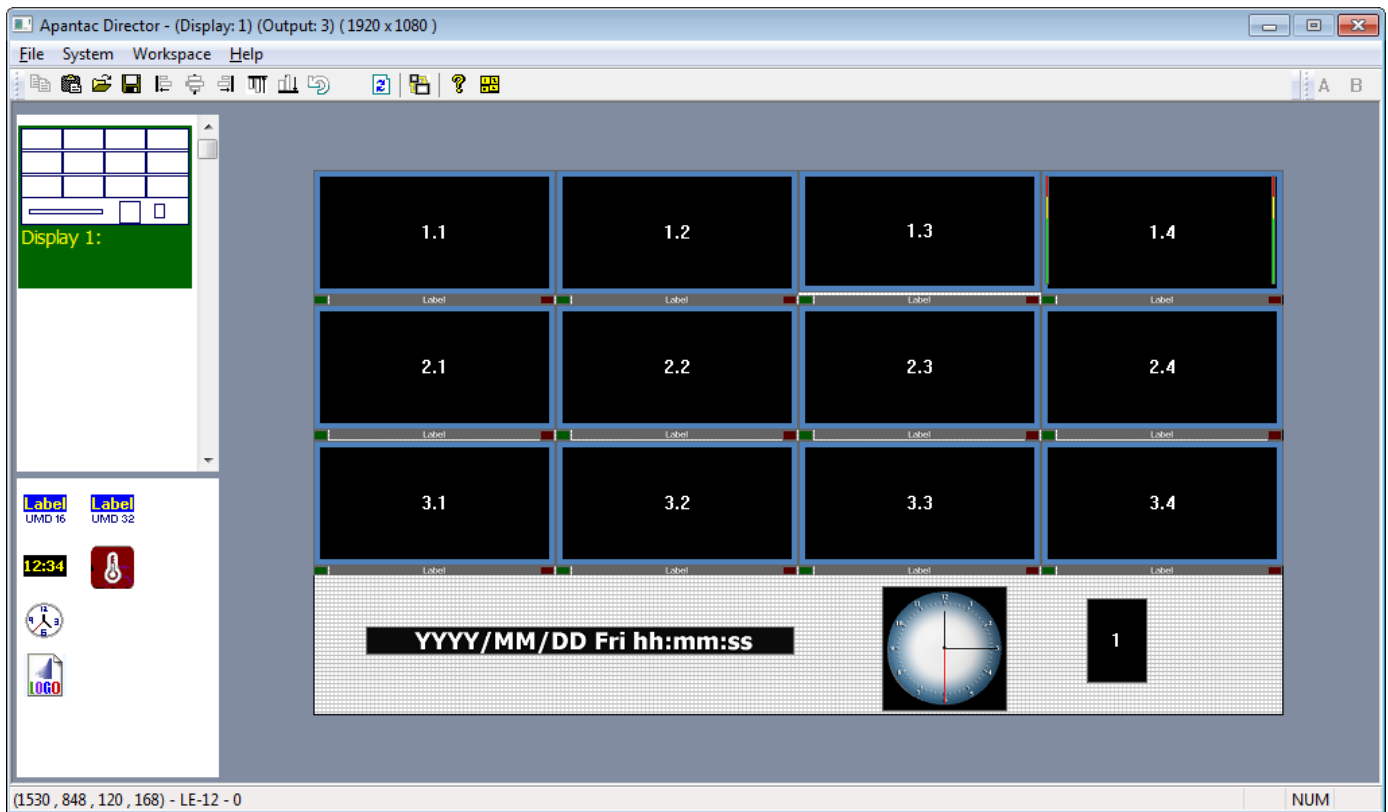# APANTAC DIRECTOR

Configuration Software for the
Tahoma line of APANTAC Multiviewers

Table of Contents

GETTING STARTED

This section will help you get the editor up and running as quickly as possible.

Running Director

Before you can successfully run the Director, 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.

Now you can run the Director by double clicking on the Apantac Director icon.

Note: A firewall exception may appear, if it does be sure to give the Director permission to access the network.
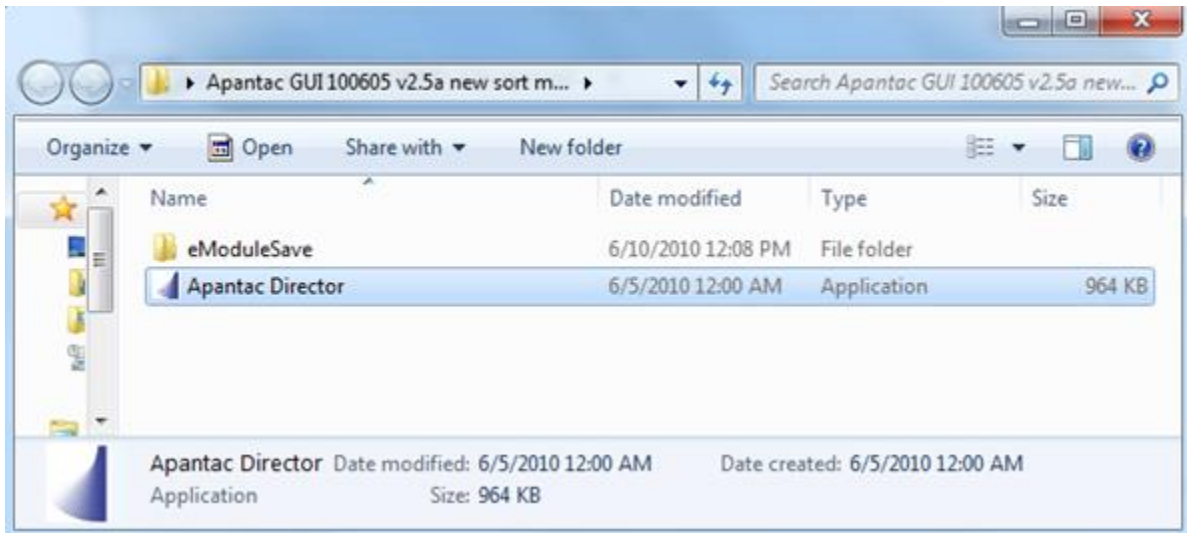
Figure 1: Double-click on the Apantac Director to launch the Director

After the Director launches you will see the Initialization screen.
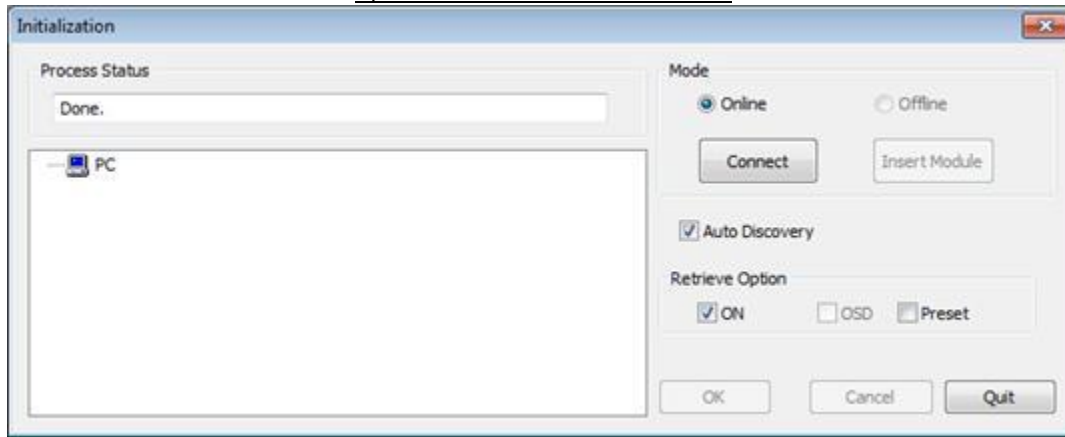
Figure 2: Director Initialization screen

Connecting the Director

Once the Director is running, you will have to choose to run it in Online or Offline mode. If you want to configure your Apantac Tahoma series multiviewer and see the changes being made in real time, you will want to select Online. If you don't want to directly affect the Multiviewer because it is in use or you are waiting for it to arrive, select Offline.

Online Mode

Note: At any time while you configure Online mode a firewall or similar program may try to block the Director from communicating with the network. Be sure to allow the Director through the firewall. If you have trouble connecting, consult the FAQ or contact Apantac Support for help.

IMPORTANT: To connect to the multiviewer your PC must be connected to the same subnet as the multiviewer. The default IP address for all Apantac multiviewers is **192.168.1.151**

There are three ways to connect to the multiviewer,

1) Use Auto Discovery to have the Director attempt to automatically find multiviewers on your network.
   - Check the "Auto Discovery" box
   - Once all the multiviewers have appeared, click "STOP"
   - If the multiviewers do not appear, you may have to resort to manually entering the IP address(es)
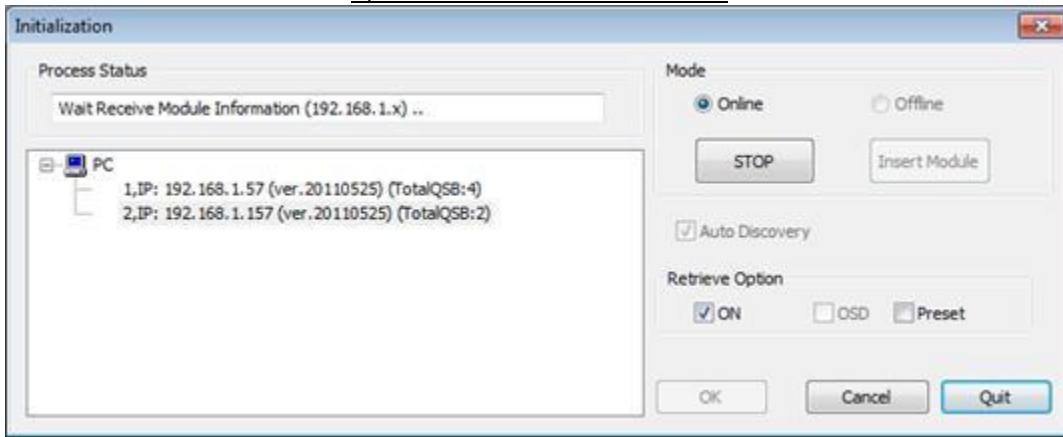
Figure 3: Auto Connect in process

2) Manually enter the IP address using the Director o Right-click on "PC"
    •   Select "Add IP Address"
    •   Enter the IP address in the window and click on "OK"
    •   Repeat this process for every multiviewer
    •   Click "Connect"
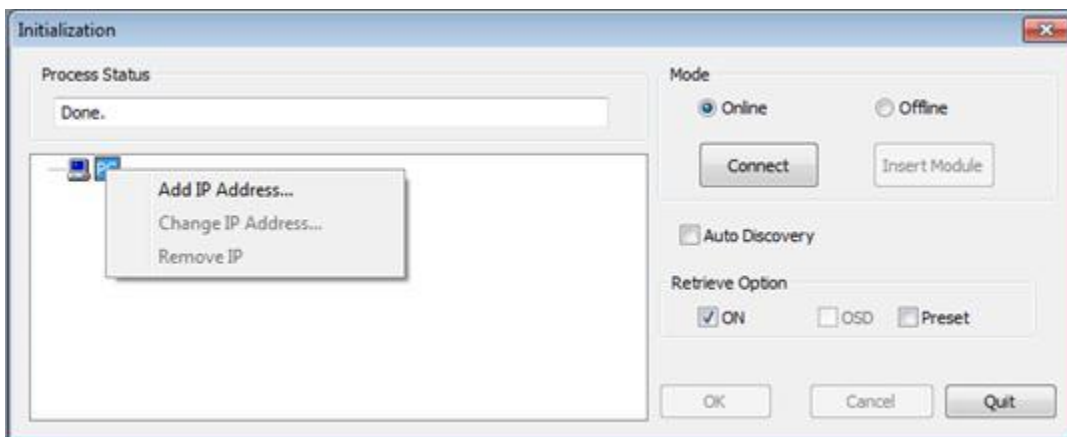
Figure 4: Add IP Address

Figure 5: Input the IP address for the multiviewer

3) Manually enter IP address in a .ini file
    •   Create a .ini file in the same directory as the Director's executable called "Apantac_Ctrl_IP_Address.ini"

- Add the IP address(es) of your multiviewers in the file, one per line, in the order you would like to connect to them.
- You may have to close the Director and run it again for this change to take effect.
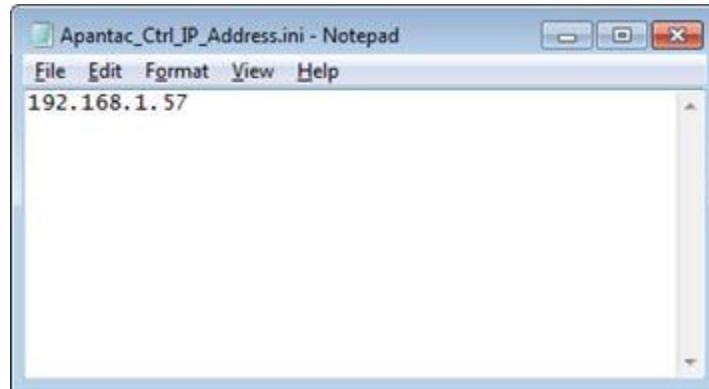
Figure 6: Adding IP address using a .ini file

After you have completed one of the above steps, choose from the Retrieve Options and click "OK" to continue.

Retrieve Options will download the current configurations from the multiviewer to your computer's hard-drive. Checking "ON" downloads the currently loaded and displayed configuration known as "LATEST Preset". Checking "Preset" will also download the stored preset configuration files from the multiviewer.

►*NOTE: This screen shows the firmware versions currently installed on your multiviewer.*◄
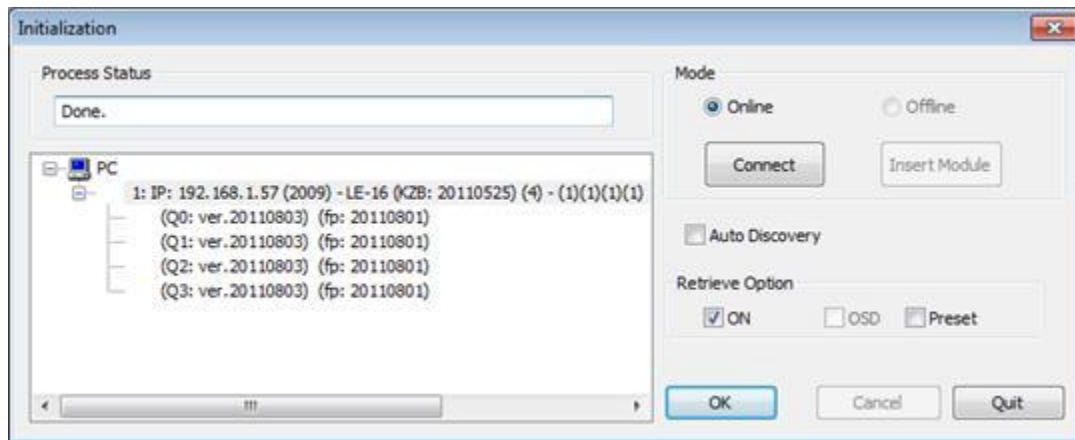
Figure 7: After having successfully connected to a multiviewer(s) click "OK"

Now you are ready to edit your multiviewer layout!
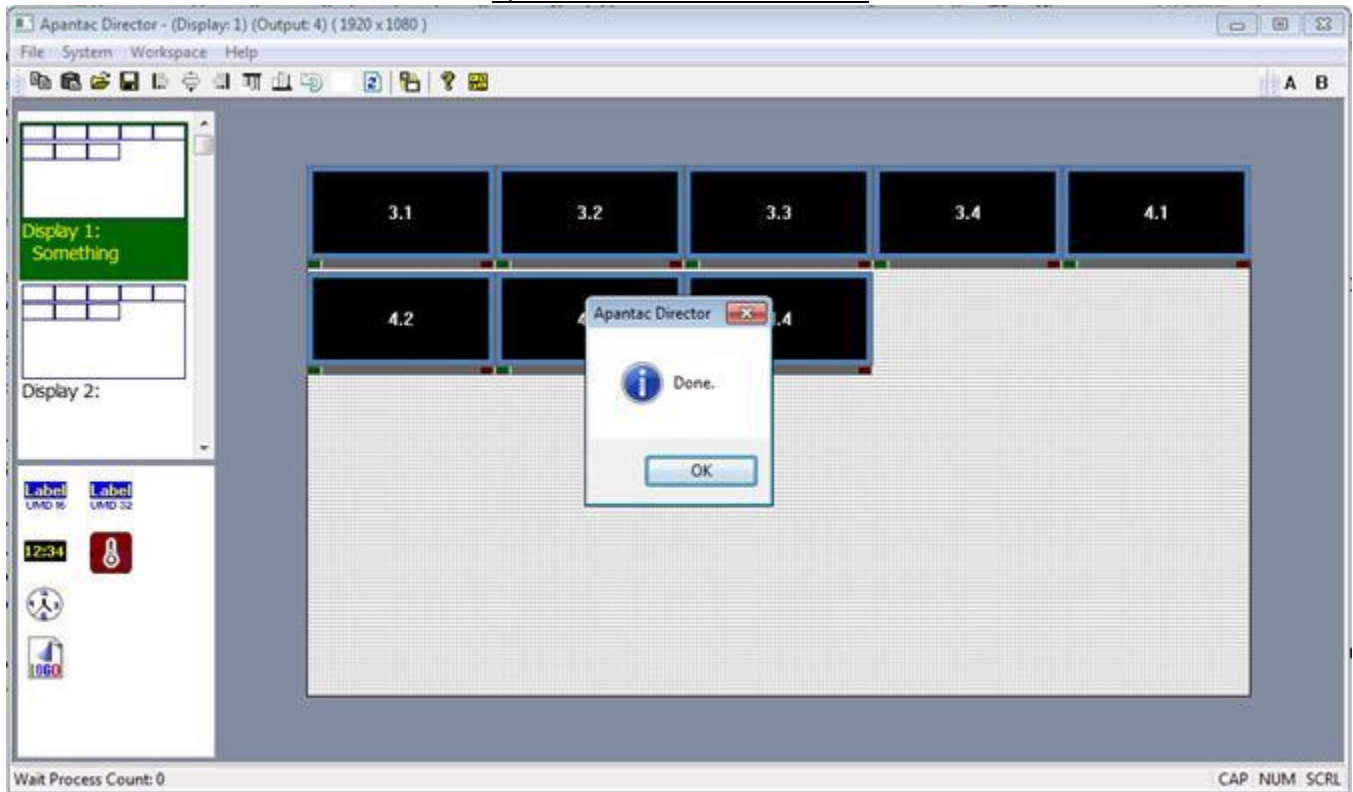
Figure 8: The Director running with a default layout, click "OK" to finish

Changing the Multiviewer's IP Address

If you wish to change your multiviewer's IP address from the default, you must first connect to it as seen in Figure 7, then right-click on the multiviewer's icon, and select "Change IP Address".
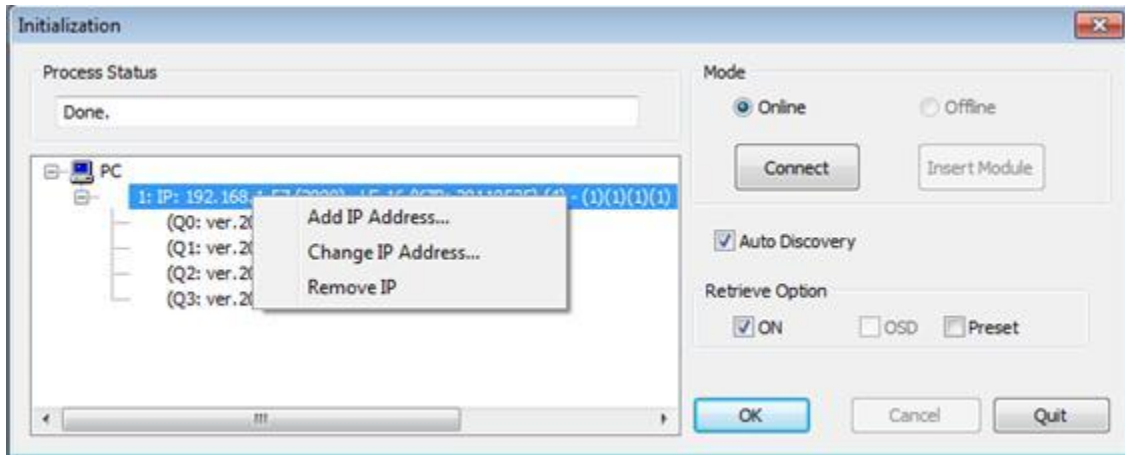
Figure 9: Right-Click on the multiviewer and select Change IP Address

Then edit the IP Address/Gateway to your preference.
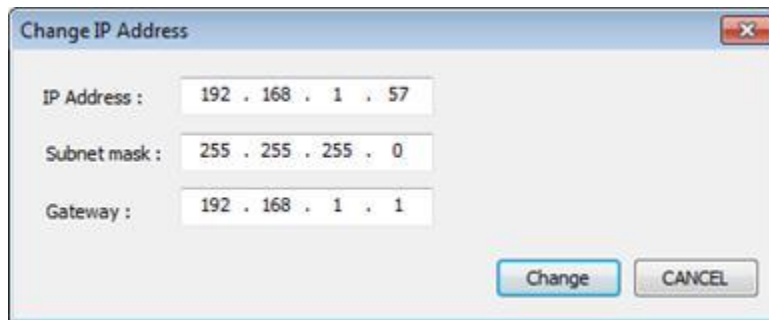
Figure 10: Edit the IP Address Field and click "OK"

A confirmation dialog will pop up. Select "OK" to make the IP Address change to your multiviewer.
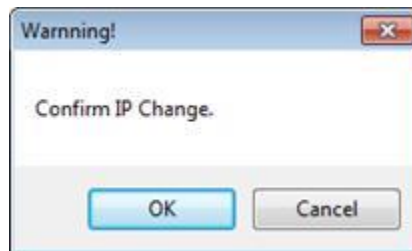
Figure 11: Select "OK" to change the multiviewer's IP Address

Offline Mode

After selecting "Offline" a warning dialog will appear asking for confirmation if you want to use Offline mode. Select "Yes".
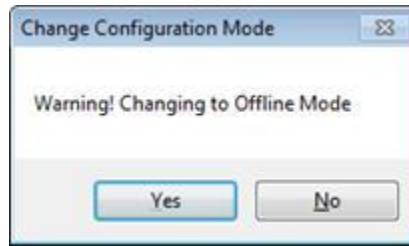
Figure 12: After selecting "Offline", click "Yes" to confirm

You will then be asked if you want to copy the Online configuration to the Offline configuration. If you would like to do so, click "Yes" if not, click "No". If it is your first time running the Director, it will not matter as the Online files should be identical to the default files.

Next click "Insert Module" to create a dummy multiviewer that will simulate an actual multiviewer. You will then be prompted to insert a predefined Apantac Tahoma series multiviewer. Choose the one that is identical to your multiviewer. Each multiviewer will be created with the Apantac default IP address, 192.168.1.151, unless you change it. If you plan on configuring your multiviewers to a different IP address, it is recommended that you change it now so that you may easily export the Offline configuration to the multiviewer in the future.

Figure 13: Select the multiviewer and click "Insert"

After inserting the proper module(s), click "OK"
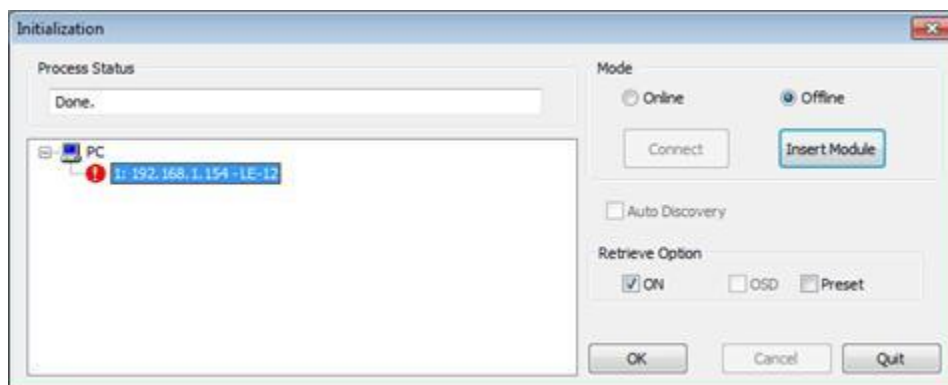
Figure 14: Now that the multiviewer is inserted, click "OK" to continue

Now you are ready to edit your multiviewer layout!

Using the Director Layout Editor

Director Overview

The Director Layout Editor contains 3 zones, 3 menus, and a tool bar.
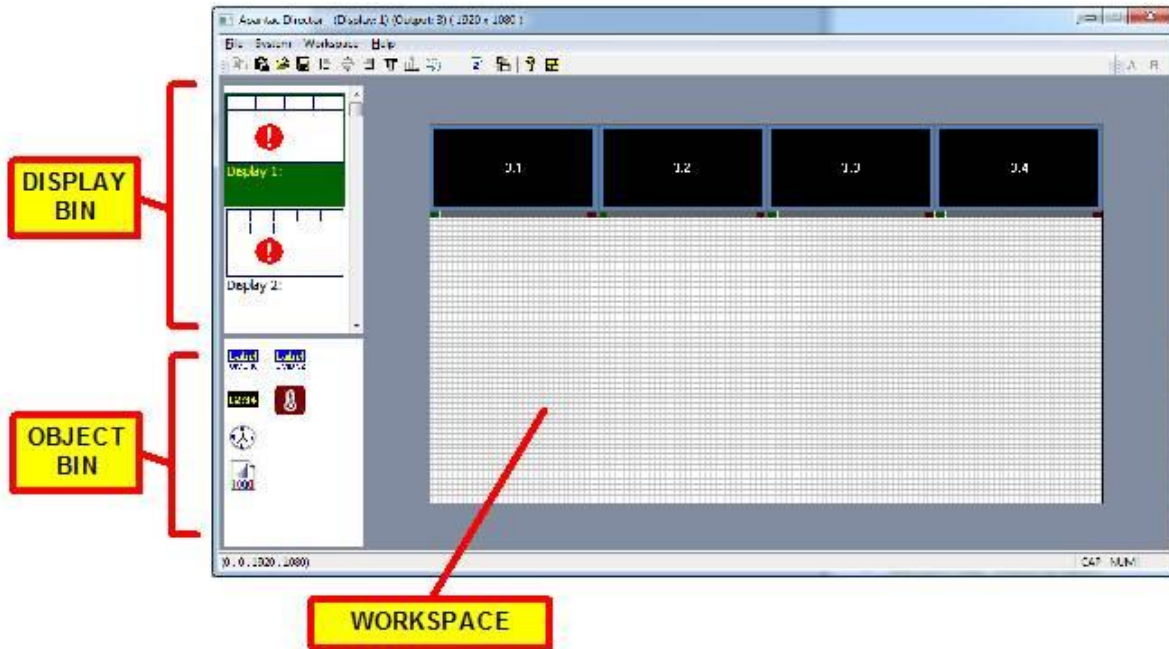
Figure 1: Zones of the Layout Editor

Zones:
- Workspace
  This represents the output display of the multiviewer. Its shape and size changes according to the output video resolution. It can be viewed in normal or "1:1" zoom mode. Zoom mode panning is performed with the arrow keys. The Workspace contains a grid. When the "snap to grid" option is set, moving or sizing objects adjust to the nearest grid square.
- Display Bin
  A listing of all output displays of all connected multiviewers. Which display is shown in the workspace is selected by clicking here. The number of displays is set within the "Output Manager", and their names are set in the "Display Overview".
- Object Bin
  Contains the additional stand-alone objects that can be dragged and dropped onto the display workspace.

Menus:
- Top Level Menu
  (In the standard Windows location.)
- Context Sensitive Menus
  Right-click any object in the workspace for its context menu.
- Output Level Menu
  Right-click the workspace, or the gray area around it, for the Output Level Menu.
- Tool Bar
  (In the standard Windows location.)

System Design

Introduction

Understanding how to configure the Apantac Tahoma line of multiviewers begins with understanding how they function and some of the terms we use.

Inputs, Outputs, Windows and Displays

The Tahoma multiviewer's basic unit is the video processing module (VPM). The VPM accepts four video inputs and produces one multiviewer output. Each VPM can do this independently or it can cascade its inputs to the next VPM within the Tahoma. The inputs of a single VPM cannot be split between different outputs (i.e. A Tahoma LE-16 sending 11 inputs to one screen and 5 to another is not possible.) Each VPM video input is mapped to its own window on the multiviewer Display.

Note that the Director software numbers the displays from the last VPM backwards. The last VPM will always produce an output since it has no further VPM to cascade to.

Figure 1: Tahoma Multiviewer Example

With the cascading function of the VPM's the multiviewer can be set in a variety of configurations. The following table illustrates the configurations of a 16 input Tahoma. Configurations for Tahoma's from 4 to 32 inputs can be extrapolated from this example. Some physical configurations are logically the same. (i.e. This table has 3 configurations which produce 4, 4, and 8 window displays.)

Possible Configurations	Multiviewer Output 1	Multiviewer Output 2	Multiviewer Output 3	Multiviewer Output 4
1	4 windows Inputs 1 - 4	4 windows Inputs 5 - 8	4 windows Inputs 9 - 12	4 windows Inputs 13 - 16
2	carry over -->	8 windows Inputs 1 - 8	4 windows Inputs 9 - 12	4 windows Inputs 13 - 16
3	4 windows Inputs 1 - 4	carry over -->	8 windows Inputs 5 - 12	4 windows Inputs 13 - 16
4	carry over -->	carry over -->	12 windows Inputs 1 - 12	4 windows Inputs 13 - 16
5	4 windows Inputs 1 - 4	4 windows Inputs 5 - 8	carry over -->	8 windows Inputs 9 - 16
6	carry over -->	8 windows Inputs 1 - 8	carry over -->	8 windows Inputs 9 - 16
7	4 windows Inputs 1 - 4	carry over -->	carry over -->	12 windows Inputs 5 - 16
8	carry over -->	carry over -->	carry over -->	16 windows Inputs 1 - 16

Table 1: Tahoma LE-16 output possibilities.

OUTPUT MANAGER

The Output Manager dialog can be reached by going to the Top Level Menu and selecting "System", "Output manager".

Figure 2: Output Manager example

Here in the Output Manager you will see a listing of all the Tahoma units you're currently connected to and configuring, identified by their IP address and basic model name.

Under each unit is a list of the multiviewer outputs of that unit. Ignore the first number on the lines and note the output number. This is the physical VPM output on the rear of the unit. Each output can be set to be ON or OFF. The number of multiviewer displays you'll be configuring is set by this. The number of windows listed for that output/display includes the inputs from previous VPM's whose outputs are OFF.

"1,**OUTPUT 4**:ON (Display: 1)-(**12 Windows**)-(1024x768) 60Hz"

In this example, VPM's 2 and 3 cascade into output 4 to create Display 1 with 12 windows (inputs 5 thru 16), while VPM 1 uses only its own inputs to create Display 2 with 4 windows (inputs 1 thru 4).

Output Switch

Click on the output line in the list to choose that output. In the Output Switch section below choose ON or OFF. As you do this the Displays and number of Windows per display in the list will update. This can also be set within a context menu, right-click the output line in the list for this menu.

Auto Set Output

The Auto Set Output section is a shortcut method for setting displays on or off. To quickly setup one of the default schemes, choose an option and click the Set Button.

RESOLUTION

The resolution of each multiviewer display driven is also set within the Output Manager.

The pull-down list at the top labeled "Output Resolution Selection" will change **ALL** outputs/displays. To set each display individually, right-click the output line in the list to obtain a context menu and choose "Set Output Resolution". The context menu also provides for turning the outputs ON and OFF.

The refresh rate should also be set along with the resolution.
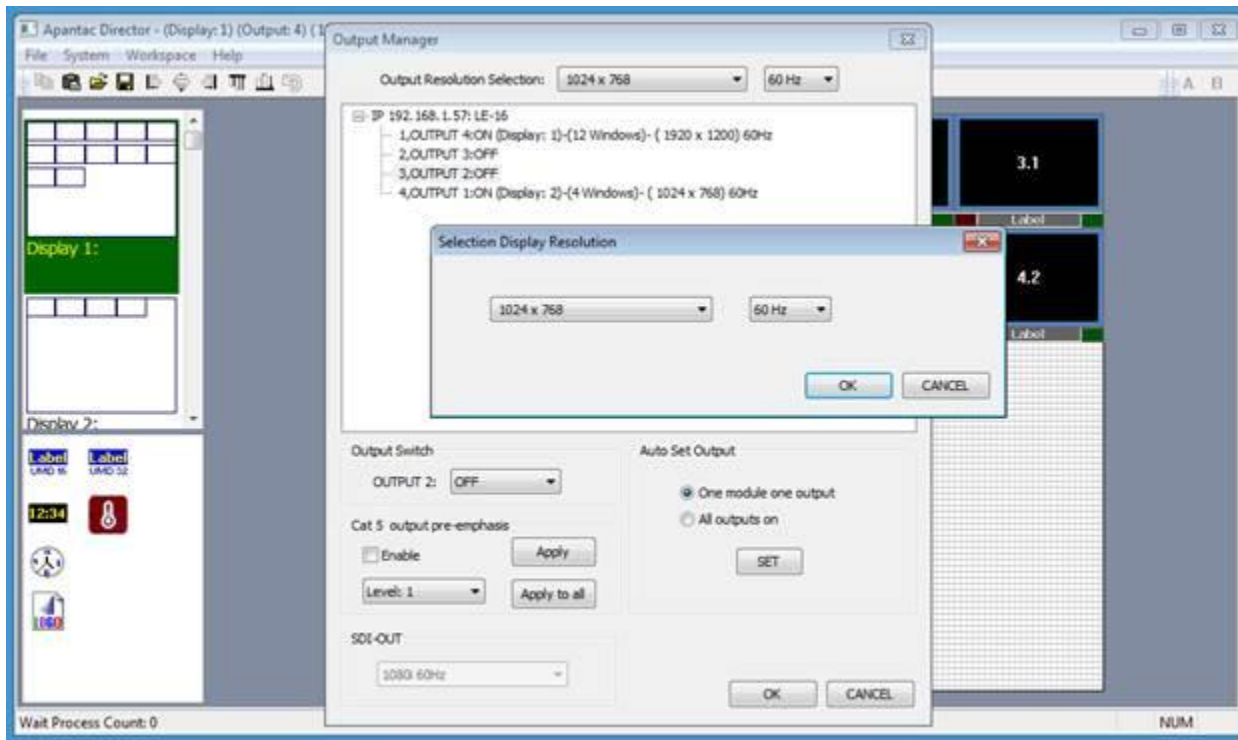
Figure 3: Output Manager – Resolution

Cat 5 output pre-emphasis

If you monitor is showing signs of signal degradation enabling pre-emphasis may help.

First select an output from the list by clicking it to insure it is highlighted, mark the "Enable" checkbox, choose a level of pre-emphasis, and then click the Apply button.
Note: (only for cables longer than 15ft/5m, MAY DAMAGE EQUIPMENT IF MISSUSED)

SDI-OUT

This setting only applies if your multiviewer is equipped with the SDI-Out option.

You'll remember from a previous section that each VPM can cascade its output to the next VPM. The last VPM's cascade signal is brought back to the control module where it is converted to SDI and provided to the SDI-Out port. This means that the SDI-Out is a duplicate of the final display (Display 1).

No scaling is performed. The resolution of the SDI-Out will match the resolution of Display 1 for that multiviewer. However, its format may be chosen here in the Output Manager window.

- First select Display 1 in the output list.

- Set the display's resolution to a resolution compatible with SD, HD (720), or HD (1080).

- Now select a video format for the SDI output from the SDI-Out selection pull-down list.

DISPLAY OVERVIEW

Select Workspace in the menu and choose "Set Display Overview…"
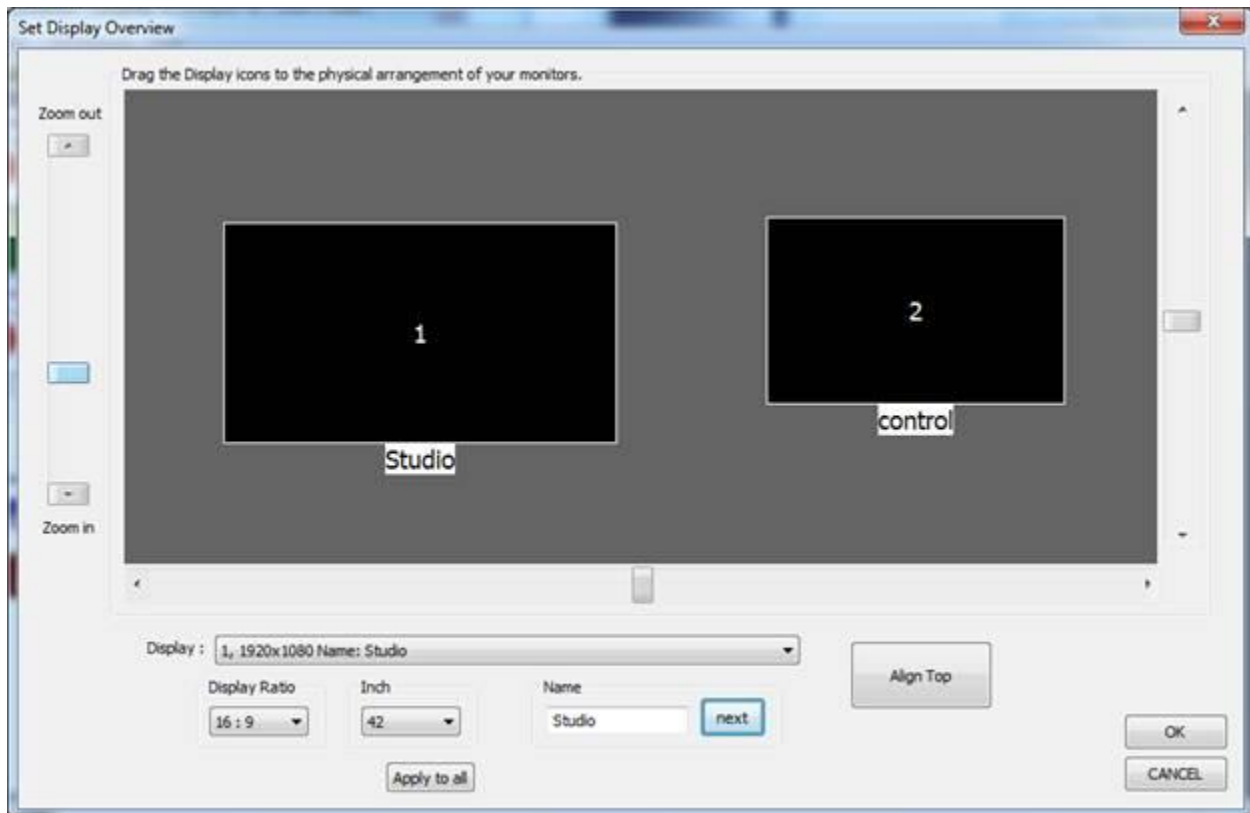
Figure 4: Display Overview Setup

The Display Overview is for reference only within the Director software and does not configure the Tahoma unit. It can be useful when configuring a large system with a multiple monitor display wall.

The Zoom control on the left and the scroll bars will help you navigate the overview area. At first the displays may be a large distance apart and show very small. Right-click the background area and click the "Default Arrangement" menu item. This will return all displays to the center of the area and place them side by side.

Select a display to edit by clicking on it (it will highlight in grey). Choose the display ratio, and the Inch-size of the monitor. These both affect only this overview display as the display workspace of the main screen of Director is set by the output resolution.

The display can be named by entering a short name and clicking the Next button. Setting the name is useful because it shows in the display bin section on the left of the main screen. Clicking OK saves your overview.

The "Apply to all" button applies the Display Ratio and Inch (size) settings to all displays.

More than one display can be selected by using the Ctrl key and clicking the mouse. When more than one display is selected the "Align Top" button aligns the selected displays.

Using the Display Overview

Opening the Display Overview is performed with the [icon] toolbar button. The display currently being configured will be highlighted in yellow.

Double-clicking on a display will choose that display to configure and return you to the normal Workspace configuration screen.
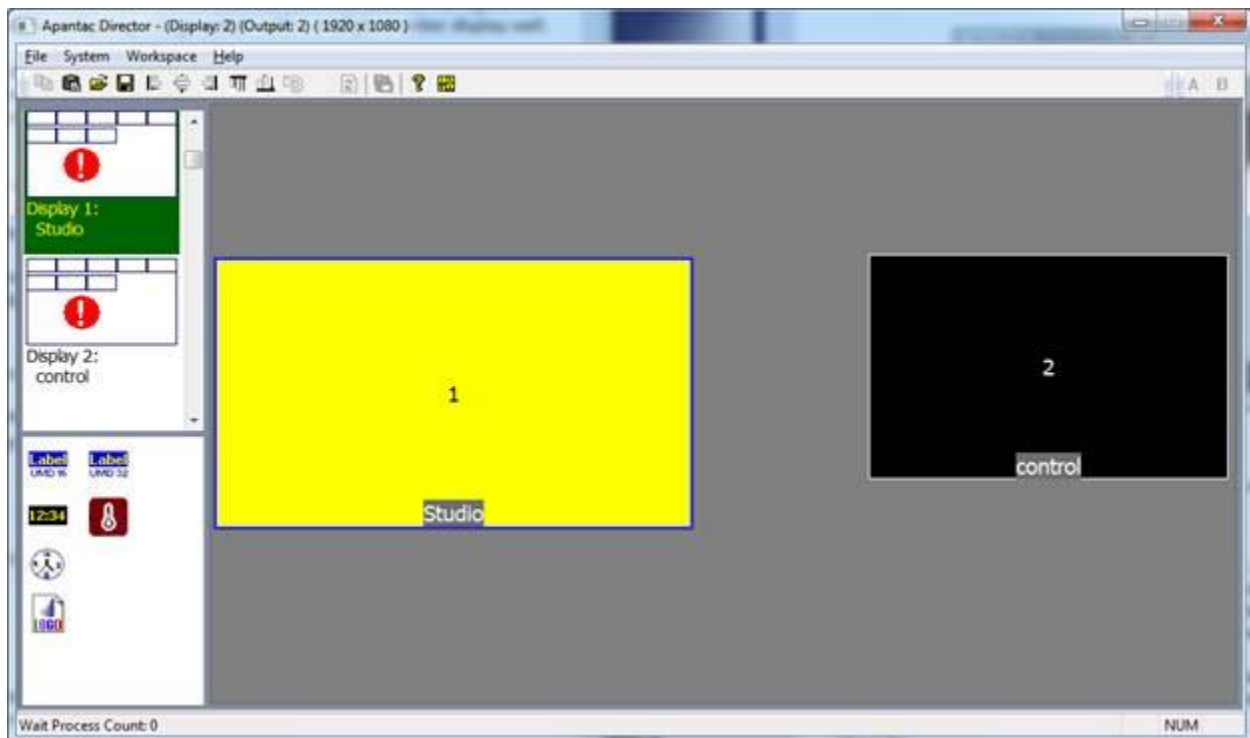
Figure 5: Display Overview screen

The Workspace Menus:
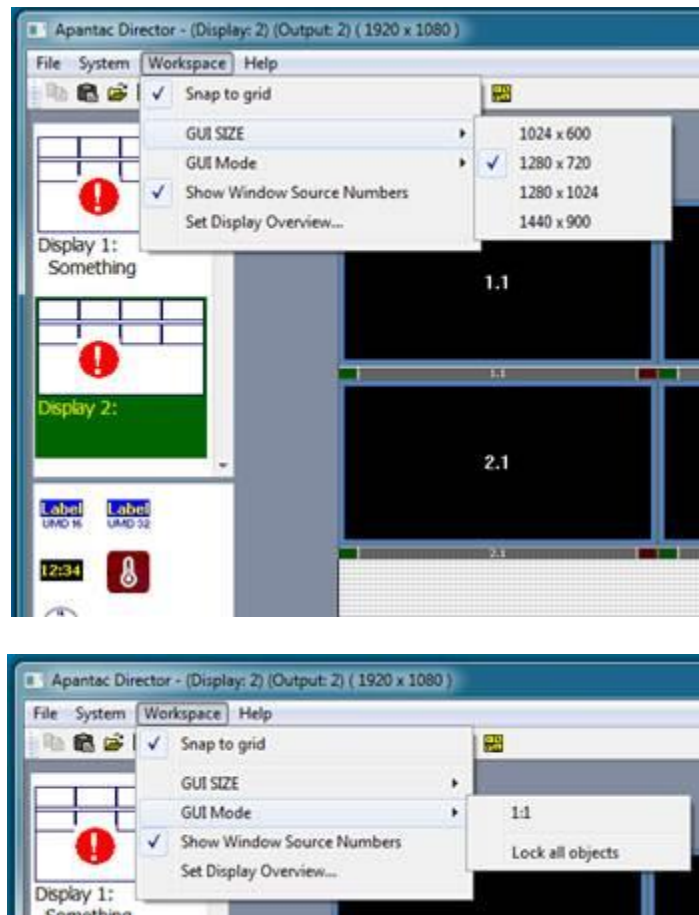
Snap to Grid
　When checked, sizing and moving actions are followed by the object being sized or positioned to the nearest equal or smaller grid coordinate.

GUI SIZE
　This menu sets the size of the Director's program window. (Do to programming constraints the window is held to set sizes rather than variable)

GUI MODE, 1:1
　This menu item zooms the display workspace to a one-to-one pixel magnification. This can also be toggled using the ZOOM toolbar button.

　Within the ZOOM mode, panning around the display is performed with the keyboard arrow keys.

GUI MODE, Lock all objects

   This locks the size and position of all objects on the display workspace.

Show Window Source Numbers

   This menu item toggles the window identification numbers on or off. These numbers are only shown within Director and are not part of the multiviewer output. LX models show the window number and the input source number, other models show the input source number (which corresponds directly to the window).

Set Display Overview…

   This opens the Display Overview **setup** window. Opening the Display Overview is performed with the ⬛ toolbar button.

   Details of this setup window were covered in a previous section.

Working with Objects

Objects in the Workspace

There are many different objects in the workspace, most of which are limited in number by the hardware of your multiviewer. To determine the maximum number of objects that can be used by the Director, see the Hardware section of the manual. The Director will not allow you to use more objects then your multiviewer can accommodate.
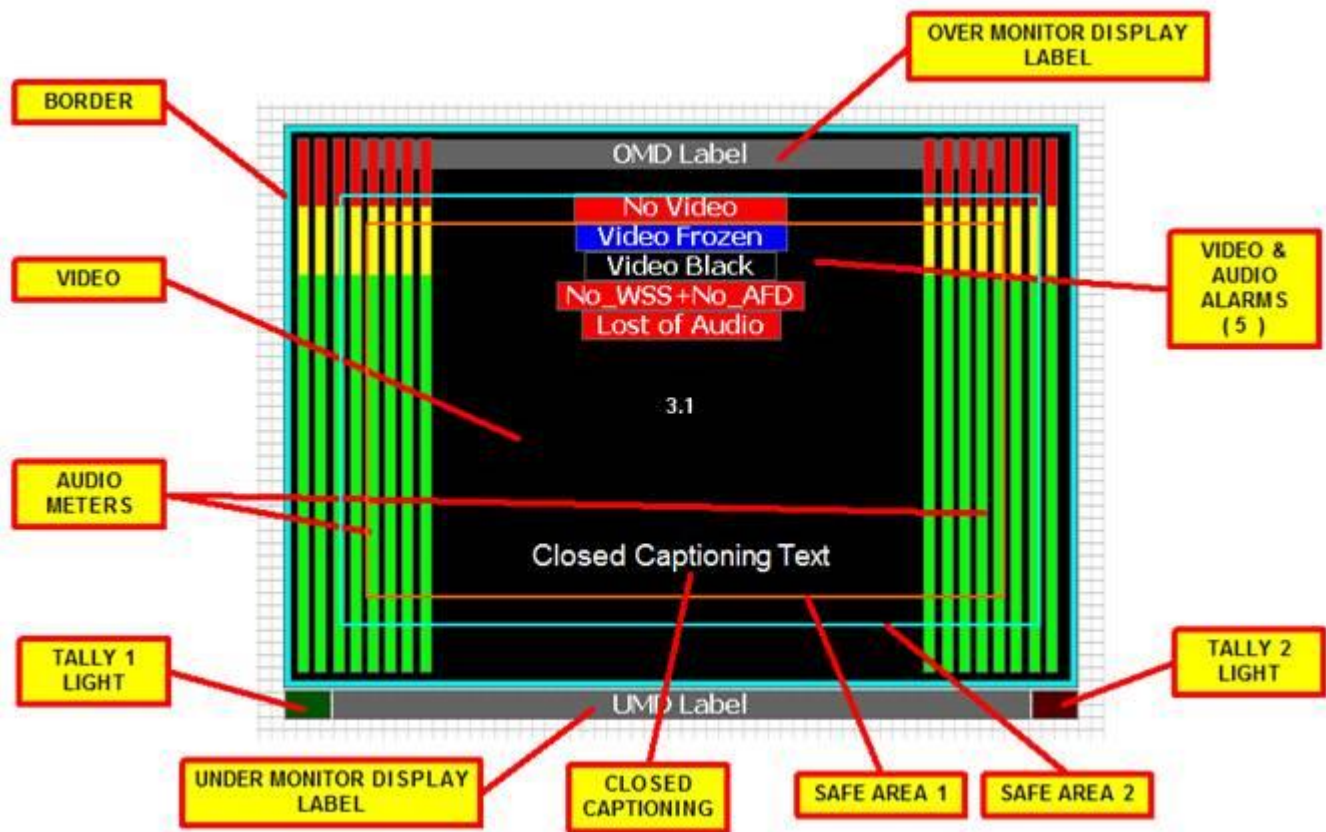
Figure 1: Window Objects
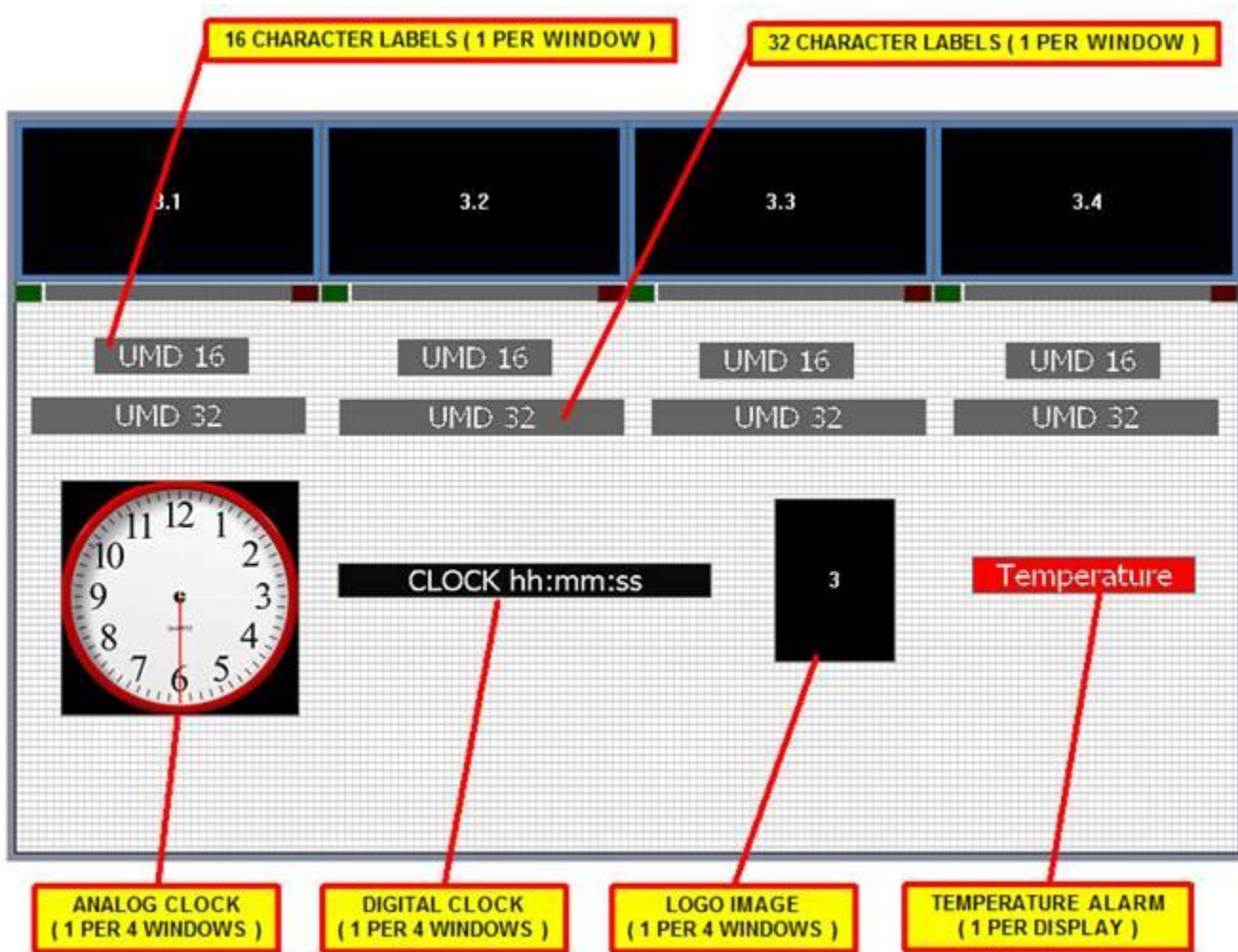
Figure 2: Additional Stand-alone objects

Selecting Objects
  Selected with left-click (object will become outlined with a green border).
  Select multiple objects by holding down ctrl and left-click (object will become outlined with a border).
  Select multiple objects by left-clicking and dragging a selection box around the objects.

Deleting Objects
  Deleted or Removed by selecting them and then pressing the <Delete> key.
  Deleted or Removed by right-click and selecting "Close" in the Context Sensitive Menu.

Recovering Deleted Objects
  For windows, open the Windows Manager from the output level menu and mark the checkbox for the deleted window.
  For window objects, right-click the window and select: Set Objects, Set Audio Meters, etc.
  For stand-alone objects, deleted objects are returned to the objects bin. Simply drag back onto the display.

Moving Objects

Click and drag on the object to move it.

Or select it and use the arrow keys to move it.

Objects move freely about the Workspace.

All objects related to a single window move with the window.

Audio meters can be made "stand-alone" to NOT move with their window.

Sizing Objects

When an object is selected it will be highlighted by a green border containing adjusting handles. Clicking and dragging the adjustment handles resizes the object.

Some objects have only horizontal adjusting handles. Vertical size may be controlled by the font size of the object.

Some objects require size to be set through the context menus.

The Logo and Analog Clock objects sizes are preset by their image size in pixels.

Copy and Paste

The Director's copy and paste functions copies the properties of one object so that those properties can be pasted onto another object of the same type.

To Copy either,

• Right-click the object and select "Copy"

• Select the object and click on the button in the tool bar

• Select the object and use Ctrl + C

To Paste either,

• Right-click the object and select "Paste"

• Select the object and click on the button in the tool bar

• Select the object and use Ctrl + V

Undo

Undo will undo the placement, movement, or sizing of any object(s), up to at least the last 10 actions.

Undo is not linked to Ctrl + Z.

To Undo, press the button in the tool bar.

Windows

WINDOW MANAGER

The window manager allows you to turn the windows within each multiviewer display output ON or OFF depending on whether your system will be using that input or not.

In the main screen of Director right-click the white grid background of the display to access the display's context menu. If the display is completely filled with windows and none of the white grid shows right-click in the gray area outside the display grid area. Choose Window Manager… in the context menu.
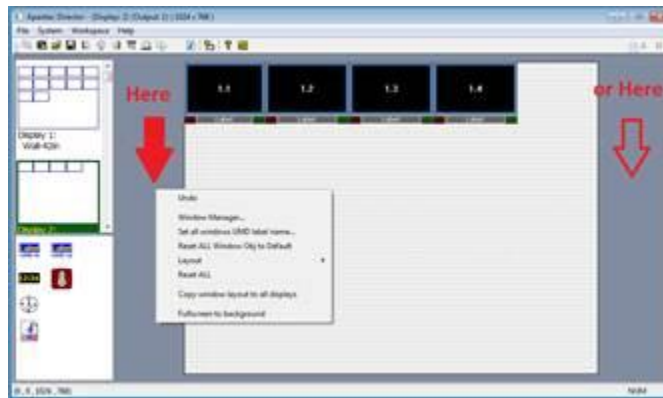
Figure 1: Accessing the display context menu
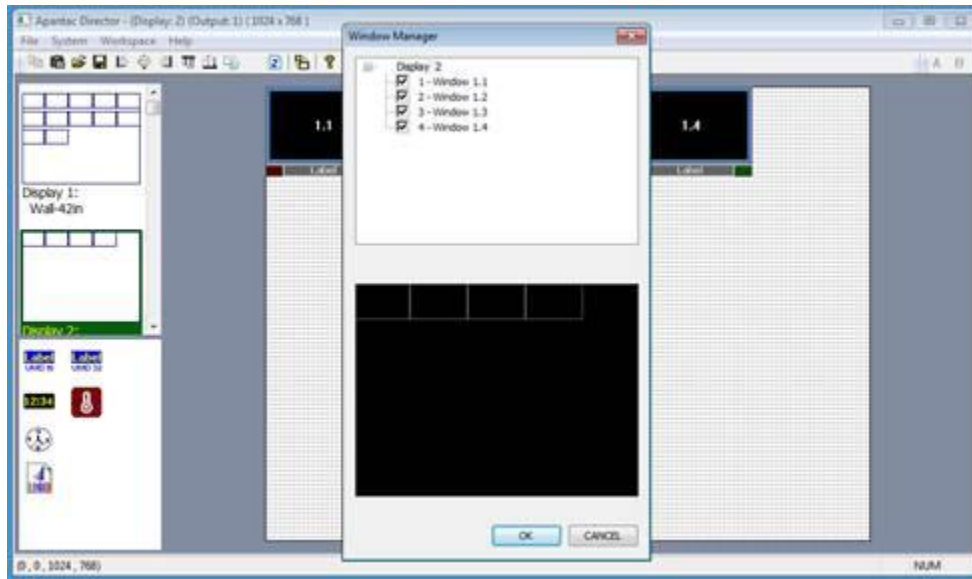
Figure 2: Window Manager

The Window Manager will list all the Input-Windows displayed to the multiviewer output display you're currently editing. Unchecking the window in the list will remove it from the display. A window can also be removed from a display without going into the window manager by selecting the window in the display workspace and pressing the Delete key of the keyboard.

WINDOW LAYOUT

Individual Window Layout

Size and position of windows can also be performed individually by first selecting a window by clicking it, and then clicking and dragging its highlighted borders.
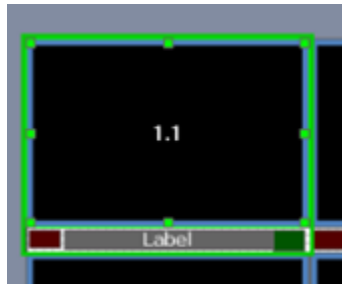
Figure 3: Window Highlighted

Whole Display Layout

In the same context menu as Window Manager you'll find "Layout". Layout allows you to quickly configure the size and position of all the windows within the display you're editing. The options include basic grid layouts and also Picture-By-Picture (PBP) -A and –B (horizontal and vertical). Picture by Picture uses only the first and third windows, all other are turned off and not displayed.
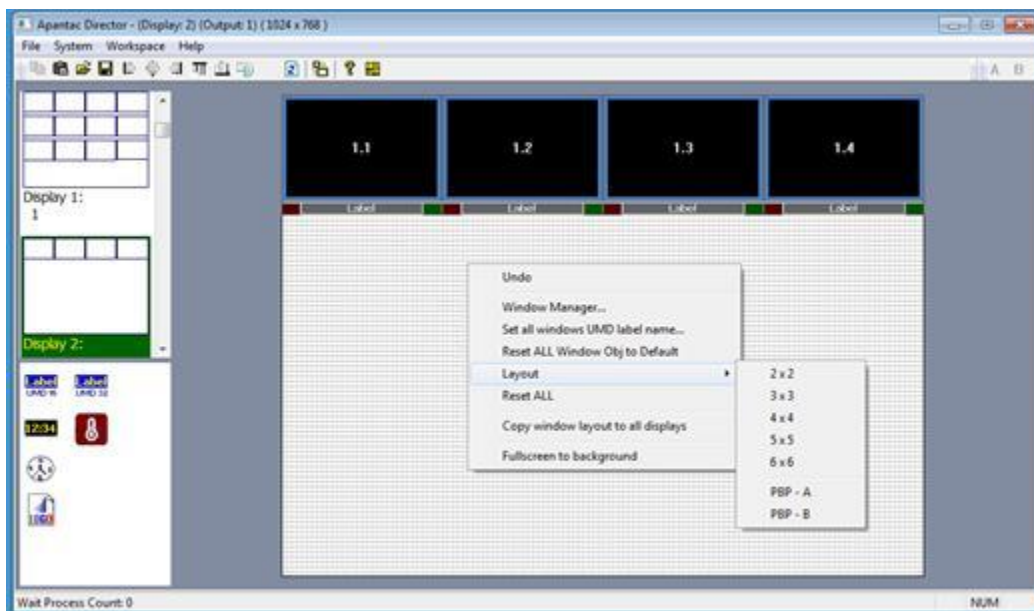
Figure 3: Layout menu
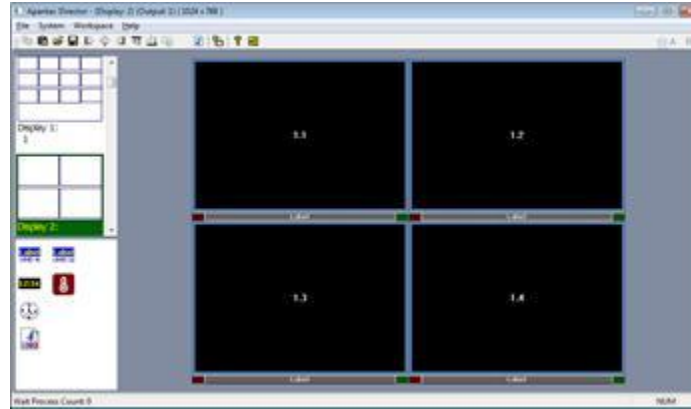
Figure 4: Quick 2x2 Layout result

Global Layout
The Global menu within the System menu also includes a Display Layout command. This sets the window layout of all displays within the system your configuring.
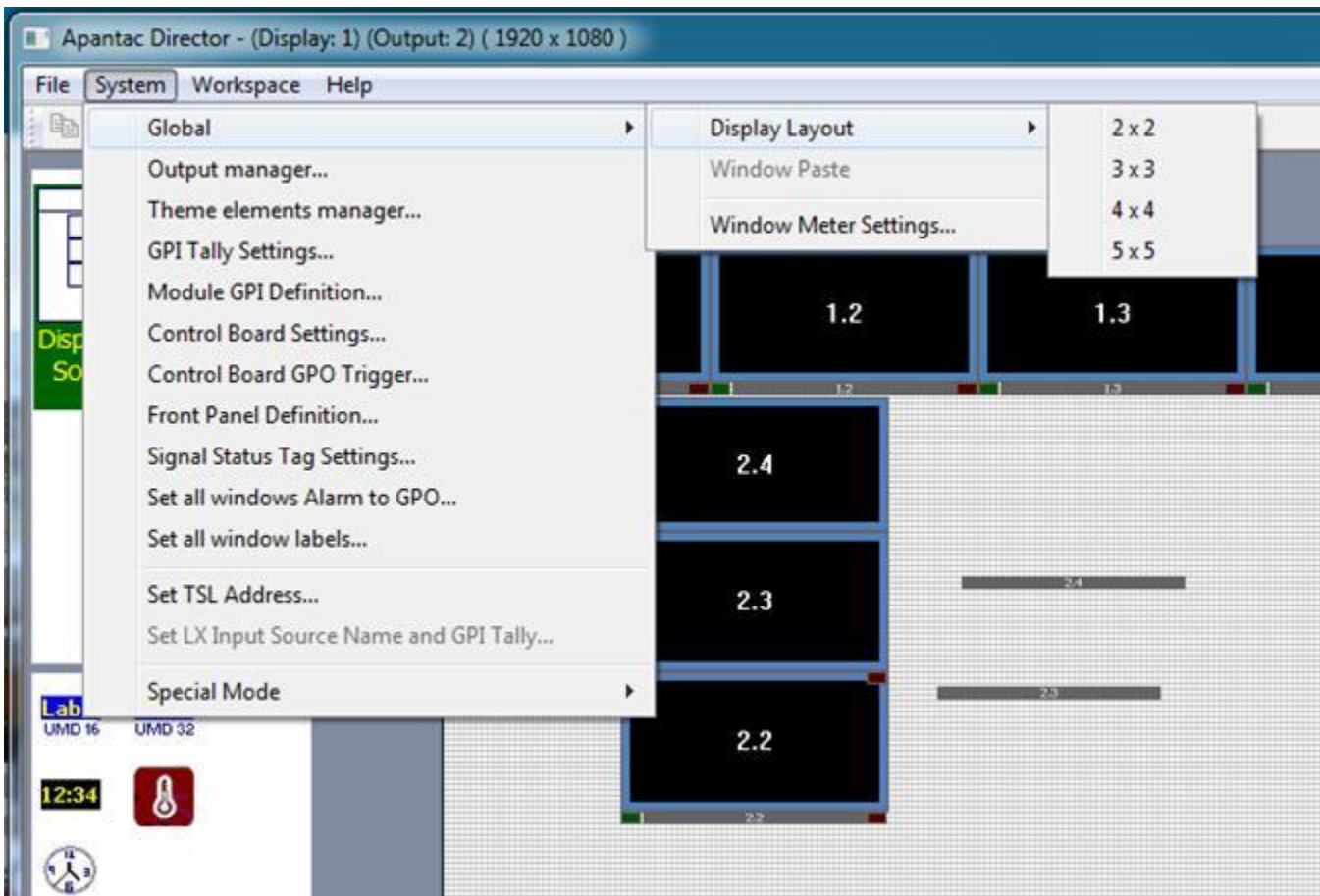
Multiple Selected Windows Layout

More than one object can be selected by either holding the Ctrl key and clicking on the objects, or by clicking and drawing a selection box around the objects (click and hold left mouse button).

When more than one window is selected they can be moved in unison, or right-click to get the following context menus.
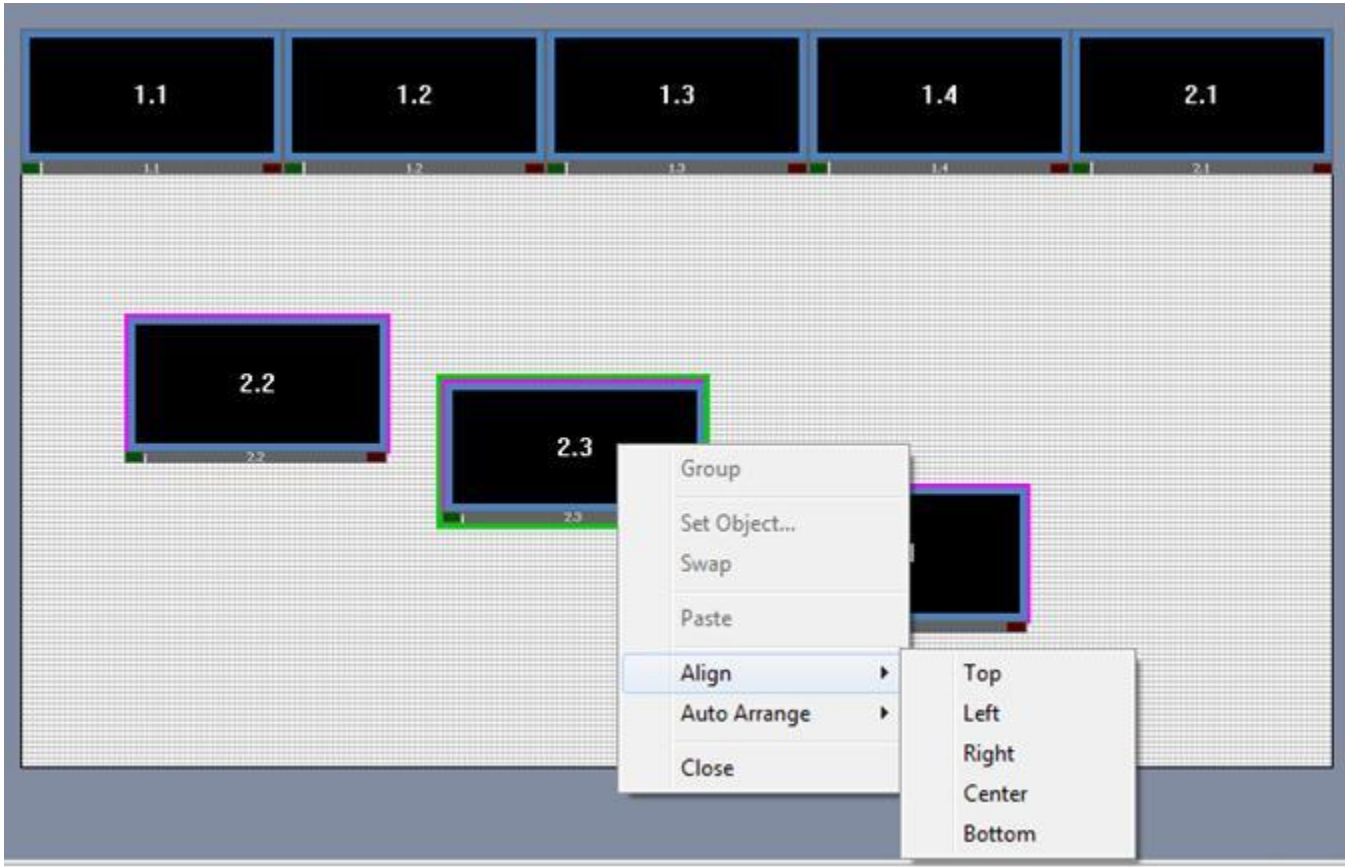
Set Objects…
Performs the same functions as for a single window. See the section on Window Configuration.

Swap
Available only when two windows are selected. Swaps the size, postion, and properties of the two windows.

Align
The Align menu repositions all the selected windows. Top aligns the top of each window to the top of the highest positioned window. Left repositions to the left side of the left-most window. Right and bottom work similarly. Center repositions the windows horizontally to the center of the display.

Auto Arrange

Auto arrange will reposition all the selected windows horizontally (side by side), or vertically (top to bottom). The space in-between the windows can be set with the "Object Space" pixel setting in the confirmation window. The windows will be arranged in order according to their current x,y position.
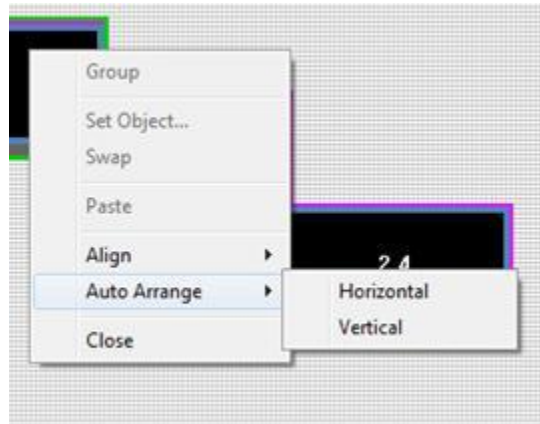
Window Object Configuration

Right-clicking a window object opens its context menu.
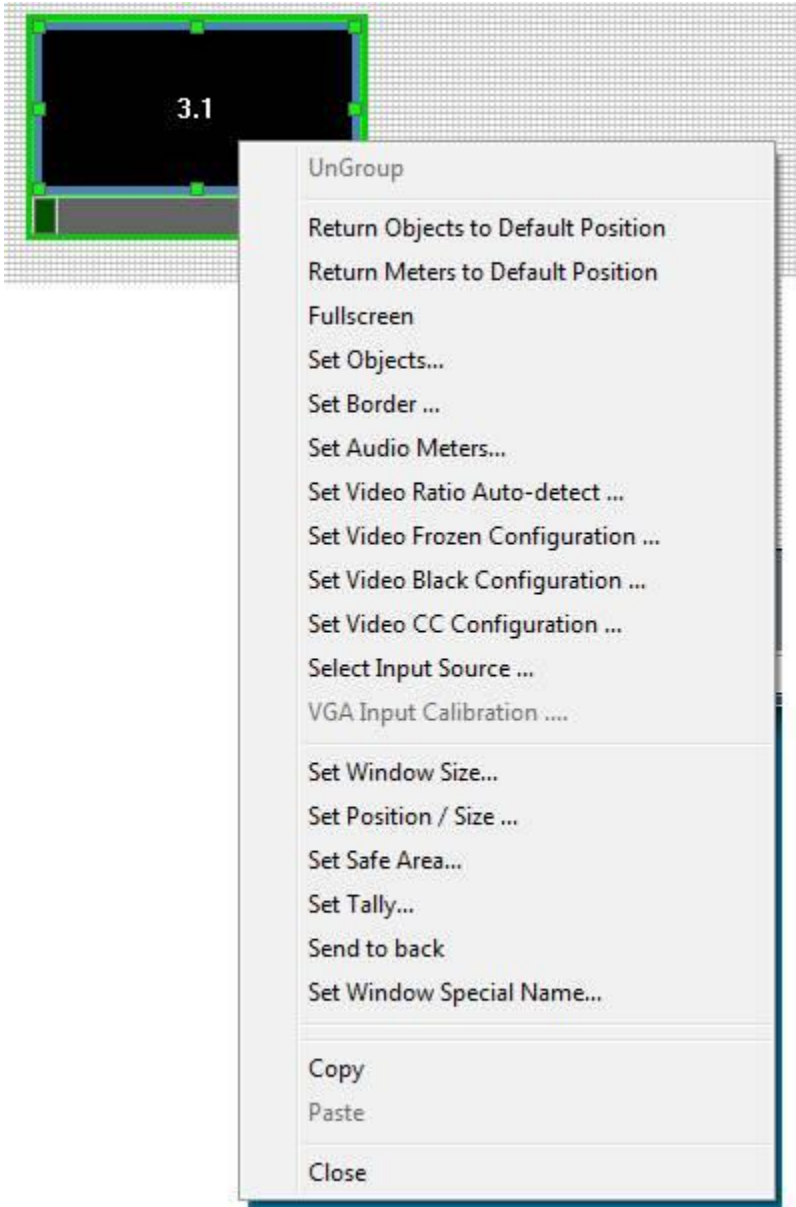
Return Objects to Default Position
Returns alarm, label, and tally objects back to their default position relative to the window border.

Return Meters to Default Position
This command returns audio meter objects back to their default position, relative to the window border. This command does not affect "stand-alone" audio meters.

Fullscreen

This command is a shortcut to reconfiguring the entire display. It is not a single command but a sub-routine of commands. It closes all other objects and sizes and positions the selected window to full-screen dimensions.

When completed, this menu item is toggled to the "Resume To Previous Layout" command.

Set Objects…
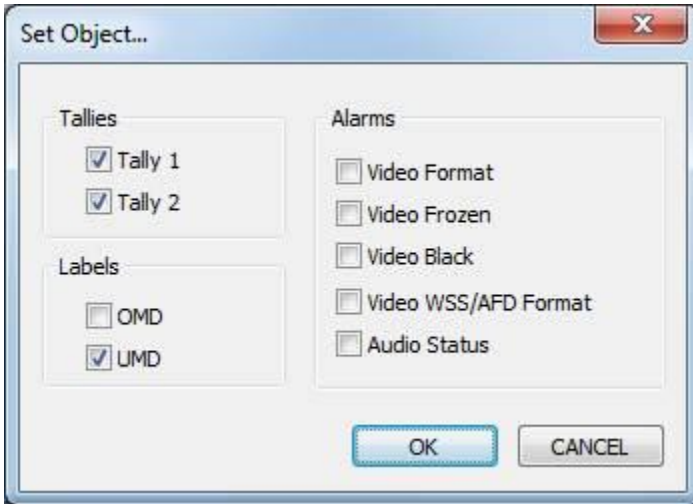
Check the boxes to enable and display these objects. Tally 1 (Left Tally LED), Tally 2 (Right Tally LED), and UMD Label (Under Monitor Display) are Enabled by default.

The alarm objects will appear in the Director Workspace but may or may not show on the actual multiviewer display depending on their properties or alarm state.

Set Border…
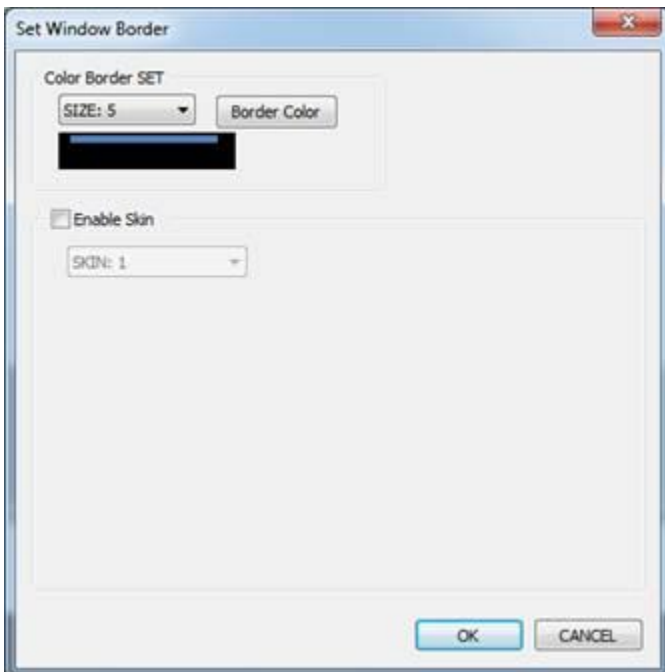
This window allows the setting of the border width and color of the standard border, or the selection of a border "skin". Border skins are images used in place of the standard border object.

Setting the size to "0" effectively deletes or turns the border off.

For more on border skins see the section on "Additional Objects".

Set Audio Meters…

Adds and configures audio meter objects. *See the manual section on Audio.*

Set Video Ratio Auto-detect…

By default the video image fills the area within the border. If the border is a different aspect ratio then the image may appear distorted.

This window provides the option of detecting and adjusting the video aspect ratio rather than filling the border area.

Mark the "Enable" checkbox.
Select the method of detection.
Set the ratios the video will be displayed as.

Note: this option does not detect all possible ratios but merely detect Standard-Definition or High-Definition.

Set Video Frozen Configuration…
Set Video Black Configuration…
Set Video CC Configuration…
See the manual section on "Alarms" for details.

Select Input Source…

This configuration depends on the model of multiviewer.

- **LE and LI** multiviewers are fixed sources and this menu item should appear grey and inactive.

- For **DE and DL** multiviewers, this menu item configures what type of video source is connected to this window's input; CVBS, COMP, VGA, DVI, SDI. The DVI selection is for both DVI and HDMI sources. The SDI selection is for DE multiviewers with optional SDI inputs. Clicking the OK button sets the selection for the currently selected window. Clicking "Apply to all" applies the selection to all windows within the display being configured.
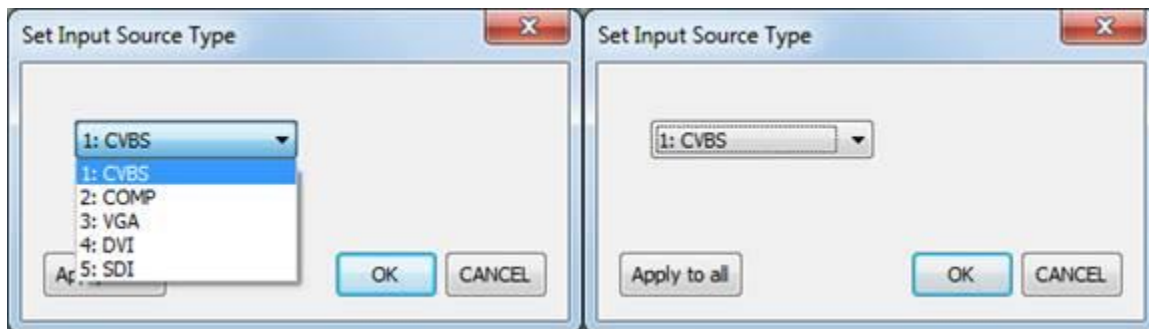
- For **LX** multiviewers, this window will configure the internal router, selecting input to window routing. The "Default" button produces a 1-to-1 configuration as shown in this example. Double-clicking in the matrix area will change the router immediately (there is no "cancel" button). The "Quit" button closes the window.
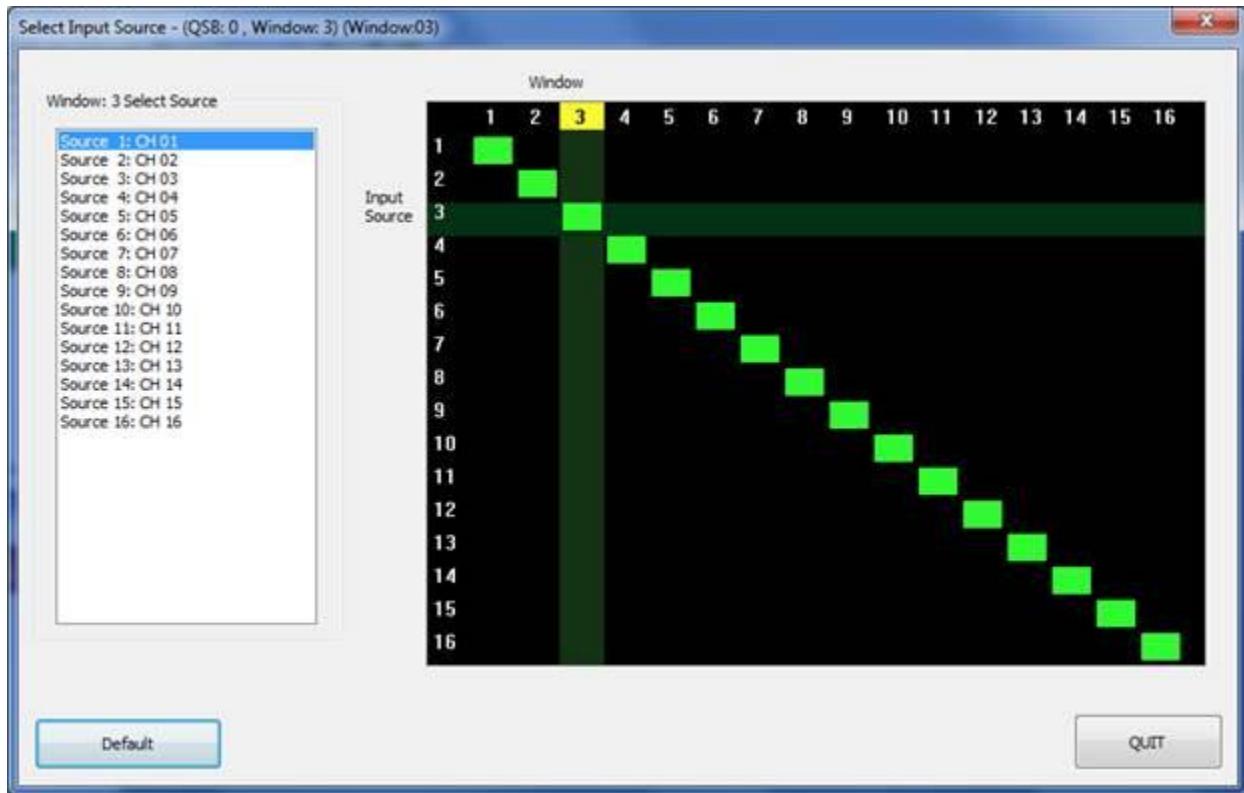
Set Window Size…
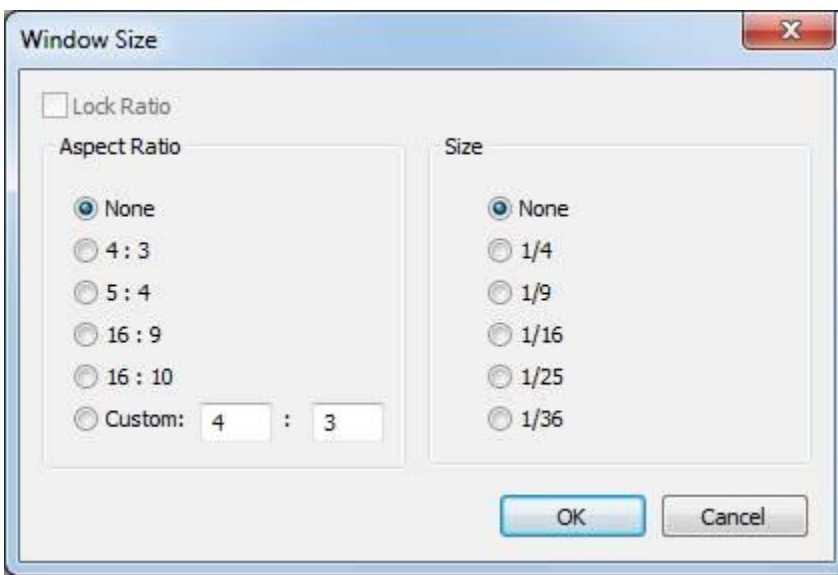
Sets the shape (aspect ratio) and size of a window.

To maintain an aspect ratio check the "Lock Ratio" box. The window height will then be readjusted whenever the window is resized.

Size options in this window are related to the full display size.

Set Position / Size…
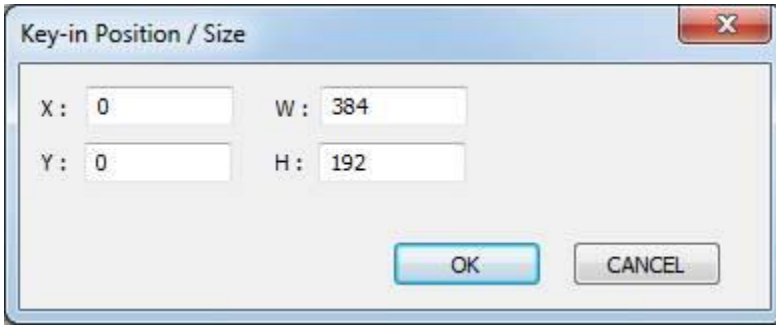
This provides an alternative to positioning and sizing by mouse or other commands.

Numbers are in Pixels and relate to the resolution of the output video.

Set Tally…
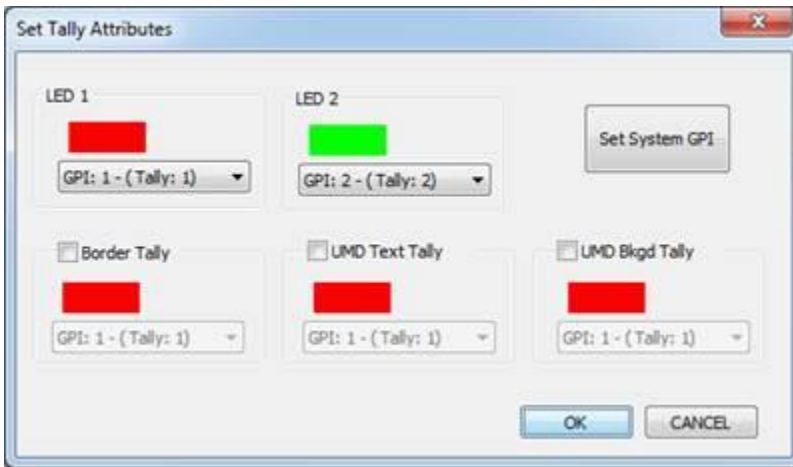
By default tally input signals trigger the left and right Tally LED's, but in addition to the LED's the border and UMD label can be set to highlight also.

Mark the checkboxes to add these effects to the border and UMD label. Select which tally signal will supply the trigger.

See the manual section on "Labels and Tallies" for complete information.

Set Window Special Name…
This command allows you to name the particular window as a reminder of its function within your design layout. This only appears within Director software and does not affect the multiviewer display.

Labels and Tallies

Labels
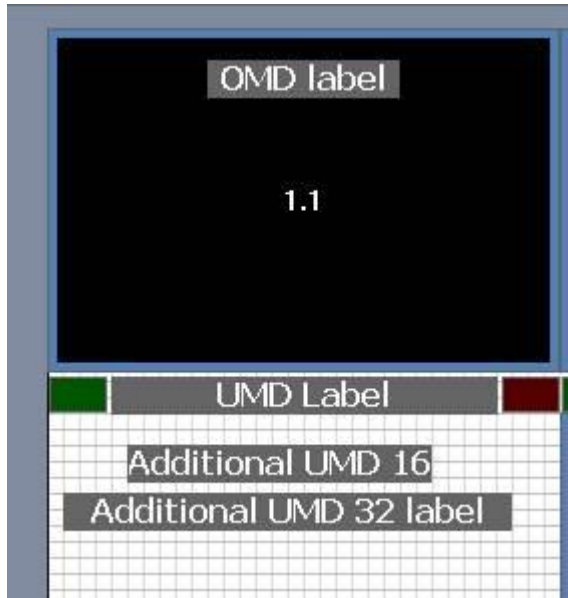
Each window includes an Under Monitor Display (UMD) label and an On Monitor Display (OMD) label. These labels can be turned on and off by using the "Set Objects…" menu command in the window's context menu.

Additional labels can be dragged from the Objects Bin and placed as stand-alone labels anywhere on the display. There are two types; a 16 character UMD-16 label and a 32 character UMD-32 label. Object handling provides for one of each of these for each window within the display.

Selecting and right-clicking yields the labels context menu. The two items of importance are: Set Label Properties and Set Position and Size.
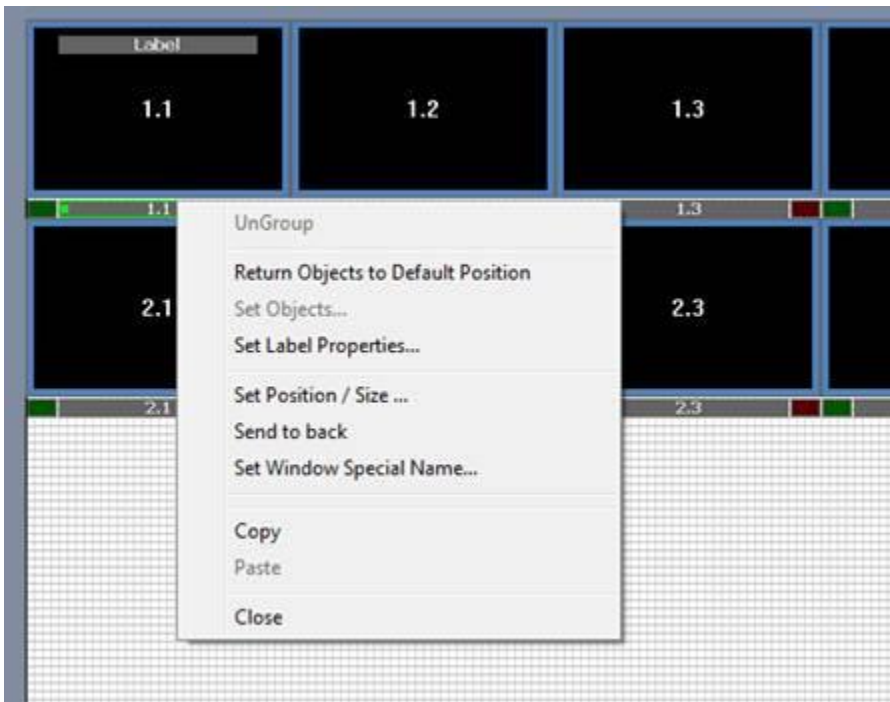
Position and Size

- Resize the width of the Label by selecting it and then clicking and dragging on the green markers
- Resize the height by changing the Font size (see below)
- Resize both by right-clicking and selecting "Set Position / Size"

Set Label Properties...
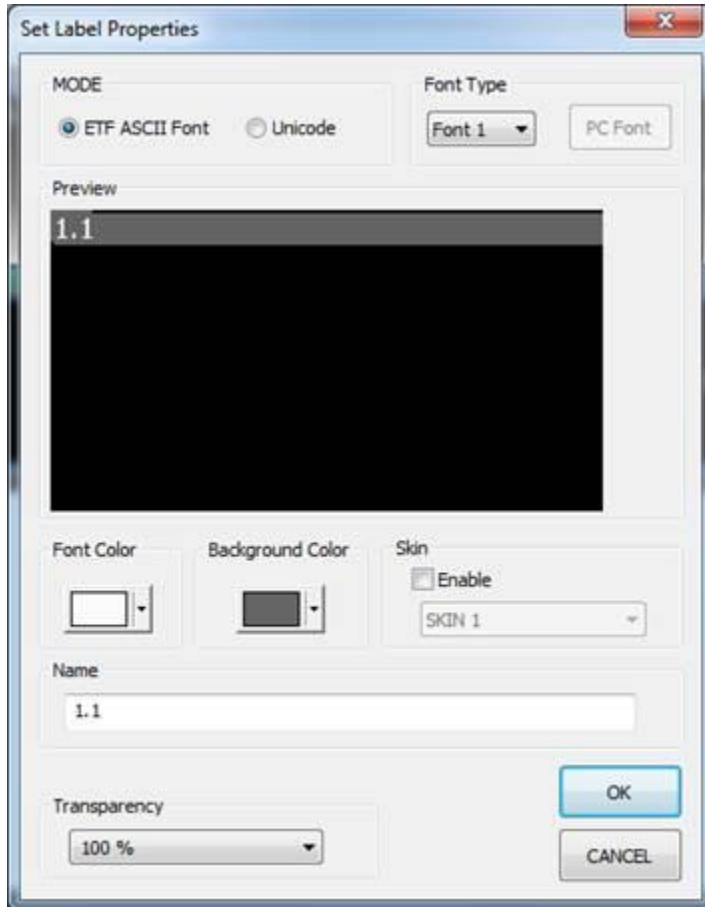
MODE and Font Type

ETF ASCII Font: uses the built in fonts which can then be selected by the pull-down in the Font Type area. The selections are Font 1 through Font 4.

Unicode: allows you to use the PC Font button in the Font Type area to select a font from your computer.

Color and Transparency
Font Color and Background Color can be set from this window. The Transparency properties of the color is set by the pull-down at the bottom (100% being solid, non-transparent, color)

Name
This sets the text of this particular label. The text can also be changed other ways.

Skin
Marking the Enable checkbox and selecting a skin option replaces the background solid color with a "skin" image. There are six skin elements.

Other ways of changing label text:

Double-clicking any label opens the text for editing.

From the main menu select System then "Set all window labels. "
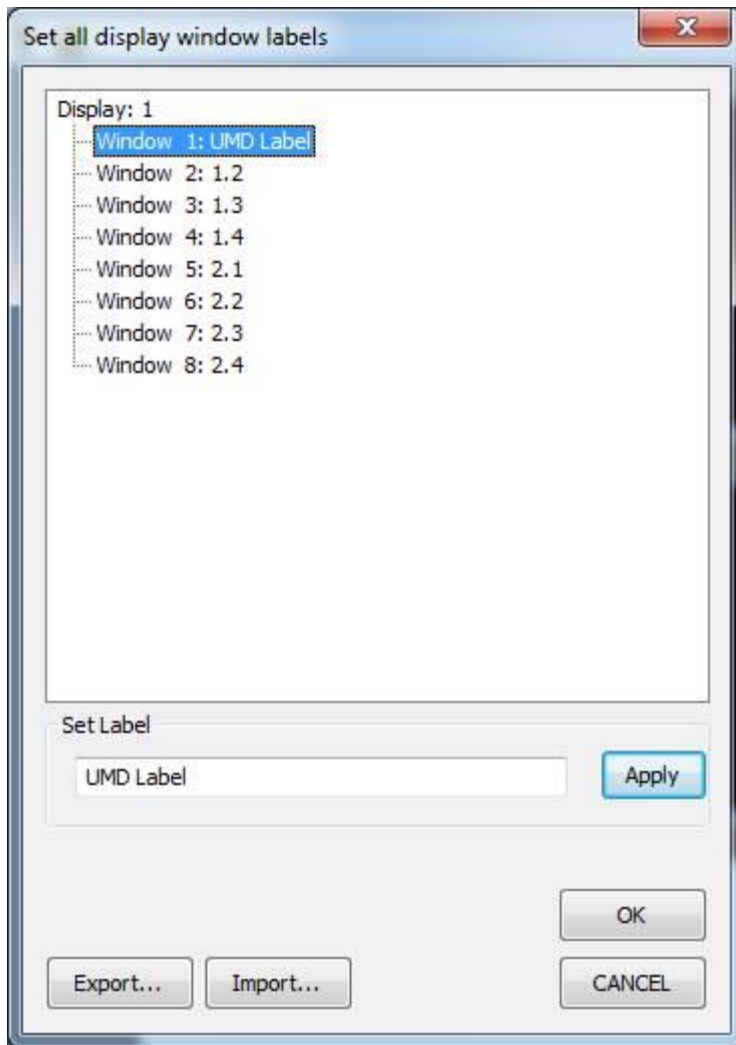
This window will show the UMD labels of all displays.

Click the label in the list, then change the text in the "Set Label" box and click the Apply button.

Pressing the Enter key after changing the text will apply the change and increment to the next label in the list.

Click OK to close the window.

Export / Import
Label text can be saved or recalled from a ".txt" file on your computer. Using the export function first will allow you to see the format required for your system. The .txt file can be edited with any ASCII text editor such as NotePad.

Dynamic UMD Labels

All window UMD names can be Static (fixed names entered by the user as shown above) or Dynamic. Factory default configuration uses static names.

Two kinds of Dynamic names are possible:
- Internal Dynamic Names (Only on the LX series)
- TSL Protocol (available for all Tahoma models)

Internal Dynamic Names (LX series with internal router only)

Internal Dynamic Names refers to capability to associate a name to each video input of the Tahoma LX and have the name being displayed on the UMD of each window getting the corresponding input signal via the internal router.

When Internal Dynamic Names are enabled, the GPI tally information is also associated to video input (two GPI contacts each) and the corresponding Tally information is displayed on any window that gets and displays the video input source via the internal router.

Note: LX models should be configured using "**Apantac Director v3.0** ".

In the main menu, select System, then choose "Set Window Dynamic Name Status ad Tally…"   Mark the checkbox "Enable Dynamic Name" and click "Apply to All". If you are only doing Internal Dynamic Names and not doing external TSL control of names and tallies, then the Address section can be ignored. For more on addresses see the section on TSL control.
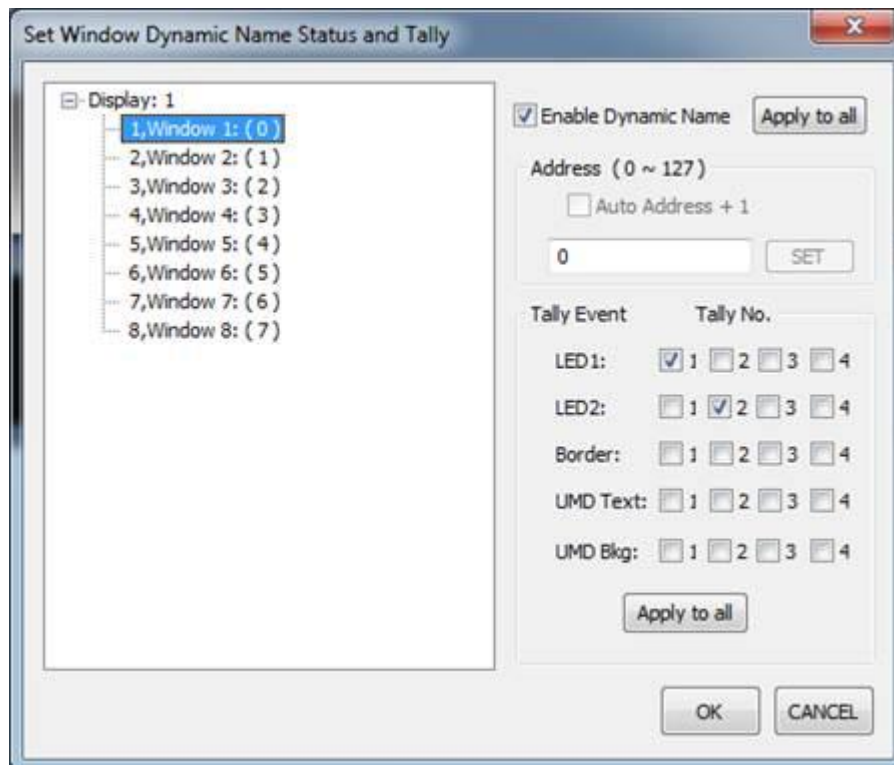
With Dynamic Names now enabled, select System in the main menu and choose "Set Dynamic Name". Highlight the unit line (line with IP) in the list and then mark the "Internal Input Source Name" option in the upper right. Next highlight the input desired and edit the Name field. Click the Set button or press the Enter key to move to the next input in the list. Click OK to complete the configuration.
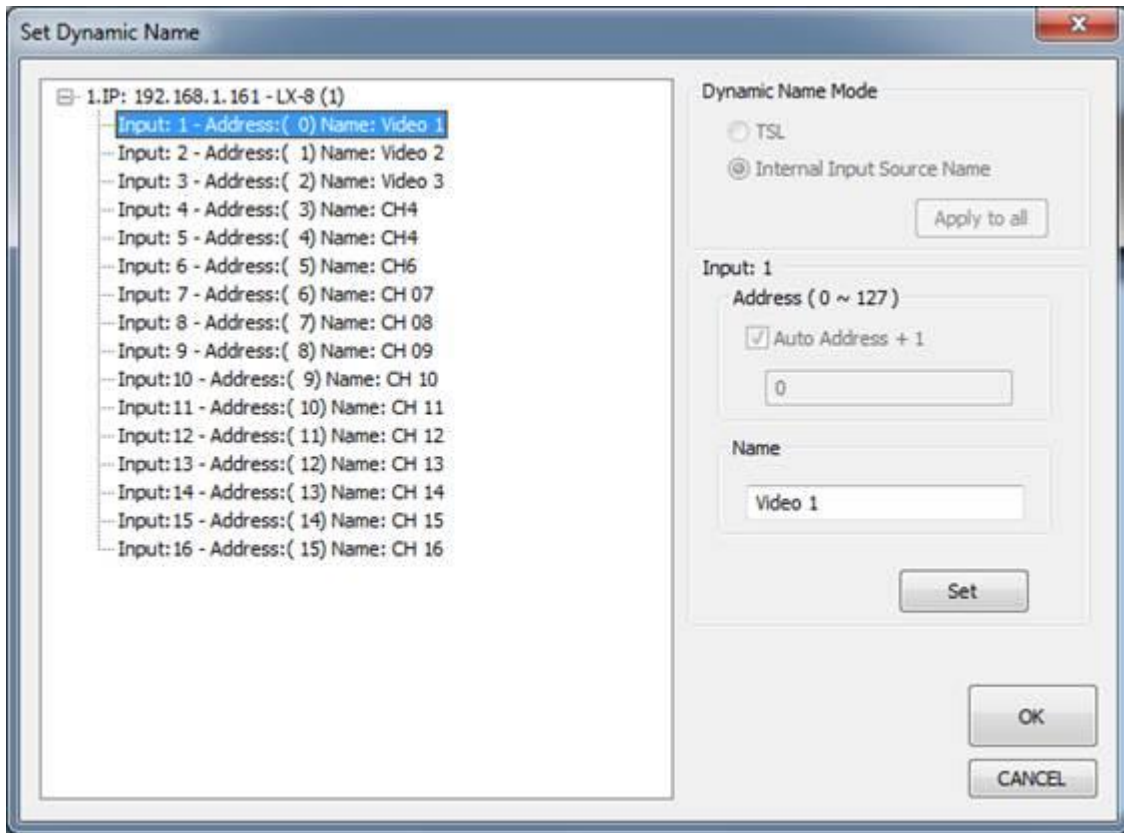
Label Names by TSL Protocol

The tally lights and UMD labels can be controlled by external equipment through the use of TSL Protocol via either the RS232 port or the TCP/IP LAN port.

See the sections on Tally Interfacing and TSL.

Configuring Tally Lights

The Tahoma Multiviewer's display includes the UMD label and two Tally lights per video window.

Here the standard window display shows the Green and Red tallies on either side of the UMD label. Tally inputs can activate five objects within Apantac's window: the Red and Green "LED" tallies, the Border of the window, the UMD label text color, and the UMD label background color.

Standard Multiviewer Window

Enabling the Tally LED's.
Right-click the video window for its context menu and choose "Set Objects…"

Here you can enable or disable the Tally lights along with other video window objects.
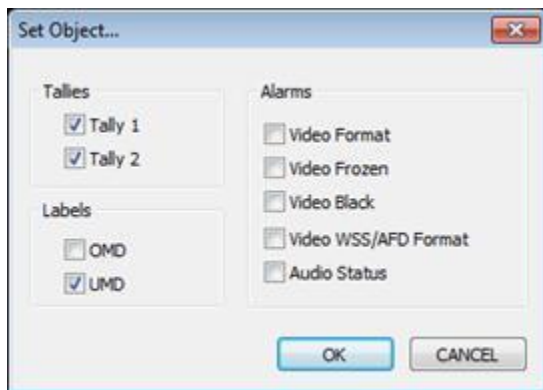
Enabling Other Tally Controlled Objects:
Right-click the video window for its context menu and choose "Set Tally…"

Here you can enable the Border and UMD Text and Background to react to tally signals.

Mark the Check-boxes for the additional objects and then select which tally GPI will control it.
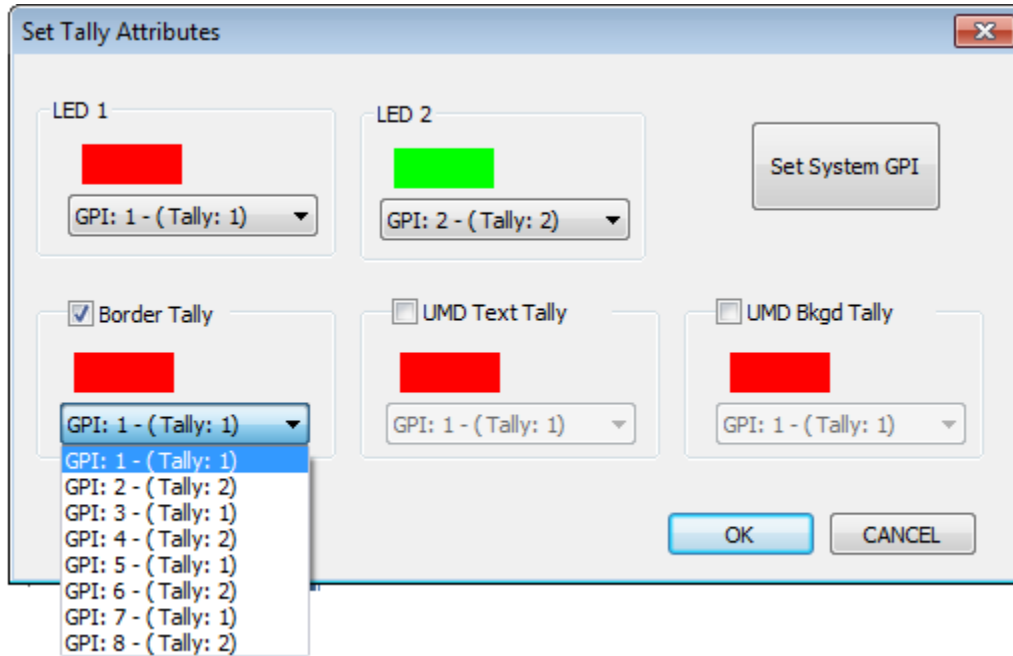
Configuring the Tally Light Objects (LED's):
Right-click the Tally Object for its context menu.
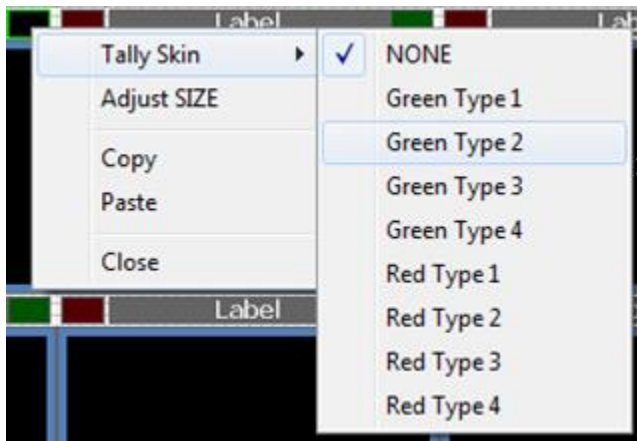
Tally Skin
The default LED object is a dark colored rectangle which turns bright upon being triggered by the tally signal. Selecting a Tally Skin will show the skin image when triggered and hide it when not triggered.

Adjust SIZE
Clicking on "Adjust Size" will give the standard LED tally object adjusting handles to resize the object in the same manner as other objects. (Tally Skin size is set by its image size).

Copy / Paste
Copies the attributes of the LED and Pastes them to other tally objects. This can also be done by window copy and paste.

Close
This will disable and hide the tally object. Use "Set Objects..." as shown above to enable the objects again.

Triggering Tally Lights

(see "Tally by…" section)

The Tahoma's Tally lights can be triggered by:
- Hard-wired GPI input via the GPI/Audio connector of each VPM.
- TSL communication via RS232
- TSL communication via TCP/IP

Note: Tally control by GPI input is the DEFAULT configuration. No changes by Director software are necessary.

Note: TSL communication also provides for changes to UMD label text.

Tally Interfacing: Hard-wired GPI input

⚠️ Tally control by GPI input is the DEFAULT configuration. No changes by Director software are necessary.

⚠️ Tally GPI is provided by a SCSI connector to the Video Processing Modules. Do not confuse with the Control Module's GPI provided through an RJ-50 connector.

The Tahoma multiviewer's basic unit is the video processing module (VPM). The VPM accepts four video inputs and produces one multiviewer output. Each VPM provides a GPI/Audio connector (SCSI style connector) which includes eight Tally GPI (general purpose interface) connections. (This connector also provides discrete audio inputs.) **These eight inputs allow two tally inputs per video window.**
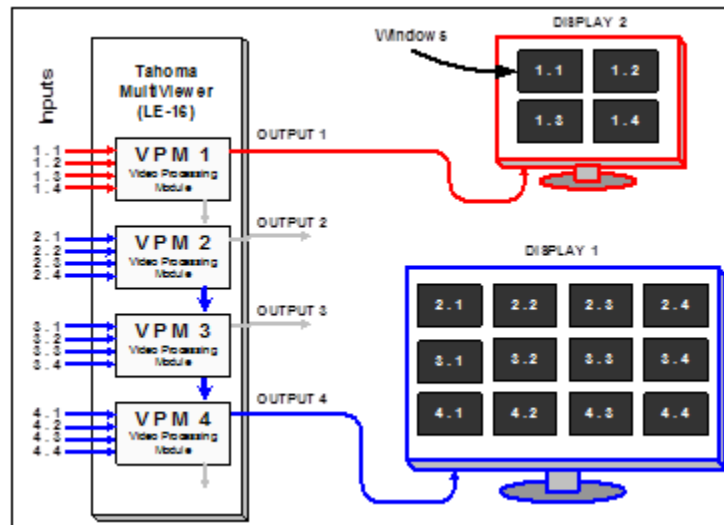
Shown here is the SCSI to DB-9 breakout cable, and the DB-9 to breakout terminal board.

The GPI/O input circuit provides a 5 volt pull-up source.

In the standard tally setup, shorting any of the eight GPI inputs to the ground pin (pin 1) triggers the tally input.

Figure 1: GPI/O Electrical Characteristics

Figure 34: GPI-IN Wiring diagram.
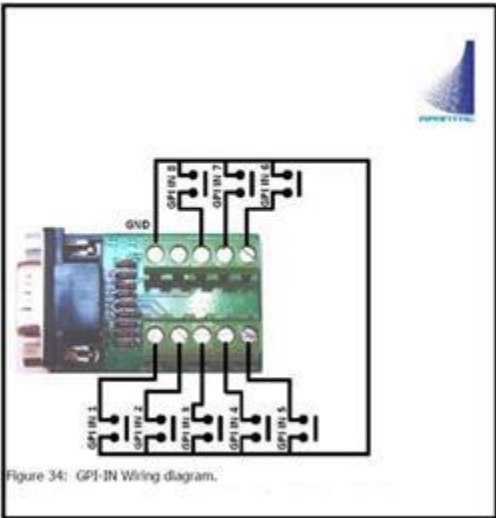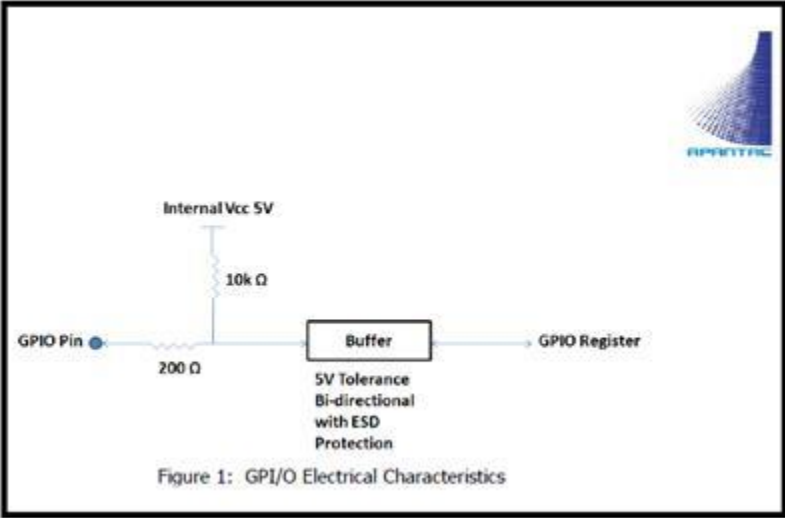
Table 1: Video Processor Module GPI to Window Tally Object.

VPM	VPM GPI input	Tally Name	Multiviewer input	Window Object
1	GPI: 1	(Tally: 1)	1.1	LED 1
	GPI: 2	(Tally: 2)		LED 2
	GPI: 3	(Tally: 1)	1.2	LED 1
	GPI: 4	(Tally: 2)		LED 2
	GPI: 5	(Tally: 1)	1.3	LED 1
	GPI: 6	(Tally: 2)		LED 2
	GPI: 7	(Tally: 1)	1.4	LED 1
	GPI: 8	(Tally: 2)		LED 2
2	GPI: 1	(Tally: 1)	2.1	LED 1
	GPI: 2	(Tally: 2)		LED 2
	GPI: 3	(Tally: 1)	2.2	LED 1
	GPI: 4	(Tally: 2)		LED 2
etc	etc	etc	etc	etc

Enabling GPI control of Tallies

Select **System** in the main menu and choose "**Set Window Dynamic Name Status and Tally…**"
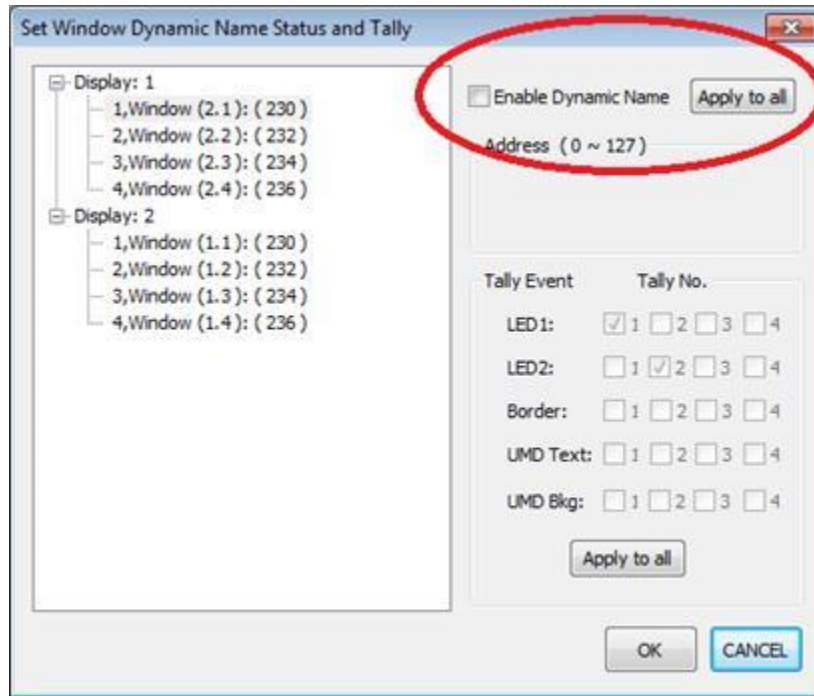
Tallies are controlled by either TSL control (by RS232 or Ethernet) <u>or</u> by GPI input. As stated earlier, the default configuration allows for GPI control of tallies, no setup is necessary. However, if the configuration has been altered to "Enable TSL", then you will need to change this.

To control by GPI you must disable the TSL control. Uncheck the box labeled "**Enable TSL**" in the above window and then click the "**Apply to all**" button. When the update completes, click the "**OK**" button.

Tally Interfacing: TSL protocol

UMD labels and Tallys can be controlled by external equipment that provide TSL* style protocol, either v3.1 or v5.0. The Tahoma multiviewer can be configured to receive this protocol either through its serial port or via TCP/IP.

* TSL: Television Systems Ltd., Tallyman systems.   www.tsl.co.uk

Enabling Dynamic control of Tallies

Select **System** in the main menu and choose "**Set Window Dynamic Name Status and Tally…**"

Figure 1: Enable Dynamic control of tallies and umd.

Mark the "Enable Dynamic Name" checkbox and click the Apply to all button adjacent to it.

Select which tally objects will be controlled by which tally inputs, and click its apply to all button. (These selections are the same as the tally objects selections when the tallies are controlled by GPI. So if you're looking for the window below you won't find it. Use the one above.)

Figure 2: GPI equivalent of tally object selection.

 Now click the OK button.

Enabling Dynamic control by TSL

Select **System** in the main menu and choose "**Set Dynamic Name…**"

Figure 3: Enable Dynamic control by TSL.

Mark the "TSL" radio button in the upper right and click the associated Apply to all button. Unless your multiviewer is the LX model the TSL option will be the only option enabled.

Click to highlight the first input in the list on the left. On the right, enter a TSL address to assign to that input and click the set button. If the addresses are sequential, then check the Auto Address checkbox and click the set button repeatedly to assign sequential addresses to the inputs.

Now click the OK button.

Choose External Equipment Protocol

Select **System** in the main menu and choose "**Router License Manager…**"

Figure 4: Router License Manager

Choose the appropriate communication protocol from the pulldown list. The available options are determined by firmware licensing which can be performed by Apantac Technical Support. TSL style protocol is the default licensing for Apantac Tahoma multiviewers.

Choose the Communications Path

Select **System** in the main menu and choose "**Control Board Settings…**"

Figure 5: Serial

If the external equipment is supplying TSL protocol via the RS232 **serial port** then set the "Communication port" pulldown choice to either Mode 2: TSL 3.1 or Mode 3: TSL 5.0.

If the external equipment is supplying TSL via **Ethernet** then set the "Communication port" pulldown choice to Mode 1: Software Control. (Mode 1 configures the multiviewer to monitor the serial port for Apantac's ASCII commands.)

Then click the OK button.

Tally Interfacing: by Other

External Equipment (Routers, Switches, Etc.)

 UMD labels and Tallys can be controlled by external equipment providing a tally control output. The Tahoma multiviewer can be configured to receive this output either through its serial port or via TCP/IP and then internally interpret and convert the input into TSL protocol to drive the tally control.

The internal conversion is configured by licensing the Tahoma multiviewer for the specific equipment. Contact Apantac Technical Support to perform this licensing.

Currently supported equipment is listed here. Call Apantac for additional specific equipment requirements.

> PESA
> UTAH
> Daktronics Ball Game
> Black Magic
> Sony MVS-8000

Any equipment which outputs TSL protocol can be interfaced using the default TSL protocol control. See the section on "Tally by TSL".

> Image Video TSI-xxxx systems.
> Tallyman systems.

Enabling Dynamic control of Tallies

Select **System** in the main menu and choose "**Set Window Dynamic Name Status and Tally…**"

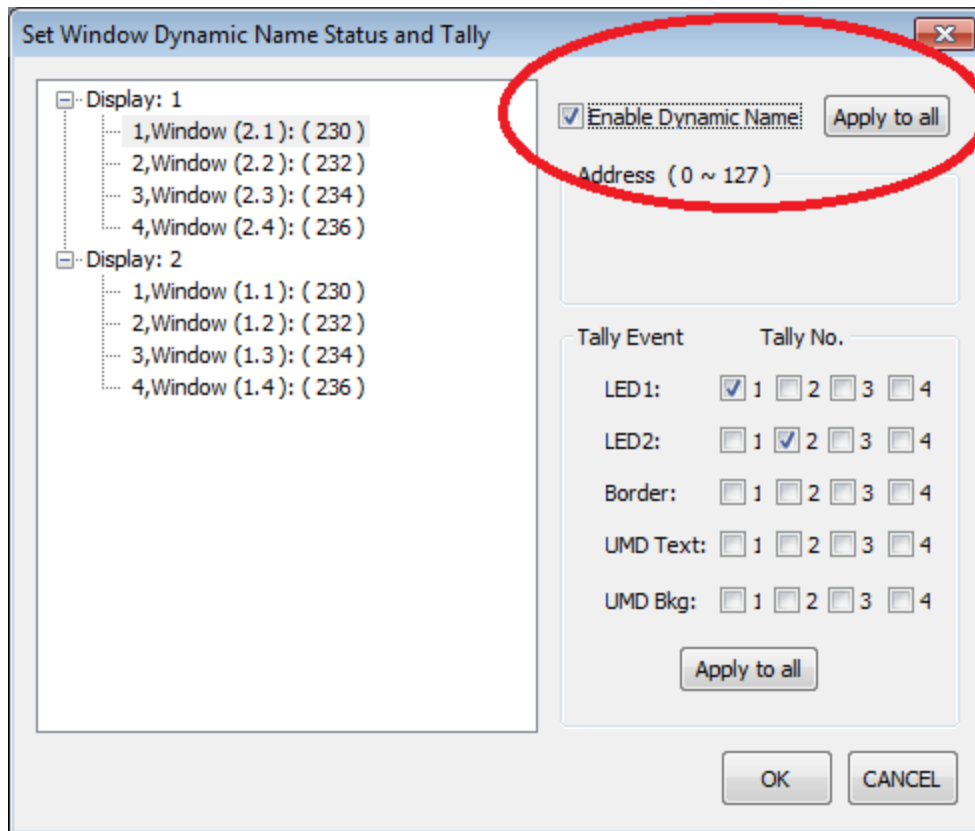Figure 1: Enable Dynamic control of tallies and umd.

Mark the "Enable Dynamic Name" checkbox and click the Apply to all button adjacent to it.

Select which tally objects will be controlled by which tally inputs, and click its apply to all button. (These selections are the same as the tally objects selections when the tallies are controlled by GPI. So if you're looking for the window below you won't find it. Use the one above.)
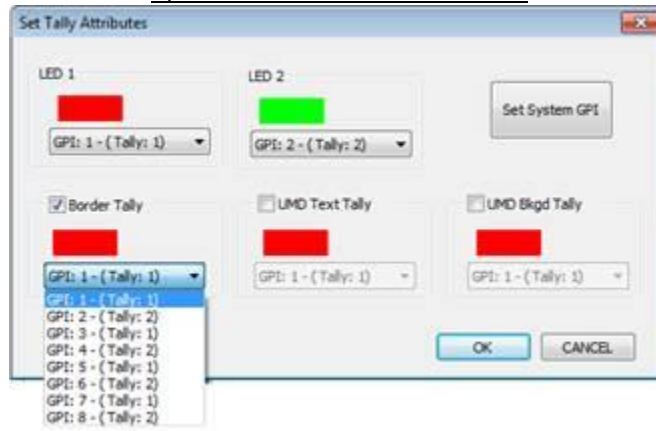

Figure 2: GPI equivalent of tally object selection.

Now click the OK button.

Enabling Dynamic control by TSL

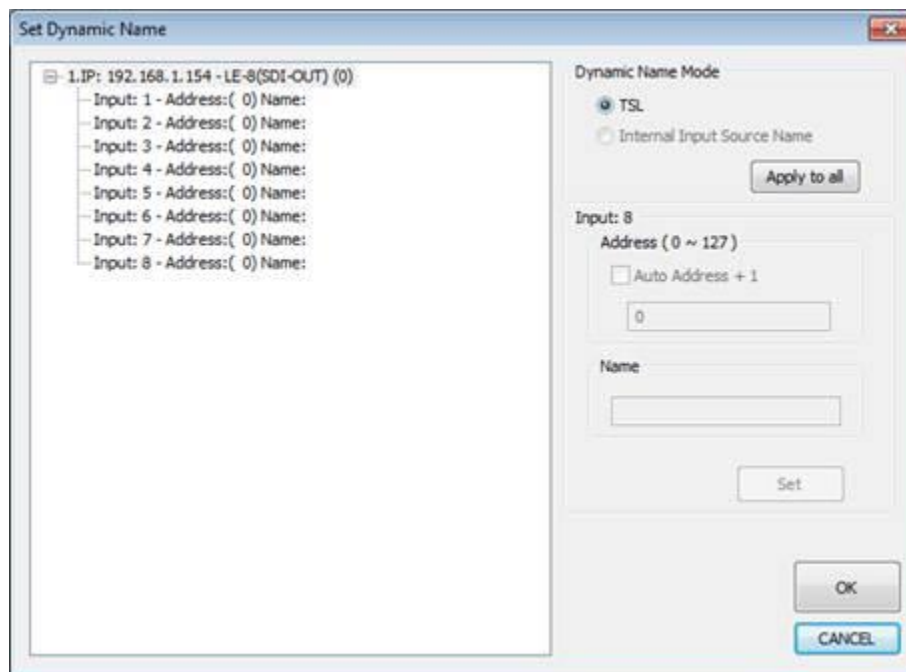Select **System** in the main menu and choose "**Set Dynamic Name…**"

Figure 3: Enable Dynamic control by TSL.

Mark the "TSL" radio button in the upper right and click the associated Apply to all button. Unless your multiviewer is the LX model the TSL option will be the only option enabled.

It is not necessary to set addresses in this window.

Now click the OK button.

Choose External Equipment Protocol

Select **System** in the main menu and choose "**Router License Manager…**"
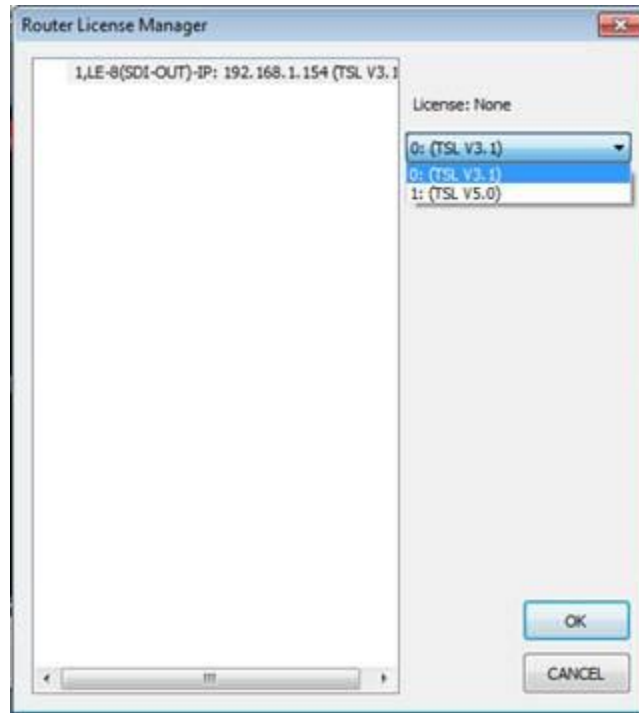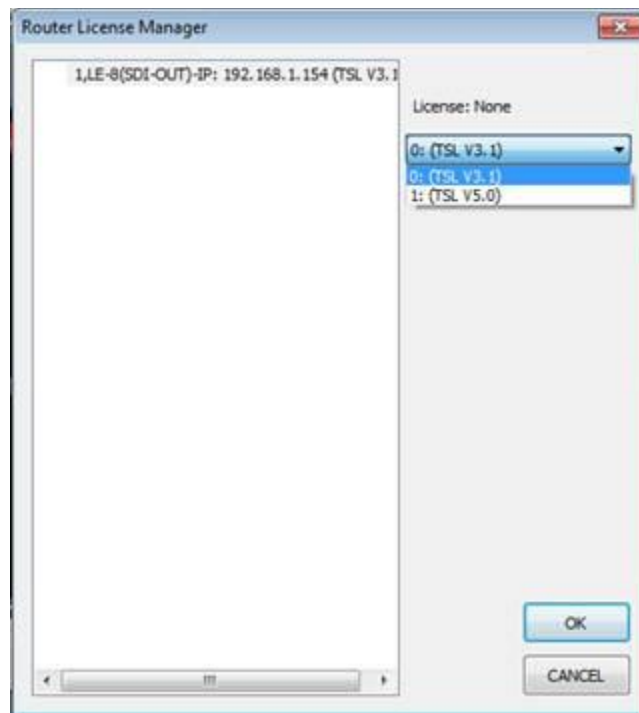

Figure 4: Router License Manager

Choose the appropriate communication protocol from the pulldown list. The available options are determined by firmware licensing which can be performed by Apantac Technical Support.

Perform the Router Interface configuration

Configuration may vary depending upon the brand and model of external equipment.

Select **System** in the main menu and choose "**3rd Part Router/Switcher Settings …**"
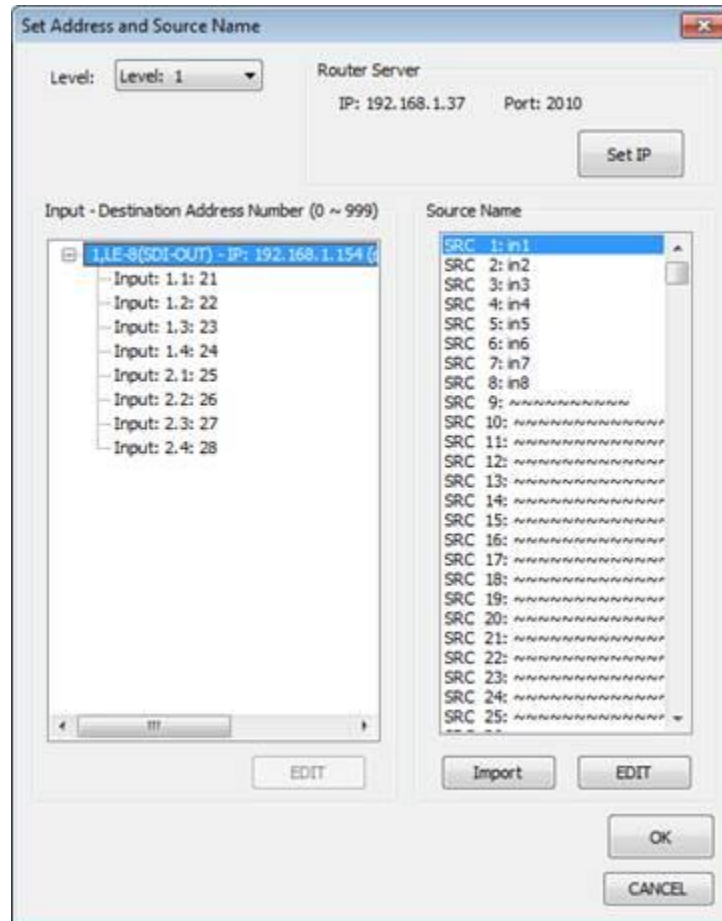
Insure the multiviewer's IP Address is highlighted in the left hand list, then click the "Set IP" button to configure the Router or Switcher's IP address and Port. Click the Apply to all modules and the Set button.

To set the TSL address the router/switcher associates with each video input, first highlight the input in the left-hand list, then click the Edit button below the list. Enter the address number and click OK.
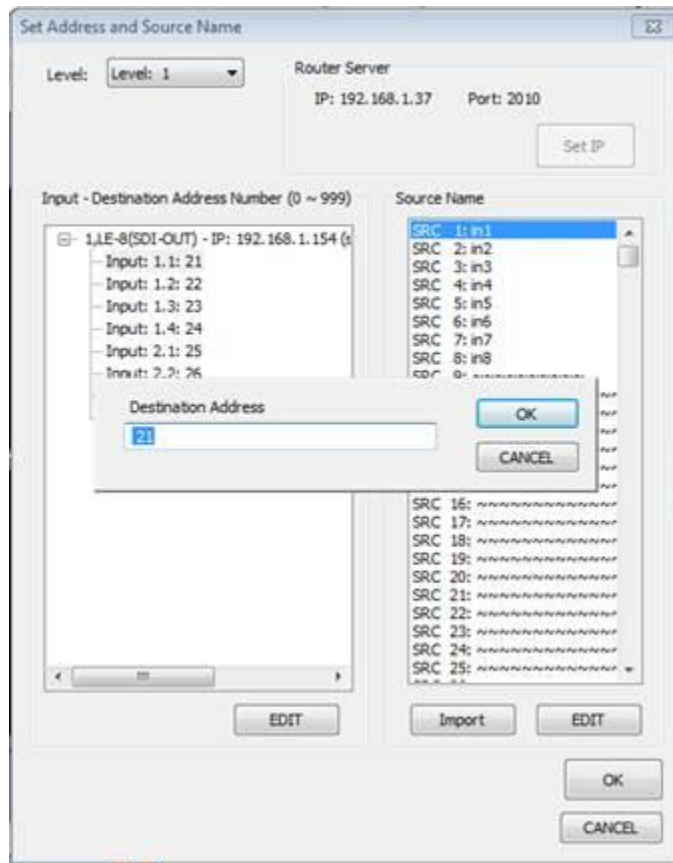
The Source Name list is optional. If the router/switcher does not include the UMD data then the names can be entered here.

Choose the Communications Path

Select **System** in the main menu and choose "**Control Board Settings…**"
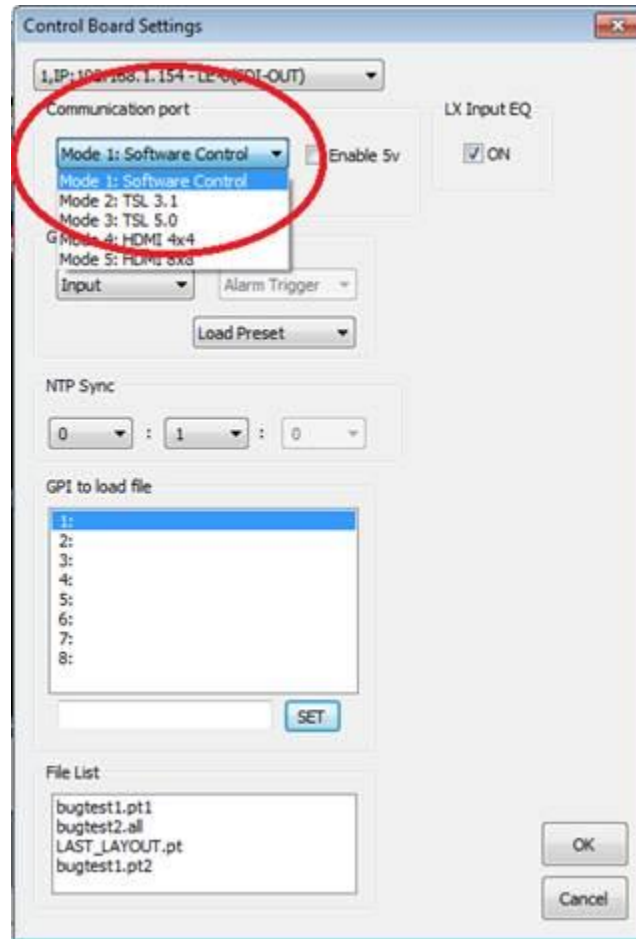
Figure 5: Serial

If the external equipment is supplying TSL protocol via the RS232 **serial port** then set the "Communication port" pulldown choice to either Mode 2: TSL 3.1 or Mode 3: TSL 5.0.

If the external equipment is supplying TSL via **Ethernet** then set the "Communication port" pulldown choice to Mode 1: Software Control. (Mode 1 configures the multiviewer to monitor the serial port for Apantac's ASCII commands.)

Then click the OK button.

Audio Meters

Audio Meter Basics

Audio enters the Tahoma Multiviewer either by being embedded in the SDI video signal or by discrete audio input via the GPI/Audio connectors. The GPI/Audio connector provides 8 digital AES stereo audio inputs, and 16 AA analog audio channel inputs. Apantac offers a line of accessories for interfacing audio sources to our GPI/Audio connector.

The basic building block of the Tahoma Multiviewer is the video processing module (VPM). Each VPM handles four video inputs and includes a GPI/Audio connector. Each VPM configures the display of four video windows and their associated audio meters.

The audio source of each audio meter can be individually set, and can be set to any of the audio sources within that VPM. In example; window 4.4 can have audio meters responding to the audio of input 4.2, but window 3.4 can not display audio from 4.2 because 3.4 and 4.2 are different VPM's. The same holds true for the discrete audio through the GPI/Audio connector. Meters of windows 3.1 thru 3.4 can not display audio connected to the GPI/Audio connector of the VPM handling 4.1 thru 4.4. However, audio meters can be made "stand-alone" and be placed anywhere on the display.

Audio Meters

Right-click a video window for its context menu and choose "Set Audio Meters". The areas of primary interest in this configuration window are the enabling checkboxes, the source list, and the audio source section.
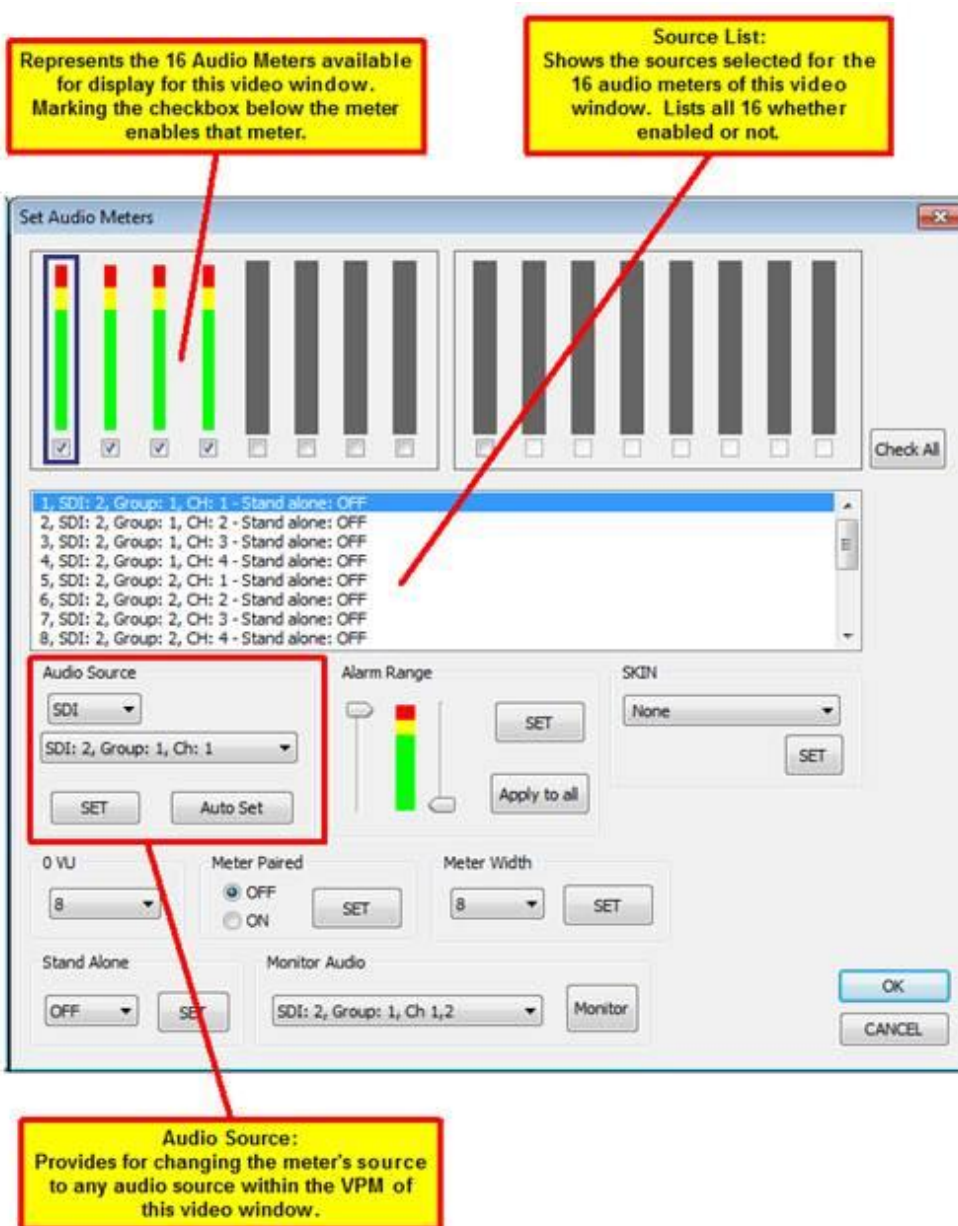
Enable Audio Meters
To enable and display the audio meters mark the checkbox under each meter. Check the meters from left to right.

Selecting a Meter
The currently selected meter will have a box drawn around the meter and will be highlighted in the Source List. Clicking on either the meter or in the source list will select an individual meter for configuration.

Source List
This list shows the audio sources that each of the 16 meters is configured to respond to. It shows all 16 meters whether they are enabled or not. Unless you have altered the configuration the list will show the default configuration. For most Tahoma multiviewers the default will be the SDI embedded audio channels for the video input of the window you are configuring.

> *Note: The Source List indicates the current assignment of audio sources to these meters (the current configuration). It is NOT the list of available audio sources.*

Audio Source
This section allows you to set the audio source of the selected audio meter. The source can be any audio source with the Video Processing Module (VPM) regardless of whether it is related to the video of the window you are configuring.

- Select the audio meter.
- Select the type of audio source (first pulldown).
- Select the specific audio channel (second pulldown).
- Click the SET button to set this audio meter.
    Or
- Click the Auto Set button to set this audio meter and increment the pull-down list to the next channel and the selected audio meter.

When the Source List reflects the configuration you desire, click the OK button to close the configuration window.

NOTE: The audio source allows the selection of any audio channel within the VPM. This makes it possible to have a video window with audio meters that are not related to that video source.

Explaining Audio Sources

SDI Sources include three numbers; "SDI: **1**", "Group: **1**", and "CH: **1**".

The SDI number refers to the physical video input. This number will be 1, 2, 3, or 4, because there are four video inputs within a VPM. Number "1" can therefore refer to video input "1.1", "2.1", 3.1", etc, depending on which video window you're configuring. For LX units, "SDI 1" can refer to input "1", "5", "9", "13", etc. The LX model numbers the inputs differently, but they are still in groups of four because of the VPM.

The Group and Channel (CH) numbers select the individual audio channel embedded within the SDI video signal. There are four groups with four channels in each group for a total of 16 individual channels embedded within a single SDI video signal.

AES and AA sources are not de-encoded from the video signal but come from optional discrete inputs. There are 16 individual channels for each AES and AA, but they are numbered in pairs with the addition of either Left Channel or Right Channel.

```
1, SDI: 1, Group: 1, CH: 1 - Stand alone: OFF
2, SDI: 1, Group: 1, CH: 2 - Stand alone: OFF
3, AES: 1 Left Channel - Stand alone: OFF
4, AES: 1 Right Channel - Stand alone: OFF
5, AA: 1 Left Channel - Stand alone: OFF
6, AA: 1 Right Channel - Stand alone: OFF
7, AA: 2 Left Channel - Stand alone: OFF
8, AA: 2 Right Channel - Stand alone: OFF
```

Advanced Configuration of Audio Meters

Right-click a video window for its context menu and choose "Set Audio Meters".
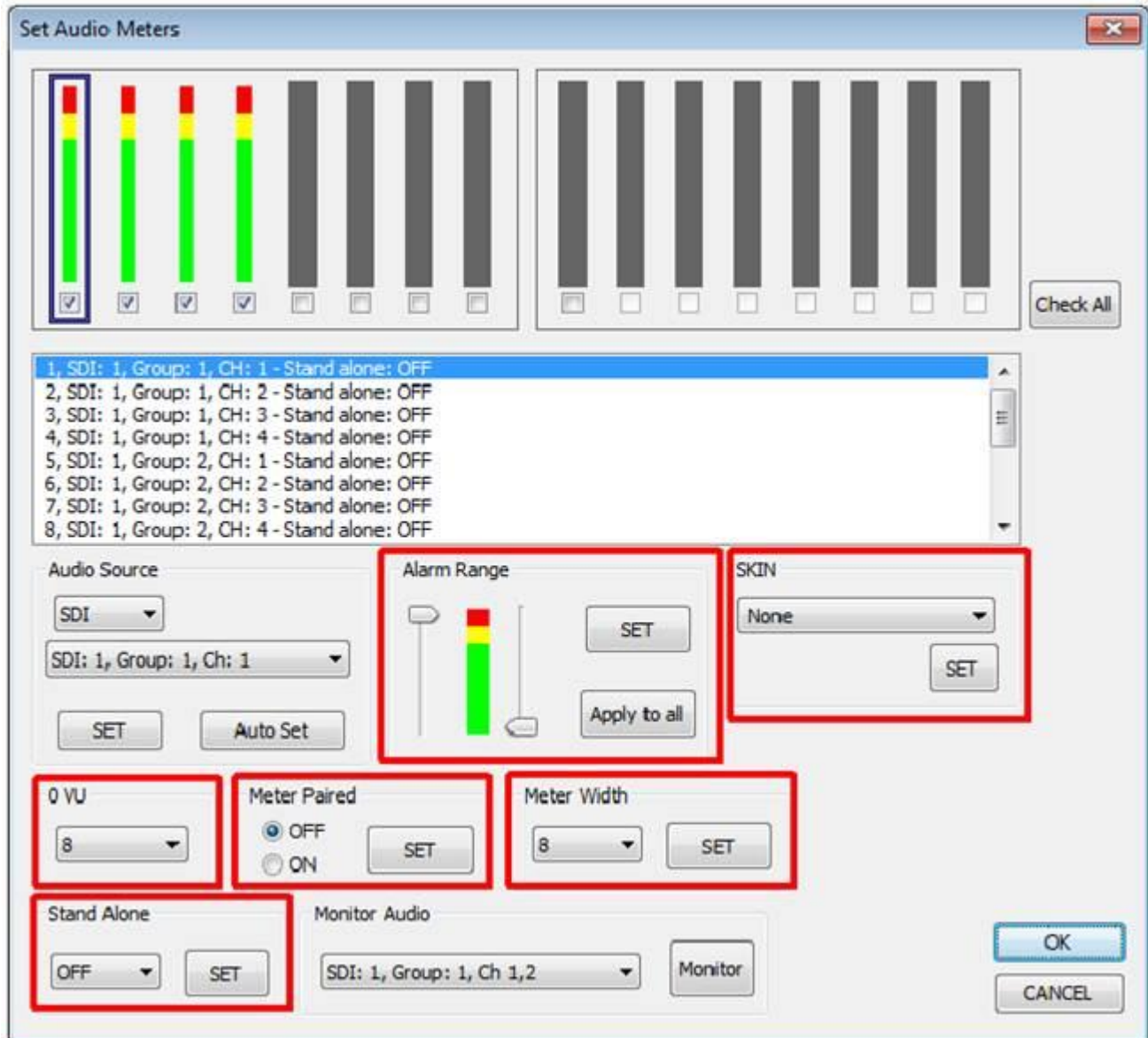
Meter selection, Source List, and Audio Source were discussed in Audio Meter Basics.
Monitor Audio is discussed in the next section.

Alarm Range:

This section relates to the Audio Status alarm object. It allows the setting of the lower and upper thresholds for triggering the alarm object.

Clicking SET applies the thresholds to the currently selected audio meter only.

Clicking "Apply to all" opens first a confirmation box then the following dialog box. The "Apply to all" will apply the alarm thresholds to all audio meters within each of the displays that are checked. The display you are currently configuring is notated by "(Now Select)".
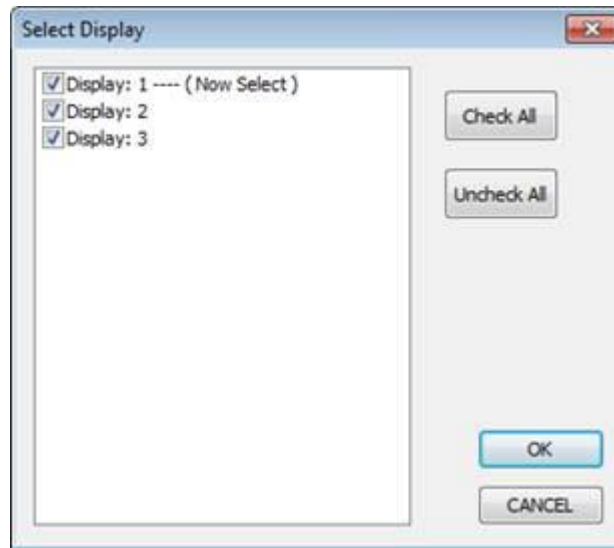
See the Alarms section on "Lost Audio" for more on configuring this alarm.

SKIN:

Skins will add a background image adjacent to the selected audio meter. The skin images are images of meter scales. It's important to recognize that these are only images and their scales are only made relevant by adjusting the size of the audio meter to correspond to the skin image.

There are six audio meter skins, three left side, and three right side images. Depicted here is how the skins appear in the Director software and on the actual multiviewer output.
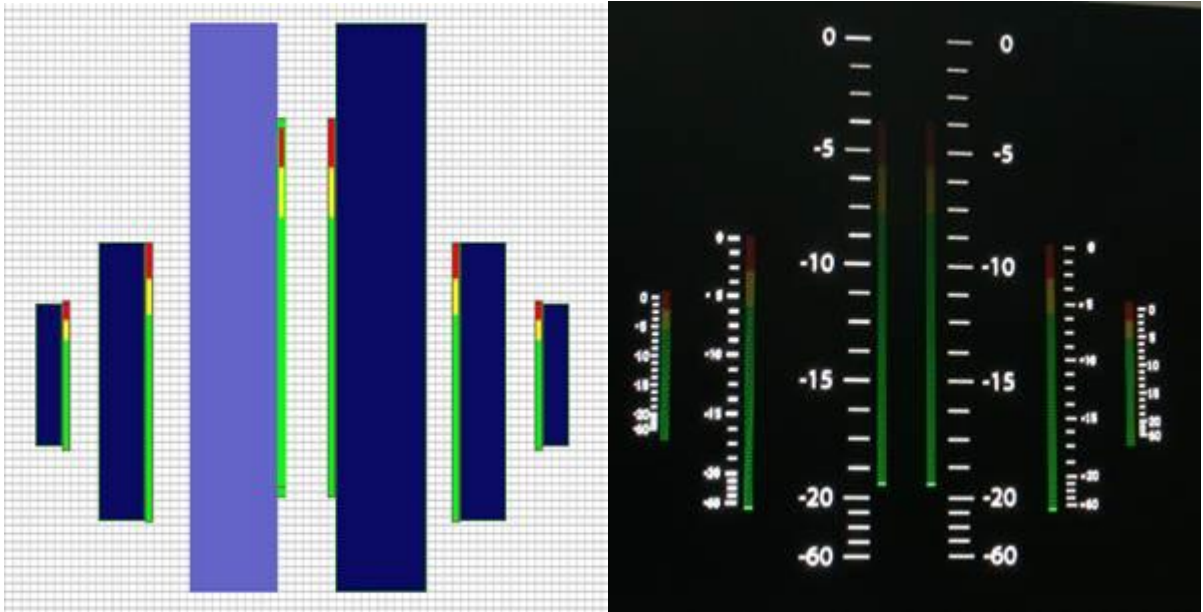
The vertical size (height) of the meter can be adjusted by selecting the meter and then dragging the top or bottom adjusting handle.

0 VU:

The audio meter displays green, yellow, and red level areas. Setting the 0 VU sets the audio level of the green to yellow transition.

A setting of +4 is industry standard: (-20dBFS = 0 VU = +4dBu).

Meter Paired:

n/a

Meter Width

This sets the horizontal size, in pixels, of the audio meter object. Click its associated SET button to apply your selection.

Stand Alone:

By default audio meter positions are relative to the video window. Moving the video window moves the meters with it. Setting Stand Alone to ON will make the meter's positioning independent.
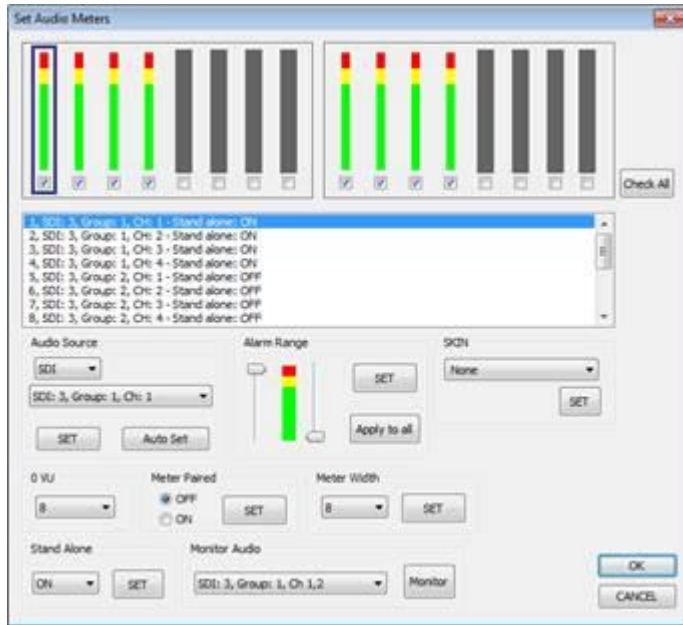
Current Software Features (peculiarities);
There are 16 meters available per video window. They are divided in two groups of 8. Each group shares the same vertical size and vertical position data. Resizing and positioning one meter affects the other 7 meters of that group. If part of a group is made stand-alone and part is enabled and moves relative to the window, you will have difficulty positioning the stand-alone meters. If you would like both stand-alone and normal meters, use one group of 8 for normal and the other group of 8 as stand-alone.

Size and Position:

The width is controlled as stated above, but the height and position is adjusted like any other object. Select a meter and drag and drop to a new position, or adjust the vertical size with the top or bottom adjusting handle. Each set of 8 meters share a common vertical size and position (see the explanation in Stand Alone section above).

Meters may be positioned over the video image or outside the border of the video image. Size and Position of audio meters is included when copying and pasting video window properties from one window to another.

Default positioning:

Right-click a video window for its context menu and choose "Return Meters to Default Position". This command does not affect stand-alone meters.

Default positioning is to evenly distribute the audio meters on the left and right sides of the video window. The meters remain in order from left to right. The left and right channel of the assigned audio source does not determine its position.

Global Setting:

From the main menu, select "System", then "Global", then "Window Meter Settings…". The configuration within this window will apply to all video windows of all displays.
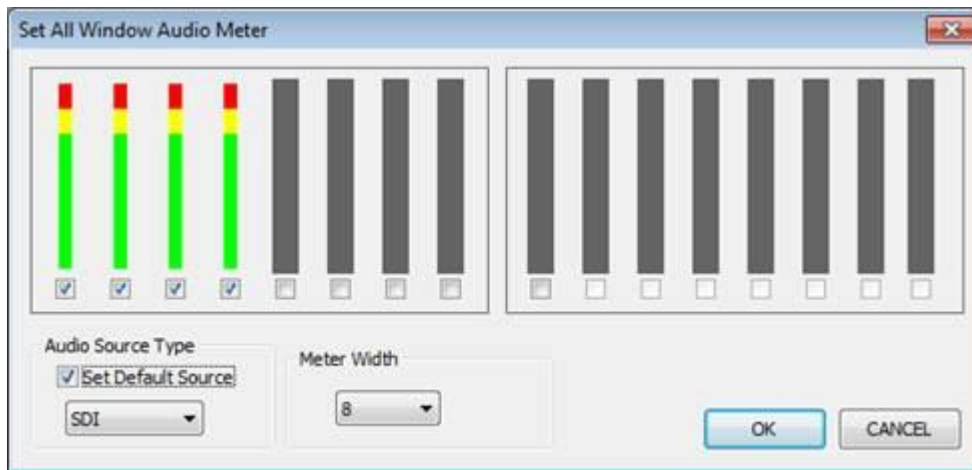
Copy and Paste:

The copy and paste of video window properties from one window to another will include the configuration of audio meters, with the exception of audio source assignments.

Individual Audio Meter Context Menu:

If you select a single audio meter and right-click you get a context menu which includes "set properties…". This will open the following window. The "0 VU" and the "Meter Width" can be applied to an individual meter from this window. The other settings are applied individually from the standard Set Audio Meters window without the necessity of opening this window.
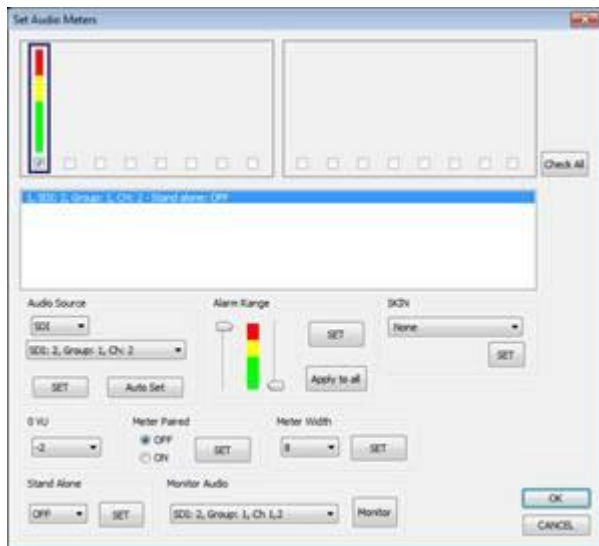
Audio Monitoring on the Multiviewer

A selected audio channel pair can be monitored from the front or rear panel of the Tahoma multiviewer. The front panel includes headset volume control. The rear panel has both AES digital audio via a BNC connector and line-level analog audio via a standard 3.5mm stereo audio jack.
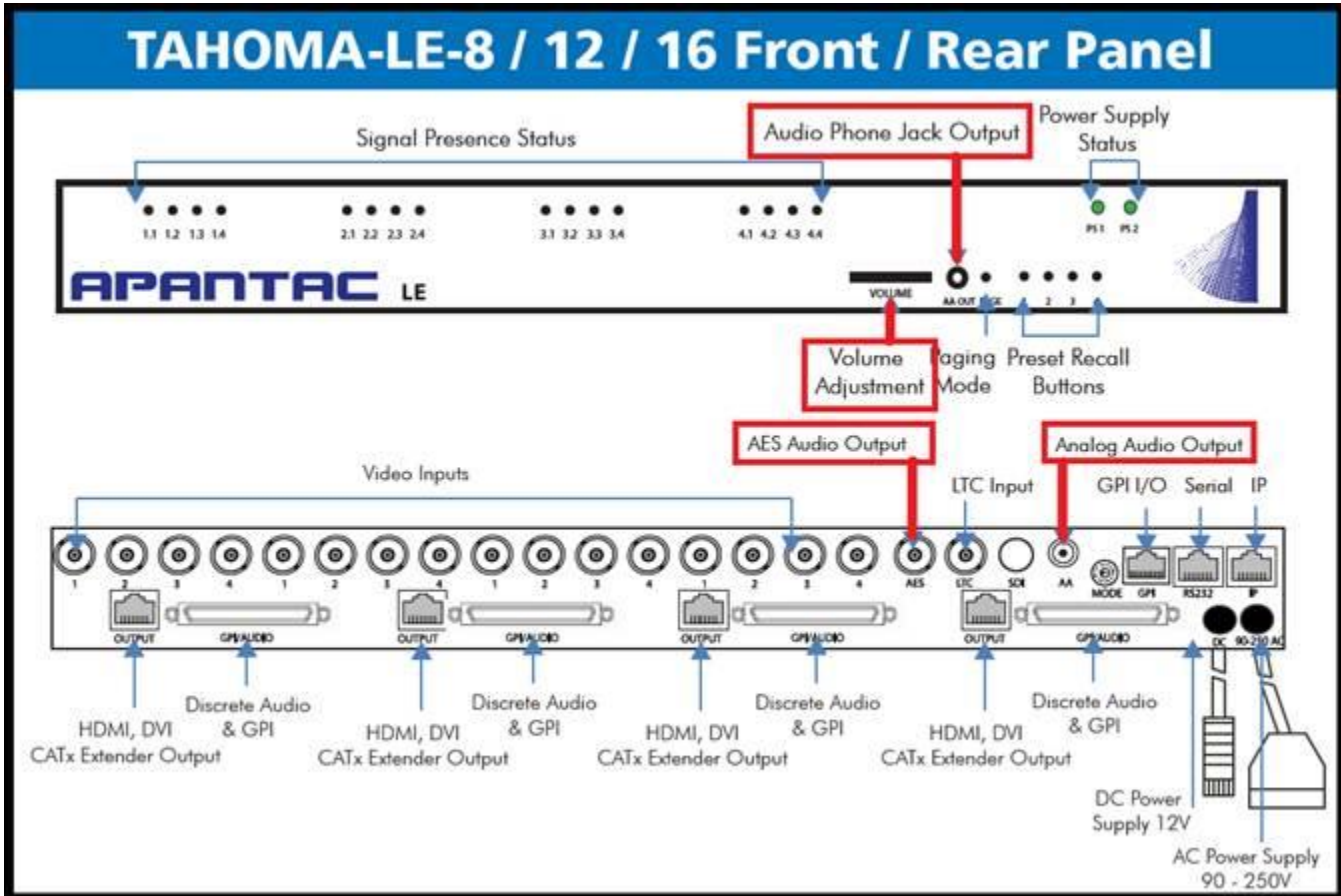
Which audio pair is monitored is set within the configuration of the multiviewer. The audio pair can be selected by either 1) loading a different configuration by preset selection, or 2) by modifying the currently running configuration.

The current configuration can be modified by using Apantac's Director software or by Apantac eXchange Protocol (AXP) commands.

AXP commands can be sent to the multiviewer via the RS232 port or by TCP/IP. Either of these can be performed by any 3rd party software. In addition to 3rd party software Apantac has developed both a Microsoft Windows compatible Control Panel program and an Apple iPhone application which can send these commands by TCP/IP through your Local Area Network (LAN).

AUDIO MONITORING BY PRESETS

This method has the sole advantage of being able to change the audio monitor source by using the preset buttons on the front panel of the Tahoma. However reloading a preset configuration each time you want to monitor different audio requires time and causes the multiviewer displays to blank momentarily. It also uses configuration preset memory storage of essentially identical configurations whose only difference is which audio source is directed to the monitor out.

To do this method, follow the procedures of the next section, then save the configuration as a preset file by choosing "Preset…" and "Save…" under the File menu. Assigned the preset buttons using "Front Panel Definitions…" under the System menu. Save all to the Tahoma flash when exiting the Director software.

AUDIO MONITORING BY DIRECTOR CONTROL, METHOD 1

 First select the Display you desire then right click on the window associated with the input source you desire to open the windows context menu. Choose "Set Audio Meters…"
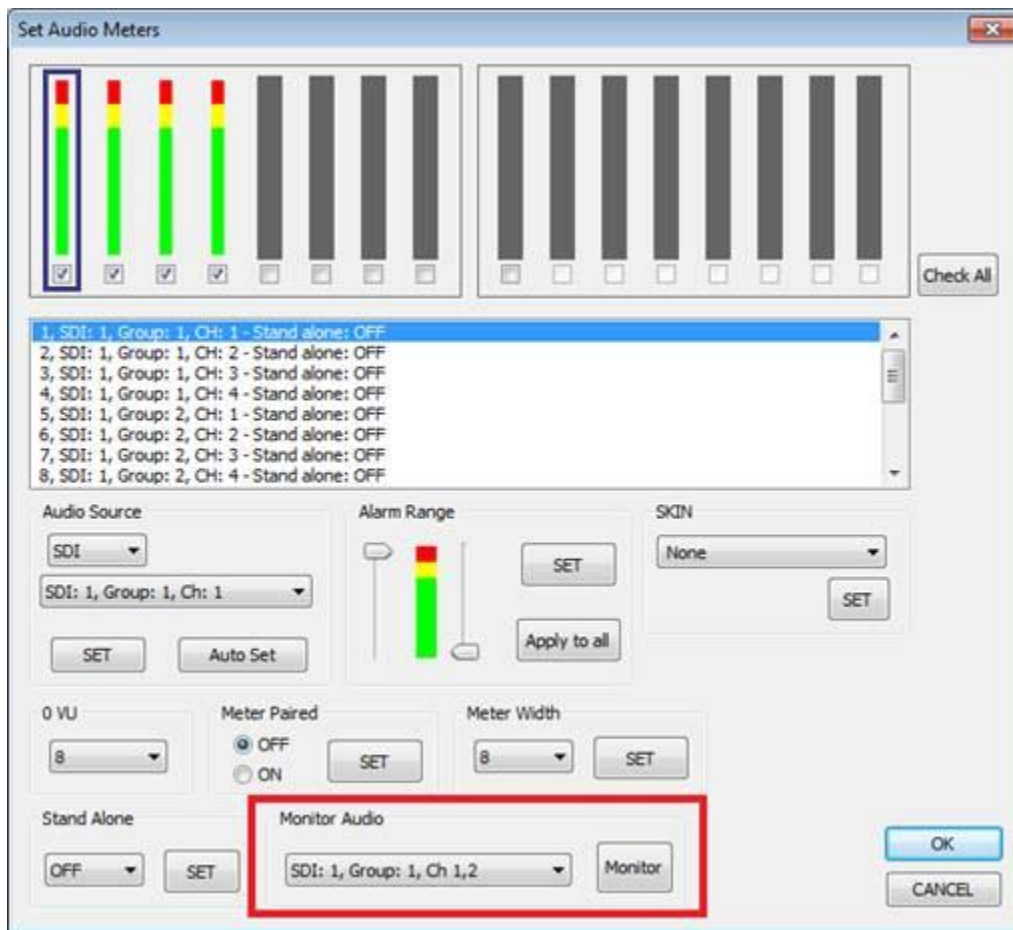
In the section titled "Monitor Audio", near the bottom, choose the audio pair of this source to send to the monitor out from the pull-down list and click the "Monitor" button. Then click OK.

AUDIO MONITORING BY DIRECTOR CONTROL, METHOD 2
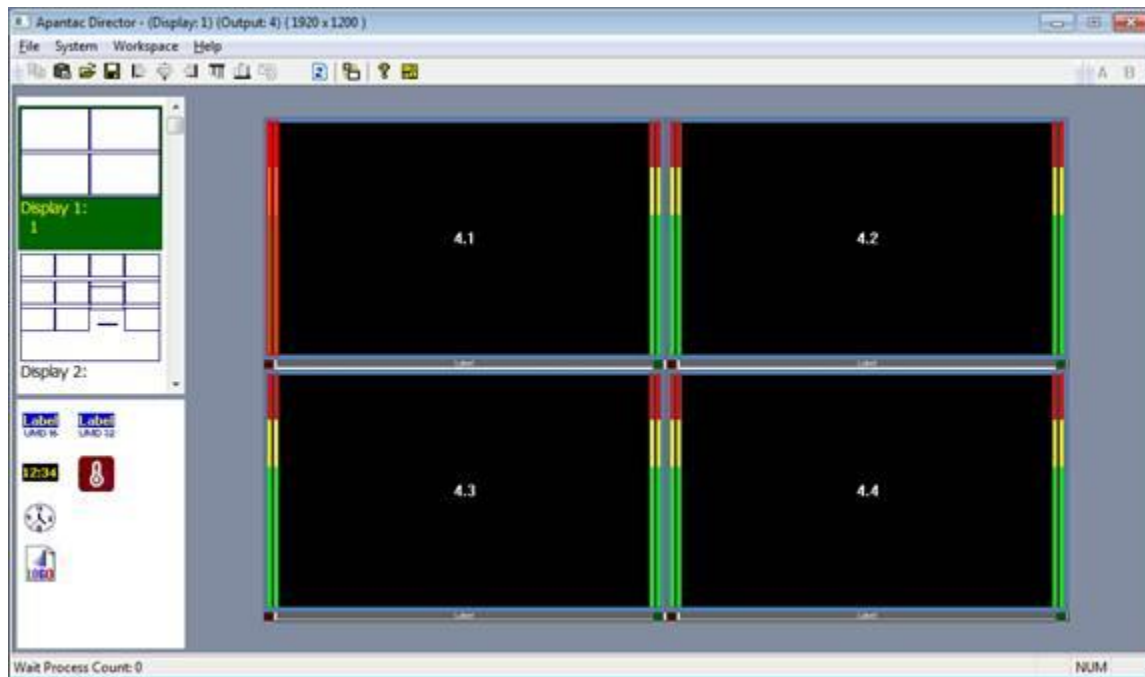
With Audio meters displayed, double-clicking on any audio meter object will assign its stereo pair to the audio monitor out, and highlight that set of meters in red. The highlighting only occurs within Director, the multiviewer display does not reflect this selection.

AUDIO MONITORING BY Apantac eXchange Protocol (AXP)

AXP methods have the advantage of selecting the audio without the possibility of altering other objects and settings within your configuration by using Director.

The AXP command for selecting the audio pair to monitor is shown here. Refer to the "Apantac eXchange Protocol.pdf" document for a complete list of control commands.

```
Audio [VPM_ID] [TYPE] [GROUP] [Channel/PAIR]
```

Parameters	Values	Description
[VPM_ID]	0 – 7	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on
[Type]	SDI/AES/AA	Type of audio format
[input]	1 – 4	SDI only
[Group]	1 – 4	SDI only
[Channel/Pair]	1 – 4 channel for SDI, 1 – 8 pairs for AES/AA	Pairs of audio meters to be monitored

Inputs	VPM_ID number
1 thru 4	0
5 thru 8	1
9 thru 12	2
13 thru 16	3
Etc.	Etc.

VPM_ID numbers

Examples:

Audio 3 SDI 1 2 3
VPM 3 SDI input 1: would be the multiviewer's 13th SDI input (input 4.1). Group 2, channel 3 refers to channel 7, meaning the pair comprised of channel 7 and channel 8 of the 16 embedded audio channels of that SDI input.

Audio 3 AA 3
VPM 3 Analog Audio pair 3: Discrete Analog Audio channels 5,6 (pair 3) via the GPI/Audio connector of the VPM handling inputs 13 thru 16 (inputs 4.1 – 4.4).

Alarm and Status Display

Right-Click a video window and choose "Set Objects…". This configuration window includes enabling the five Alarm objects.

- **Video Format**
- **Video Frozen**
- **Video Black**
- **Video WSS/AFD Format**
- **Audio Status**

Video Format

Video Format identifies and displays the input video signal. This object is both an alarm and an information message. The "No Video" message is the alarm condition. The type of video signal is displayed in the normal (no alarm) state.

> Example: For the LE model this includes seventeen different formats.
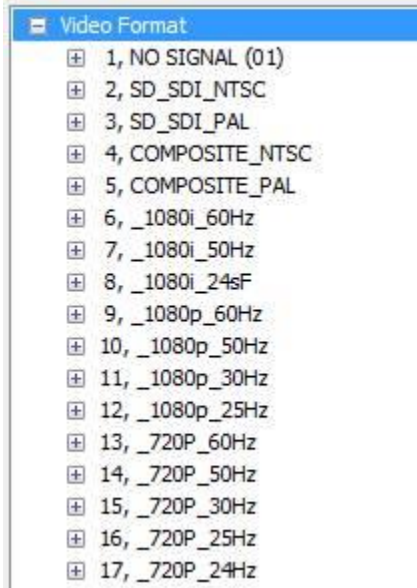
Display Configuration:
Right-Click the Video Format alarm object for its context menu and choose "Set Properties…"
Note: For Alarm Message Text configuration see the section below on "Signal Status Tag Settings".
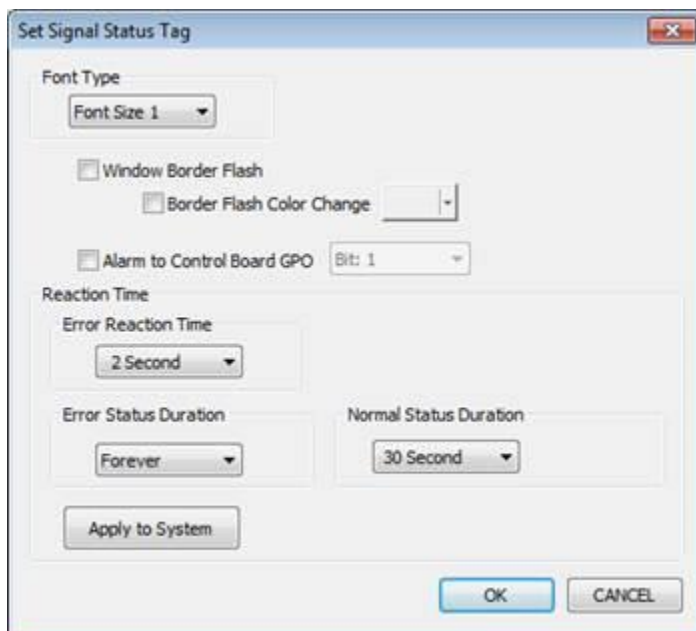
Font Type: This is the same as for labels. Changing the font will change the height of the object. The width is adjusted using the mouse and clicking and dragging on the green markers.

Window Border Flash: Marking this checkbox will cause the video window border to flash on and off in addition to displaying the alarm object when the alarm condition occurs.

Border Flash Color Change: Marking this checkbox will cause the video window border to change to the chosen color when the alarm condition occurs. (If the Window Border Flash is also checked, the border will flash from normal color to the chosen color.)

Alarm to Control Board GPO: Sets whether this alarm should trigger an output on the control board's GPI/O port. Choose which bit (pin) of the port is triggered. This setting is more conveniently set from the System menu (see below).

Error Reaction Time: length of time the change in status must be present before the alarm condition is triggered.

Error Status Time: length of time the "No Video" alarm message is displayed. Default is "Forever". The "No Video" alarm will be displayed continuously until a video signal is detected.

Normal Status Duration: length of time the video format message is displayed. Default is "30 Seconds". When a video signal is detected, the format is displayed for 30 seconds and then the message is hidden.

Apply to System: applies reaction time settings to all video format alarms within the multiviewer.

Video Frozen

This alarm detects when the video signal becomes frozen or static.

Display Configuration:

Right-Click the Video Frozen alarm object for its context menu and choose "Set Properties…"
Note: For Alarm Message <u>Text</u> configuration see the section below on "Signal Status Tag Settings".
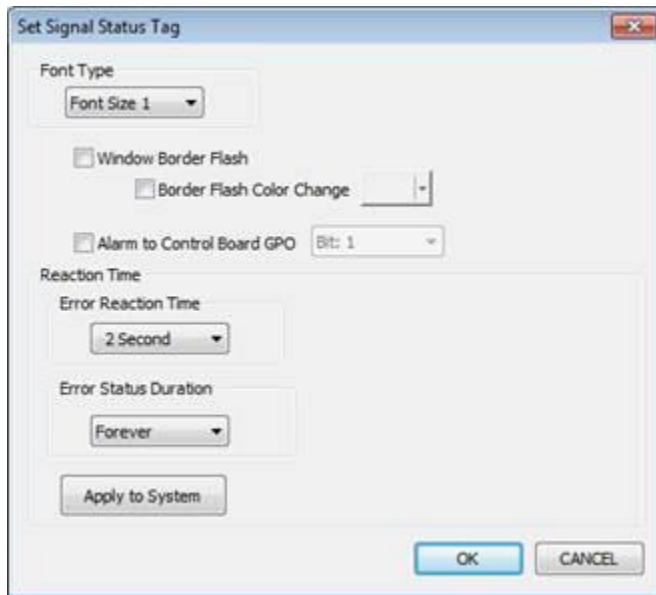
This is the same as for the Video Format alarm (see above), with the exception that there is no "Normal Status Duration".

Alarm Configuration:

To set the Video Frozen alarm, right-click on the desired Window and select "Set Video Frozen Configuration" in the Context Sensitive Menu.
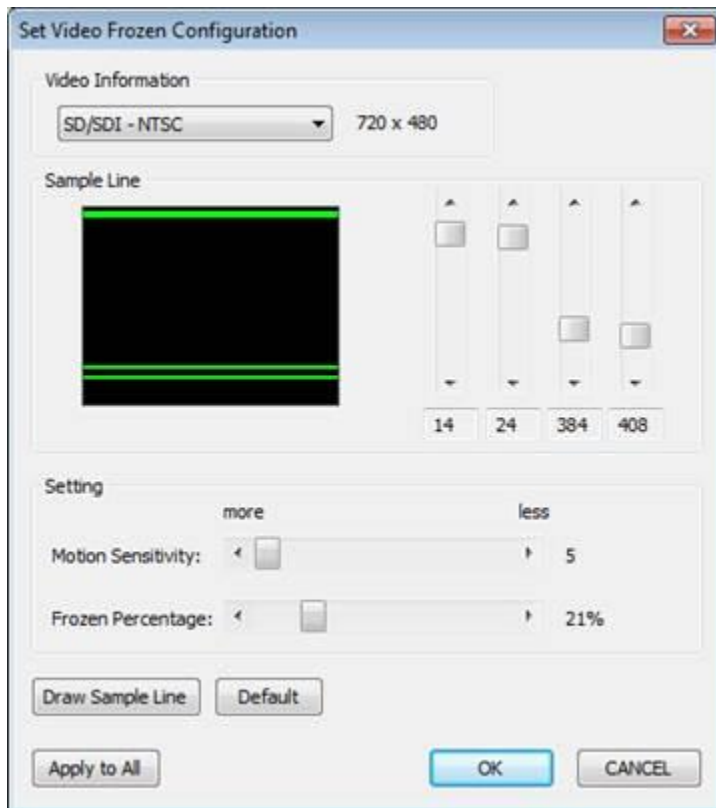
Video Information: changes the type of video being inputted.

Sample Line: On the right half of the screen there are four vertical slider bars that control the placement of the lines that sample the video, checking for movement. By adjusting these lines, you can place emphasis on certain parts of the screen for motion detection. For example if movement in the center of the screen is the most important, you can move all the sampling lines there.

Motion Sensitivity: adjusts how sensitive the alarm is (5 being extremely sensitive, 255 being not sensitive)

Frozen Percentage: adjusts the threshold percentage that must be frozen to activate the alarm (1% for low threshold, 100% for high threshold).

Draw Sample Line: causes the sampling lines to be drawn over the video of the actual multiviewer output display for comparison purposes.

Default: returns the configuration settings back to default values.

Apply to All: will apply the current Video Frozen Configuration to all Windows.

Video Black

This alarm detects when the video becomes excessively dark or black.

Display Configuration:

Right-Click the Video Frozen alarm object for its context menu and choose "Set Properties…"
Note: For Alarm Message <u>Text</u> configuration see the section below on "Signal Status Tag Settings".

This is the same as for the Video Frozen alarm (see above).

Alarm Configuration:

To set the Video Black alarm, right-click on the desired Window and select "Set Video Black Configuration" in the Context Sensitive Menu.
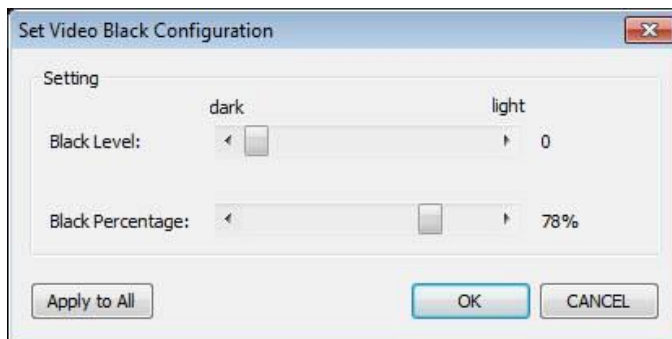
Black Level: Adjusting the "Black Level" slider will change how dark something must be to be considered black. (0 to 255)

Black Percentage: Adjusting the "Black Percentage" slider changes how much of the screen must be black, as defined by the Black Level, in order to be considered a black screen. (0% to 100%)

Apply to All: will apply the current Video Black Configuration to all Windows.

WSS/AFD Format

Wide-Screen Signaling (WSS) and Active Format Description (AFD) Video Format status display.

Example: For the LE model this includes 35 different formats.
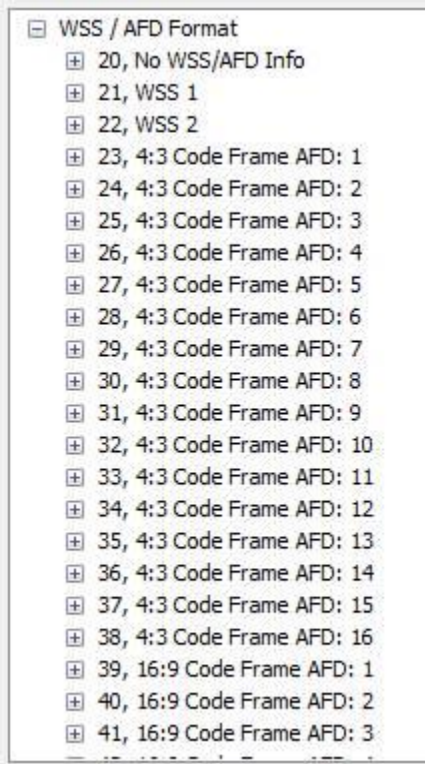
```
□ WSS / AFD Format
    ⊞ 20, No WSS/AFD Info
    ⊞ 21, WSS 1
    ⊞ 22, WSS 2
    ⊞ 23, 4:3 Code Frame AFD: 1
    ⊞ 24, 4:3 Code Frame AFD: 2
    ⊞ 25, 4:3 Code Frame AFD: 3
    ⊞ 26, 4:3 Code Frame AFD: 4
    ⊞ 27, 4:3 Code Frame AFD: 5
    ⊞ 28, 4:3 Code Frame AFD: 6
    ⊞ 29, 4:3 Code Frame AFD: 7
    ⊞ 30, 4:3 Code Frame AFD: 8
    ⊞ 31, 4:3 Code Frame AFD: 9
    ⊞ 32, 4:3 Code Frame AFD: 10
    ⊞ 33, 4:3 Code Frame AFD: 11
    ⊞ 34, 4:3 Code Frame AFD: 12
    ⊞ 35, 4:3 Code Frame AFD: 13
    ⊞ 36, 4:3 Code Frame AFD: 14
    ⊞ 37, 4:3 Code Frame AFD: 15
    ⊞ 38, 4:3 Code Frame AFD: 16
    ⊞ 39, 16:9 Code Frame AFD: 1
    ⊞ 40, 16:9 Code Frame AFD: 2
    ⊞ 41, 16:9 Code Frame AFD: 3
```

Display Configuration:

Right-Click the Video Frozen alarm object for its context menu and choose "Set Properties…"
*Note: For Alarm Message Text configuration see the section below on "Signal Status Tag Settings".*

This is the same as for the Video Frozen alarm.

Audio Status

Audio status display.

Example: For the LE model this includes five different states.

Display Configuration:

Right-Click the Video Frozen alarm object for its context menu and choose "Set Properties…"
*Note: For Alarm Message Text configuration see the section below on "Signal Status Tag Settings".*

This is the same as for the Video Frozen alarm.

Alarm Configuration:

To set the Audio alarm, right-click on the desired Window and select "Set Audio Meters…" in the Context Sensitive Menu.
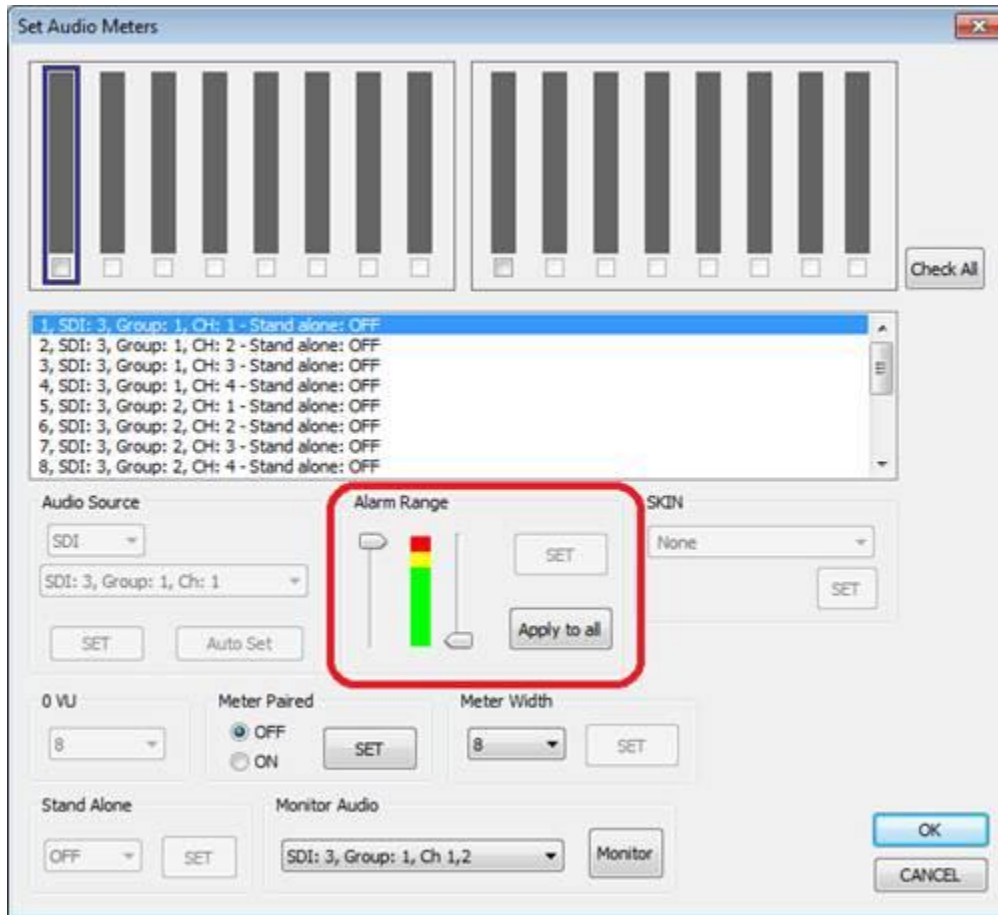
Alarm Range: sets the high and low volume alarm thresholds.

Apply to All: will apply the configuration to all meters.

Signal Status Tag Settings

From the main menu, click System and choose "Signal Status Tag Settings…"

This configuration window provides for setting the text and colors of all the possible alarm messages.
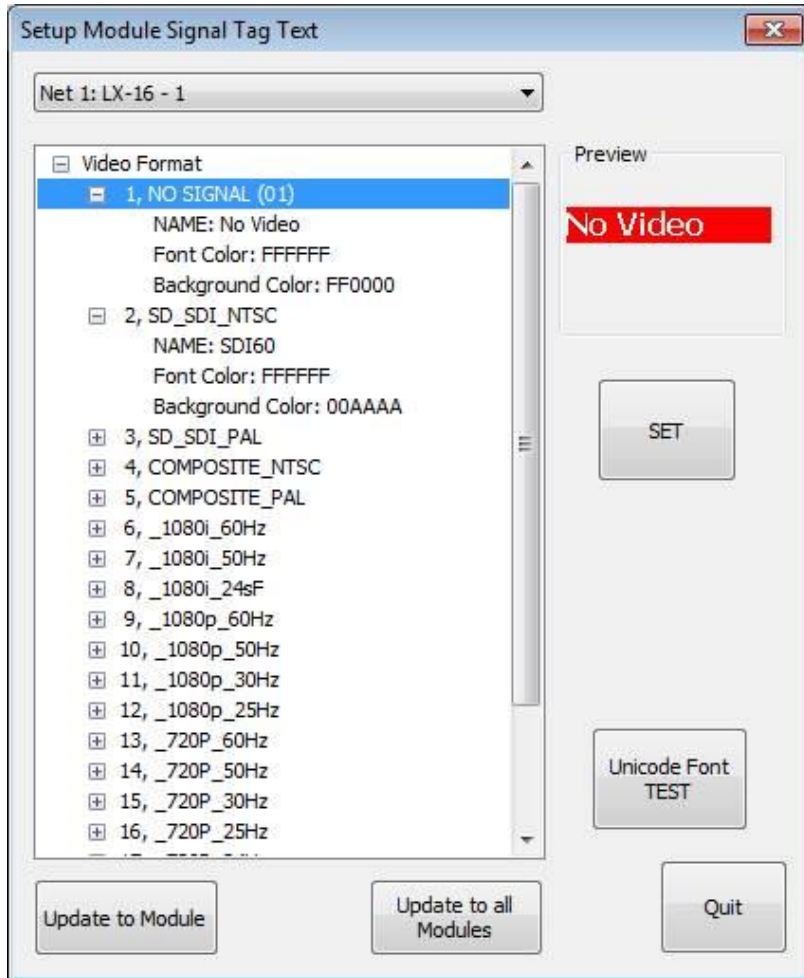
The pull-down menu at the top
(shown here as "Net 1: LX-16 – 1")
selects which VPM module the configuration
applies to. *For an explanation of VPM's see the
Introduction section under System Design.*

Click the plus icons in the list to expand the
categories and messages.

Double-click on a list item or highlight with a
single click and then click the SET button to open
the "Set Text" window.

Update to Module: Click this to enable your
changes. Copies changes to the VPM that is
selected in the top pull-down.

Update to all Modules: Copies changes to all
VPM's.
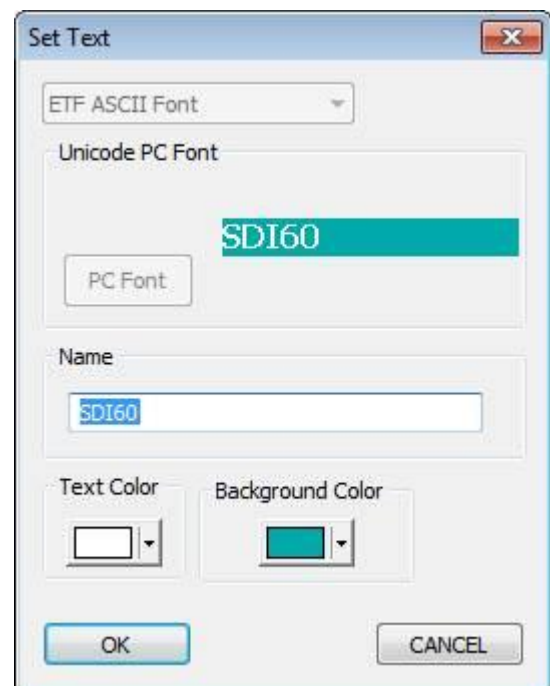
Name: Edit the text to be displayed. (16 character limit).

Text Color, Background Color: Click on the color buttons to select a
different color.

*Note: Fonts are set within the "Set Properties…" dialog (see previous
sections).*

Alarm Output via Control Board GPI/O

Alarms can trigger external equipment via the control board's GPI/O port.
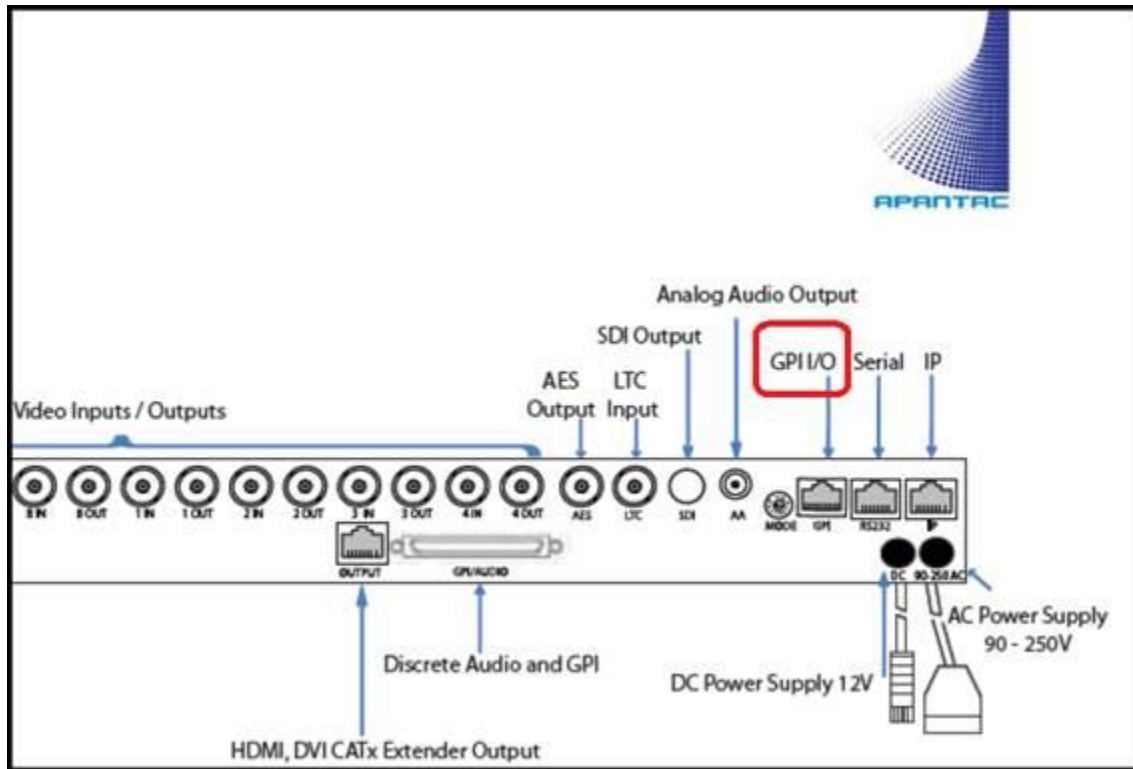
Model LI-8HD example

Port Setup:

From the main menu, click System and choose "Control Board Settings…".
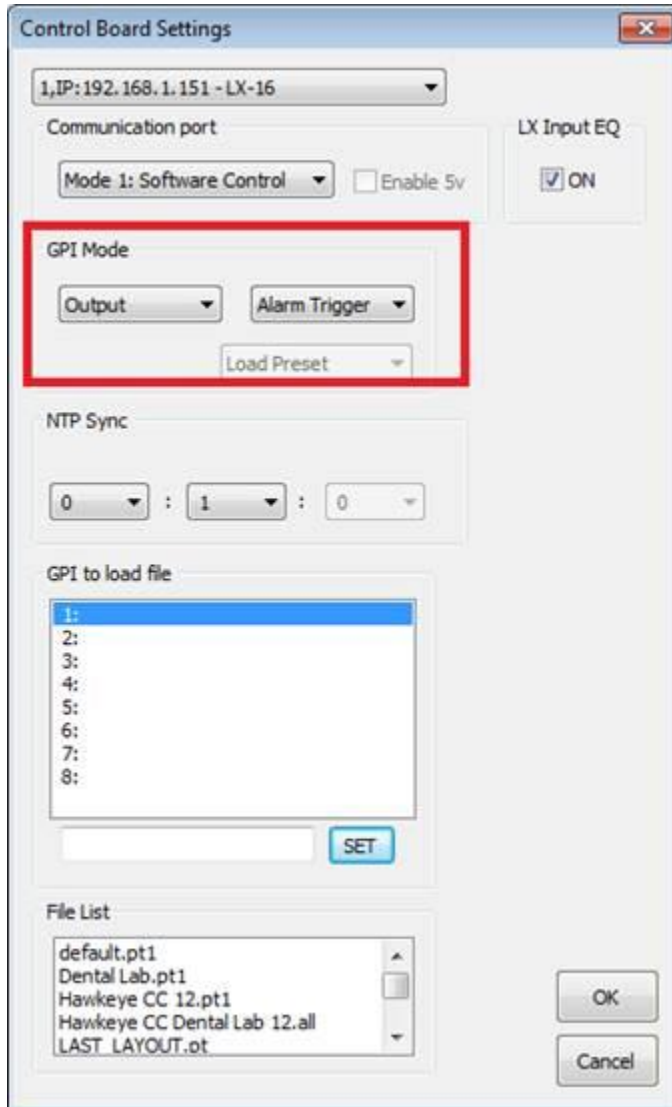
GPI Mode:

Input / Output: The port can act as either inputs or outputs, but not a mix of both. Choose "Output" for alarms to trigger external equipment.
(See the hardware manual for GPI/O specifications).

Alarm Trigger: For outputs this can be either Alarm Trigger or Free Trigger. Choose "Alarm Trigger".

Alarm to Port Output Configuration:

From the main menu, click System and choose "Set all windows Alarm to GPO...".
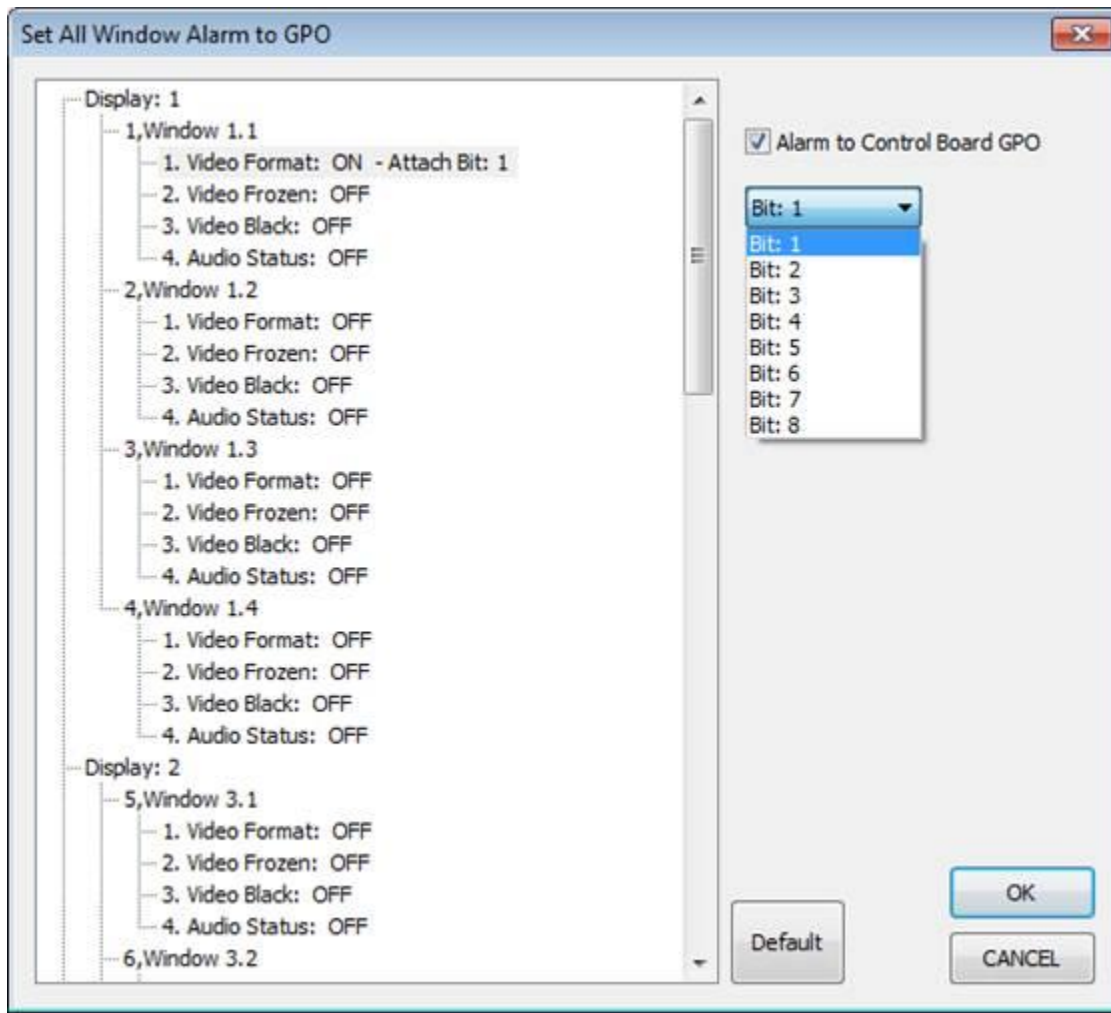
Select an alarm in the list on the left by clicking on it.

Mark the checkbox on the right to connect that Alarm to the Control Board GPO, and then select which GPO output bit (pin) the alarm should trigger.

Repeat for all desired alarms.

Safe Areas and Closed Captioning

Safe Area Lines

The Tahoma Multiviewers include the feature of superimposing two Safe Area lines over the video, and the additional feature of shading the area outside the safe area in order to emphasis the safe area video image.
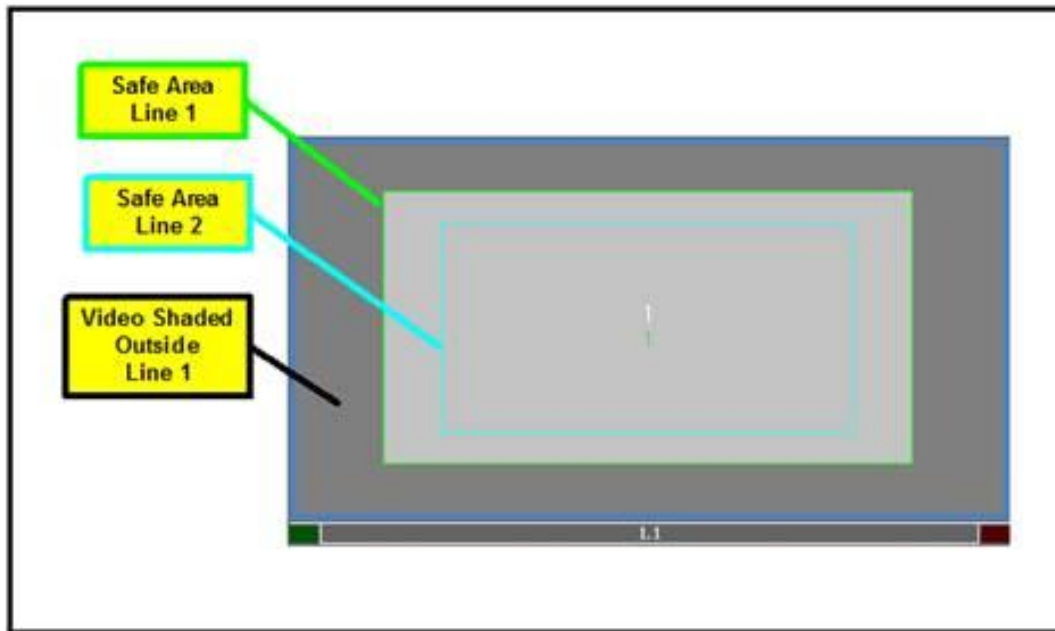
Hint: To keep appearances correct, first set and lock the Aspect Ratio of your video Window.

Set Safe Area…
Right-click on the desired Video Window and select "Set Safe Area" in the Context Sensitive Menu.
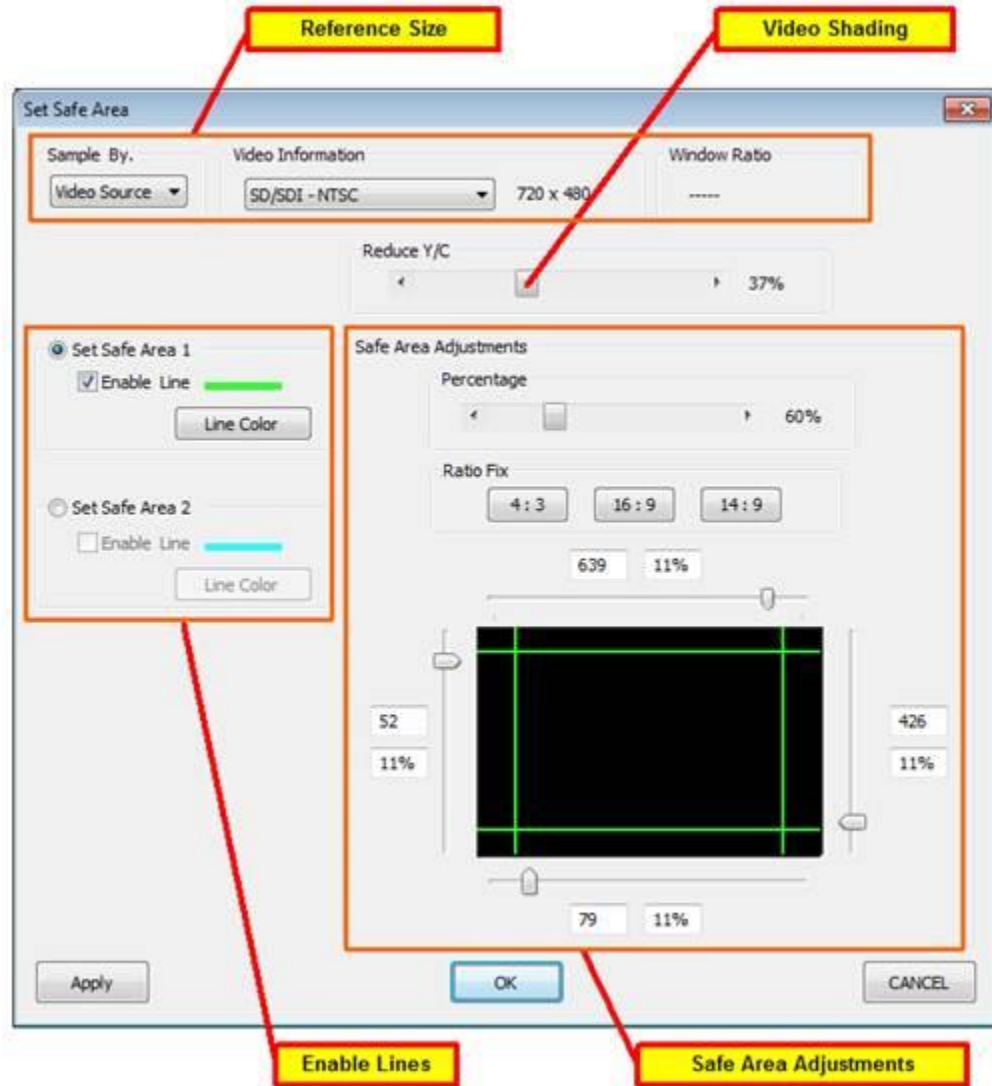
Reference Size Section:

Once configured the Safe-Area lines will remain proportional to the window whatever its size or aspect ratio. However, for design reference the dimensions of your video can be selected here. When changed, you will see the pixel sizes in the adjustment's section change.

Sample By

If the sampling is done by Video Source or by Window Size by using the "Sample By" drop down menu to select your preference.

Video Information

What video type the source is using through the Video Information drop down menu.

Window Ratio

n/a

Enable Lines Section:
Either or both lines can be enabled.

> **Set Safe Area 1**
> **Set Safe Area 2**
> Select either Safe Area 1 or Safe Area 2 to customize by clicking on the radio button next to their name.
>
> Draw the safe area border lines on the multiviewer output by checking the "Enable Line" box.
>
> Customize the Safe Area color by clicking the "Line Color" button.

Safe Area Adjustments Section:
First select Safe Area 1 or 2 in the Enable Lines Section. Configuration in this section pertains to which Safe Area is currently selected in the Enable Lines section.

> **Percentage**
> Quick adjust the safe areas to a percentage of the whole screen by using the "Percentage" slider, the ratio of the Safe Area can be set using the "Ratio Fix" buttons. Percentage adjustments center the area both vertically and horizontally.
>
> **Ratio Fix**
> Sets left and right lines to the aspect ratio based on the positions of the top and bottom lines. Left and right lines are centered horizontally. (Top and bottom lines remain unchanged.)
>
> **Line Adjustments (Left, Right, Top, Bottom)**
> Freely adjust the Safe Area boxes by dragging on the arrows along the outside of the preview screen to create any rectangular Safe Area
>
> **Apply Button**
> Save the Safe Areas by clicking the "Apply" button to apply the settings and then return to this screen or by clicking the "OK" button to save the settings and exit the screen.

Video Shading Control:
This control applies to the area outside the Safe Area 1 lines.

> **Reduce Y/C**
> Make the area outside of the safe zones more or less opaque, adjust the "Reduce Y/C" bar (0% is completely transparent, 100% is completely opaque).

Apply / OK :
Save the Safe Areas by clicking the "Apply" button to apply the settings and then return to this screen or by clicking the "OK" button to save the settings and exit the screen.

Closed Captioning (CC)

To set Closed Captioning properties, right-click on the desired Window and select "Set Video CC Configuration" in the Context Sensitive Menu.
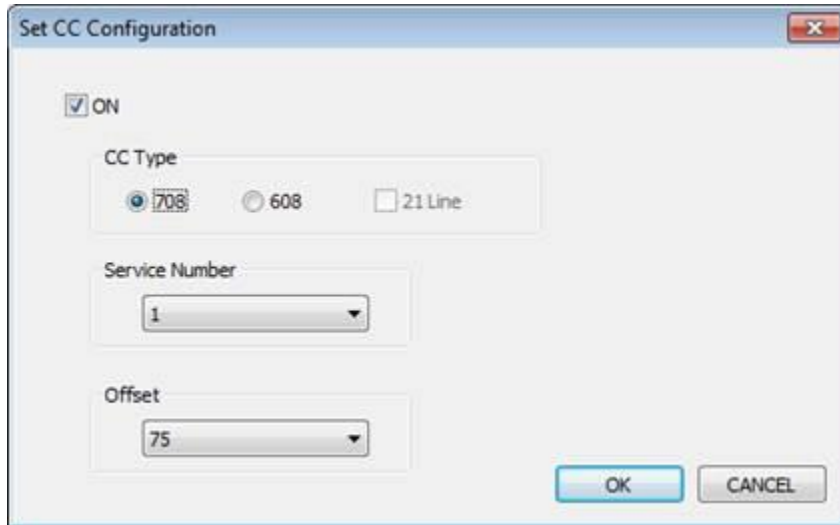
• Enable CC by checking the "ON" box

• Choose either 708 or 608 type CC
    21 Line can be selected when Type 608 is chosen.

• Change the Service Number

• Change the CC offset
    (Vertical positioning of the CC text as a percentage of the window from the top.)

Additional Objects

Analog and Digital Clocks

Each Video Processing Module (VPM) of the multiviewer includes a limited number of additional objects including one Analog Clock and one Digital Clock.
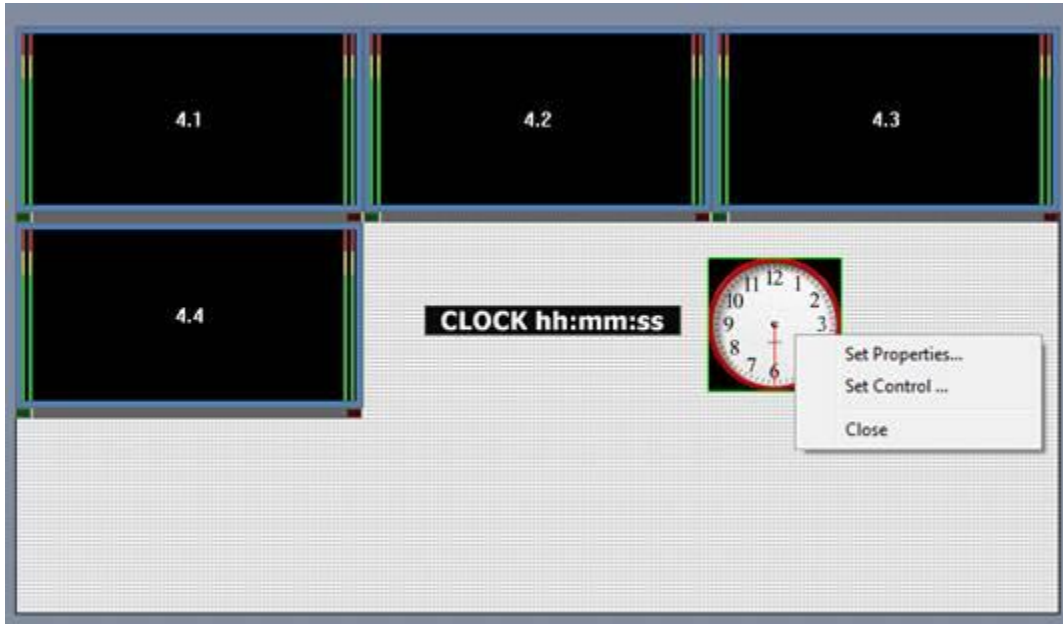
Enabling / Disabling
To enable the clocks, drag them from the object bin onto the workspace. To remove the clock, select it and press the delete key, or right-click for a context menu and choose close.

Size / Position
The size of the analog clock is fixed by the clock-face image (its "skin"). To resize the analog clock the skin must be customized. See the section on Analog Clock Skins.

The size of the digital clock is set in the same way as other label objects, where the width is sized by mouse but the height is determined by the font size.

Positioning is the same as other objects.

Set Properties…

Right-click a clock object and choose Set Properties from the clock's context menu.
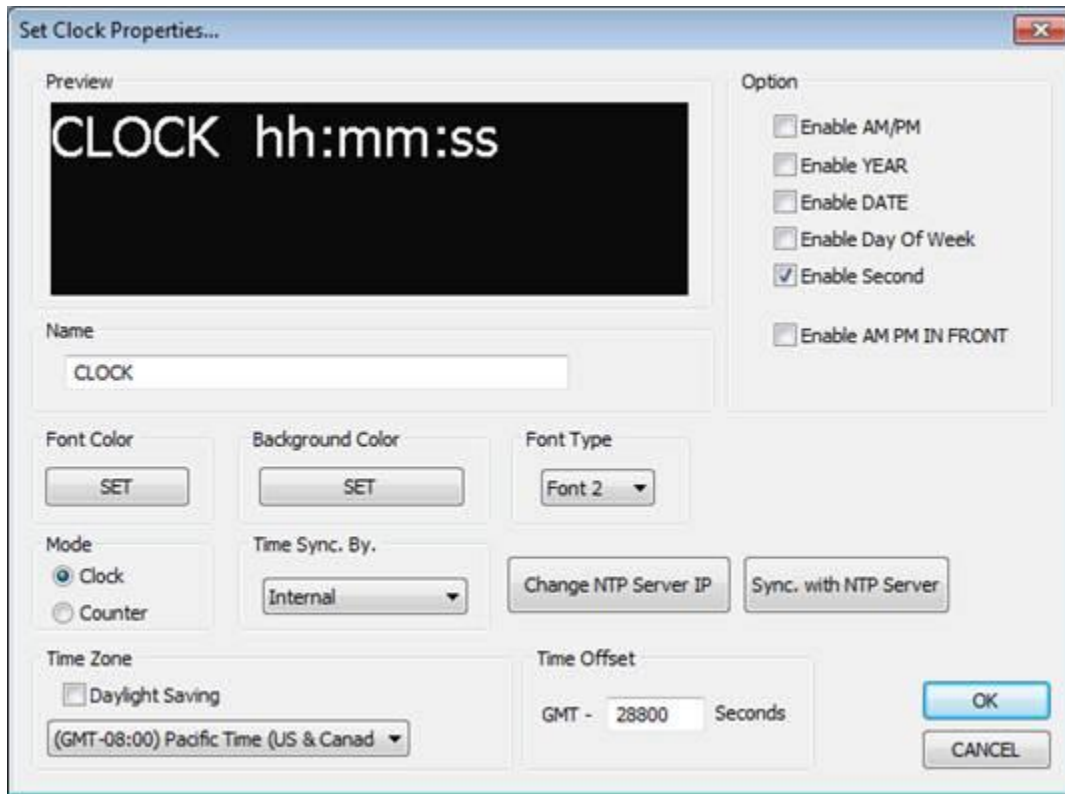
Preview
This area displays a preview of the digital clock.
Not applicable to Analog Clocks.

Option
This section provides options for the digital clock. Mark the checkboxes as desired to enable the options.
Not applicable to Analog Clocks.

Name
This text will be shown at the beginning of the digital clock's complete text. To place it above or below a digital clock use an independent label object.
Not applicable to Analog Clocks.

Font Color / Background Color
Click the set buttons to open a color dialog window for selecting colors.
Not applicable to Analog Clocks.

Font Type
Select from the four built in fonts to vary the size of the digital clock.
Not applicable to Analog Clocks.

Mode

Select whether the object displays the time of day or acts as a count-down or count-up timer.
Not applicable to Analog Clocks.

Time Sync. By

This selects the source for synchronizing the clock to the correct time.

None: this option is set when the clock mode is set to "Counter".

Internal: this option utilizes the multiviewer's internal CPU clock for reference.

LTC: this option utilizes an externally provided Timecode generator connected via the "LTC" BNC connector on the rear panel of the multiviewer.

NTP: this options synchronizes the clock to a Network Time Protocol.

Change NTP Server IP

This window configures the TCP/IP parameters for the NTP server of your choice. IP addresses can be provided by your I.T. department or can be found by searching the internet. Internet NTP servers are provided by both private companies and government agencies. Within the United States the National Institute of Standards and Technology (NIST) maintains a number of NTP servers. (www.NIST.gov)

The port number should be set to 123.

Note: The Subnet Mask and Gateway are not part of setting the NTP, but are part of setting the multiviewer's network interface. See the section on "Changing IP Address" in the Getting Started chapter.

Sync. with NTP Server

Manually executes a synchronization of the clock with the configured NTP server. This is useful for testing the TCP/IP connection to the NTP server. To observe the correction by NTP synchronization, first go to Set Control and adjust the clock to an incorrect time.

Note: The clock will synchronize with the NTP server on a periodic schedule. See "NTP Sync Schedule" section below.

Time Zone and Daylight Saving

Use this pull-down to select your appropriate time zone. Mark the "Daylight Saving" checkbox to adjust the time by one hour. The adjustment for Daylight Saving must be changed manually upon the day of the year it changes. This is not automatic due to the many differences in laws and customs.

Note: selecting a time zone alters the number in the Time Offset.

Time Offset

Selecting a time zone will automatically set this number. You can alter this number to adjust your clock to a non-standard time. I.E. you can have the clock be 5 seconds ahead of time.

Set Control… (analog clocks)

Right-click a clock object and choose Set Control from the clock's context menu.
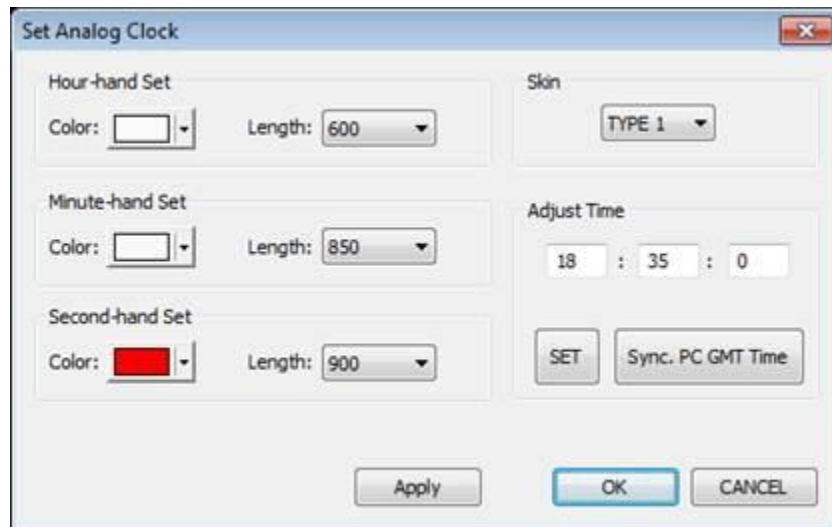
Hour-Hand Set
Minute-Hand Set
Second-Hand Set

> **Color:** opens a color dialog box for choosing the color of the clock hand object.
>
> **Length:** sets the length of the clock hand object. Values range from 0 to 999 and are relative to the distance from the center to the edge of the clock face. (i.e. 500 would be 50% of the distance from center to edge).

Skin

This selects one of three clock face background images. See the section on Analog Clock Skins.

Adjust Time

To adjust the clock time manually enter the time in Hours, Minutes, and Seconds, and then click the SET button. Use the "Sync. PC GMT Time" button to set the clock to the same time as your computer's operating system clock.

Set Control… (digital clocks)

Right-click a clock object and choose Set Control from the clock's context menu.
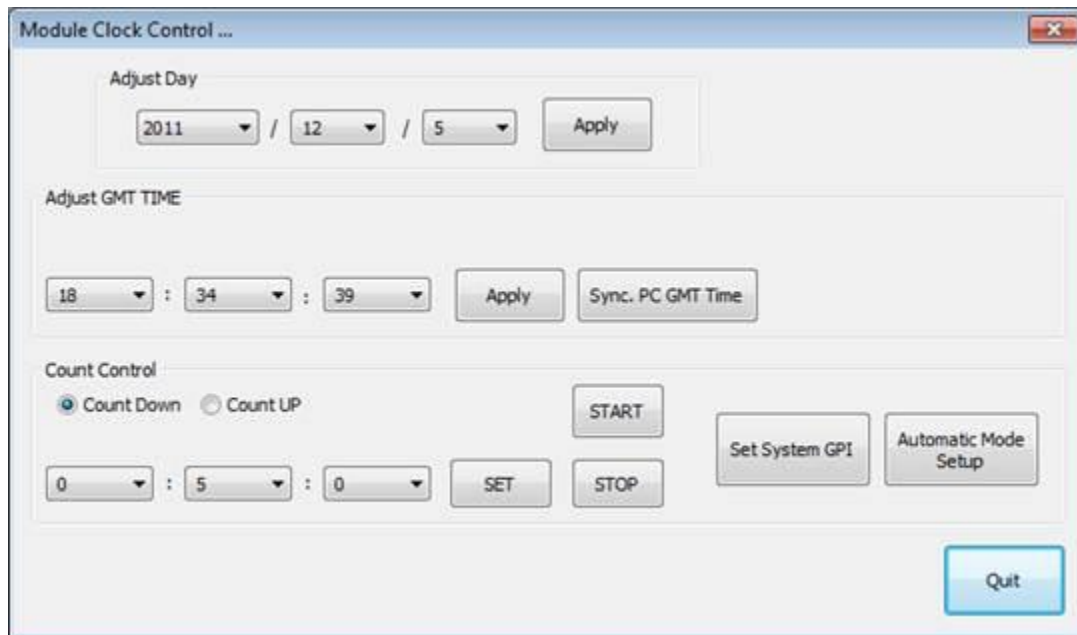
Adjust Day

To adjust the clock date manually enter the date by Year, Month, and Day, and then click the Apply button.

Adjust Time

To adjust the clock time manually enter the time in Hours, Minutes, and Seconds, and then click the Apply button. Use the "Sync. PC GMT Time" button to set the clock to the same time as your computer's operating system clock.

Count Control
See the separate section on Timers.

NTP Sync Schedule

From the top level menu click System and choose "Control Board Settings…"

Here you will find a section for "NTP Sync". This sets the amount of time between consecutive NTP synchronizations. The three pull-downs represent "Hours", "Minutes", and "Seconds" (greyed out, not applicable).
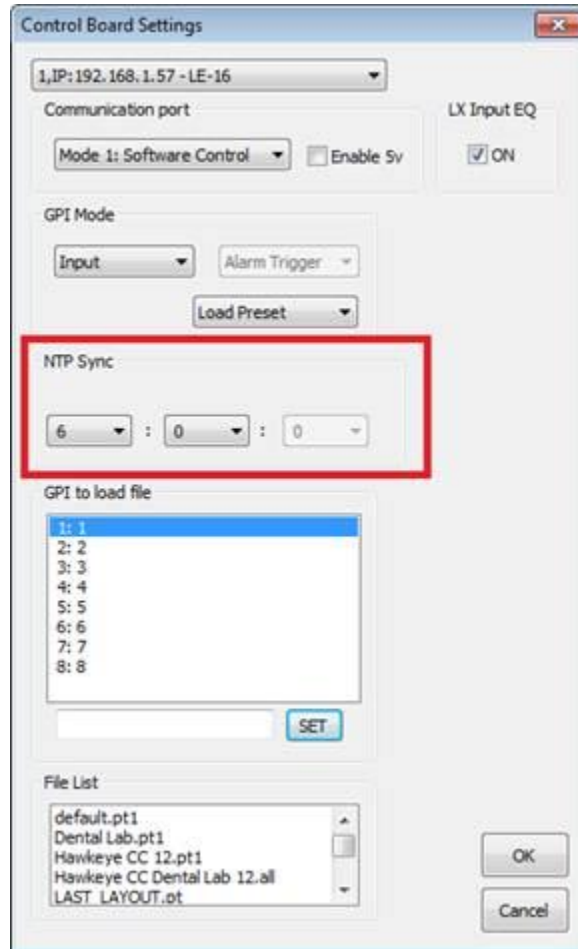
Clock Timers

Digital Clock objects can be converted into count-up or count-down timers.

Set Properties…
Right-click a clock object and choose Set Properties from the clock's context menu.
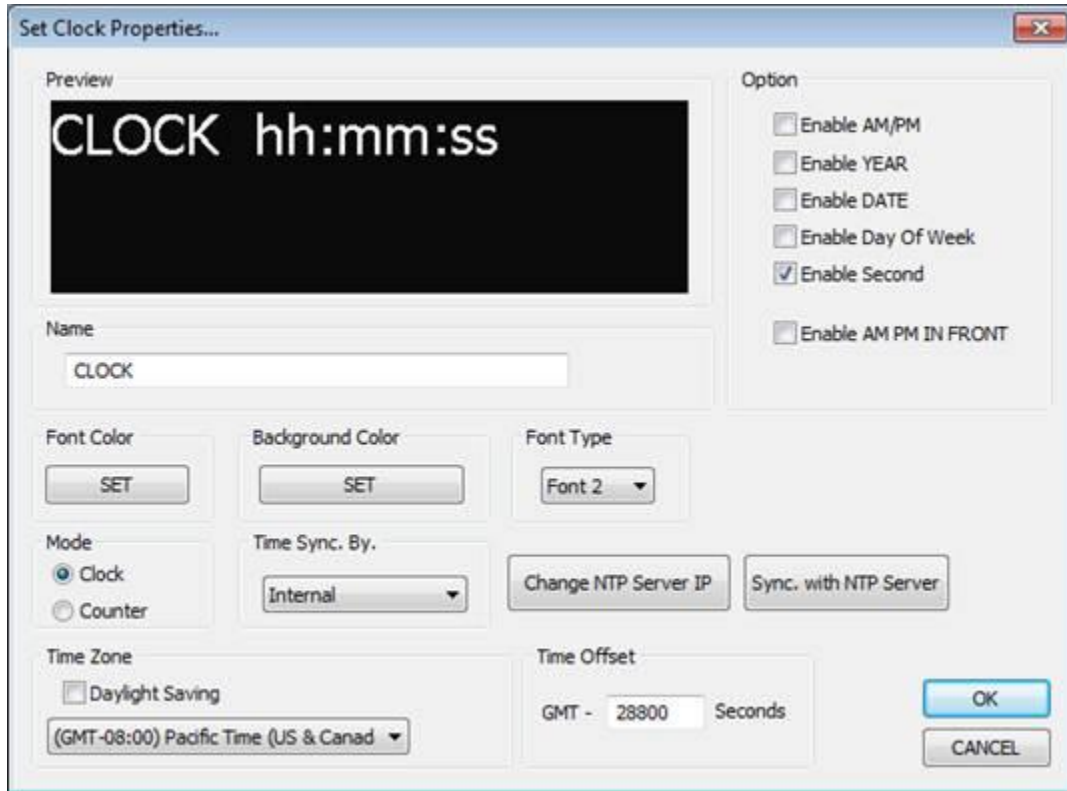
Mode
Select whether the object displays the time of day or acts as a count-down or count-up timer. *Not applicable to Analog Clocks.*

Time Sync. By
Automatically set to "None" when the clock mode is set to "Counter".

Set Control…
Right-click a clock object and choose Set Control from the clock's context menu.

Count Control Section

Count Down / Count UP
Choose whether the timer clock will count down to zero, or count up.

Timer Settings and SET button

This will set the current value of the timer in Hours, Minutes, and Seconds. After adjusting the pull-down values, click the SET button. The Timer object on the multiviewer display will show the changes immediately.

START / STOP
Starts or Stops the currently selected clock timer.

Set System GPI

This button opens the following window where you can set the timer to be controlled by discrete GPI inputs to the multiviewer.

The GPI/Audio connector of each Video Processing Module (VPM) provides 8 GPI inputs which are normally used for the Tally-1 and Tally-2 control of the 4 associated video windows. The Tally-2 inputs can instead be used to control the digital clock timer of that VPM. Bits 0, 2, 4, and 6 are reserved for tallies. Because the bits start at 0, the 1st GPI input corresponds to bit 0, the 2nd GPI bit 1, and so on.

The VPM is shown in the upper left corner. In this example VPM 4 of an LE-16 associated with video windows 4.1, 4.2, 4.3, and 4.4.

The GPI inputs can be changed as shown above to "Count UP", "Count Down", "Pause", and "Load next preset time".

The GPI input to "Load next preset time" will set the timer to the Counter Presets set on the right side of this window. Each time the GPI is triggered the timer is set to the next preset, progressing continuously through the list of presets. If you intend to use only one preset time you must set all presets to that same time.

Automatic Mode Setup

This button opens the following windows where the timer can be configured to set itself and start at pre-determined times of the day.

First confirm the time zone the timer should be referenced to.
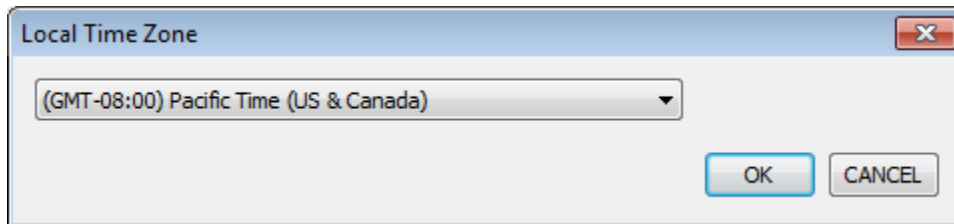
Count Direction
Select either Up or Down.

Duration
Sets the time to count down from, or the time that count up ends. (Count down direction counts to zero and stops. Count up direction counts from zero to the duration time and stops.)

Target Times
The time of day at which to execute. Mark the checkbox to enable, then set the time of day in Hour, Minute, and Seconds. Up to four execution times can be configured.
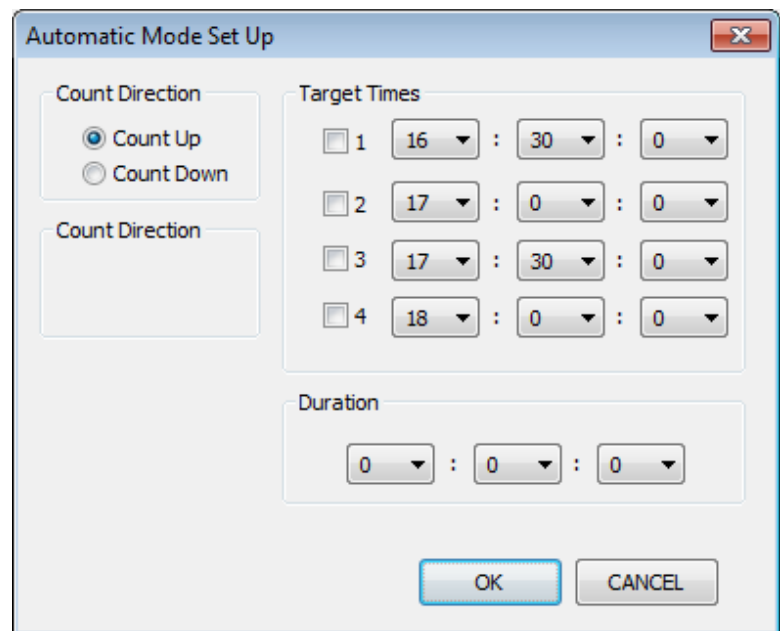
Timer Control by AXP

Clocks and Timers can be controlled by having the multiviewer execute an AXP (Apantac eXchange Protocol) command. AXP commands can be sent via TCP/IP, RS232, or in response to Control Board GPI inputs. For TCP/IP and RS232 see the chapter on AXP.

Timer Control by Control Board GPI

- Under the "GPI Mode" section, set the mode to "Input" and change the type of input from "Load Preset" to "ASCII Command".
- Under the "GPI to load file" section, click on the GPI input you want to use.
- Below that, enter the AXP command and click the SET button.

In this example the AXP command "Timer 3 D – 00 00 30" will set the digital clock of the 4th VPM to 30 seconds and begin counting down.
See the AXP chapter for details of the syntax.

Custom Skins for Multiviewer Analog Clocks

What is a skin?

The analog clock is composed of 4 separate objects; the three hands of the clock, and the clock face. The clock face is merely a background image that the moving hands are displayed over. This background image is the "Skin".

How many clock skins are available?

Multiviewers, and the Director software that configure them, store and work with three clock skins.

How do you choose a clock skin?
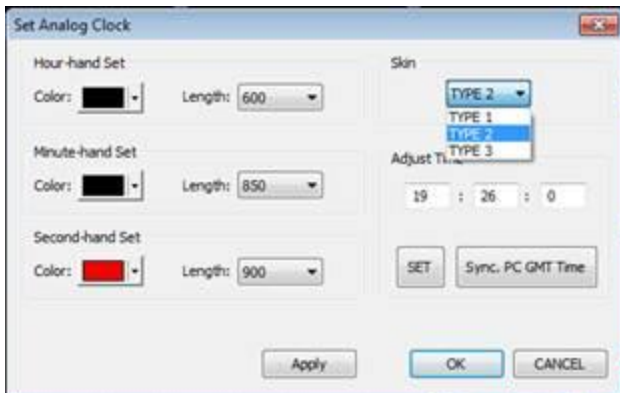
They are chosen in the Set Control options of the clock object and are referred to as: Type 1, Type 2, and Type 3. Within Director drag the analog clock icon from the elements box on the left onto your display area. This will place the clock on your display. Now right-click the clock and choose 'Set Control' in the context menu. Select from the three Types in the skin pulldown and click OK

What type of file is the clock skin image?

Director works with an ".OMP" file type. Director software references the three skin Type files (i.e. AnalogClock_skin_1.omp) within the "default" directory within its "eModuleSave" directory.   These are then part of the OSD (On Screen Display) data saved to the flash memory of the multiviewer when configuring with Director. Before customizing you should make a copy of these files to preserve the original skin images.

How do you customize a skin?

Customizing a clock skin involves replacing the image of one of the three built-in skin Types with your own image, and then selecting that Type within the clock's options within Director.

Within Director choose "Theme Elements Manager…" in the System menu. Scroll the list and choose one of the "Analog Clock Skin" elements in the list. Click the 'Load File' button and select your OMP image file of your custom clock.
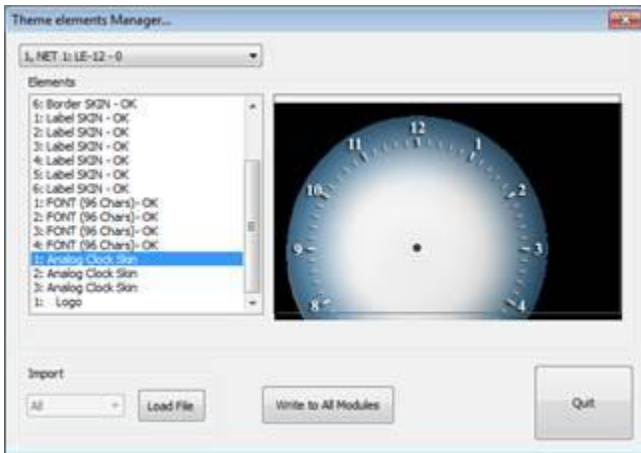
But what's an OMP file and how do I make my image into one?

No problem. It's not necessary to find an OMP editor, or to edit an image within the OMP format. We can supply a program which will convert any standard Windows Bitmap file (.bmp) into our OMP format.

e_Picture2OMP_Converter.exe

Start the program. Click the 'Converter' button, choose your bitmap file and the program will convert it. When it's finished it will display the result. Click Quit. The OMP file will be in the same directory as your bitmap file.
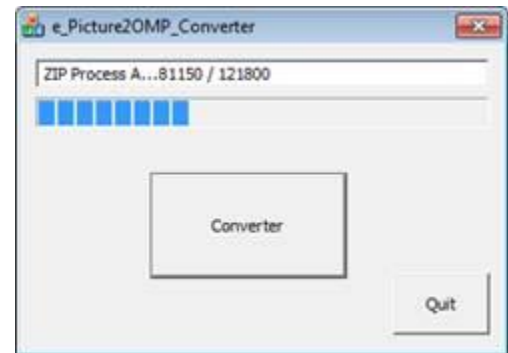
What are the bitmap image requirements?

There is a file size limit that director can load into the skin type. The file size varies roughly with the bitmap resolution. Keeping your image less than 350x350 pixels should suffice.

The bitmap pixel size determines how large it displays on your multiviewer (Director does not scale/size the Analog clock object). Predetermine how large you want your clock to be. Consider the resolution that you have set the multiviewer output to.

For a clock that appears round just make the corners of your image black to match the background of the multiviewer. Transparent layering and all that is not required.

How do I save my work?

When you Load your OMD file into Director's Theme Elements Manager, Director replaces one of its three clock skin files within its eModuleSave folder.

To insure your new skin is copied into the Multiviewer, check the "Save Theme elements to Flash" checkbox upon exiting Director.

Logo Objects (custom images)

Each Video Processing Module (VPM) of the multiviewer provides for one Logo object.

Enabling / Disabling

To enable and import a custom image drag and drop the "Logo" icon from the Object Bin onto the Workspace and a dialog will appear to help you locate the image. The Director will accept either .omp files or .bmp. Select your file and click "Open". The Director will now import your image. The Director will not be able to import large images.

To remove the Logo, select it and right-click for a context menu and choose close.

Selecting an Image File

Enabling a Logo object immediately brings up the File-Open window. The "file type" can be changed from (*.omp) to (*.bmp) in order to select a standard MS-Windows BMP image file. *Shown in the red rectangle below.*
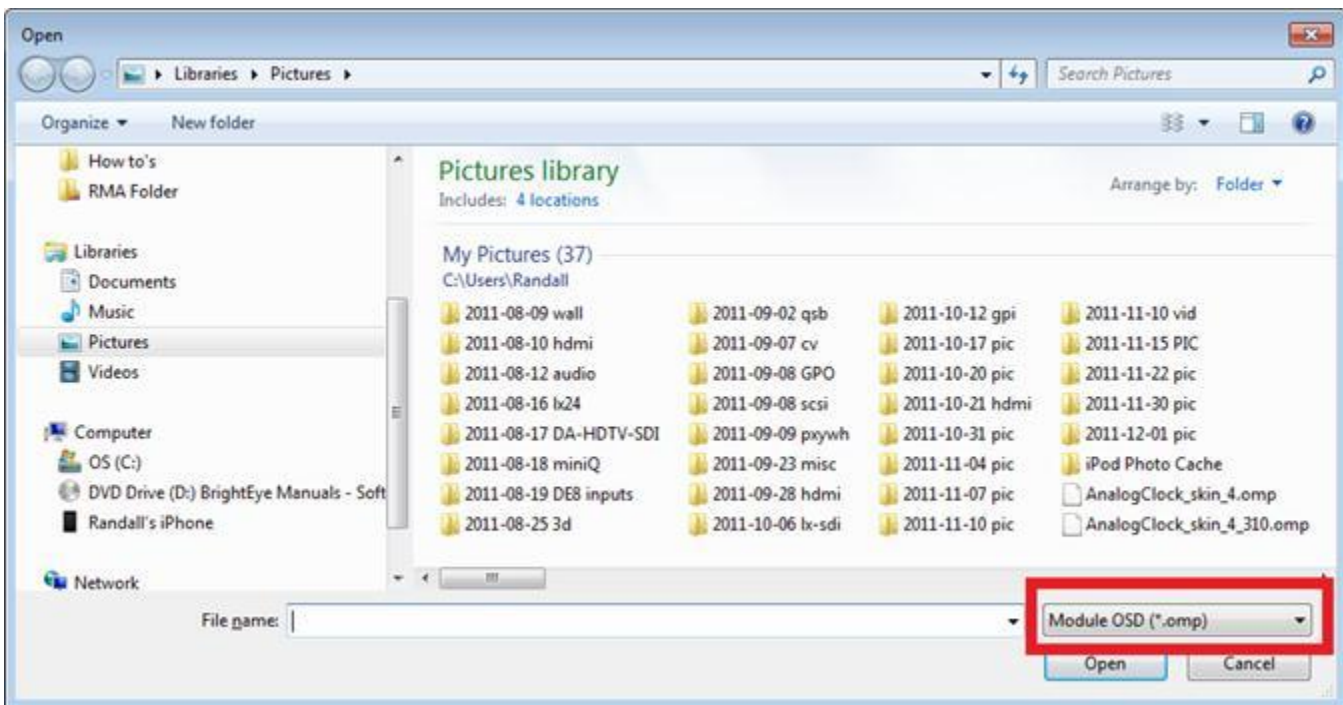
If you select and open a BMP image file, the file will then be converted to the LOGO.omp file. The following two windows will be shown.
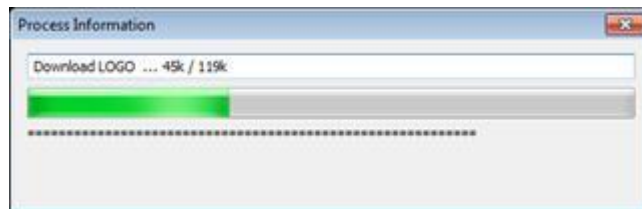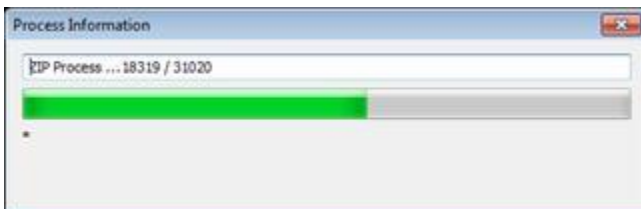
Size / Position

The size of the Logo is fixed by the object's image file. To resize the Logo the image must be altered and then reloaded. Positioning is the same as other objects.

Hint: use a video window to get an idea of the pixel size your image will need to be. Resize a video window to the size you would like your logo to be (ignore the UMD and tallies, use the video border as reference). Then right-click and choose "size and position" to see the width and height in pixels. Use any image editor to resize you BMP logo image to that pixel size, and then enable and load the logo within Director.

Saving

The logo.omp image file will automatically be saved within your configuration directories on your computer.
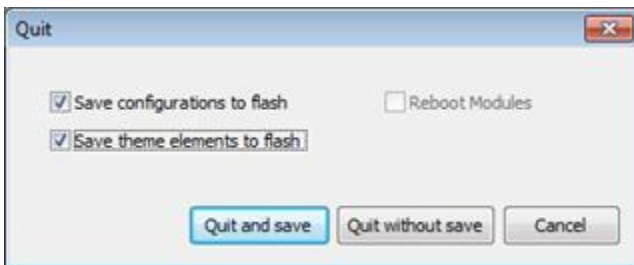
To insure your new logo is copied into the Multiviewer, check the "Save Theme elements to Flash" checkbox upon exiting Director.

Temperature Alarm object

This object monitors the internal temperature of the Apantac Tahoma Multiviewer, and appears on the multiviewer display when alarm limits are exceeded.

Each multiviewer output / display can have one Temperature Alarm object.
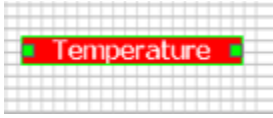
Enabling / Disabling

To enable the temperature alarm object drag and drop the "Temperature" icon from the Object Bin onto the Workspace. To remove the object, select it and press the delete key or right-click for a context menu and choose close.

Size / Position

The size of the Temperature Alarm object is set in the same way as other label objects, where the width is sized by mouse but the height is determined by the font size. Positioning is the same as other objects.

Note: similar to other additional stand-alone labels, the Temperature Alarm object must be positioned outside of the video windows in order to be displayed.

Hint: to see how the object will actually appear on the multiviewer display set the High Alarm setting to 20 degrees Celsius, which will cause it to trigger the alarm.

Set Properties…

Right-click the Temperature Alarm object and choose Set Properties from the object's context menu.

Preview
Visual preview of the font selection.

Font Type
This allows selecting a font from the four built-in fonts. This determines the vertical size of the object. Readjust the horizontal size after setting the font to insure the entire alarm text will be displayed when the alarm is triggered.

Alarm High Set
- **High:** Enter the temperature at which the alarm will trigger and show the Temperature Alarm object on the multiviewer display. Temperatures are entered in Celsius.
- **Text Color / Background Color:** Click the color box to open a color selection window.
- **Name:** Enter the text message to display when the alarm is triggered. (16 character limit)
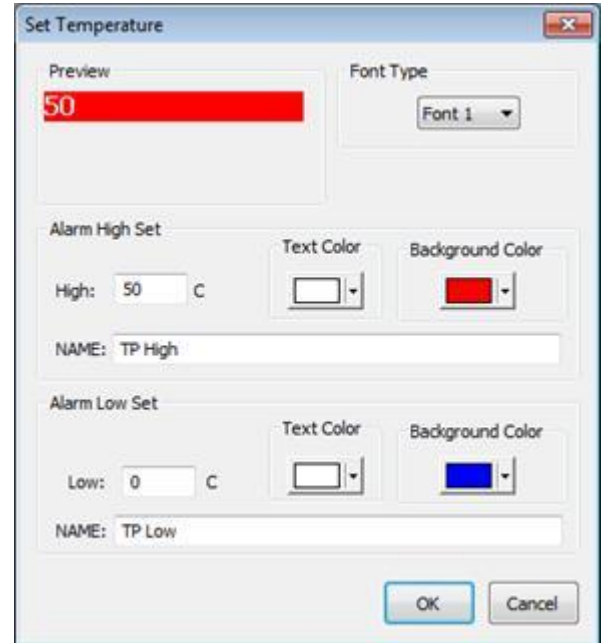
Alarm Low Set
- **Low:** Enter the temperature at which the alarm will trigger and show the Temperature Alarm object on the multiviewer display. Temperatures are entered in Celsius.
- **Text Color / Background Color:** Click the color box to open a color selection window.
- **Name:** Enter the text message to display when the alarm is triggered. (16 character limit)

Saving Configurations

Saving and Loading Presets

The configuration of your multiviewer displays can be saved as "Preset" files. These files are saved both on your computer and internally to the multiviewer.

Presets can be recalled (loaded) by the multiviewer without using the Director software either by using the front panel buttons, by GPI/O, or by sending the unit an ASCII command.

Director can both save and load presets so that you can modify them.

The Current Configuration:

In addition, the current configuration of the multiviewer can be saved internally so that if the unit is rebooted (power cycled) its configuration is restored. This internal file is known as the "lastlayout" preset. Whenever another stored preset file is loaded on the multiviewer the "lastlayout" is over-written with this configuration.

Note: The "lastlayout" file is a temporary file. (It cannot be loaded like a Preset file.) Each time a Preset is loaded, it is over-written. If you want your edited changes to be permanently saved, save the configuration as a named Preset file also.

Preset Files:

Preset configurations can be stored in two ways, either as an individual display's configuration, or as a global configuration. Global presets load and configure all the displays of all the multiviewers you're currently editing.

Global Presets receive a file suffix of ".all", individual Display Presets receive a file suffix which notates its display number (".pt1" for display 1, ".pt2" for display 2).

When starting the Director Software . . .

. . . please note the Retrieve Options.

Checking the "ON" option will retrieve the current configuration of the multiviewer onto your computer for editing.

Checking the "Preset" option will retrieve all the saved Preset files on the multiviewer and copy them to your computer for available editing.

If you leave the "ON" option un-checked the last configuration in edit on the computer will be loaded into the multiviewer and will replace the multiviewer's current configuration.
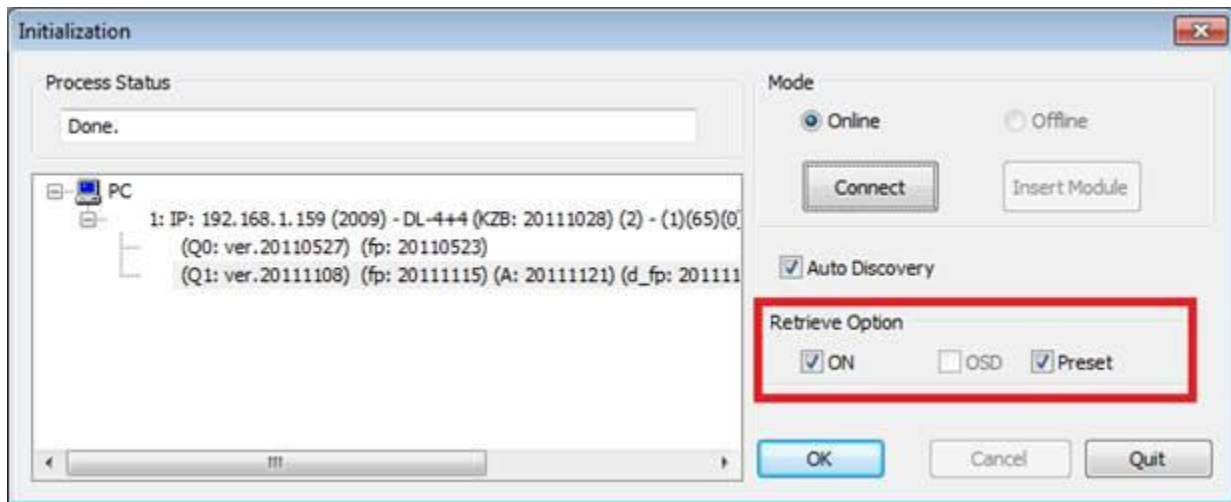
When exiting the Director Software . . .

. . . please note the Save Checkboxes.

When running the Director Software "Online" you are actively changing the current configuration of the multiviewer and your changes are reflected in real-time on its outputs. However, unless you save these changes to the multiviewer's flash memory they will be lost when the unit is rebooted.

Checking the "Save configurations to flash" stores the current configuration into the "lastlayout" file.

Checking the "Save them elements to flash" stores any changes you've made to skins, and other custom elements.
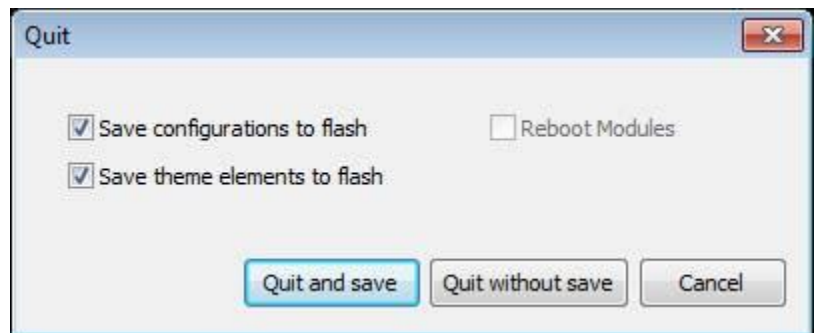
The "File" Menu:

File / Preset / Load…
You can load a preset for modification by selecting from the Top Level Menu, "File", "Preset", "Load". A dialog will then appear and allow you to select the preset you want to load. After selecting the file, click the "Load" button.

To load a preset for display 1, you must be have selected display 1 within Director. The Load command will only load those presets pertaining to the display you're currently editing.

Load
Select a file from the list and click the Load button.

Delete
Any Presets you no longer want can be deleted from this dialog window. Select the preset you want to delete as if you were going to load it, but instead press the "Delete" button.

Delete All Files
This will delete the entire list of presets.

Quit
Use the Quit button to exit without loading a preset.
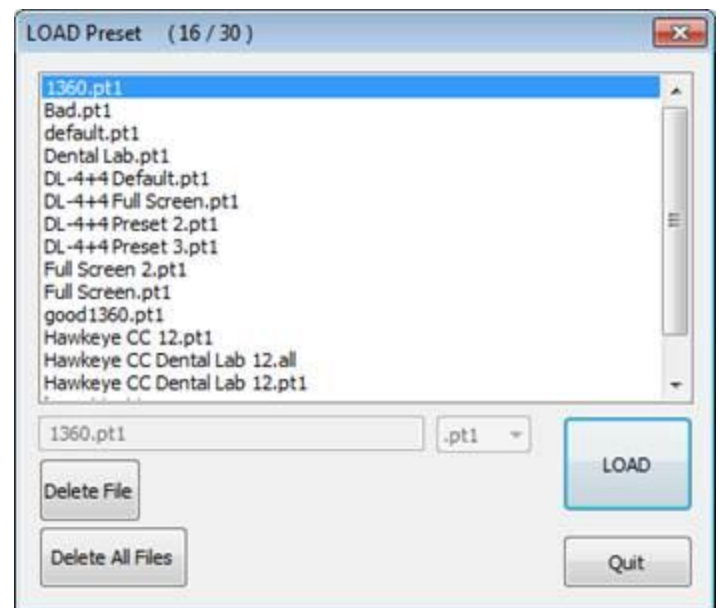
File / Preset / Save…

You can save your current preset to your computer's HDD if you're offline, or to the module and the HDD if you are online, by selecting from the Top Level Menu, "File", "Preset", "Save". A dialog will then appear that will allow you to choose the name of the file. Click the "Save" button to save it.

Save

Select a file from the list to use that name and over-write the file, or type a new file name into the text-box below the list. Then click the Save button.

The file extension is automatically provided. Do not enter it in the text-box if typing a new name.

All other buttons are the same as the Load dialog.
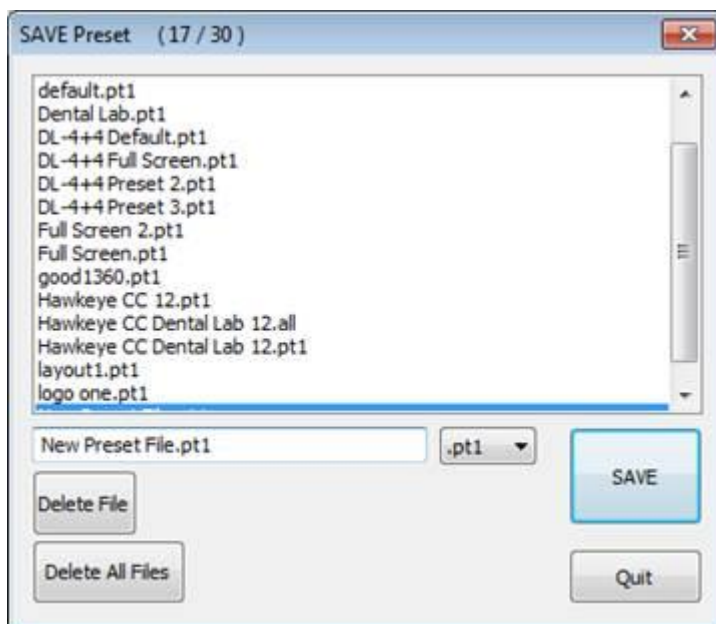
File / Preset / Restore Presets to Modules …

This command will erase all the preset files stored on the multiviewer and will replace them with the presets that are stored on your computer. This should only be necessary in special circumstances.

File   /   Global Preset   /   Load…
The Global Preset Load and Save dialog windows function in the same manner as the individual presets.

The "All Display Files" listing is shown in addition to the file list to show the organization of the files. The pull-down below it aids in sorting and filtering your file list for easier reference.

Since they deal with all displays, it is not necessary to be editing any particular display to load or save these presets.

Load
Select a file from the list and click the Load button.

Delete File
Any Presets you no longer want can be deleted from this dialog window. Select the preset you want to delete as if you were going to load it, but instead press the "Delete" button.

Delete All Presets
This will delete the entire list of presets.

Cancel
Use the Canel button to exit without loading a preset.
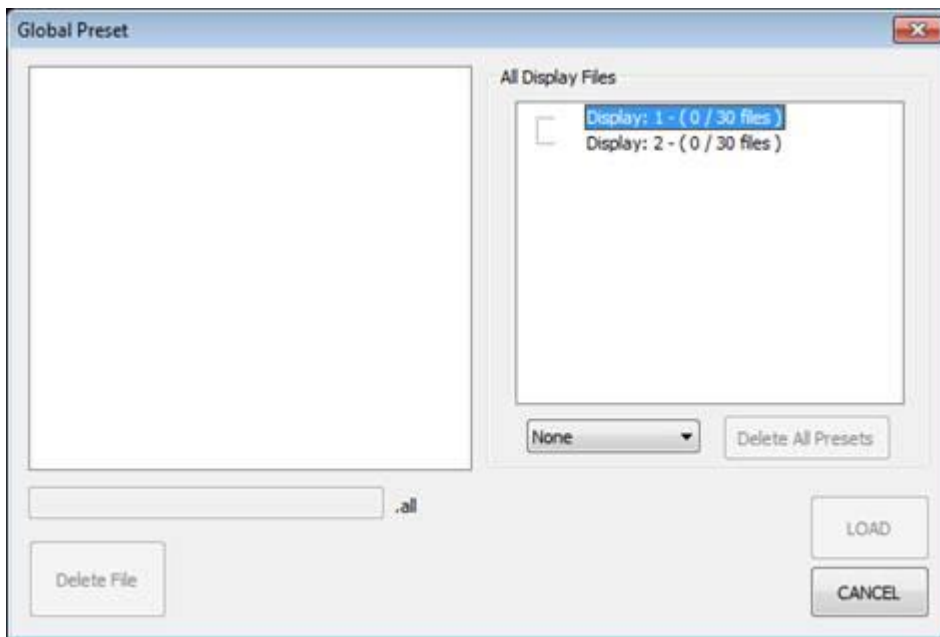
File   /   Global Preset   /   Save…
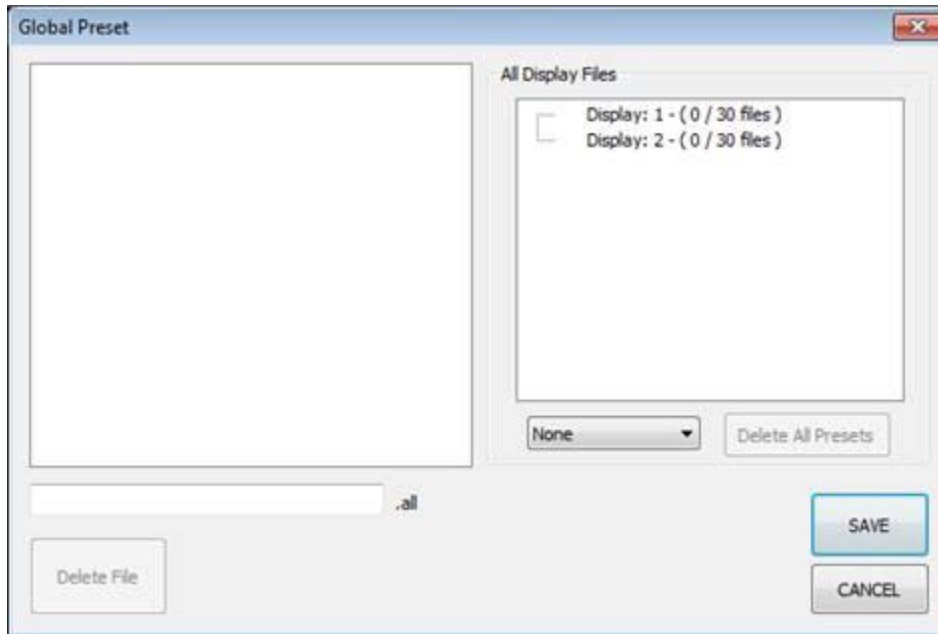
> **Save**
> Select a file from the list to use that name and over-write the file, or type a new file name into the text-box below the list. Then click the Save button.
>
> The file extension is automatically provided. Do not enter it in the text-box if typing a new name.
>
> All other buttons are the same as the Load dialog.

File   /   Module

Your configuration and themes can be flashed onto the multiviewer so that whenever the multiviewer restarts, it will automatically load the flashed setup.

These commands perform the same functions as the checkboxes that occur during exiting the Director software.

File   /   Module   /   Save Configuration to Flash …
This allows you to save your current configuration to flash by selecting from the Top Level Menu, "File", "Module", "Save configurations to flash". This will only work if the Director is in online mode.

File   /   Module   /   Save Theme Elements to Flash …
This allows you to save your current themes, such as custom fonts and skins you may have imported, to flash by selecting from the Top Level Menu, "File", "Module", "Save themes to flash". This will only work if the Director is in online mode. You also must have already loaded the themes onto the multiviewer.
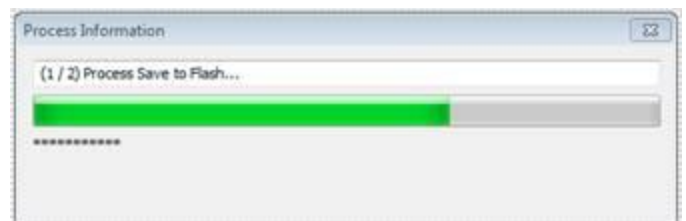
Recalling Presets

Presets can be recalled (loaded) by the multiviewer without using the Director software.

They can be recalled by:
- The front panel buttons
- External hardware connected via the Control Module GPI/O
- Sending the unit an ASCII command via RS232 or TCP/IP

Front Panel Preset Recall

Front Panel Configuration
To set the Front Panel presets, using the Top Level Menu, select "System", then "Front Panel Definition". There you can set which saved preset should be set to which preset recall.
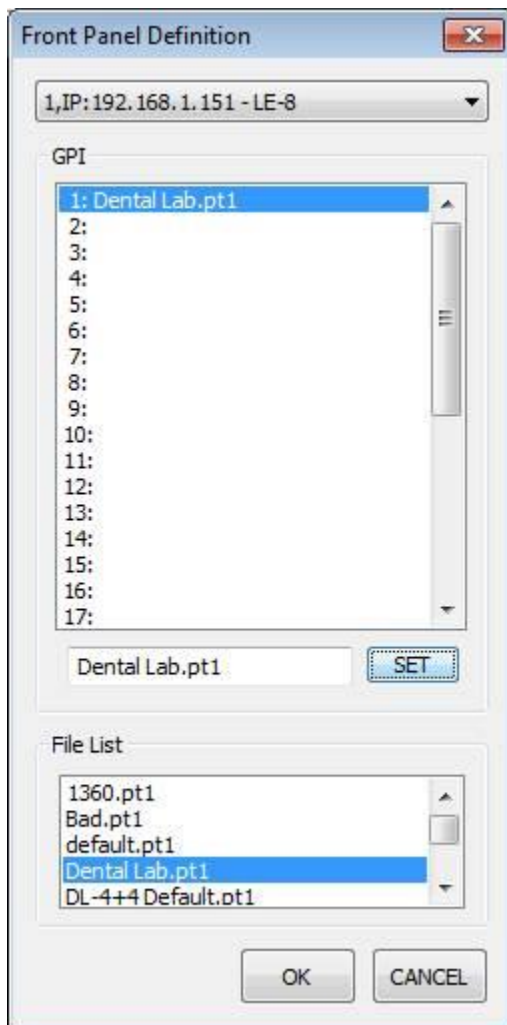
Select which Multiviewer unit you want to configure from the top pull-down.

GPI (list)
This list shows the 30 preset button positions.

File List
This shows the Preset files that are saved either on the unit or on the computer.

Procedure:
- Select a position in the GPI list
- Select a preset in the File List
  (the name appears in the textbox)
- Click the SET button
- Click OK to save and exit the window.

Front Panel Operation
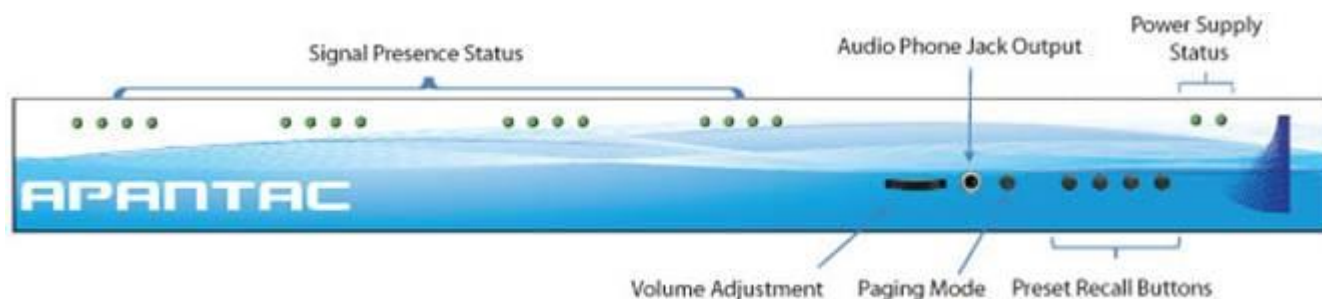
Procedure:
- Press the "Paging Mode" button twice.
  -The "Signal Presence Status" LED's will all go off.
  - One of the first eight "Signal Presence Status" LED's will blink green indicating the Page number.
- Press the "Paging Mode" button to cycle through the eight pages to the desired page.
- Press the desired "Preset Recall Button". (numbered 1 – 4)
  -The Multiviewer will load the Preset as configured above.
- After 30 seconds of button inactivity the front panel will return to normal mode.

Page as indicated by blinking green LED	Preset Recall Button 1	Preset Recall Button 2	Preset Recall Button 3	Preset Recall Button 4
Page 1	Preset - 1	Preset - 2	Preset - 3	Preset - 4
Page 2	Preset - 5	Preset - 6	Preset - 7	Preset - 8
Page 3	Preset - 9	Preset - 10	Preset - 11	Preset - 12
Page 4	Preset - 13	Preset - 14	Preset - 15	Preset - 16
Page 5	Preset - 17	Preset - 18	Preset - 19	Preset - 20
Page 6	Preset - 21	Preset - 22	Preset - 23	Preset - 24
Page 7	Preset - 25	Preset - 26	Preset - 27	Preset - 28
Page 8	Preset – 29	Preset - 30		

Control Module GPI/O Preset Recall

Control Module Configuration
To configure the GPI/O; using the Top Level Menu, select "System", then "Control Board Settings…".
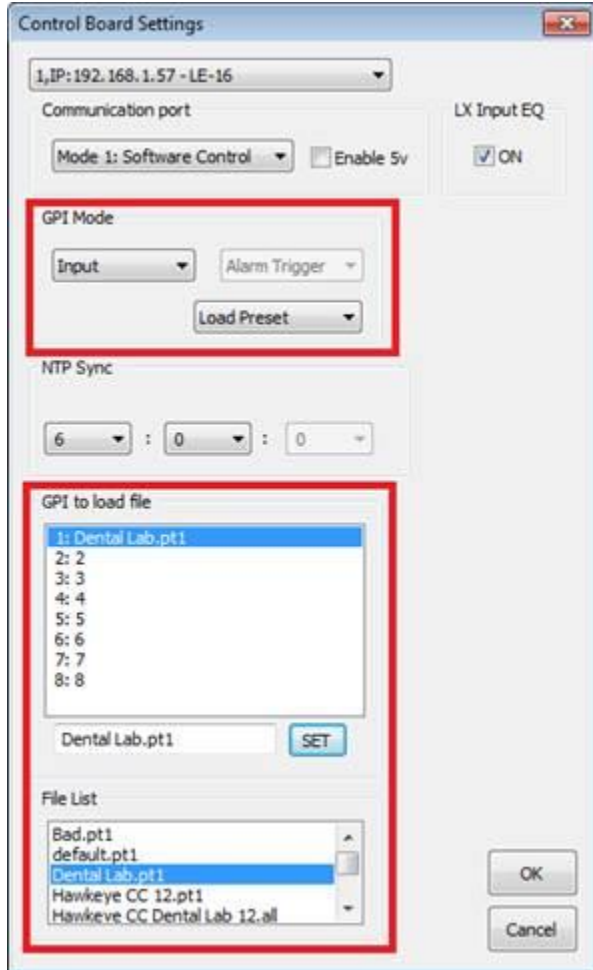
Procedure:

- Set the GPI Mode to "Input" and "Load Preset" as shown.

- Select a GPI input pin in the "GPI to load file" list.

- Select a preset in the File List.
    (the name appears in the textbox)

- Click the SET button.

- Repeat for all the desired GPI inputs.

- Click OK to save and exit the window.

Hardware Setup

GPI control of the Tahoma Multiviewer is performed through the RJ50 GPI connector of the Control Module circuit board.

Connect to the GPI by using the RJ-50 to DB9 conversion cable included in the Tahoma accessories.

Note: The RJ-50 has a 10 wire connector. Do not confuse with the RJ-45 to DB9 cable used for the RS232 port.

If you're not interfacing to other equipment, Apantac's "**Simple Preset Panel**" unit makes an ideal control console. (Extend with standard DB9 cable)

Simple Preset Panel alternative

Tahoma Multiviewer accessories also include DB9 Breakout interfaces.

Momentarily shorting any of the eight GPI pins to the Ground pin triggers the Control Board GPI event.

ASCII Command Preset Recall

The Apantac eXchange Protocol (AXP) command syntax for loading presets is:

`Load [FILE_NAME]`

Parameters	Values	Description
[file_name]	The preset file name.	*The file name must be bracketed with "| |".

Examples:
```
Load |MyFirstPreset.pt1|
```

Loads the preset file named "MyFirstPreset.pt1".

The enclosing brackets are the "vertical bar" character.

For more information on ASCII control of the Tahoma Multiviewer see the appendix on ASCII Control.

Copying, Moving, Archiving Presets

Preset file location…

This Apantac Director software is usually located in a folder named "Apantac GUI *versiondate version*". The Director program is the ".exe" file.
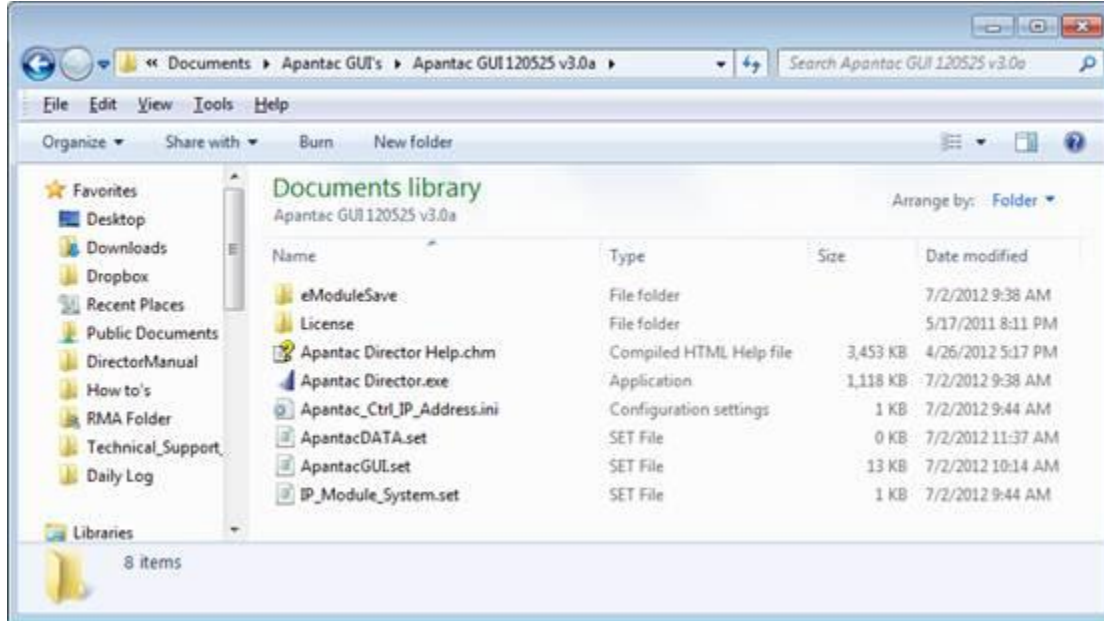
Configurations are stored both on the multiviewer unit and on the computer's hard-drive under the eModuleSave folder.

Within the eModuleSave folder are Online and Offline folders. Within the "a_online" folder is where the program stores files. The files are separated by Display and Module folders as shown here. A single preset may have files within multiple folders.
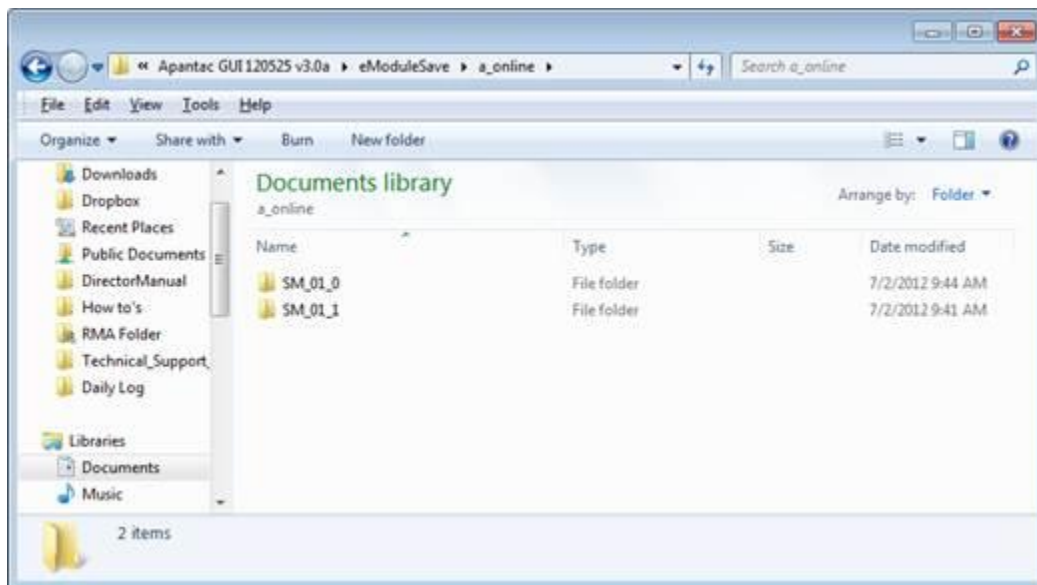
Within each Module folder you will find the actual Preset files. Preset files have the following extensions: ".pt", ".pt1", ".pt2", ".pt3", ".pt...etc" for individual display Presets, and ".all" for Global Presets. Each module folder will have a file of the same name if that module is included within the configuration of that preset.
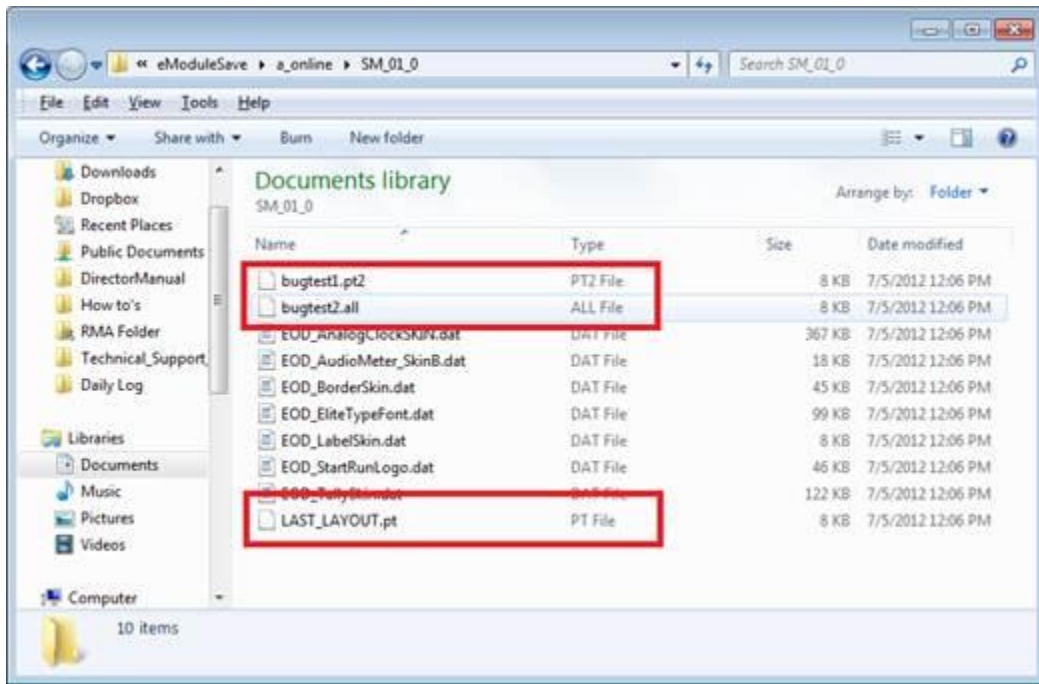
Archiving a Multiviewer's Configuration...

Locate the a_online folder and deleted all files and folders within it. This will clear your hard drive so that when you connect to the multiviewer it will only contain information pertaining to that multiviewer.
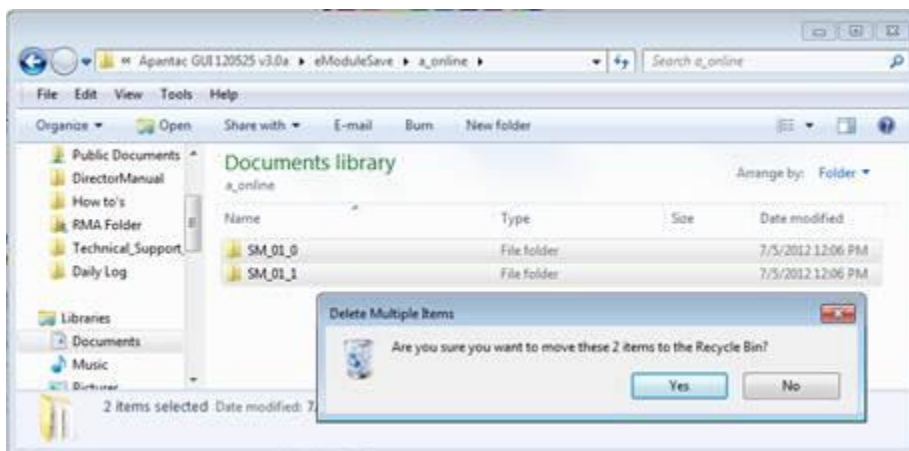
Now start Director and connect to the multiviewer. Under the Retrieve options, check both the "ON" and "Preset" checkboxes. This will retrieve from the multiviewer all of its configurations and files and place them in the a_online folder.
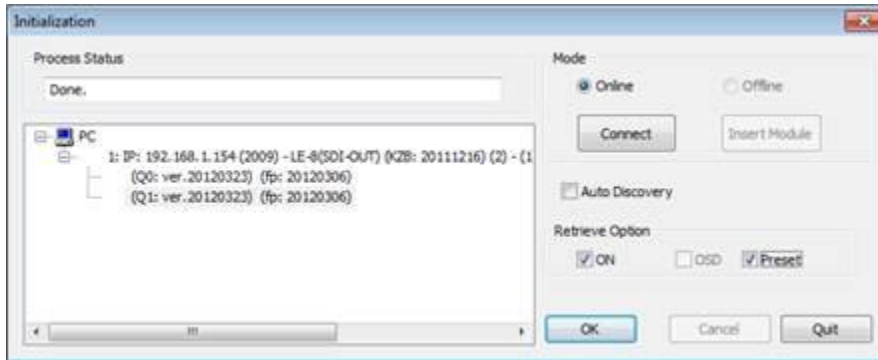
You can now copy, rename, and archive the a_online folder.
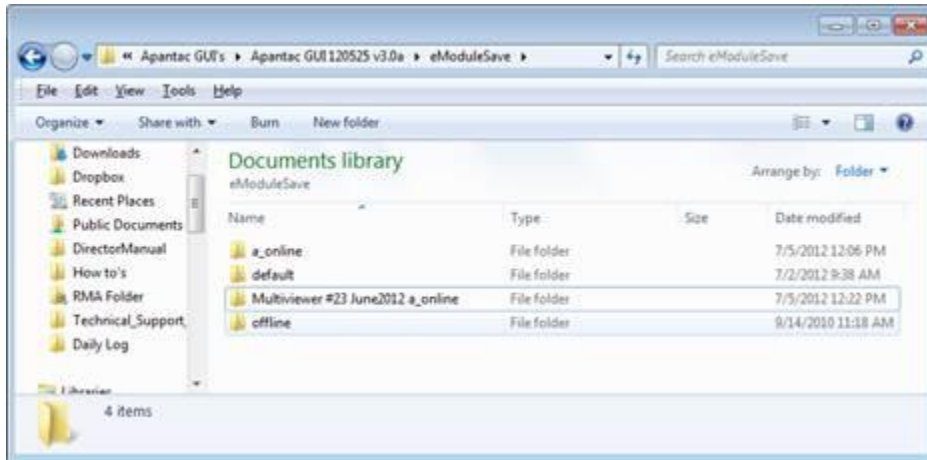
Restoring an Archive…

Delete the a_online folder.

Copy your archived folder into the eModuleSave folder.

Rename the archived folder as "a_online".

Start Director and connect to the multiviewer. Under the Retrieve options, **<u>uncheck</u>** both the "ON" and "Preset" checkboxes. This will cause the last_layout preset file from the hard-drive to be loaded into the multiviewer's current configuration.
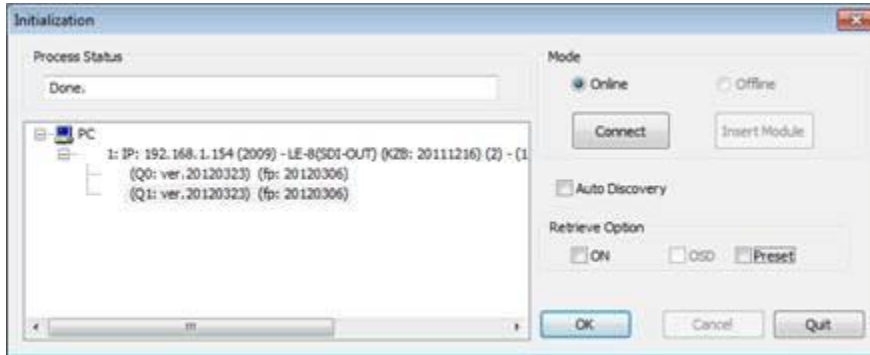
Now under the File/Preset menu select the "Restore presets to module…" command. This will erase all presets on the multiviewer and replace them with all the presets from your hard-drive's a_online folder.
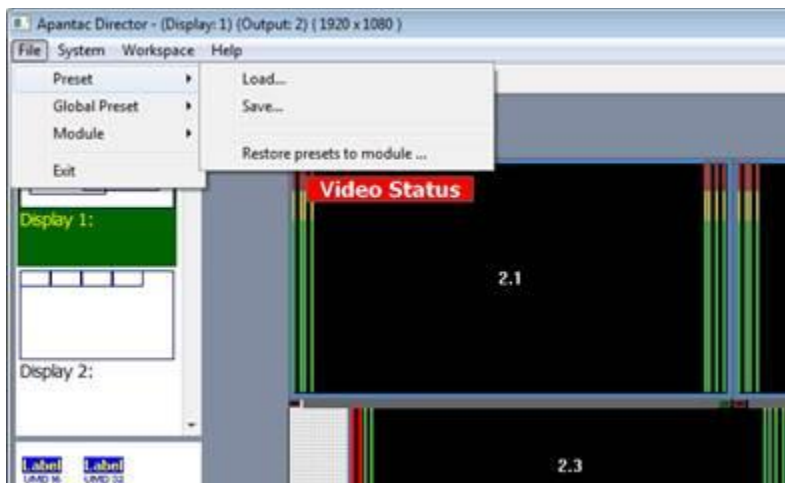
Quit and save as normal.
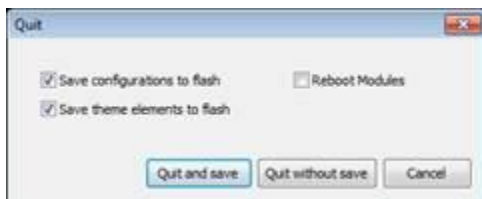
Copy a preset from Multiviewer to Multiviewer…

For the multiviewer that contains the preset to be copied:

Locate the a_online folder and deleted all files and folders within it. This will clear your hard drive so that when you connect to the multiviewer it will only contain information pertaining to that multiviewer.
> *(see Archiving for an illustration.)*

Now start Director and connect to the multiviewer. Under the Retrieve options, **check** both the "ON" and "Preset" checkboxes. This will retrieve from the multiviewer all of its configurations and files and place them in the a_online folder.
> *(see Archiving for an illustration.)*

Quit Director using the "Quit without save" button (since you made no edits or changes).

Now move the contents of the a_online folder to a temporary folder. This should also clear the a_online folder (use Move, not Copy).
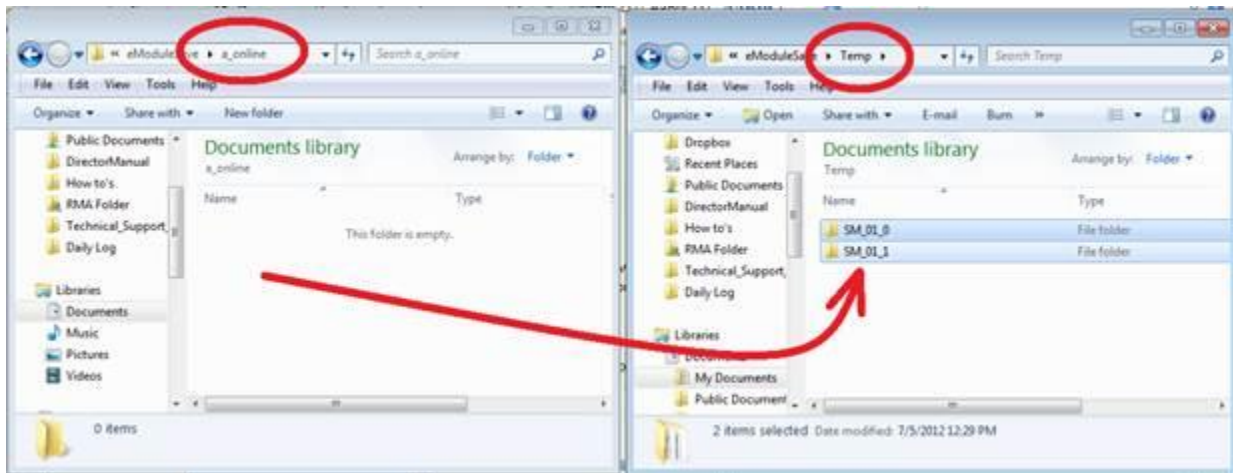
For the multiviewer that will receive the preset:

Now start Director and connect to the multiviewer. Under the Retrieve options, **check** both the "ON" and "Preset" checkboxes. This will retrieve from the multiviewer all of its configurations and files and place them in the a_online folder.
> *(see Archiving for an illustration.)*

Open each sub-folder of both the a_online folder and the Temp folder. Open the **same** sub-folder in each (SM_01_0 in this image). If the desired preset is located in the Temp sub-folder, then copy it to the a_online sub-folder. Depending on the preset, the preset file may not be located in every sub-folder. Repeat for all sub-folders. This will add the preset to the current multiviewer's files on the hard-drive.
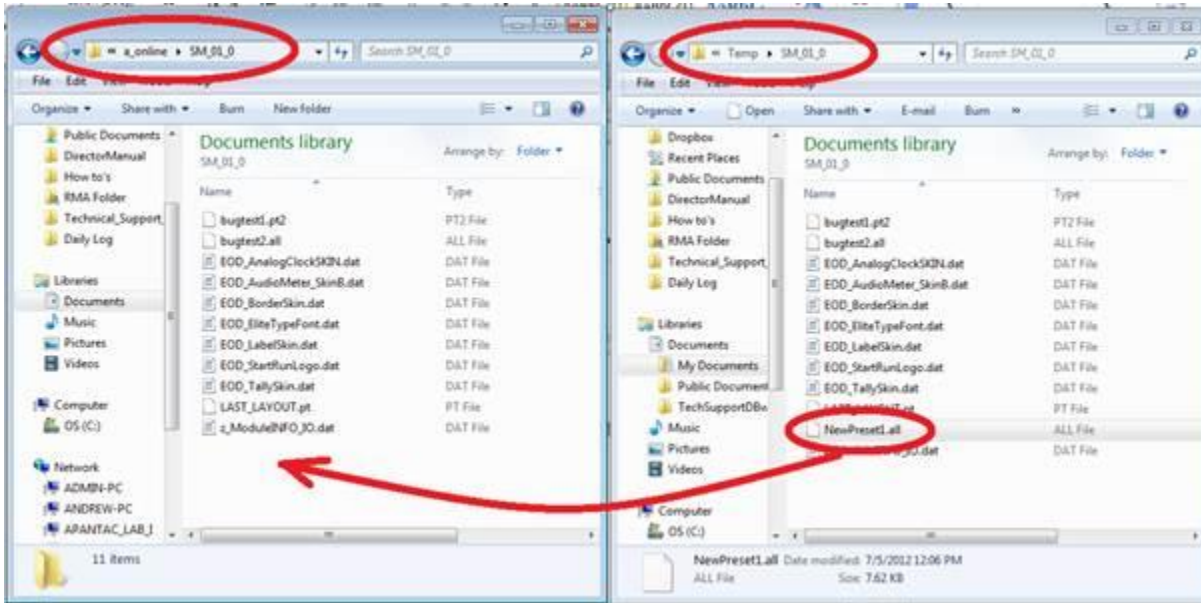
Now under the File/Preset menu select the "Restore presets to module…" command. This will erase all presets on the multiviewer and replace them with all the presets from your hard-drive's a_online folder including the new preset file. (If you had the "preset" checkbox checked when you connected to the multiviewer then your hard-drive contains the unit's current files and nothing will be lost.)
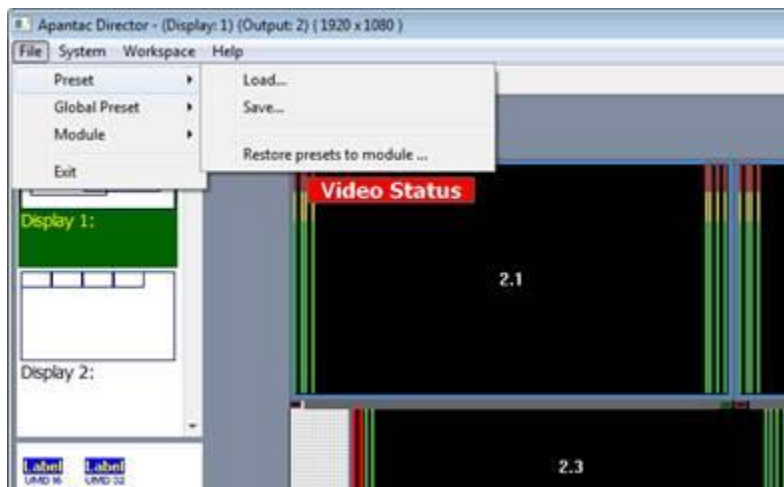
Quit and save as normal.

APPENDICES

ASCII Controll

AXProtocol Program

INTRODUCTION

AXP commands can be sent to the Tahoma via the RS232 port or by TCP/IP. Either of these can be performed by any 3rd party software. In addition to 3rd party software Apantac has developed a new Microsoft Windows Control Panel which can send these commands by TCP/IP through your Local Area Network (LAN).

INSTALLING AND RUNNING THE Control Panel

Copy the self-extracting installation file (APANTAC_AXProtocol.EXE) to your computer.

Run the program. Follow the prompts to install the program. It will install as any other Windows based program, and you should find its shortcut in your Start menu.

The program includes a full user guide found in the help menu and also a listing of the ASCII commands with examples.

The home tab-page is where you add or remove the IP addresses of your multiviewer units. There is also an log showing the communication to and from the units. The 'Test Connections" button is also useful for retrieving the multiviewers temperature sensor reading.
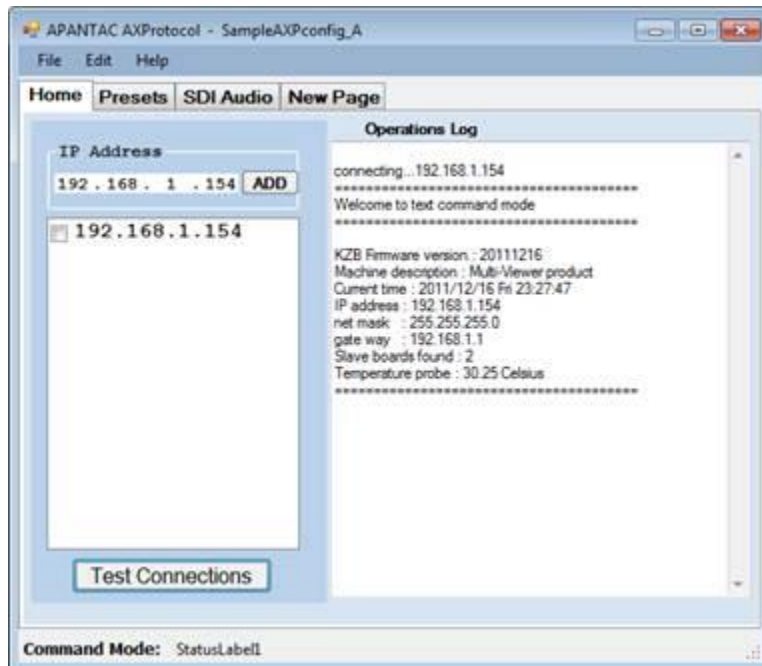
Although it can issue a number of different commands to the multiviewer's, its most useful functions are to change your displays by loading the preset files you've created, or to change the audio channel assigned to the audio monitor outputs.
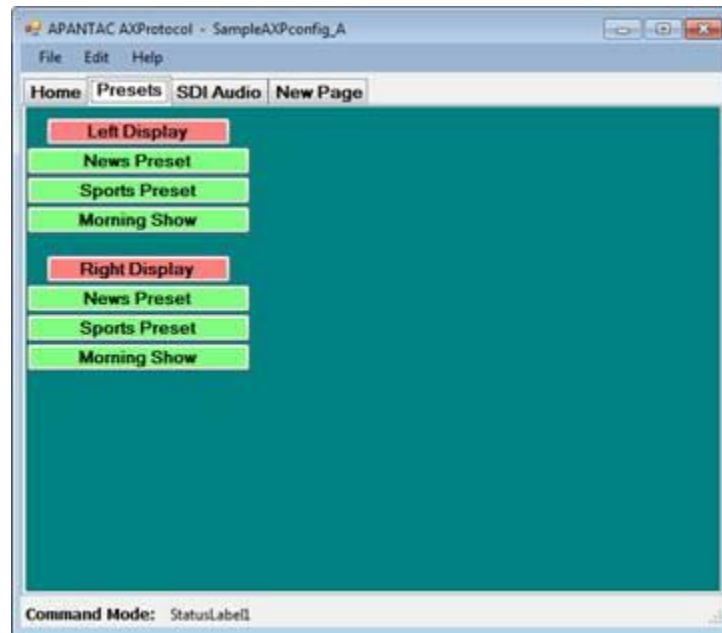
Apantac eXchange Protocol

Revision Date: September 13, 2012

Introduction

The AXP is a set of text commands to allow 3rd party interface to control the Tahoma Multiviewers via either serial or TCP/IP.

Port Description

RS232 port description
Baud rate is configurable
1.   Default baud rate=38400 bps.
     Data bits = 8, parity = none, stop bit = 1, flow control = none
TCP/IP: Default port = 101

Hardware Architecture Overview

The Apantac Tahoma series consists of 3 major components
1.   CPM: Control Processing Module
2.   VPM: Video Processing Module
3.   URM: Universal Receiver Module

For the purpose of control, only the CPM and VPM is relevant for this document. There is one CPM per every Tahoma unit, there can be anywhere from 1 (LE-4) to 8 (LE-32) VPMs, depending on the model.

AXP Commands set Overview

Command	FW Release	Overview
audio		Set audio monitoring output
Audiometer	Sept 12, 2012	Position, turn on/off, set width and height on audio meters
Clockpos	Sept 12, 2012	Position, turn on/off analog or digital clocks
date		Set date and time of the module
Exit		Exit from text command mode
Flash	May 1st 2010	Object flashing on/off
Gpo		Set GPO bit on the VPM and CPM
Ipconfig		To set IP address. This is a command line command, not meant for 3rd party programming
Label		Set label properties
ledumd		Turn on/off tally and set label text
List		List all presets files in the system
Load		Load presets
Loglist		Display internal alarm log
Logreset		Resets the alarm log

Osdid		Identify Item_ID for all on screen (OSD) objects
Pxywh	Aug 1st 2010	Move object to other position
Reset		
Retrieve	May 1st 2010	Reset window alarm
Romsave		Save current state to ROM, so it will reboot to the same state
Route	Jan 1st 2010	Route physical video input to window
Save		Saves current state to a preset
Timer		Set analog and digital clocks. Set count up and count down timers
Turn		Turn on/off on screen objects with Item_ID
Compound commands		Multiple commands on the same line

AXP command sets

Audio: Set audio monitoring output

```
Audio [VPM_ID] [TYPE] [GROUP] [Channel/PAIR]
```

Parameters	Values	Description
[VPM_ID]	0 – 7	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on
[Type]	SDI/AES/AA	Type of audio format
[Group]	1 – 4	
[Channel/Pair]	1 – 4 channel for SDI, 1 – 8 pairs for AES/AA	Pairs of audio meters to be monitored

Examples:

Command	Description
Audio 3 SDI 1 2 3	Select VPM[3], SDI 1, Group 2, Channel 3 and 4 to the monitoring output
Audio 1 AA 5	Select VPM[1], AA pair 5 monitoring output
Audio 2 AES 7	Select VPM[2], AES pair 7 monitoring output

Audiometer:

Note: Before using this command, it is very important to read APX Appendix B **and** APX Appendix C **first to understand the Tahoma OSD memory architecture and audio meter limitations**

```
Audiometer [VPM_ID][MEM_ID][WIN_ID][Meter_ID][ON/OFF][XYWH]
```

Parameters	Values	Description
[VPM_ID]	0 – 7	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on
[Mem_ID]	0 – 4	This is the memory ID for all the OSD. Please see Appendix B
[Win_ID]	1 – 4	Windows 1 to 4
[Meter_ID]	1-16	Audio meters 1 to 16
[On/off]	0, 1	On, Off

Examples:

Command	Description
Audio 0 0 1 1 1 10 50 8 100	Turn on the meter[1] and place it inside window[1], on VPM[0] meter on at (x:10, y:50, w:8, h:100)
Audio 0 0 1 2 1 20	Turn on meter[2] that is inside window[1] at (x:20), with (y, w, h) unchanged
Audio 0 0 1 3 1 30	Turn on meter[3] that is inside window[1] at (x:30), with (y, w, h) unchanged

CLOCKPOS: Turn on/off analog or digital clocks and set position

```
Clockpos [VPM_ID] [TYPE] [ON/OFF]
```

Parameters	Values	Description
[VPM_ID]	0 – 7	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on
[Type]	D[igital], a[nalog]	Type of clock
[On/off]	1, 0	

Examples:

Command	Description
clockpos 0 d 1 20 600 600	Turn on and Position digital clock on VPM[0] to x: 20, y: 600, with width w: 600
clockpos 0 a 1 300 650	Turn on and Position anlaog clock on VPM[0] to x: 20, y: 600

Date: Set date and time of the module

```
Date [YY] [MM] [DD] [mm] [ss]
```

Parameter	Values	Description
[YY]	00 – 99	Year. Example: 2010 = "10"
[MM]	1 – 12	Month
[DD]	0 – 31	Date
[mm]	0 – 60	Minutes
[ss]	0 – 60	Seconds

Example:

Command	Description
date 09 09 24 08 15 00	Set system time to 2009, September 24, 8:15:00
date [null]	Sets the time to NTP

Exit: Exit from text command mode

Exits the text command mode. Press <CR> to return to text command mode

Flash: Object Flashing On/Off

```
Flash [VPM_ID] [ITEM_ID] [ON/OFF] [FLASH_COLOR]
```

Parameters	Values	Description
[VPM_ID]	0 - 8	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on …
[ITEM_ID]	17~20 21~24	17~20 is border of windows, 21~24 is all OSDs within window boundry. For Item_ID see Appendix A or use Osdid command to turn ID on the display
[ON/OFF]	0, 1	0 is off, 1 is on
[FLASH_COLOR]	TTTRRRGGGBBB	T= transparency, R= Red, G= Green, B = Blue. TTT=000 => 100% transparent

Example:

Command	Description
Flash 3 18 0 .	Turn off VPM[2] Window 2 border flashing. Note: It is a required to insert "." For the color that does not change.
Flash 2 21 1 .	Turn on VPM[1] Window 1 all OSDs flashing. Note: It is a required to insert "." For the color that does not change.
Flash 1 19 1 100255255255	Turn on VPM[0] Window 3 border flashing. Set color to White.

Gpo: Set gpo bit on the VPM and CPM

```
Gpo [ VPM_ID/CPM_ID] [bit]
```

Parameters	Values	Description
[VPM_ID/CPM_ID]	0 – 8, 98	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on … There is only 1 CPM per module, this ID is hard coded as 98
[bit]	00000000 – 1111111	The bits are represented by 0 or 1 at each position.

Example:

Command	Description
Gpo 3 00100000	Sets VPM[3] GPO bit 3 = 1 (on) and 8 = 0 (off)
GPO 3 …….1	Sets one more GPO position on from the previous command. GPO is not bit 3 = 1 (on) and 8 = 1 (on)
GPO 98 00000001	Sets CPM GPO bit 8 = 1(on)

Ipconfig: To set IP address.
This is a command line command, not meant for 3rd party programming

```
Ipconfig [DHCP] [Static_IP] [Static_Mask] [Static_Gateway]
```

Parameters	Values	Description
[DHCP]	0, 1	Turning on/off DHCP. Default is off
[Static_IP]	nnn.nnn.nnn.nnn	IP address format
[Static_Mask]	nnn.nnn.nnn.nnn	IP address format
[Static_Gateway]	Nnn.nnn.nnn.nnn	IP address format

Example:

Command	Description
Ipconfig 0 192.168.1.151 255.255.255.0 192.168.1.1	Sets DHCP to off, IP address to 192.168.1.151, subnet mask at 255.255.255.0, gateway at 192.168.1.1
Ipconfig 1 192.168.1.151 255.255.255.0 192.168.1.1	Sets DHCP to on. The rest of the parameters must be entered, but will be ignored

Label: Set label properties

```
Label [VPM_ID] [ITEM_ID] [ON/OFF] [FONT] [PICTURE] [FONT_COLOR] [BACKGROUND_COLOR]
```

Parameters	Values	Description
[VPM_ID]	0 - 8	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on …
[Item_ID]	0 – 255	The bits are represented by 0 or 1 at each position. For Item_ID see Appendix A or use Osdid command to turn ID on the display
[on/off]	0, 1	Turn on/off item
[Font]	"."	DO NOT UPDATE. Use "." To leave this parameter unchanged. This is reserved for future implementation
[Picture]	"."	DO NOT UPDATE. Use "." To leave this parameter unchanged. This is reserved for future implementation
[FONT_Color]	TTTRRRGGGBBB	T= transparency, R= Red, G= Green, B = Blue. TTT=000 => 100% transparent
[Background_Color]	TTTRRRGGGBBB	T= transparency, R= Red, G= Green, B = Blue. TTT=000 => 100% transparent

Example:

Command	Description
Label 3 6 0	Turn VPM[3] 16 character Standalone Label #2 to off. Note: It is a required to insert "." For the parameters that do not change.
Label 3 9 1. . 060255000000 . |TEXT|	Turn on VPM[3] UMD on Window 1, set the UMD text to "text"
Label 3 9 1. . 060255000000 . |TEXT| 3	Turn on VPM[3] UMD on Window 1,2 ,3, set all 3 UMD text to "text"

Ledumd: Turn on/off tally and set label text

```
Ledumd [TSL_ID] [LED1] [LED2] [LED3] [LED4] [TEXT]
```

Parameters	Values	Description
[TSL_ID]	0 ~ 127	This must be setup using the Apantac Director. Please refer to the Director User manual
[LED1 on/off]	1, 0	Turn on/off Tally LED 1
[LED 2 on/off]	1, 0	Turn on/off Tally LED 2
[LED 3 on/off]	1, 0	Turn on/off Tally LED 3
[LED 4 on/off]	1, 0	Turn on/off Tally LED 4
[TEXT]	Text	Label text. Must be bracketed with "| |"

List:

This command lists all the custom and predefined presets in the multiviewer

Example:

```
command>list

======================================
KZB file list
======================================
0 : [_G_L_O_B_A_L_.sys]
1 : [_L_A_T_E_S_T_]

======================================
Slave board file list
======================================
0 : [_G_L_O_B_A_L_.sys]
1 : [_L_A_T_E_S_T_]
2 : [2x2.pt1]
3 : [4andclock.pt1]
4 : [1big.pt1]
5 : [2big.pt1]
6 : [3big.pt1]
7 : [4big.pt1]
8 : [1 full.pt1]
10 : [1_full.pt1]
```

KZB file list: shows the global system file and the latest configuration file. The latest configuration file is used to return to its last known layout after reboot. KZB = CPM

Slave board file list: shows all the presets that have been stored in the system. Slave board = VPM

Load:

```
load [FILE_NAME]
```

Parameters	Values	Description
[file_name]	The preset file name.	*The file name must be bracketed with "| |".

Example:

Command	Description
load |1_full.pt1|	Loads preset name "1_full.pt1"

Loglist:

This command shows all the alarm logs stored in the system.

Example:

```
command>loglist

2009/09/24 Thu 09:28:57 CH:0 Video Frozen
2009/09/24 Thu 09:28:57 CH:0 Lost of Audio
2009/09/24 Thu 09:28:57 CH:1 Lost Of Video
2009/09/24 Thu 09:28:57 CH:1 Video Frozen
2009/09/24 Thu 09:28:57 CH:1 Video Black
2009/09/24 Thu 09:28:57 CH:1 Lost of Audio
2009/09/24 Thu 09:28:57 CH:2 Lost Of Video
2009/09/24 Thu 09:28:57 CH:2 Video Frozen
2009/09/24 Thu 09:28:57 CH:2 Video Black
2009/09/24 Thu 09:28:57 CH:2 Lost of Audio
2009/09/24 Thu 09:28:57 CH:3 Lost Of Video
2009/09/24 Thu 09:28:57 CH:3 Video Frozen
2009/09/24 Thu 09:28:57 CH:3 Video Black
2009/09/24 Thu 09:28:57 CH:3 Lost of Audio
```

Logreset:

This command resets the internal alarm log

Example:

```
command>logreset

        Are you sure?(y/n) y
command>loglist

*** CH 0 ~ CH 3 alarm log list empty ***

command>_
```

Osdid:

Parameters	Values	Description
[on/off]	0, 1	Turn on/off Item_id on the display.

Example:

Command	Description
Osdid 1	Turns on all the Item_ids on the actually display output. The item_id information is also listed in Appendix A

Pxywh: Move object to other position

```
Pxywh [VPM_ID] [ITEM_ID][MODE][X][Y][W][H]
```

Parameters	Values	Description
[VPM_ID]	0 – 8	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on …
[ITEM_ID]	0 – 255	The bits are represented by 0 or 1 at each position. For Item_ID see Appendix A or use Osdid command to turn ID on the display
[MODE]	4	Must be 4
[X]	0 to Horizonal_Output_Resolution	X position relative to Upper Left corner
[Y]	0 to Vertical_Output_Resolution	Y position relative to Upper Left corner
[W]	"."	DO NOT UPDATE. Use "." To leave this parameter unchanged. This is reserved for future implementation
[H]	"."	DO NOT UPDATE. Use "." To leave this parameter unchanged. This is reserved for future implementation

Example:

Command	Description
Pxywh 3 1 4 100 200 . .	Move VPM[3] Window 1 OMD to (100, 200) relative to UL corner
Pxywh 2 93 4 500 500 . .	Move VPM[2] Window 2 Video to (500,500) relative to UL corner

Reset:

This command resets the module remotely.

Retrieve: Reset Window Alarm

`Retrieve [WINDOW_ID]`

Parameters	Values	Description
[WINDOW_ID]	0 – TOTAL_WINDOW	For example, LE-16 has 16 video windows, so the Window_ID is 1~16. Starting from VPM[0]

Example:

Command	Description
Retrieve 01	Reset all alarms in VPM[0] Window 1

Romsave:

Saves the last state of the module into ROM.   Therefore, when the module reboots it will boot up to that last state.

Route: Route physical video input to window

```
route [WINDOW_ID] [INPUT_ID] [COUNT] [MODE]
```

Parameter	Values	Description
[WINDOW_ID]	01 – TOTAL_WINDOW	For example, LE-16 has 16 video windows, so the Window_ID is 1~16. Starting from VPM[0]
[INPUT_ID]	01 – TOTAL_INPUT	For example, LX-32 has 32 inputs, so the Input_ID is 1 ~ 32
[COUNT]	[Window_ID] – TOTAL_WINDOW	Optional. The number of consecutive windows starting from [Window_ID] to be assigned to [Input_ID]
[MODE]	0	Optional. Must be 0

Example:

Command	Description
route 01 08	Set input 8 to window 1
route 03 11 4 0	Set input 11 to window 3 ~ 6

Save:

```
Save [FILE_NAME]
```

Parameters	Values	Description
[file_name]	Text	File name must be bracketed with "| |"

Example:

Command	Description
Save |preset22.pt1|	Saves the current state to a preset named "preset22.pt1". To verify, use <list> command to list presets

Timer:

```
timer [VPM_id] [Analog/Digital] [Method] [hh mm ss]
```

Parameters	Values	Description
[VPM_ID]	0 ~ 7	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on …
[Analog / Digital]	A[nalog] / D[igital]	Specifies analog or digital clock
[Method]	S[ystem] / L[tc] / P[ause] / + / - / 2	S[ystem] = Sync to internal system time L[tc] = Sync to LTC P[ause] = Pause "+" = Count up "-" = Count down "2" = Count down from

 Example:

Command	Description
timer 0 a p 11 22 33	Set time on VPM[0] analog clock to 11:22:33 then pause
timer 0 a -	Set time on VPM[0] analog clock to start counting down from current time
timer 1 d – 11 22 33	Set VPM[1] digital clock to count down timer from 11:22:33
timer 0 a s	Set VPM[0] analog clock to sync with system timer
Timer 0 a L	Set VPM[0] digital clock to sync with LTC
Timer 1 d 2 11 22 33	Set VPM[1] digital clock to count down from current time to 11:00:00. For example: If current time is 10:00:00, the digital clock on the Tahoma will show the difference in time of 1:00:00, then start counting down

Turn:

```
Turn [VPM_ID] [ITEM_ID] [ON/OFF][N]
```

Parameters	Value	Description
[VPM_ID]	0 – 7	For example, LE-4 has 1 VPM, therefore, the VPM_ID on the LE-4 is "0". LE-8 has 2 VPMs, the VPM_ID on the LE8, can be 0 ~ 1, and so on …
[item_id]	0 – 255	Each object on the screen have an item_id. Please refer to Appendix A for all the corresponding item_ids
[on/off]	1, 0	
[n]	0 – 9	Consecutive items to be turned off

Example:

Command	Description
turn 3 6 0	Turn off VPM[3], standalone label #2. See Appendix A for item_id
Turn 3 6 0 3	Turn off VPM[3] standalone label #2, #3 and # 4

Compound Commands:

Several AXP commands can be compounded into a single line by using "|||" symbol in between each command.

Example:

Command	Description
turn 3 6 1 1 ||| timer 2 d 2 14 0 0	Turn on VPM[3] 16 character standalone label #2 and digital clock on VPM[2] to count down from current time to 14:00:00

AXP Appendix A

Each OSD object in the Tahoma multiviewer are independent items. Each item has a unique ID. The following is how the IDs are assigned to each item.

Objects associated with windows

	Window 1	Window 2	Window 3	Window 4
Object	Item ID	Item ID	Item ID	Item ID
OMD	1	2	3	4
Border	17	18	19	20
UMD	9	10	11	12
Loss of Video	62	63	64	65
Video Frozen	67	68	69	70
Video Black	72	73	74	75
No WSS	79	80	81	82
Loss of Audio	88	89	90	91
Tally 1	25	29	33	37
Tally 2	26	30	34	38
All OSDs in Window	21	22	23	24
Video	92	93	94	95

Standalone Labels

	Standalone Labels w/ 16 (1 byte) characters	Standalone Labels 32 (1 byte) characters
Object	Item ID	Item ID
Label 1	5	13
Tally 1	27	35
Label 2	6	14
Tally 2	28	36
Label 3	7	15
Tally 3	31	39
Label 4	8	16
Tally 4	32	40

AXP APPENDIX B

Memory ID detail explanation

In order to accommodate maximum flexibility to user to place any on screen element to any position, the Tahoma LE/LI/LX/DE/DL architecture consists of 5 OSD memory layers (0 – 4), layer 4 has the lowest priority. In this document, these memory layers are referred to as memory ID's.

- Memory ID's 0 to 3 are correlated to windows 1 to 4
- Memory ID 4 is correlated to the display background

Memory ID	Window	Origin (0, 0)
MEM_ID[0]	WIN_ID[1]	Upper left corner of window 1
MEM_ID[1]	WIN_ID[2]	Upper left corner of window 2
MEM_ID[2]	WIN_ID[3]	Upper left corner of window 3
MEM_ID[3]	WIN_ID[4]	Upper left corner of window 4
MEM_ID[4]	Display background	Upper left corner of the back ground

AXP APPENDIX C

Audio meter limitations

1. 8 audio meters is grouped together, in order to support 16 audio meters on a window, there are 2 audio meter groups in a window.
2. Audio meter group 1 = METER_ID[1-8], group 2 = METER_ID[9-16]
3. Limitation 1:
   a. METER_ID[1] must be on to turn on METER_ID[2-8]
   b. The (y, w, h) settings of METER_ID[1] is applied to the rest of the group METER_ID[2-8]
      i. Therefore, once the METER_ID[1]'s (x, y, w, h) is set, only the (x) parameter of the rest of the meters, METER_ID[2-8] can be set
   c. When METER_ID[1] is off, then METER_ID[2-8] will be turned off
   d. METER_ID[9] must be on to turn on METER_ID[10-16]
   e. The (y, w, h) settings of METER_ID[9] is applied to the rest of the group METER_ID[10-16]
      i. Therefore, once the METER_ID[9]'s (x, y, w, h) is set, only the (x) parameter of the rest of the meters, METER_ID[10-16] can be set
   f. When METER_ID[9] is off, then METER_ID[10-16] will be turned off

Tutorials

Beginners Tutorial

In this document we hope to make clear the functional layout of the Tahoma Multiviewer and to provide in a logical order the basic configuration steps to perform in the Director software to produce a Multiviewer System.

- Choosing the outputs to drive your multiviewer displays.
- Setting the output resolution.
- Naming the multiviewer displays
- Choosing the inputs/windows displayed on the multiviewer display.
- Arrange the windows within each multiviewer display.
- Label the windows.

STARTING THE DIRECTOR SOFTWARE

Install the Director software by copying the "Apantac Director.exe" file and its companion data folder "eModuleSave" from the CD to a folder on your computer.

Connect your computer and the Tahoma to a mutual Ethernet LAN, or connect directly to the Tahoma with a standard Ethernet cable (no cross-over cable is necessary).

Open/Run the Director program file. The program opens first to an Initialization window.

Connect the Director software to the Tahoma multiviewer by identifying its IP address and connecting using the Initialization window. The Retrieve option copies the configuration from the Tahoma to your computer and opens it for configuration.

These are abbreviated directions for running Director and connecting the Tahoma, more detailed instructions and information on troubleshooting connection problems can be found in other documents.

Inputs, Outputs, Windows and Displays

The Tahoma multiviewer's basic unit is the video processing module (VPM). The VPM accepts four video inputs and produces one multiviewer output. Each VPM can do this independently or it can cascade its inputs to the next VPM within the Tahoma. The inputs of a single VPM cannot be split between different outputs (i.e. A Tahoma LE-16 sending 11 inputs to one screen and 5 to another is not possible.) Each VPM input is mapped to its own window on the multiviewer Display. Note that the Director software numbers the displays from the last VPM backwards. The last VPM will always produce an output since it has no further VPM to cascade to.
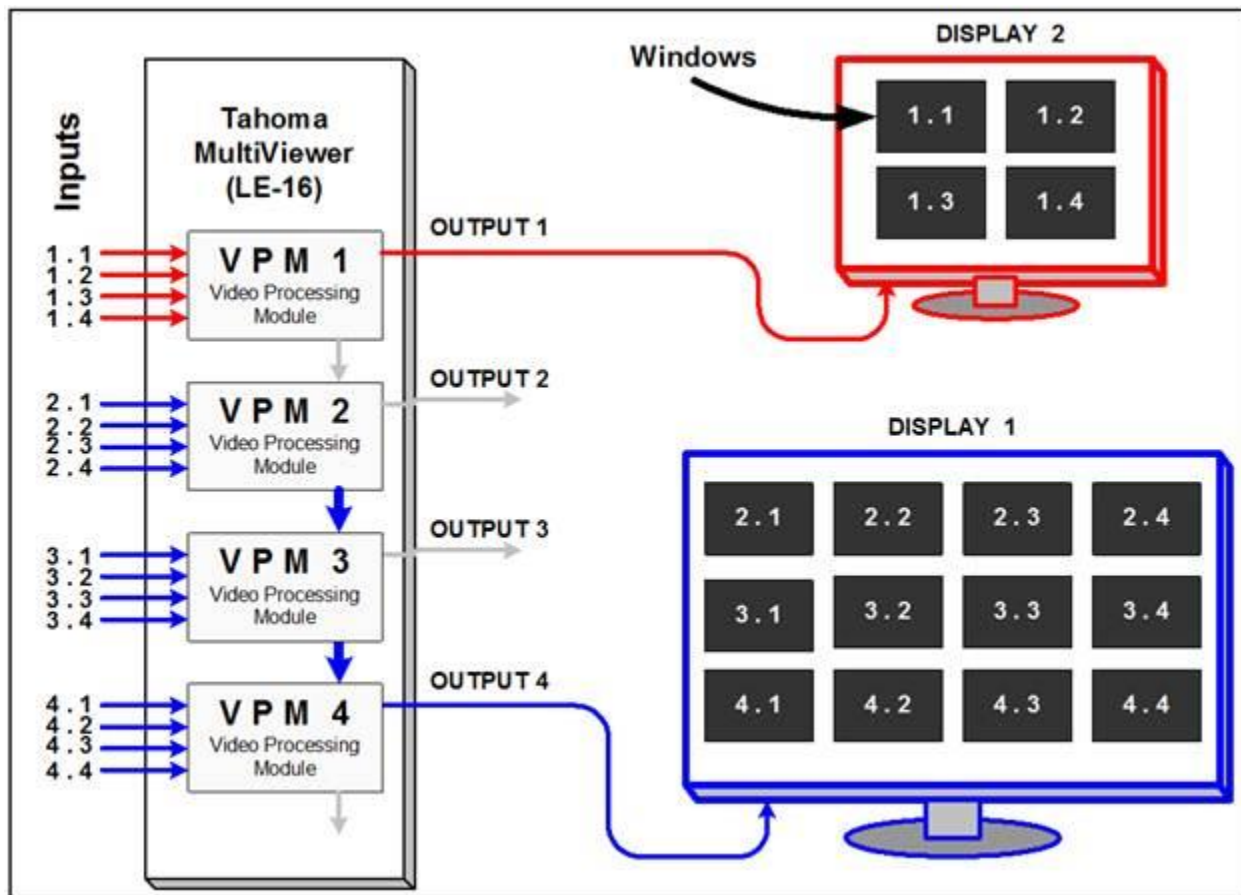

Figure 1: Tahoma Multiviewer Example

With the cascading function of the VPM's the multiviewer can be set in a variety of configurations. The following table illustrates the configurations of a 16 input Tahoma. Configurations for Tahoma's from 4 to 32 inputs can be extrapolated from this example. Some physical configurations are logically the same. (i.e. This table has 3 configurations which produce 4, 4, and 8 window displays.)

Possible Configurations	Multiviewer Output 1	Multiviewer Output 2	Multiviewer Output 3	Multiviewer Output 4
1	4 windows Inputs 1 - 4	4 windows Inputs 5 - 8	4 windows Inputs 9 - 12	4 windows Inputs 13 - 16
2	carry over -->	8 windows Inputs 1 - 8	4 windows Inputs 9 - 12	4 windows Inputs 13 - 16
3	4 windows Inputs 1 - 4	carry over -->	8 windows Inputs 5 - 12	4 windows Inputs 13 - 16
4	carry over -->	carry over -->	12 windows Inputs 1 - 12	4 windows Inputs 13 - 16
5	4 windows Inputs 1 - 4	4 windows Inputs 5 - 8	carry over -->	8 windows Inputs 9 - 16
6	carry over -->	8 windows Inputs 1 - 8	carry over -->	8 windows Inputs 9 - 16
7	4 windows Inputs 1 - 4	carry over -->	carry over -->	12 windows Inputs 5 - 16
8	carry over -->	carry over -->	carry over -->	16 windows Inputs 1 - 16

Table 1: Tahoma LE-16 output possibilities.

OUTPUTS

With Director connected to your Tahoma and running, select System in the menu and choose "Output manager…"
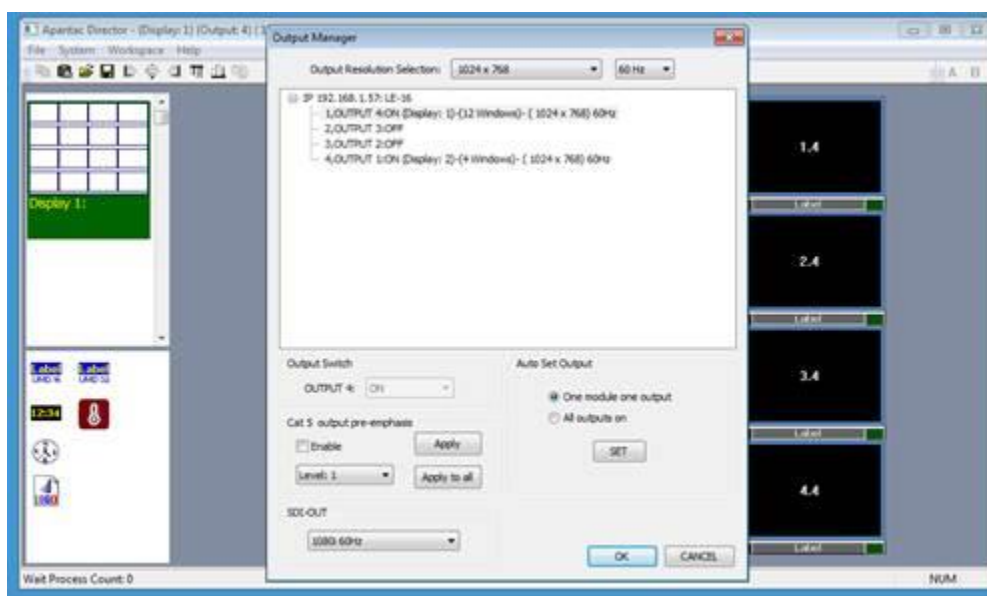

Figure 2: Output Manager example

Here in the Output Manager you will see a listing of all the Tahoma units you're currently connected to and configuring, identified by their IP address and basic model name. Under each unit is a list of the multiviewer outputs of that unit. Ignore the first number on the lines and note the output number. This is the physical VPM output on the rear of the unit. Each output can be set to be ON or OFF. The number of multiviewer displays you'll be configuring is set by this. The number of windows listed for that output/display includes the inputs from previous VPM's whose outputs are OFF.

"1,**OUTPUT 4**:ON (Display: 1)-(**12 Windows**)-(1024x768) 60Hz"

In this example, VPM's 2 and 3 cascade into output 4 to create Display 1 with 12 windows (inputs 5 thru 16), while VPM 1 uses only its own inputs to create Display 2 with 4 windows (inputs 1 thru 4).

Click on the output line in the list to choose that output. In the Output Switch section below choose ON or OFF. As you do this the Displays and number of Windows per display in the list will update.

The Auto Set Output section is a shortcut method. To quickly setup one of the default schemes, choose an option and click the Set Button.

RESOLUTION

The resolution of each multiviewer display driven is also set within the Output Manager.

The pull-down list at the top labeled "Output Resolution Selection" will change **ALL** outputs/displays. To set each display individually, right-click the output in the list to obtain a context menu and choose "Set Output Resolution". The context menu also provides for turning the outputs ON and OFF.

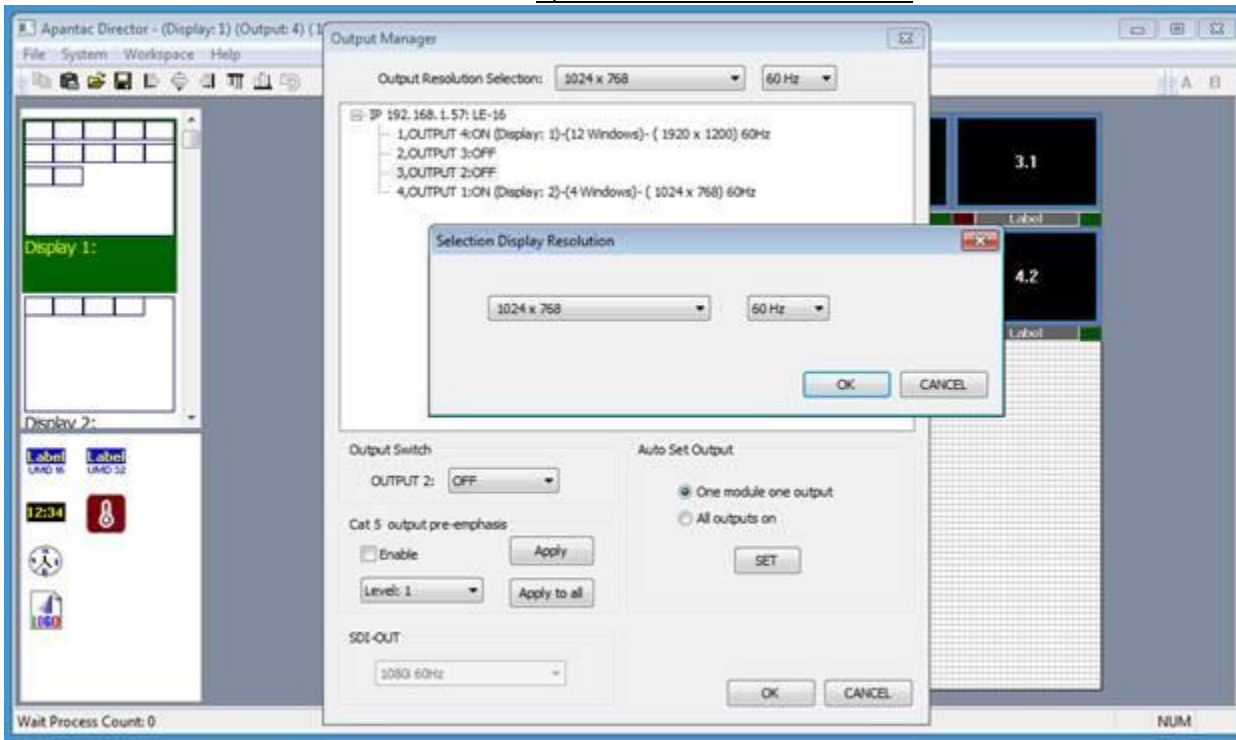The output Frequency should also be set along with the resolution.

DISPLAY OVERVIEW

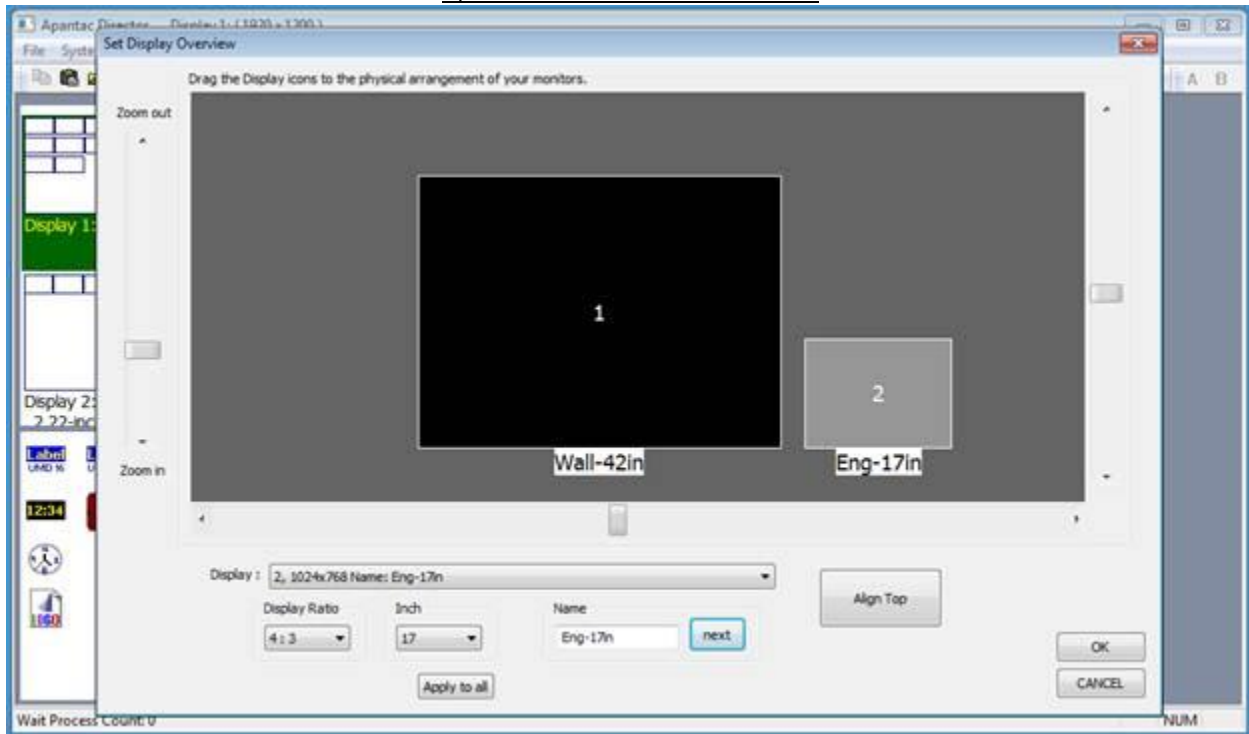Select Workspace in the menu and choose "Set Display Overview…"

Figure 4: Display Overview

The Display Overview is for reference only within the Director software and does not configure the Tahoma unit. It can be useful when configuring a large system with a multiple monitor display wall.

The Zoom control on the left and the scroll bars will help you navigate the overview area. At first the displays may be a large distance apart and show very small. Zooming out will allow you to find them. Drag the displays into the middle of the area and then zoom in. By dragging the displays into the middle the use of the scroll bars should then be un-necessary.

Select a display to edit by clicking on it (it will highlight in grey). Choose the display ratio, and the Inch-size of the monitor. These both affect only this overview display as the display workspace of the main screen of Director is set by the resolution.

The display can be named by entering a short name and clicking the Next button. Setting the name is useful because it shows in the display list section on the left of the main screen. Clicking OK saves your overview.

WINDOW MANAGER

The window manager allows you to turn the windows within each multiviewer display output ON or OFF depending on whether your system will be using that input or not.

In the main screen of Director right-click the white grid background of the display to access the display's context menu. If the display is completely filled with windows and none of the white grid shows right-click in the gray area outside the display grid area. Choose Window Manager… in the context menu.

Figure 5: Accessing the display context menu
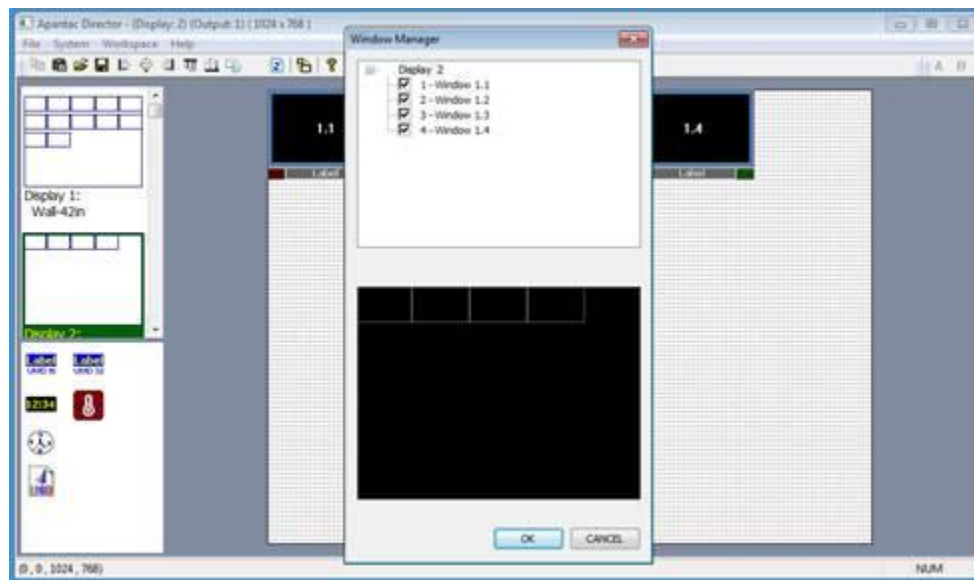
Figure 6: Window Manager

The Window Manager will list all the Input-Windows displayed to the multiviewer output display you're currently editing. Unchecking the window in the list will remove it from the display. A window can also be removed from a display without going into the window manager by selecting the window in the display workspace and pressing the Delete key of the keyboard.

Repeat the Window Manager for each multiviewer display.

WINDOW LAYOUTS

In the same context menu as Window Manager you'll find "Layout". Layout allows you to quickly configure the size and position of all the windows within the display you're editing. The options include basic grid layouts and also Picture-By-Picture (PBP) -A and –B (horizontal and vertical). Picture by Picture uses only the first and third windows, all other are turned off and not displayed.
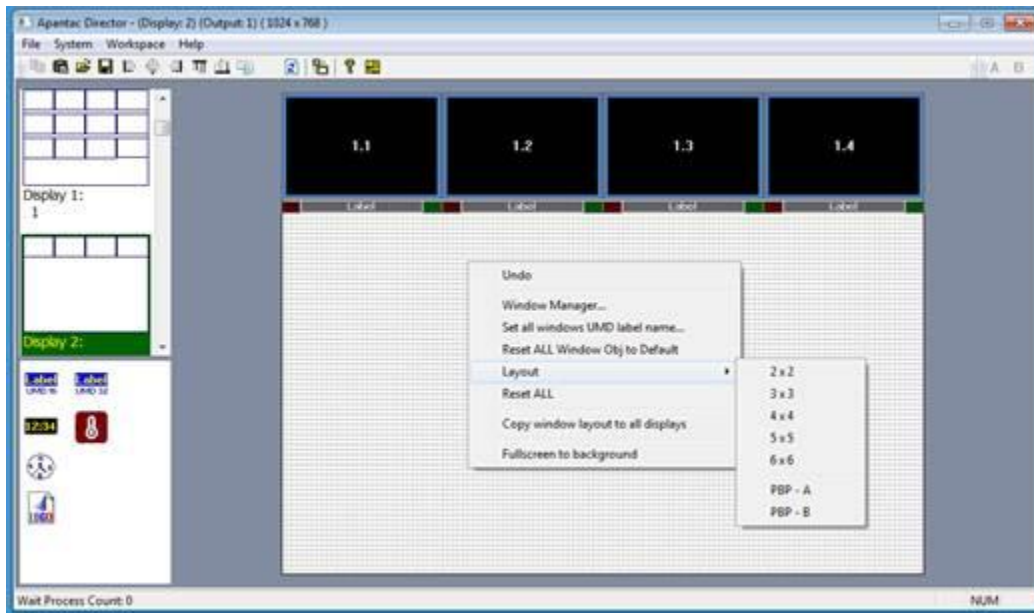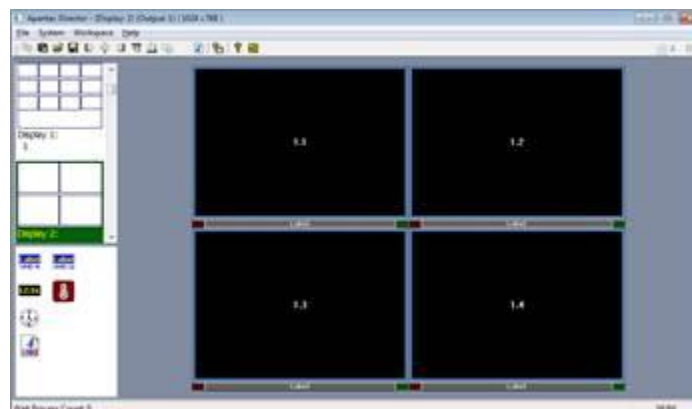

Figure 7: Layout menu

Figure 8: Quick 2x2 Layout result

Size and position of windows can also be performed individually by first selecting a window by clicking it, and then clicking and dragging its highlighted borders.

WINDOW LABELS

Label properties include more than just the text. Label properties can be individually set by right-clicking the individual label. For setting just the names it can be easier to view and set all the label names in one place. Select System in the menu and choose "Set All Window Labels…"
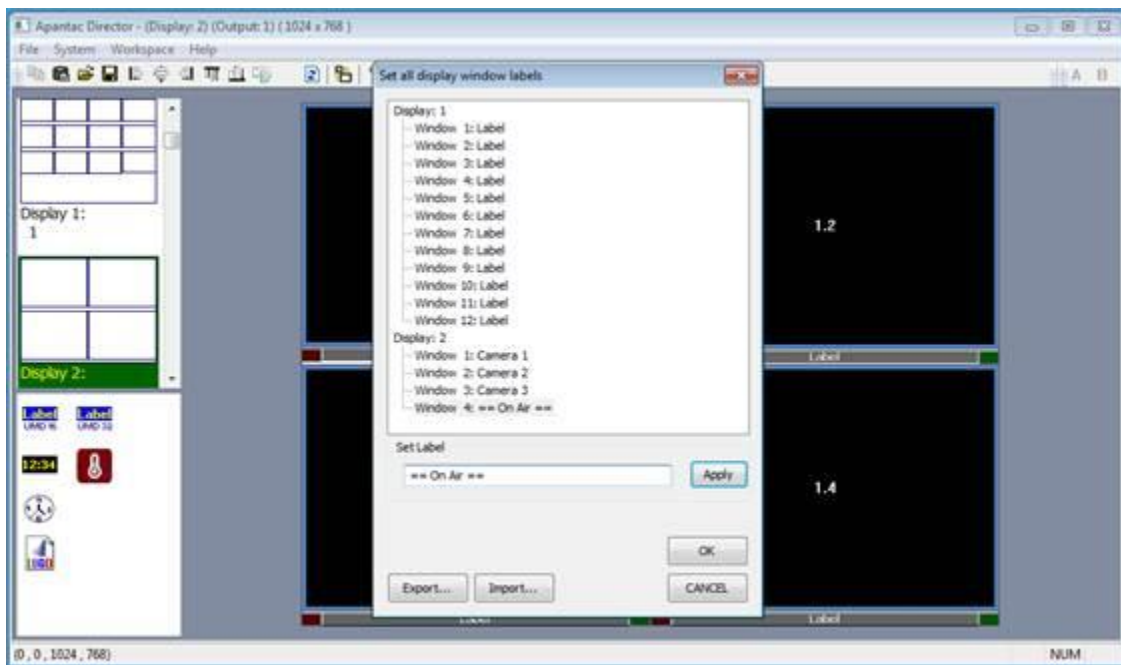

Figure 9: Set all window labels

Click the window you wish to change in the list. Enter the new text in the Set Label box and either press Enter or click the Apply button. The input automatically moves to the next window in the list. When all changes are completed, click OK.

How-To Articles

Identifying Firmware

Several modules within the Tahoma contain firmware which can be upgraded when newer versions become available. The version number of the firmware is shown when running Apantac's Tahoma configuration software "Director".

Upon starting Director, an Initialization window provides for selecting and connecting to the Tahoma unit. When the connection is established the firmware versions are displayed in this window.

STARTING THE DIRECTOR SOFTWARE

Install the Director software by copying the "Apantac Director.exe" file and its companion data folder "eModuleSave" from the CD to a folder on your computer.

Connect your computer and the Tahoma to a mutual Ethernet LAN, or connect directly to the Tahoma with a standard Ethernet cable (no cross-over cable is necessary).

Open/Run the Director program file. The program opens first to an Initialization window.

Connect the Director software to the Tahoma multiviewer by identifying its IP address and connecting using the Initialization window.

> *These are abbreviated directions for running Director and connecting the Tahoma, more detailed instructions and information on troubleshooting connection problems can be found in other documents.*

FIRMWARE IDENTIFICATION EXAMPLE

In this example we've connected to a Tahoma LE-16SD. The Initialization window shows the IP address, model number, the Control Module information (KZB), and information on the four Video Processing Modules (Q0 through Q3).
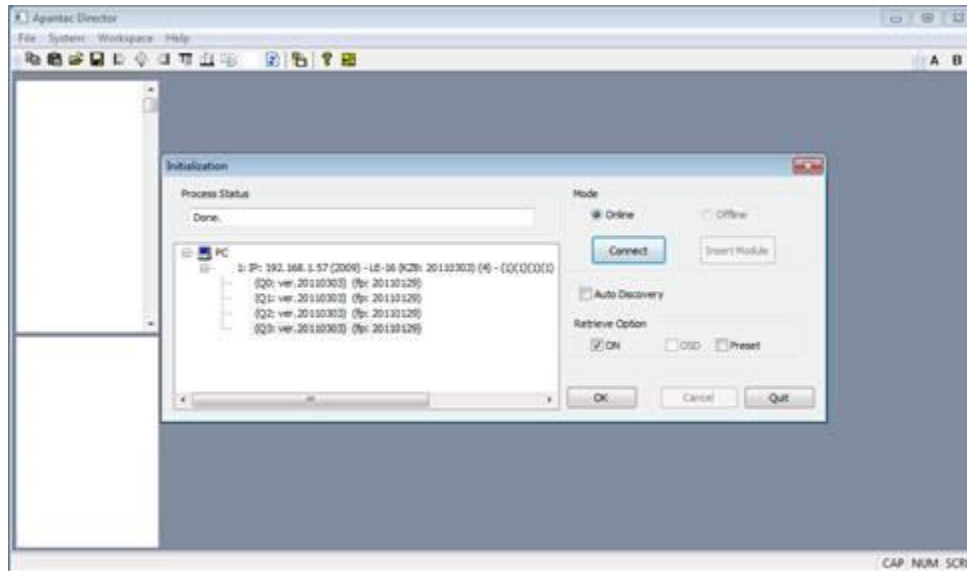

Figure 1: Apantac Director Software and the Initialization window.
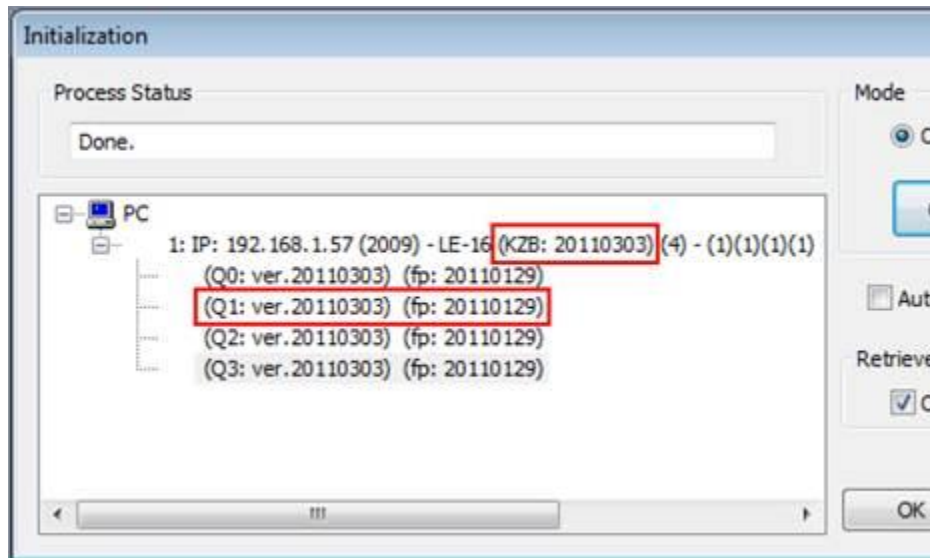
The firmware version numbers are identified here.

Figure 2: Firmware version numbers identified.

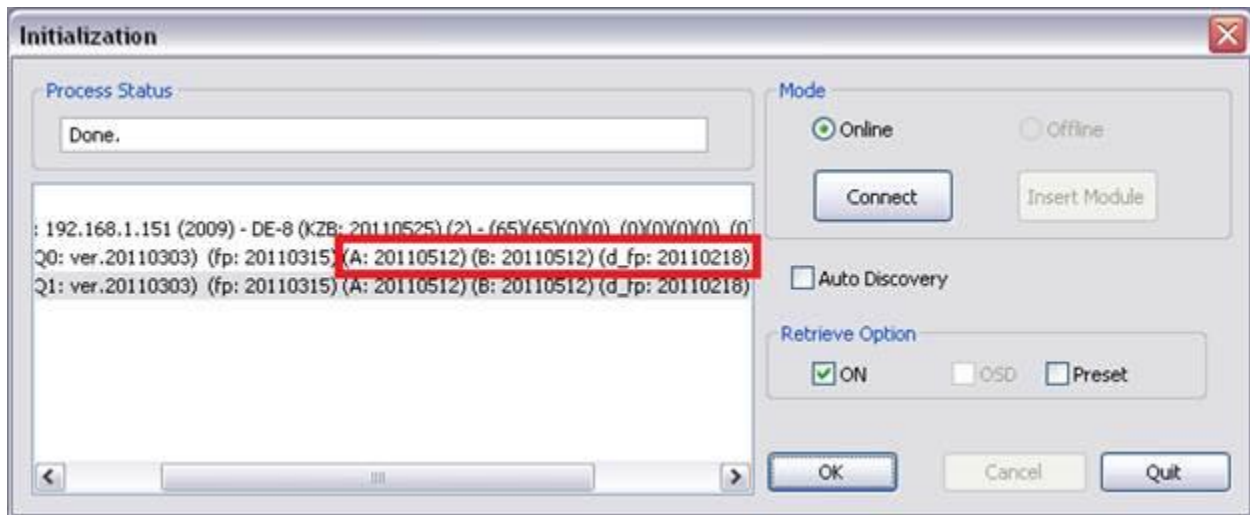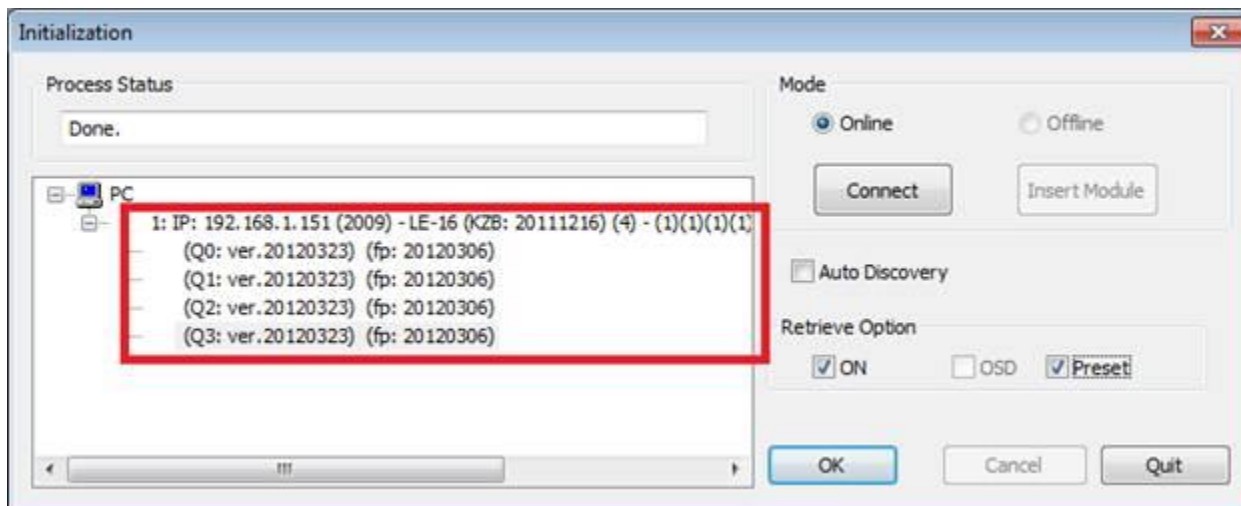For "DE" and "DL" version of Tahoma Multiviewers there are some additional numbers, the "A", "B", and "d_fp".

Figure 3: DE & DL Firmware version numbers identified.

Submit Configuration

Submitting Your Multiviewer Configuration to APANTAC Technical Support

Run Director and retrieve files.

Start Director as you would normally, pausing at the "Initialization" window.

Pleas copy the information outlined in red, and include this in your email to us. Alternately, you can include a screen capture image as shown here.

Check the Retrieve Options "ON" and "Preset" checkboxes. This will copy your current configuration from the multiviewer to your computer hard drive.

Once Director has completed loading, you may exit the program.

Zip your Configuration files.

Locate the "Apantac Director.exe" file on your computer. Some technicians keep multiple copies of Director on their computers, please be sure to locate the one you're currently using.

Name	Date modified	Type
eModuleSave	3/6/2012 4:15 PM	File folder
License	3/6/2012 4:15 PM	File folder
Apantac Director.exe	2/16/2012 4:24 PM	Application
Apantac_Ctrl_IP_Address.ini	4/5/2012 1:51 PM	Configuration settings
ApantacDATA.set	4/25/2012 4:03 PM	SET File
ApantacGUI.set	4/5/2012 1:55 PM	SET File
IP_Module_System.set	4/5/2012 1:51 PM	SET File

Note: there may or may not be a "License" folder, depending upon your multiviewer's options.

Copy and "Zip" all these files, folders, and sub-folders into a single zip file. Email this along with the Initialization information to us. Also include the serial number of your unit if you can locate it.

If the initialization information shows more than one multiviewer, please state the IP address of the unit you're your submitting.

Submitting.

Email to: Support@Apantac.com

Include:
  The initialization information
  The IP of the unit in question
  The .zip file
  Unit serial number
  An explanation of your issue
  Pictures of your display if it aides in explaining your issue

SDI Out Option

Setting the SDI-out of the Tahoma Multiviewer

OUTPUT MANAGER…

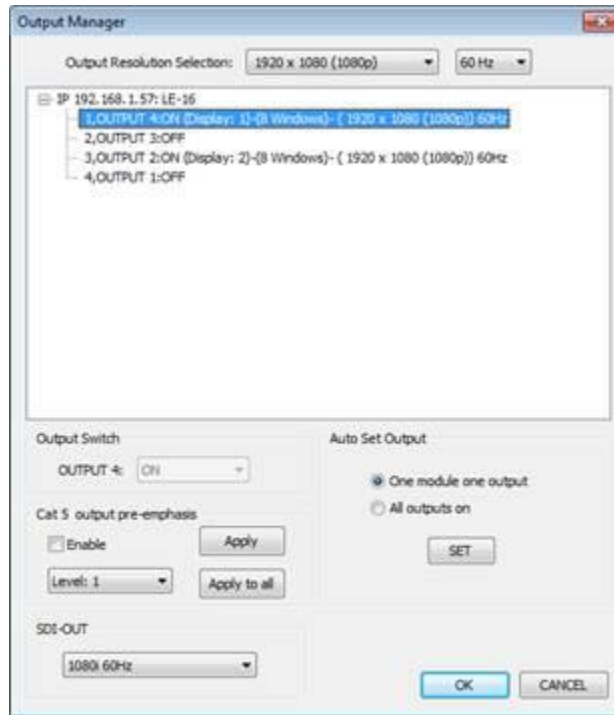From Director's main menu, select **System** and choose **Output Manager…**

Figure 1: Output Manager

Setting the Output Resolutions:

The resolution pull-down at the top of the Output Manager window will set **ALL** Multiviewer outputs to that resolution. To individually set them, right-click on each output in the list and choose "set resolution".

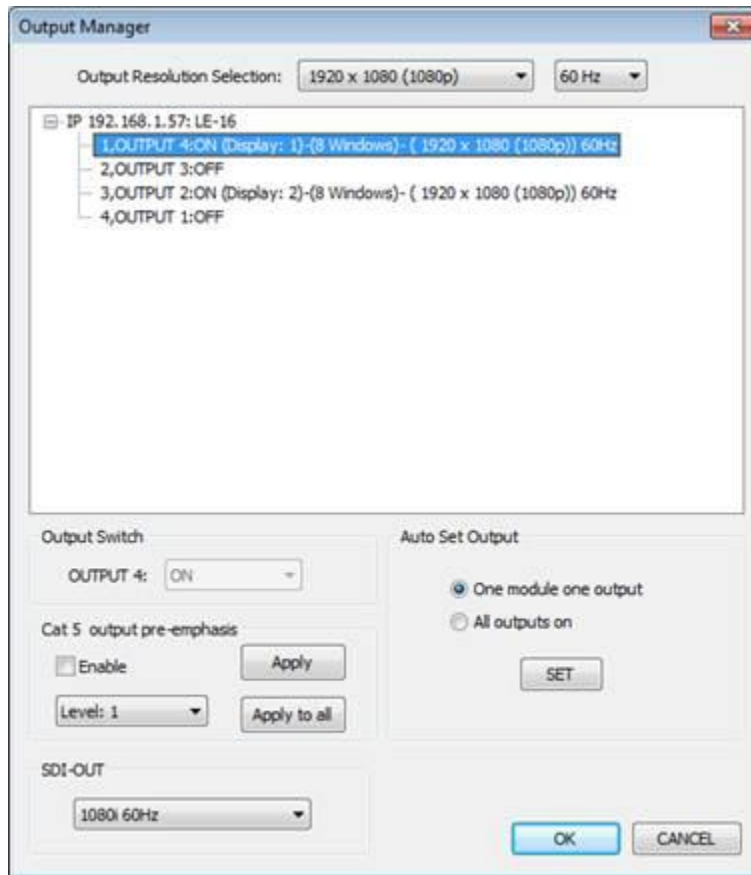The Output Frequency can be set to either 50Hz or 60Hz.

SDI-OUT CONFIGURATION:

Figure 2: SDI configuration

Two things to note:
- ➤ The SDI-Out option produces the same multiviewer output as "Display 1" (the last output of a Tahoma).
- ➤ The SDI output resolution and Display-1's resolution must be set the same.

Example: with Output 4: (Display 1) set to 1920x1080 (1080p), First click to highlight that output, then at the bottom in the SDI-OUT section, choose a matching resolution. You must choose Frequency and Interlaced/Progressive options to match your Monitor, in this example: 1080i @ 60Hz.
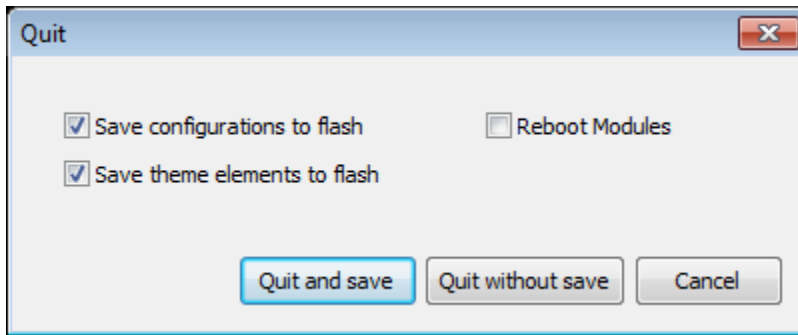
SAVE YOUR CONFIGURATION

Figure 3: Exiting Director

Upon exiting the Director Software: You must check the two "Save" check-boxes **AND** click the 'Quit and Save' button. Otherwise your Tahoma will lose it's configuration upon power cycling.

Factory Reset

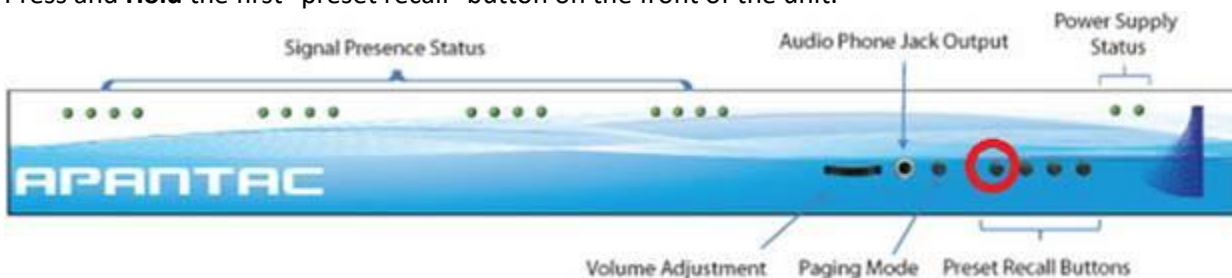**Resetting the Tahoma Multiviewer to default configuration**

Prerequisites

This procedure assumes familiarity with Apantac Director software and connecting to Apantac's Tahoma multiviewer with the software.

Restart the Multiviewer in Reset Mode

Power down the multiviewer.

Press and **Hold** the first "preset recall" button on the front of the unit.

Apply power to the multiviewer.

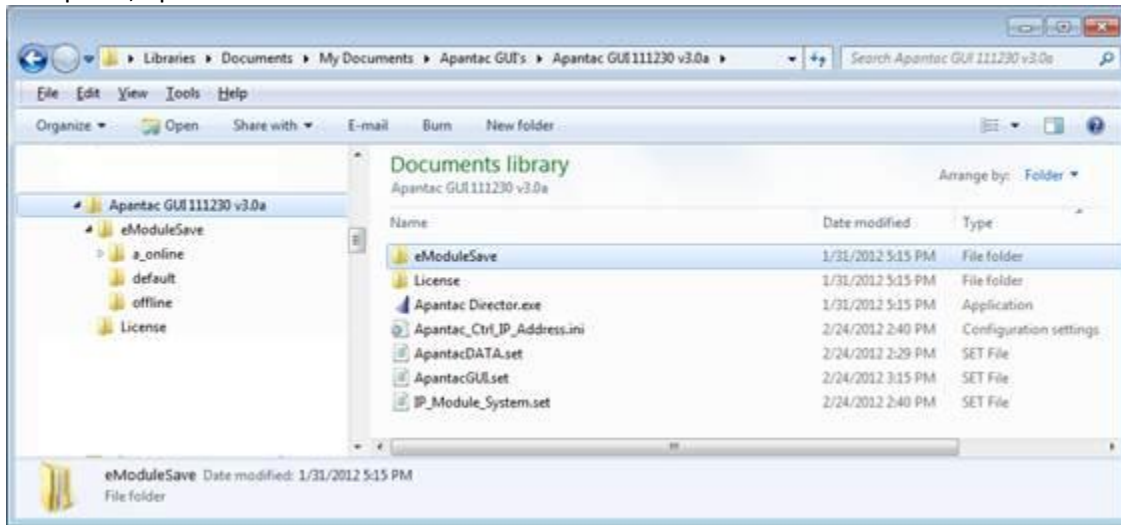Continue to hold the button until a display appears. (The typical first image is a pink rectangle.)

The multiviewer output should now resemble this picture:
Note: default resolution is 1024x768 60Hz. If your monitor can't display this it may be blank.

Prepare Director software

On your computer, open the folder in which the Director software resides.

Backup your configuration if you have saved configurations or work with other units whose files you don't want to lose. Locate the "eModuleSave" folder and make a copy of it.

Locate the "a_online" and "offline" folders within the "eModuleSave" folder and delete all files and folders inside these folders. Leave the folders, just delete what's inside.
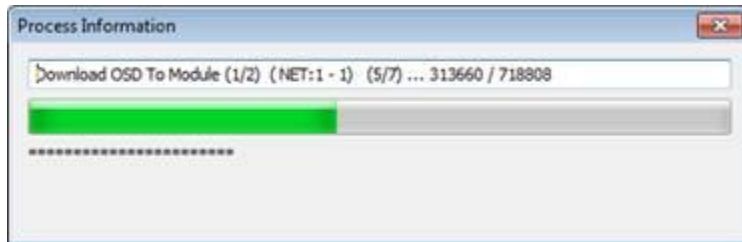
Start Director software and connect

Start Director as normal. In reset mode the unit will have the factory default IP Address of "192.168.1.151".

At the initialization screen, **uncheck** the boxes in the area titled "Retrieve Options".
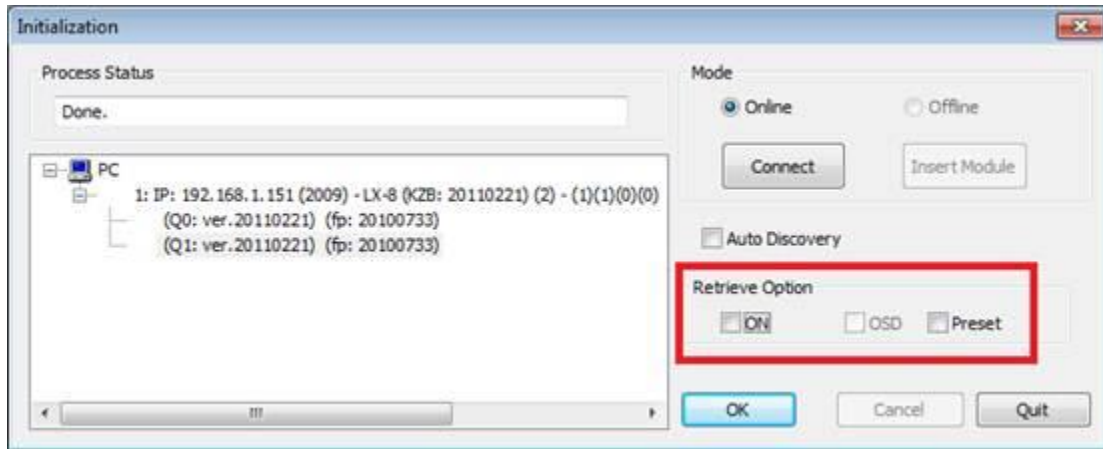
Now click the "OK" button.

Director will now initialize the unit and copy all default elements into the unit.

Note: This may take some time depending on how large of a unit you have.

Exit Director software

Exit Director as normal, saving configuration and elements as normal.