TCD) mode	Deltaserver.exe	TCP – A unique TCD Base Port (2000) + Group (34), would give 2034 UDP – TCDBasePort + Group + 1 (using the above example = 2035)
Web RTC Signalling Server	node.exe	7878
DeltaGUI	DeltaGUI.exe	7001 (TCP – command port) 7002 (UDP – search port) 7003 (UDP – timing port)
Stack web interface	node.exe (multiple instances) httpd.exe WebKit2WebProcess.exe	8000, 80, 8080
Stack 1.1	node.exe	8888 (Stack 1.1 discovery)
StackExpress	node.exe	3000 ()
StackSignage	node.exe	7654 (StackSignage Player) 8085 (StackSignage Media Sync) 8084 (StackSignage Snapshot) (Note all StackSignage ports are configurable)
7thClosedCaptionTrigger	7thclosedcaptiontrigger.exe	UDP – 7880 TCP – 1337

Software/Hardware	Executables	Network Port(s)
DeltaAudio	Deltaaudio.exe	Delta > DeltaAudio – 3476 DeltaAudio > Delta – 3477
DeltaMonitor	Deltamonitor.exe	7790
DeltaMonitor Backpack port	Deltamonitor.exe	9999
DeltaPreview	Deltapreview.exe	8484 (DeltaPreview from Delta 2.7)
DeltaShowControlInterface (with Advantech ADAM-6000 series)	DeltaShowControlInterface.exe	5168 (AdamPort)
7thUDP2TCP	7thUDP2TCP.exe	customizable
7thSenseBackPack	Backpack.exe	N/A
7thUDPAppLauncher	7thudpapplauncher.exe	configurable
7thSense DeltaLTC	DeltaLTC.exe	configurable
DeltaArt-Net	DeltaArtNet.exe	From Delta 2.6.73: 6454 (Output) 6455 (Input) Previous Delta versions, both on 6454
7thRS232Tx	7thRS232Tx.exe	configurable
7thProjectorCalibration	7thProjectorCalibration.exe	N/A
Soundman Server	soundman-server.exe	20000
Distributed File Manager (DFM)	DFM.exe	TCP – 23
RAID7th	Raid7th.exe	Delta > R7th – 3496 R7th > Delta – 3497
7thConnect	7thconnect.exe	Talks to Delta on TCP port 23
Dante Control & Monitoring		UDP – 8700, 8701, 8702, 8703, 8705, 8707, 8708, 8800
Delta Timecode Translator	DeltaTCT.exe	configurable
LTCReader	LTCReader.exe	20000
Dante Discovery	mDNSResponder.exe	The Dante Discovery service (the service that automatically discovers Dante devices on the network) requires that the 'Dante mDNSResponder' application is allowed access through the firewall (this is a per-application rule, rather than a per-port rule).
Dante Unicast Audio		UDP – 14336-14600
Dante Virtual Soundcard		UDP – 319, 320, 4321, 4440, 4444, 4455, 8001, 8002
Dante Controller Metering		UDP – 8751
Dante Controller	dantecontroller.exe	8751, and also relies on Dante Discovery and ConMon.

Software/Hardware	Executables	Network Port(s)
Scalable Camera Server	ScalableCameraServer.exe	—
Scalable Command Line Calibrator	CommandLineCalibrator.exe	—
Scalable Control Panel	ScalableControlPanel.exe	—
Scalable Display Client	DisplayClient.exe	—
UltraVNC	uvncviewer.exe uvncserver.exe	5900
Front Panel display (R-Series servers)		5000

Document Information

Document Information

Date	Document edition	Software version	Revision Details	Author/Editor
July 2017	1	Delta 2.4 and above, DeltaMonitor 3.0.25, Stack 2.0, Change Delta User Expiry 1.0		Andie Davidson
April 2018	2	Delta 2.4 and above, DeltaMonitor 3.0.25, Stack 2.0, Change Delta User Expiry 1.0	Edits to managing licences.	Andie Davidson
February 2019	3	Delta 2.5 and above, DeltaMonitor 3.0.25, Stack 2.0, Change Delta User Expiry 1.0	Delta Ports table updated	Andie Davidson
June 2019	4	Delta 2.5 and above, DeltaMonitor 3.0.30, Stack 2.0, Change Delta User Expiry 1.0	Front panel lock control added; DeltaMonitor external controls	Andie Davidson
August 2019	5	Delta 2.6.64 and above, DeltaMonitor 3.0.30, Stack 2.0, Change Delta User Expiry 1.0	Revised output bandwidth licensing	Andie Davidson
December 2019	6	Delta 2.6.74, DeltaMonitor 3.0.34, Stack 2.0, Change Delta User Expiry 1.0	Updated for version fingerprint	Andie Davidson
July 2020	7	Delta 2.6.74, Delta 2.7, DeltaMonitor 3.0.34, Stack 2.0, Change Delta User Expiry 1.0	Revised server terminology	Andie Davidson
August 2021	8	Delta 2.6.74, Delta 2.7.6, DeltaMonitor 3.0.39, DeltaWebService 2.4.13, DeltaWebPlatform 2.1.2, StackPreview 1.0.0, Stack 2.0, Change Delta User Expiry 1.0	StackAnnotate withdrawn	Andie Davidson
April 2022	9	Delta 2.6.74, Delta 2.7.6, DeltaMonitor 3.0.39, DeltaWebService 2.4.16, DeltaWebPlatform 2.1.3, StackPreview 1.0.0, Stack 2.0, Change Delta User Expiry 1.0	Stack Overview and Backup optional add-ins	Andie Davidson
January 2023	10	Delta 2.6.74, Delta 2.7.11, Delta 2.8.0, DeltaMonitor 3.0.41, DeltaWebService 2.4.16, DeltaWebPlatform 2.1.3, StackPreview 1.0.0, Stack 2.0, Change Delta User Expiry 1.0	Introduction of R-Series servers	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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