



VERSION 8.0.1.XXX - DEVELOPED BY: AVOLITES MEDIA LTD. POWERED BY: SALVATION (TM)  
HARRISON DIGITAL MEDIA INC. DRIVEN BY: DAVE GREEN, TREY HARRISON, STEVE WARREN, J.B.  
CIARAN ABRAMS, SELVIN COOPER, ARRAN ROTHWELL-EYRE, SIMON GRAHAM, MARY, PRADS,  
GREG, ADAM, OLIE, ALL AT AVOLITES AND YOU. SPECIAL THANKS MARK CALVERT. LETS ROCK!

## **Volumetric Arrays**

### **VERSION 8.X**

**By Arran Rothwell-Eyre December 2014**

with Additions by Dave Green & Ciaran Abrams

## ***Volumetric Arrays***

Using the ArtNet Structure, Strip and Grid modules found within the Salvation environment it becomes very easy to setup complex systems and even to take 2d content and treat it as 3d by transforming, scaling, rotating and extruding in different ways within the specified space.

As with the moving scenery based projects, we will use a dummy fixture to supply the texture – that is to say that the array is created by modules in Salvation, so they themselves have no fixture icon, but we will use a standard fixture to playback the media, then pass this texture to the array modules whilst pushing the dummy fixture to one side so that it is out of view. Whilst we will look at using the grid module in this project, the strip module works in the same way, but just addresses a single line of fixtures at a time. You can of course combine the use of Strip and Grid modules within a single project.

Once a standard screen fixture has been added to the project, go to your patching window and add an empty patch, drag a connection from the screen fixture's canvas out port to the empty patch and also from the DMX Send port on the PatchIO to the empty patch. Within the new patch firstly add a Patch IO and then an ArtNet Structure module which can be found in the network section. This module allows you to take the existing texture, analyse it and then apply it to a user defined selection of grids and strips which in turn send out the relative ArtNet values for the pixel in question. The grid can be defined in 3 dimensions ( you can work in 2d as well, but the new LED Output page may be easiest for more standard work )

First of all we shall take a quick look at the module. We have the option to define the personality in use – mono, RGB, RGBA and CMY – this will make sure that we have the correct amount of channels allocated per fixture. Next we have the resolution boxes – which allow us to setup our work area in 3 dimensions – even when working on a single 2d set of fixtures, you must still have a minimum z resolution of 1. we then have translation and rotation options which allow you to control positioning within the work area. Extrude, Extrusion Type and Max Extrusion are all related and control the amount to extrude by, what kind of analysis the extrusion is based on ( luma, chroma, saturation, Alpha, R, G, B or RGB average ) and the maximum limit the the extrusion amount.

Now lets add an ArtNet Sample Grid module to the patch. This module needs to receive the prepared data from the structure module, so make a connection between the Structure Output port on the Structure module and the Structure Input port on the grid module. We also need to send texture data to the Structure module, so connect the Canvas out port from the PatchIO to the texture port on the Structure module. We also have a yellow GL port on the module and as a Yellow port must ALWAYS be connected for the GL chain to function, we can add a render merge module in between the screen fixture and the relevant mixer and then connect the Structure module to the remaining port on the Render Merge.

Our initial connections have now been made, so this would be a good time to setup the workspace for our array. In the ArtNet Structure module, enter the following values:

- Resolution X            10
- Resolution Y            10
- Resolution Z            10

now on the grid module we need to define the pixels in use within this 10 x 10 x 10 area – we do this separately for each grid or strip. Remembering that we start counting from zero we need to enter the following values into the Grid module:

- Start X Pos           0
- Start Y Pos           0
- End X Pos             9
- End Y Pos             9

The pixel count is how many pixels are being referenced in total by this module ( not the total work area ) - so as we have defined a 10 x 10 grid we need to enter the following :

- Pixel Count           100

If we wish to push this into three dimensions, we need to add more Grid modules – one for each extra plane we want within the 3d array. The easiest way to do this is to duplicate one of the existing Grid modules and simply adjust its Z coordinates accordingly, so our second plane will have:

- Start Z Pos           1
- End Z Pos             1

It is important to make sure the channels and universes for each module are setup before making any DMX connections to avoid any conflicts with layer or fixture controls, so once applicable values have been chosen for each of the grid modules, you can then make a connection between each of the grid modules DMX Sender Input ports and the DMX send port which can now be found on the Patch IO.

With all connections now made, all that remains is to choose the Extrusion type you want to use for the array, trigger some media and enjoy the show. Some very nice effects can be achieved by adjusting position and rotation values in real time - a very simple texture can be turned into complex, organic swarming effects with the minimum of fuss or you can create very solid 3d looking visuals by using a greater extrusion value.