15 Synergy

15.1 Linking to media with Synergy

Titan includes Avolites Synergy software which allows you full control over one or more networked Ai media servers or the Avolites Prism Zero media application. Not only can you control playback of media and effects, but also upload new media with automatic transcoding, create new screen fixtures and new layers on AI servers, and preview multiple media streams in the Titan workspaces.

For shows which include video content, this gives you a much smoother workflow when creating and running the show.

> Ai refers to media outputs as “Screen Fixtures”. To avoid confusion with Titan fixtures, Titan doesn’t use “Fixture” and refers to them as **“Screens”** (and in some places **“Surfaces”**).

15.2 Setting up Synergy

15.2.1 Connecting up an Ai server

The Ai server(s) need to be connected by Ethernet to the Titan console. Media previews (Section 15.3.2) use NDI streams which along with copying of large media files can place a heavy demand on the network, so you should follow these tips for setting up a suitable network:

- Use at least gigabit network equipment
- Have a dedicated network for Synergy if possible
- If you are using Titan PC Suite (Titan Go / Simulator), make sure Windows Firewall is turned off

> The Ai server(s) must have the correct version of Synergy installed to match your Titan version. To upgrade Synergy on the Ai server, download the Synergy Upgrade Installer from the Avolites Download page and run it on the Ai server. You don’t need to do anything extra on the console as the Titan installer will automatically install the latest version of Synergy on the console.

If you have problems getting Titan and Ai to recognise each other, make sure they are on matching software versions, and both in the same IP address subnet range such as `2.0.0.1` and `2.0.0.2` - read more about Networking the Console (Section 21.1).

15.2.2 Setting up the Ai Show

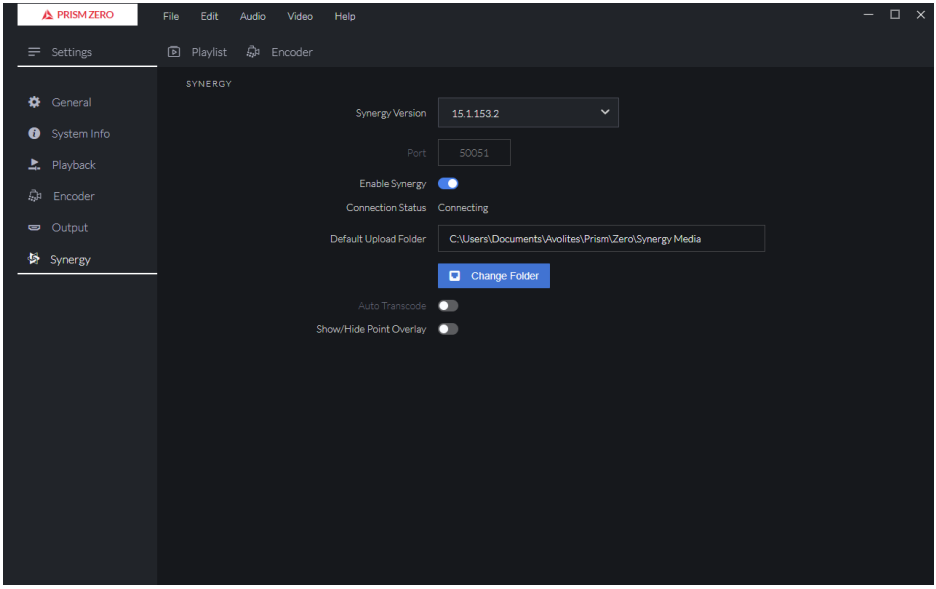
A simple Ai system involving a single screen or projector can be set up by following the Synergy setup (Section 15.2.4) instructions in the next section. You just need to open a blank show in Ai and you can add Screens and Layers from the Titan console.

For more complicated requirements, create suitable screen fixtures in the Ai show - see the Ai manual for more details on how to do this. You can create and rename Layers from the Titan console. The screen fixtures you have created in Ai will then become available as Surfaces in Titan.

15.2.3 Connecting up Prism Zero

You can connect to Prism Zero software running on any device connected to the same network as the console.

In the Prism Zero settings screen (File - Settings or click the menu icon in the top left corner), go to the Synergy option and turn on the **Enable Synergy** switch. Ensure the **Synergy Version** drop down box is set to match the version of Titan you have installed. Prism Zero will start the Titan Media node which is a Titan node designed to interface with Prism. When the Titan Media node is running, the Connection Status will change to "Connected". These settings are remembered next time you start Prism Zero.



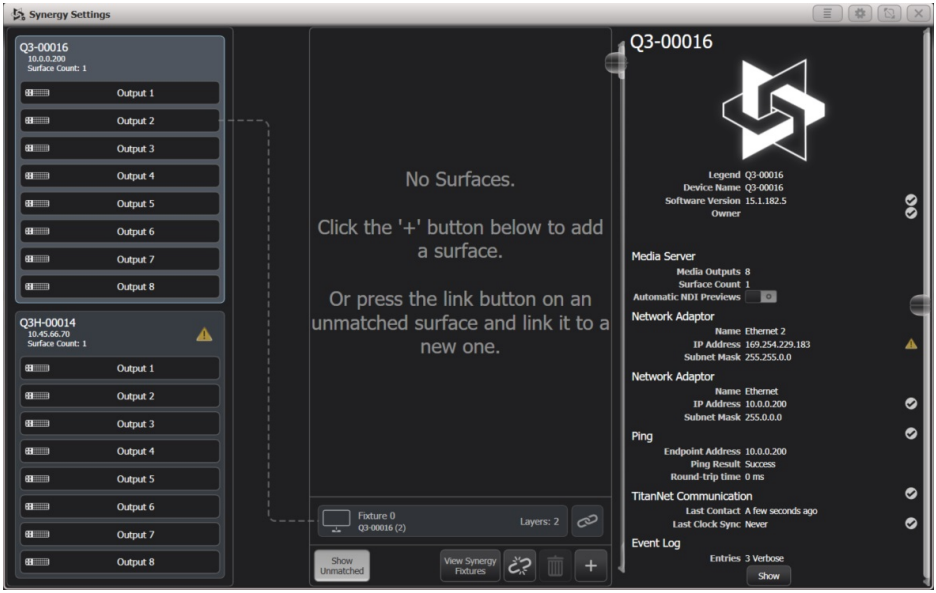
Once connected, the Titan Media node will be discoverable by TitanNet and you can use the Prism Zero output as a media surface in Titan by following the next section.

- If the version box does not show a matching version, you need to install the correct version of Titan Media node from the Avolites website.

15.2.4 Synergy Setup

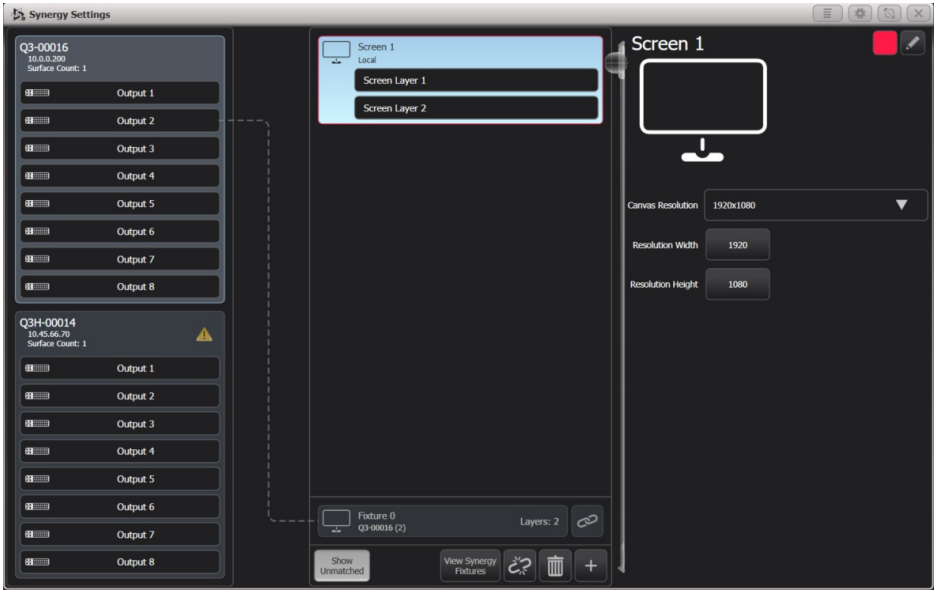
In Titan, open the **Synergy Settings** window using the Workspace button provided on new shows, or use the option in the Open Workspace Window menu.

This window is a little like the DMX settings screen (Section 19.2.2): it lets you set up how the Titan console is linked to the various outputs on the Ai server(s) or to Prism Zero. Also, for Ai servers it lets you add or remove layers from each Ai surface and add complete new surfaces to the server (though you may need to configure these further on the Ai server itself).



On the left of the window the available Ai servers or Prism Zero instances are shown. In the centre of the window, the Surfaces and Layers configured in Titan are shown. Connection lines show how the Titan Surfaces will control the different outputs of the media servers. At the bottom are Surfaces which are already configured on the connected media servers but are not yet linked to Titan, these are called unmatched surfaces.

Click on the {+} at the bottom and select a Screen or Prism surface from the pop up to add a new surface. This will appear at the top; an Ai surface by default has two layers but you can change this later. A Prism Zero surface only has a single layer.

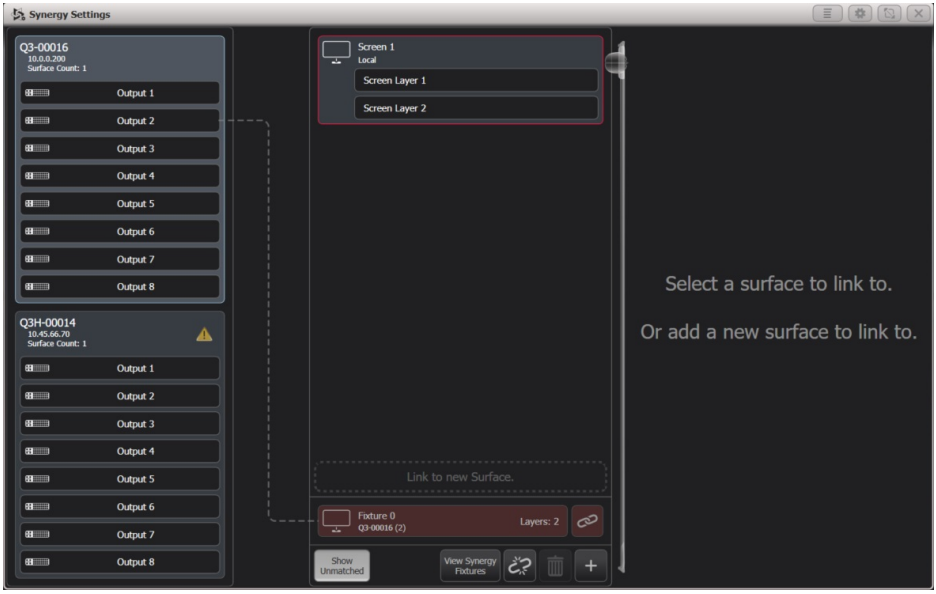


Clicking on the top part of a Surface will show options on the right for the surface. These options allow you to set the canvas resolution which can either be picked from a list of common resolutions, or entered numerically; at the top right the display halo colour of the surface can be set, and the {Pencil} button allows you to change the name (you can also do this with the [Set Legend] button).

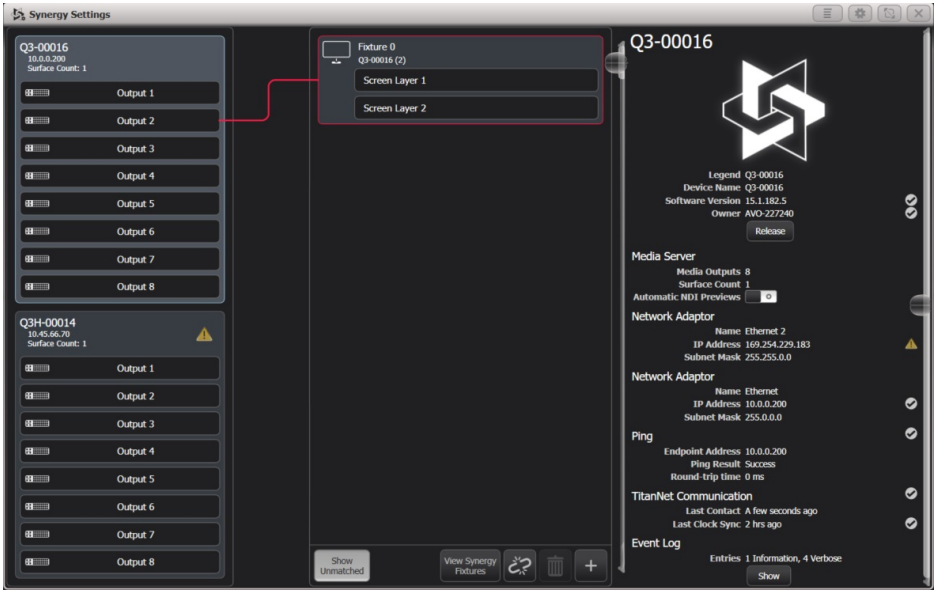
Clicking on a Layer within a Surface shows layer options on the right. This allows you to allocate a Rate or BPM master to the layer for speed control.

When no Surfaces or Layers are selected, the right side of the window shows general information about the system. There is a switchable option “Automatic NDI Previews” to enable or disable NDI streams - if you are using the media preview window, you will need to turn this on. If not leave it turned off, as it causes a lot of network traffic.

Once you have created a surface in Titan, you need to match it to the desired Ai surface or Prism Zero. Click on the {Link} button on the unmatched surface at the bottom, then click on the Screen 1 surface at the top (or you can click **“Link to new Surface”** to automatically create a new surface and link to it).

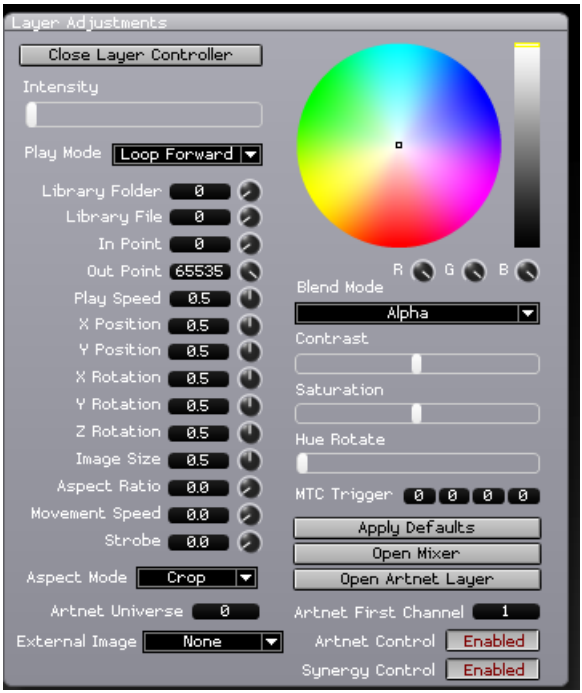


The Screen 1 Surface will now show that it is linked to the Ai server or Prism Zero and the unmatched server at the bottom disappears.



On an Ai server you can link the Screen 1 Surface to one or more different physical outputs by clicking the screen, then clicking the output to connect on the left, for example if you want to show the same media on several screens.

Once an Ai layer is linked, if you open the layer properties in Ai the **"Synergy Control"** box will show *"Enabled"*. Now you cannot control the screen using Ai, only from the Titan console.

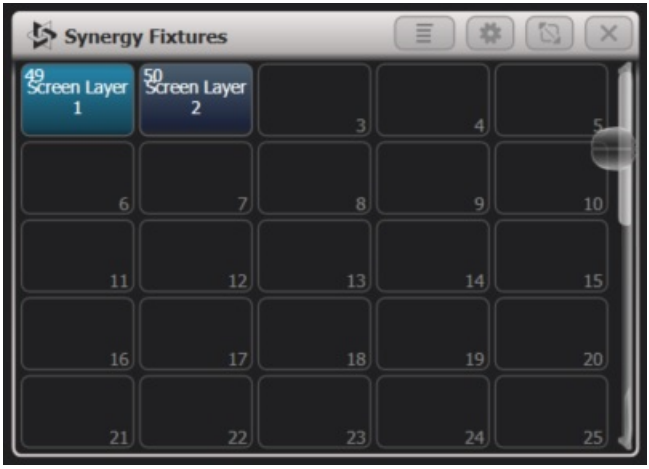


To add a layer on Ai, click on the surface, then the {+} button at the bottom and select **Layer** from the popup.

To delete a layer or surface, select the item then click the {Rubbish Bin} button at the bottom, or press <Delete> then click the layer/surface. If linked to Ai, this will also delete the layer/surface in Ai.

15.2.5 Synergy Fixtures Window

Every Prism Zero layer or Ai server layer appears as a button in the Synergy Fixtures window. You can display this using the button at the bottom of the Synergy Settings window (Section 15.2.4) or by double tapping <Open/View> and then selecting it from the window select buttons.



You use these buttons to select one or more layers for control, just as you would select lighting fixtures to control. Once selected, use the Attribute Editor or wheels (Section 7.2.1) to control the media playback and effects. You can then store palettes (Section 8.2) and playbacks (Section 10.2.2) as with any other lighting fixture. This is described in the next section, Operating Synergy (Section 15.3).

> The Synergy layers are shown in their own window to keep them together and help you find them quickly. However if you prefer you can move the layer buttons into the normal Fixtures window.

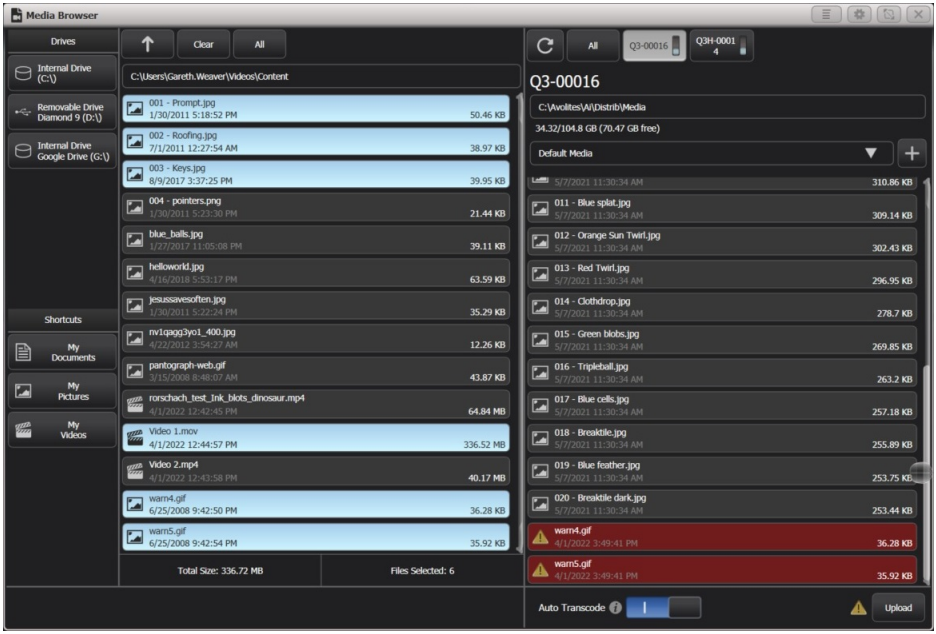
15.3 Operating Synergy

Once Titan and the Ai server(s) or Prism Zero applications are linked up (Section 15.2), you can start controlling them from the console.

15.3.1 Uploading Content with the Media browser

The Media Browser allows you to upload media content directly to the Ai server or the machine running Prism Zero from the Titan console. You can also create new media banks on an Ai server. Media content will be automatically transcoded to the AiM codec as required by the Ai system. This is very handy when you are handed a last-minute media file at the front of house position.

As with other windows, the media browser window is opened from the Workspace Window select buttons (double press the <Open/View> button to show).



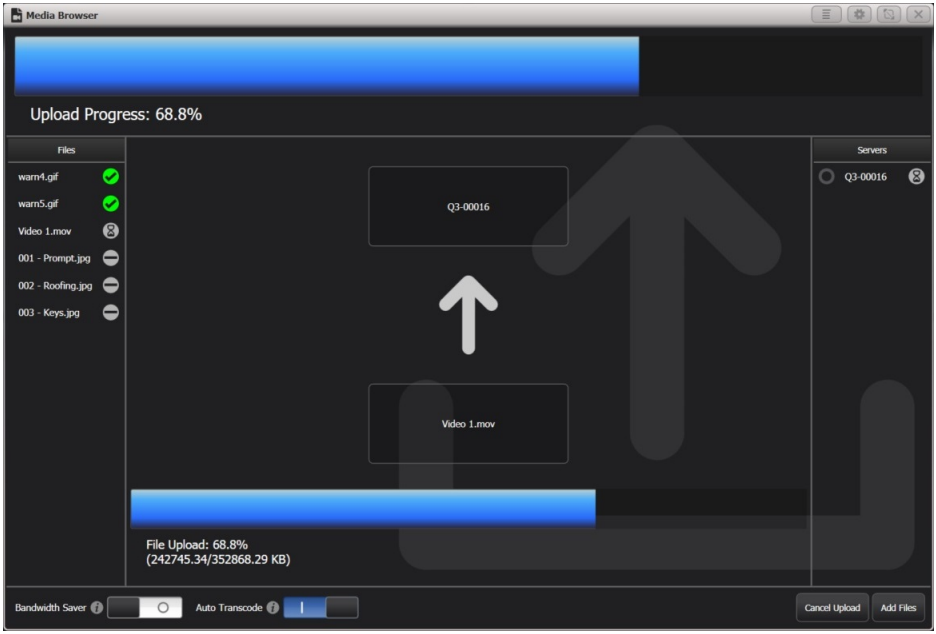
On the left hand side of the window, local disks available on the console are listed. If you plug in a USB drive it will be shown here. Shortcuts to commonly used folders are also provided.

In the second column, the files/media clips available on the selected local disk are shown. You can navigate into folders and use the up arrow at the top to go back up a folder level.

On the right of the window, the media banks on the Ai server are shown. Clicking on the bank name will drop down the list of media clips loaded in the bank. Click the {+} button at the side of the bank name to add a new bank. At the top of this column, the available disk space and the path on the Ai server where the media is being stored is shown.

To copy media files to the Ai server or Prism Zero, select the files you want to transfer in the middle window, then click on the bank you want to transfer them to on the server.

If the server already has files on it with the same names as files you have selected for transfer, the files will be highlighted in red as a warning.

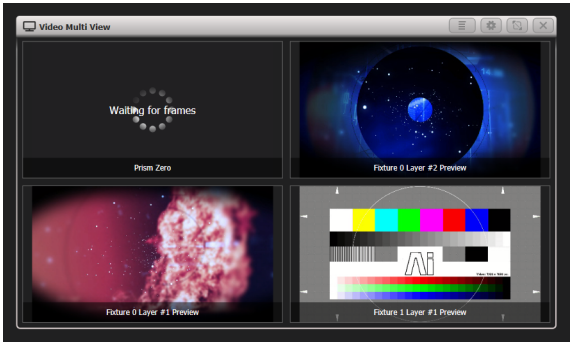


Synergy will attempt to transfer the files as fast as it can and will show you a progress dialog. This may slow down the network; if this will be a bad thing, turn on the **"Bandwidth Saver"** switch at the bottom of the window to throttle the file transfer and leave capacity on the network for other traffic (obviously this will slow down the file transfer).

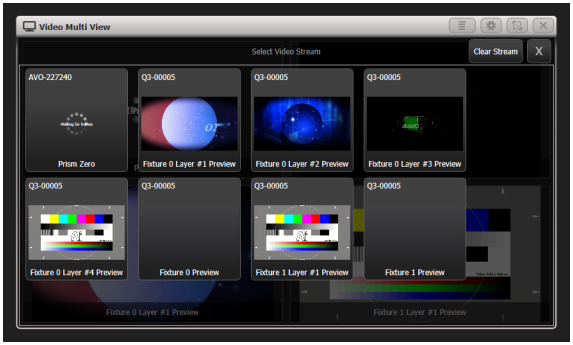
You can also turn off the automatic transcoding to AiM codec, but normally we would recommend that this option is left on. Once the files are uploaded, any requiring transcoding are added to a queue in Ai or Prism Zero. You can see the progress of the transcoding by viewing the clips in the Attribute Editor, see below.

15.3.2 Media Viewer

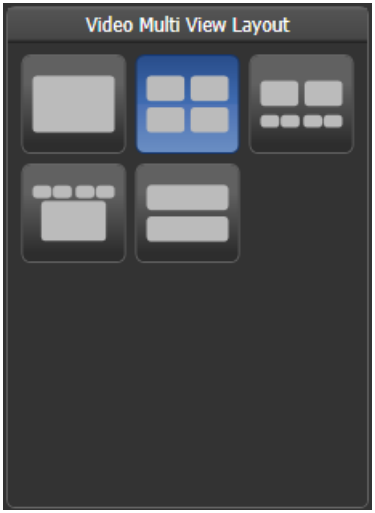
The Video Multi View window allows you to view any of the layers being produced by the Synergy layers, or any of the combined surface outputs on an Ai server. In addition you can view any other NDI streams available on the network, so for example at a broadcast event the broadcaster could feed you the program output or individual cameras to check lighting levels.



To add a stream, click on a view in the window (blank views show a plus symbol). A dialog will pop up showing you all available streams on the network - either direct views of the layers, or a view of the output screen with the layers combined.



The context button [Change Layout] gives you various possible layouts of multiple screens. The [Titles Shown] button toggles to show or hide the stream titles at the bottom of the views.



You must have the **"Automatic NDI preview"** option enabled for the Ai server in the Synergy Settings (Section 15.2.4) window for this to work.

The NDI streams used for video preview can use a lot of network bandwidth which limits how many streams you can receive at one time. The data rate varies depending on the detail/movement in the video but a rough guide is:

Format	Data Rate
1920x1080p30	120Mbps
1920x1080p60	200Mbps
3840x2160p30	280Mbps
3840x2160p60	480Mbps

15.3.3 Attribute Editor for Controlling Synergy Layers

Once you have selected one or more media layers to control from the Synergy Fixtures window (Section 15.2.5), the Attribute Editor lets you play back and manipulate media on those layers (you can also use the wheels and Attribute Bank buttons.

> The most important attributes are **Intensity**, which set the output level of each layer, and **Media Selection** which lets you choose the Bank and Clip to play. But you can also control all other functions of Ai server such as adding FX and colour, or the smaller range of functions on Prism Zero layers.

In the Media selection window, in the Clip tab, if you click on the **T** button *(top right)* or the caption at the top of the tab, this will toggle the clip name display on and off. This can be useful for long names which obscure the picture; on the other hand if you have lots of clips which look similar, the name display can be useful.

Some of the attributes, such as FX Select, have a large number of options which initially are shown in a vertical column of buttons requiring a lot of scrolling to see all the buttons. If you click in the header above the buttons, the column will expand to fill the window, making selection easier.

In the FX attributes, the effects names are pulled live from the Ai server. This means the names you are shown will always match what's on the server. It's also good for generative plugins where you define the FX names.

> If you select layers then press <Locate>, the layer intensity will be set to full but all media and FX will be cleared. This is useful to get a layer back to a known state, but you don't get any output. **To get some output you will need to then select a media clip**.

The Clip selection window also shows you the progress of clips being transcoded by the Ai server.

Currently being transcoded	In the queue awaiting transcoding	Transcoding failed

You can create palettes (Section 8.2) to control Ai, just like with any other fixture. So colour, zoom, position and so on can be stored in a palette and used to quickly modify the appearance of the media. Palette fade times (Section 8.6) will also operate as you would expect.

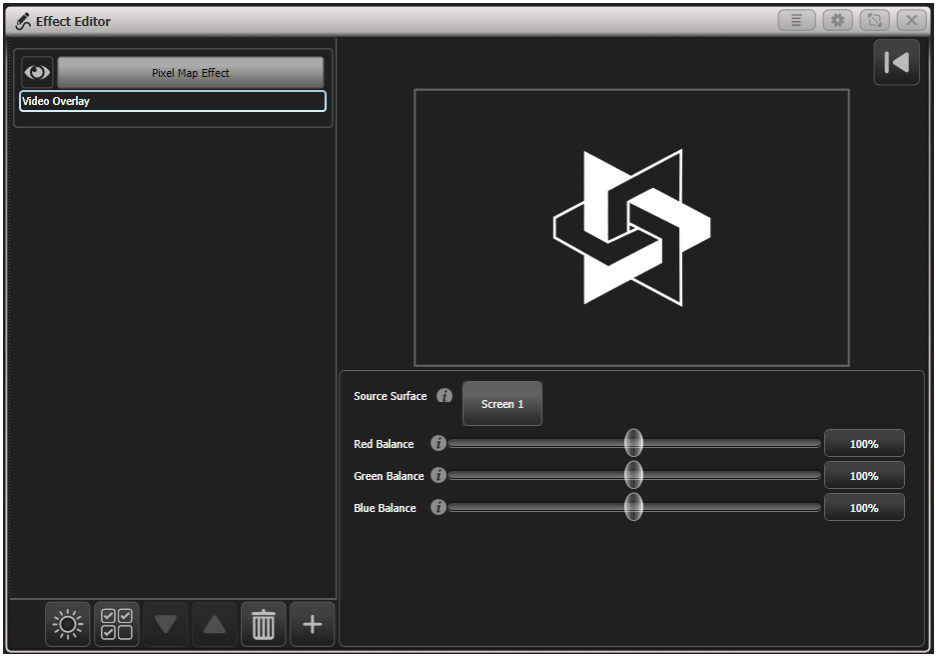
15.3.4 Lightmap: Pixel Mapping Media Content

Often you might want to output video content to lighting fixtures patched on the console (for example if you have LED screens with fixtures around or in between them). The pixel mapper can directly play back media clips from the Ai server or Prism Zero. On an Ai server these can be sourced from individual layers or from surfaces (combined layer outputs). The surface outputs do not need to be connected to a physical output on the media server.

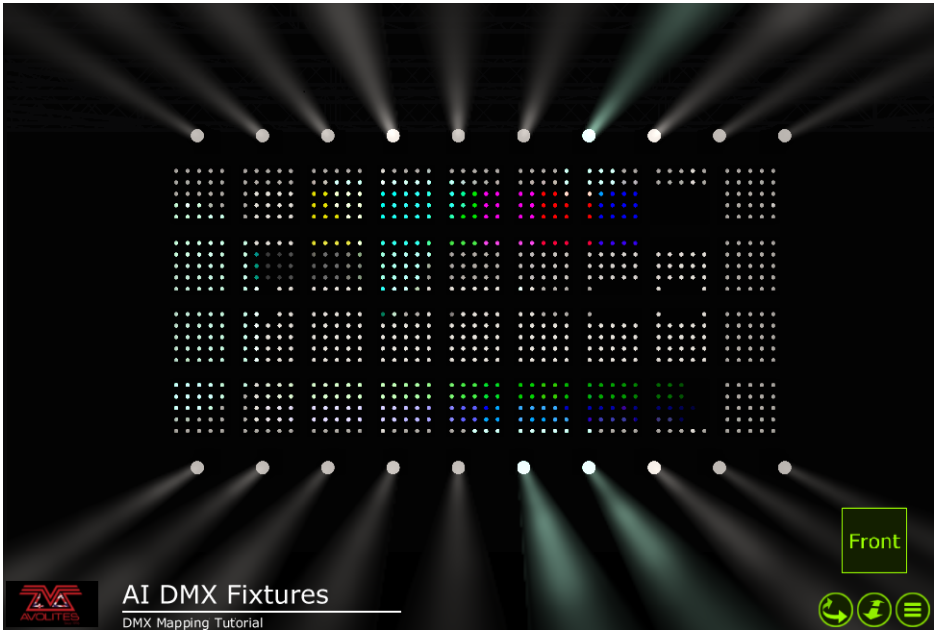
> Use the Layout Editor (Section 7.4.2) to tell the console where the fixtures are positioned in the physical space so it can map the correct part of the video to each fixture, which is described in the next section.

1. Using Attribute Editor, **start a media clip playing** on the surface you want to use.
2. Select [Shapes and Effects], then [Pixel Mapper].
3. Select a **group of fixtures (Section 7.4)** to play back on.
4. Add an effect using the {+} button.
5. Select Synergy feed using the **Synergy** button.

6. Select the surface you want to take the media from using the **Source Surface** option. You can also adjust the colour balance using the **Red/Green/Blue sliders**.



The media clip selected in step 1 should now be playing back over the fixtures you selected. The pixel map effect is now linked to the Synergy surface so you can change the clip which is playing using Attribute Editor or from programmed cues and you will see the change on the fixture outputs.



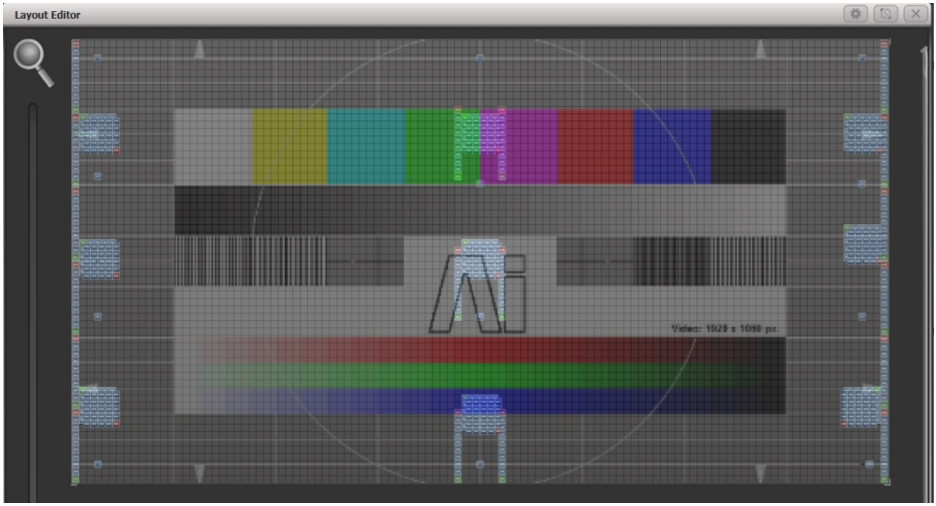
15.3.5 Layout editor with Synergy

The basic operation of the Layout Editor is described in Fixture Order and Fixture Layout in Groups (Section 7.4.2).

The layout editor has some additional functions in the [Media Options] context menu which are useful when setting up group fixture layouts for use with media content.

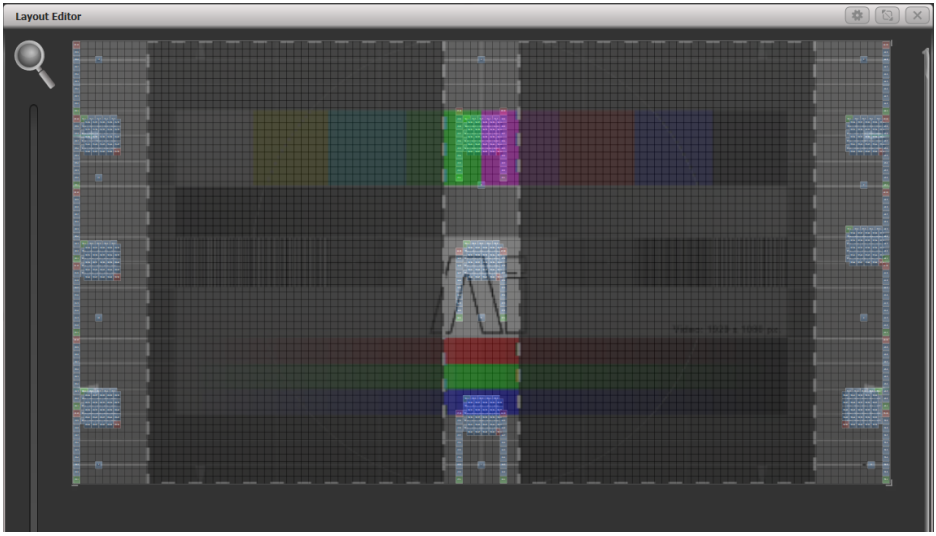
Show Video Overlay

This option will overlay the media output on the group fixture layout grid to help you see where fixtures need to be positioned. You need to select which layer or surface you want to overlay.



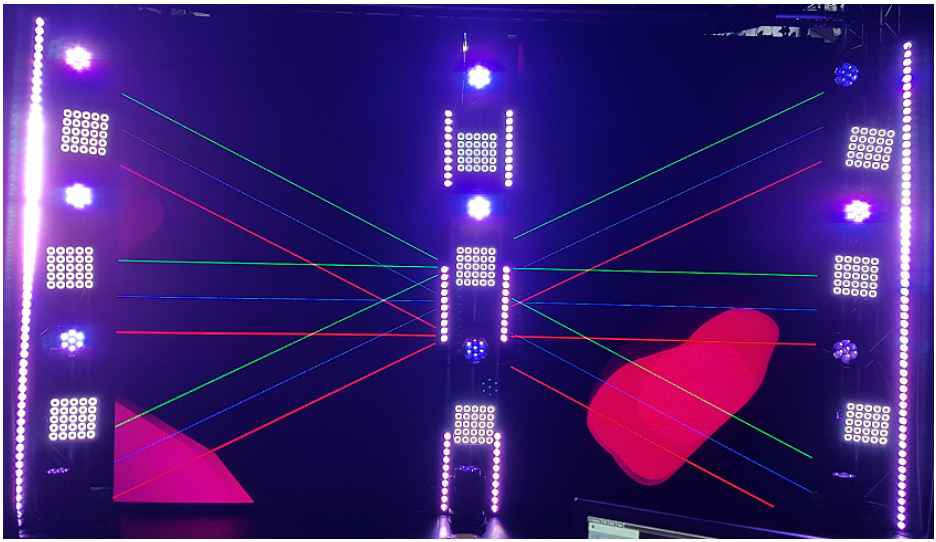
Sample Region Overlay

If the AI output has sample regions defined, for example when areas of LED screen are interspersed with fixtures, this option displays the sample regions overlaid on the layout grid.



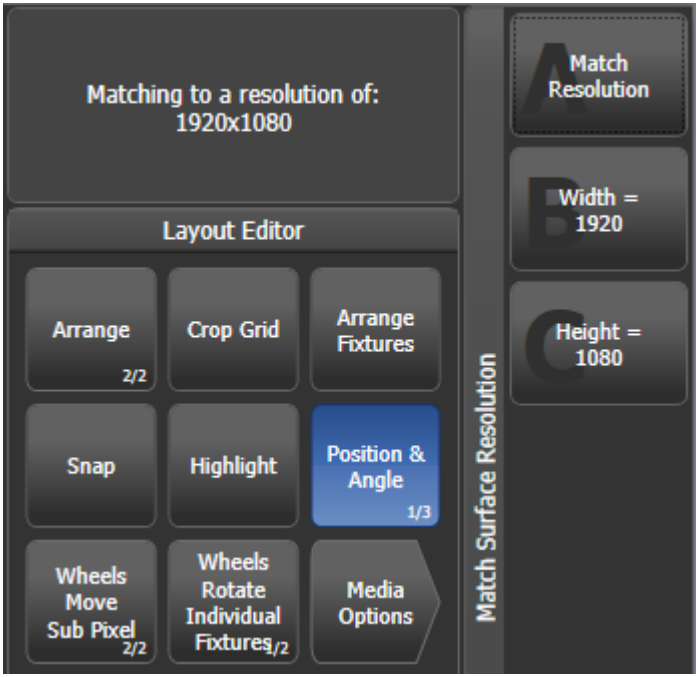
Position Overlay

With this option turned on, when you select a fixture in the layout editor, cross-hairs will be displayed on the actual media output. This helps you to accurately position the fixture in the layout editor to match where it is in real life.



Match Surface Resolution

Allows you to match the layout grid to the resolution or aspect ratio of a surface. When you click this, you will be shown a list of the Ai surfaces available. Select one of these and softkeys will be shown for [Width] and [Height], set to the canvas resolution of the surface. You will not normally want to set the layout grid to match the video pixels 1:1 as fixture pixels are usually much larger than video pixels. But if you change the Width or Height, the other value will be automatically set to preserve the aspect ratio of the surface, so this function is useful to change the grid while keeping the correct ratio.

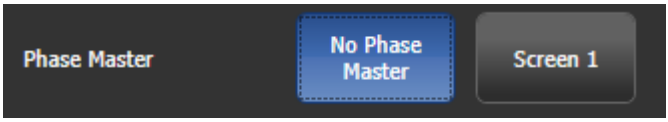


You can also scale fixtures in the Layout Editor to reflect real life size, as the default cell layout from the fixture's personality might not match other fixtures. Toggle the [Position and Angle] context menu button until it shows [Fixture Scale]. If a multi-celled fixture is scaled down to minimum size, the cells will disappear and it will act as a single cell.

15.3.6 Phase control of Key Frame Shapes from Ai

You can control the phase of Key Frame Shapes using the intensity of a video layer from Ai. This allows you to create some weird and wonderful effects as you can make the lights do pretty much anything in response to the video signal. The phase is controlled from 0-360 degrees as the video intensity where the fixture is located goes from 0-100%.

Once your Key Frame Shape is created (Section 9.3.1), go to the Phase Master option (Section 9.3.2) at the bottom of the shape options window and select the Ai screen you want to use as the video source.



15.3.7 Special function bank/clip numbers

When selecting banks and clips in the attribute editor, some bank numbers have a special function which allows you to access other screens and layers on the Ai server. This is sometimes useful to obtain other media sources such as live camera feeds without having to process them onto a new screen.

Bank/Clip	Function
Bank 240 - 255	Selects a Surface/Screen Fixture from 1-16
Clip 0 - 200	Selects layer number 1-201 on that surface.
Clip 255	Selects the surface output (the composite of all layers)