

# Marshall Electronics

## MMV-XXI-2HD 1RU Multi-Viewer System (Dual HDSI Outputs) User Manual v2.0





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## **Description**

MMV-XXI-2HD is a modular multi-viewer system with two high-quality individual outputs. This system is equipped with two output cards and up to four input cards. It supports up to 16 input signals. One output shares all the signal sources with the other. Signals can be appointed to any output for display freely. Furthermore, any video channel can be directly and simply moved from one screen to another screen in real-time.

HDMI and HDSDI dual output interfaces are provided on each output card. The HDMI resolution is up to 1920x1080 and HDSDI format is up to 1080p 60. MMV-2HD provides three kinds of input cards: MMV-CVSD input card (4 auto-sensing CVBS/ SDI inputs), MMV-SDHD input card (4 auto-sensing HD/SD inputs) and MMV-HDI input card (4 HDMI inputs). This modular system allows the user to easily construct display systems in a 1RU frame of 4 inputs, 8 inputs, 12 inputs or 16 inputs.

The MMV-XXI *Montage* Series is a multi-view display system with rich features of high-quality, multi-format input, flexible and customizable functions, remote panel, audio monitoring, waveform display, real time monitoring and voice alarm warning, and dynamic UMD & tally from routers. It can be widely used in the studio, broadcasting room, general control center, and production editing studio.

The most flexible combination and feature-rich platform makes it ideal for many applications where video/audio monitoring and displays are required!

## **Features**

- Provides high-quality dual outputs with flexible and individual configuration on each output.
- Provides three kinds of input cards: MMV-CVSD: CVBS/SDI auto-sensing input card, MMV-SDHD: HD/SD auto-sensing input card, and the MMV-HDI: HDMI input card.
- Different multi-viewer display configuration depending on number and type of input card in 1RU frame.
- Input displays on either output using the flexible configuration panel on the internal web server.
- Multi-format input combinations can be configured.
- Flexible output options: 4:3, 16:9, or customized aspect ratio.
- Editable dual program UMD and 4 channel audio meters display.
- Several types of timers: air timer, countdown timer, analog clock timer, and digital clock timer.
- Mark key signal(s) to find in one complicated layout.
- Supports user-defined border color in each channel separately or ability to cancel border display.
- Dynamic UMDs & tally from routers and switches via RS232 interface.
- Supports format display of input signal and AFD information display.
- Video/audio auto detection and alarming: video loss, video frozen, video black, audio silence, and audio overload with high rate of accuracy.
- Two alarm forms: text alarm and icon alarm.
- Supports SNMP.
- Supports customized layout presets for different applications: studio, OB van, production room, etc.
- Standard 1RU frame with dual power supply.

## Special Notice

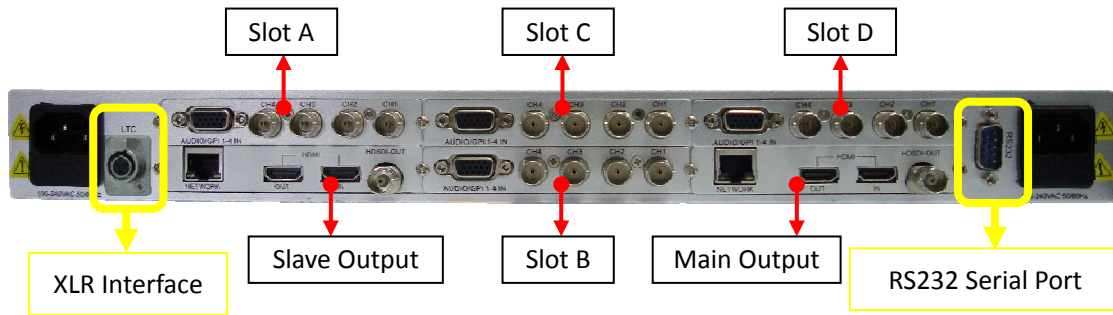
1. In order to avoid network traffic congestion, please do not submit new parameters before the last modification has been applied.
2. Generally, it takes about three seconds to get results after you submit a command. The time is related with the monitor type.
3. Do not plug-in the HDMI connector without power-down.
4. Without the professional technological guidance from Marshall Electronics, users are not permitted to re-plug the modules away from the chassis or debug the internal operation. Marshall Electronics is not responsible for damage caused by unauthorized or incorrect module installation.
5. Easily control the MMV via Ethernet connectivity on your computer. The MMV IP address should be in the same network segment as your computer. The MMV IP and Mac address should be a unique value.
6. Windows 2003, Windows XP, Windows Vista and Windows 7 are strongly recommended with Internet Explorer.exe.
7. User can also upgrade system under the label "Network". Before the upgrade, the anti-virus software and firewall must be closed to make sure that the upgrade data is transmitted to the MMV-2HD system without rejection. Power and network connections can not be interrupted during a system upgrade.
8. Please set all channels to input inner test signal without waveform display before upgrade. This will reduce the time to upgrade the system.
9. If the current output resolution of HDMI signal is not compatible with your monitor, you can change the output resolution on the web control server.

## Front Panel



**Reset Button:** Located in the small hole on the front panel. This function is used to restore the factory value IP address and user password (192.168.1.76 & 000000). Insert a push pin to the small hole and press the button until there is no picture from HDMI and HD/SD-SDI output. The device will restart with the default IP address and user password.

## Input/ Output Rear Panel

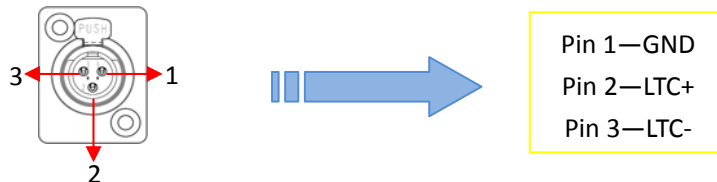


There are six slots for input and output cards. For dual output display system, two output cards are used: main output card and slave output card. See the picture above. The dual outputs are configured by the web server with the network interface (RJ45) on main output card. The default IP address is 192.168.1.76. The RJ45 interface on slave output card is invalid with no function.

Four slots remain for input card. Each slot has an attribute. From bottom to top and left to right, these slots are named as Slot A, Slot B, Slot C and Slot D.

When one input card is inserted into Slot A, up to four virtual channels can be created from this input card as a channel group named group A. This applies to Slot B, C and D as well. Input signals can only be displayed on virtual channels created from the same input card.

XLR Interface is for LTC timing. The definition is shown below:



MMV-XXI-2HD is EBU code according to IEC standard. The pin 1 is GND and pin 2 & 3 receive LTC data. Check the "LTC" box on the web page to enable the LTC timing. See the picture below for details.

RS232 Serial Port is for GPS Timing, Dynamic UMD & Tally and Layouts Remote.

### RS232, DB9 definition (For TSL and GPS)

Pin	Function
2	Rx
3	Tx
5	GND

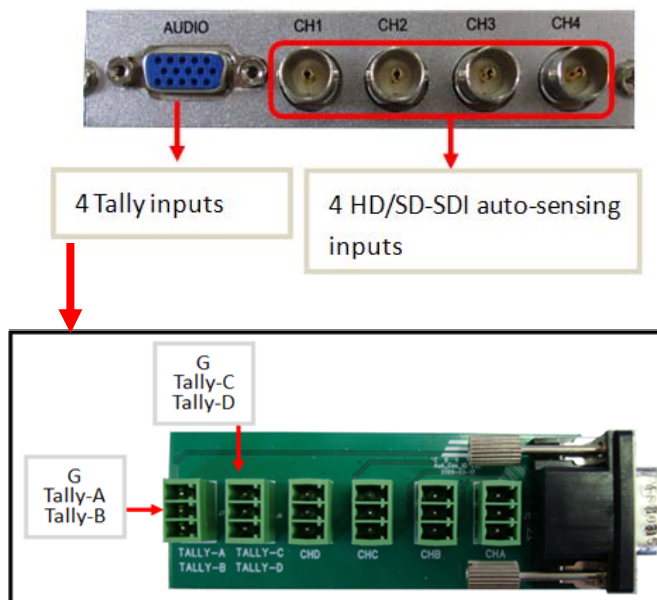
### RS232 to RS232 Cable Connection

2-----3  
 3-----2  
 5-----5

## Input Rear Panel

There are three kinds of input modules: HD/SD-SDI input module, CVBS/SD-SDI input module, and HDMI input module.

### HD/SD-SDI Input Module



#### Support resolutions:

SD: 480i 60, 576i 50

HD: 720p 50Hz/60Hz

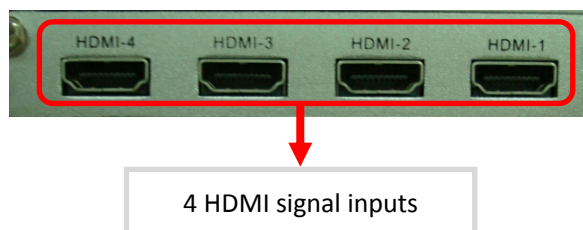
1080i 50Hz/59.94Hz/60Hz

1080p 23.976Hz/24Hz/25Hz/29.97Hz/30Hz

1080p 50Hz/60Hz

Support HD/SD signal with embedded audio and indicate 4 audio channels of Group1.

### HDMI Input Module



#### Support resolutions:

SD: 480i 60, 576i 50

HD: 720p 50Hz/60Hz

1080i 50Hz/59.94Hz/60Hz

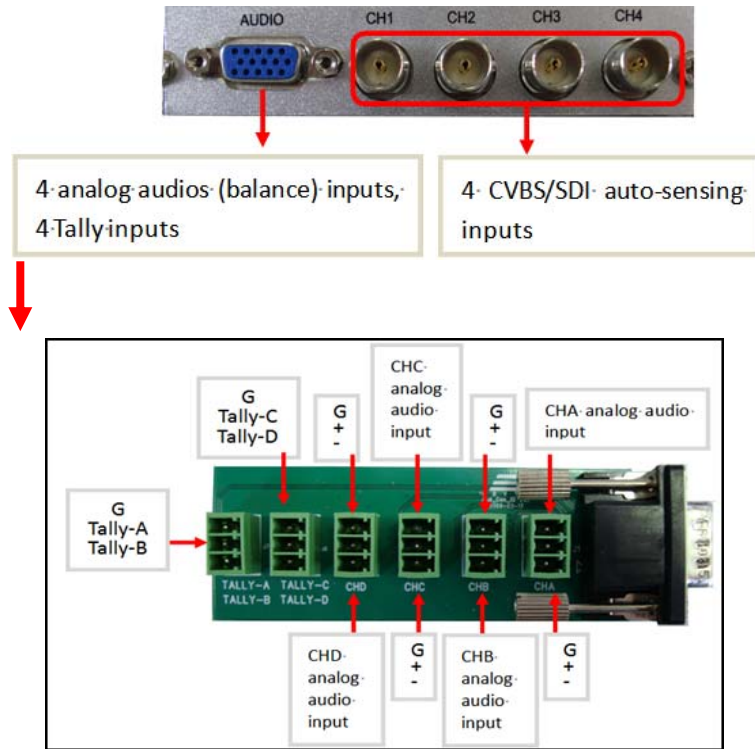
1080p 23.976Hz/24Hz/25Hz/29.97Hz/30Hz

1080p 50Hz/60Hz

Support HDMI signal with embedded audio and indicate 4 audio channels of Group1.

Support HDCP protocol.

## CVBS/SD-SDI Input Module



The Audio/Tally input module supports 1 audio channel for each analog video input.

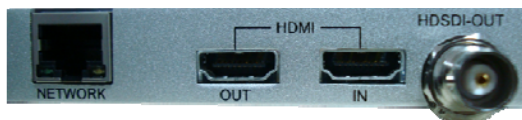
### Support formats:

CVBS : NTSC/Pal

SDI : 480i 60/576i 50

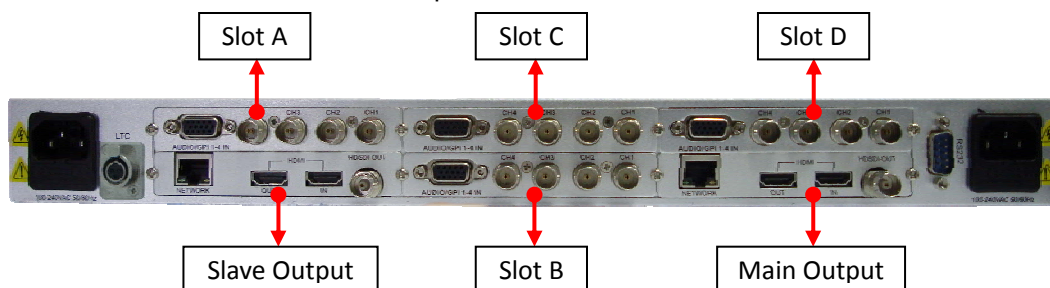
Support SDI signal with embedded audio and indicate 4 audio channels of Group1.

## Output Rear Panel



Each output module provides HDSDI and HDMI dual outputs. The output module provides an HDMI input and RJ45 interface for web server.

**Network:** RJ45 interface with 10/100/1000M auto-detection. The dual outputs are configured by web server with the network interface (RJ45) on **main** output card. The default IP address is 192.168.1.76. When the output card is on the left side facing the rear panel of the frame, it is a slave output card. The RJ45 interface on the slave output is invalid without function.



**HDMI OUT:** Two channel HD/SD-SDI audio signals, eight channel HDMI audio signals, or one channel analog audio can be embedded into the HDMI output signal. Users can select audio source via the web control to monitor audio signals embedded into HDMI output signal. The output resolution of HDMI signal is up to 1920x1080.

**The output resolutions are listed below:**

1024x768, 1280x720, 1280x768

1280x1024, 1360x768, 1400x1050

1600x1200, 1680x1050, 1920x1080

**HDMI IN:** An HDMI input interface is provided on each output card. When the HDMI interface input is non-3G signal, the channel can display audio meters, UMD, input resolution, safe area, etc. When the HDMI interface input is 3G signal (1080p 50/59.94/60), the channel only displays UMD. The HDMI input channel is either above or below all the channel input modules.

**The input resolutions are listed below:**

SD: 480i 60, 576i 50

HD: 720p 50Hz/60Hz

1080i 50Hz/60Hz

1080p 24Hz/25Hz/30Hz

1080p 50Hz/60Hz

**HDSDI OUT:** There is an HD/SD-SDI output interface on the output module. The embedded audio signals of HD/SD-SDI output signal are the same as the ones of HDMI output signal.

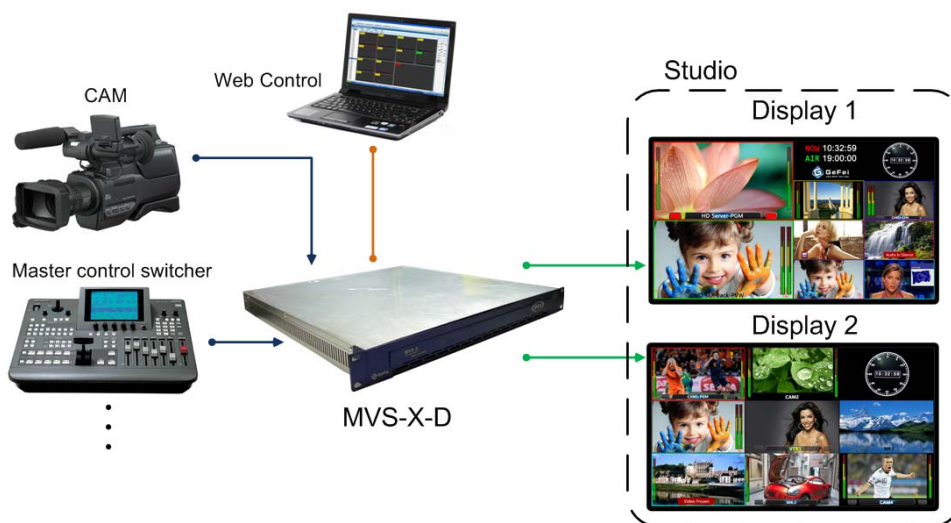
**The output format can be configured via web server to fixed value below:**

576i 50/480i 59.94

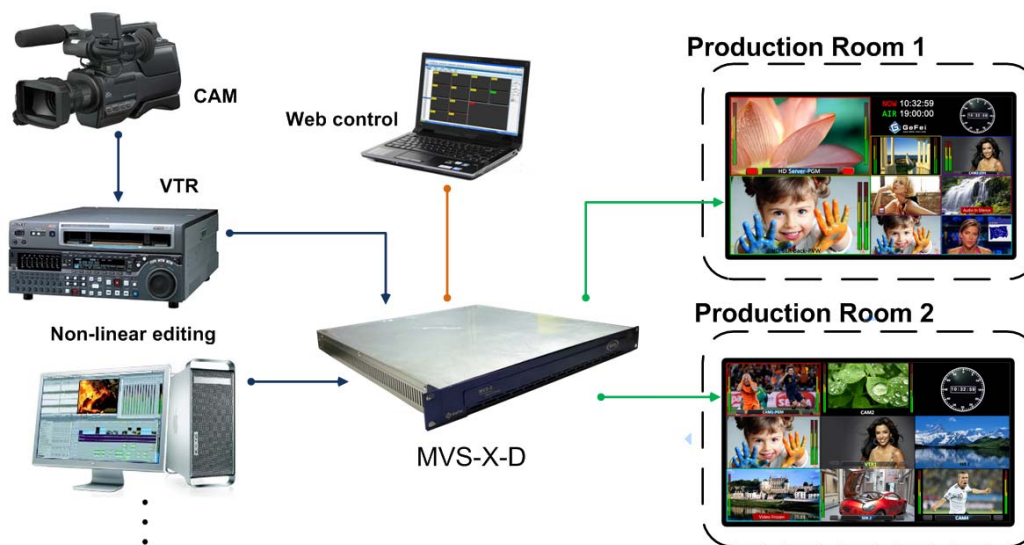
720p, 1080i, 1080p

## Application

MMV-2HD can be applied in the Studio System with two individual outputs from a single device. The signal source can be assigned to any output.



MMV-2HD can be applied in a Production Station. A single device can be used in two different rooms for monitoring at same time. The signal source can be assigned to any output.



## How To Use The Remote Control Software

### Attention Before Use:

MMV-2HD has built-in Web Server; user can configure via Internet Explorer easily if connected through cable.

**First Step:** Login to [192.168.1.76/config.html](http://192.168.1.76/config.html) and open physical configuration of MMV-2HD: Input Source Name Editing and Screen Position Settings.

**Second Step:** Login to [192.168.1.76](http://192.168.1.76) and open general web control. There are several web labels: System, Alarm, User, Network, and Help.

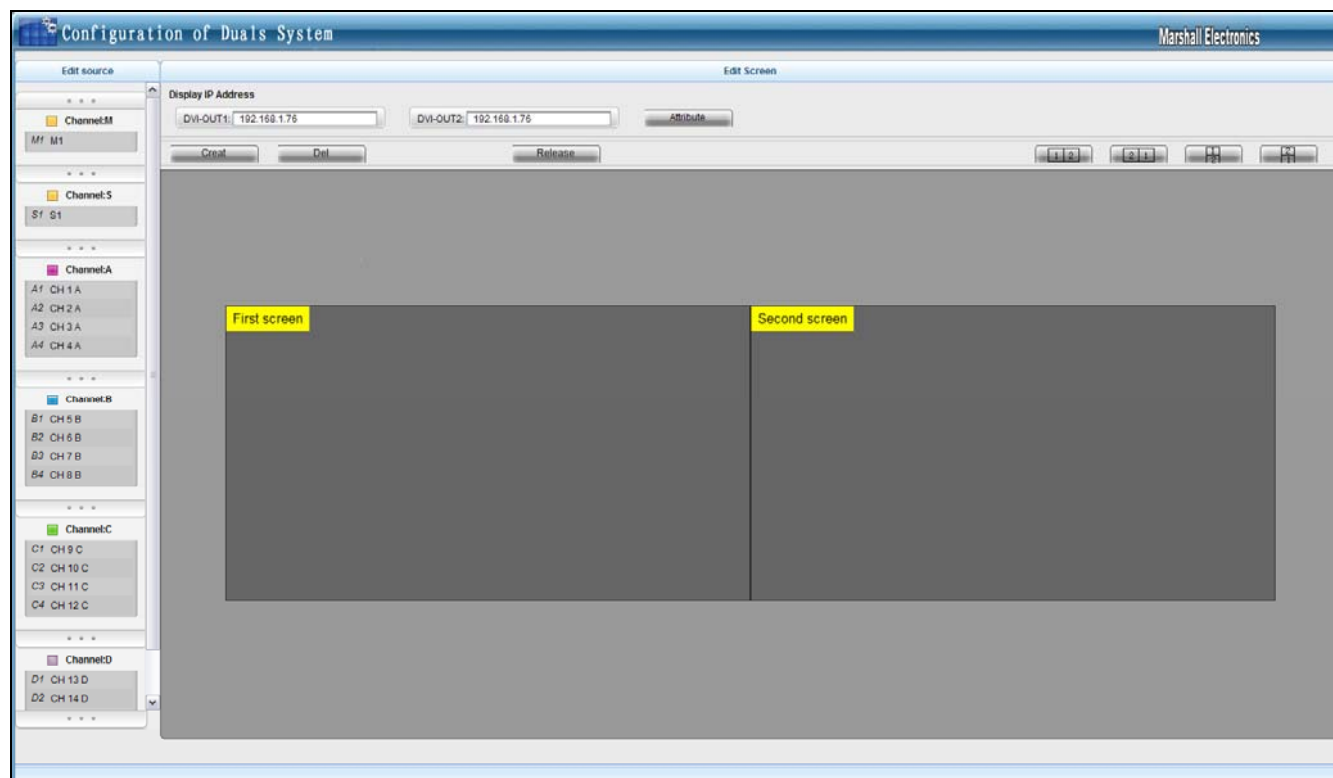
**The default IP address:** 192.168.1.76.

**The default user name:** admin

**The default password:** 000000

## Basic Physical Configuration of MMV-2HD

Open Internet Explorer and input <http://192.168.1.76/config.html> to open web page of Physical Configuration. The page is shown below:



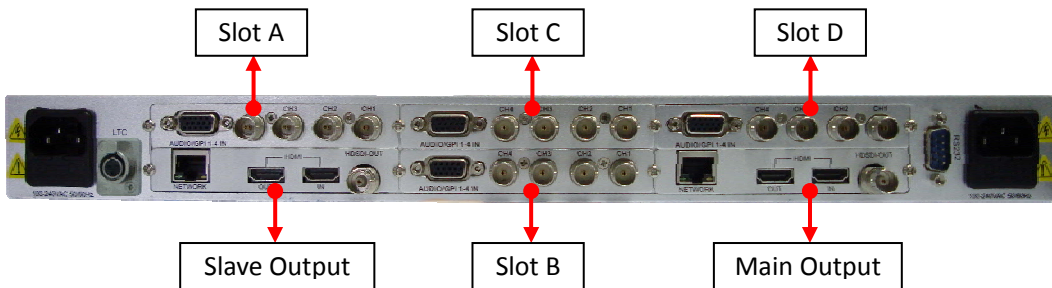
## Edit Input Source

Edit name of input source for each input card on left side of web page.

Channel:M  
 M1 My computer DVI → HDMI Input signal from main output card  
 Channel:S  
 S1 My Laptop HDMI → HDMI Input signal from slave output card  
 Channel:A  
 A1 EXT1  
 A2 EXT2 → 4 Input signals from input card inserted  
 A3 EXT3  
 A4 HD Server1  
 Channel:B  
 B1 HD Server2 → 4 Input signals from input card inserted  
 B2 CAM1  
 B3 CAM2  
 B4 CAM3  
 Channel:C  
 C1 VTR1 → 4 Input signals from input card inserted  
 C2 VTR2  
 C3 HD Delayer  
 C4 HD Keyer  
 Channel:D  
 D1 HD ALC → 4 Input signals from input card inserted  
 D2 Router1  
 D3 Router2  
 D4 Router3

Double click each bar to edit individual name for each input source

### Rear Panel:



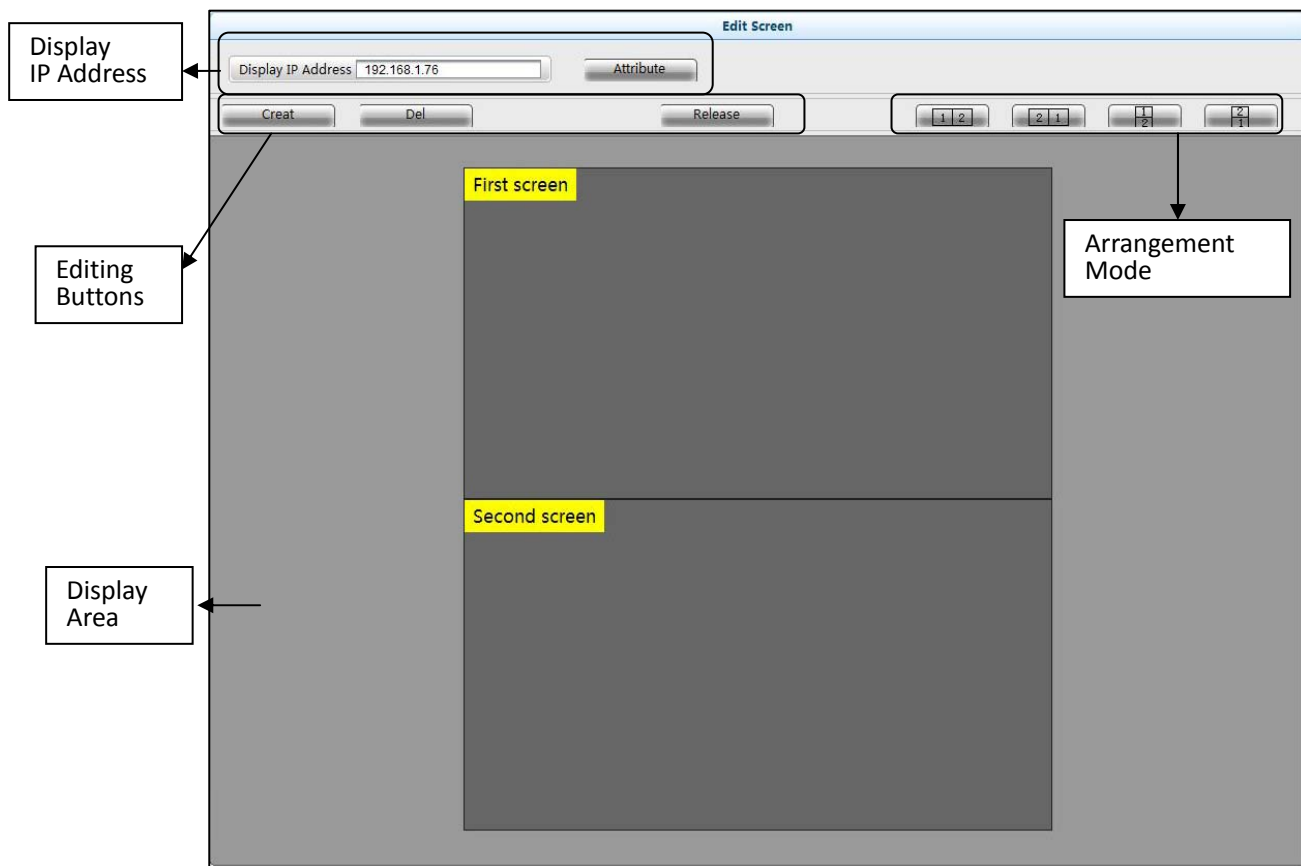
### Relationship between Input Source and Inserted Slots:

Slot	Module Type	Interface on the rear	Channel Name on Web page
M	HDMI In on Main output card	HDMI IN	M1
S	HDMI In on Slave output card	HDMI IN	S1
A	Input card inserted in Slot A	CH1, CH2, CH3, CH4	Group A: A1, A2, A3, A4
B	Input card inserted in Slot B	CH1, CH2, CH3, CH4	Group B: B1, B2, B3, B4
C	Input card inserted in Slot C	CH1, CH2, CH3, CH4	Group C: C1, C2, C3, C4
D	Input card inserted in Slot D	CH1, CH2, CH3, CH4	Group D: D1, D2, D3, D4

**Note:**

1. Interfaces named CH1~CH4 on rear panel of input card inserted into Slot A are corresponding to A1~A4 on Web. So does Group B, C and D
2. If there is no input card inserted into certain slot, like Slot A, the related channel group, that is channel group A, will not be shown on the web page.

## Edit Screens



**Display IP address:** Shows the IP address for dual output system in the location bar; read only.

**Editing Buttons:** Create, Delete, and Release.

Create: Creates a screen. Maximum of two screens can be created.

Del: Deletes an existing screen.

Release: Releases current name of input sources and arrangement of screens.

Jumps to web page 192.168.1.76.

**Arrangement Mode:** To arrange the position of screens; based on a actual physical position of monitors connected to the MMV-2HD.

Screen 1 is the HDMI output signal of main output card.

Screen 2 is the HDMI output signal of slave output card.

: Screen 1 is left and Screen 2 is right.

: Screen 2 is left and Screen 1 is right.

: Screen 1 is up and Screen 2 is down.

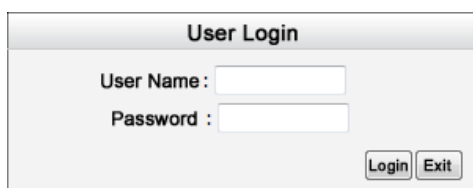
: Screen 2 is up and Screen 1 is down.

## General Configuration

You do **not** need to install the client software. Open Internet Explorer and enter the IP address in the location bar to open the user interface. **Default IP address is: http://192.168.1.76.**

**Login Interface:** Enter user name: **admin** and initial code: **000000**.

Click "Login" to enter actual operation remote control.

A screenshot of the 'User Login' web interface. It features a title bar with the text 'User Login'. Below the title bar, there are two input fields: 'User Name : ' followed by a text box, and 'Password : ' followed by a text box. At the bottom right of the form, there are two buttons: 'Login' and 'Exit'.

## Function Overview

The following function options can be located on the top menu bar of the web page:

*System, Alarm, User, Network, and Help.*



**System:** Designs the output display layout via creating or deleting windows, clock, logo, UMD and other display elements.

**Alarm:** The system detects audio, mute, frame frozen, black, signal loss, EDH detection. Each alarm threshold can be programmed to meet your needs.

**User:** The system supports user name called admin. The initial password is 000000 which can be changed. The new password will take effect during next log in.

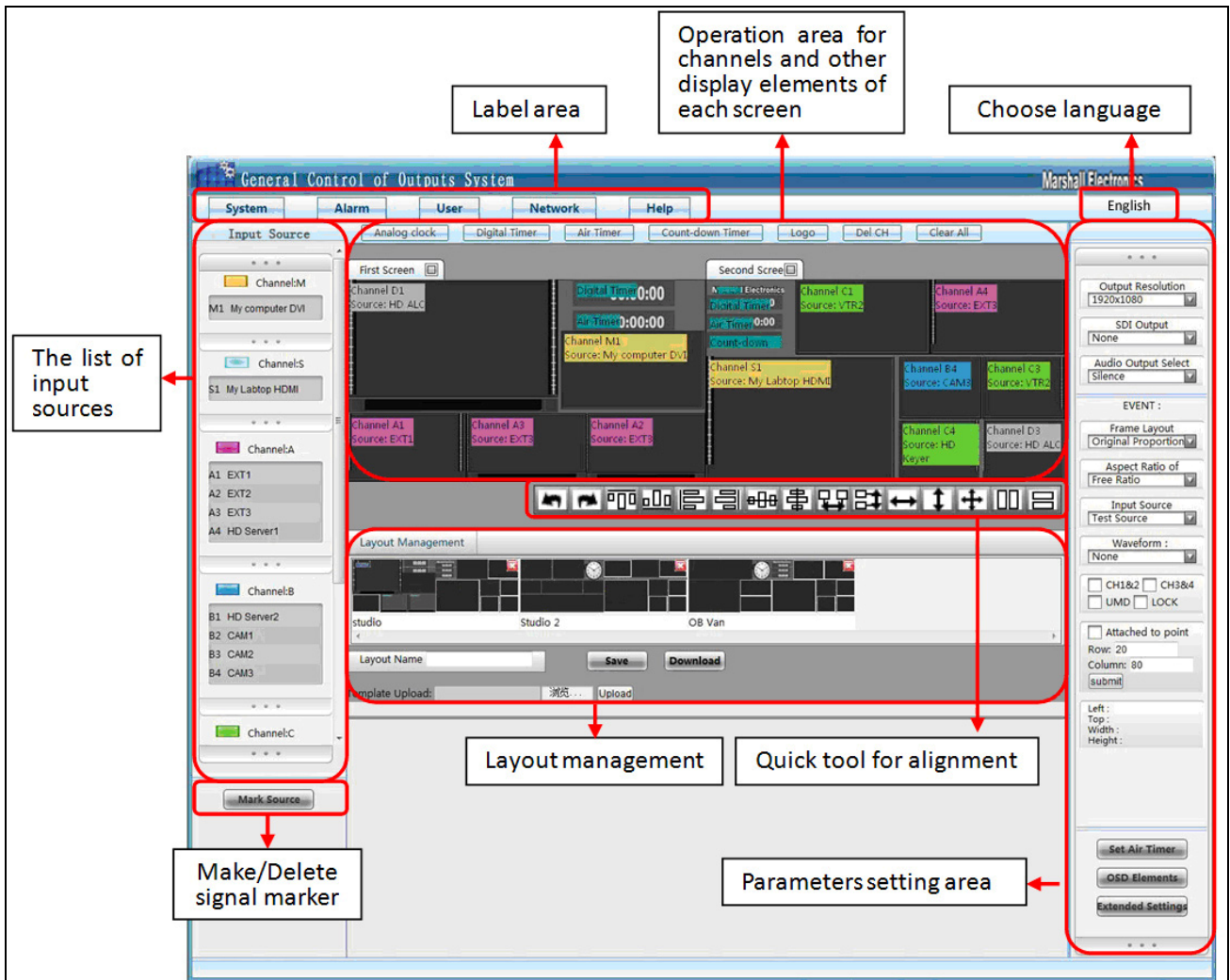
**Network:** Modifies the IP address and upgrades the firmware. The modification will take effect after machine has been restarted.

**Help:** Shows all versions of firmware here.

## System Settings

You can set the basic configuration in the System Settings which includes the following functions: create or delete the channels, add the clock and logo, align selected channels via the quick tools, undo the previous operations, and set the parameters such as output resolutions, aspect ratio, and extended configuration. Click the submit button to take effect after configuration is selected.

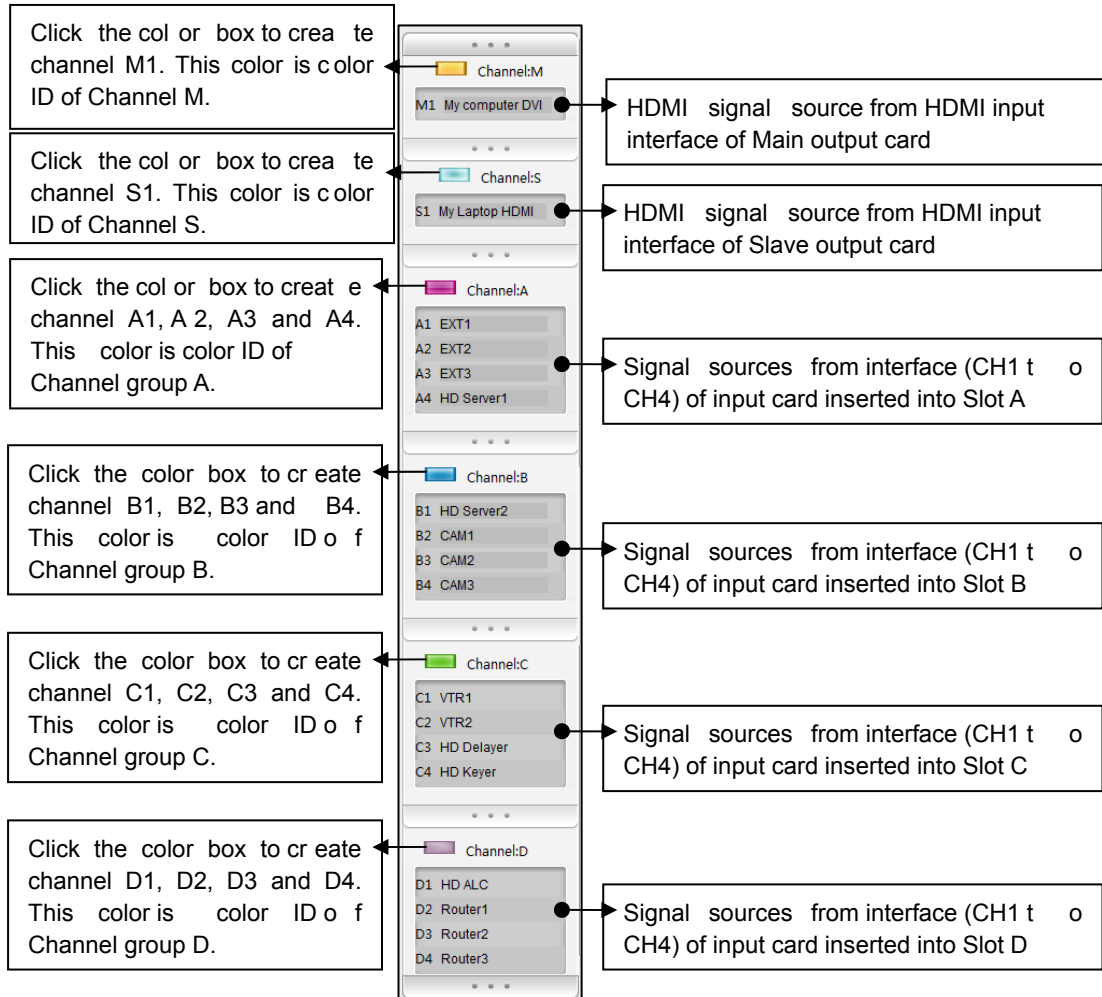
See details below:



## Create a Channel

The system detects the name of input source for each input card and makes a list according to the settings on the Physical Configuration page.

If no input card is inserted in a slot (Ex: Slot A), the related channel group (Ex: Channel Group A) will not be shown on the web page. Each channel group has their own color box.

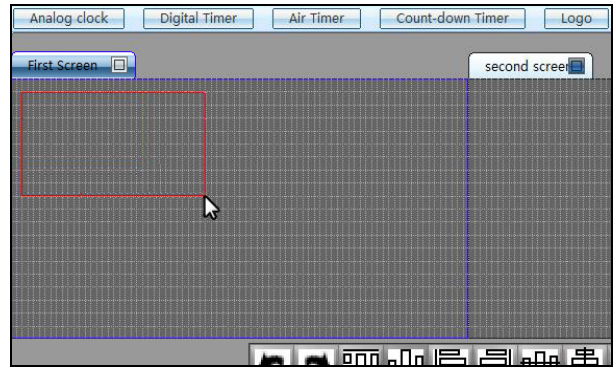


### Steps to Create a Video Channel:

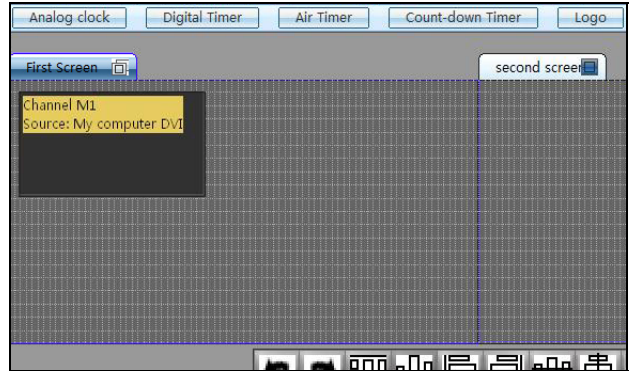
Step 1- Click the color box of a channel group.  
For Example: Click color box Channel M.



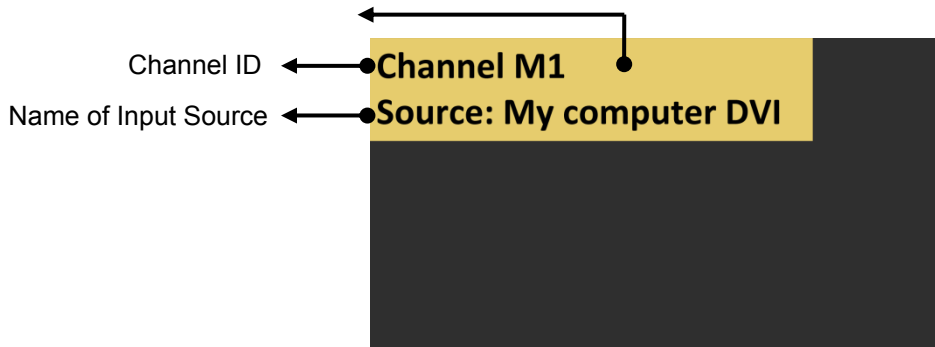
Step 2- Hold the mouse and drag from top to bottom of the target screen to create the frame.



Step 3- Release the mouse. The system will create a Channel M1 with the size and position of the frame. You can change the size and position of the channel as needed.

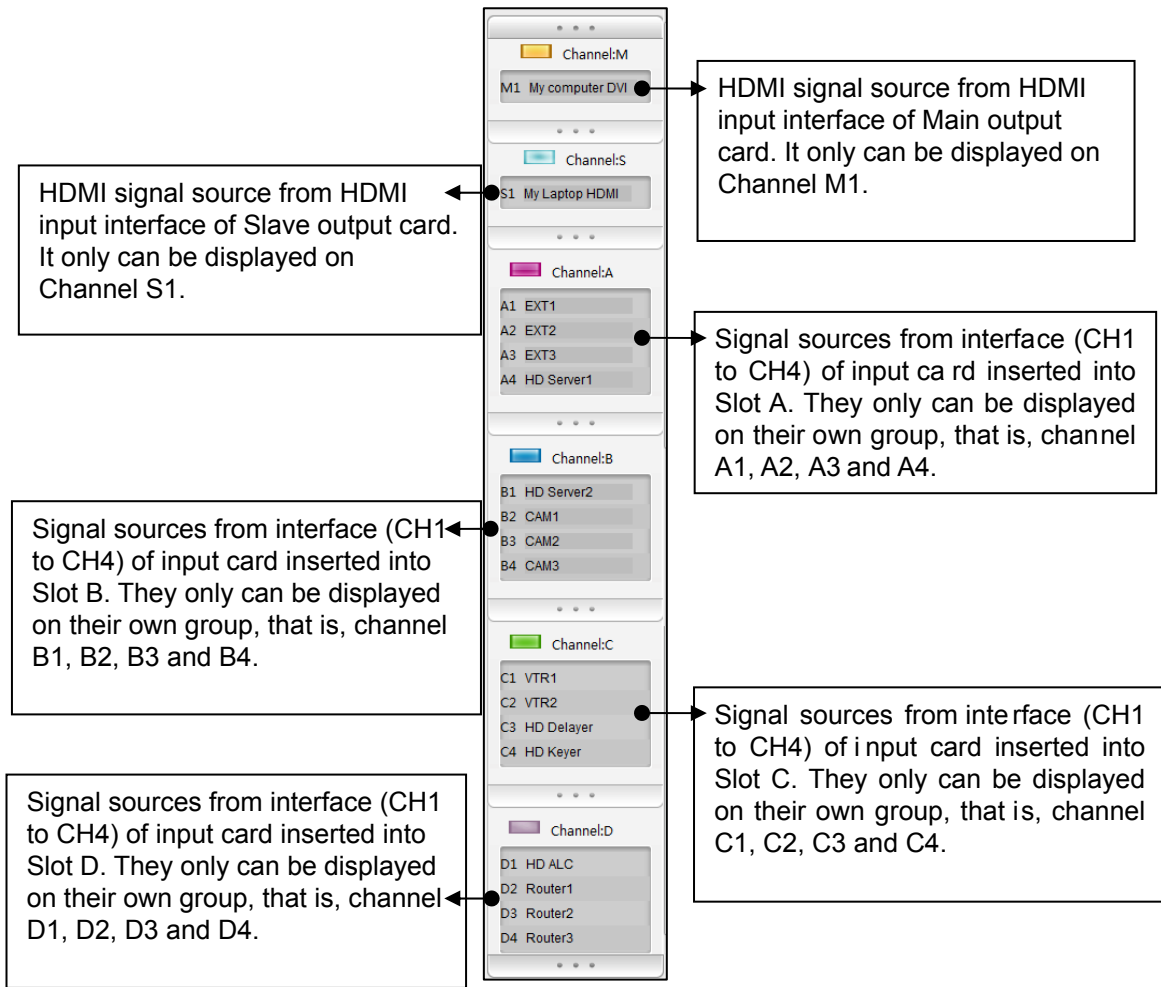


Channel M1 is shown below:



The unique Channel ID is shown on each channel. The input source name is displayed on the current channel. Channel Colors distinguish the various channels from one another.

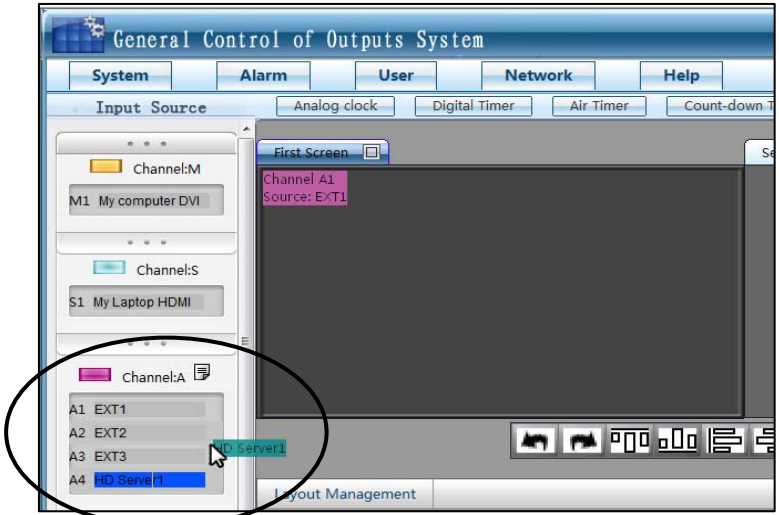
## Choose Input Source



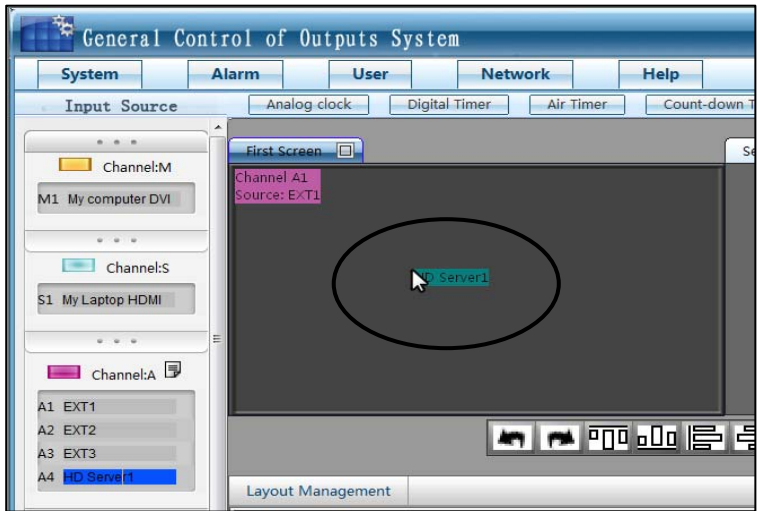
**The input signal sources from each input card can only be displayed on its own four channels; Input signals and channel group are joined together.**

**Steps to Assign Input Source to Video Channel:**

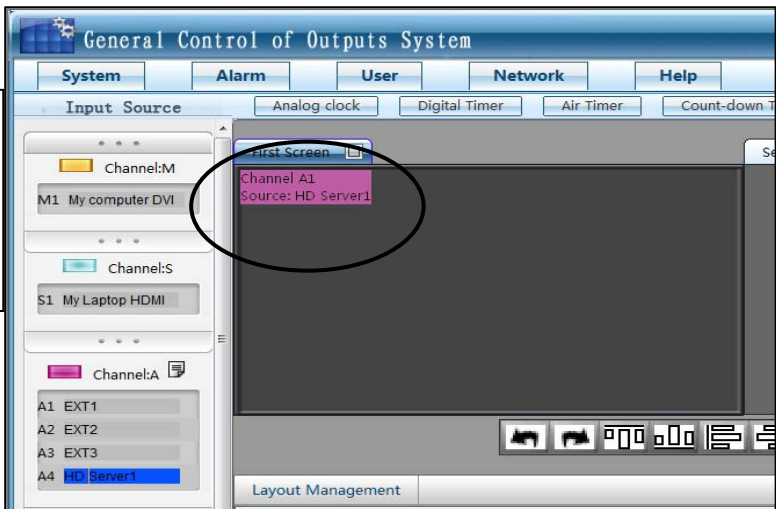
Step 1- Use the mouse to choose one input source in the list and drag out (Ex: "HD Server1" from Channel GroupA).



Step 2- Drag the signal out of the list until it is positioned on the target channel and release the mouse. (Signal source and selected channel must belong to the same group.)



Channel A1 currently displays source as "HD Server1".

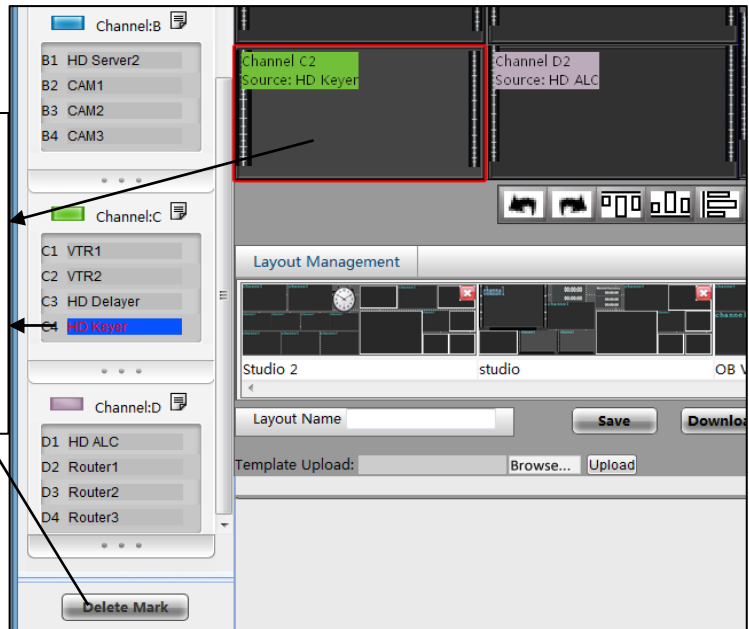


### Make / Delete Signal Marker

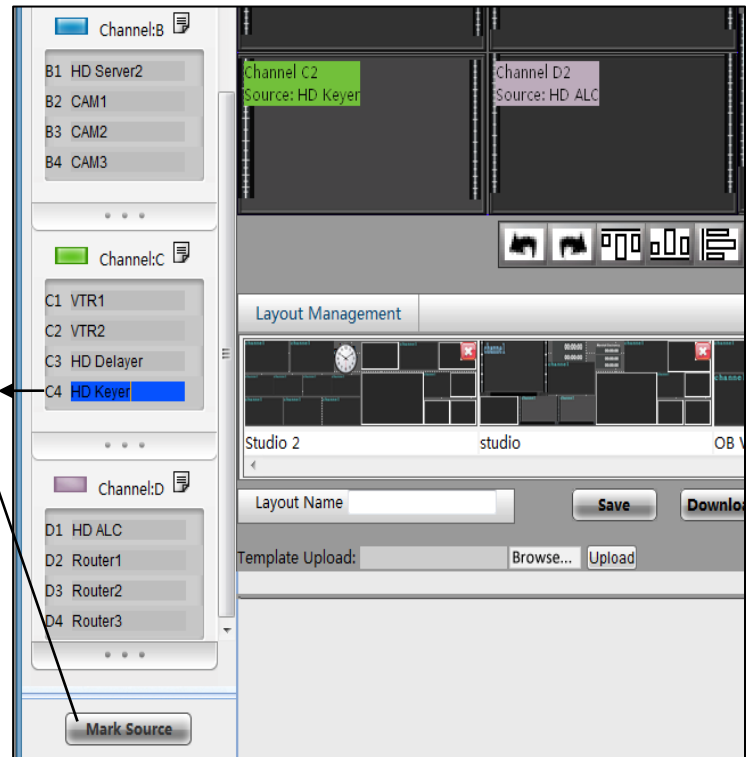
The key signal will be shown in a red font while the displayed channel will be marked with a red border so it can be located quickly in a complicated layout, even after a series of position adjustments.

*Note:* Multiple signals can be marked at the same time.

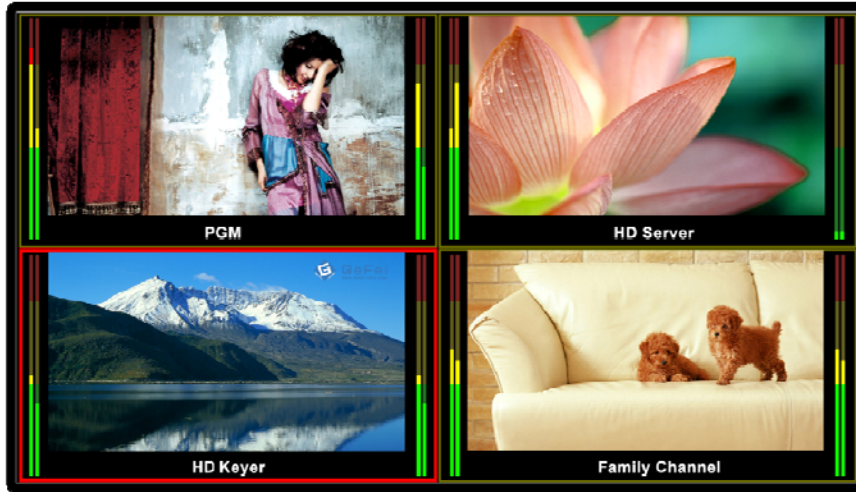
The name of the marked source is shown in a red font. The selected channel using the signal as the current display source appears with a red border not only on the web but on the actual output as well. The signal marker can be removed by using the "Delete Marker" button.



Select the input source in the list and click "Mark Source".  
For Example: "HD Keyer" from Group C.



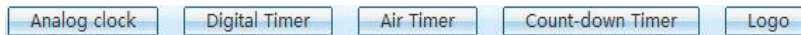
The display channel using the source signal will appear on the actual output with a red border.



### Create Clock / Timer / Logo

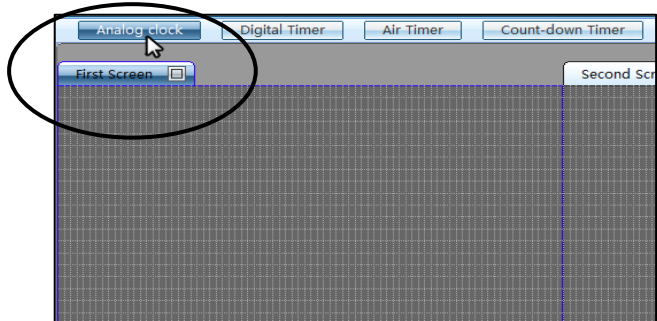
The following objects can also be created. These options are located on the sub-menu bar:

*Analog Clock, Digital Timer, Count-down Timer, Air Timer, and Logo.*

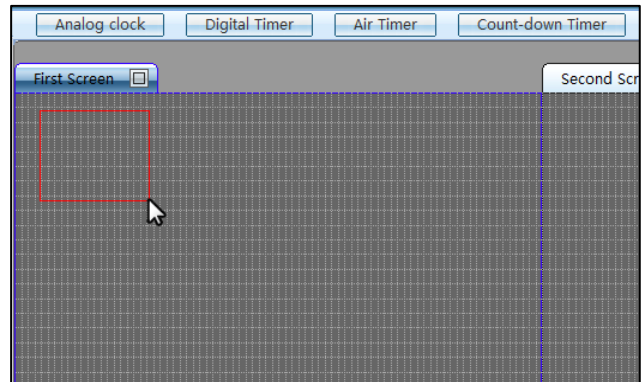


Two objects in each category can be created but only one object can exist on the screen at a time. The size of Digital Timer, Count-down Timer, and Air Timer can be changed as needed. The size of Logo and Analog Clock cannot be changed.

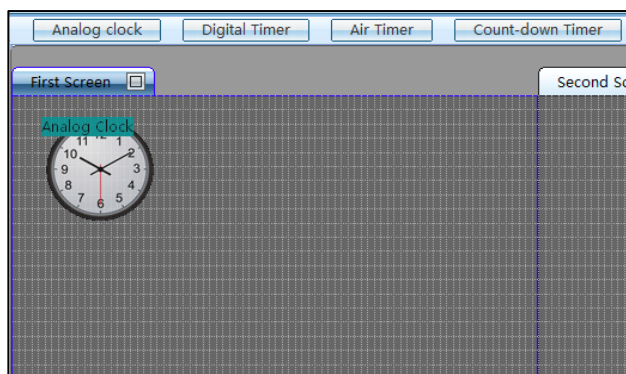
Step 1- Click the object to be created. For Example: click the "Analog Clock" button to create an analog clock.



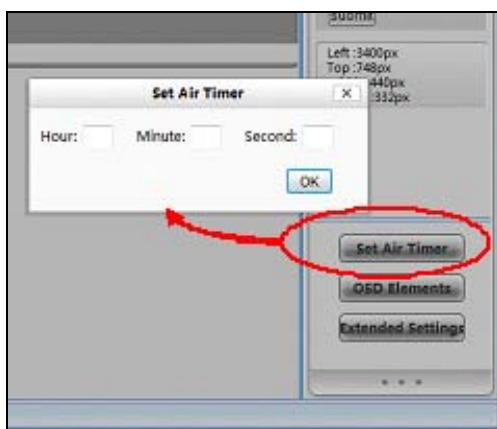
Step 2- Hold the mouse and drag from top to bottom on the target screen to create the frame for the object.



Step 3- Release the mouse. The system then creates the object in the position of the frame with a fixed size. You can move the position of the object as needed. (Ex: Analog Clock shown here)



*Note* : The time can be customized for the Air Timer. The details are shown below:



Air Timers on each screen can be configured individually. First, click the target screen and press the “Set Air Timer” button. A pop-up message box will appear and the time can be entered. Enter the numbers for each box separately. Press “OK” to submit and save the data. The countdown timer is the interval time between air timer and the current timer.

### Delete an object

Select an individual, unnecessary object (Channel / Clock / Timer / Logo) and then press the button “**Del CH**”. The selected object will be deleted immediately. The hot key is “Delete” on the keyboard.

### Clear All

Each screen can be cleared in full with one command. Click the selected screen and then press the button “**Clear All**” to clear all the objects from the current screen.

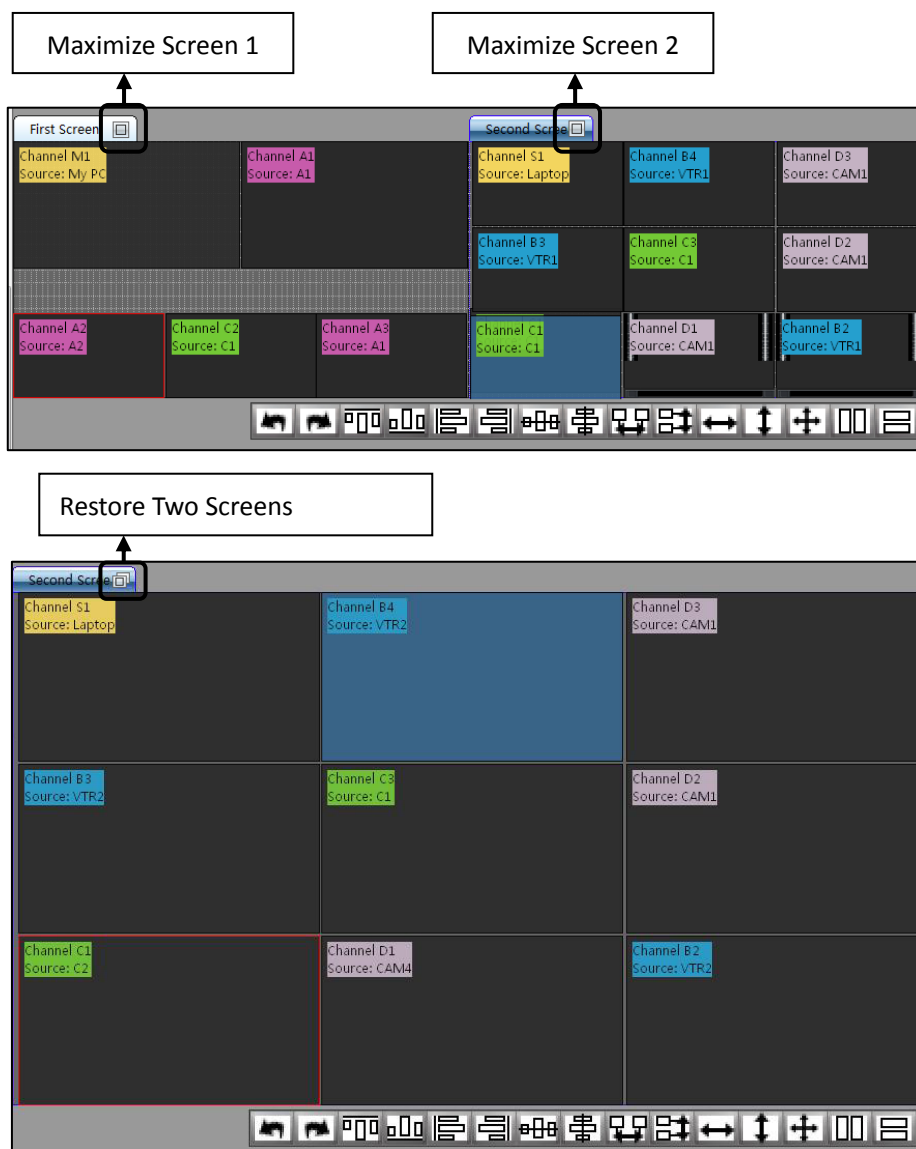
## Screen 1 and Screen 2

Screen 1 is the HDMI output signal of main output card. Screen 2 is the HDMI output signal of slave output card. The position of the two screens can be configured as needed. See instructions in the Basic Physical Configuration section (Edit Screen / Arrangement Mode, page 10).

Various functions are available in this menu. Main functions are listed below:

1. Display all the channels, clock, timer and logo.
2. Adjust the position of the clock and logo by dragging the edge with the mouse.
3. Adjust the position and size of the channels by dragging the edge with the mouse.
4. Adjust the position and size of audio meters and UMD of each channel by dragging the edge of each audio meter or UMD with the mouse.
5. Select one or more objects in this area before changing parameters or taking further actions.
6. Video channels can be moved from one screen to another screen in real time.

Each screen can be magnified to full screen size for easy editing. All operations in this area are displayed on the monitor or LCD in real time.



## Quick Tools



There are various quick tools for creating various layouts.

## Do & Undo



: Undo, hotkey is “Ctrl+Z”;



: Do, hotkey is “Ctrl+Y”.

## Alignment Tools



All operations among these windows are aligned to the last selected one.



: Align Top



: Align Bottom



: Align Left



: Align Right



: Align Horizontal Center



: Align Vertical Center



: Horizontal Average



: Vertical Average



: Overspread with Horizontal Equal Width



: Overspread with Vertical Equal Height

The buttons below are not only for channels but for UMD & Audio Meters as well. The selected audio meter is adjusted according to another one in the same channel. The buttons below can't be applied to audio meters from different channels.



: Equal Width



: Equal Height




: Equal Width & Height.

Except for the alignment tools above, this software supports hotkeys on the keyboard, such as direction key

“↑ ↓ ← →” to move channels in this area.

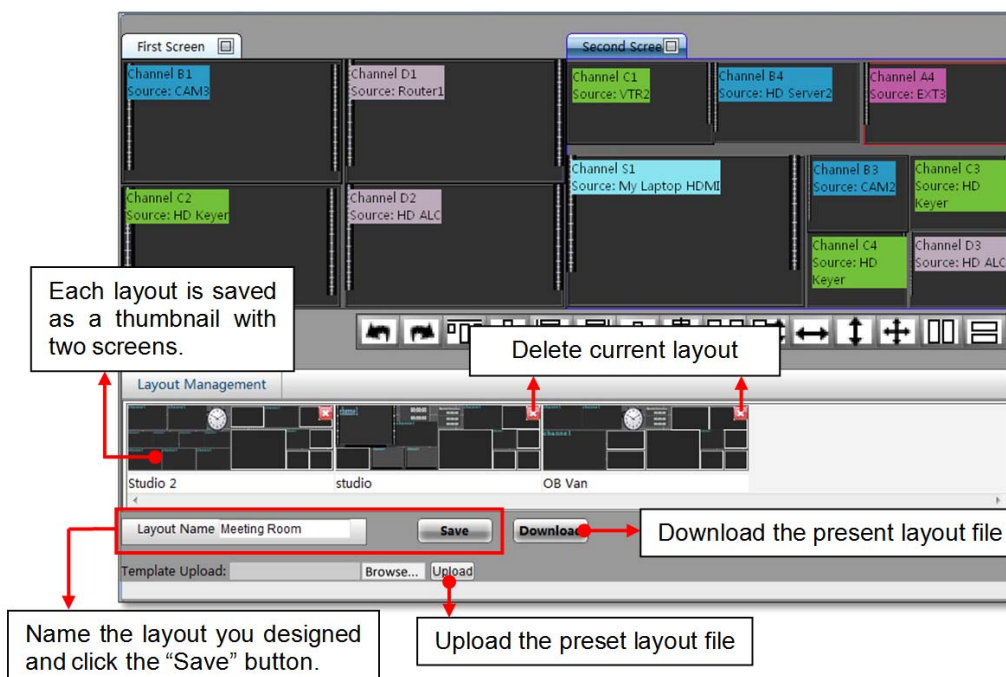
## Full Screen

Choose one channel and double click it. The selected channel will output in full screen mode.

When you want to quit the full screen mode, please use hot key “Ctrl+Z” or click .

## Layout Management

The system allows customers to save multiple user-defined layouts. The max number of layouts is 10 for the customer. Layouts can be applied and saved at any time.



### Save Layout

Enter the name of layout in the blank area and click the “Save” button. The layout is saved as a thumbnail in the layout management area. The layouts on both screens are saved at the same time. Click the thumbnail to apply the relevant layout. If the name of the layout already exists, the new layout will be saved in place of the old layout.

### Edit Layout

Click the selected thumbnail layout and adjust as needed. After completion, click the “Save” button.

### Delete Layout

: Delete Button

Click the delete button on the top of the selected layout thumbnail to delete the unnecessary layout.

### Download Layout File

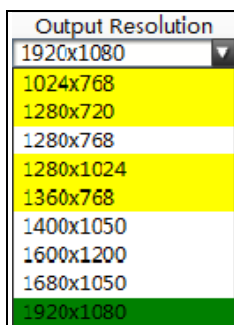
Click “Download” button and save the designed layouts as a BIN file. All the layouts in this area are saved as one file and can not be downloaded individually.

### Upload Layout File

Click the “Browse” button to find and upload the current layouts. A message box will appear after layout has been successful uploaded. Please refresh the page so the layouts will appear in layout display area as new thumbnails. Apply a layout by clicking its relevant thumbnail.

**NOTE:** *The most recently uploaded layout will replace the original one.*

## HDMI Output Resolution

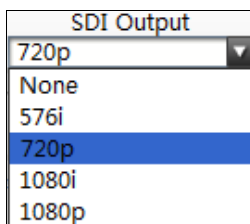


HDMI output interface provides EDID detection from the monitor. And the resolutions from EDID are highlighted in the dropdown list. See the picture shown above. The output resolution of HDMI signal has a maximum resolution of 1920x1080.

Select a specific screen and then choose the output resolution for the HDMI signal in the drop-down list. (Screen 1 is from main output card and Screen 2 is from slave output card.)

1024x768, 1280x720, 1280x768  
 1280x1024, 1360x768, 1400x1050  
 1600x1200, 1680x1050, 1920x1080

## SDI Output Resolution

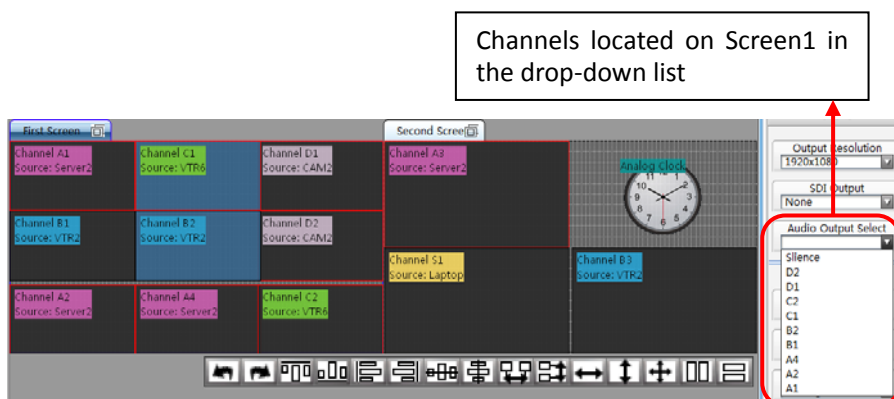


HD/SD-SDI and HDMI interface produce output signals at the same time with the same video content and embedded audio for each output card. The SDI output format is different from HDMI output signal which can be set independently.

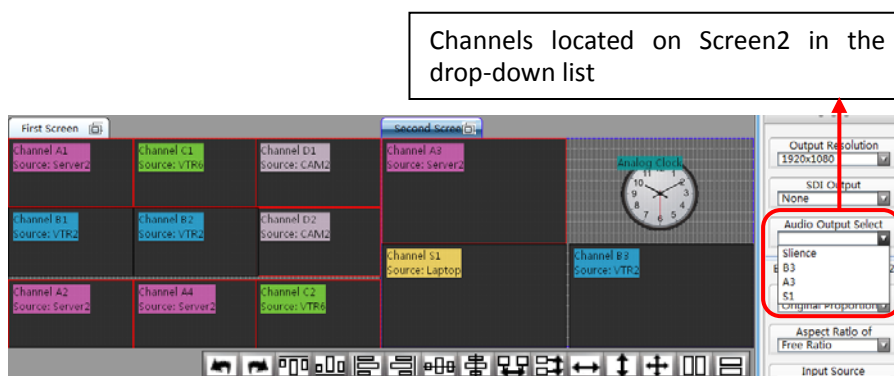
Select a specific screen and choose the output resolution for the HD/SD-SDI signal in the drop-down list. (Screen 1 is from main output card and Screen 2 is from slave output card.)

None  
 576i 50/480i 60  
 720p  
 1080i  
 1080p

## Audio Monitor Output Select



Choose **Screen 1** and select one of the channels located on Screen 1 in the drop-down list. HD/SD-SDI audio signals will be displayed on the selected channel and will be embedded into HDMI and HD/SD on the **main output card signal**. For Example: When selecting Channel D2, input audio signals displayed on Channel D2 are embedded into HDMI and HD/SD on the main output card signal.

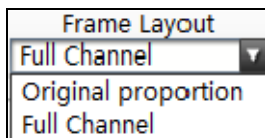


Choose **Screen 2** and select one of the channels located on Screen 2 in the drop-down list. HD/SD-SDI audio signals will be displayed on the selected channel and will be embedded into HDMI and HD/SD on the **slave output card signal**. For Example: When selecting Channel D3, input audio signals displayed on Channel D3 are embedded into HDMI and HD/SD on the slave output card signal.

The audio for a specific channel is reached by monitoring the embedded audio of the HDMI or HD/SD-SDI output signal.

- A , When the input source is HD/SD-SDI signal, two channel HD/SD-SDI audio signals can be embedded into the HDMI and HD/SD-SDI output signal.
- B , When the input source is HDMI signal, up to eight channel HDMI audio signals can be embedded into the HDMI and HD/SD-SDI output signal.
- C , When the input source is CVBS signal, one channel analog audio signals can be embedded into the HDMI and HD/SD-SDI output signal via the audio/Tally input module.

## Frame Layout

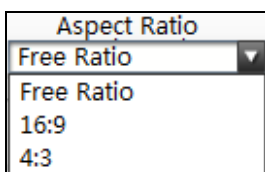


There are two types of video display: Full Channel and Original Proportion.

**Full Channel** means the video image will cover the entire channel and ignore the aspect ratio of video signal.

**Original Proportion** means the video image always keeps the aspect ratio of video signal even though the ratio of the channel or the size of UMD and Audio meters can be changed. For SD input signal, the aspect ratio of video image is 4:3. For HD input signal, the aspect ratio is 16:9.

## Aspect Ratio



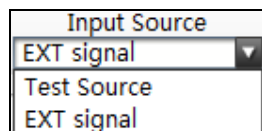
Aspect Ratio channel options are 4:3, 16:9, and Free Ratio.

**4:3**-The channel size will always keep the aspect ratio of 4:3.

**16:9**- The channel size will always keep the aspect ratio of 16:9.

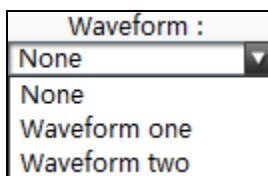
**Free Ratio**- The size of channels can be changed to any specific aspect ratio.

## Input Source



Select the video type between the External Signal (HD/SD-SDI) and the test signal generated by the system.

## Waveform Display



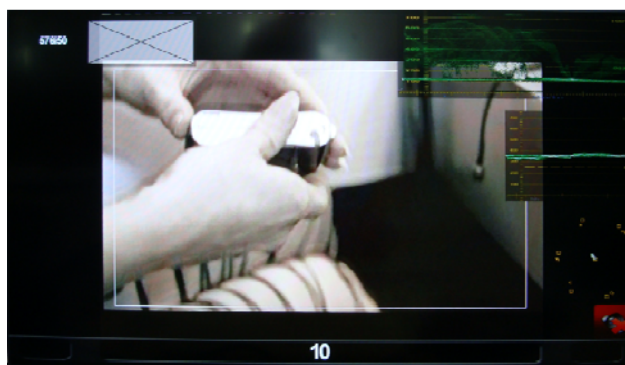
MMV-2HD supports the display of real-time waveform. Click the drop-down list to view three options: None, Waveform One and Waveform Two.

**Waveform One** (from top to bottom): Y waveform, PbPr waveform, and Vector;

**Waveform Two** (from top to bottom): Y waveform, Audio waveforms of G1 CH1, and Audio phase of G1 CH1& CH2.

**None** means there are no waveforms on the image. No audio meters will be associated with this display.

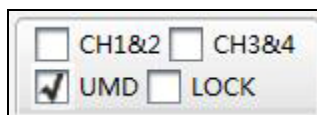
**Waveform One:**



**Waveform Two:**



**UMD & Audio Meters Display**



Check the “**UMD**” and it will be shown within the channel. The system supports dual UMD displays. The UMD can be configured with the “OSD Elements” button located on the bottom-right side of web page.

Check the “**CH1&2**” box to display the audio meters of CH1 and CH2 with HD/SD signal.

Check the “**CH3&4**” box to display the audio meters of CH3 and CH4 with HD/SD signal.

Check the “**Locked**” box to lock the audio meters and UMD within that window. The audio meters and UMD can't be operated separately when locked.

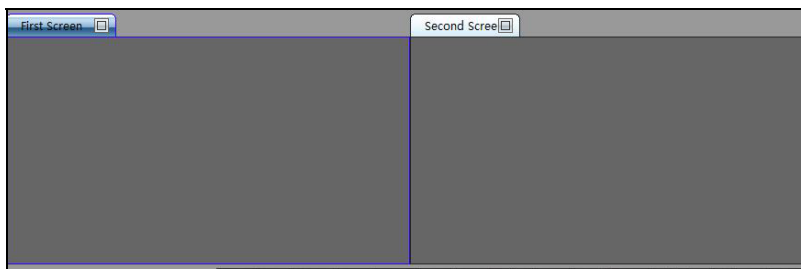
## Attach to Point

Attached to point  
 Row:   
 Column:

When checking the “Attached to Point” box, a grid will appear on both screens. Objects can be moved or adjusted by aligning to a point or line within the grid. Grid settings can be customized to change the row and column width and density.



When box is not checked, the two screens are blank and objects can be moved and adjusted as needed.

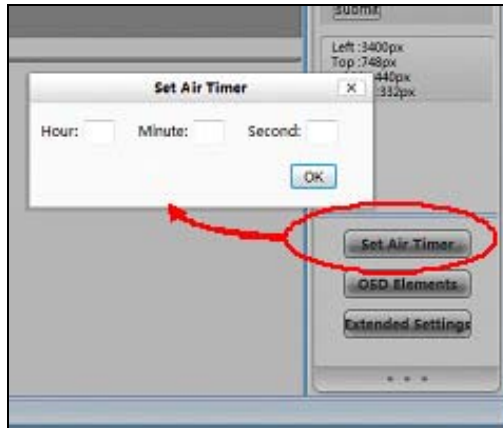


## Position and Size

Left :0px  
 Top :0px  
 Width :1920px  
 Height :1080px

The values of the channel’s coordinates (height and width) are shown on the right of web page when an object is selected. These are read only and can not be adjusted in this menu.

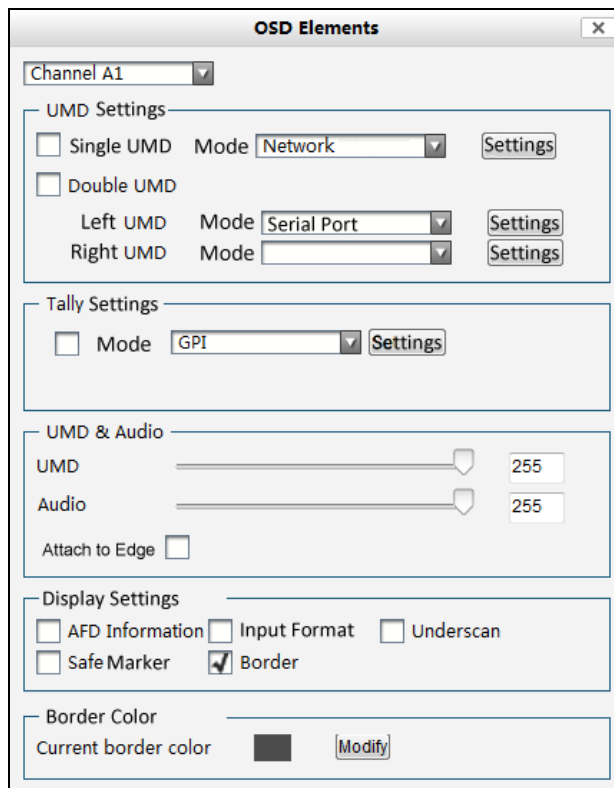
## Set Air Timer



Air Timers in each screen can be configured separately. First, click the target screen and press “Set Air Timer” button and a pop-up window will appear. See the picture above. Enter the numbers in the Hour, Minute, and Second boxes individually. Press “OK” to submit the data. The countdown timer is the interval time between air timer and current timer.

## OSD Elements

Click the “**OSD Elements**” button for the following options:



## UMD Settings

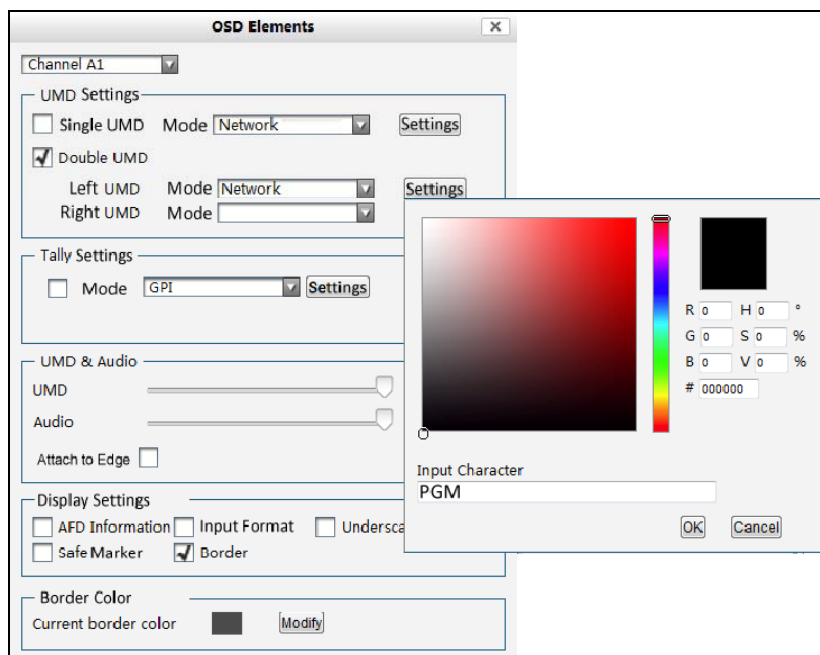
Select the appropriate channel from the drop-down list. The system supports single or dual program UMD displays. Dual UMD is composed of left UMD and right UMD. A white dash separates the left and right UMD text.



These can be configured separately. UMD text can be edited via network or serial port.

### Network-Static UMD

Choose “Network” in the drop-down list and click “Settings”.



### Upload UMD Text

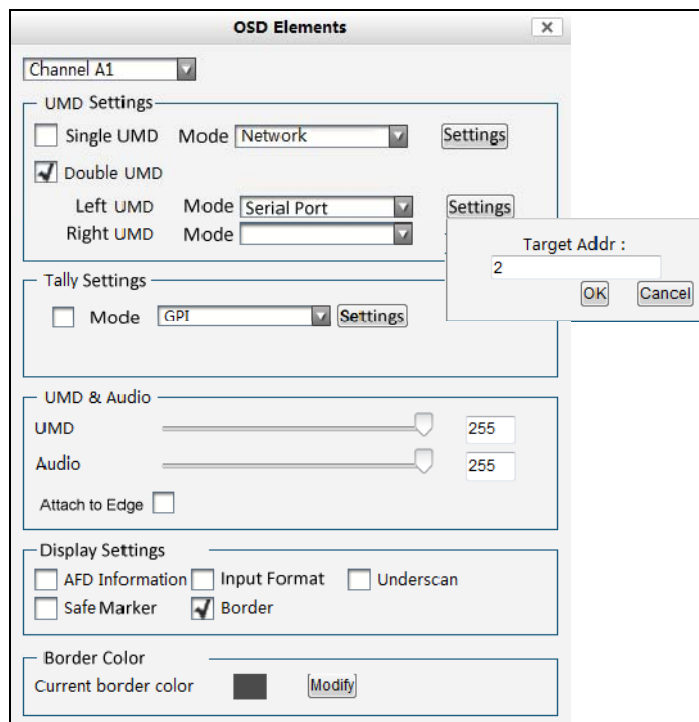
Type the characters in the Input Character field and select text color. When all parameters have been set, click “OK” to save. All characters will be displayed in the UMD.

### To Clear the UMD

Enter a “space” and then click “OK”. All the characters in the UMD area will be deleted.

**Serial Port (RS232)-Dynamic UMD**

Choose “Serial Port” in the drop-down list and click “Settings”.

**Steps for Dynamic UMD:**

**First:** Set the baud rate and parity. The baud and parity must be the same as the TSL Tallyman.

**Second:** Check the "TSL" box to enable the Dynamic UMD function.

**Third:** Set the target address for selected channel to receive the data from TSL Tallyman.

To view more details, please see the serial port configuration section under “Extended Settings”, page 34.

Please make sure target address for single or dual UMDs are different; each target address has a unique value, even for right and left UMD of dual UMD display.

NOTE: Multiple strings for TSL functions can be at the same time. Maximum Strings = 10.

**RS232, DB9 Definition (For TSL and GPS)**

Pin	Function
2	Rx
3	Tx
5	GND

## Protocol V3.1

### Dynamic UMD Protocol

-----  
 | HEADER | CONTROL BYTE | DISPLAY DATA |  
 -----

Header = Display Address (0-126) + 80 hex

(1 byte) (Control byte and display data will be sent)

Control (1 byte)

bit 0 = tally 1 (1=on, 0=off)

bit 1 = tally 2 (1=on, 0=off)

bit 2 = tally 3 ( 1=on, 0=off )

bit 3 = tally 4 ( 1=on, 0=off )

bits 4-5 = brightness data

bit 4 = 0, bit 5 = 0 (0 brightness)

bit 4 = 0, bit 5 = 1 (1/7 brightness)

bit 4 = 1, bit 5 = 0 (1/2 brightness)

bit 4 = 1, bit 5 = 1 (full brightness)

bit 6 = reserved (clear to 0)

bit 7 = cleared to 0

Display Data (16 bytes) = 16 displayable ASCII characters in the range 20 hex to 7E hex.

All 16 characters must be sent.

### Tally Settings

First, select the appropriate channel in the drop-down list.

Second, check the box to enable the Tally Display function.

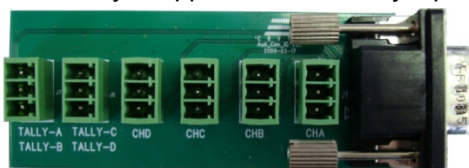
The system supports single Tally display. Tally options are GPI or Serial Port.



### GPI-Static Tally

**Choose "GPI" in the drop-down list to enable Static Tally.**

Static Tally is applied with the Tally input module below:



"Static Tally" should be checked when there is a high level input and the TALLY area will turn light or dark red, depending on the level. If it's not checked, no matter what the input level, the TALLY area will turn gray. Voltage higher than 3.3V and lower than 7V is considered high level input. Users can choose the modified channel from drop-down list shown below:

"Static Tally" Not Checked, the tally area is gray:



"Static Tally" Checked without high level input, the tally area is dark red:



"Static Tally" Checked with high level input, the tally area is light red:



### **Serial Port (RS232)-Dynamic Tally**

**Choose "Serial Port" in the drop-down list to enable Dynamic Tally.**

When "Dynamic Tally" is checked, the tally is implemented with Dynamic UMD of both single UMD and dual UMD. The current color of Tally is changed based on the latest operation of Dynamic UMD.

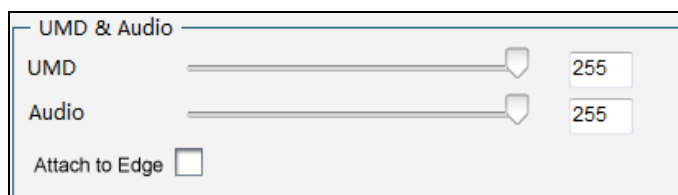
Tally 1=Red.



Tally 2=Yellow.



### **Adjusting the Transparency of Audio and UMD**



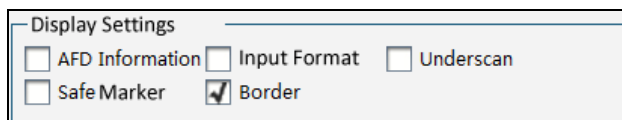
**Choose the target channel or all channels from the drop-down list.**

In this area, users can modify the transparency of audio meters or UMD of each channel. Select the channel to be modified and slide the pointer to the assigned position. Or you can manually enter the parameter settings ranging from 0 to 255. "0" stands for full transparency and "255" stands for opacity.

### **Attach to Edge**

Check "**Attach to Edge**" box when the audio meters and the UMD are located at the bottom edge of the image. When this is checked, the audio meters and the UMD are aligned to the edge with image in full view. If this box is not selected, the UMD and audio meters may overlap the images.

## Display Settings



Choose the target channel or all channels from the drop-down list.

Check the “**AFD Information**” box and AFD information will be overlaid on the top of the channel. AFD information is shown in the form of a picture according to the AFD code inside input signal.

Check the “**Input Resolution**” box and input resolution will be overlaid on the top of the channel. Input resolution is shown as 480i 60/525i 50/720p/1080i/1080p.

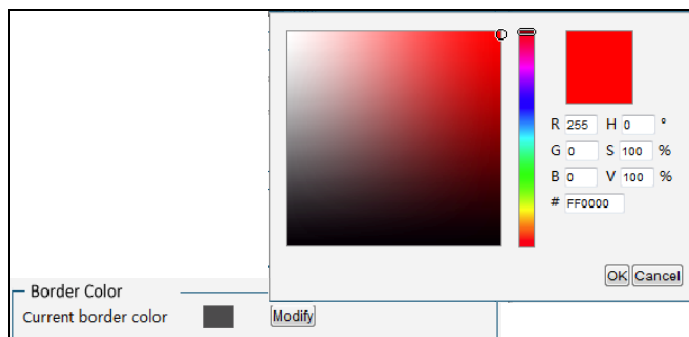


Check the “**Underscan**” box to see in selected channels.

Check the “**Safe Areas**” box and SD-SDI picture signal is marked with 16:9 safe area markers; HD-SDI picture signal is marked with 4:3 safe area markers.

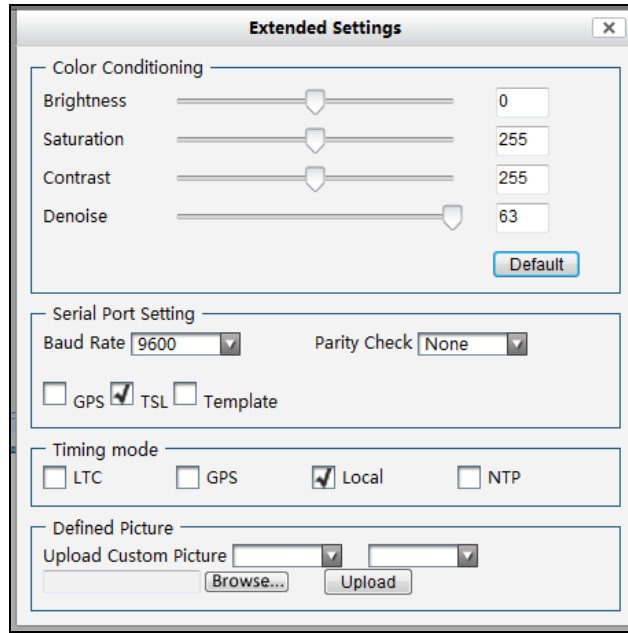
Check the “**Border**” box and the selected channel is shown with a border. Border color can be modified.

## Adjust Border Color

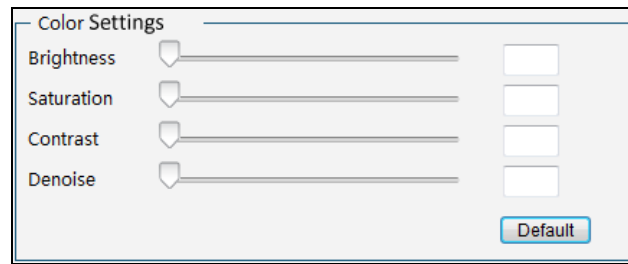


Choose the target channel or all channels from the drop-down list and click “Modify”. On the color palette, select the appropriate color and click “OK”. The current border color will be changed to the selected color.

## Extended Settings



## Set Color Parameters



**Luminance:** To set the brightness and darkness of the picture. The range is from -512 to 511.

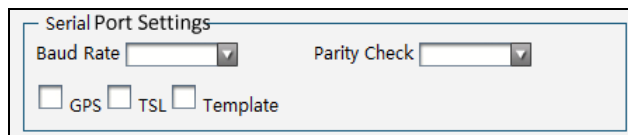
**Saturation:** To set the color of the picture. The range is from 0 to 511.

**Contrast:** To adjust the clarity of the picture. The range is from 0 to 511.

**DeNoise:** To remove digital artifacts. The range is from 0 to 63.

**Restore Default Button:** To restore the factory default settings.

## Serial Port Settings



There are three functions provided by the MMV-2HD system via RS232 interface: RS232 Timing, TSL UMD & Tally, and Layout Remote Control.

**Serial Port Setting Steps:**

**First:** Set the baud rate and parity. The baud and parity must be the same as the RS232 devices such as TSL TallyMan.

**Second:** Check the "TSL", "GPS" or "Template" box to enable this function. Only one function can be selected because they share the same RS232 interface.

**Third:** For TSL UMD & Tally, select the "Serial Port" in the drop-down list under "UMD Settings" on the OSE Elements menu. Set a address for target channel to receive the data from TSL TallyMan. GPS Timing and Layout Remote Control do not need this third step.

*NOTE: Multiple strings for TSL functions can be at the same time. Maximum Strings = 10.*

RS232, DB9 Definition (For TSL and GPS)

Pin	Function
2	Rx
3	Tx
5	GND

RS232 Cable Connection

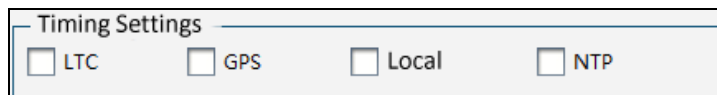
2-----3

3-----2

5-----5

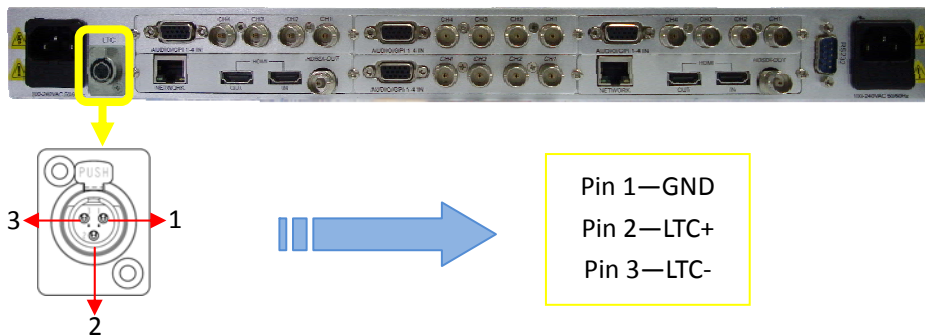
"Template" for Layout Remote Control is reserved.

**Timing Settings**

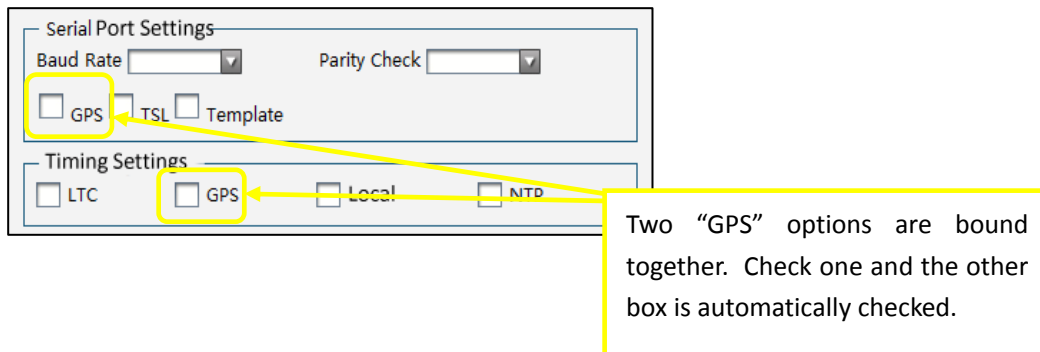


There are four kinds of timing modes: **LTC Timing**, **GPS Timing**, **Local Timing**, and **NTP Timing**. Only one timing mode can be selected at a time. See details of each mode below:

**LTC Timing** means timing is based on LTC code via XLR interface. The LTC of MMV-2HB is EBU code according to IEC standard. The pin 1 is GND and pin 2 & 3 receive LTC data. Check the "LTC" box to enable.



**GPS Timing** means the analog clock and digital timer are controlled by GPS timer via RS232 interface. Check the “**GPS**” box to enable. Baud rate and parity should be configured appropriately.

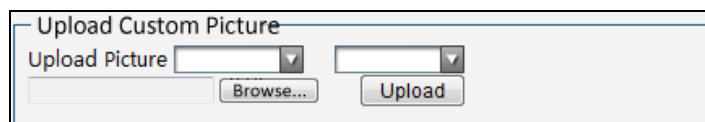


**NTP Timing** means the analog clock and digital timer are set by NTP Server through RJ45 interface. This supports Network Time Protocol (NTP). The IP address of the NTP Server should be configured in the same network segment as MMV. Configure the “NTP Server” labeled “Network”. Check the “**NTP**” box to enable.

**Local Timing** means the analog clock and digital timer are controlled by a computer which can also access the web control of MMV-2HD through RJ45 interface. There are two items that required attention: First, the local IP address of this computer should be configured in the same network segment as MMV. Second, refresh the web page after checking the “**Local**” box to enable and submit the current time of computer to MMV. The factory timing mode is the local time.

MMV-2HD has a built-in battery-backed clock so it keeps time when the MMV-2HD is powered down. The battery-backed clock stores the GPS or LTC time code, not Local or NTP.

### Upload Custom Picture



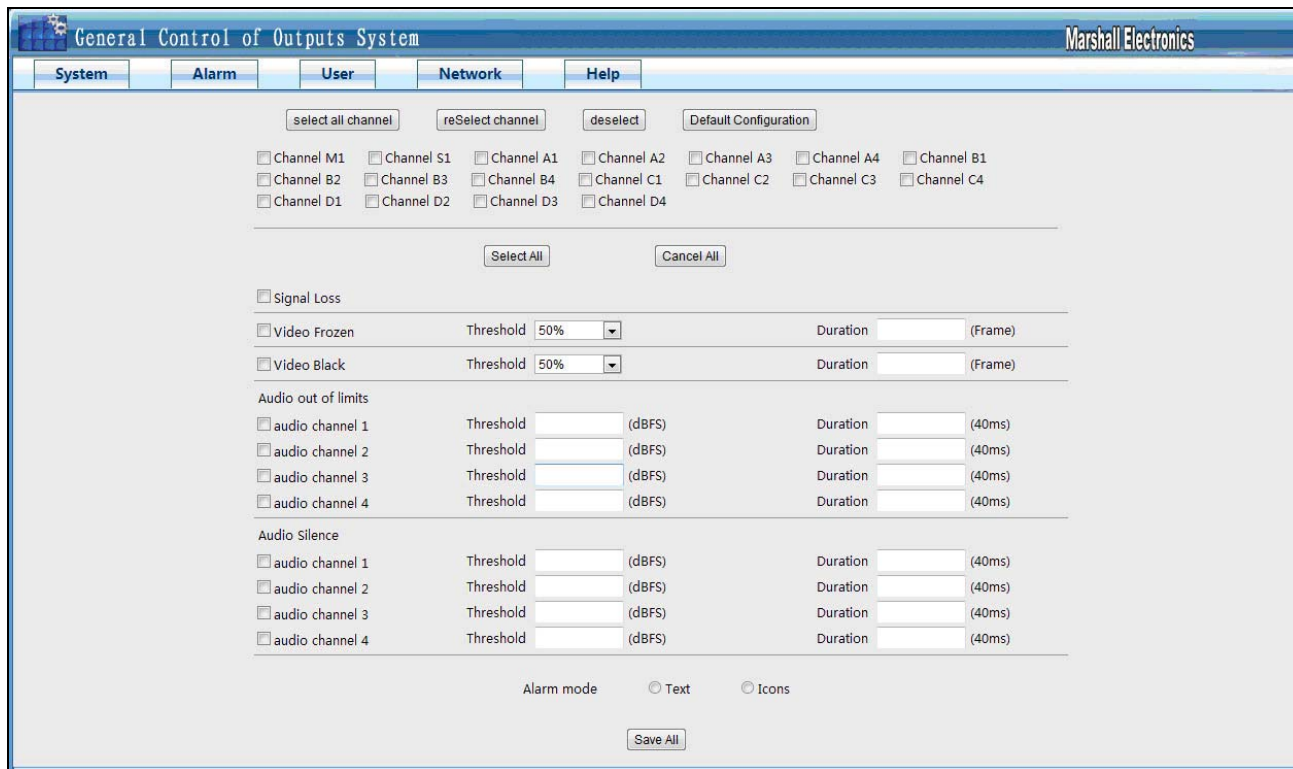
The background, logo, and UMD picture of each channel can be customized through this function.

Picture upload must be 32bits TGA format with Alpha channel. The size of the picture is 720x60 pixels for UMD and 960X540 pixels for the background. The logo picture must be less than 500K B and should be 32bits TGA format with Alpha channel.

### Channel Style

This “**Channel Style**” button is invalid without function.

## Detection Settings








- : All channel boxes will be selected
- : The current channel will not be selected while all the others are selected
- : Can cel all channel selections
- : Restore factory settings
- : All channel detection settings will be selected
- : Can cel all channel detection setting selections

MMV-2HD provides two kinds of warning modes: texts and small icons. Only one mode can be selected at a time. Text is shown at the bottom of each channel. Video warning icon is shown at left edge of each channel while audio warning is located at the right edge.



The video and audio input of each channel can report signal status and validity (with text and icons):

- (1) Loss of signal: **Loss Of Video** and 
- (2) Video frozen: **Video Frozen** and 
- (3) Video black: **Video Black** and 
- (4) Audio overload: **Audio Overload** and 
- (5) Audio in silence: **Audio In Silence** and 

Several channels can be configured at the same time. If the detection parameters of each channel differ, the configuration should be completed separately.

### Audio Detection

Measuring digital audio units is dBFS (dB Full Scale). 0dBFS is the maximum audio level corresponding to +24dBu analog audio.



### Audio Overload

A warning picture will appear when the audio level reaches the maximum programmed threshold. Up to four audio channels will be monitored only when checkboxes are selected. The audio threshold and duration of detection can be configured for each audio channel. The threshold in this case is the maximum audio level. When the actual volume is above this threshold, the system will show an audio overload warning.

Audio out of limits			
<input checked="" type="checkbox"/> audio channel 1	Threshold	-10	(dBFS)
	Duration	25	(40ms)
<input checked="" type="checkbox"/> audio channel 2	Threshold	-10	(dBFS)
	Duration	25	(40ms)
<input checked="" type="checkbox"/> audio channel 3	Threshold	-10	(dBFS)
	Duration	25	(40ms)
<input checked="" type="checkbox"/> audio channel 4	Threshold	-10	(dBFS)
	Duration	25	(40ms)

## Audio Silence

A warning picture will appear when the audio level falls below the programmed threshold. Up to four audio channels will be monitored only when checkboxes are selected. The audio threshold and duration of detection can be configured for each audio channel. The threshold in this case is the minimum audio level. When actual volume is below this threshold, the system will show an audio silence warning.

Audio Silence			
<input checked="" type="checkbox"/> audio channel 1	Threshold	-56 (dBFS)	Duration 25 (40ms)
<input checked="" type="checkbox"/> audio channel 2	Threshold	-56 (dBFS)	Duration 25 (40ms)
<input checked="" type="checkbox"/> audio channel 3	Threshold	-56 (dBFS)	Duration 25 (40ms)
<input checked="" type="checkbox"/> audio channel 4	Threshold	-56 (dBFS)	Duration 25 (40ms)

## Video Detection

<input checked="" type="checkbox"/> Signal Loss			
<input checked="" type="checkbox"/> Video Frozen	Threshold	65%	Duration 100 (Frame)
<input checked="" type="checkbox"/> Video Black	Threshold	65%	Duration 100 (Frame)

## Loss of Signal

A warning picture will appear when signal is lost. Signal will be monitored only when selected.

## Video Frozen

A warning picture will appear when the regular pixel ratio of the image is lower than the programmed threshold. Images will be monitored only when checkbox is selected. The video threshold and duration of detection can be configured as needed. The threshold in this case is the frozen pixel percentage in one frame.

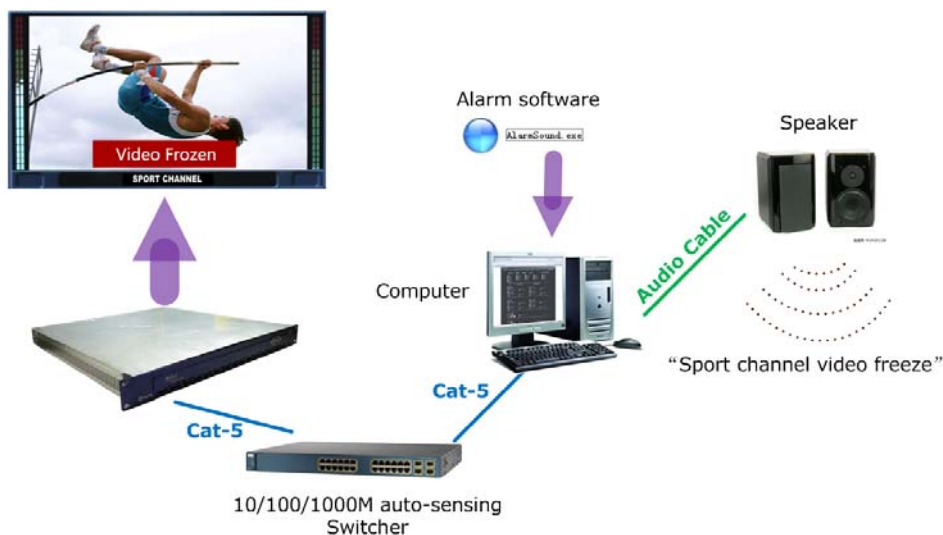
## Video Black

A warning picture will appear when video level is lower than the programmed threshold. Images will be monitored only when checkbox is selected. The video threshold and duration of detection can be configured as needed.

## Voice Alarm

The system supports signal alarm in not only pictures, but also voice. The alarm information is transmitted to the computer through a cable with RJ45 interface and is transferred by speaker or headphones. It's compatible with Windows 2003, Windows XP, Windows Vista and Windows 7. The anti-virus software and firewall must be closed to make sure that the alarm data is transmitted to the MMV system without rejection.

The syntax of the alarm is "UMD text + audio 1(2/3/4) silence/ video lost". For Example: If UMD text on channel 1 is "sport channel", the condition is video freeze. The alarm would announce "sport channel video freeze". If channel 1 doesn't have UMD text, it would announce "channel 1 video freeze".



1. **Configure the IP Address on the “Network” page.** Enter the local IP address of the computer in the Manager IP field and click “Submit”. A pop-up message will appear and the device will restart.

*Note: The computer and MMV should have the same IP domain.*

Network:

IP Address: 192.168.1.76

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.200

DNS Address: 0.0.0.0

MAC Address: 0:50:c2:19:5

**Manager IP: 192.168.1.44** Local IP

Trap common: Marshall

Trap Port: 162

NTP Server: 192.168.1.51

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update program

Main DSP:

Slave DSP1:

Slave DSP2:

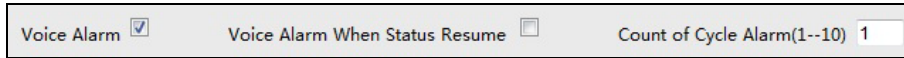
Output modular:

Input modular:

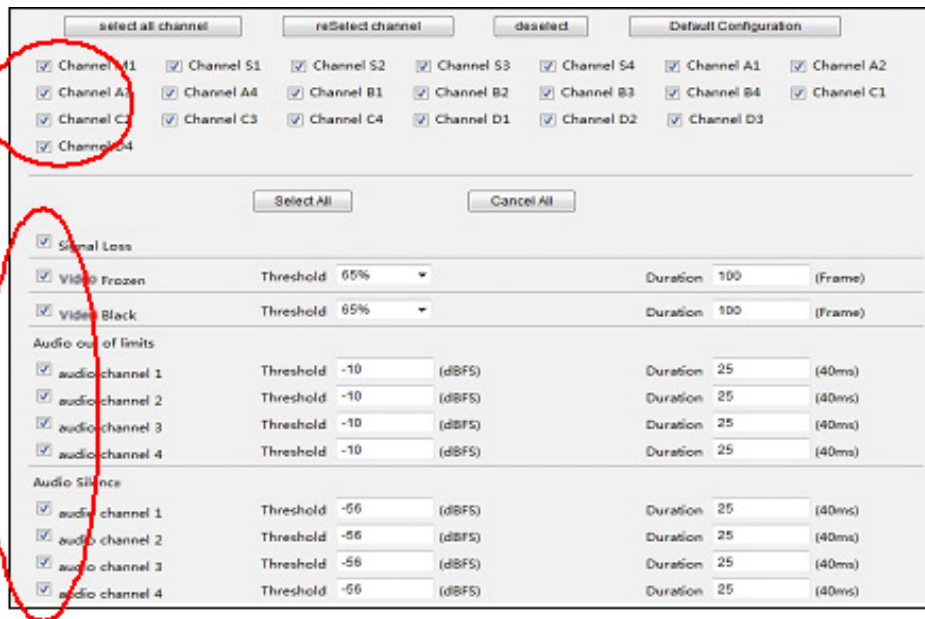
Front Base file:

Font file:

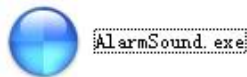
- 2 . Check the “Voice Alarm” box to enable the Voice Alarm function on the “Alarm” page. The option to choose voice alarm takes place when the signal status is back to normal and option to change count of the cycle alarm. Adjustments will take effect when new alarm dates are transmitted to the computer.



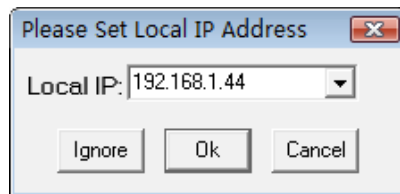
- 3 . Select the Channel Parameters for Video and Audio Signal Monitoring. First, select the channels to be monitored. Second, choose the appropriate alarm parameters. Click “Submit” to save.



- 4 . Install the Alarm Software on the computer.



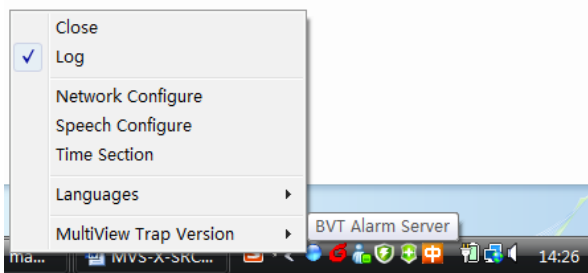
Double click the “AlarmSound.exe” executable file. When pop-up window appears, enter the local IP address and click “Ok”.



The software is now running in the notification area of the taskbar.

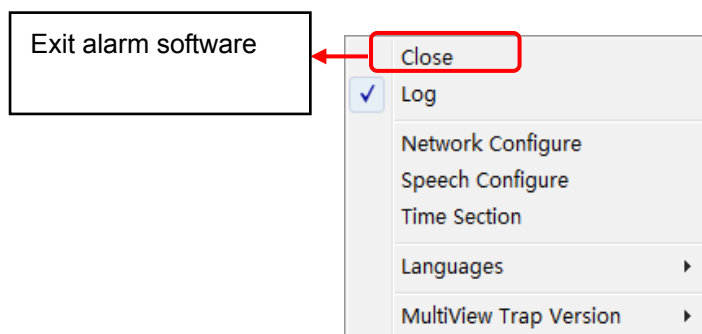


Right click on the icon to view the Alarm Configuration Menu.

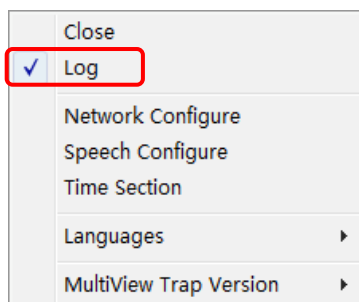


**Alarm Server Menu Descriptions:**

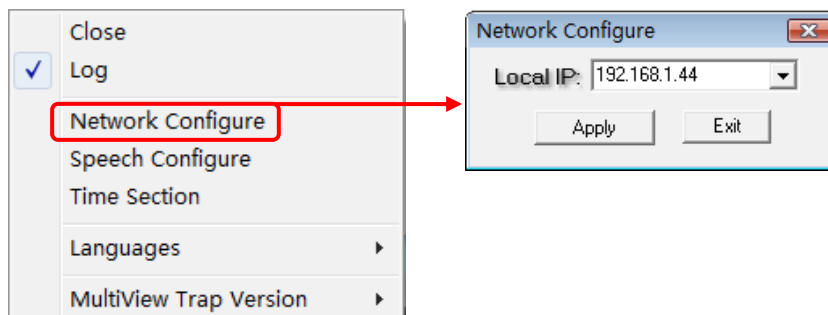
1) **Close**



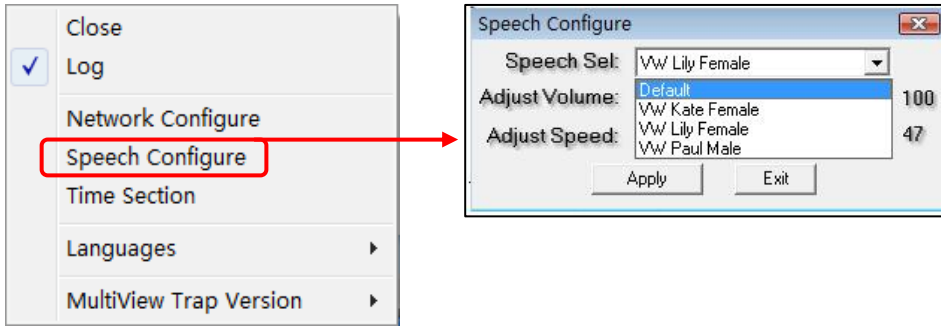
2) **Log:** Recorded Alarms can be viewed in this folder . Log info is saved as a text document. These documents are named by the date the alarms sounds. Ex: “2010-06-08.txt”.



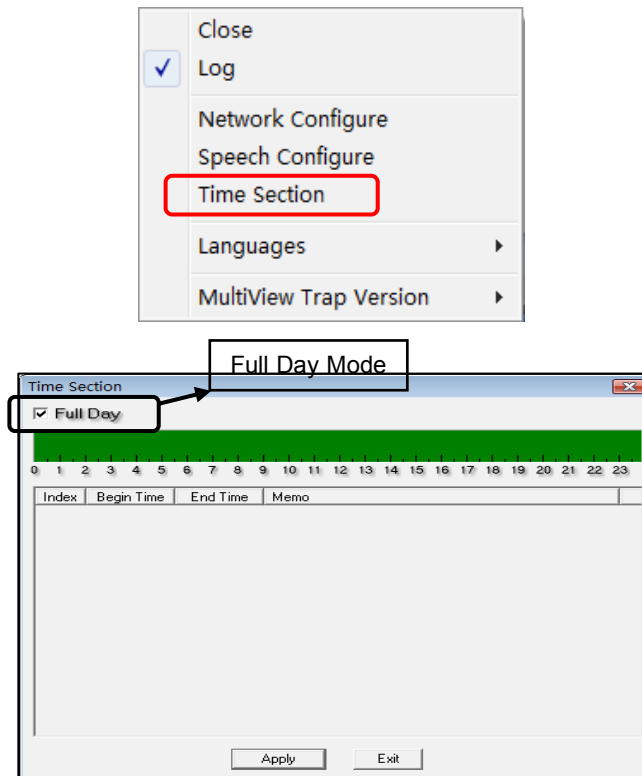
3) **Network Configure:** The Local IP address can be modified here. Enter IP Address & click “Apply”.



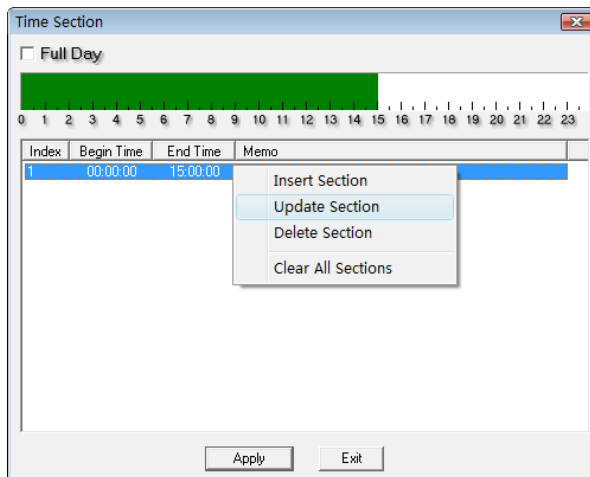
4) **Speech Configure:** Speech corpora, volume and speed can be modified here. Click “Apply” to hear the effect. Choose “Default” to apply the speech corpora provided by Windows XP/Vista/Win7.



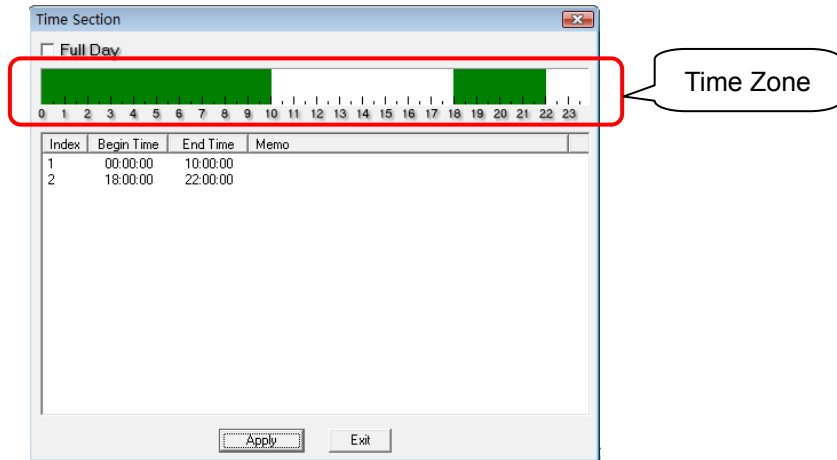
5) **Time Section:** Create specific working time sections for the voice alarm function. The Full Day mode creates a 24 hour period time section for voice alarm.



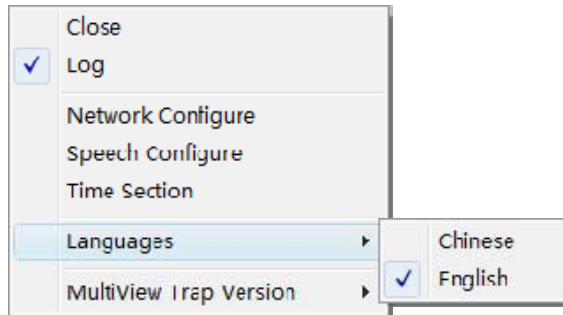
Right click in the blank area to modify or delete existing time sections or insert a new time section. Click “Apply” to save.



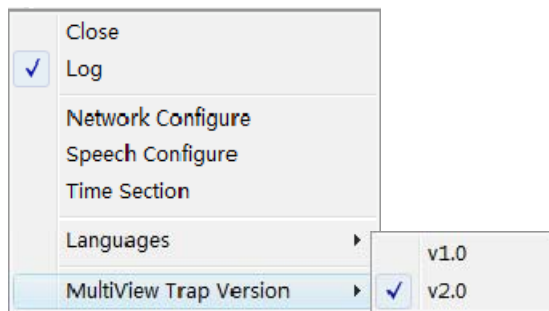
The system assembles all the times and generates the final time section displayed in green. The voice alarm function will take effect during these periods in the green time zone area.



6) **Language:** Select software language here. Language Options: English or Chinese.



7) **Trap Version:** MMV-2HD must use the Version 2.0.



## User Configuration

The software provides a password-protected function. The initial user name is "admin" and the password is "000000". Users can modify the password; maximum password length is 12 bits. When password has been modified successfully, the system message will show "The password is altered successfully. It will take effect when you login next time." The download alarm diary is reserved.

Current User:

Switch User

User Name:

Password:

Change Password

User Name:

Old Password:

New Password:

Confirm New Password:

## Network Configuration

Network

IP Address:

Subnet Mask:

Default Gateway:

DNS Address:

MAC Address:

Manager IP:

Trap common:

Trap Port:

NTP Server:

---

update program

Main DSP:

Slave DSP1:

Slave DSP2:

Output modular:

Input modular:

Front Base file:

Font file:

**Change IP Address**

User can modify the IP address. When IP address has been modified successfully, the system message will show "Network has been configured successfully. Please turn off the power and restart the device again." Restart the device, enter the new IP address in the IE address, and the web software will be opened.

**Change Manager IP for Voice Alarm**

Configure the "Manager IP" as the local IP address of the computer for Voice Alarm. The computer and MMV-2HD should be in the same network segment. The Trap Common and Trap Port are for SNMP of the voice alarm. *Do not change.*

**Change NTP IP for NTP Timing**

Configure the "NTP Server" as the IP address of the NTP server for NTP timing. The NTP server and MMV-2HD should be in the same network segment.

**Upgrade System Firmware**

User can also upgrade the system under this menu. Before the system upgrade, the anti-virus software and firewall must be closed to make sure that the upgrade data is transmitted to the MMV-2HD system without rejection. Windows 2003, Windows XP, Windows Vista and Windows 7 system are strongly recommended to use when upgrading the system with Internet Explorer.exe.

Set all channels to input inner test signal without waveform display before upgrade. This will shorten the required time to perform the upgrade.

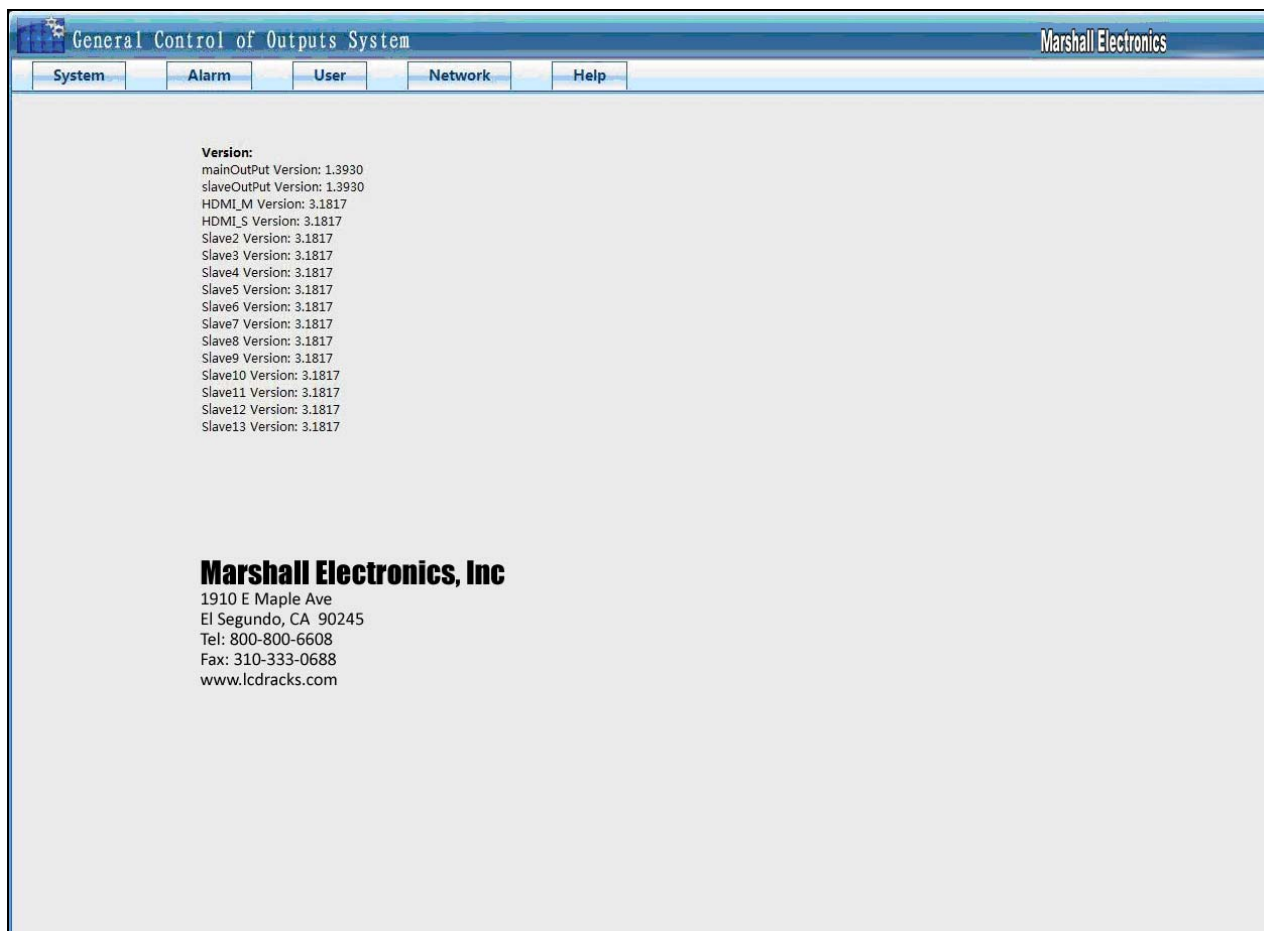
There are six modules for upgrading: Main DSP, Slave DSP 1, Slave DSP 2, Output Module, Input Module, and Front Base File. If new versions are released, Marshall will supply 1-5 files named accordingly. Each item should be upgraded separately from Main DSP. Power and network must stay on during the upgrade. When system is upgraded successfully, turn off the power and restart the device. It takes about 15 minutes to upgrade the Main DSP and about 5 minutes to upgrade the additional modules.

**Upgrade Text File for UMD Font**

The "Font" selection allows you to refresh and change the font style on the device from your PC.. The font file must be less than 6MB. Before the upgrade, the anti-virus software and firewall must be closed to make sure that the upgrade data is transmitted to the MMV-2HD system without rejection.

## Help

Shows the firmware version.



## **Accessories List**

Name	Unit	Specification	Quantity	Remark
Video Cable				-
Audio Cable		Audio/Tally input module		-
Power Cable	2	\	2	-
Disk			-	-
User's Manual	1	\	1	-
LTC interface	1	XLR Male	1	
Others				
Total			4	

## **Contact Us**

### **Marshall Electronics**

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