# Mi-16 Series Multiviewers

## Cost-Effective Video Multiviewers

# INSTALLATION MANUAL

## Version: 2019, V3

# Table of Contents

# 1.0 What's in the Box

| QTY | PRODUCT | DESCRIPTION |
|-----|---------|-------------|
| 1 |  | Mi-16/Mi-16+/Mi-16# multiviewer |
| 2 |  | Rack Ears |
| 4 |  | RJ50 to DB9 adapter cable for GPI |
| 4 |  | DB9 Breakout Terminal Block |
| 1 |  | RJ45 to DB9 adapter cable for RS232 interface |
| 16 |  | Terminators for passive loop outs |
| 1 |  | Analog audio breakout cable |
| 1 |  | North American Power Cord. Note: Countries outside of North America the power cord excluded |
| 1 |  | Optional Redundant Power Supply. |

# 2.0 Key Features

There are 5 models in the Mi-16 family:

- Mi-16 – 16x1 multiivewer, one source per window, no copy and duplicating sources
- Mi-16+ - 8x2 multiviewer, one source per window, no copy and duplicating sources
- Mi-16# - 16x2 multiviewer, sources can be copy and duplicated from any input to any output
- Mi-16A – 16x1 multiviewer with discrete audio inputs
- Mi-16-UHD – 16x1 multiviewer with UHD and FHD outputs

General features for all Mi-16 series

- Low latency – single frame processing delay
- Accepts 16 auto-detect 3G/HD/SD-SDI inputs
- Windows can be sized and moved freely
- Decode up to 16 embedded audio channels per SDI input, up to a total of 128 meters
- Ethernet for configuration and extenernal control
- Dynamic UMD/labes & Tallies (TSL)
- 20 standalone labels
- 4 customizable logos
- 32 GPIs for tallies, count up/down triggers or alarms
- Digital and Analog clocks can be sync'd with LTC or NTP
- Borders can be turn on or off
- Safe area markers
- Visual alarm tags for video/audio alarm detection
- Audio monitoring output – stereo, AES, embedded SDI and HDMI
- Optional closed captioning decoding and display
- Optional ATC/VITC decoding and display
- Optional advance video alarm (video frozen and video black)
- Optional redundant power supply
- 3-year limited warranty

Mi-16 specific features

- 16 passive loop throughs
- 2 simultaneous and indentical HDMI (with mirror SDI) outputs up to 1080P
- Each source can only be assigned to a window once
- 1 analog and 1 digital clocks

Mi-16+ specific features

- 16 passive loop throughts
- 2 independent HDMI (with mirror SDI)outputs, 8 windows on each output up to 1080P
- 2 analog and 2 digital clocks
- Each source can only be assigned to a window only once

Mi-16# specific features

- 16 passive loop throughs
- 2 independent HDMI (with mirror SDI) outputs up to 1080P
- 2 analog and 2 digital clocks
- Each source can be freely assigned to any window
- Each source can be copied up to 16 times as long as they are the same size
- Each source can be copied to a different size window, but only up to 16 times
- Once a source has been copied to a different size, the total number of sources will decrease by one.

Mi-16A specific features
- 8 passive loop throughs
- 2 simultaneous and indentical HDMI (with mirror SDI) outputs up to 1080P
- 16 channels of discrete analog or AES audio inputs
- Each source can only be assigned to a window once

Mi-16-UHD specific features
- 2 simultaneous HDMI (with mirror SDI) outputs
- 2 analog and 2 digital clocks
- Each source can be freely assigned to any window
- Each source can be copied up to 16 times as long as they are the same size
- Each source can be copied to a different size window, but only up to 16 times
- Once a source has been copied to a different size, the total number of sources will decrease by one.

# 2.1 Specifications

## Mi-16 Specifications

| | | | |
|---|---|---|---|
| **Inputs** | Up to 3G (level A/B)/HD/SD-SDI | **Video Output** | 2 Identical HDMI and SDI |
| **Connector Type** | BNC IEC, 61169-8 Annex A | **Audio Output** | AA, AES and Embedded stereo audio pair |
| **Total Windows** | 16 | **Output Resolution** | HDMI: 1920x1080P 50/59.94 Hz<br>SDI: 1080P/1080i 50/59.94 Hz |
| **Aspect Ratios** | 16:9 for all or 4:3 for Standard definition | **Latency** | 1 frame |
| **Serial Digital** | SMPTE 424M, 292M, 259M, supports 525i59.94, 626i50, 720p50, 720p 59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080p50, 1080p59.94, 1080p60 Level A/B | **On Screen Display** | Borders, Static and Dynamic Labels/UMDs, Tally LEDs, Alarm Tags, Clocks and Logos |
| | | **SDI Color Encoding** | 10 bit 4:2:2 |
| | | **GPI** | 32 for tally or AXP (ASCII command) |
| **Equalization** | 120m at 2.97 Gbps, 140m at 1.48 Gbps, 400m at 270 Mbps with Belden 1694A | **Serial Port** | RS-232.  Connector: RJ45, Baud Rate up to 115,200.  Supports TSL and AXP protocols |
| **Return Loss** | > 15db up to 1.485 Gbps<br>> 10db up to 3G | **IP** | 100 Base-T for control and configuration and TSL, AXP protocol |
| **Embedded Audio** | SMPTE-272M-A | **Supported IP Protocols** | TSL 3.1 for dynamic tallies and labels, Optional: Utah and PESA router protocols |
| **Alarms** | No audio, audio high/low, no video, video format display | **Electrical** | 20 W, 90 - 250 V 50/60 Hz |
| **Environment** | Operating temperature: 0 ~ 45 C<br>Operating humidity: 20 ~ 90% RH<br>Storage temperature: -20 ~ 60 C | **EMI/RFI** | Complies with FCC Part 15, Class A, CE, EU EMC, C-tick |
| | | **Size / Weight** | 1RU. 446 x 452 x 44 mm (L x W x H) |

## Mi-16+ Specifications

| | | | |
|---|---|---|---|
| **Inputs** | Up to 3G (level A/B)/HD/SD-SDI | **Video Output** | 2 independent HDMI and 2 SDI with 8 windows each |
| **Connector Type** | BNC IEC, 61169-8 Annex A | **Audio Output** | AA, AES and Embedded stereo audio pair |
| **Total Windows** | 4, 8, 12 or 16 | **Output Resolution** | HDMI: 1920x1080P 50/59.94 Hz |
| **Aspect Ratios** | 16:9 for all or 4:3 for Standard definition | | SDI: 1080P/1080i 50/59.94 Hz |
| | SMPTE 424M, 292M, 259M, supports | **Latency** | 1 frame |
| **Serial Digital** | 525i59.94, 626i50, 720p50, 720p 59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080p50, 1080p59.94, 1080p60 Level A/B | **On Screen Display** | Borders, Static and Dynamic Labels/UMDs, Tally LEDs, Alarm Tags, Clocks and Logos |
| | | **SDI Color Encoding** | 10 bit 4:2:2 |
| | | **GPI** | 16 for tally or AXP (ASCII command) |
| **Equalization** | 120m at 2.97 Gbps, 140m at 1.48 Gbps, 400m at 270 Mbps with Belden 1694A | **Serial Port** | RS-232. Connector: RJ45, Baud Rate up to 115,200. Supports TSL and AXP protocols |
| **Return Loss** | > 15db up to 1.485 Gbps | **IP** | 100 Base-T for control and configuration and TSL, AXP protocol |
| | > 10db up to 3G | | |
| **Embedded Audio** | SMPTE-272M-A | **Supported IP Protocols** | TSL 3.1 for dynamic tallies and labels, Optional: Utah and PESA router protocols |
| **Alarms** | No audio, audio high/low, no video, video format display | **Electrical** | 20 W, 90 - 250 V 50/60 Hz |
| **Environment** | Operating temperature: 0 ~ 45 C | **EMI/RFI** | Complies with FCC Part 15, Class A, CE, EU EMC, C-tick |
| | Operating humidity: 20 ~ 90% RH | | |
| | Storage temperature: -20 ~ 60 C | **Size / Weight** | 1RU. 446 x 452 x 44 mm (L x W x H) |

## Mi-16# Specifications

| | | | |
|---|---|---|---|
| **Inputs** | Up to 3G (level A/B)/HD/SD-SDI | **Video Output** | 2 independent HDMI and 2 SDI with up to 16 windows each |
| **Connector Type** | BNC IEC, 61169-8 Annex A | **Audio Output** | AA, AES and Embedded stereo audio pair |
| **Total Windows** | 4, 8, 12 or 16 | **Output Resolution** | HDMI: 1920x1080P 50/59.94 Hz |
| **Aspect Ratios** | 16:9 for all or 4:3 for Standard definition | | SDI: 1080P/1080i 50/59.94 Hz |
| | SMPTE 424M, 292M, 259M, supports | **Latency** | 1 frame |
| **Serial Digital** | 525i59.94, 626i50, 720p50, 720p 59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080p50, 1080p59.94, 1080p60 Level A/B | **On Screen Display** | Borders, Static and Dynamic Labels/UMDs, Tally LEDs, Alarm Tags, Clocks and Logos |
| | | **SDI Color Encoding** | 10 bit 4:2:2 |
| | | **GPI** | 16 for tally or AXP (ASCII command) |
| **Equalization** | 120m at 2.97 Gbps, 140m at 1.48 Gbps, 400m at 270 Mbps with Belden 1694A | **Serial Port** | RS-232. Connector: RJ45, Baud Rate up to 115,200. Supports TSL and AXP protocols |
| | | **IP** | 100 Base-T for control and configuration and TSL, AXP protocol |
| **Return Loss** | > 15db up to 1.485 Gbps | | |
| | > 10db up to 3G | **Supported IP Protocols** | TSL 3.1 for dynamic tallies and labels, Optional: Utah and PESA router protocols |
| **Embedded Audio** | SMPTE-272M-A | | |
| **Alarms** | No audio, audio high/low, no video, video format display | **Electrical** | 20 W, 90 - 250 V 50/60 Hz |
| **Environment** | Operating temperature: 0 ~ 45 C | **EMI/RFI** | Complies with FCC Part 15, Class A, CE, EU EMC, C-tick |
| | Operating humidity: 20 ~ 90% RH | | |
| | Storage temperature: -20 ~ 60 C | **Size / Weight** | 1RU. 446 x 452 x 44 mm (L x W x H) |

# Mi-16A Specifications

| | | | |
|---|---|---|---|
| **Inputs** | Up to 3G (level A/B)/HD/SD-SDI | **Video Output** | 2 Identical HDMI and SDI |
| **Connector Type** | BNC IEC, 61169-8 Annex A | **Audio Output** | AA, AES and Embedded stereo audio pair |
| **Total Windows** | 16 | **Output Resolution** | HDMI: 1920x1080P 50/59.94 Hz<br>SDI: 1080P/1080i 50/59.94 Hz |
| **Aspect Ratios** | 16:9 for all or 4:3 for Standard definition | **Latency** | 1 frame |
| **Serial Digital** | SMPTE 424M, 292M, 259M, supports 525i59.94, 626i50, 720p50, 720p 59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080p50, 1080p59.94, 1080p60 Level A/B | **On Screen Display** | Borders, Static and Dynamic Labels/UMDs, Tally LEDs, Alarm Tags, Clocks and Logos |
| | | **SDI Color Encoding** | 10 bit 4:2:2 |
| | | **GPI** | 32 for tally or AXP (ASCII command) |
| **Equalization** | 120m at 2.97 Gbps, 140m at 1.48 Gbps, 400m at 270 Mbps with Belden 1694A | **Serial Port** | RS-232.  Connector: RJ45, Baud Rate up to 115,200.  Supports TSL and AXP protocols |
| **Return Loss** | > 15db up to 1.485 Gbps<br>> 10db up to 3G | **IP** | 100 Base-T for control and configuration and TSL, AXP protocol |
| **Embedded Audio** | SMPTE-272M-A | **Supported IP Protocols** | TSL 3.1 for dynamic tallies and labels, Optional: Utah and PESA router protocols |
| **Alarms** | No audio, audio high/low, no video, video format display | **Electrical** | 20 W, 90 - 250 V 50/60 Hz |
| **Environment** | Operating temperature: 0 ~ 45 C<br>Operating humidity: 20 ~ 90% RH<br>Storage temperature: -20 ~ 60 C | **EMI/RFI** | Complies with FCC Part 15, Class A, CE, EU EMC, C-tick |
| | | **Size / Weight** | 1RU. 446 x 452 x 44 mm (L x W x H) |

## Mi-16-UHD Specifications

| | | | |
|---|---|---|---|
| **Inputs** | Up to 3G (level A/B)/HD/SD-SDI | **Video Output** | 2 x HDMI 2.0, 1 x 12G, 1 x 3G |
| **Connector Type** | BNC IEC, 61169-8 Annex A | **Audio Output** | AA and Embedded stereo audio pair |
| **Total Windows** | 4, 8, 12 or 16 | **Output Resolution** | HDMI: 3840x2160P 50/59.94 Hz<br>SDI: 1080P/2160P 50/59.94 Hz |
| **Aspect Ratios** | 16:9 for all inputs | | |
| **Serial Digital** | SMPTE 424M, 292M, 259M, supports 525i59.94, 626i50, 720p50, 720p 59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080p50, 1080p59.94, 1080p60 Level A/B | **Latency** | 1 frame |
| | | **On Screen Display** | Borders, Static and Dynamic Labels/UMDs, Tally LEDs, Alarm Tags, Clocks and Logos |
| | | **SDI Color Encoding** | 10 bit 4:2:2 |
| | | **GPI** | 16 for tally or AXP (ASCII command) |
| **Equalization** | 120m at 2.97 Gbps, 140m at 1.48 Gbps, 400m at 270 Mbps with Belden 1694A | **Serial Port** | RS-232. Connector: RJ45, Baud Rate up to 115,200. Supports TSL and AXP protocols |
| | | **IP** | 100 Base-T for control and configuration and TSL, AXP protocol |
| **Return Loss** | > 15db up to 1.485 Gbps<br>> 10db up to 3G | **Supported IP Protocols** | TSL 3.1 for dynamic tallies and labels, Optional: Utah and PESA router protocols |
| **Embedded Audio** | SMPTE-272M-A | | |
| **Alarms** | No audio, audio high/low, no video, video format display | **Electrical** | 55 W, 90 - 250 V 50/60 Hz |
| **Environment** | Operating temperature: 0 ~ 45 C<br>Operating humidity: 20 ~ 90% RH<br>Storage temperature: -20 ~ 60 C | **Size / Weight** | 1RU. 446 x 452 x 44 mm (L x W x H) |

# 2.2 Rear Views



Figure 1 Mi-16 rear view
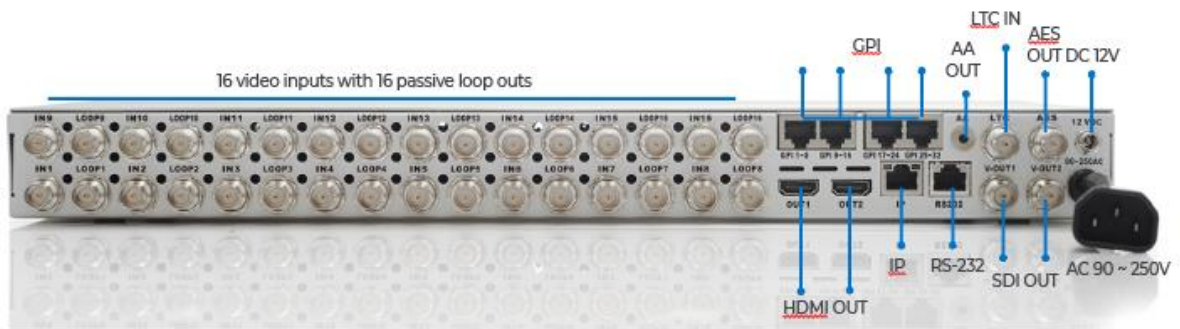


Figure 2 Mi-16+ rear view
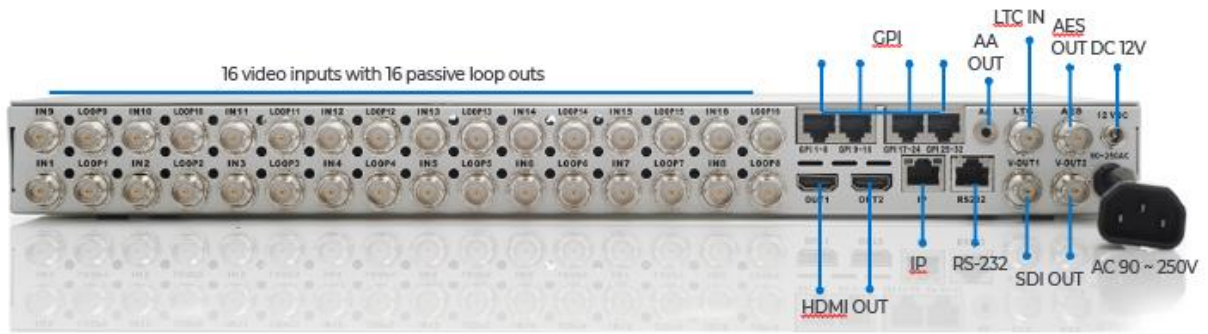
Figure 3 Mi-16# rear view



Figure 4 Mi-16A rear view
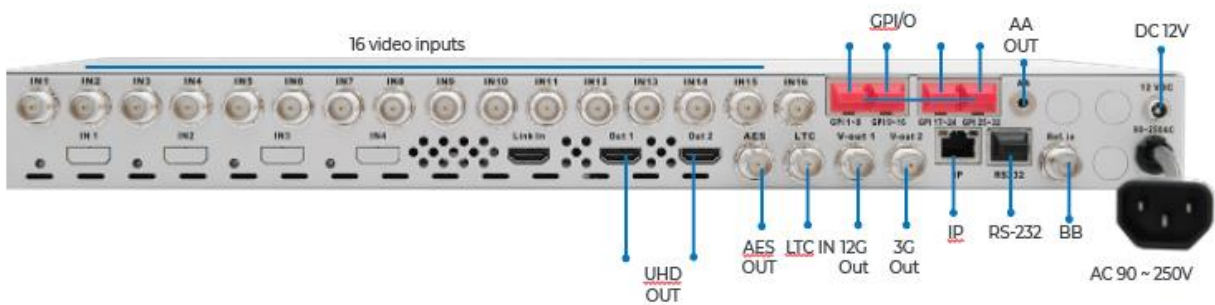


Figure 5 Mi-16-UHD rear view

## 2.3    Available Options

Redundant power supply – 12V DC

# 3.0 Hardware boot up

There is no on/off on the Mi-16, this is due to the UL safety regulation imposed on 1 rack unit products. To power on the Mi-16, insert power cord directly to the AC power receptacle, the Mi-16 will boot in approximately 10 seconds. When the HDMI output is connected to the screen, the following information will display on the lower third of the display for about 5 seconds (see Fig. 1), then followed by the Apantac logo, then the very last screen layout prior to powering off the unit.



Figure 6: FPGA/FW version and IP address of the unit will be displayed for about 5 seconds

# 4.0 Software

This section will help you get the Mi-16 setup as quickly as possible.
Before you can successfully run the jDirector, you must first run the software installation. The jDirector software can be downloaded from the [Apantac Product Page](#) on the Apantac.com website.

After completing the Apantac jDirector software installation open the application by using the shortcut created on the Windows Desktop or from the shortcut in the Windows Start Menu under the APANTAC folder.



Figure 7: Double-Click on *Apantac jDirector* to launch the configuration software.

When first launching the jDirector software you will first see the intialization screen.
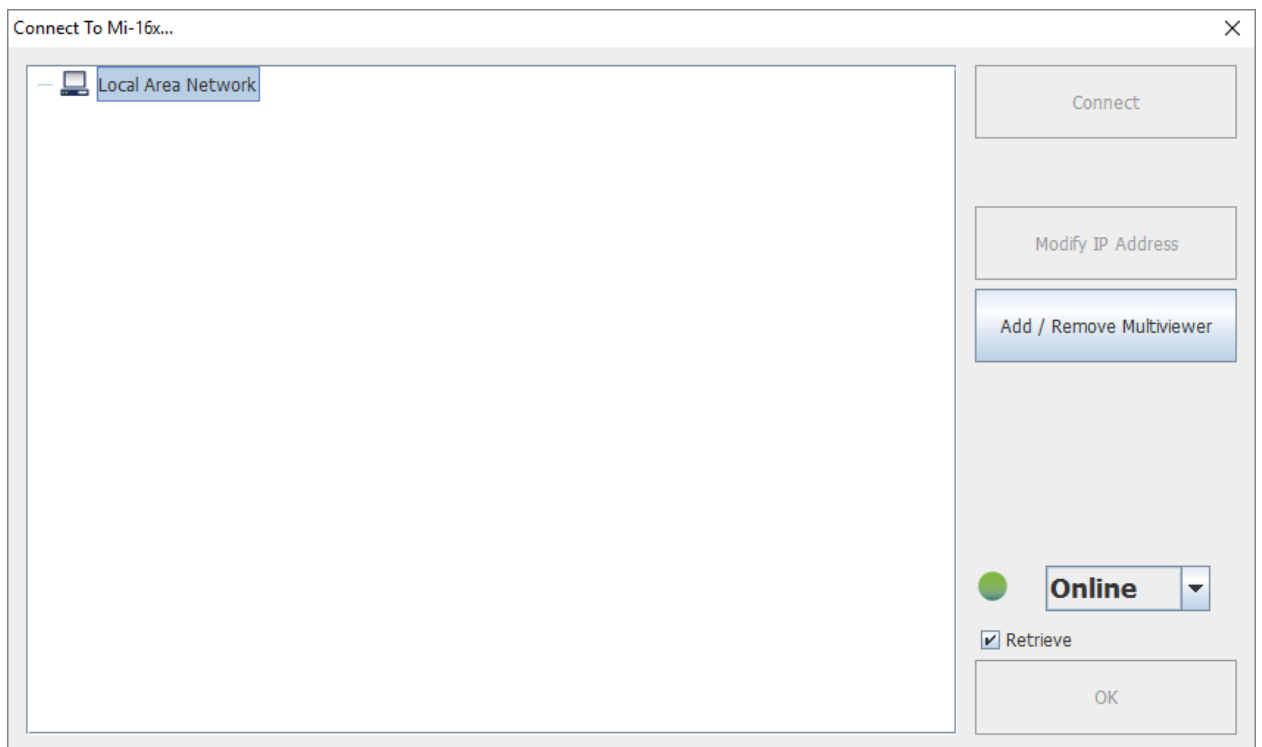


Figure 8: jDirector Initialization screen

*To connect to the multiviewer your PC must be connected to the same subnet as the multiviewer. The IP address(es) is displayed briefly on the monitor attached to the corresponding output at boot up.*



Figure 9: IP address of the unit will be displayed for 5 seconds on boot up.
The default IP address is 192.168.0.100

To connect to the Mi-16 multiviewer click the **Add / Remove Multiviewer** button
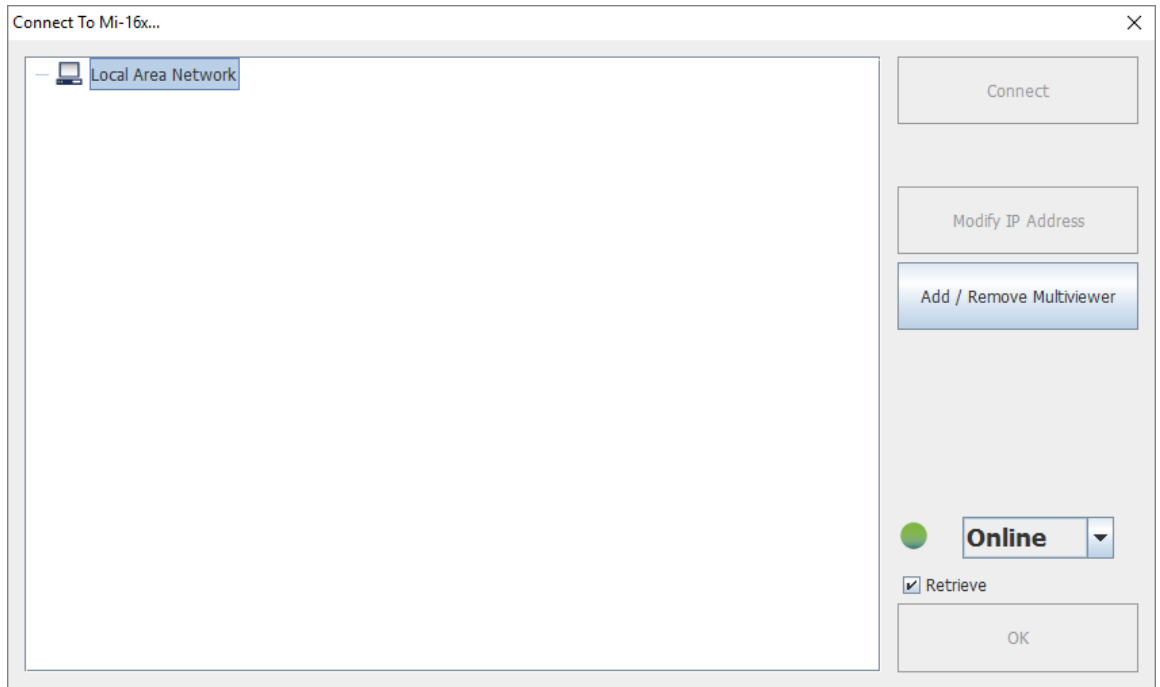


Figure 10: Local Area Network -> Mi-16x IP Address Manager

- Click the **Please select one** drop down menu and select correct model.
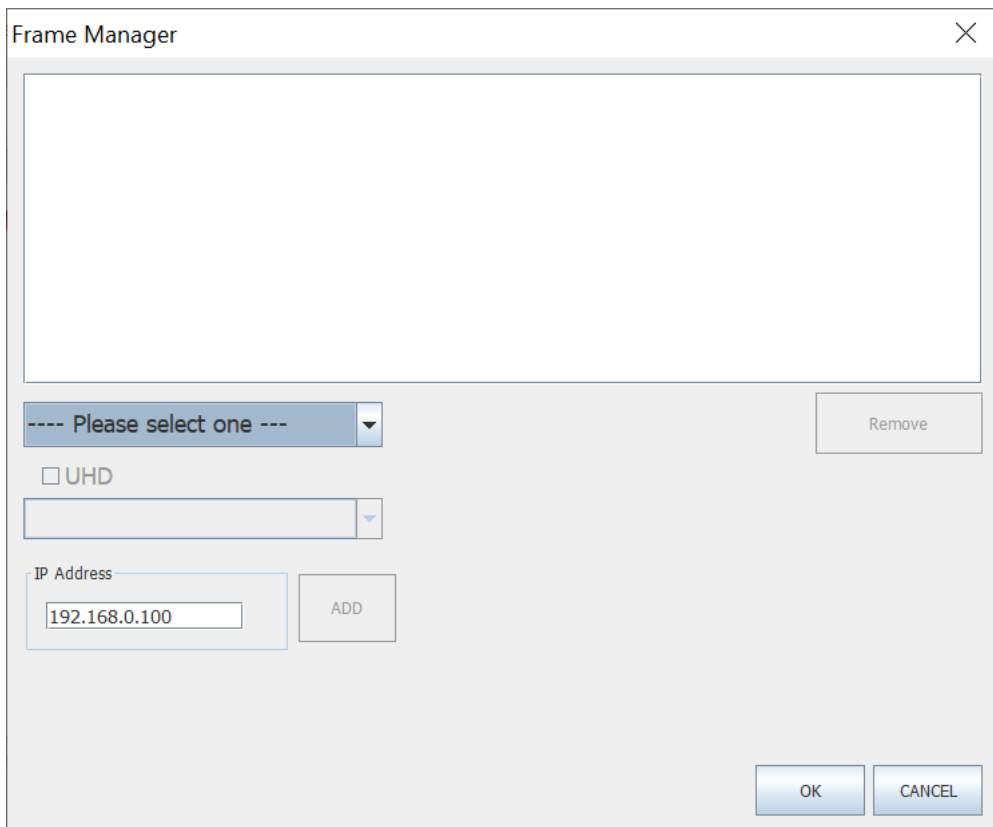


Figure 11: Add Mi-16
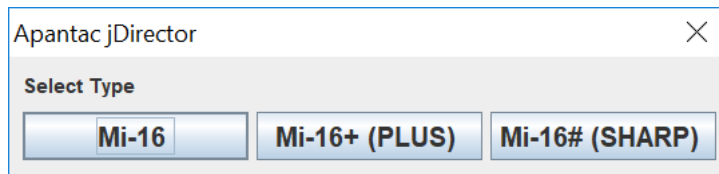
Figure 12: Select your Mi-16 model and then enter the IP address

Note:   When selecting Mi-16 even if you select incorrect Mi-16 model, the jDirector will automatically detect the proper version of hardware you have.
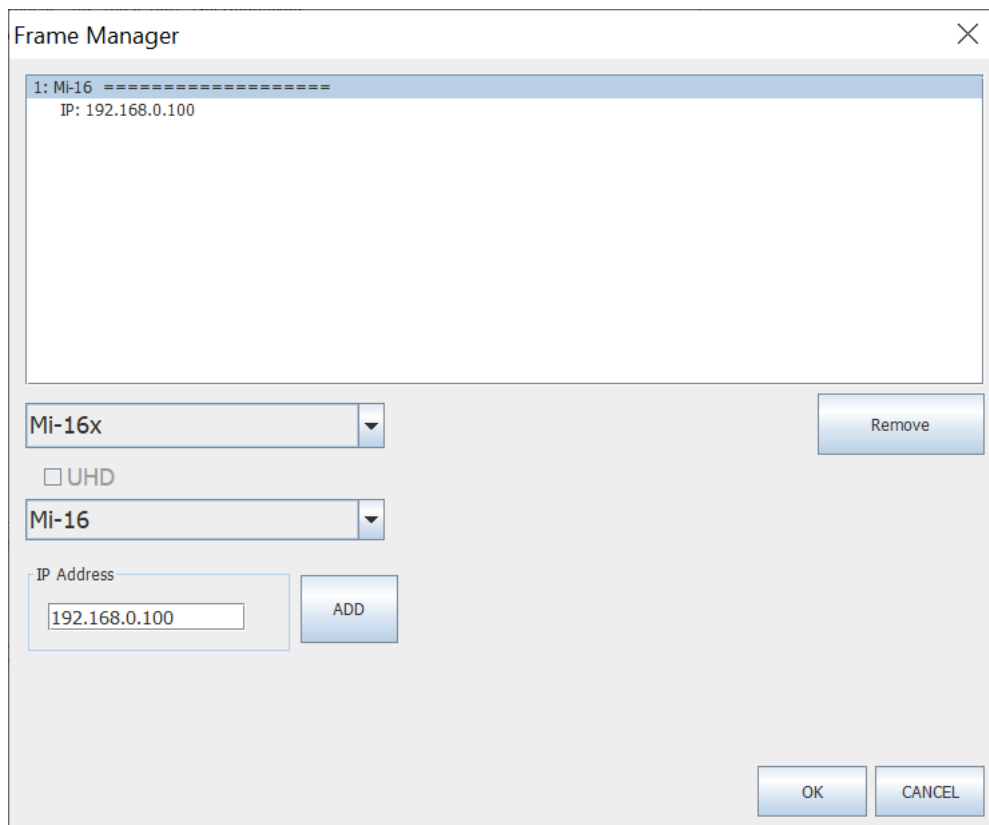


Figure 13: Add Multiviewer

Click the **ADD** button and the selection will appear in the white box above the dropdown.

After you have completed the above steps, click **OK** to continue, jDirector will take to the overview mode of the user interface.

If you have previously connected to a Mi-16 before with the jDirector software, you may see this dialog when you connect to it again, click on **OK** to continue.
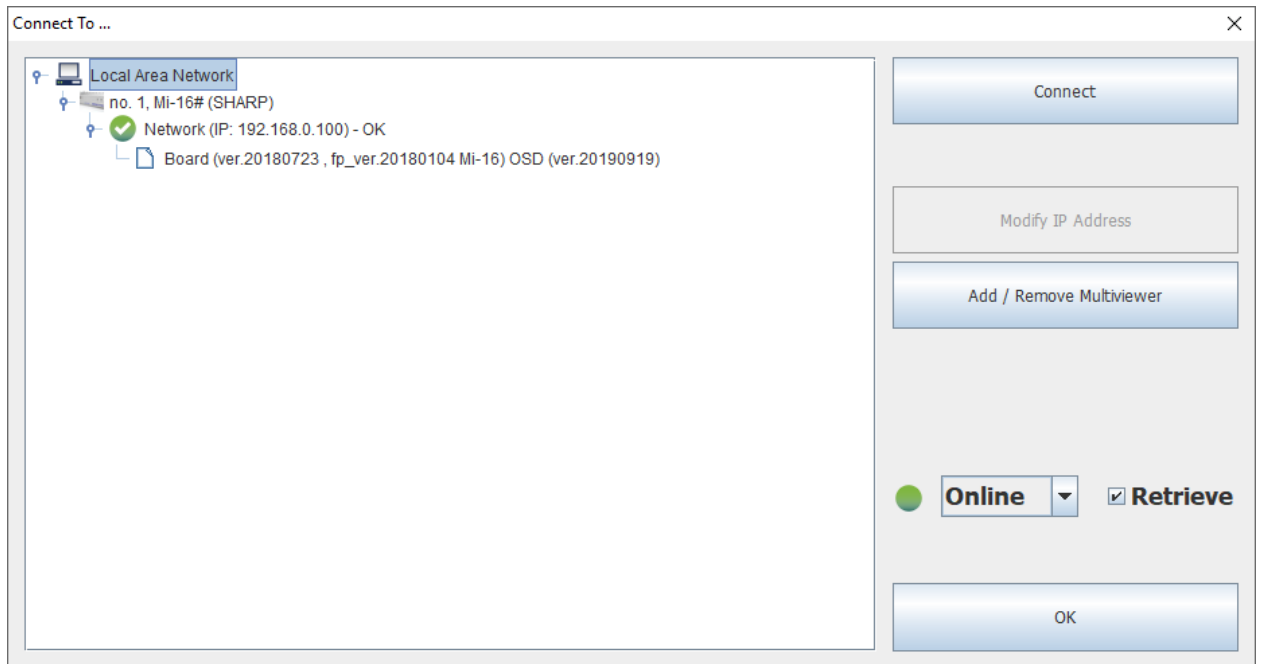


Figure 14: Connecting to a Mi-16 that displays a previous connection

## 4.1 Changing the Mi-16 IP Address

When at the "Connect to the Mi-16x…" window when first opening the jDirector software you should see the current IP address if you have added a unit with the above instructions or have previousely connected to the Mi-16.

- Left click on the Model line to highlight it. (Line above IP address.)
- Click the **Modifiy IP Address** button on the right.
- Enter in the desired IP address, Subnet mask and Gateway.
  Then confirm the change by clicking the **OK** button.
- Reboot of the Mi-16 unit is required to make the change active.
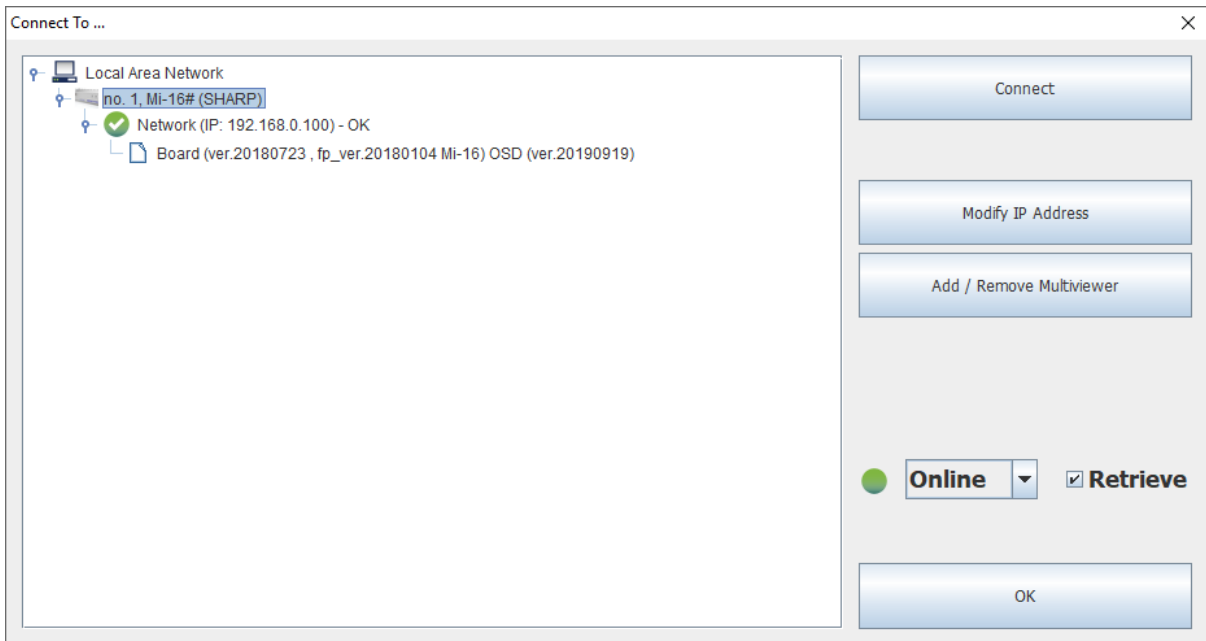
Figure 15: Mi-16 change IP Address.

## 4.2 Configuring of the Mi-16 series

### Mi-16

The Mi-16 is the most basic model of the Mi-16 family. There are 16 inputs and one output. Each source can be only assigned to each window once. Once the jDirector is connected to the Mi-16, the following editor layout will appear.
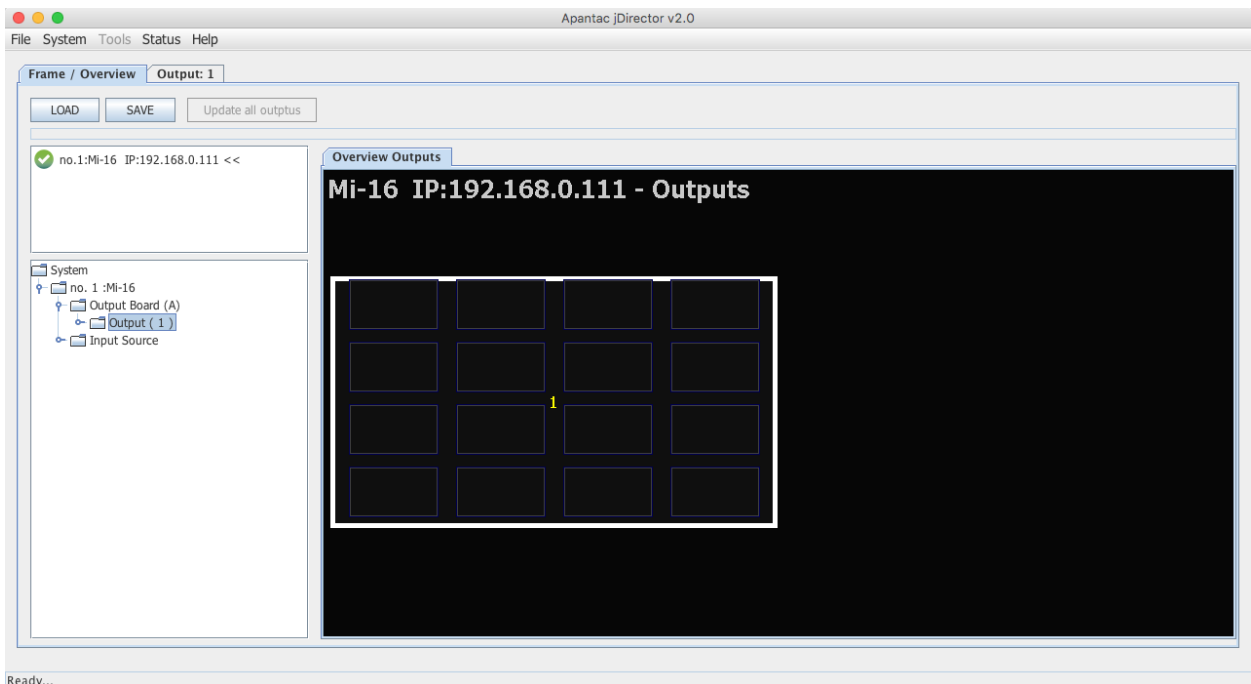


Figure 16: Mi-16 Overview Mode

Select the *Output* tab at the top or double click within the white outline of the Overview Output and this will take you to jDirector's editing mode.

## Mi-16+

The Mi-16+ is the medium model of the Mi-16 family. There are 16 inputs and two output, 8 windows on each output. Each source can be only assigned to each window once. Once the jDirector is connected to the Mi-16+, the following editor layout will appear.
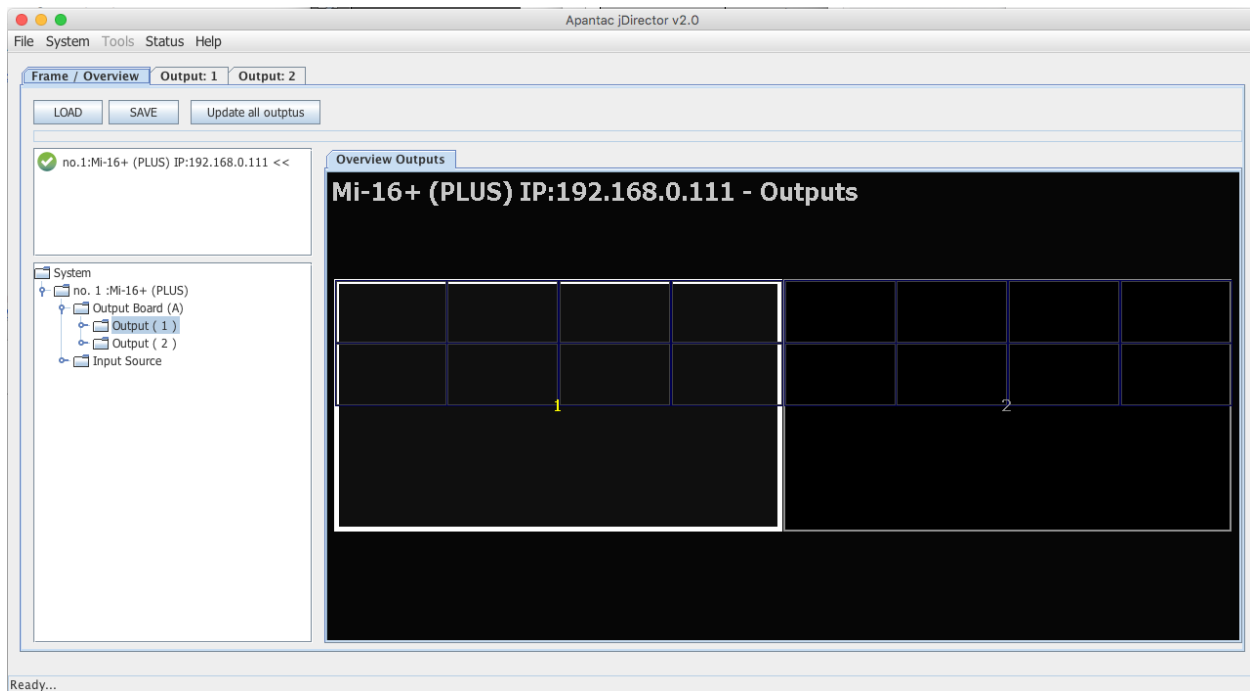


Figure 17: Mi-16+ Overview Mode

Select the *Output* tab at the top or double click within the white outline of the Overview Output and this will take you to jDirector's editing mode.

## Mi-16#

The Mi-16# is the most adavanced model of the Mi-16 family. There are 16 inputs and two output, each output can have up to 16 windows. Each source can be copied to multiple windows of the same size or different sizes. Once the jDirector is connected to the Mi-16#, the following editor layout will appear

Note:    In the Mi-16#, there are 16 windows resources, when a source is copied to a same size window, it will not consume any additional window resources, however, when a source is copied to a different size window than its original size, it will consume one additional window resource. For example, if source one is copied to a different size window, then there are only 14 window resources left instead of 15.
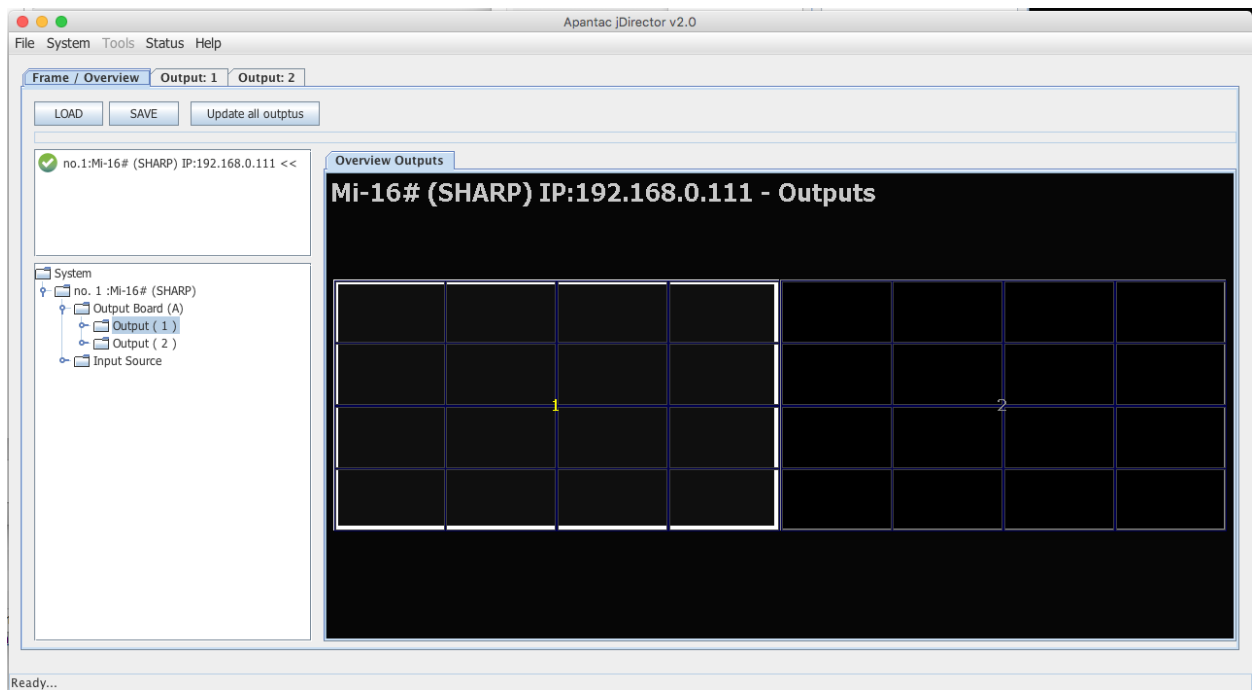
Figure 18: Mi-16# Overview Mode

Select the *Output* tab at the top or double click within the white outline of the Overview Output and this will take you to jDirector's editing mode.

# 5.0 Common features and configurations

## 5.1 Editing mode
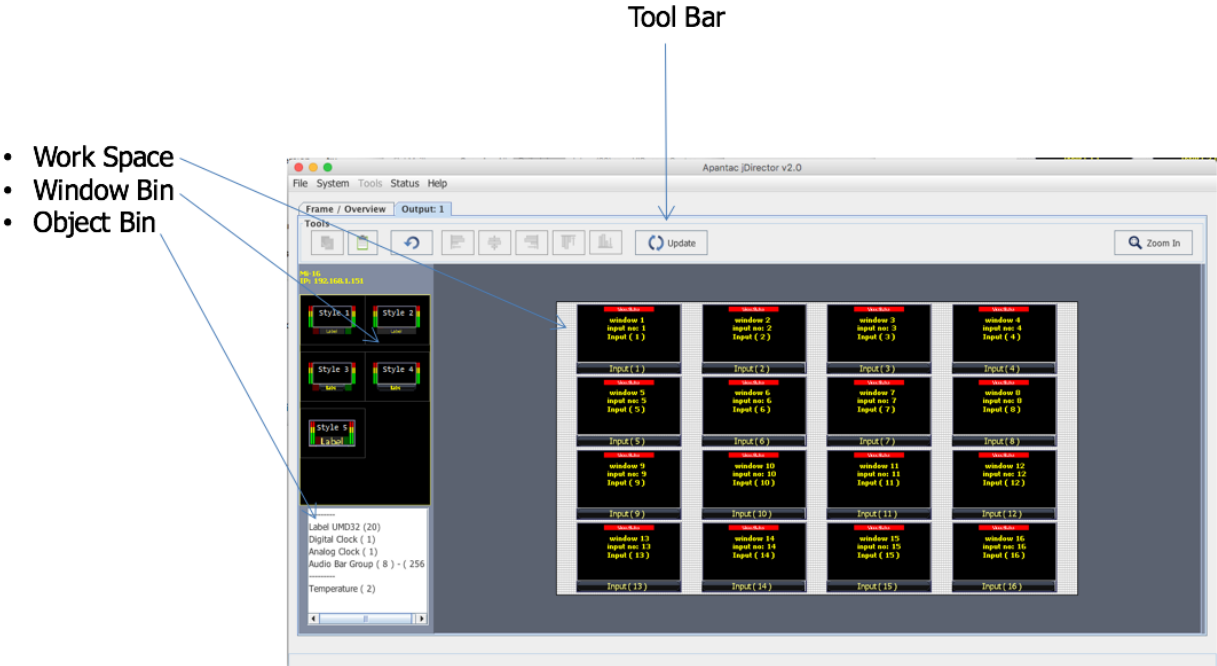


Figure 19: Mi-16 editing mode
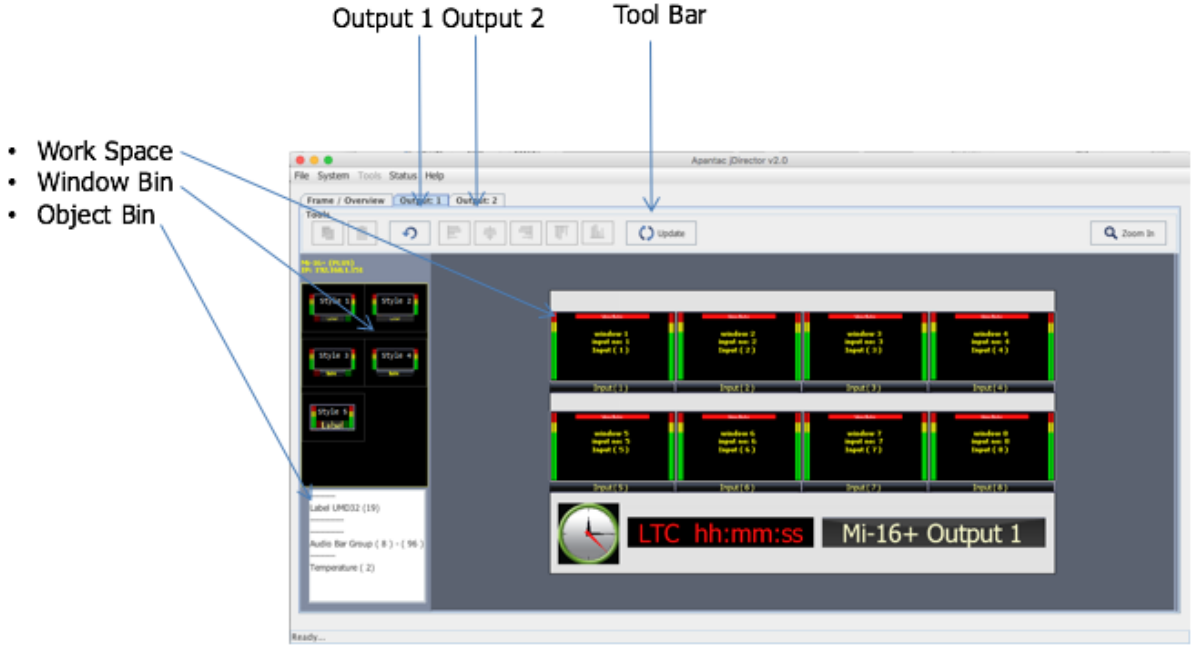


Figure 20: Mi-16+ and Mi-16# editing mode

The jDirector editor consists of 4 major work areas,

1. Tool Bar, is where all the tool short cuts reside
2. Work Space is the space to edit the on screen layout and look
3. Window Bin, where all the windows templates reside
4. Object Bin, where all the objects such as standalone labels, digital clocks, analog clocks and temperature alarm
5.  button on the tool bar will update the laytout on the PC to the Mi-16 output.

## 5.2    System level settings

### 5.2.1 Set output timing

The Mi-16 series comes with the default output setting of 1080P60Hz, it can easily be changed to 1080P50Hz by doing the following,

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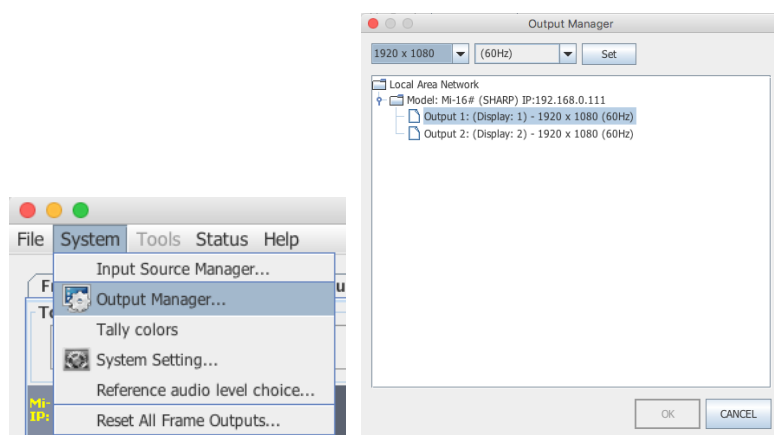


Figure 21: Output Manager

## 5.2.2  Sources, Names, Tally and Other Setups

Every Mi-16's source attributes can be configured in a single place. Since the Mi-16# allows copying of the sources, these attributes can follow the sources every time it is assigned to a new window.

These attributes are as follows:

Names
- The default names are Input (1) to Input (16), each name can have up to 32 characters
- The names can be static or dynamic. When the names are set to dynamic, the UMD of the window will become blank and waiting for the name assignment to come from an external tally management system such as TSL or TSI.

TSL
In order for the names to be dynamic, the TSL address is assigned to each source. The default assignment is 0 ~ 16

Tally Mode
The Tally can be either trigger via GPI or an external tally management system such as TSL or TSI.

Tally attributes
Whether the tally trigger is GPI or TSL, the tally indicators can be assigned to on screen elements such as LEDs, borders, UMD text and UMD text colors.

To start configuring the Input Source table

| | |
|---|---|
| On the top menu, go to System -> Input Source Manager, the Input Source Manager dialog will pop up. |  |
| | Figure 22: Input source manager |
| Name the source | |
| Click on any of the Name field and start assigning names. Click <OK>, then it will automatically jump to the next name until you hit <Cancel> | <br><br>Figure 23: Enter source names |
| Continue to name all the sources. | <br>Figure 25: Input source manager with updated names |

| Quick Settings | |
|---|---|
| There are several quick settings that will speed up the setup process | <br>Figure 25: Quick Settings |

| | |
|---|---|
| Set all attributes to default | <br>Figure 26: Click on <Yes> to return to default |
| Rest Input Names <SET> – will set all the input names back to Input (1), Input (2) and so on | <br>Figure 27: Reset Input names          Figure 28: Names reset to default |
| Clear all source Tally GPI bit <SET> – will clear all GPI tally settings | <br>Figure 29: Clear all source GPI bits     Figure 30: GPI bits reset to default |
| | <br>Figure 31: Set 1 GPI bit per source     Figure 32: Only 1 bit is set on GPI Tally |

| | | |
|---|---|---|
| Tally – 2 GPI bit per source <SET> - will sequentially assign two GPI tally per source | Figure 33: Set 2 GPI bits per source | Figure 34: both bits are set on GPI Tally |
| All Input Names TSL <SET> will change all Fixed/Dyanmic Names from "Fixed" to "Dynamic" | Figure 35: Set all Input Names to TSL | Figure 36: All input names set to Dynamic |
| All Input Names static <SET> will change all Fixed / Dyanmic Names from "Dynamic" to "Fixed" | Figure 37: Set all Input names to static | Figure 38: All input names to Fixed |
| Reset TSL Addresses <SET> will set all TSL address back to default 0 ~ 15 | Figure 39: Reset all TSL Addresses | Figure 40: All TSL addresses set to default |

| | |
|---|---|
| Change Name from Fixed to Dynamic and vise versa | Figure 41: Change UMD from Fixed to Dynamic |
| Change TSL addressesk. Double Click on the TSL address Cell and change it to the desired number between 0 to 127 | Figure 42: Input TSL address |
| Set TSL Tally attributes. Set Tally mode to TSL, double click on Tally -> Configure | Figure 43: Set TSL tally attributes |
| Change the Tally Mode between GPI to Tally | Figure 44: Change Tally Mode to GPI |
| Set GPI Tally attributes. Set Tally mode to GPI, double click on Tally -> Configure | Figure 45: Set GPI tally attributes |
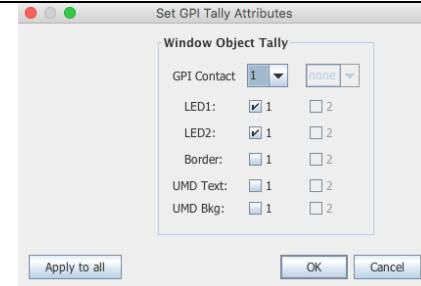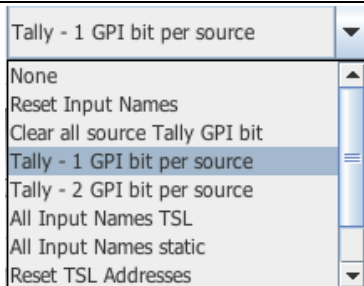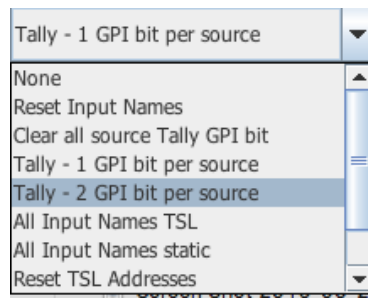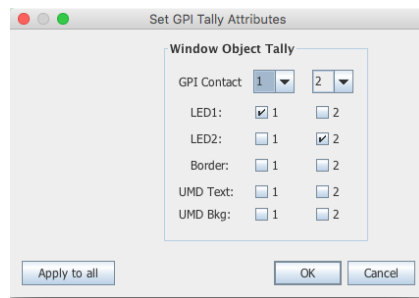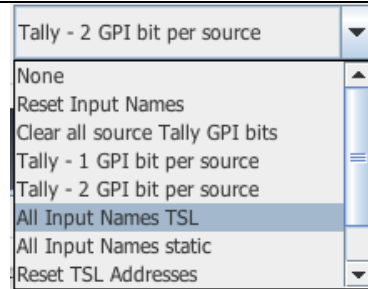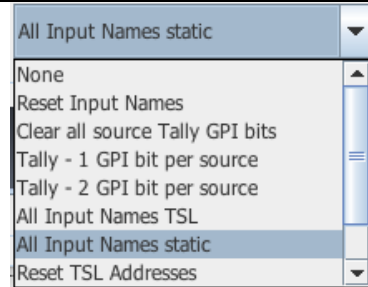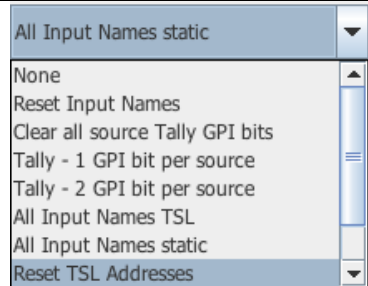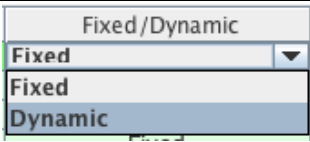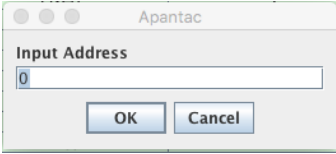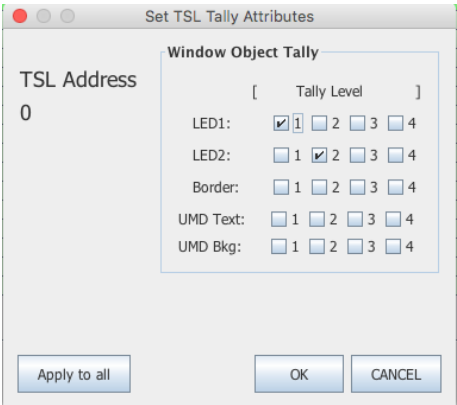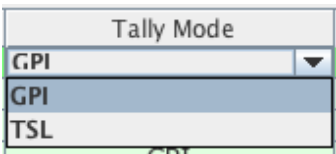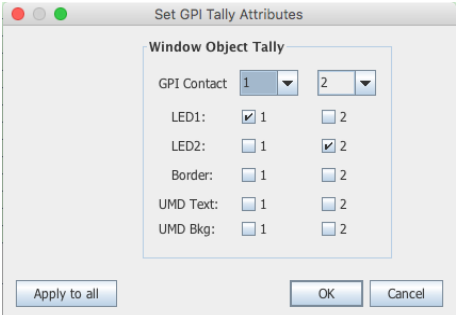
## 5.2.3 Set Tally colors

| Set Tally Colors. System -> Set Tally colors |   |
|---|---|
| | Figure 46: Configure Tally colors      Figure 47: Set Tally Colors |
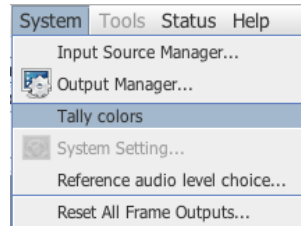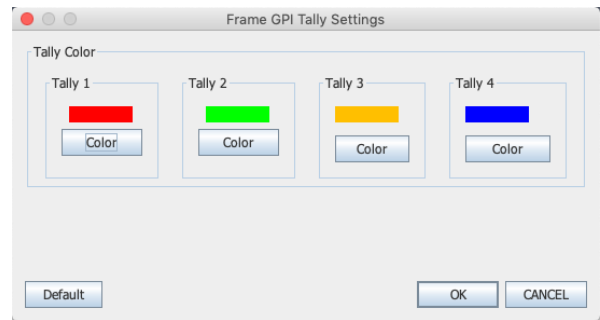
## 5.2.4 System Settings

| Set system settings. System -> System Settings RS-232 Communication mode can be set for software control or TSL. Temperature alarm setting as well as current temperature will also be shown in this dialog |   |
|---|---|
| | Figure 46: System Settings      Figure 47: Set to AXP or TSL |
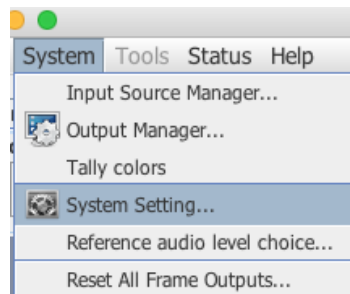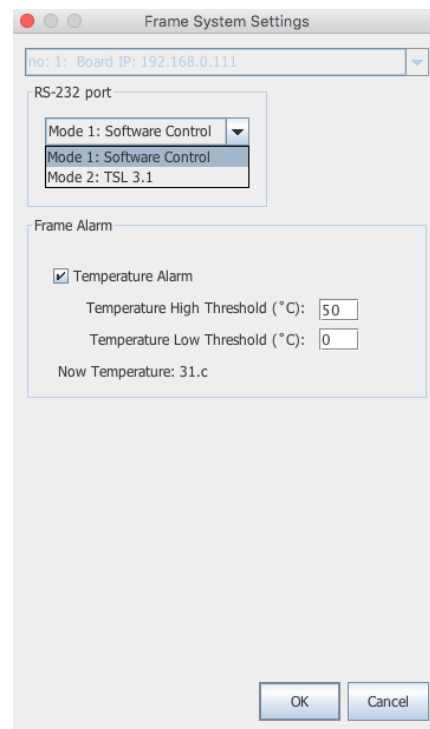
## 5.2.5 Audio reference settings

| | |
|---|---|
| Reference audio setting can be set |  |
| | Figure 48: Audio reference      Figure 49: Set dBFS |
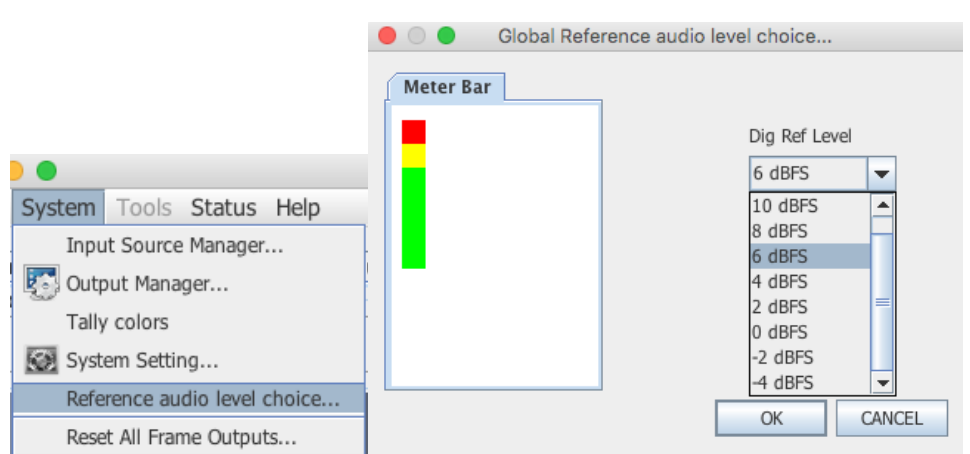
## 5.2.6 Load/Save presets

The Mi-16 series can have up to 30 presets. Each Mi-16x comes with 10 preloaded presets. Please see Appendix A for all the preset layouts.

| | |
|---|---|
| Load Presets by File -> Glogal -> LOAD |  |
| | Figure 50: File -> Global -> LOAD |
| Highlight the preset you want to load, then click on <LOAD> |  |
| | Figure 51: File -> Global -> LOAD |

| | |
|---|---|
| You can also load preset from the overview mode. Highlight the preset you want to load then clock on <LOAD> |  Figure 52: Load from Overview mode |
| Save Presets by File -> Global -> SAVE |  Figure 53: File -> Global -> SAVE  Figure 54: File -> Global -> SAVE |
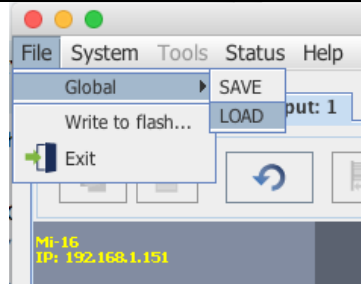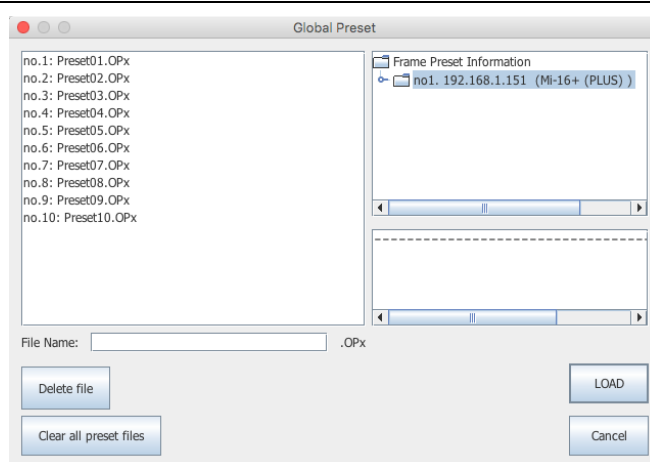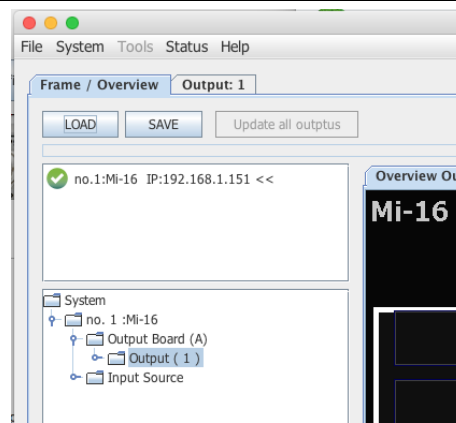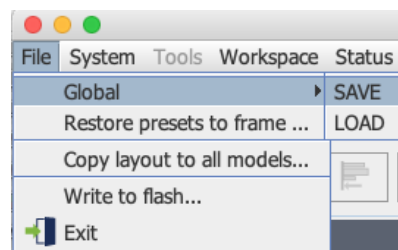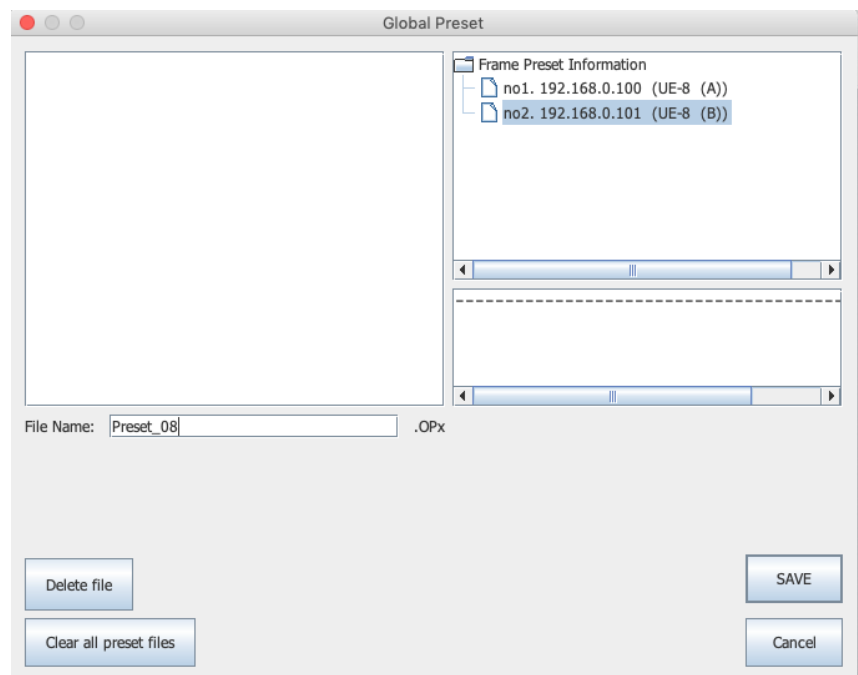
# 6.0 Editing

## 6.1 To delete a window

There are two methods to remove a window.
1. Highlight the window you would like to delete
   a. Press the <delete> key
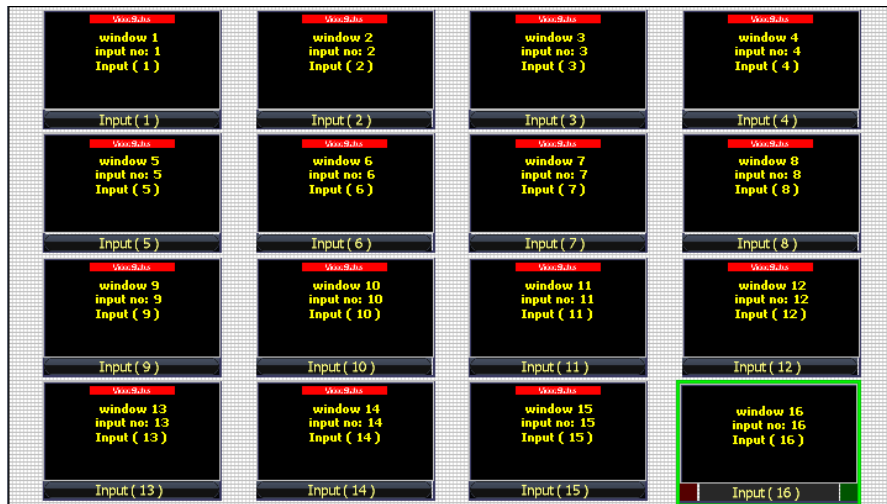


Figure 55: Click on the window you want to delete to highlight it, then press the <delete> key on the keyboard.

   b. Or right click on the window and select <Close>
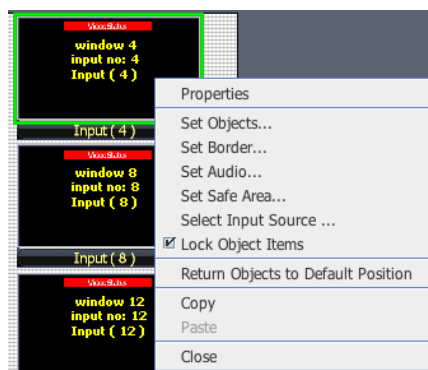


Figure 56: Right click on the window you want to delete to highlight it, then select <Close> to close the window
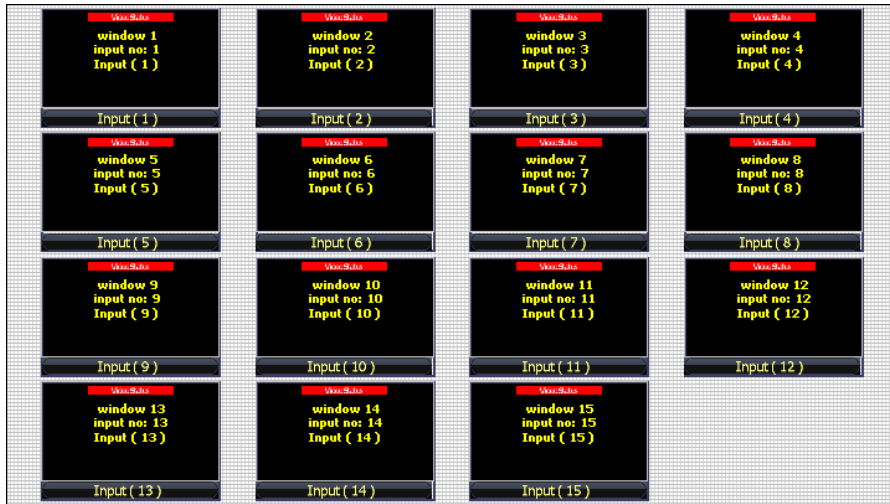
Figure 57: The end result

## How to delete multiple windows

1. Press and hold the <CTRL> Key
2. Highlight the windows you would like to delete
   a. Press the <delete> key
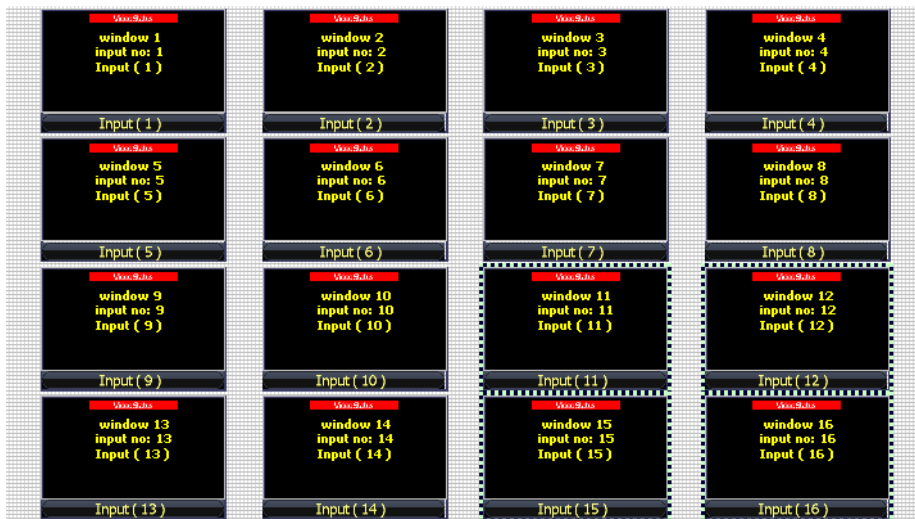


Figure 58: Hold down the CTRL key and click on multiple windows, then press the <delete> key on the keyboard

   b. Or right click on the window and select <Close>
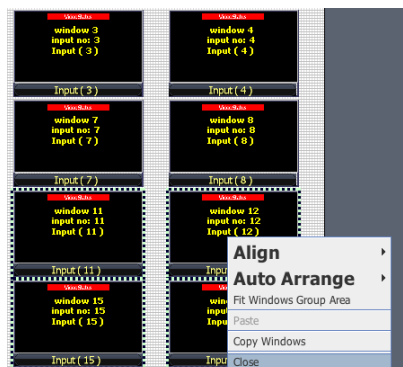
Figure 59: Hold down the CTRL key and click on multiple windows, then right click on a highlighted window, then select <Close>



Figure 60: The end result

## 6.2 Mi-16 series window styles

o The Mi-16 series comes with 5 basic window styles. These styles are located in the "Window Bin" area of the jDirector editor.
o Each window style consists of 4 window templates
o Each window has 4 predefined sizes – 1/4, 1/9, 1/16, 1/25



Figure 61: Highlight the preset you want to load.   Click on <LOAD>

Style 1 templates – windows with 2 tally LEDs
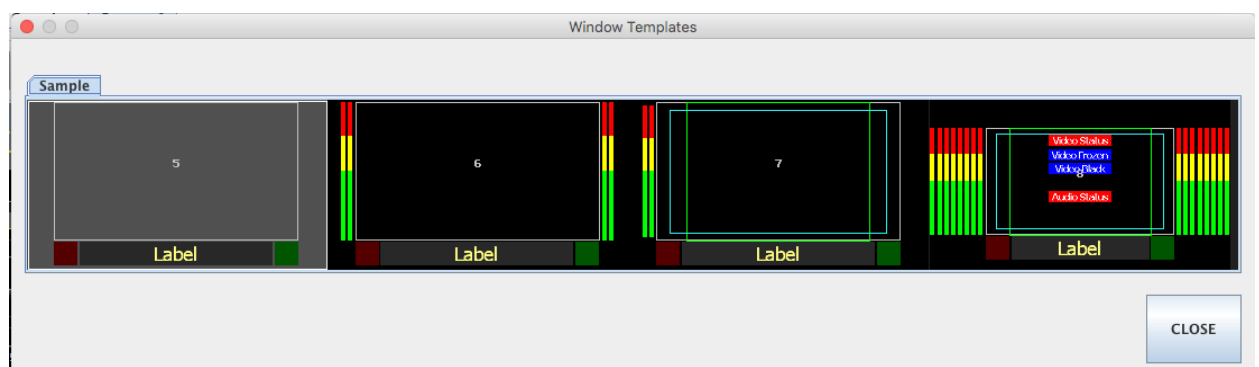
## Style 2 templates – windows with no tally LEDs
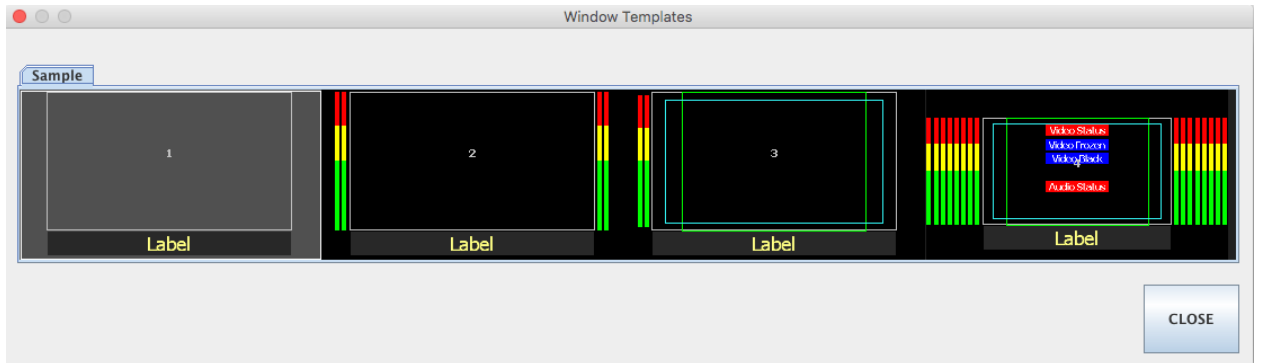


Figure 63: Highlight the preset you want to load.    Click on <LOAD>

## Style 3 templates – windows with skin labels and 2 tally LEDs
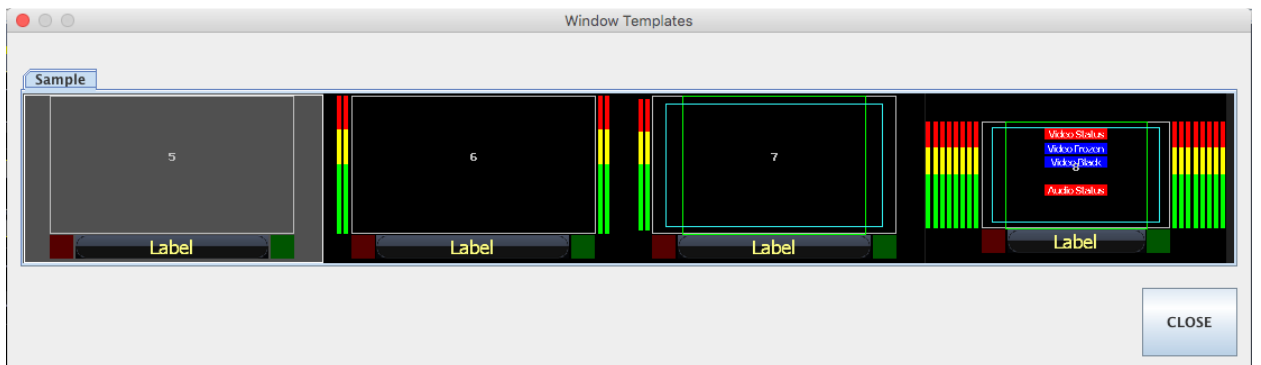


Figure 64: Highlight the preset you want to load.    Click on <LOAD>

## Style 4 templates – windows with skin labels and no tally LEDs
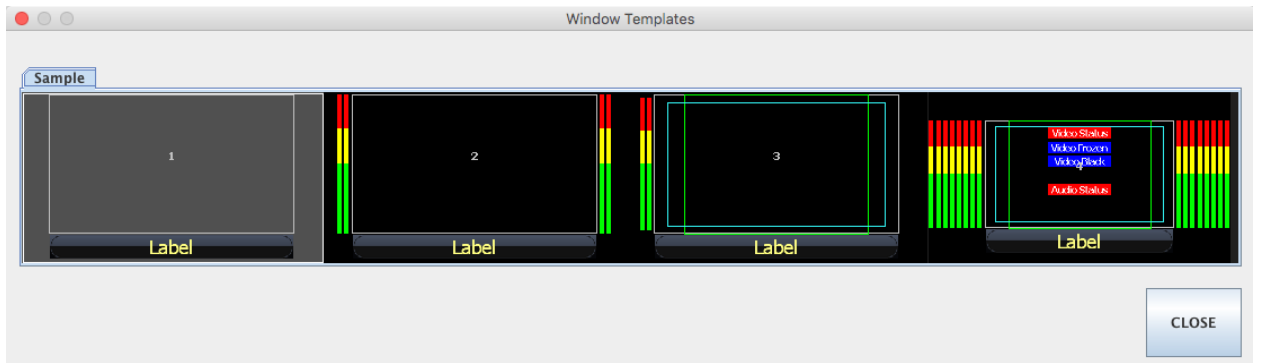


Figure 65: Highlight the preset you want to load.    Click on <LOAD>

Style 5 templates – windows with labels and tally LEDs over the video
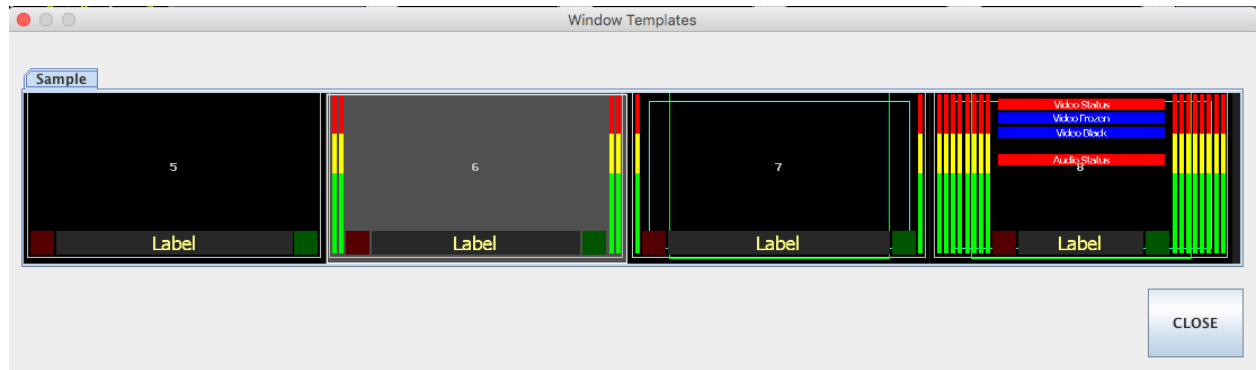


Figure 66: Highlight the preset you want to load.    Click on <LOAD>

## 6.3 How to insert a window



1. Click on a window style

2. Select the template

3. Select the window size

4. Place the window
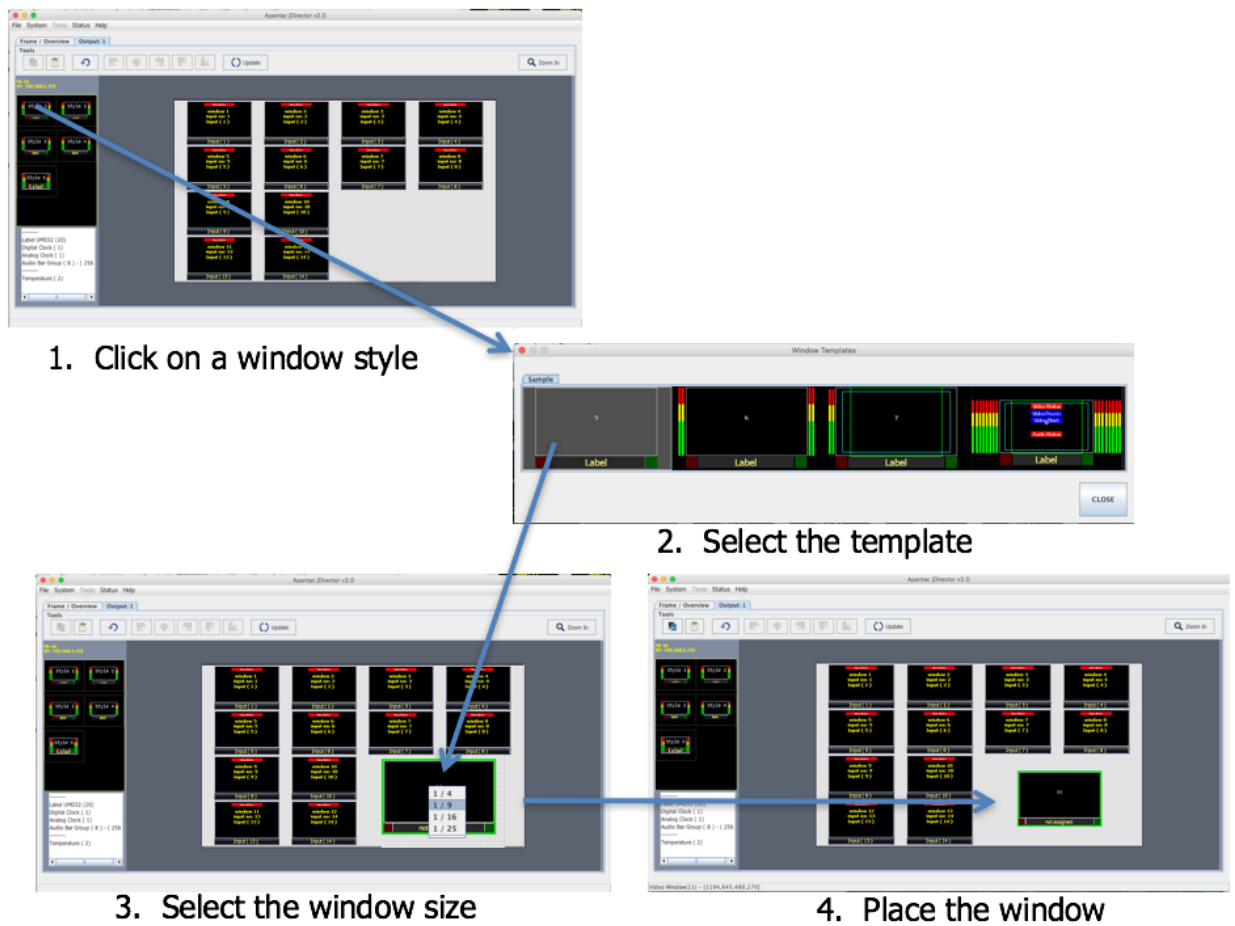
Figure 67: Highlight the preset you want to load.    Click on <LOAD>

# 6.4 Customize Window Elements

| | |
|---|---|
| In addition to window templates, each window elements can still be customized by right clicking on the window | <br><br>Figure 68: Right click on a window |
| Set Window Objects<br>Tally LEDs: On/off<br>Borders: On/off, width and skin<br>OMD/UMD: On/off<br>Alarm tags: Video format, Video frozen |  <br>Figure 69: Select <Set Object>   Figure 70: Check the objects to turn on/off<br><br><br>Figure 71: Alarm tags turned on |
| Set Borders:<br>▪ Size 0 to 7 pixels<br>▪ Size 0 = border off<br>▪ Colors |  <br>Figure 72: Select <Set Border>   Figure73: Set Window border |
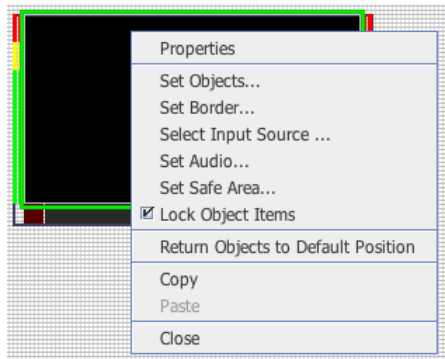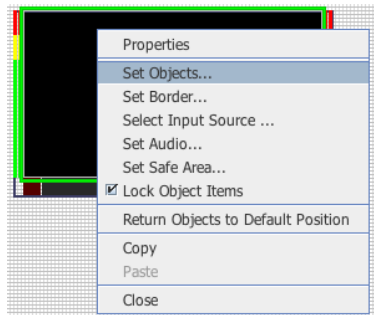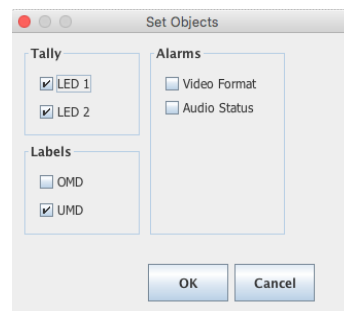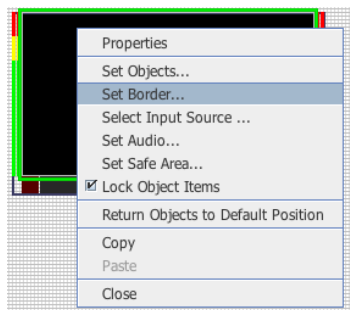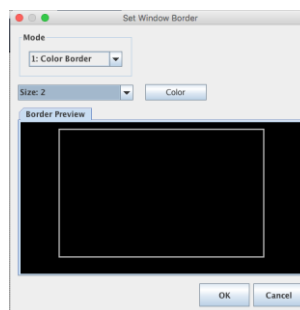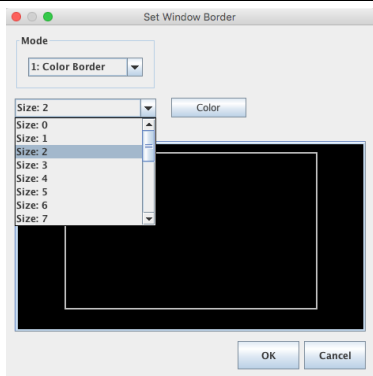
Figure 74: Alarm tags turned          Figure 75: Alarm tags turned on
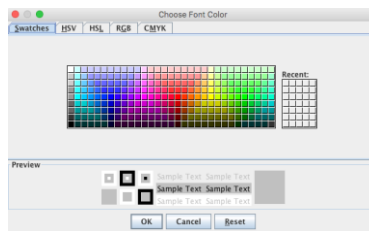
Set Border Skins:

There are 6 predefined skins, if you would like to make your own skins, please contact Apantac tech support for futher assistance
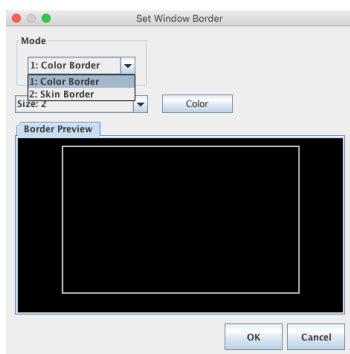


Figure 76: Choose Skin Border
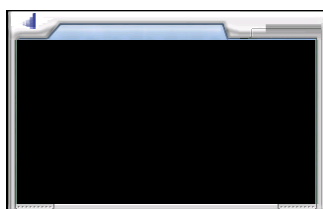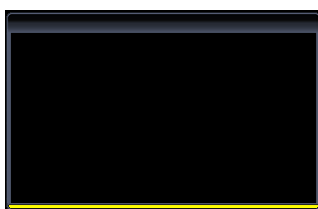


Figure 77: Skin 1          Figure 78: Skin 2
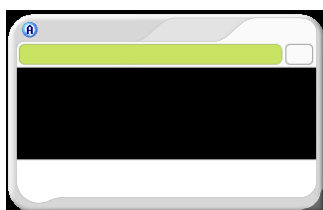


Figure 79: Skin 3          Figure 80: Skin 4
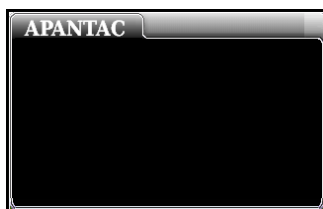


Figure 81: Skin 5          Figure 82: Skin 6

| | |
|---|---|
| Select Input Source. Note: Only Mi-16# allows you to freely assign sources to a window. Mi-16 and Mi-16+ the sources are preassigned and cannot be copied |   Figure 83: Select Input source            Figure 84: The available sources |
| Adding / removing audio meters to windows by right clicking on a window and select <Set Audio> |   Figure 85: Select Audio |
| Once a source is assigned to a window, you can now make audio assignments to the meters. You can assign up to 16 channels of audio to a single window |   Figure 86: Alarm tags turn            Figure 87: Alarm tags turn |

| | |
|---|---|
| Set Safe Area<br><br>Each window can have up to 2 safe areas. To set and enable the safe area, right click on a window and selec <Set Safe Area> | <br>Figure 88: Enable first safe area      Figure 89: Enable first safe area |
| | |

| | |
|---|---|
| There are two tabs, "Safe Area 1" and "Safe Area 2". Check the "Enable" box on "Safe Area 1", then use the Percentage slider to move the safe area to 5% on each side. | <br>Figure 90: Set percentage |

| | |
|---|---|
| Click on "Safe Area 2" tab. Check the "Enable" box, then, select Ratio Fix <4:3>, the click OK to exit | <br><br>Figure 91: Enable second safe area and enable 4x3 safe area |
| Click on "Safe Area 2" tab. Check the "Enable" box, then, select Ratio Fix <4:3>, the click OK to exit | <br><br>Figure 92: Enable second safe area and enable 4x3 safe area |

| | |
|---|---|
| You can now see the the safe areas enabled on the window | Figure 93: After safe area was turned on |
| Unlocking objects – the objects in the windows cannot be moved until it is unlocked | Figure 94: Unlock objects |
| Return objects to default position – returns all objects to the position prior to their move | Figure 95: Return all objects to default position |
| Copy/Paste – Windows can be copied and pasted |  |

| | |
|---|---|
| | Figure 96: Copy – (Also, CTRL C) |
| Setup standalone label | \n\nFigure 97: Drag label from object bin to workspace |
| Insert Digital Clock. Drag "Digital Clock" into the work space | \n\nFigure 98: Drag the digital clock onto the workspace |
| Right click on the label to bring up the properties dialog. Uncheck "Enable DATE", "Enable YEAR", remove "Clock from the Name field and select the time zone |  |

| | |
|---|---|
| | Figure 99: Edit digital clock properties      Figure 100: Set time zone |
| Set font color to White, click <OK> and set background color to black, then click <OK> | 
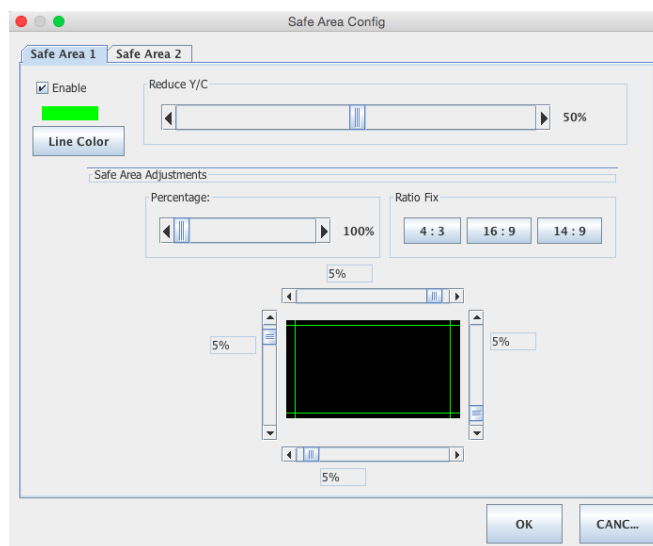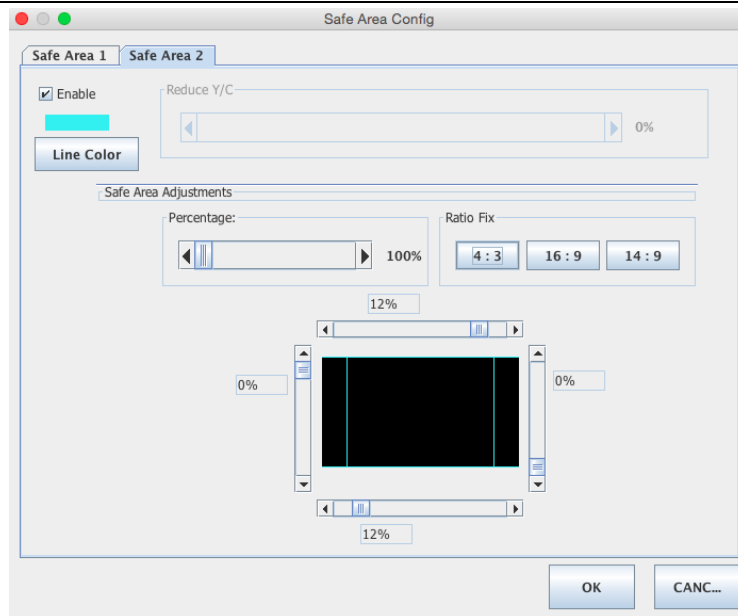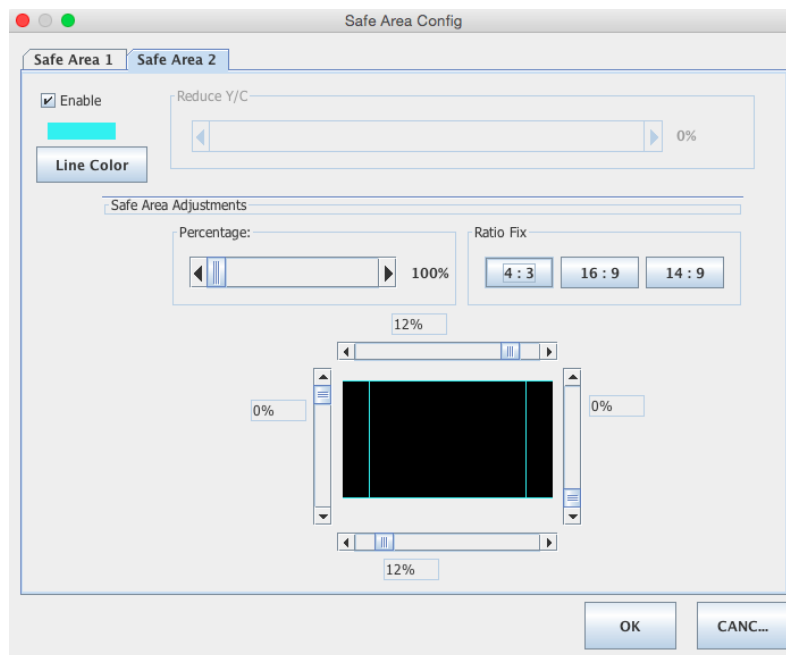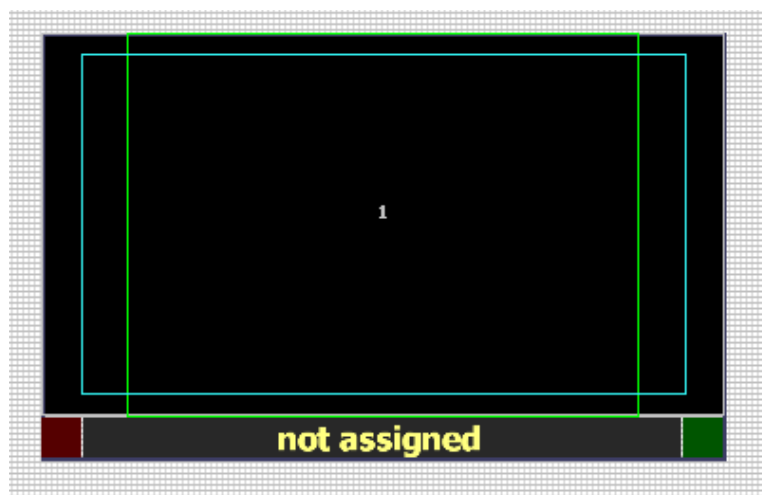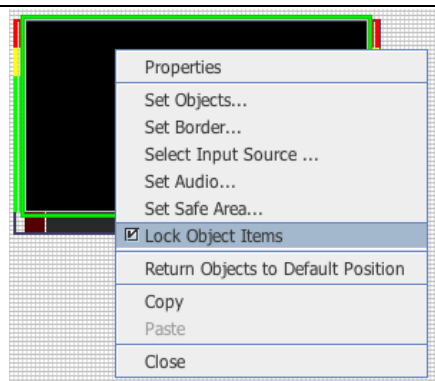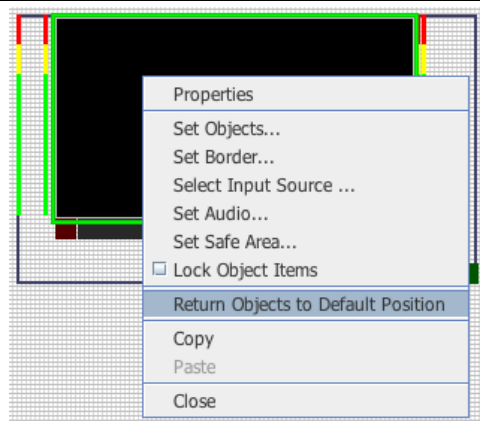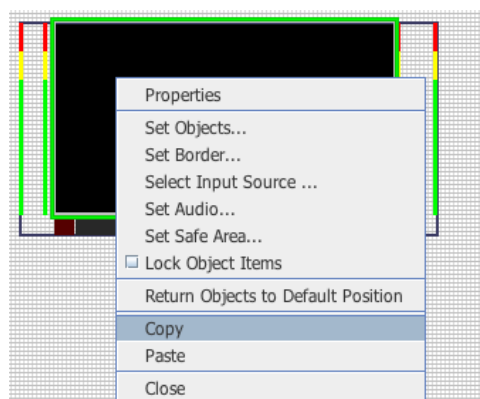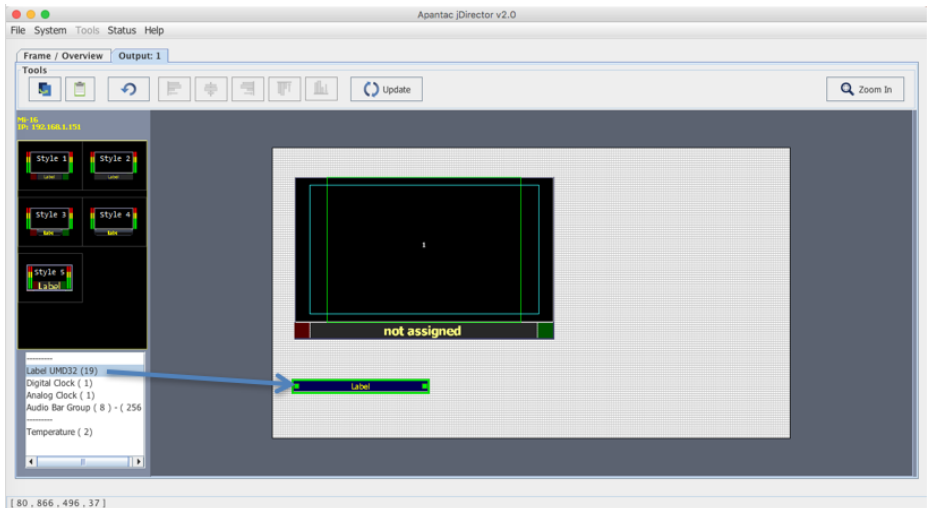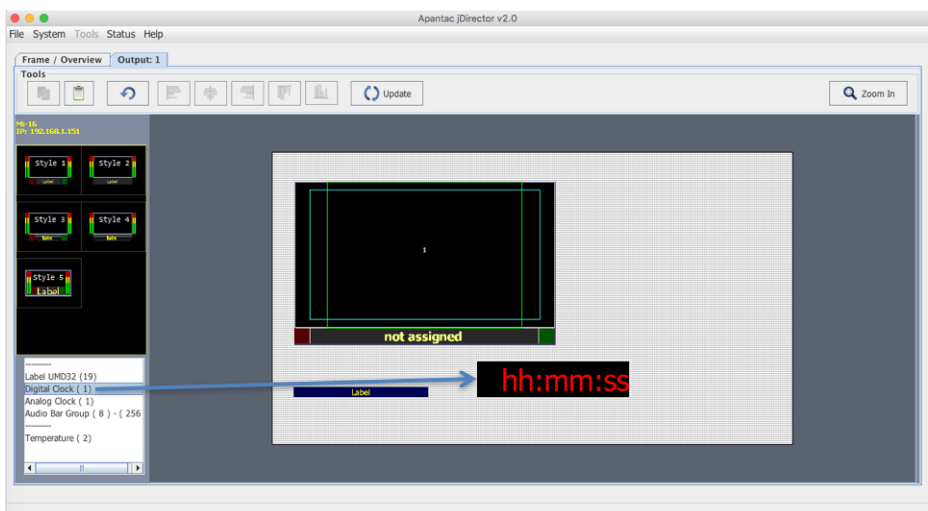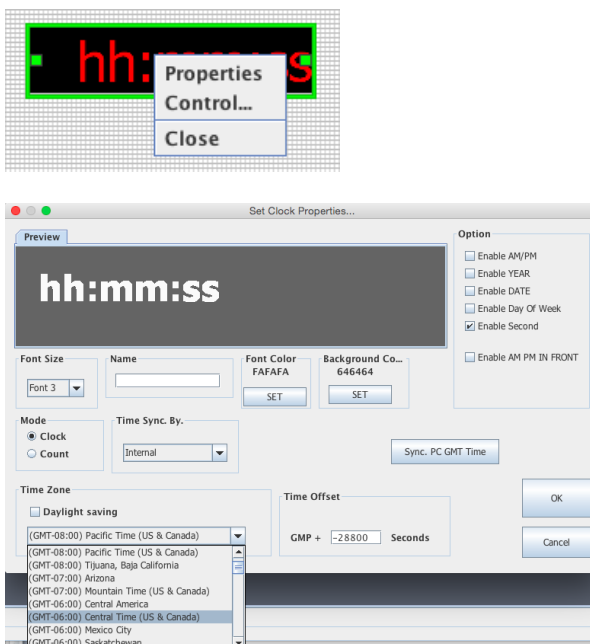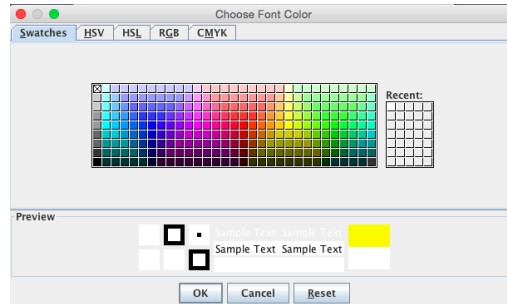
Figure 101: Edit font color
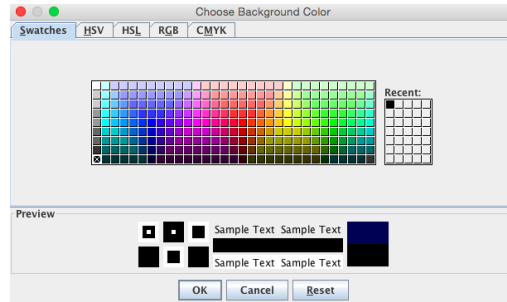


Figure 102: Edit background color |
| Right click on the label to bring up the properties dialog. Select Font 4 for the largest size font. | 

Figure 103: Set label properties      Figure 104: Set label properties |
| Set font color to White, click <OK> and set background color to black, then click <OK> | 
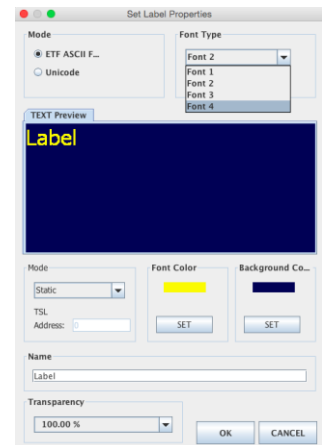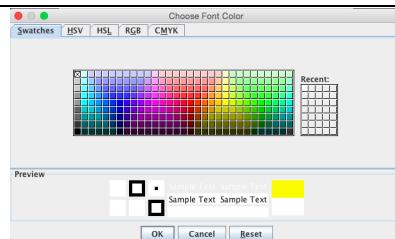
Figure 105: Set font color      Figure 106: Set background color |

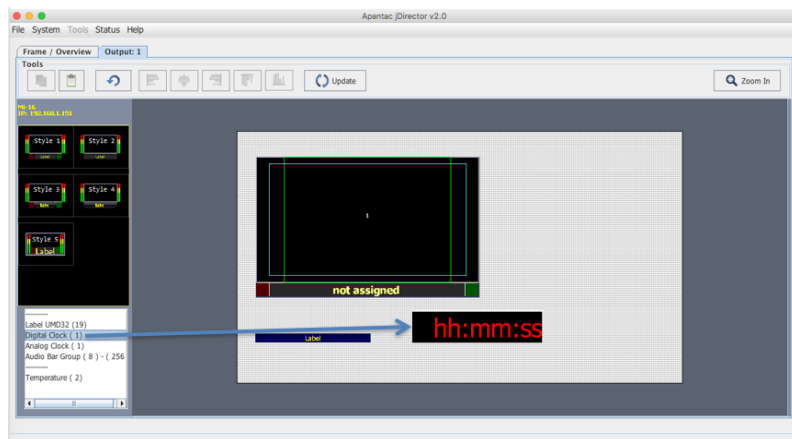| | |
|---|---|
| Set Label Font Type. Set Label Mode: Follow Source or Static. When set to <Follow Source>, the label name will follow the name assigned in the Input Source Manager. When set to <Static>, the label name can be renamed to names such as "Program" and "Preview" | Figure 107: Set Font Size  Figure 108: Static or follow source |
| To insert digital clock by draggin the <Digital Clock> to the work space | Figure 109: Drag digital clock from object bin to workspace |
| Right Click on the digital clock in the the workspace, this configuration dialog will appear | Figure 110: Configure clock |

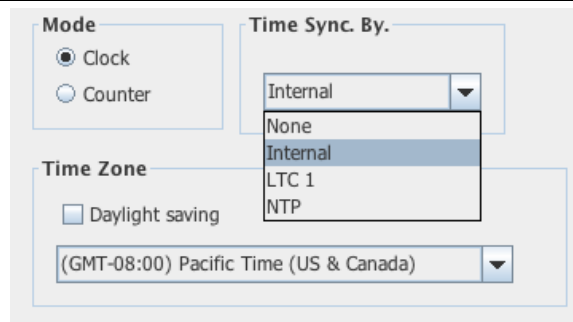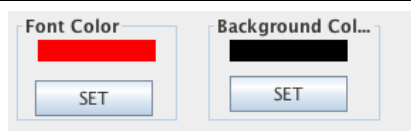| | |
|---|---|
| The font size of the clock can be set in 4 different sizes.<br><br>The digital clock can be named in the Name box. | <br>Figure 111: Set font size |
| The digital clock properties can be set as the following,<br><br>1. Clock or a counter<br>2. can be sync'd to Internal, LTC or NTP<br>3. Daylight savings on/off<br>4. Time zone, if the clock is set to Internal<br>5. When the clock is set to Internal, it can be sync'd to the PC's clock by clicking on <Sync. PC GMT Time> | <br>Figure 112: Set sync<br><br><br>Figure 113: Sync to PC |

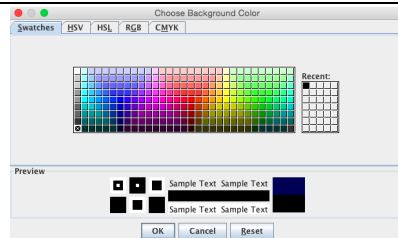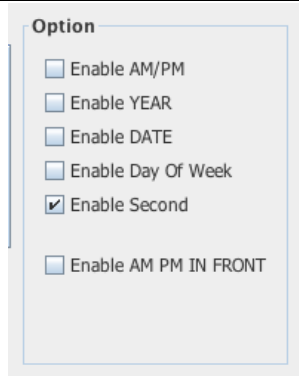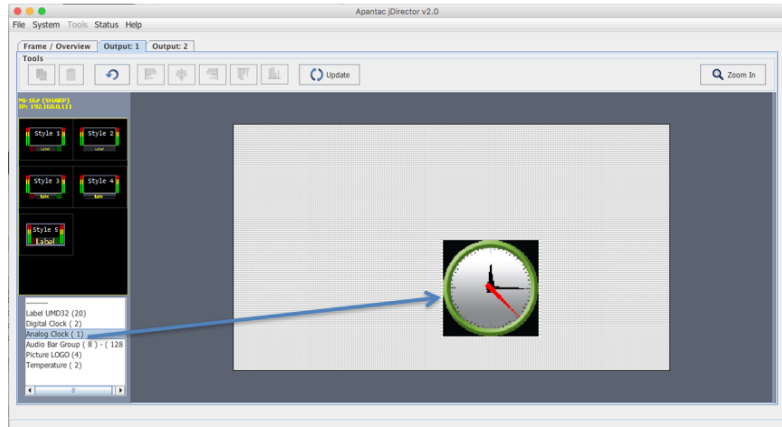| | |
|---|---|
| The font color and background color of the clock can be set by click on <SET> under the attributes | <br>Figure 114: set font and background color |
| Set font color to White, click <OK> and set background color to black, then click <OK> | <br>Figure 115: Set font color     Figure 116: Set background color |
| Several clock display options can be set | <br>Figure 117: Set Time Format |
| To insert an analog clock by dragging the <Analog Clock> to the work space | <br>Figure 118: Drag analog clock from object bin to workspace |
| To set the properties on the analog clock. Right click on the clock and select <Properties> |  |
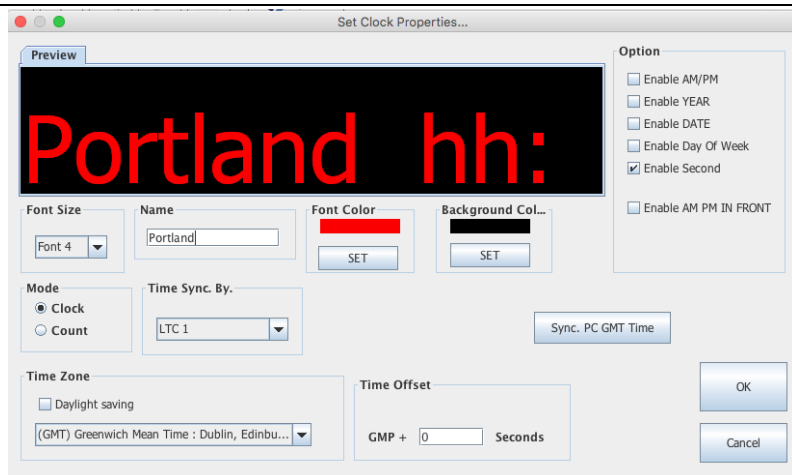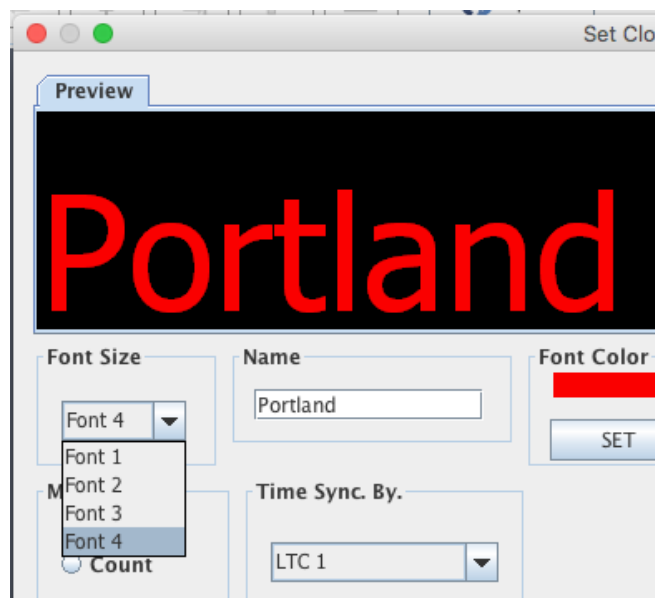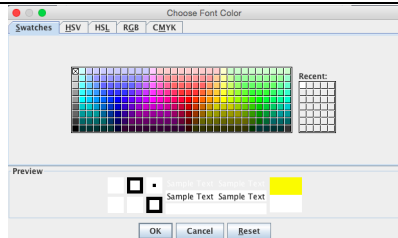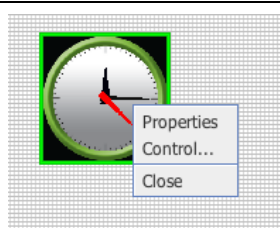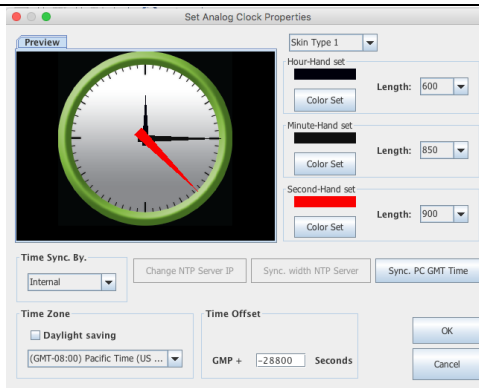
Figure 119: Set clock properties

The analog clock properties can be set as the following,

1. Can be sync'd to Internal, LTC or NTP
2. Daylight savings on/off
3. Time zone, if the clock is set to Internal

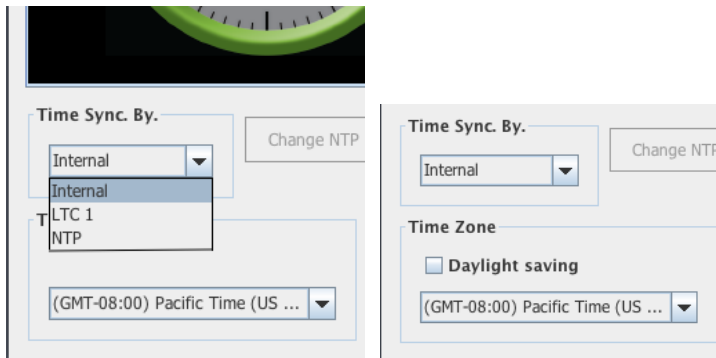When the clock is set to Internal, it can be sync'd to the PC's clock by clicking on <Sync. PC GMT Time>
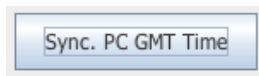

Figure 120: Set sync


Figure 121: Sync to PC time

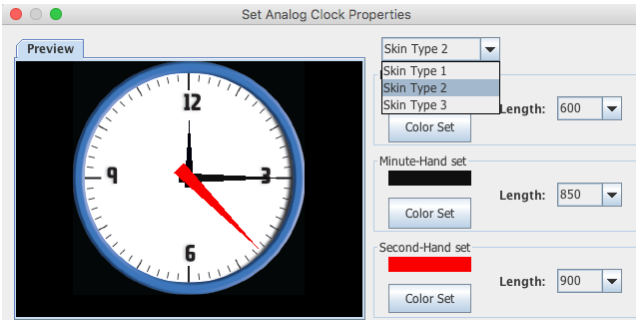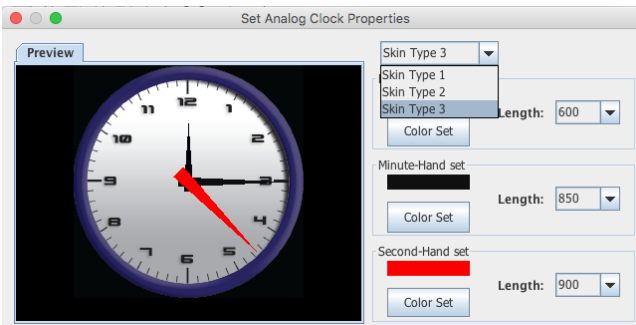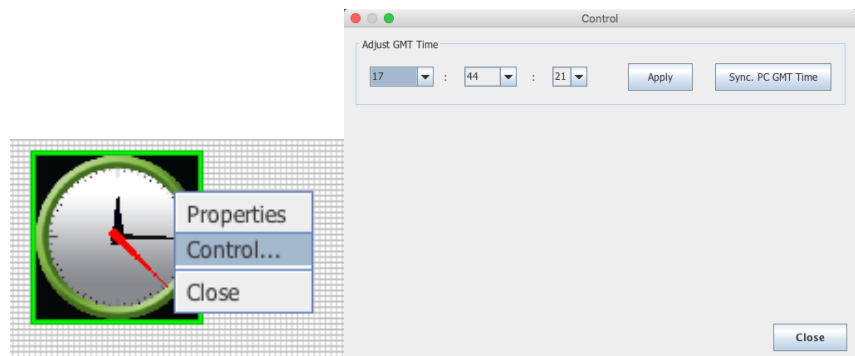| | |
|---|---|
| Clock faces<br>There are 3 different type of clock faces (skins) you can choose from. The clock hands and color can also be configured | <br>Figure 122: Select clock face type 1<br><br><br>Figure 123: Type 2<br><br><br>Figure 124: Type 2 |
| To adjust the GMT time. Right click on the clock and select <Control> | <br>Figure 125: Set clock control |

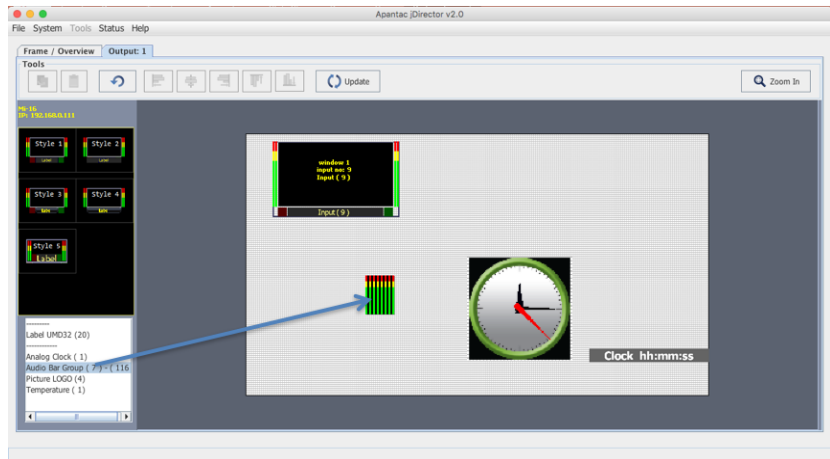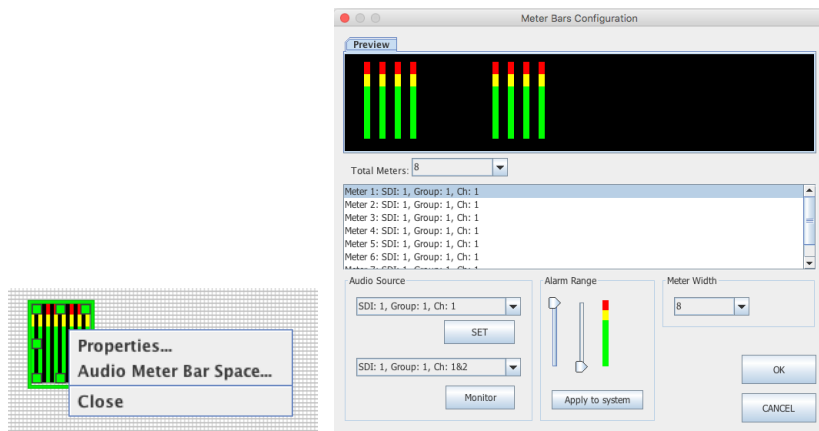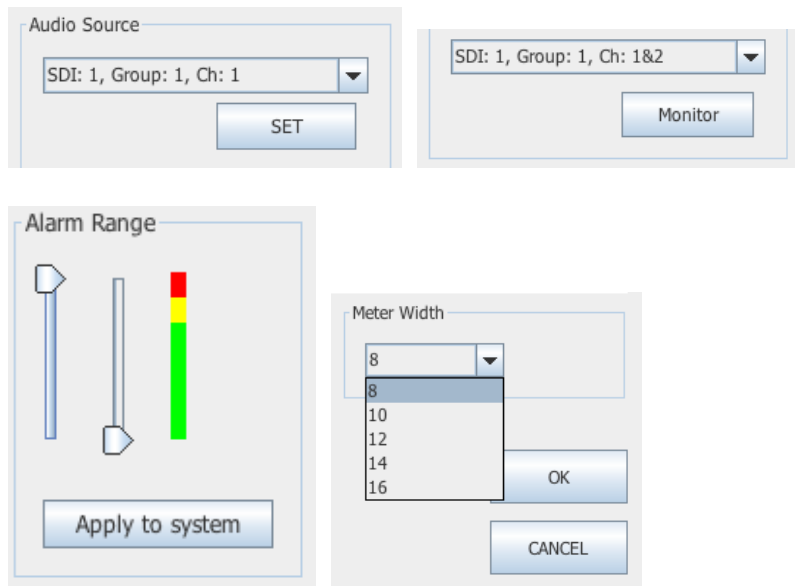| | |
|---|---|
| Adding standalone audio meters by dragging the <Audio Bar Group> to the work space.<br><br>Right click on the meters to set the properties | <br>Figure 126: Drag in standalone audio meters<br><br><br>Figure 127: Set Audio meter properties |
| Audio sources can be assigned to each of the meters.<br><br>Any pair of the audio meters can also be sent to the audio monitoring output by clicking on <Monitor><br><br>Audio alarm range and audio meter width can also be set here | <br>Figure 128: Set source, Alarm range and Meter Width |

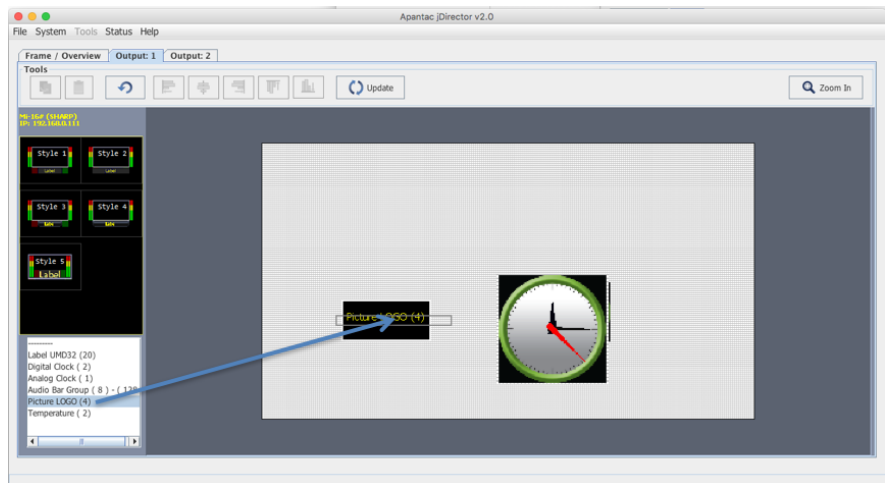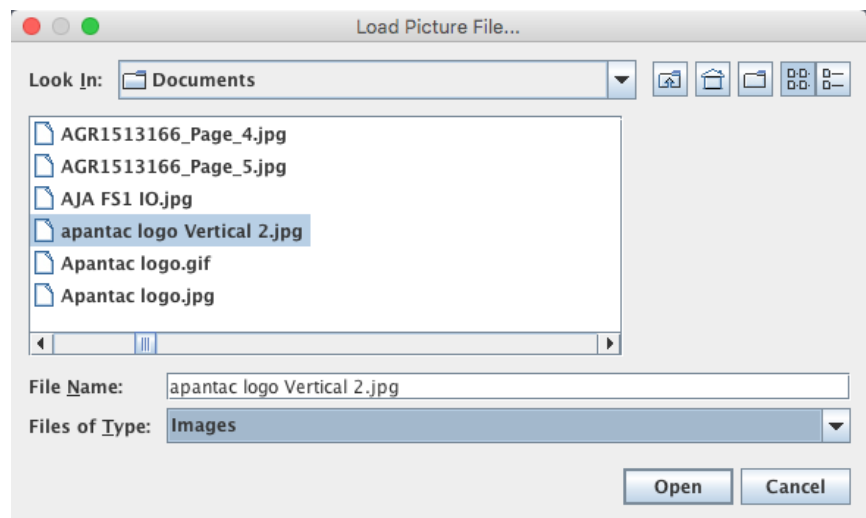| | |
|---|---|
| Adding a logo to the layout by dragging the Picture LOGO to the work space. Let go of the mouse and the dialog box will open for you to choose the logo file | 

Figure 129: Drag in logo



Figure 130: Select a stored logo |
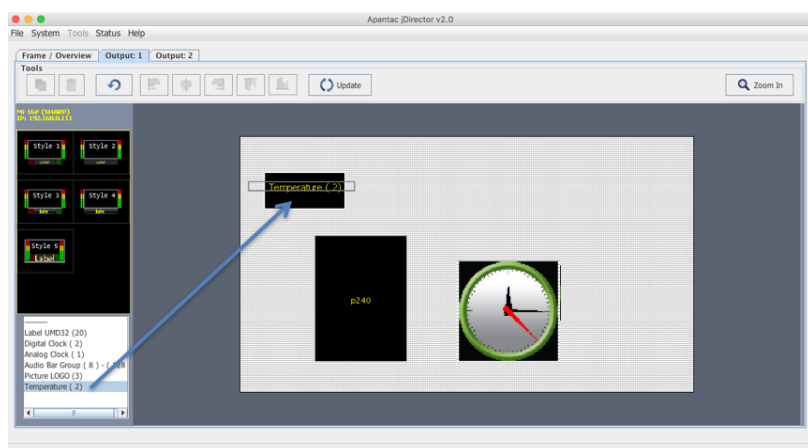| Insert a temperature warning by dragging <Temperature> to the workspace. | 

Figure 130: Drag in a temperature sensor |

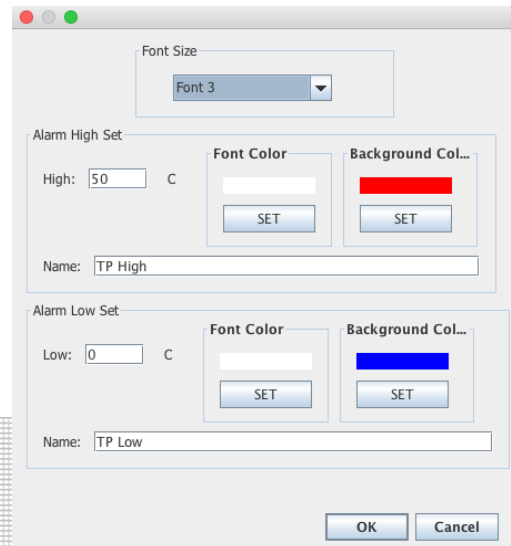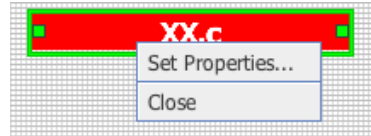| | |
|---|---|
| Set Temperature alarm property by right clicking on the temperature alarm |  |

Figure 131: Right click on the temperature sensor to configure the settings

# 7.0 Saving Default Layout

The Default Layout is the layout loaded by the Multiviewer during the power on sequence. This layout is similar to a Saved Preset file but is treated differently by the Multiviewer, as it will not be visibile under the Preset Load dialog. A common practice is to create the desired layout save it as a preset for future use and then performing the **Quit and Save** function by exting the jDirector software. This Quit and Save is what gerenates the Default Layout or sometimes refered to as the *Last Layout* or *Latest Layout*.

After creating your desired layout or Loading a previously saved Preset file it is recommended that you first **Update all outputs** so all changes are reflected on your Outputs and then select File>Exit.
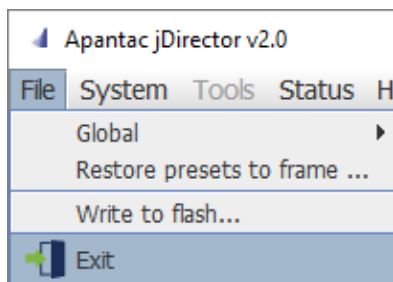


This will prompt you with the Exit Confirmation dialog box. Complete the save by selecting the checkbox for **Save configurations to flash** and then click the **Quit and save** button.
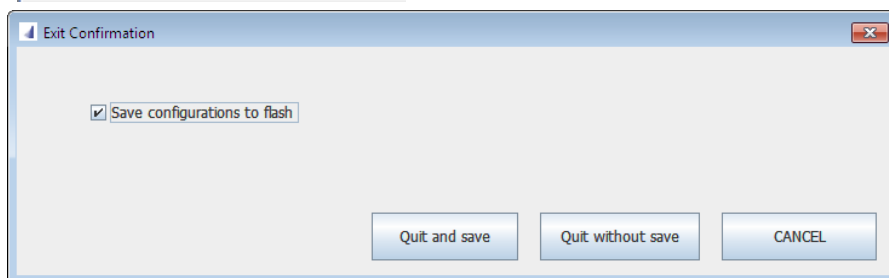


The Default Layout is updated each time a Quit and Save is completed.

# 8.0 Offline Mode

The jDirector software can also work in offline mode.

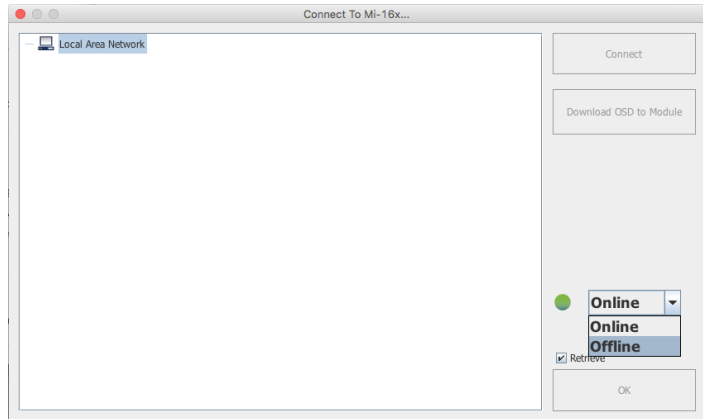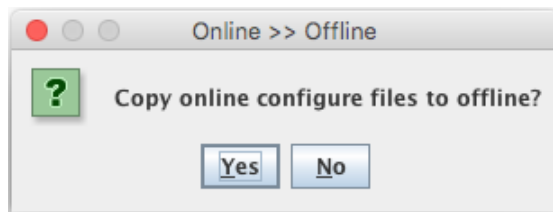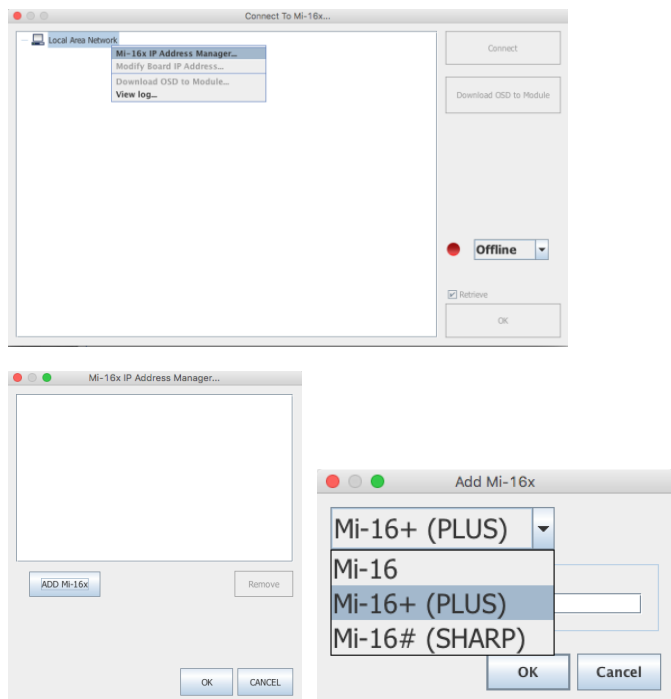| | |
|---|---|
| Start with a fresh copy of jDirector and select offline mode | <br>Figure 132: Select offline mode |
| It will prompt you to copy your online folder to the offline folder. If you would like to continue to make edits to your online layout, then click <Yes>, otherwise, click <No> | <br>Figure 133: Copy configurations to offline folder |
| Add a Mi-16 to the editor. You can choose from the list.<br><br>Once you enter the offline mode, you can start editing as if you were online. | <br>Figure 134: Select a Mi-16 model for offline editing |
| | |

# Appendix

## Mi-16 presets

The Mi-16 can store up to 30 presets. It comes with 10 pre-configured layouts as below,



Figure 135: Preset1 – 16 windows (Preset1.OPx)



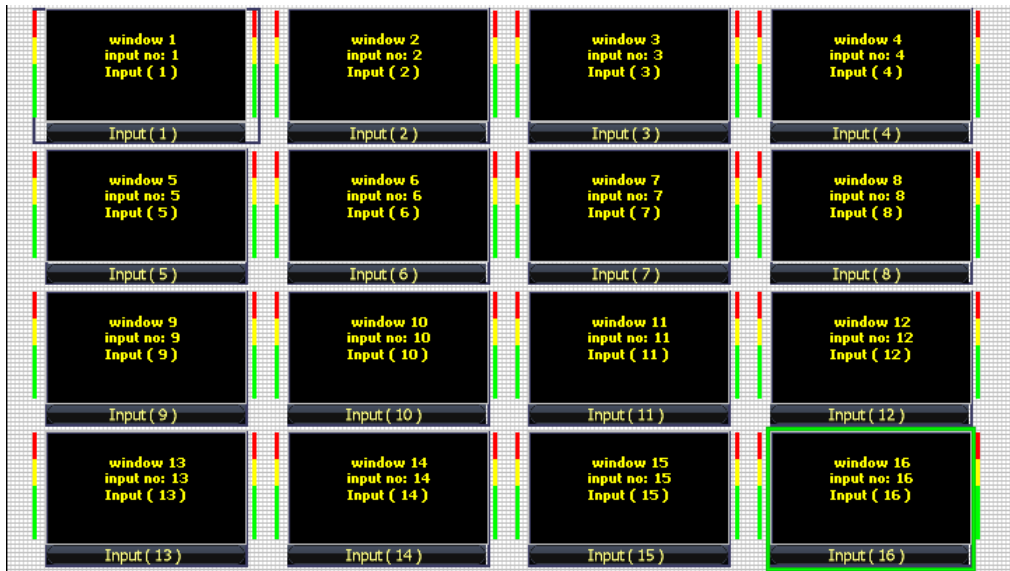Figure 136: Preset2 – 16 windows with 2 Tally LEDs (Preset2.OPx)

Figure 137: Preset3 – 16 windows with 2 audio meters each (Preset3.OPx)



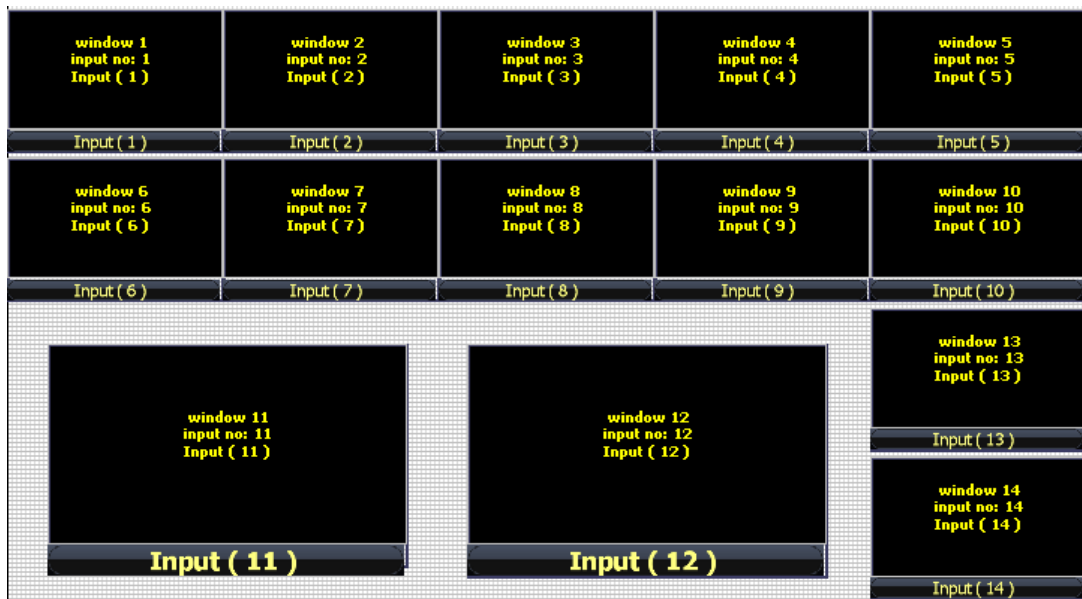Figure 138: Preset4 – 16 windows with 2 Tally LEDs and 2 Audio Meters (Preset4.OPx)



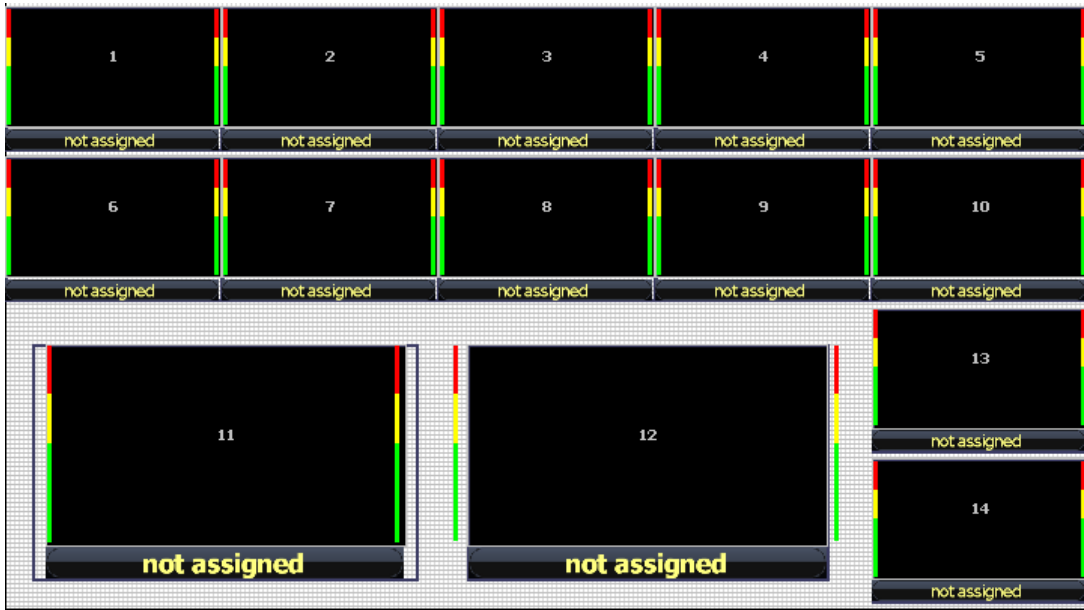Figure 139: Preset5 – 14 windows (Preset5.OPx)

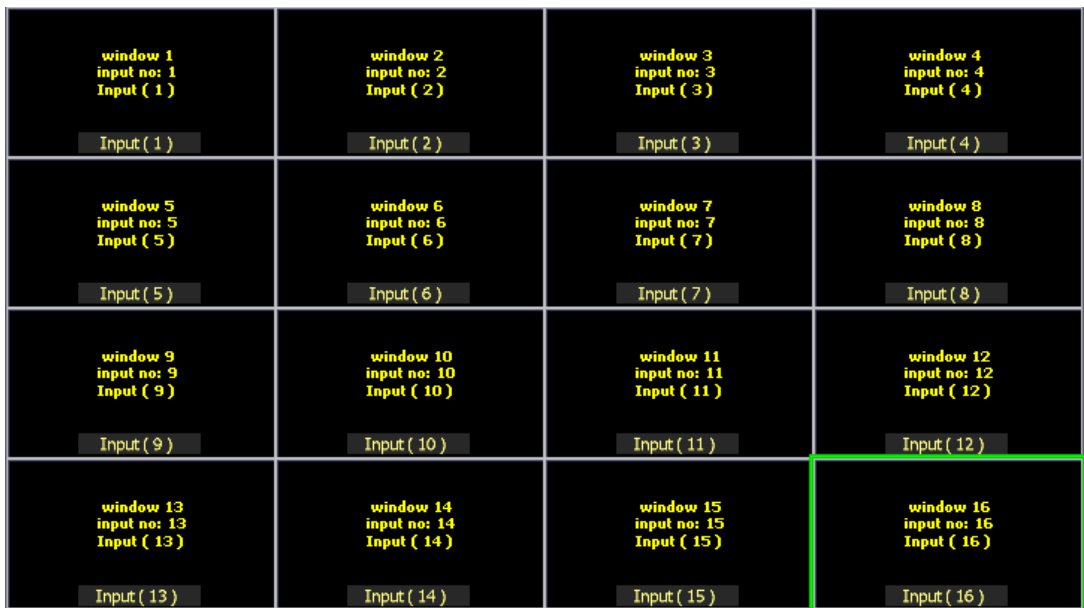Figure 140: Preset6 – 14 windows with 2 audio meters (Preset6.OPx)



Figure 141: Preset7 – 16 windows with labels inside the windows (Preset7.OPx)

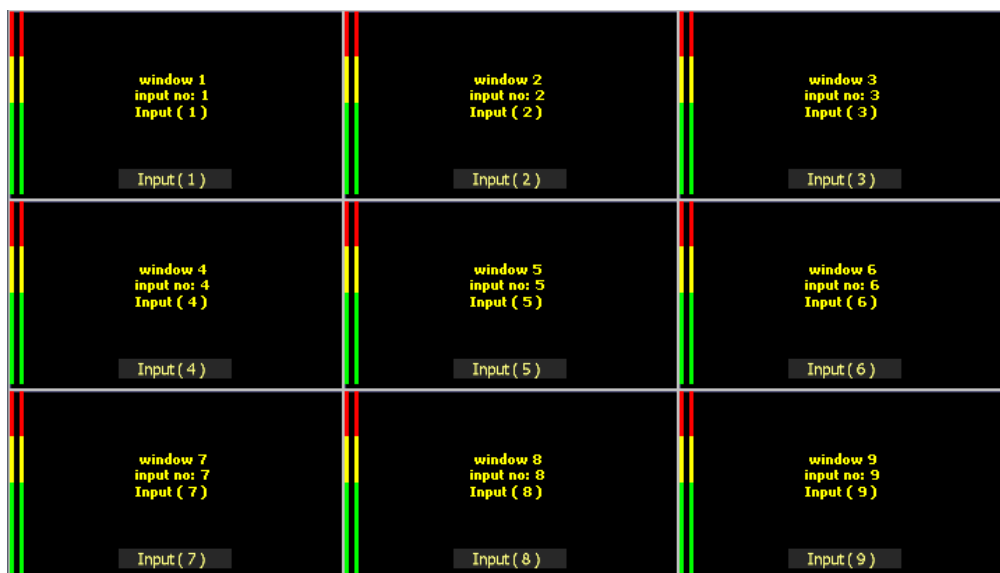Figure 142: Preset8 – 11 windows with 2 audio meters (Preset8.OPx)



Figure 143: Preset9 – 9 windows with 2 audio meters and labels inside (Preset9.OPx)
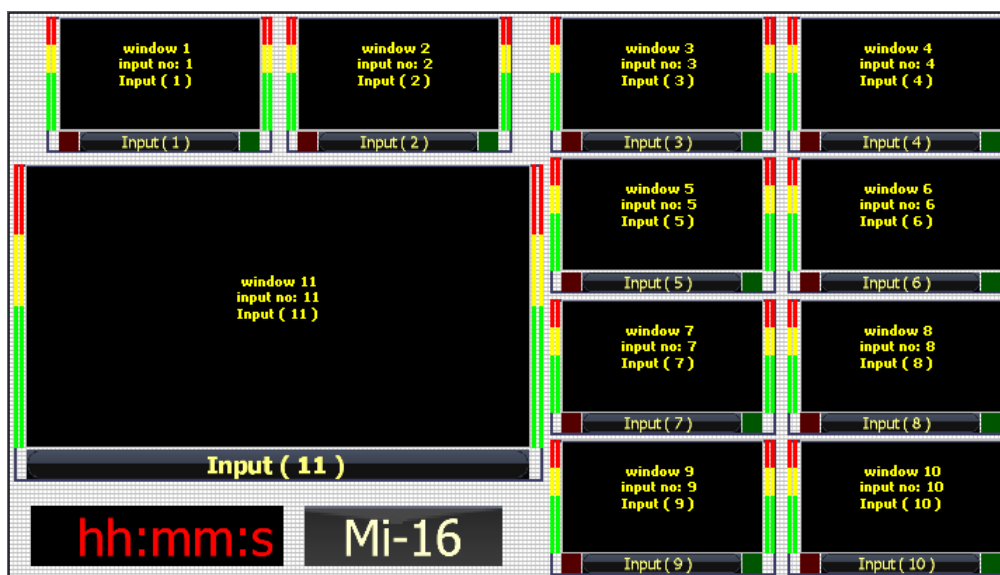


Figure 144: Preset10 – 11 windows with 2 audio meters and labels inside (Preset9.OPx)

# Mi-16+ presets

The Mi-16+ can store up to 30 presets. It comes with 10 pre-configured layouts as below:
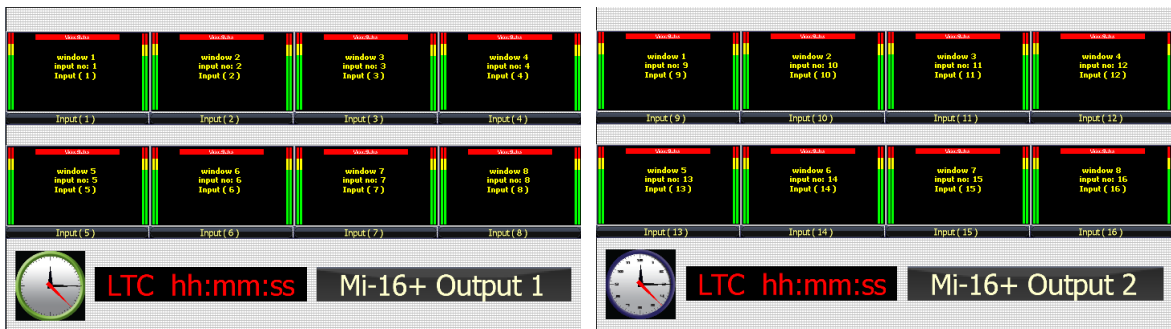


Figure 145: Preset1 – 8 windows on each output with Analog, digital clocks and Standalone Labels (Preset1.OPx)



Figure 146: Preset2 – 8 windows on each output, labels inside the windows (Preset2.OPx)



Figure 147: Preset3 – 7 windows on each ouputs (Preset3.OPx)

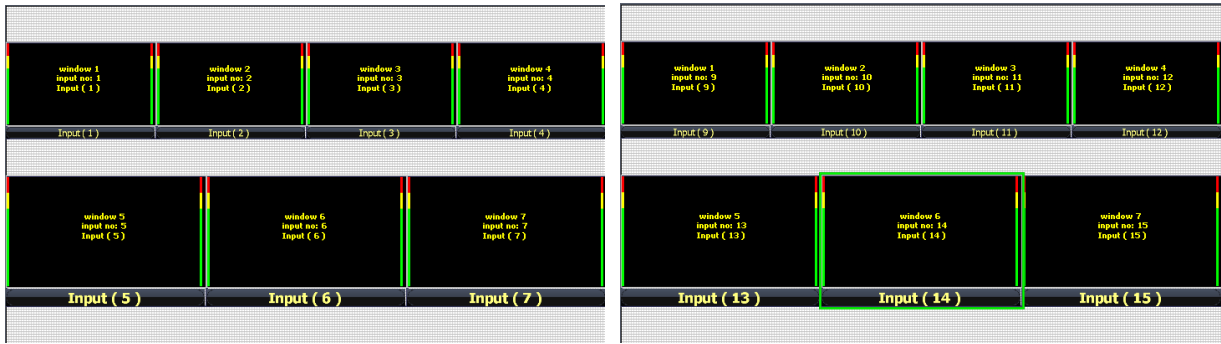

Figure 148: Preset4 – (Preset4.OPx)

Figure 149: Preset5 – 15 windows (Preset5.OPx)



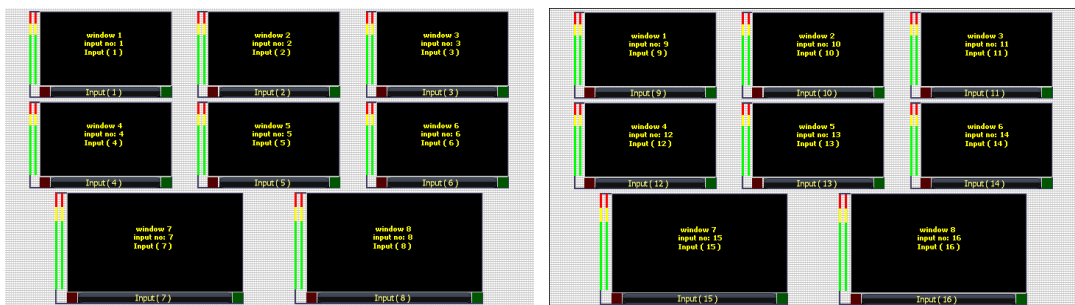Figure 150: Preset6 – 16 windows (Preset6.OPx)



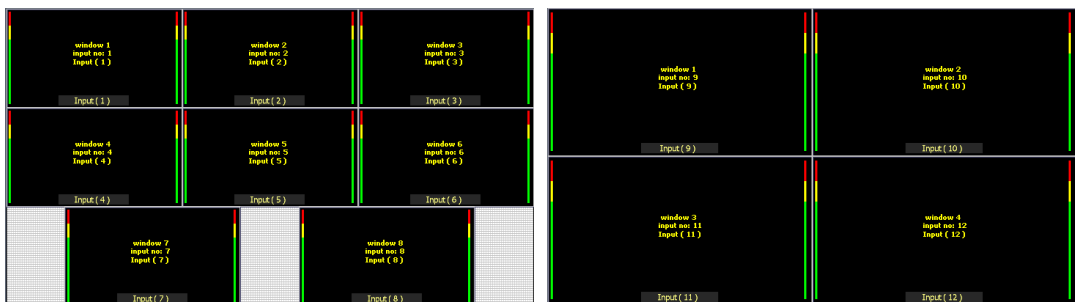Figure 151: Preset7 – 16 windows with audio meters and tally LEDs (Preset7.OPx)



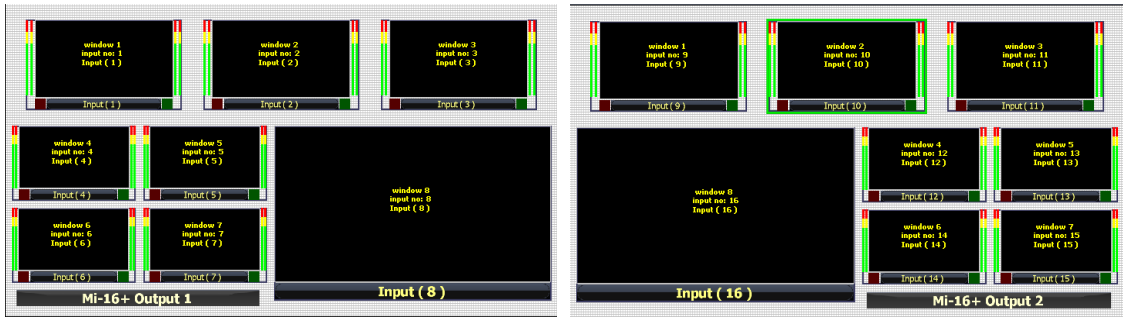Figure 152: Preset8 – 12 windows with 2 audio meters (Preset8.OPx)

Figure 153: Preset9 – 9 windows with 2 audio meters and labels inside (Preset9.OPx)
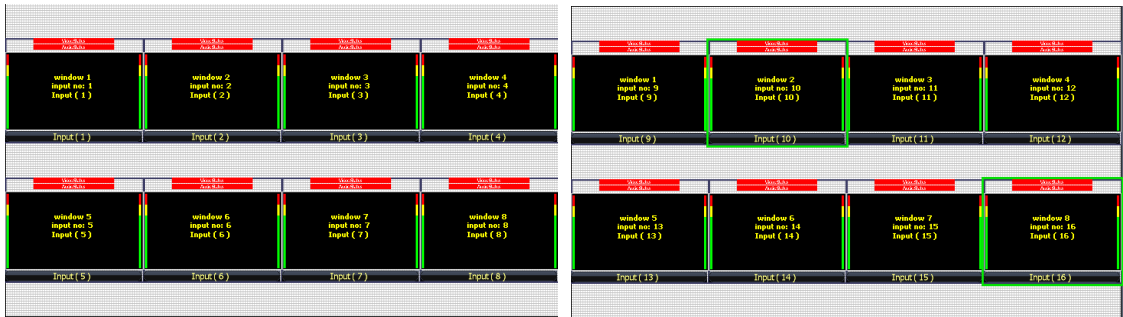


Figure 154: Preset10 – 16 windows with 2 audio meters (Preset10.OPx)

# Mi-16# presets



Figure 155: Preset1 – (Preset01.OPX)



Figure 156: Preset2 – (Preset02.OPX)

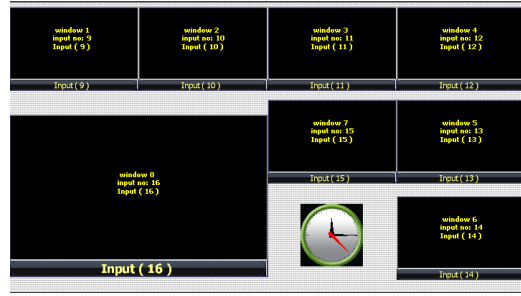Figure 157: Preset3 – (Preset3.OPX)
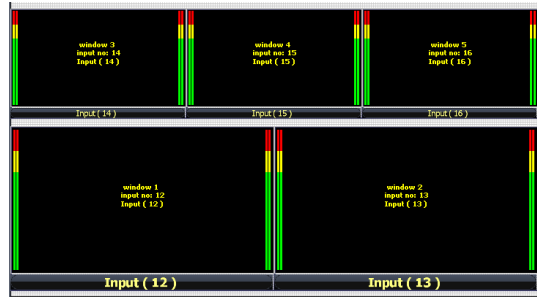


Figure 158: Preset4 – (Preset4.OPX)



Figure 159: Preset5 – (Preset5.OPX)



Figure 160: Preset6 – (Preset6.OPX)
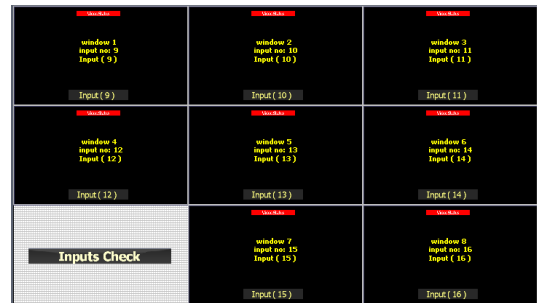


Figure 161: Preset7 – (Preset7.OPX)
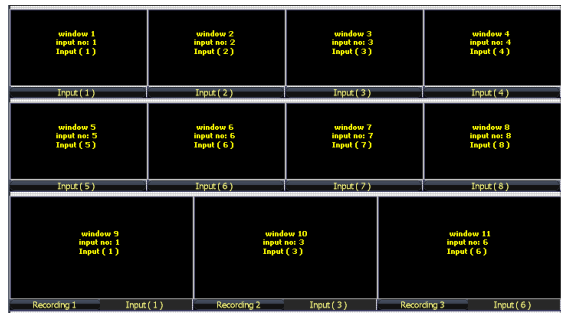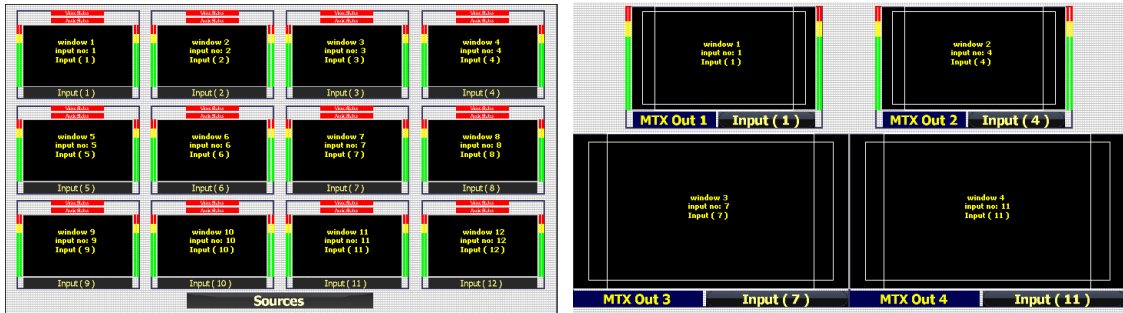
Figure 162: Preset8 – (Preset8.OPX)



Figure 163: Preset9 – (Preset9.OPX)



Figure 164: Preset10 – (Preset10.OPX)

# Cable Pinouts
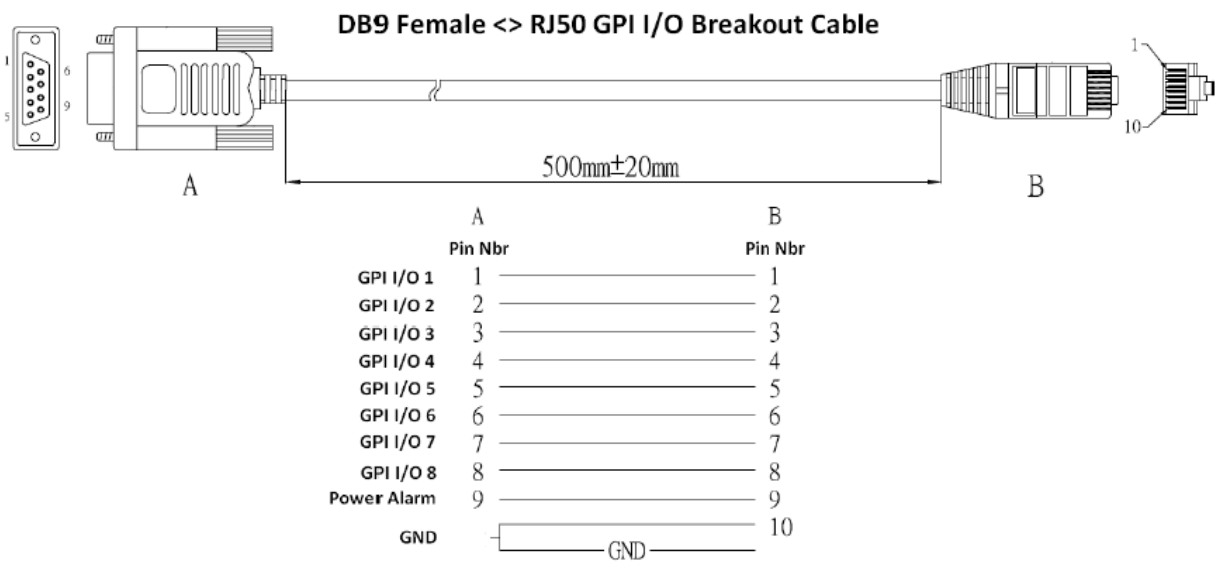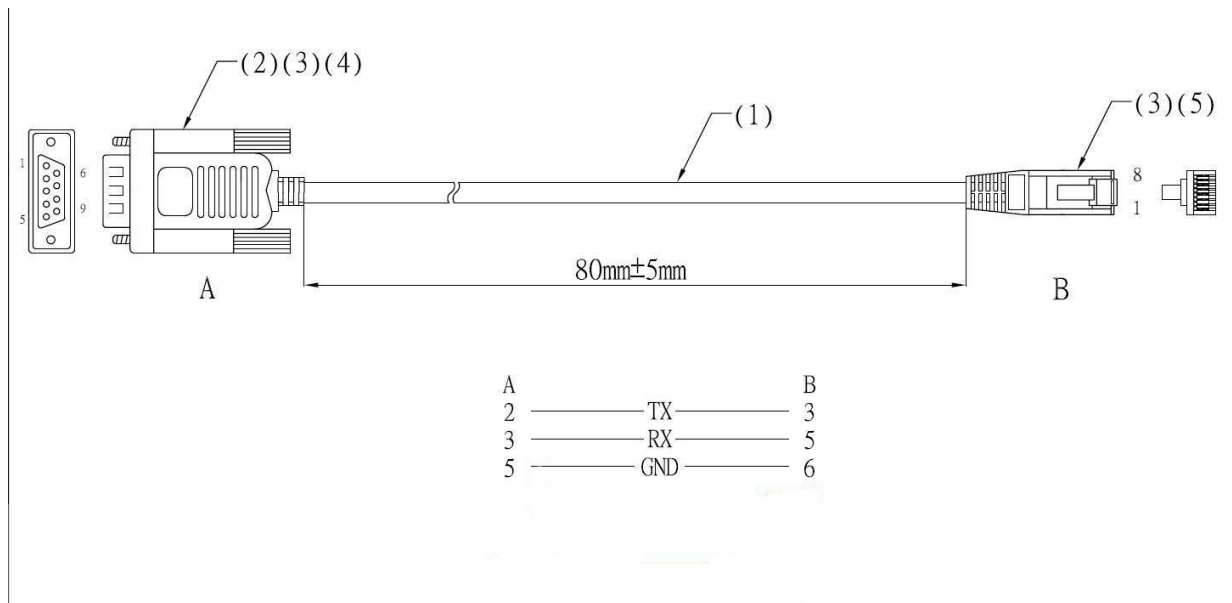


| A | | B |
|---|---|---|
| 2 | TX | 3 |
| 3 | RX | 5 |
| 5 | GND | 6 |

**DB9 Female <> RJ50 GPI I/O Breakout Cable**



| | A Pin Nbr | B Pin Nbr |
|---|---|---|
| GPI I/O 1 | 1 | 1 |
| GPI I/O 2 | 2 | 2 |
| GPI I/O 3 | 3 | 3 |
| GPI I/O 4 | 4 | 4 |
| GPI I/O 5 | 5 | 5 |
| GPI I/O 6 | 6 | 6 |
| GPI I/O 7 | 7 | 7 |
| GPI I/O 8 | 8 | 8 |
| Power Alarm | 9 | 9 |
| | | 10 |
| GND | GND | |

# Copyright & Trademark

# Warranty Statement

Apantac LLC (herein after referred to as "Apantac") warrants to the original purchaser of the products manufactured by Apantac (the "Product,") will be free from defects in material and workmanship for a period of three (3) year from the date of shipment of the Product to the purchaser.
If the Product proves to be defective during the three (3) year warranty period, the purchaser's exclusive remedy and Apantac's sole obligation under this warranty is expressly limited, at Apantac's sole option, to:
   (a) repair the defective Product without charge for parts and labor or,
   (b) provide a replacement in exchange for the defective Product or,
   (c) if after a reasonable time, is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth below.

## Comformity

Apantac products has been tested and found to comply with the following,
FCC-Class A part 15
CE/C-tick
California Propersition 65
REACH SVHC
EU RoHS 10 Substances Amendment

## Limitation of Liability

Apantac's liability under this warranty shall not exceed the purchase price paid for the defective product.   In no event shall Apantac be liable for any incidental, special or consequential damages, including without limitation, loss of profits for any breach of this warranty.

If Apantac replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product.

Equipment manufactured by other suppliers and supplied by Apantac carries the respective manufacturer's warranty. Apantac assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Apantac.

This hardware warranty shall not apply to any defect, failure or damage:
   a) Caused by improper use of the Product or inadequate maintenance and care of the Product;
   b) Resulting from attempts by those other than Apantac representatives to install, repair, or service the Product;
   c) Caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment;

# Contact Apantac Technical Support

For technical inquiries including product and system issues, hardware and software information and more.

**Technical Support Hours:**
Monday - Friday
7:00 AM to 5:00 PM (PT)


**Technical Support Assistance:**
Phone: +1 (503) 968-3000
Email: [support@Apantac.com](mailto:support@Apantac.com)