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T# Overview

This section will go over T# architecture vs. Tahoma Classic, unique features and limitations. It will also cover wiring recommendations. If you are familiar with the Tahoma Classic architecture and configuration, it is very important that you read this section thoroughly

T# Architecture

The T# architecture is very different than the Tahoma Classic. For detail hardware information, please read the T# hardware manual. Due to the hardware difference between the T# and Tahoma, the methodology for the screen layout and wiring is also very different.

There are 15 major types of boards for the T#

- VSM – Video Scaler Module
- UIM – Universal Input Module. There are several different versions of UIM for different types of inputs. Please see table below
- OPM – Output Processing Module. There are two types of OPM. Please see table below
- UOM – Universal Output Module. There are two types of UOM. Please see table below

Module Name	Description	Status
VSM	Video Scaler Module. The processing board that processing and scales the video input.	Shipping now
VSM-IP	Video Scaler Module with IP decoder.	TBA
UIM-SDI	Input module for SDI. 8 SDI inputs with 8 GPI connectors. Discrete audio input is reserved for future implementation.	Shipping Now
UIM-SFP	Input module with SFP slots. 4 SFP slots for modules such as SDI, HDMI or SMPTE 2022 with 8 GPI connectors. Discrete audio input is reserved for future implementation	Shipping Now
UIM-HDMI	Input module for HDMI. 4 HDMI inputs with 8 GPI connectors. Discrete audio input is reserved for future implementation.	NAB 2016
UIM-IP	Input module for H.264 an ASI. 2 RJ 45 for IP inputs and 2 BNC for ASI inputs	TBA

OPM-A	Output Processing Module with Control Module for the first 4 outputs	Shipping Now
OPM-B	Expansion Output Processing Module – to add 4 more outputs	Shipping Now
UOM-H-A	Output Module with 4 x HDMI and 4 x SDI outputs. 1 x analog and AES audio monitoring outputs. 2 x LTC inputs, 1 x Genlock, serial and IP communication ports and 8 GPI/O.	Shipping Soon
UOM-H-B	Output Expansion Module with 4 x HDMI and 4 x SDI outputs. Must be used with UOM-H-A	Shipping Soon
UOM-H-SFP-A	Output Module with 4 x HDMI and 2 x SFP slots. 1 x analog and AES audio monitoring outputs. 2 x LTC inputs, 1 x Genlock, serial and IP communication ports and 8 GPI/O.	Shipping Now
UOM-H-SFP-B	Output Expansion Module with 4 x HDMI and 2 x SFP Slots. Must be used with UOM-H-SFP-A	Shipping Now
UOM-CAT6-A	Output Module with 4 x RJ45 (HDMI) and 4 x SDI outputs. 1 x analog and AES audio monitoring outputs. 2 x LTC inputs, 1 x Genlock, serial and IP communication ports and 8 GPI/O.	Shipping Now
UOM-CAT6-B	Output Expansion Module with 4 x RJ45 (HDMI) and 4 x SDI outputs. Must be used with UOM-CAT6-A	Shipping Now
UOM-CAT6-SFP-A	Output Module with 4 x RJ45 (HDMI) and 2 x SFP slots. 1 x analog and AES audio monitoring outputs. 2 x LTC inputs, 1 x Genlock, serial and IP communication ports and 8 GPI/O.	Shipping Now
UOM-CAT6-SFP-B	Output Expansion Module with 4 x RJ45 (HDMI) and 2 x SFP Slots. Must be used with UOM-SFP-A	Shipping Now
UOM-HDBT	4 HDBaseT extension module. Must be used with UOM-CAT6-A or UOM-CAT6-B	Shipping Now

In addition to the frame, a T# system must consist minimum of the following,

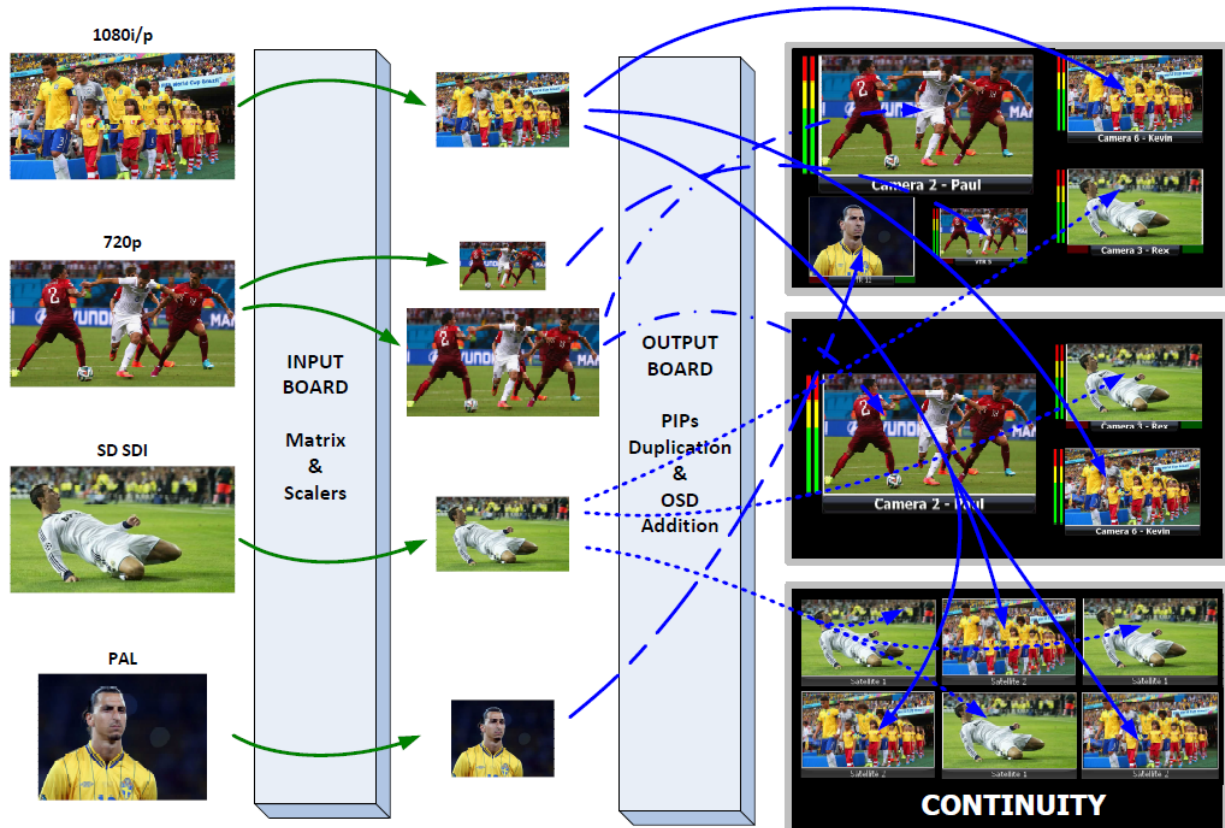
- 1 x VSM
- 1 x UIM-X
- 1 x OPM-A
- 1 x UOM-XX-A

Unique T# Features

- 1 Any of the input on the T# can be displayed on any of the outputs
- 2 Any input of the T# can be cloned up to 64 times as long as they remain the same sizes. This means every instance of the copy will be exactly the same as the original.
- 3 Any input of the T# can be copied and resized up to 8 times. However, this type of copying is not without limitation and cost. Every time an input source is copied to a different size, it will reduce the number of the input of the system. Here is the explanation,

Each VSM (Video Scaler Module) consists of 8 independent scalers and an 8x8 matrix. Every time an input source is copied to a different size, it will consume one of the scalers on the VSM, until all the scalers have been consumed. With this unique cloning and copying, it is recommended the T# is wired as follows.

The diagram below illustrates the T# architecture:



T# Recommended Wiring Practices

Due to T# unique architecture of being able to copy and paste sources as well as sharing input scalars, the following method of wiring is recommended

The T# 64 input rear panel is organized from the bottom up. The left lower BNC is input 1.1, and the upper right most BNC is input 8.8. In order to maximize the sharing of the scaler resources. It is recommend to wire as the following:
 1.1, 2.1, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 1.2, 2.2, 3.2, 4.2, 5.2, 6.2, 7.2, 8.2 and so on ...

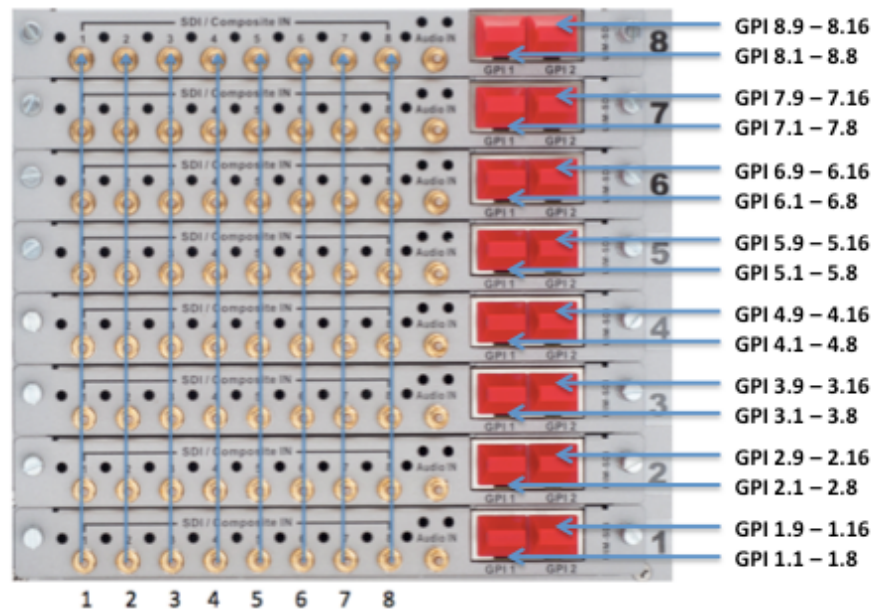


Figure 1: T# 64 rear input panel

The T# 32 input rear panel is organized from the bottom up. The left lower BNC is input 1.1, and the upper right most BNC is input 4.8. In order to maximize the sharing of the scaler resources. It is recommend to wire as the following:
 1.1, 2.1, 3.1, 4.1, 1.2, 2.2, 3.2, 4.2, and so on ...

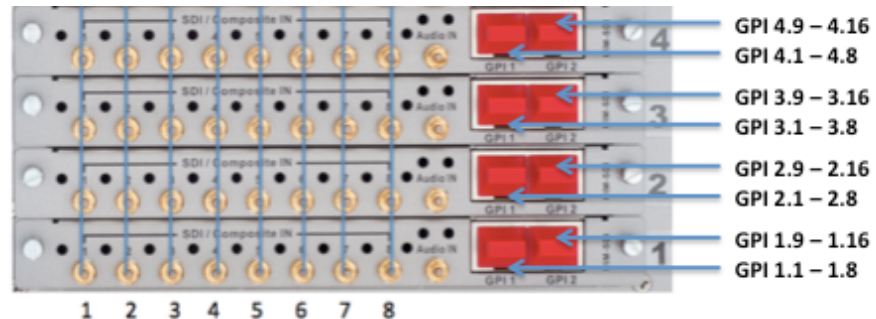


Figure 2: T# 32 input rear panel

Getting Started

This section will help you get the editor up and running as quickly as possible. Before you can successfully run the JDirector, you must first copy it from the provided CD or download it from the Apantac website (www.apantac.com) and place it in an appropriate location on your HDD. The JDirector can be run either from a MAC or a Windows PC.

If you are using a MAC, click on the APP_ApantacJDirector icon

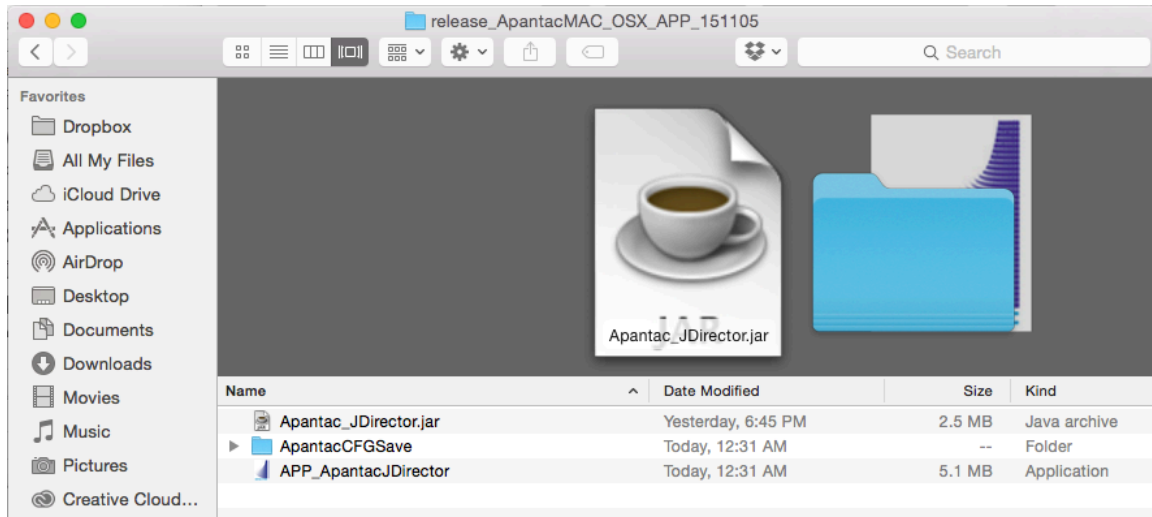


Figure 3: Double-click on APP_ApantacJDirector to launch the JDirector

If you are using a Windows PC, click on the Apantac_JDirector.bat to launch

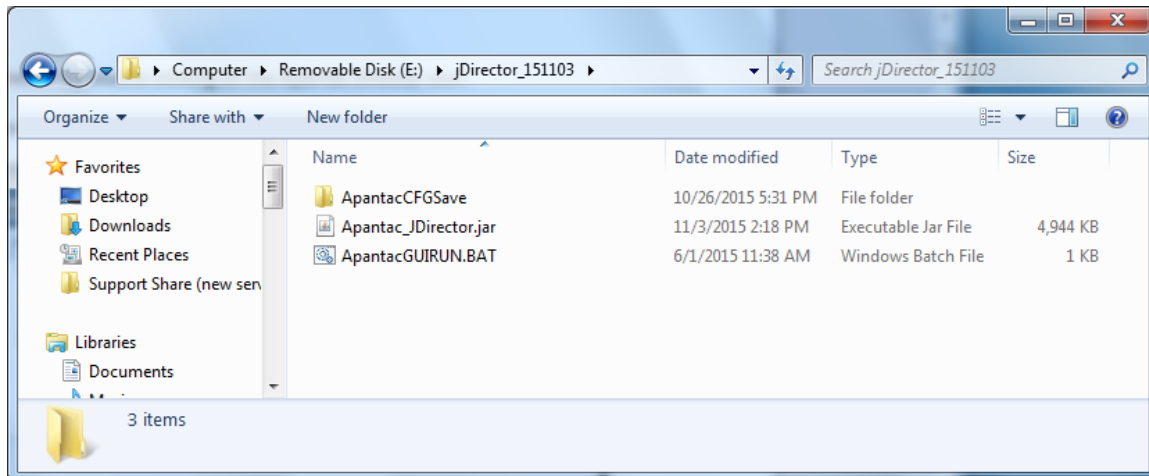


Figure 4: Double-click on the Apantac_JDirector.jar to launch the JDirector

Connecting the JDirector

After the JDirector launches you will see this screen.

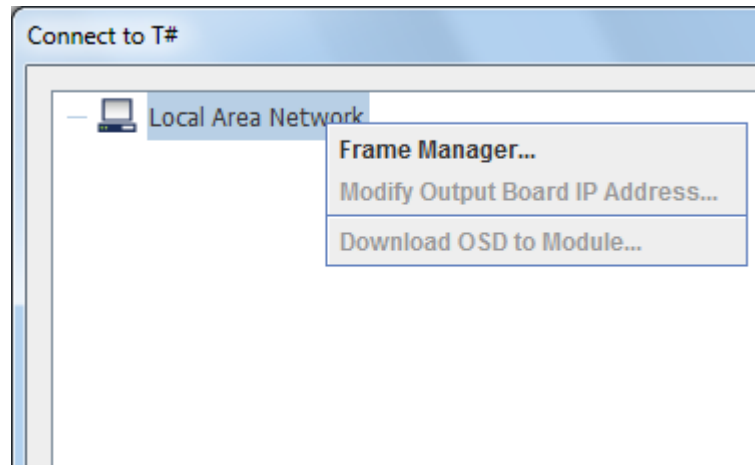


Figure 5: JDirector Initialization screen

*To connect to the multiviewer your PC must be connected to the same subnet as the multiviewer. The application's default IP address for all Apantac multiviewers is **192.168.1.151**. The actual OPM board(s) IP address(es) is displayed briefly on any monitor attached to the corresponding OPM board output at boot up*

To connect to the T# multiviewer main frame

- Right click on <Local Area> Manager
- Click on Frame Manager

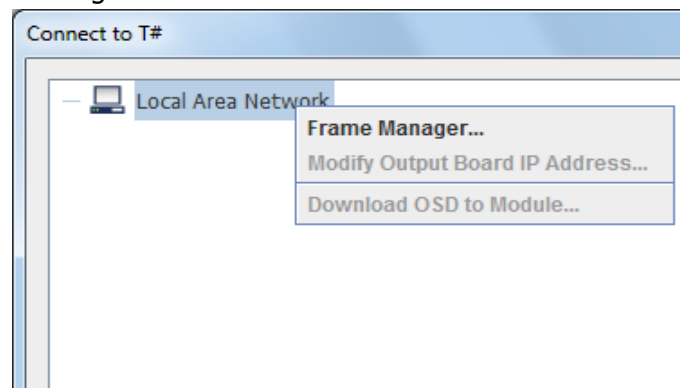


Figure 6: Select Frame Manager

- And press the ADD button

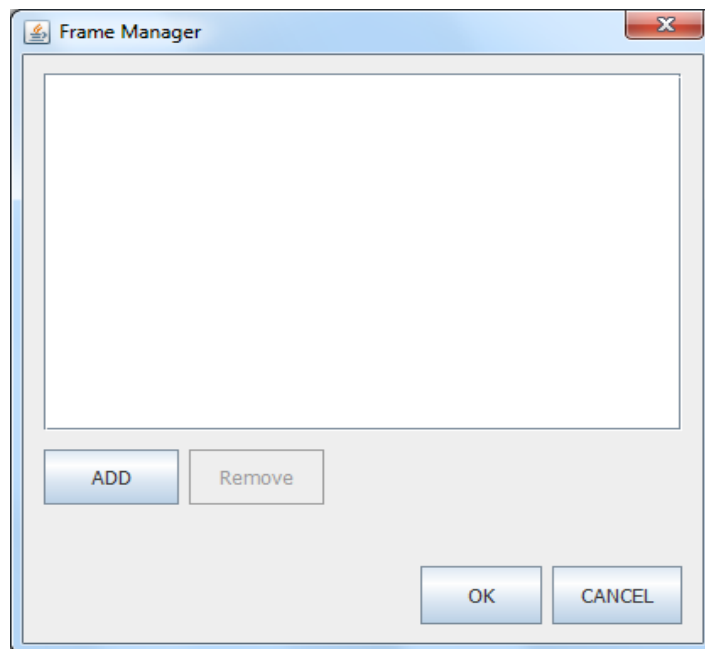


Figure 7: Add Output Modules (OPM)

- Manually enter the IP address(es)
 - Enter IP Address for <Output Board (A)>
 - If there is more than one Output Board, then check <Output Board (B)>
 - Once Output Board is checked, IP address will be automatically set for Output Board (B) by adding "1" to the IP address of Output Board A.
 - Click on <ADD>

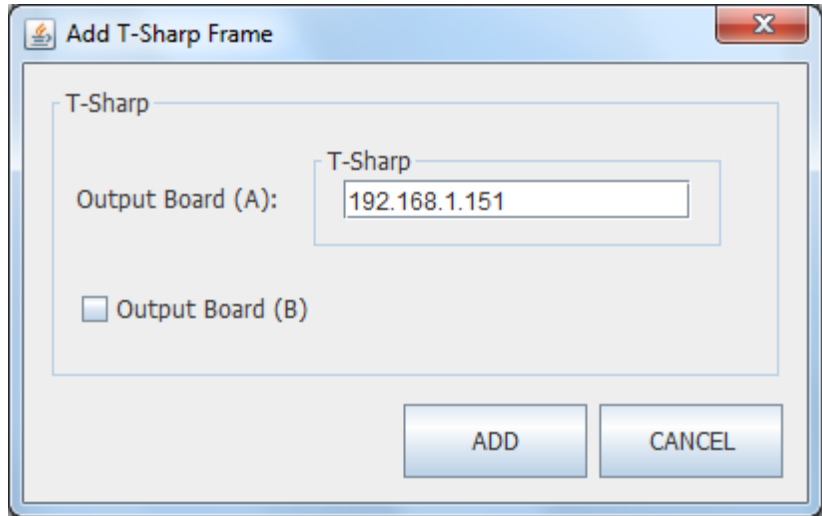


Figure 8: Enter IP address

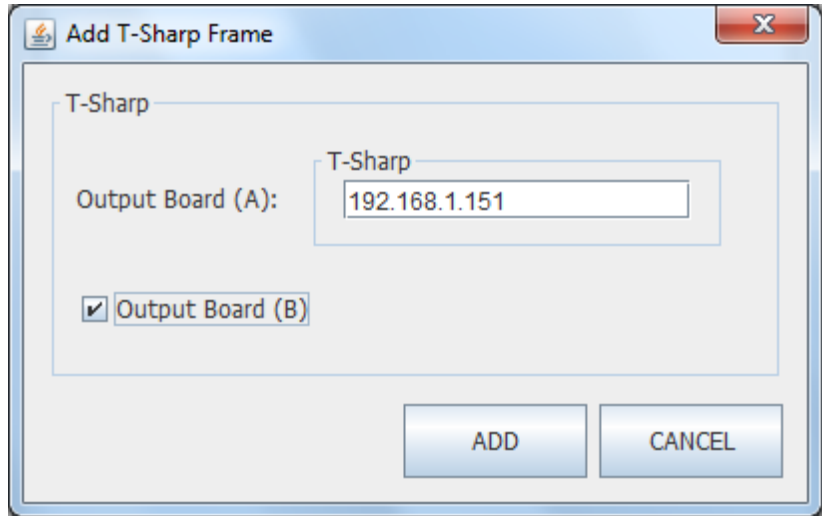


Figure 9: Add additional Output board. IP Address will be automatically assigned

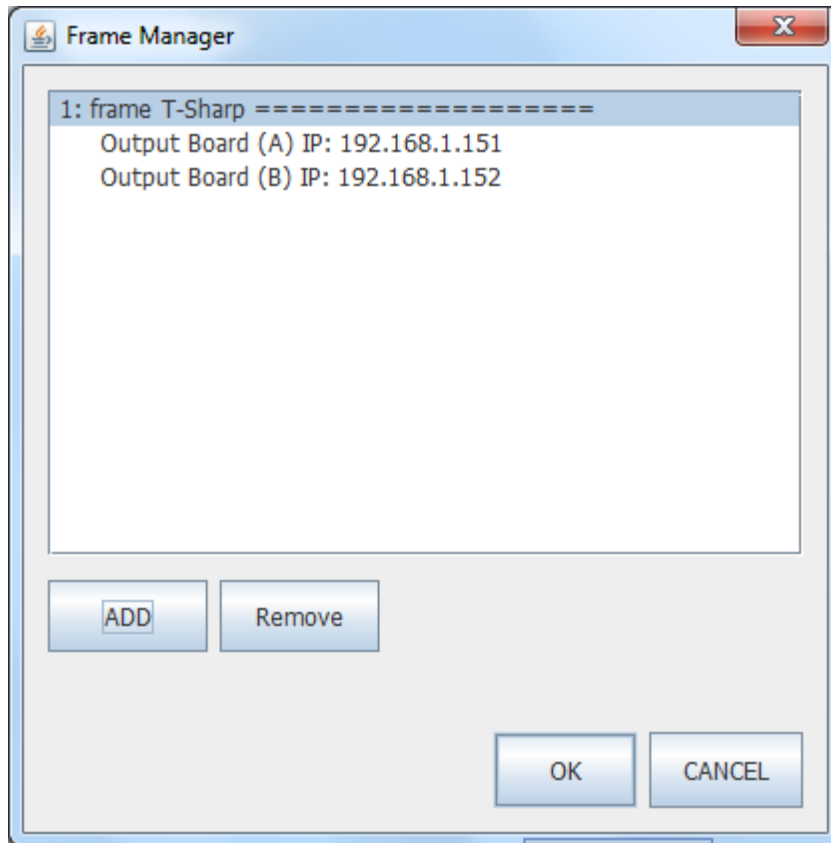


Figure 10: Both Output Boards are added

After you have completed one of the above steps, click "OK" to continue.

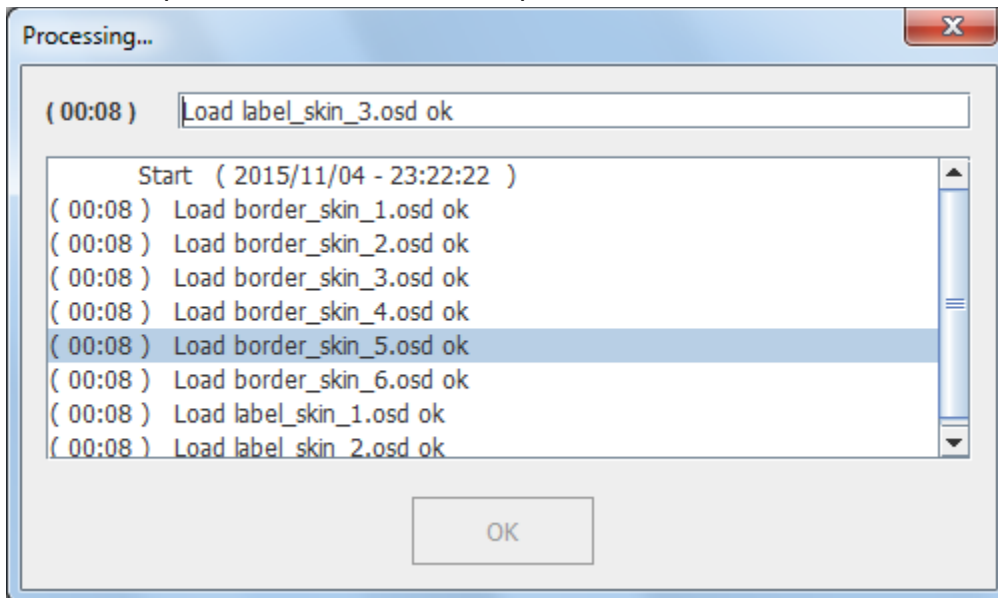


Figure 11: Connecting and initializing system

After the above process is completed, click "OK" to continue.

Now you are ready to edit your T# layout!



Figure 12: The Overview of a T# with 8 outputs

Click on any of the Displays on the Zone Overview, you will enter the display layout mode

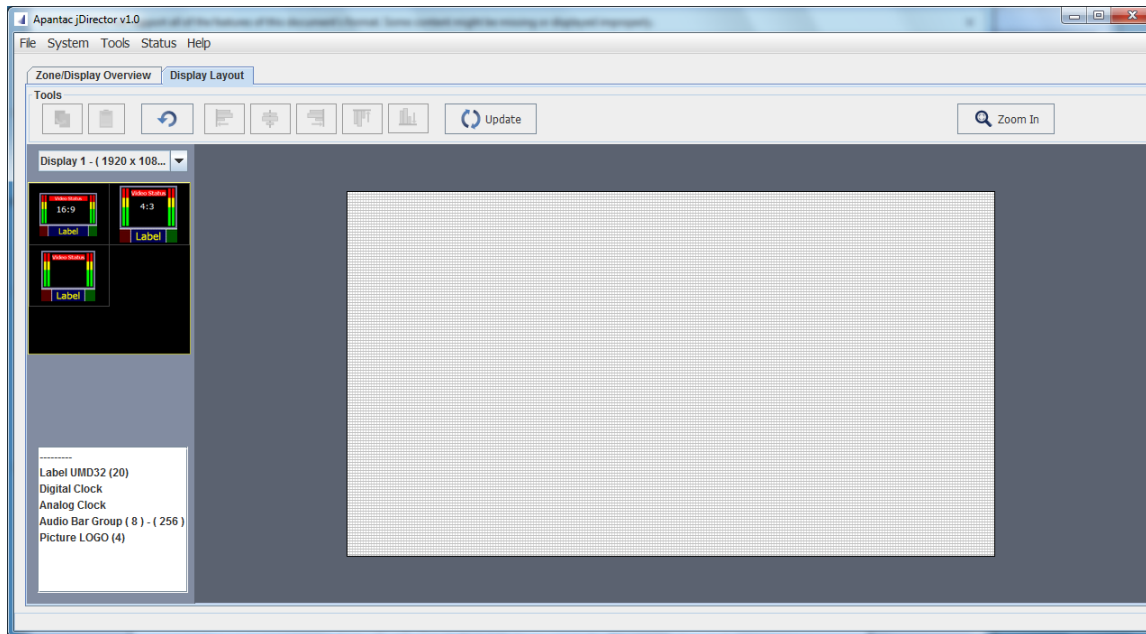


Figure 13: Entering the Display Layout Mode

On the Top Level Menu, click on <System> -> Output Manager to set the output resolution and timing.

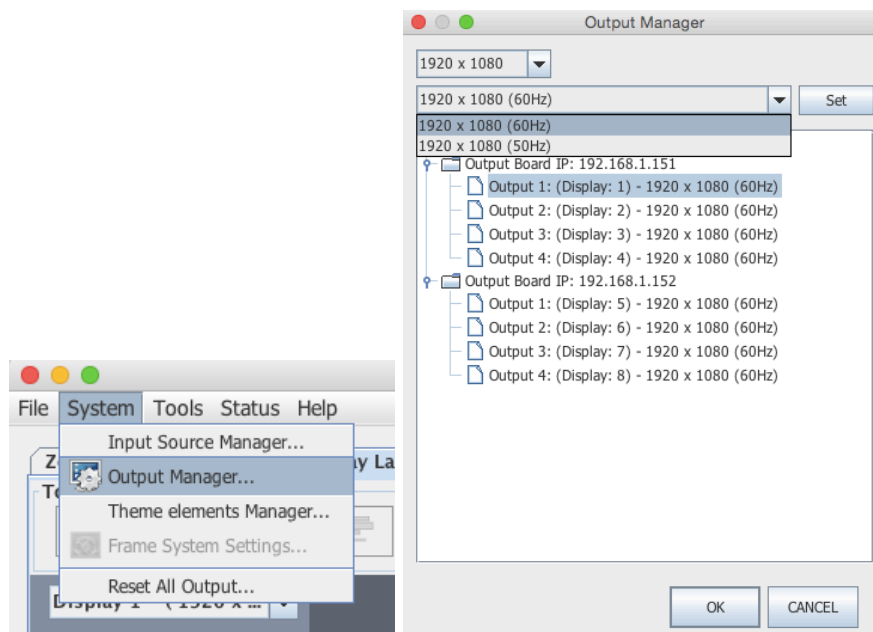


Figure 14: Output Manager

Continued Instruction

For continued step-by-step instructions on how to use the JDirector, please follow the tutorial.

Using the JDirector Layout Editor

Overview

The JDirector Layout Editor is separated into 3 zones, 3 menus, and a toolbar.

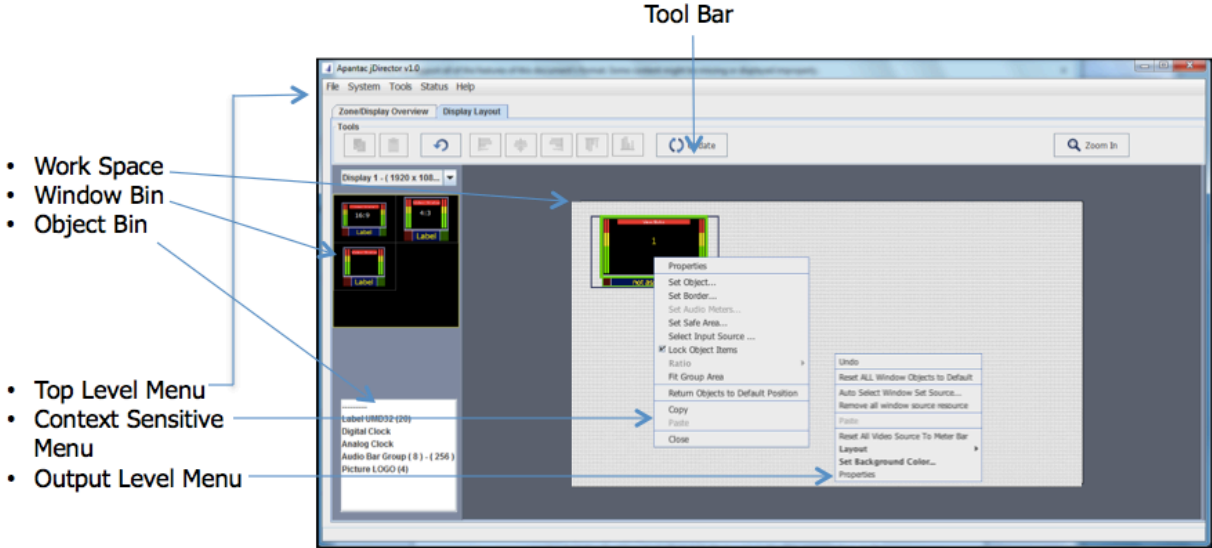


Figure 15: JDirector overview

Objects in the Workspace

There are many different objects in the workspace, most of which are limited in number by the numbers of output card in your T# multiviewer and depends on your configuration.

- Windows – There are maximum of 64 windows per each output
- Audio Meters – 256 meters per OPM. Can be distributed amongst the 4 outputs per OPM.
- UMD – one per video window
- OMD – one per video window
- Standalone labels – 20 per output

Windows Templates

Unlike the Tahoma that allows dynamic real time changes of the windows and screen layout, the T#'s windows must be setup first with templates. The JDirector comes with 2 sets of default templates. One set is 16:9, the other is 4:3.

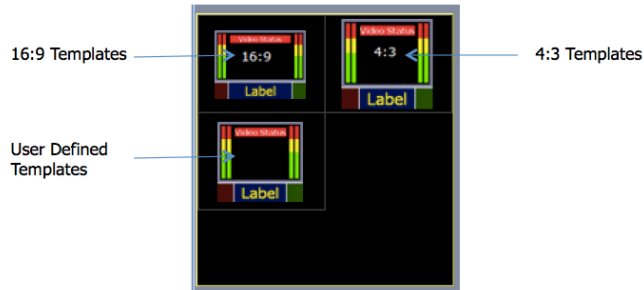


Figure 16: JDirector Window Bin

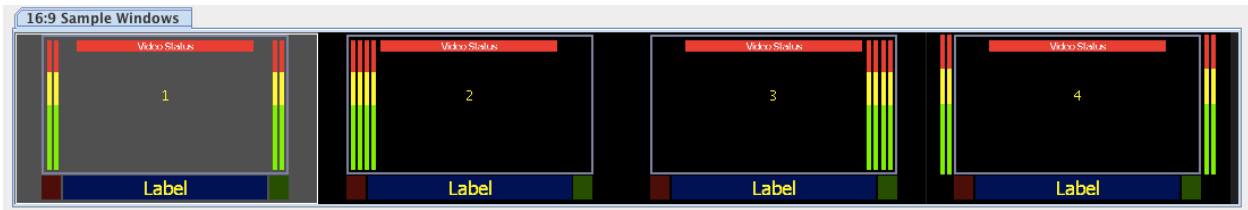


Figure 17: 16:9 Window Templates

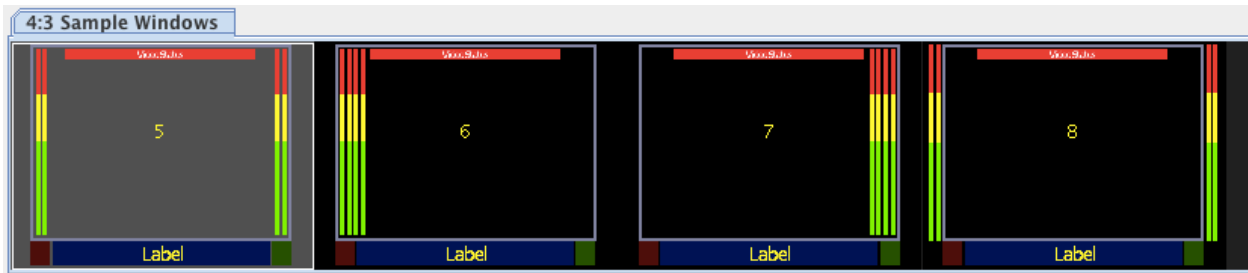


Figure 18: 4:3 Window Templates

Customize Your Window Template

Unlike the Tahoma Multiviewers, the T# cannot be resized freely, all editing must be done on the “Window Templates”

On the Top Level Menu, click on “Tools”, and then select “Windows Template Creation”, to start editing.

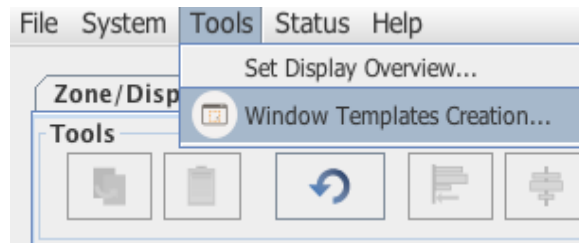


Figure 19: Window Template Creation



Figure 20: Template editing

Click on the template you would like to edit.

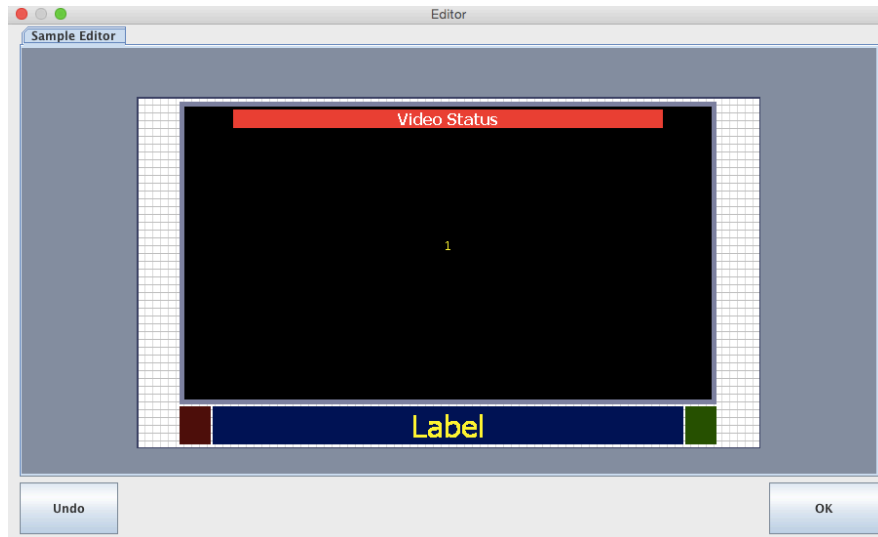


Figure 21: Editing the window layout

Tutorial

Quickly Configure Display Setup

This Tutorial will show the steps required to quickly set up a simple display configuration, it assumes that the [Getting Started](#) section of the manual has already been completed. The tutorial uses an T#-32x4 as an example, will go through detail step by step configuration of Output 1. Output 2 to 4 are slight variations of Output 1, only the difference will be described in detail.

Creating the following layout



Figure 22: Example layout of a T#-32x4

Output 1: Step by step configuration

1. To start laying out the first output of the T#, click on "1" in the overview

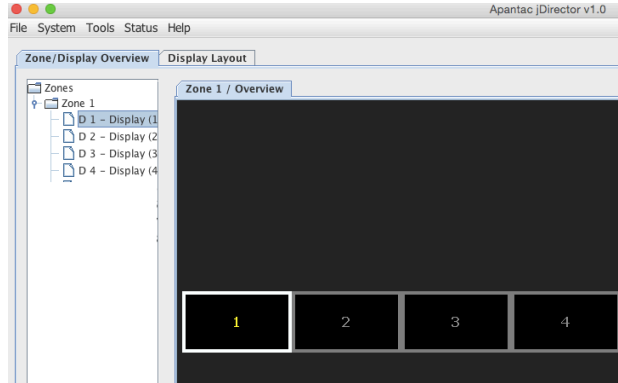


Figure 23: The Overview

This brings up the Output 1 layout editor.

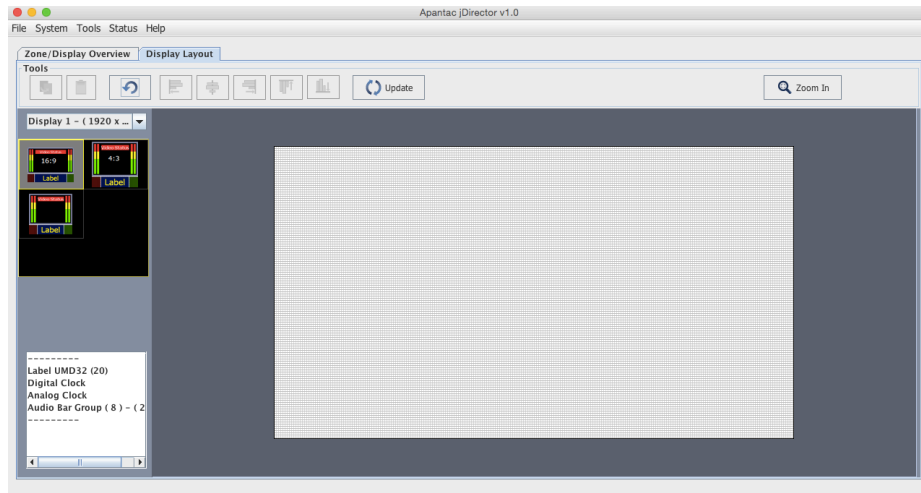


Figure 24: The Layout Editor

2. Click on the first window template

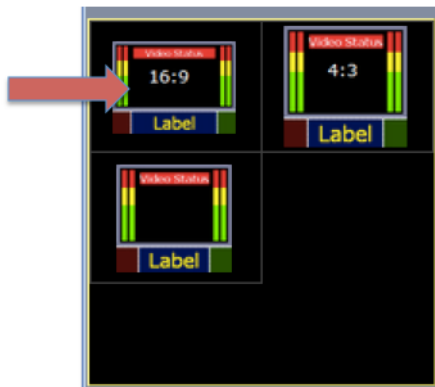


Figure 25: The Layout Editor

3. Click on the first Template



Figure 26: Template selector

4. Select the Size 1/16.

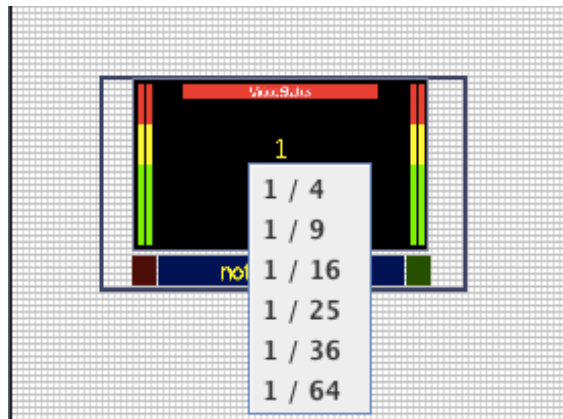


Figure 27: Select sizes

5. The border area shows the actual 1/16 size of the output. You can get rid of this virtual border by right click on the window and select "Fit Group Area"

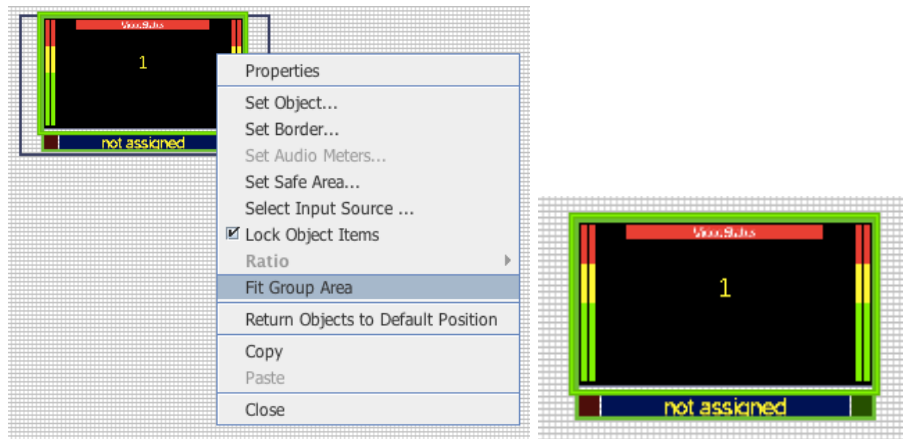


Figure 28: Get rid of the virtual border

Note: The JDirector does not update the layout to the monitor in real time, you must click on <Update> to update the information from the JDirector to the T#. It is recommended that you only click on <Update> when you feel that your workspace is close to your final layout, because the "update" will take 3 to 5 seconds to upload.

6. Either right click on the window and select copy and paste 3 times or select the window then <CTRL C> and <CTRLV> 3 times to duplicate the windows

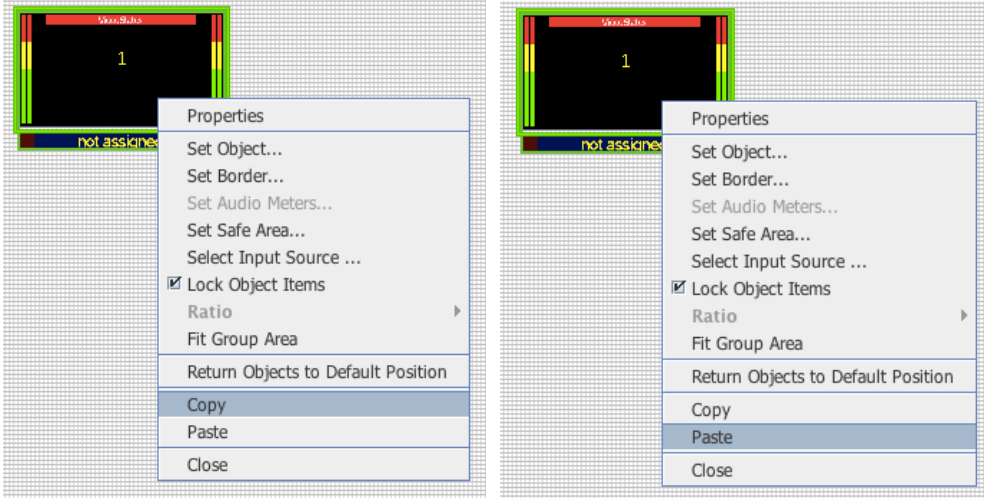


Figure 29: Copy and paste windows

7. The copied windows will be on then show up staggered on top of each other. The top window will display a number showing how many windows there are in the stack



Figure 30: The top number shows how many windows

Lasso around all the windows, then right click and select Auto Arrange -> Horizontal



Figure 31: Lasso to select all.

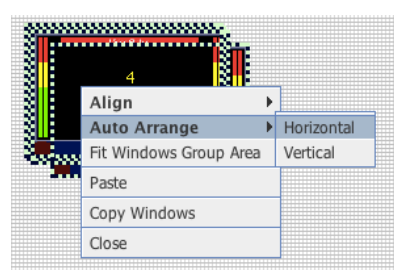


Figure 32: Auto arrange

Select 50, the
<OK>

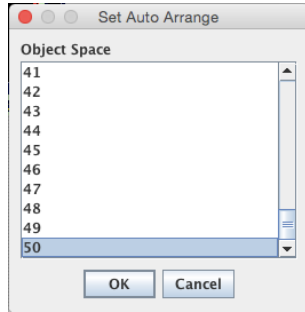


Figure 33: Select spacing

The windows will be evenly distributed by 50 pixels apart



Figure 34: After horizontal auto arrange

While all the windows are still selected,
select the align top icon from the Tool Bar



Figure 35: Align Top

All the windows will align on top. You can also use the arrow keys to shift the horizontal and vertical positions around.

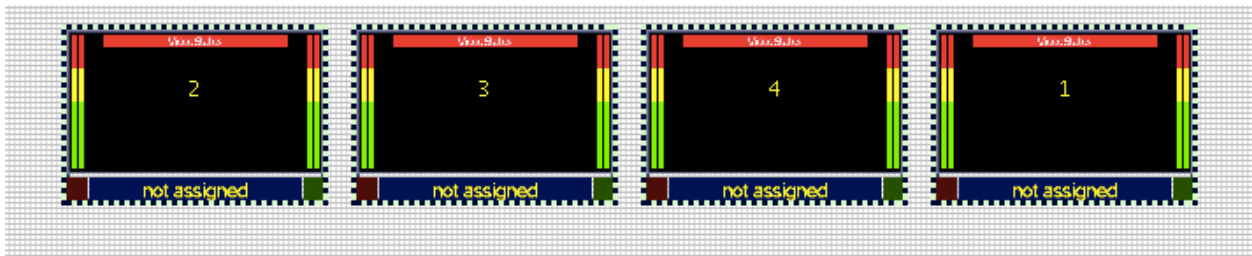


Figure 36: After align top

Click on any of the windows and copy and paste twice then move them into position

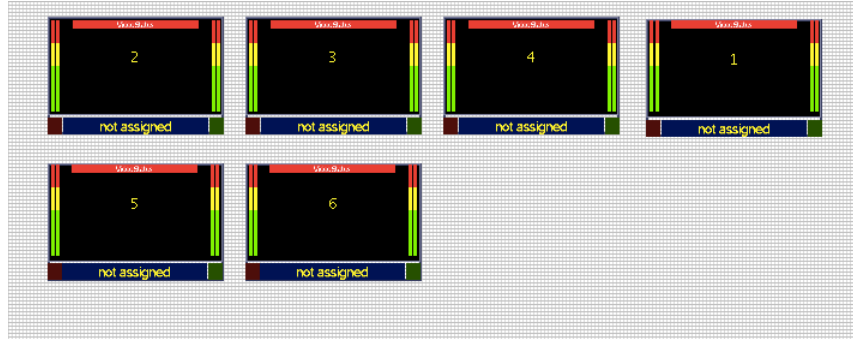


Figure 37: Add more windows

Now let's add the window that is 1/4 of the display that matches our example. Select from the third window template

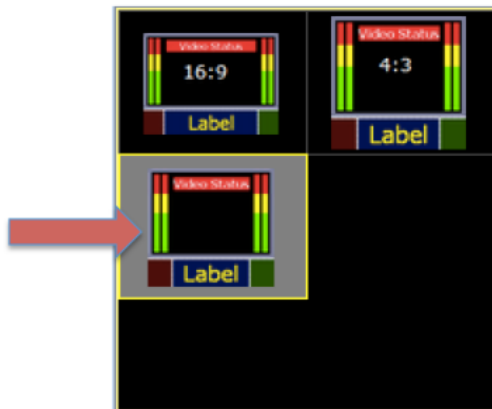


Figure 38: Add more window

Select the first Template



Figure 39: Select template

Select $\frac{1}{4}$ from the drop down list

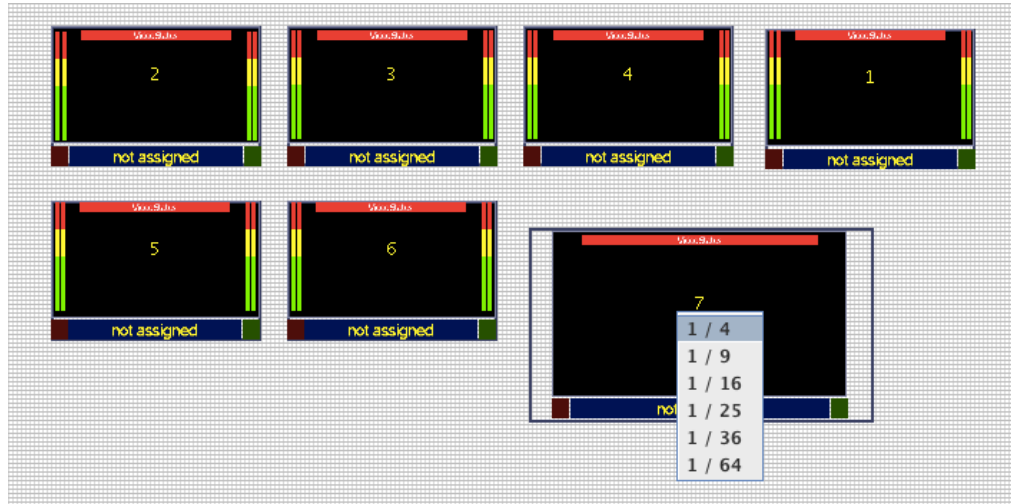


Figure 40: Add window that is $\frac{1}{4}$ of the display size

Position the window to the desired position

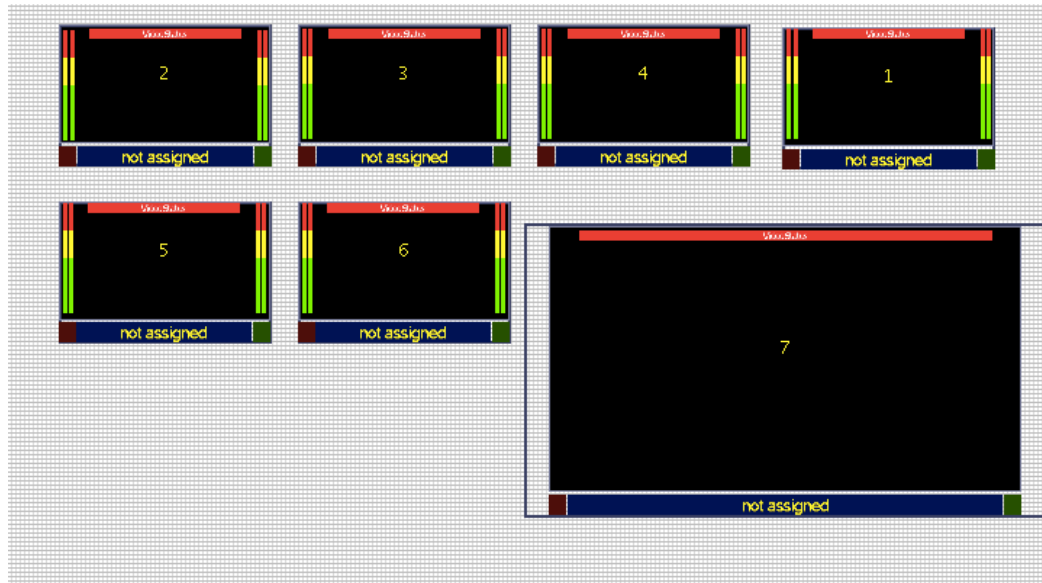


Figure 41: Layout after window was inserted

Setup the safe area on the 1/4 size window. Right click on the window and select "Set Safe Area"

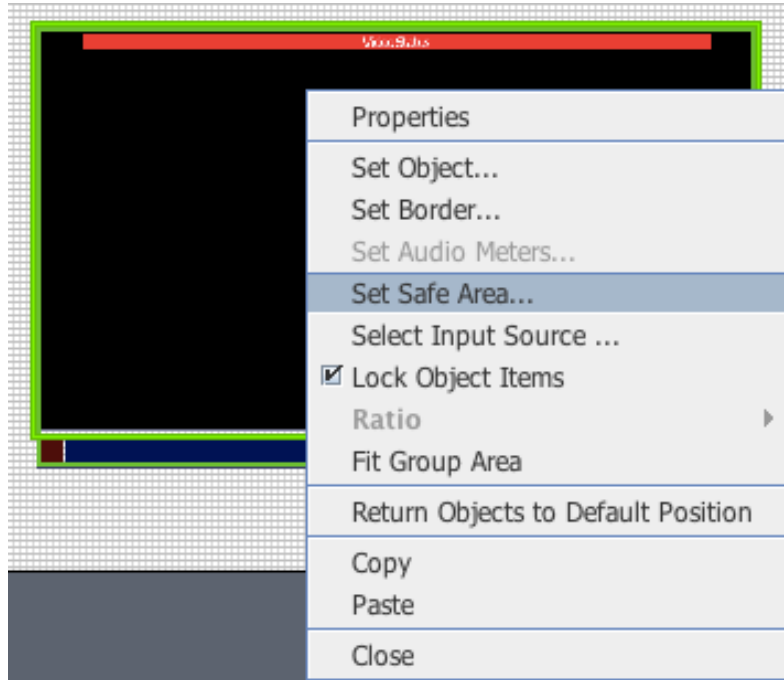


Figure 42: Turn on safe area

This dialog will appear

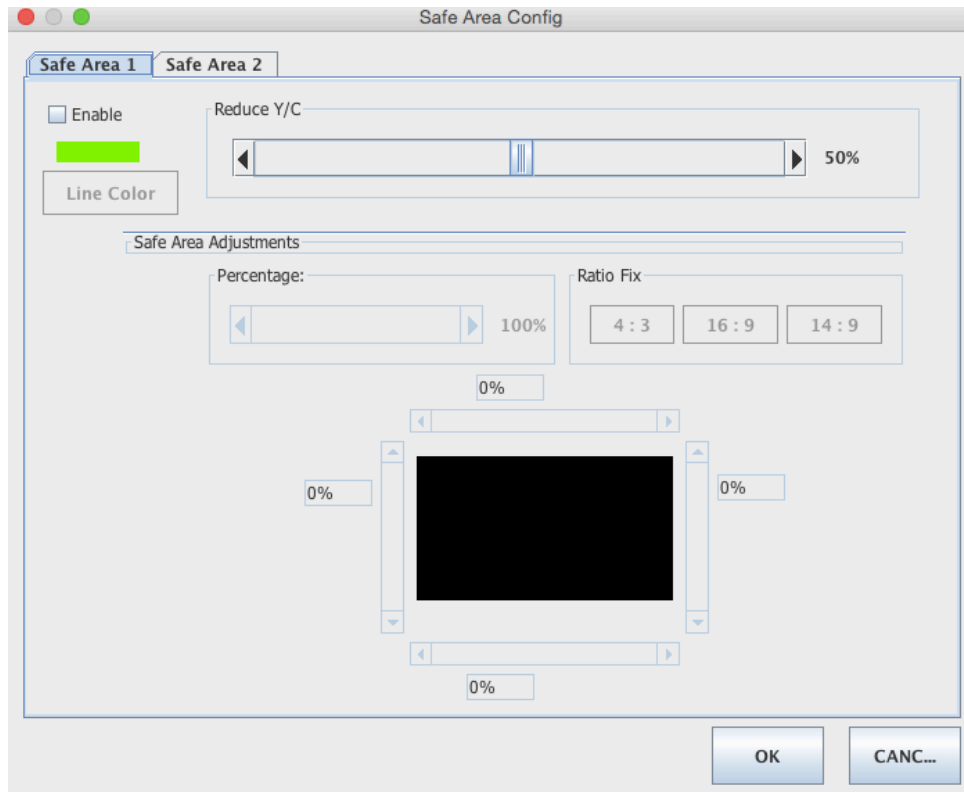


Figure 43: Enable first safe area

There are two tabs, "Safe Area 1" and "Safe Area 2". Check the "Enable" box on "Safe Area 1", then use the Percentage slider to move the safe area to 5% on each side.

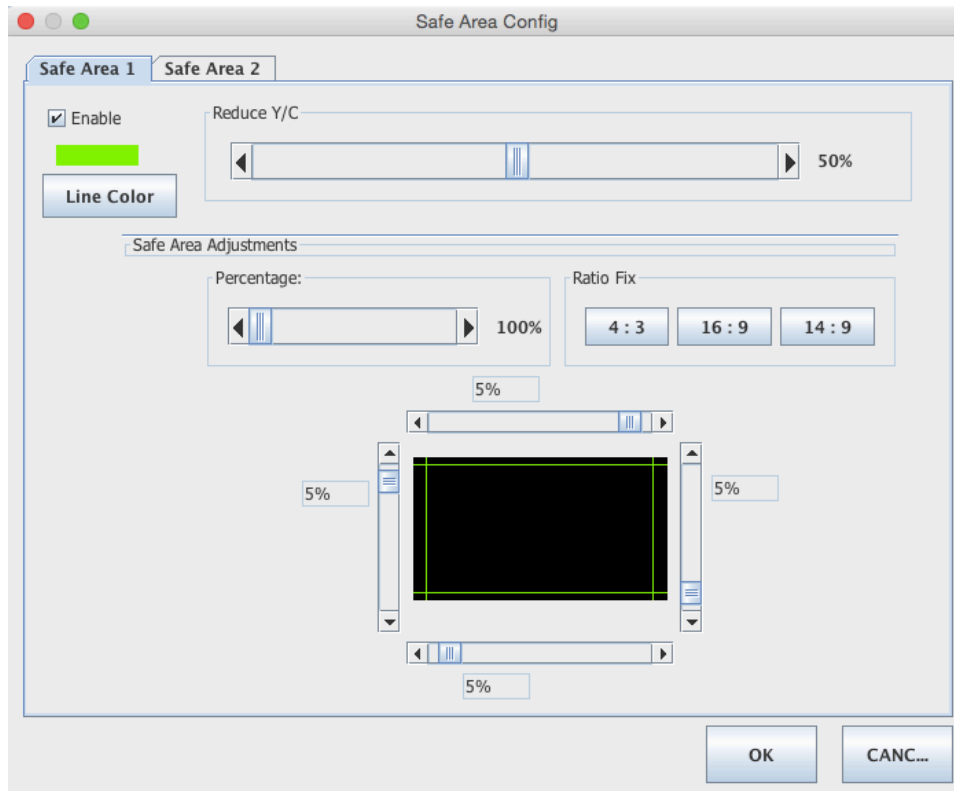


Figure 44: Set percentage

Click on "Safe Area 2" tab. Check the "Enable" box, then, select Ratio Fix <4:3>, then click OK to exit.

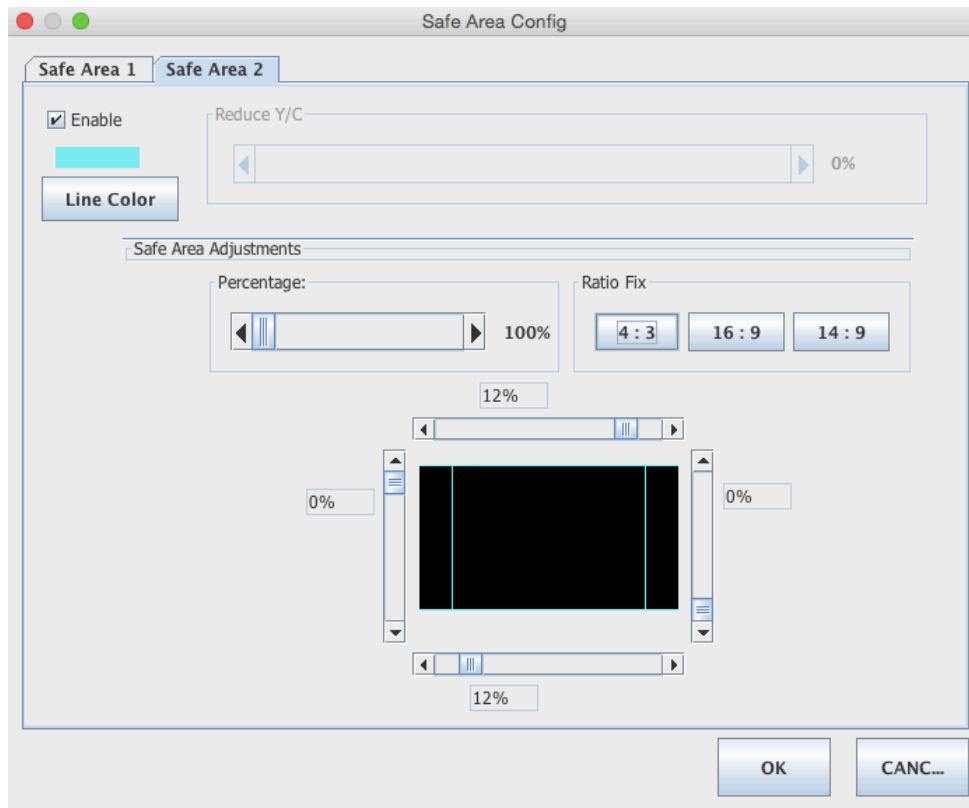


Figure 45: Enable second safe area and enable 4x3 safe area

You can now see the Window 7 has the safe areas enabled

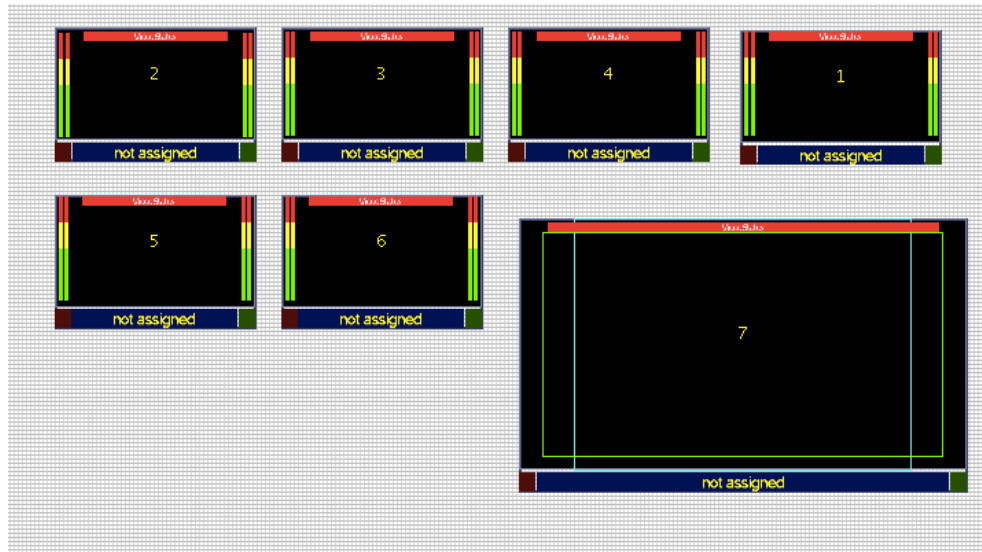


Figure 46: After safe area was turned on

Setup the on screen text, "T# 32x4 - 4K". Drag "Label UMD32" into the work space

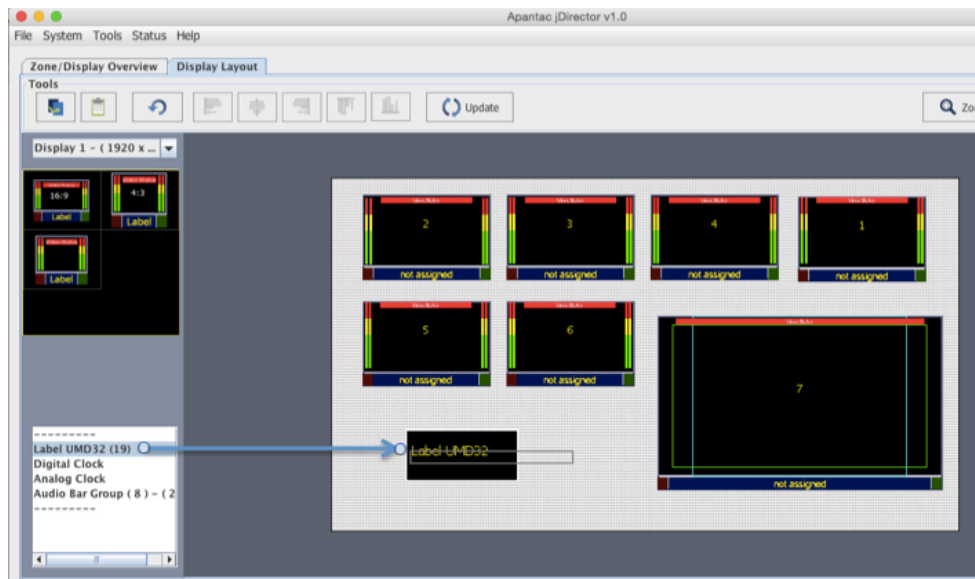


Figure 47: Insert text

Release the mouse, a label will appear

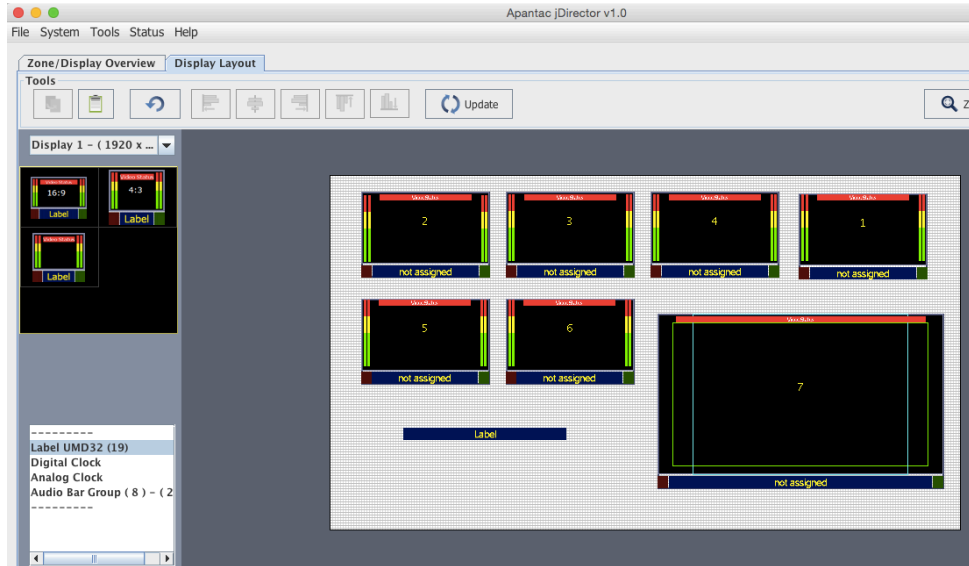


Figure 48: Label appears on work space

Right click on the label to bring up the properties dialog. Select Font 4 for the largest size font.

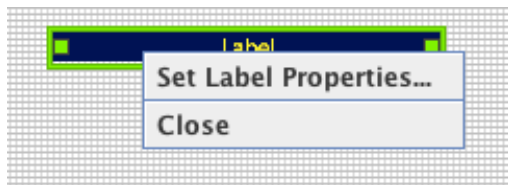


Figure 49: Set label properties

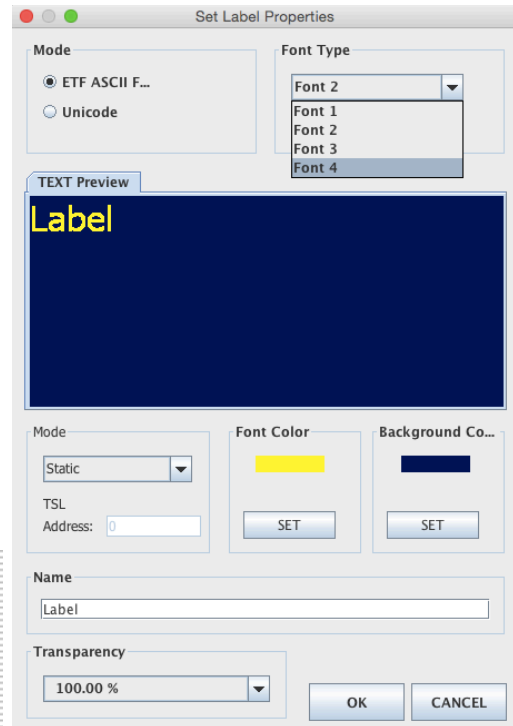


Figure 50: Set label properties

Set font color to White, click <OK> and set background color to black, then click <OK>

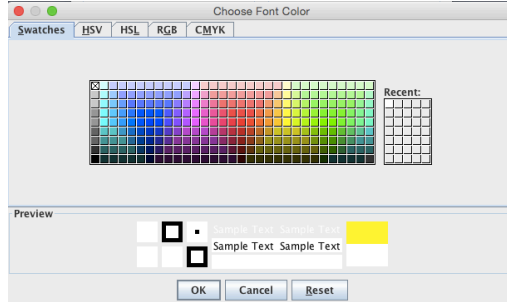


Figure 51: Set font color

Set text for the label. Right click on the label. Enter "T# 32x4 - 4K" in the Name field

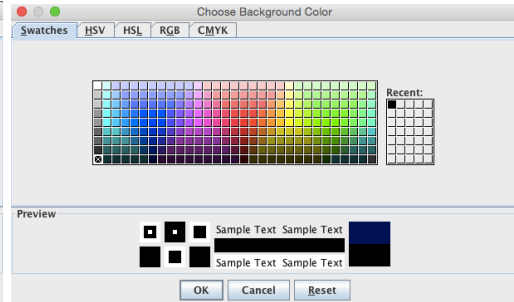


Figure 52: Set background color

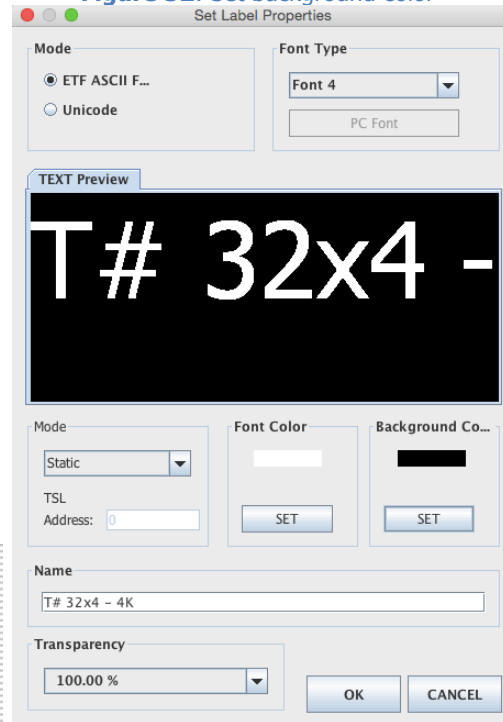


Figure 54: Enter text



Figure 53: Set label properties

Stretch the edge of the text box and position it to the desired location



Figure 55: Stretch the text box to fit

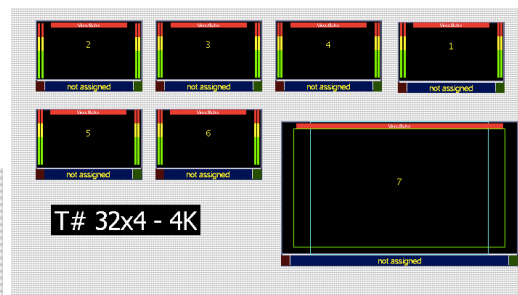


Figure 56: Position the text in place

Insert Digital Clock. Drag "Digital Clock" into the work space

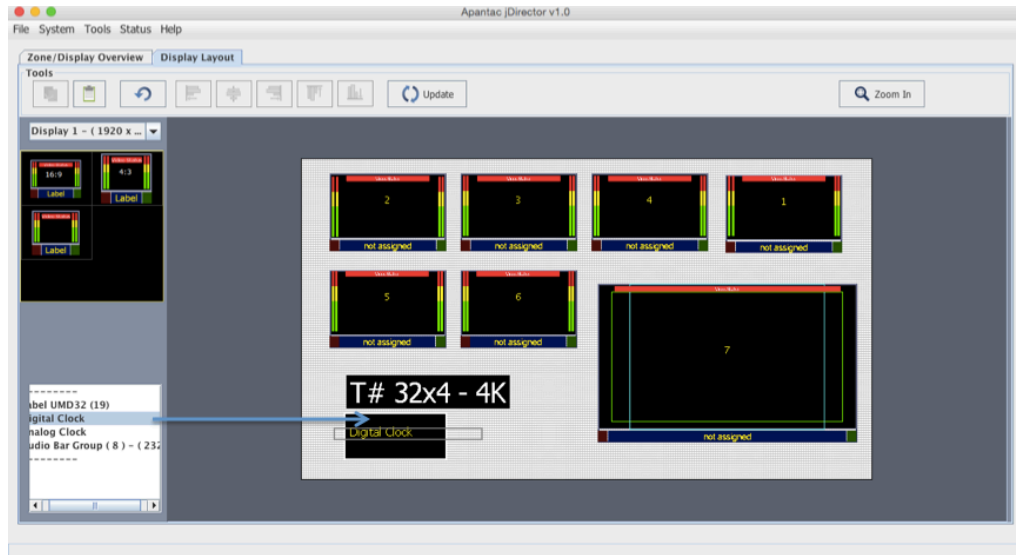


Figure 57: Drag the digital clock onto the workspace

Release the mouse, a digital clock will appear

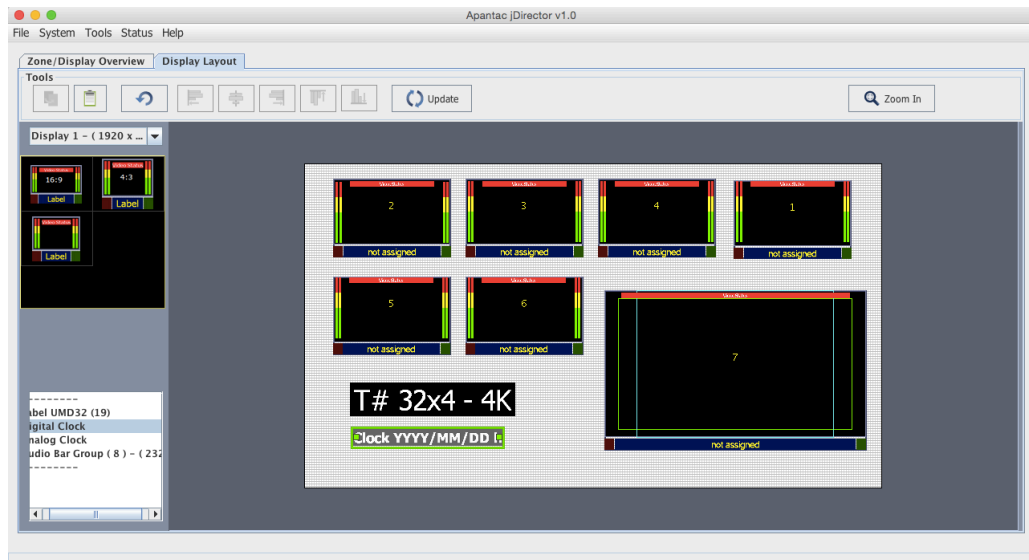


Figure 58: The digital clock appears on the workspace

Right click on the label to bring up the properties dialog. Uncheck "Enable DATE", "Enable YEAR", remove "Clock from"

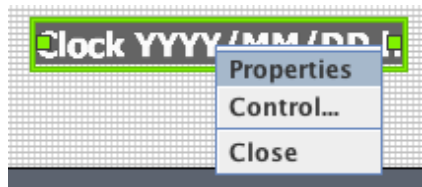


Figure 59: Edit digital clock properties

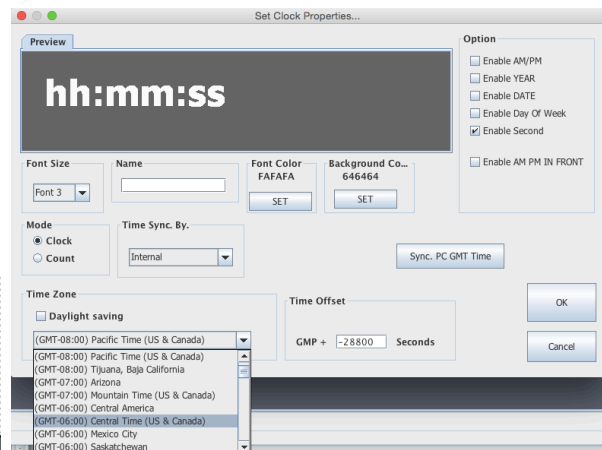


Figure 60: The digital clock properties dialog

the Name field and select the time zone

Set font color to White, click <OK> and set background color to black, then click <OK>

Position the digital clock to the desired position

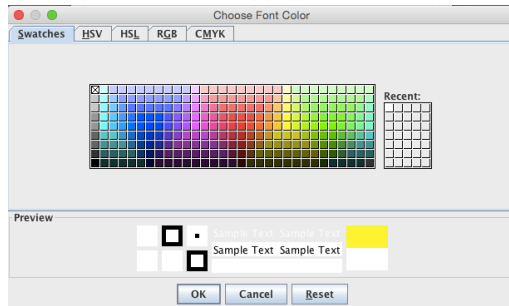


Figure 61: Edit font color

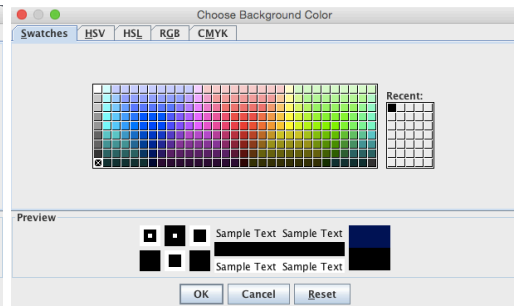


Figure 62: Edit background color

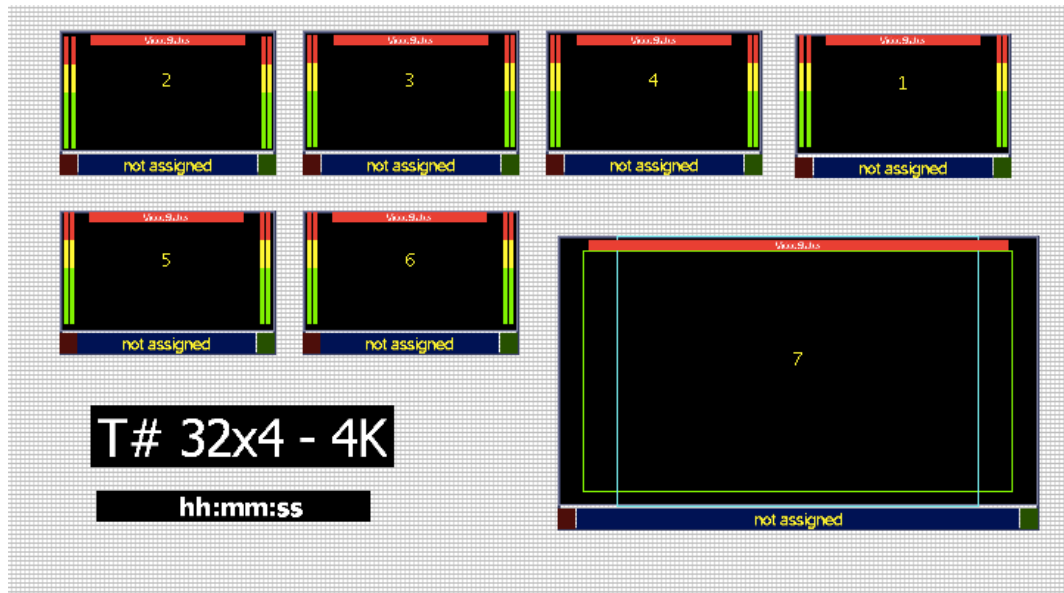


Figure 63: The layout for output 1

Setup the on screen text, "Director Monitor 1". Drag "Label UMD32" into the work space. Right click on the label to bring up properties dialog box. Enter the text "Director Monitor 1" in the Name field. Set Font color to white and background color to black.

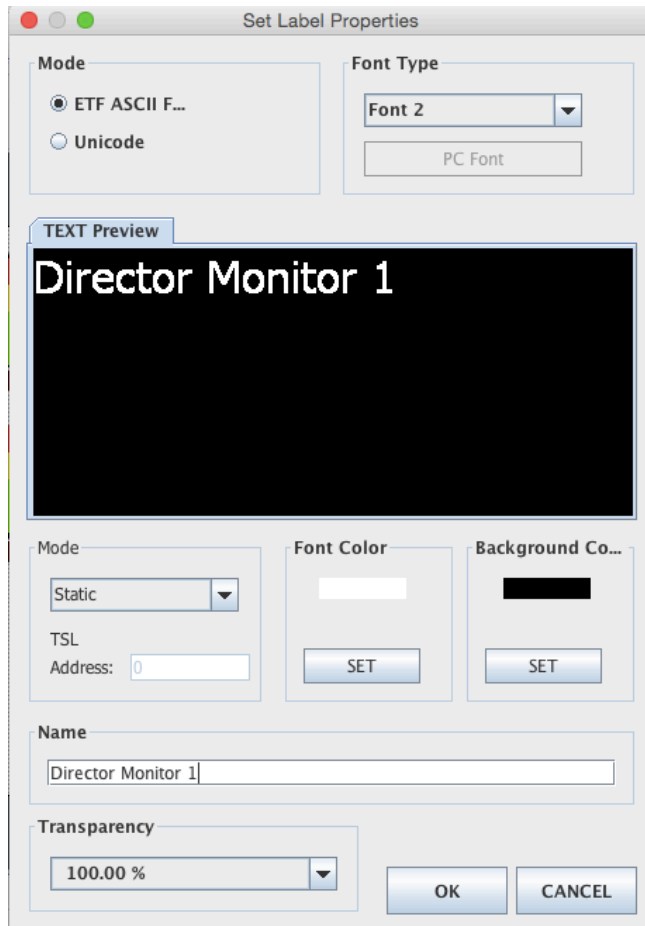
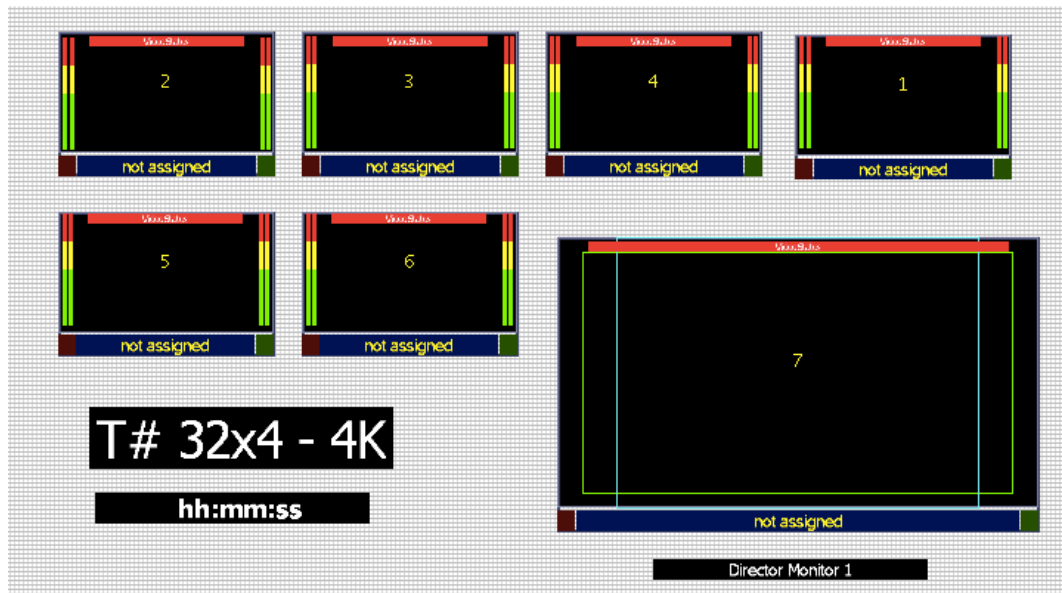


Figure 64: Edit Text

Position label to desired position.



Sources, Names, Tally and Other Setups

On the top menu, go to System -> Input Source Manager, the Input Source Manager dialog will pop up.

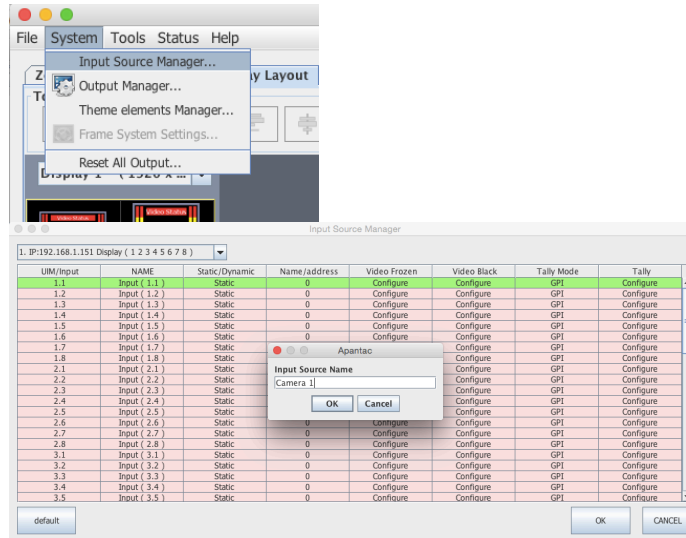


Figure 65: Input source manager

Name the source

Click on any of the Name field and start assigning names. Click <OK>, then it will automatically jump to the next name until you hit <Cancel>. Continue to name all the sources.

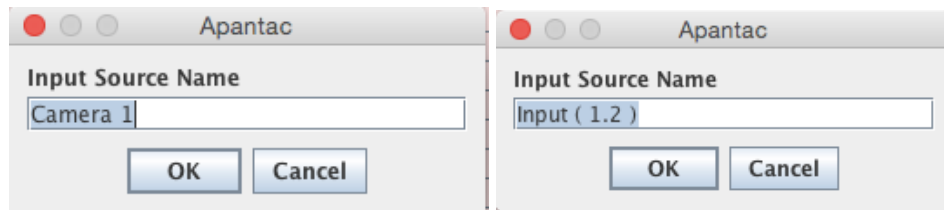


Figure 66: Enter source names

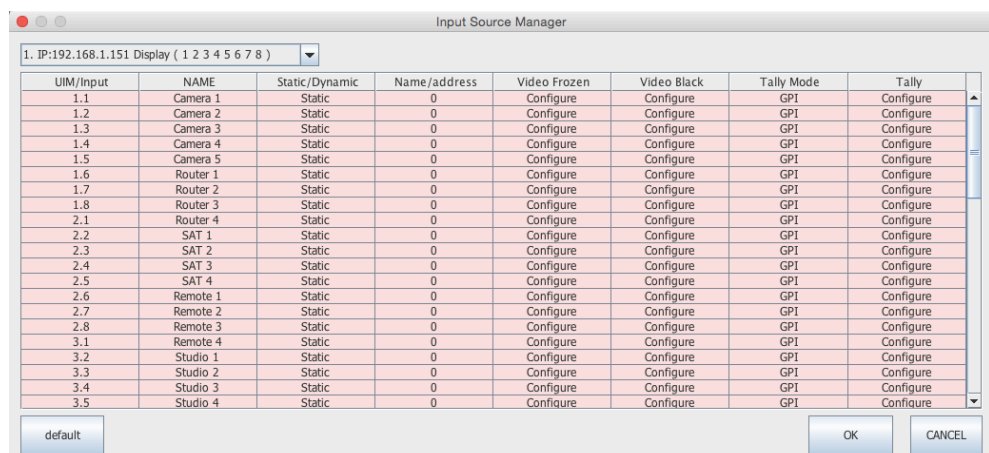


Figure 67: Input source manager with updated names

Tally Mode

Tally can be set to either GPI or TSL. TSL is the most popular serial/IP tally interface in the broadcast industry. The TSL protocol is also adapted by TSI (Image Video) and other major vendors of switchers and routers

Setup GPI Tally

In order to set up the tally with GPI, you must first wire the GPI triggers.

First, you need to locate the RJ50 to DB9 breakout cable (hint: The RJ50 adapter is shielded) and the DB9 to Terminal block breakout



Figure 68: RJ50 to DB9 breakout cable



Figure 69: DB9 to terminal block breakout

The DB9 to terminal block should be wired as Figure 70.

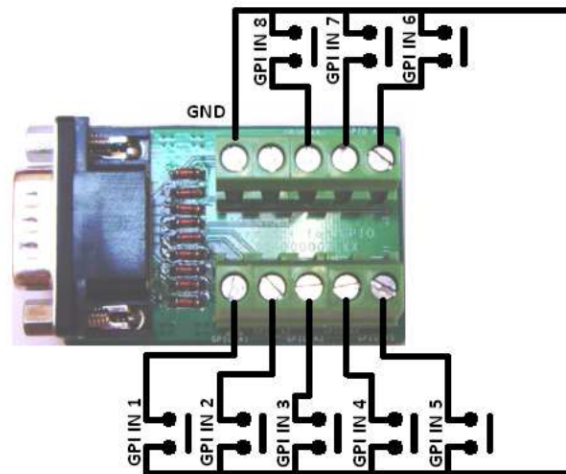


Figure 70: DB9 to terminal block breakout wiring

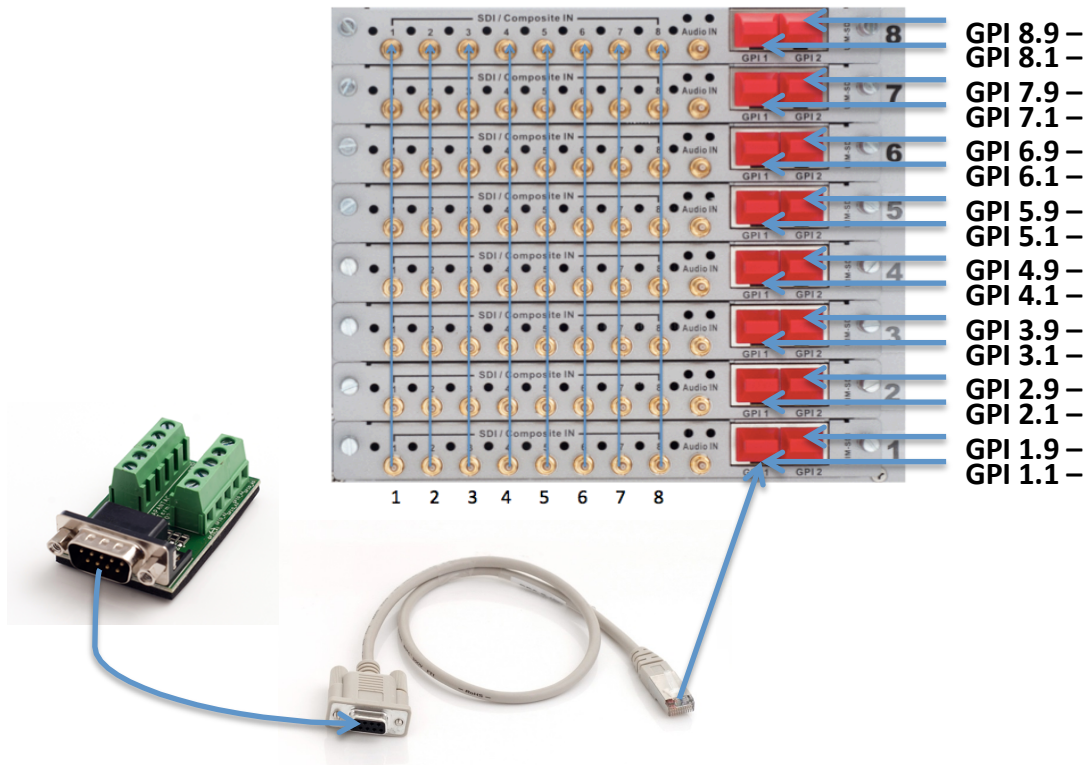


Figure 71: GPI wiring diagram

Click on the Tally Mode cell, the pull down will appear. Select <GPI>

Tally Mode	Tally
GPI	Configure
GPI	Configure
TSL	Configure
GPI	Configure
GPI	Configure
GPI	Configure
GPI	Configure
GPI	Configure
GPI	Configure

Figure 72: Click on the Tally Mode cell and select GPI

Double click on the Tally <Configure> Cell, the Set GPI Tally Attributes dialog box will appear

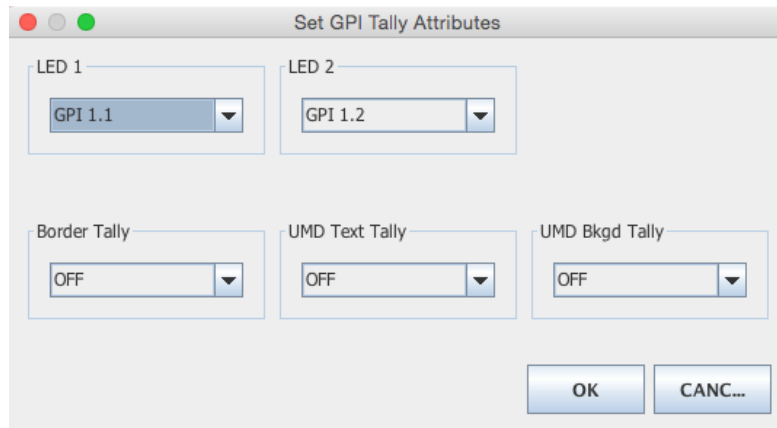


Figure 73: Set GPI Tally Attributes dialog box

GPI Tally triggers can be assigned to several different On Screen Elements, such as LED 1/2, Border, UMD, UMD Text and UMD background (also known as label). Hint: Just in case you are familiar with the Tahoma Classic. The T#'s GPI is different. The GPI trigger can be assigned freely.

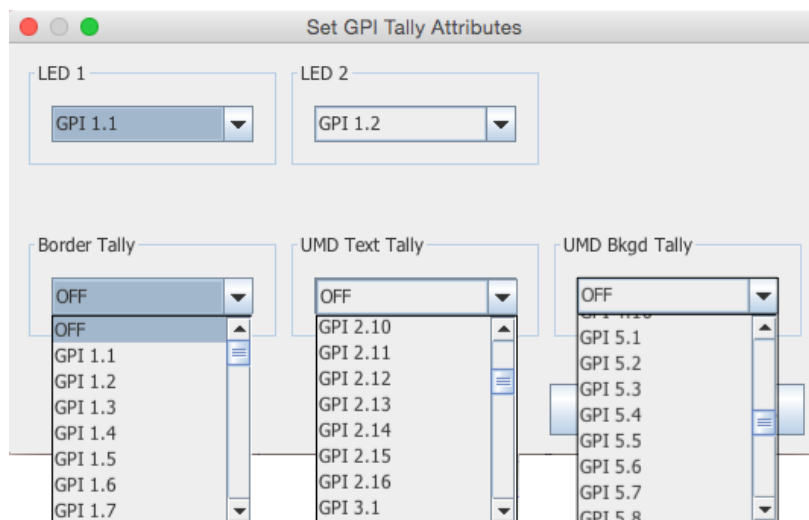


Figure 74: Set GPI Tally triggers to different on screen elements

Assigning Sources to Windows

Right click on any of the windows and select “Select Input Source”, the input source table dialog will pop up. Click on the source, the source and name will be assigned

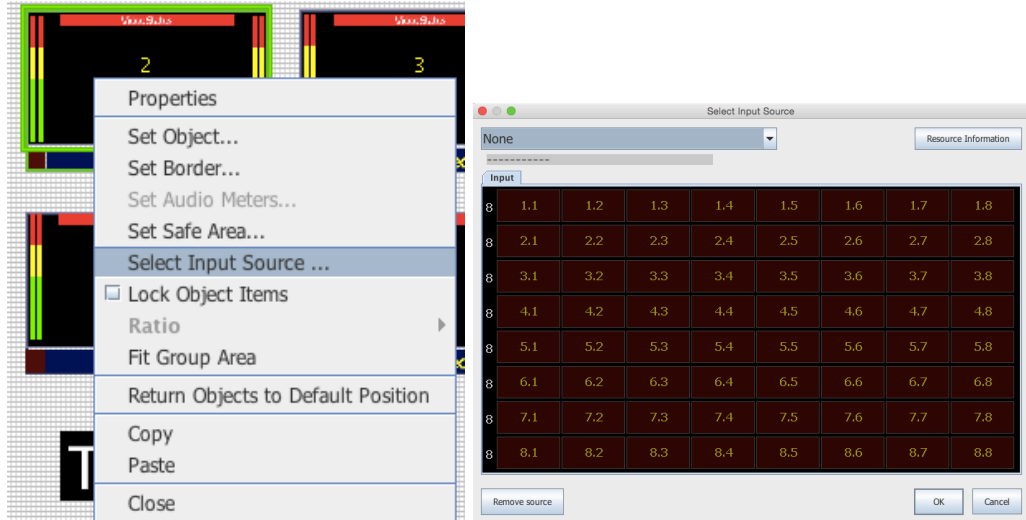


Figure 75: Select input source

The name of each window will automatically follow the source

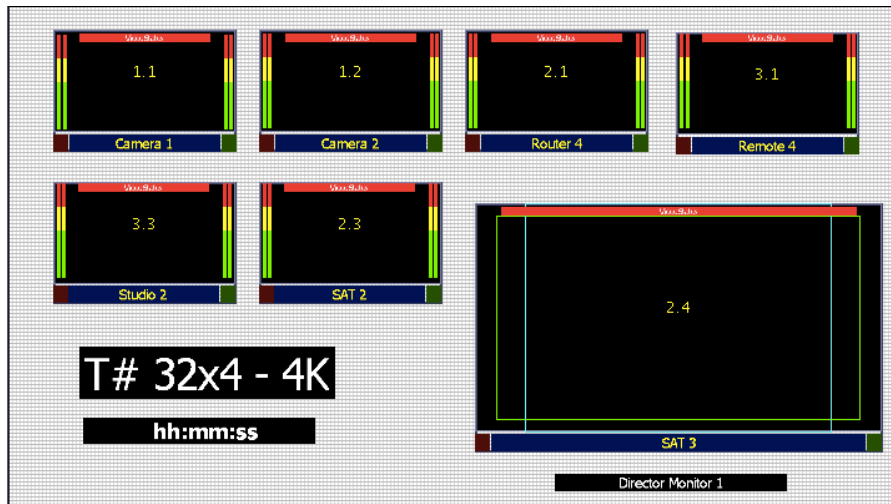


Figure 76: Layout with updated source names

Rename Label on ¼ size window from “SAT 3” to “PREVIEW”. Close the Label and drag a new Label from the object bin. Right click on the label then Set Label Properties. Change the Name field to “PREVIEW”, and then click <OK>. The Label will now say “PREVIEW”

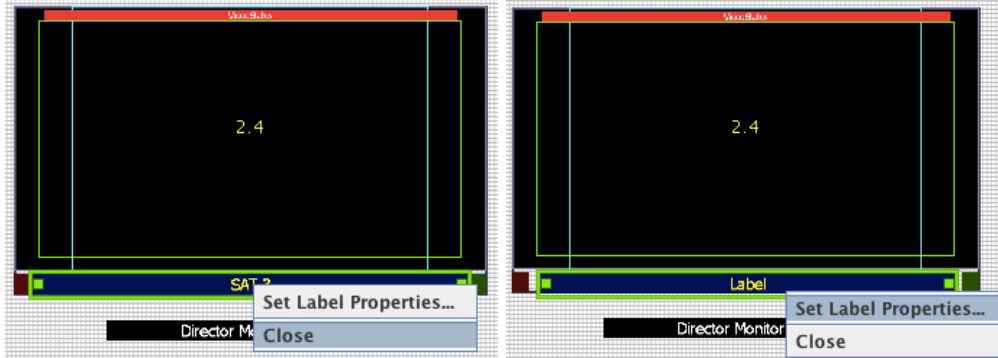


Figure 77: Replace dynamic label with static label

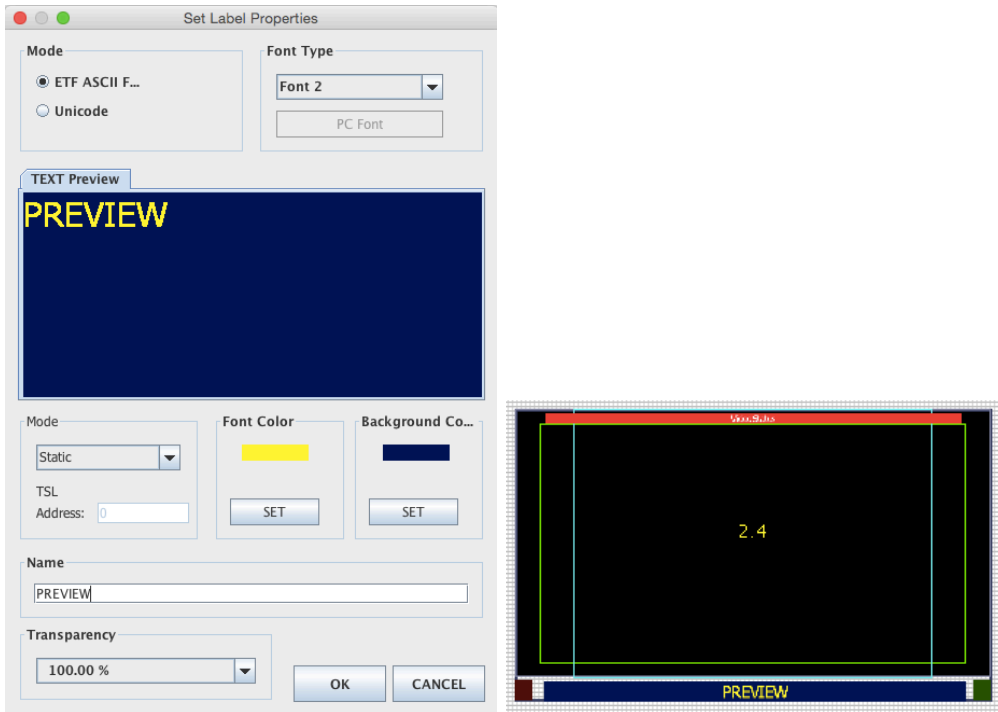


Figure 78: Edit the label name

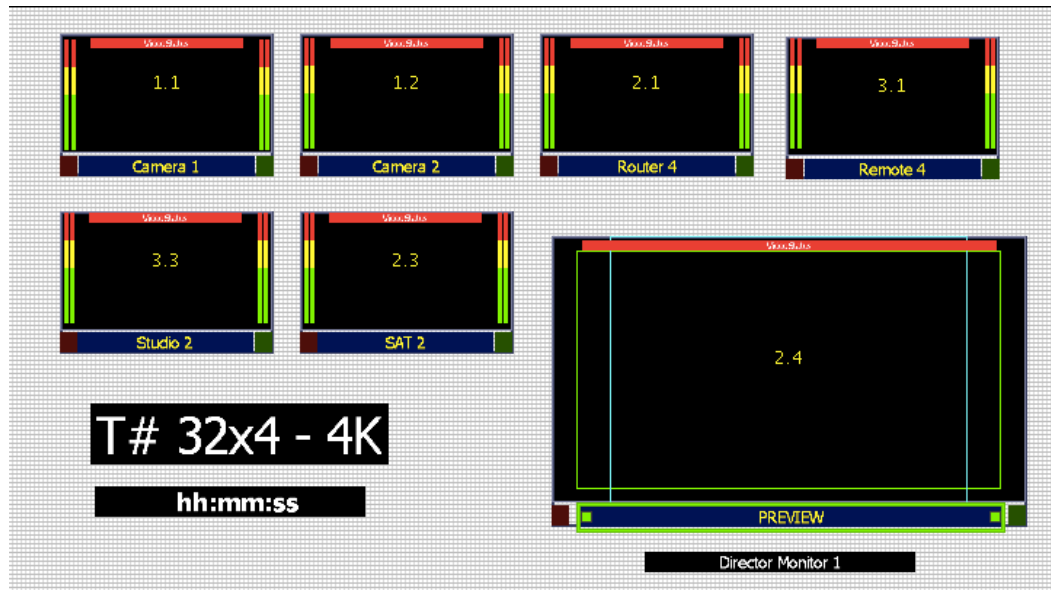


Figure 79: Final output layout for output 1

Output 2:

To start laying out the second output of the T#, click on the <Zone/Display Overview> tab, then click on "2" in the overview

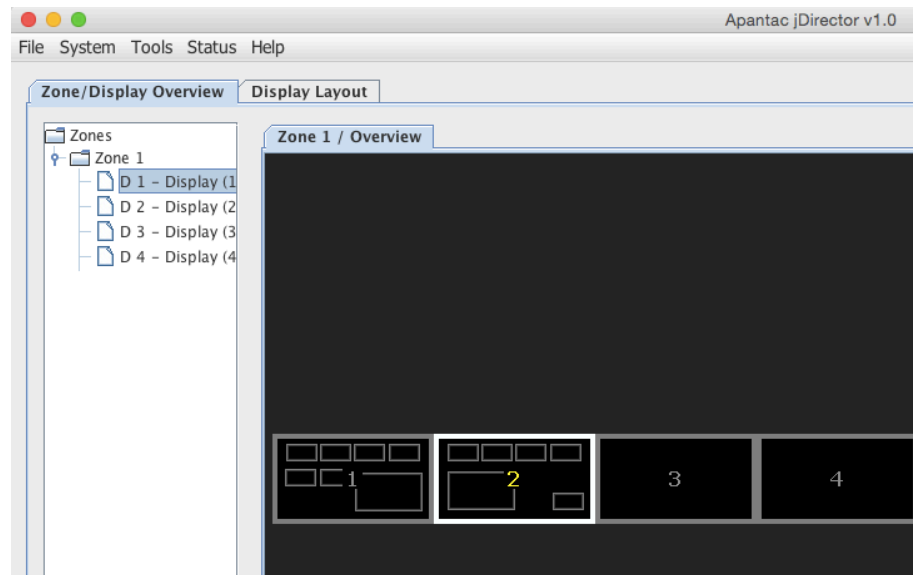
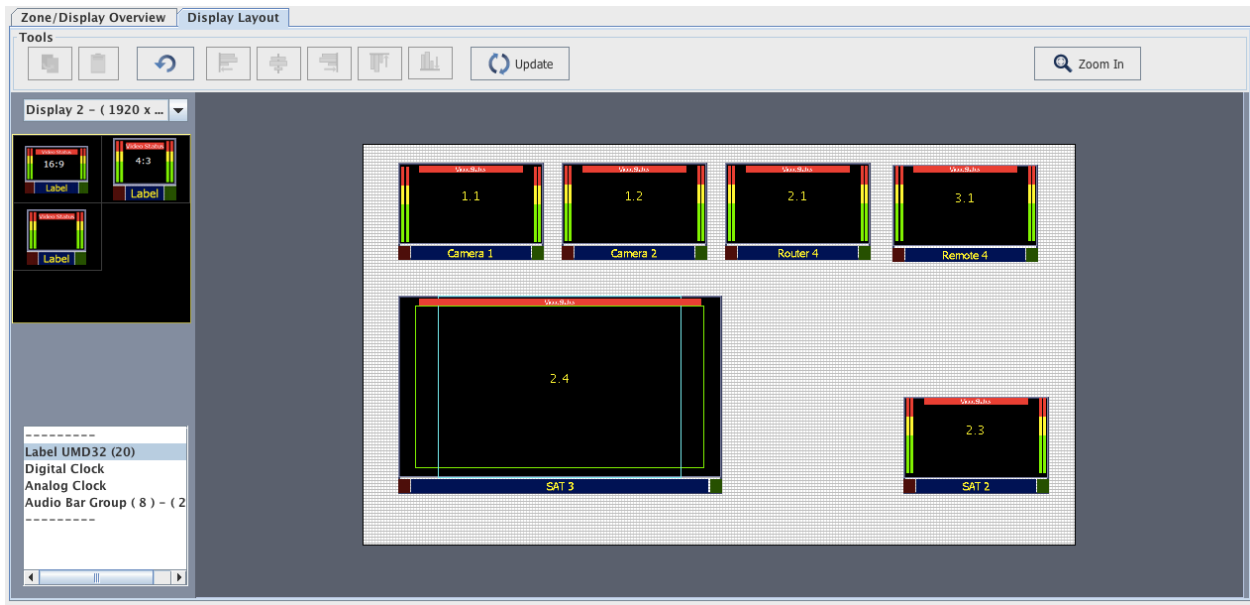


Figure 80: Select output 2 to edit



Setting up analog clocks

1. Drag the <Analog Clock> from the object bin to the workspace

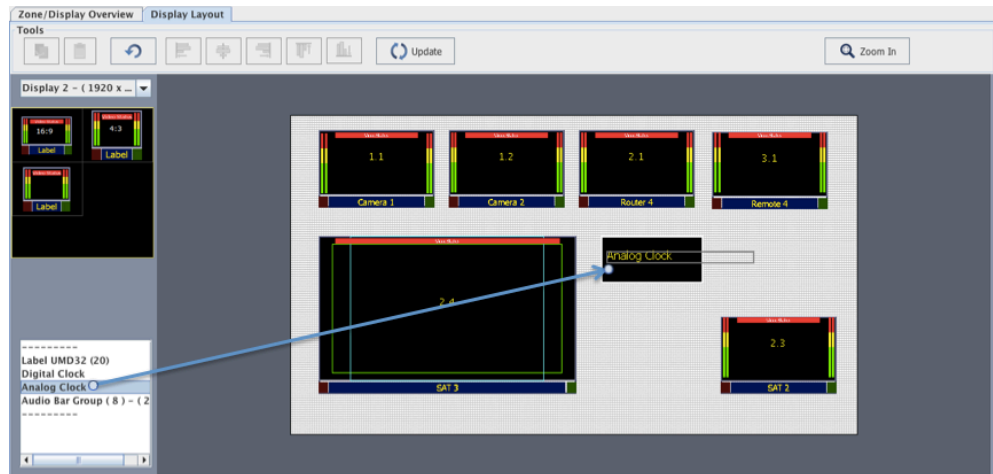


Figure 81: Drag analog clock onto workspace

2. Right click on the analog clock and select Properties



Figure 82: Edit clock properties

3. Select <Skin Type 1, 2 or 3>, Set the <Hour-Hand>, <Minute-Hand> and <Second-Hand> colors. Set the time zone, then click on <OK>.

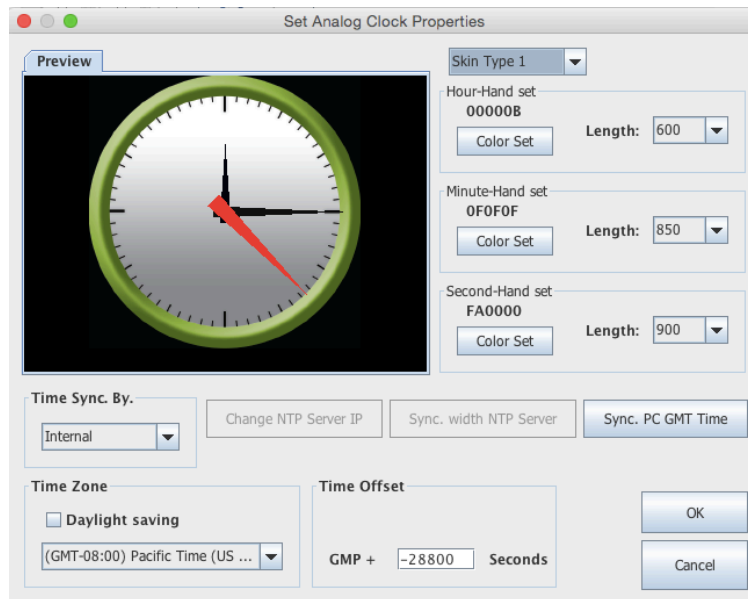


Figure 83: Clock properties editor

Repeat steps 1 to 3, three times to set up all three analog clocks, then drag them to desired position.

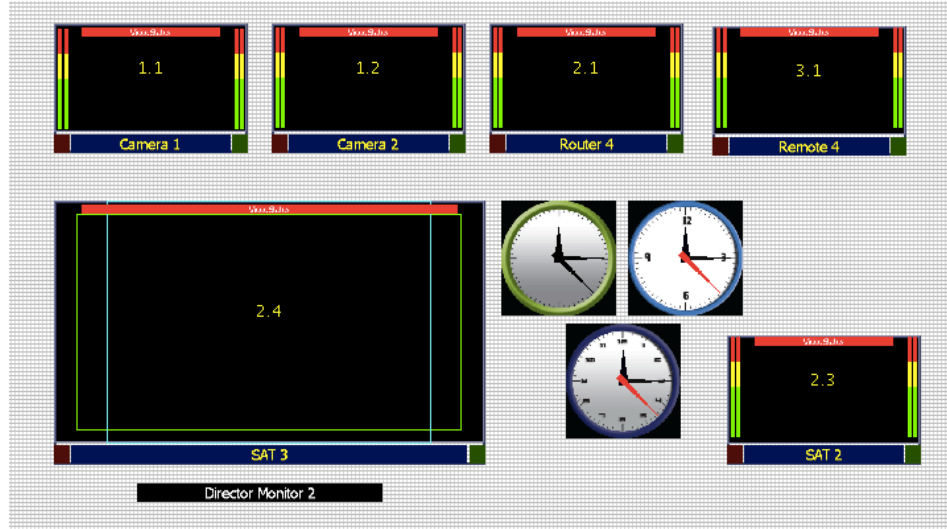


Figure 84: After analog clocks have been inserted

Adding a "1/25" Window

Click on the first Window Template

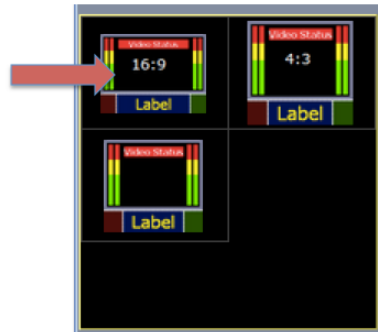


Figure 85: Select window template

Click on the first template



Figure 86: Select template

Select 1/25 from the drop down list, then place it to the desired position

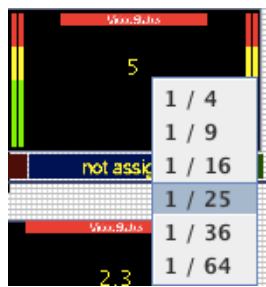


Figure 87: Select 1/25 and place it on the workspace

Output 3:

To start laying out the second output of the T#, click on the <Zone/Display Overview> tab, then click on "3" in the overview

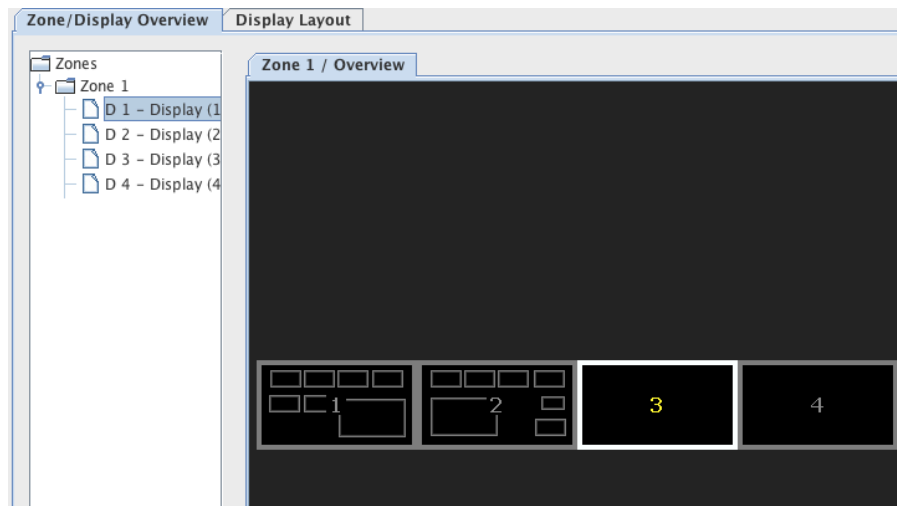


Figure 88: Select output 3 to edit

Adding a "1/9" size window

Click on the first Window Template

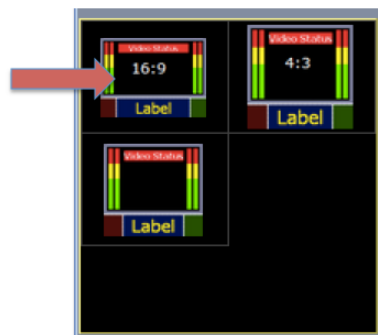


Figure 89: Select window template

Click on the first template



Figure 90: Select template

Select 1/9 from the drop down list, then place it to the desired position. Continue to set up the rest of the layout and assign sources to each window

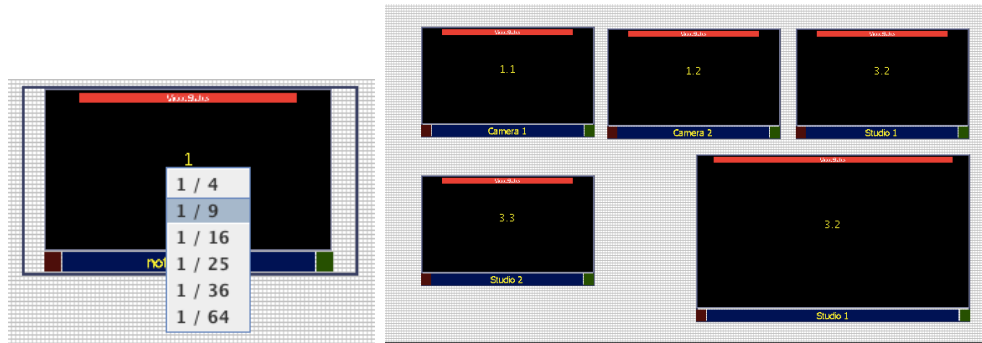


Figure 91: Select 1/29 and place it on the workspace

Add Counter

Drag and drop
<Digital Clock>
from object bin
to the work
space

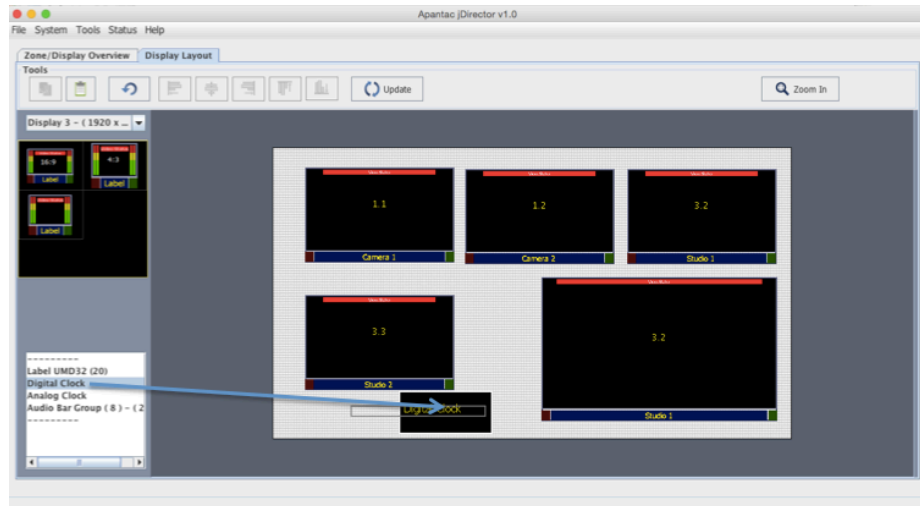


Figure 92: Drag and drop digital clock onto workspace

Right click on the
digital clock and
select properties
to enter the "Set
Clock Properties"
dialog box.
Check the radio
button "Count"
and set the font
to red and
background to
black. Uncheck
the "Enable
DATE" and
"Enable YEAR"

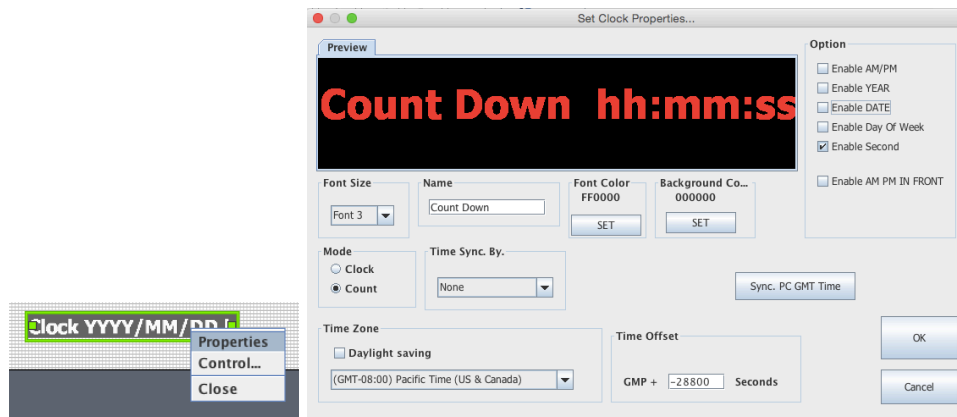


Figure 93: Edit digital clock properties

Stretch the count
down clock to
the proper
length and place
it in position

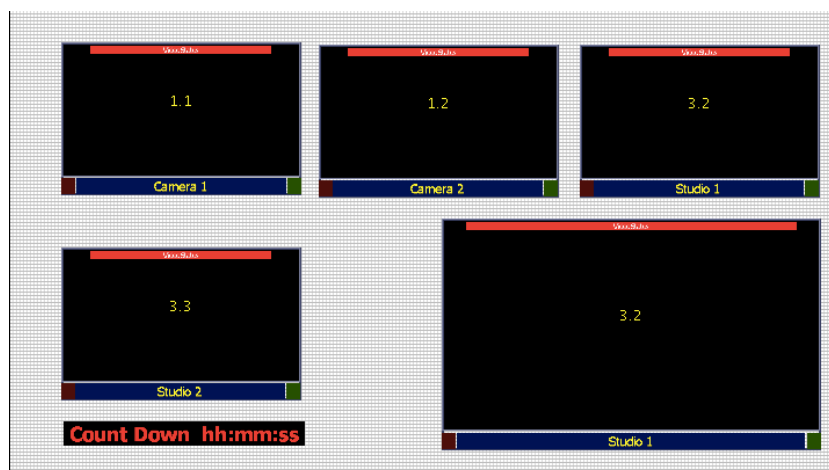


Figure 94: Count down clock appears on the workspace

Output 3 & 4:

To start laying out the fourth output of the T#, click on the <Zone/Display Overview> tab, then click on "4" in the overview

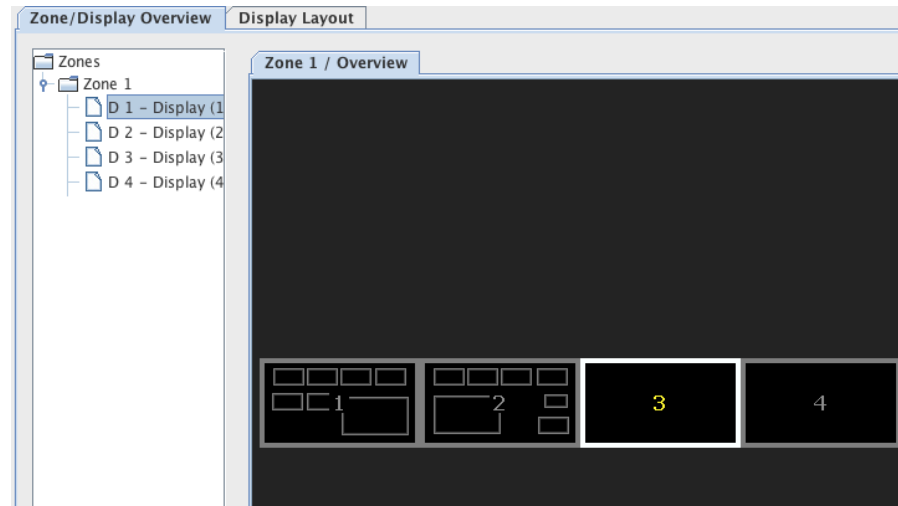


Figure 95: Select output 3 to edit

There are no new objects introduced for output 4, please repeat the tutorial as you see fit to finish the layout for output 4.

Other Menus

There are other menus accessed by right clicking on objects, the display background or via the top level menus that are not covered in this Manual. Most of them are self-explanatory.

Contact Information

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