



The Multi MSV 2 Control Application



Table of Contents

Overview	3
Application Diagram	4
Box Requirements	5
Initial Setup	6
Application Interface	11
Presets	18
Contact Information	22

Overview

The Multi Scaler Viewer 2, or MSV 2, is a 4k (4096x2180) large monitor manager video tool built to easily control and display multiple sources, and offers unique customizability and easy use in a health care setting. A web-based GUI allows a user to select from a number of desired presets, control the size, brightness, overlay, etc. Users are even able to create custom preset designs based on the needs of the user.

While the MSV 2 system is easy to use and adaptive, there is a hardware limitation that restricts the number of sources to 4. Knowing this may not be satisfiable for some OR's, FSN has designed an application to use up to 5 MSV 2's at once in order to expand the number of sources to up to 16. A Main MSV 2, which has up to 4 Sub MSV 2's connected via HDMI.

In order to control all of the group of MSV 2 (both the Main and sub boxes) in one place, FSN has created the Multi MSV 2 Control Application. The majority of controls will remain on the MSV 2 web controls including creating/changing presets, sizing, brightness, window labeling, etc., but this one window application will allow a user to select presets, preview each sub MSV 2, and quick access to launch the MSV 2 web controls.

Multi MSV 2 Controls:

- Quick select established presets
- Launch web controls for Main MSV 2 box
- Preview Sub MSV 2 boxes
- Rename Presets for Main MSV 2 box
- Launch web controls for Sub MSV 2 boxes

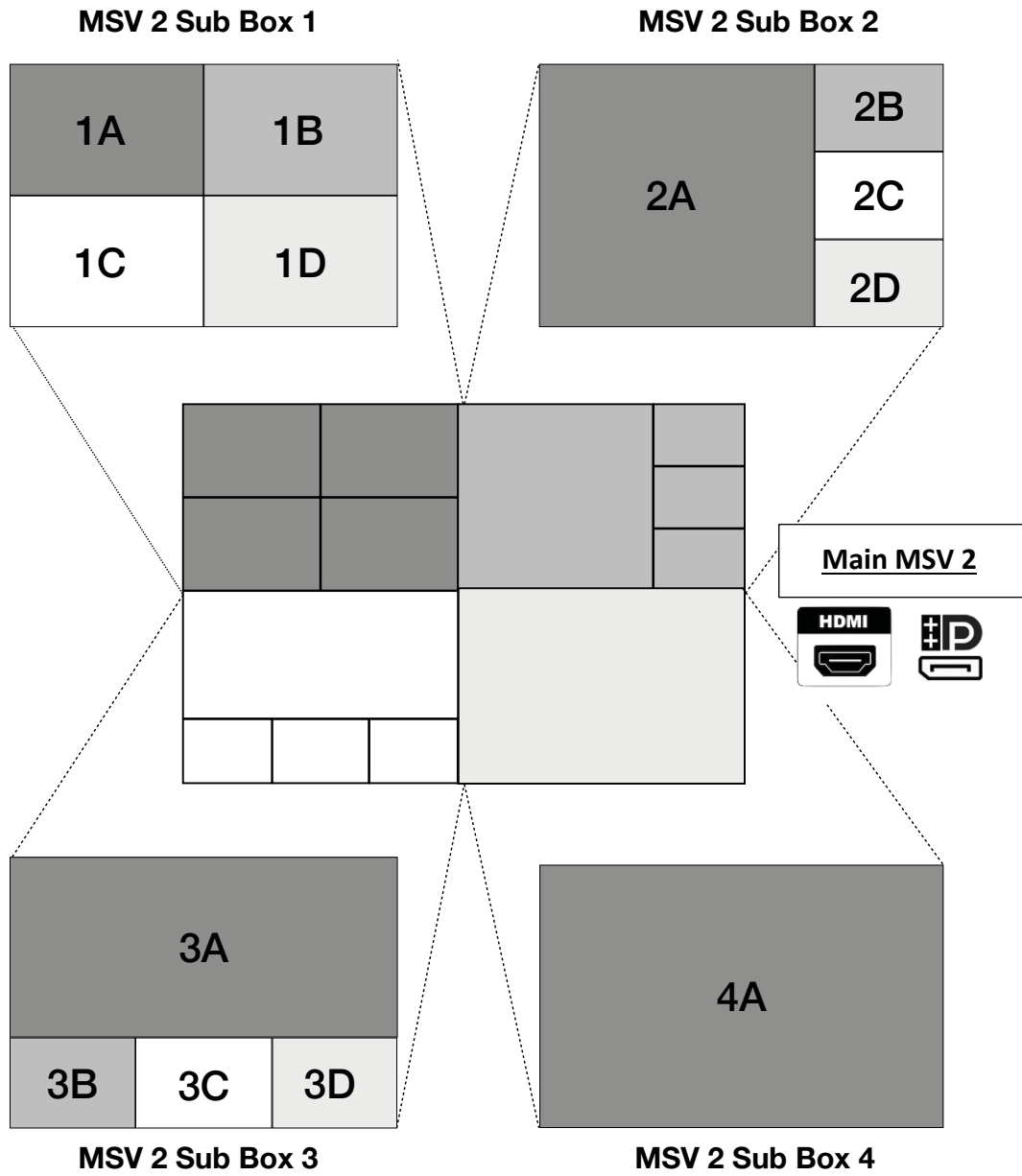
MSV 2 Web Controls:

- Create new preset layouts
- Change sizes for individual sources
- Rename windows
- Adjust overlay
- Adjust brightness of individual sources
- Power cycle controls for MSV 2 box

Required Hardware:

1. MSV 2 boxes (a minimum of 2 boxes and a maximum of 5 boxes) – see Page 5 for additional information.
2. Computer running Windows 10
3. HDMI or DP

Application Diagram

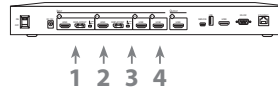


Box Requirements

The Multi MSV 2 set is highly configurable, based on the number of sources you need to manage. This represents the minimum box requirements when building out your MSV 2 package:

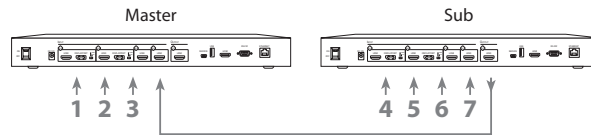
1-4 Sources

Software: MSV2 Web Controller



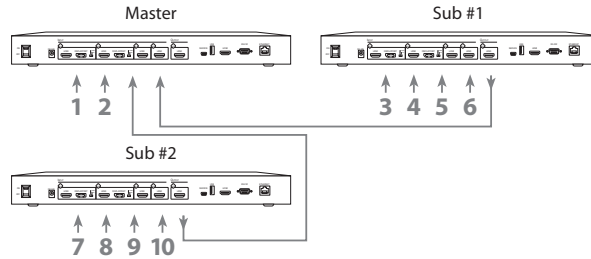
5-7 Sources

Software: MSV2 Web Controllers
Multi MSV2 Control Application



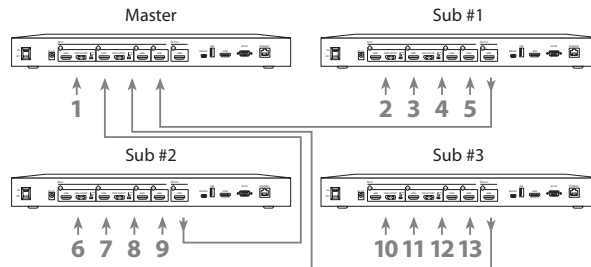
8-10 Sources

Software: MSV2 Web Controllers
Multi MSV2 Control Application



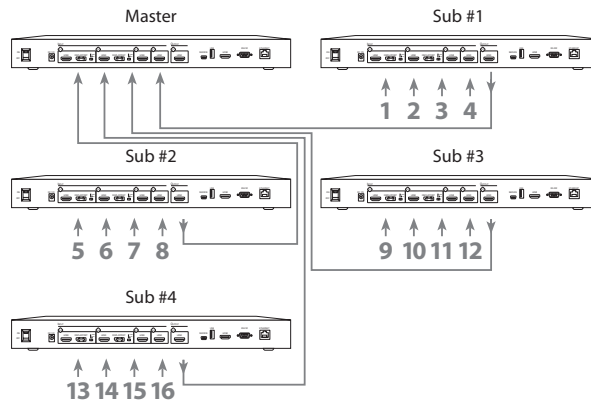
11-13 Sources

Software: MSV2 Web Controllers
Multi MSV2 Control Application



14-16 Sources

Software: MSV2 Web Controllers
Multi MSV2 Control Application

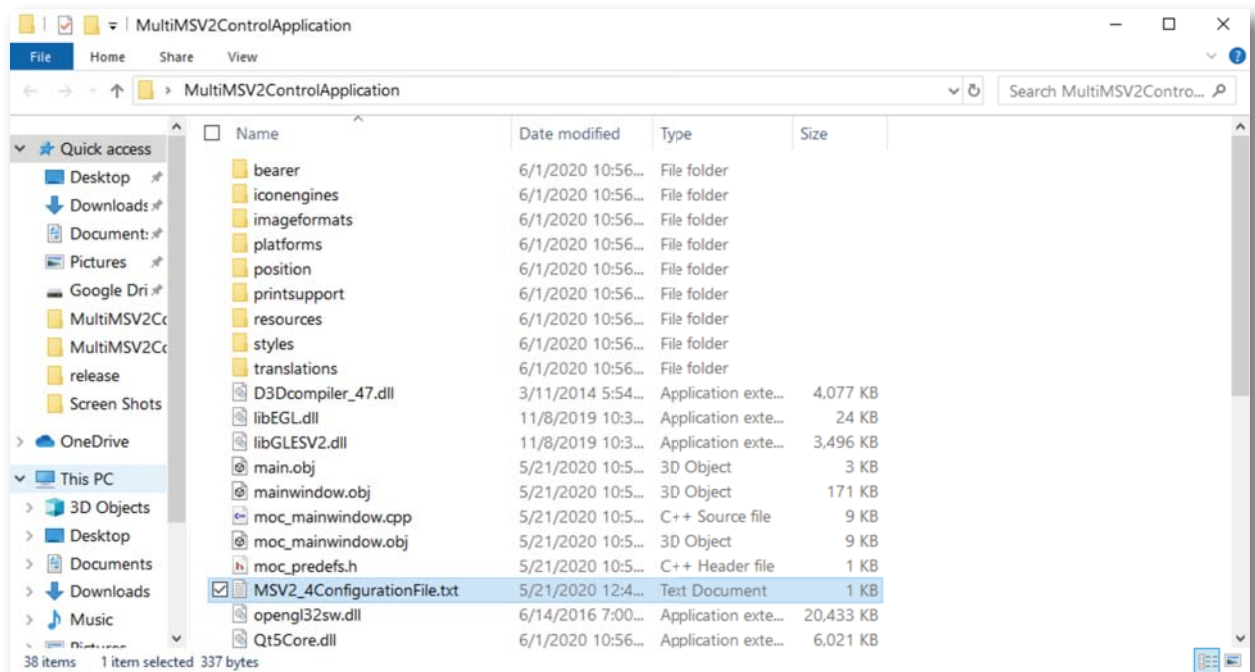


Initial Setup

Before setting up the Control Application the first time, make sure the Hardware set up is complete. All MSV 2 boxes should be powered up and connected to each other by HDMI. Once the hardware is complete, proceed to software set up.

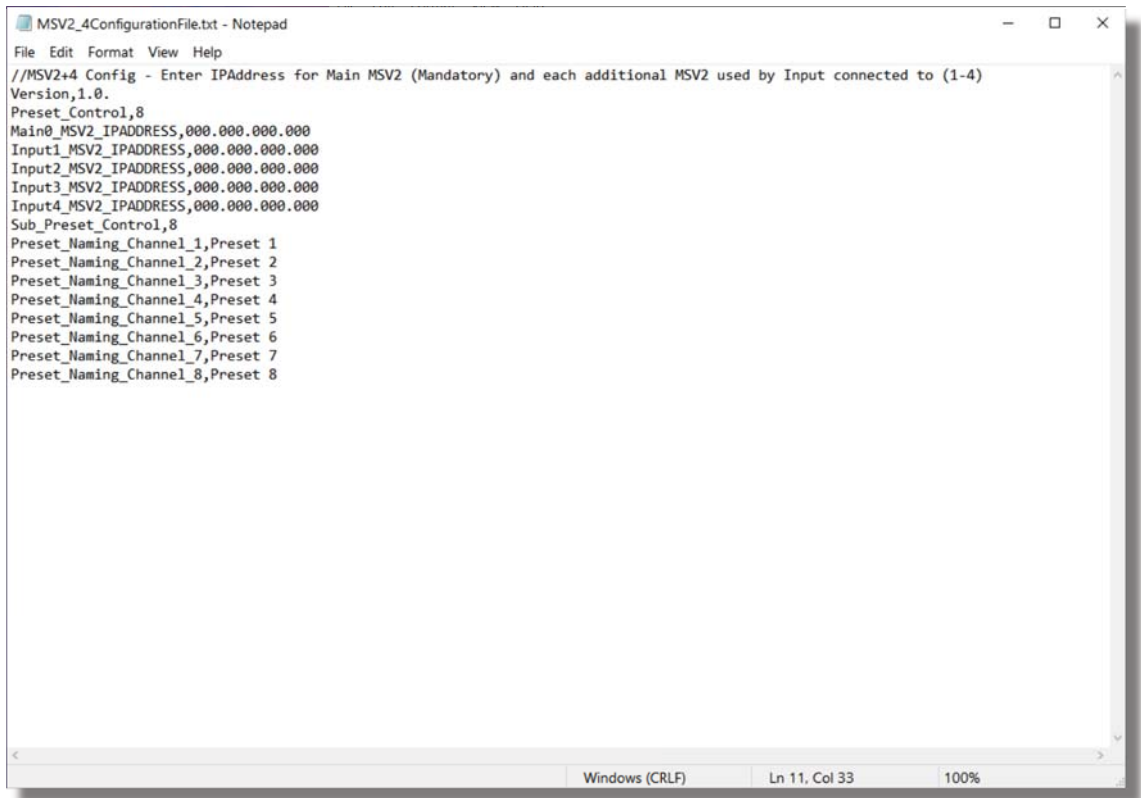
- 1) Locate the Configurator File:

MultiMSV2ControlApplication -> 'MSV2_4ConfigurationFile.txt'



The Configurator file provides important background information for the Control Application to work effectively. Most importantly, this is where the application recognizes the IP addresses for each MSV 2 box. Additionally, the administrator can change the number of presets available on the application on the Main MSV 2 box and the corresponding Sub MSV 2 boxes, and the names of the Presets on the Main MSV 2 box presets.

- 2) Open the Configurator file through a text editor such as Notepad. When opened for the first time, the configurator file will look like this:

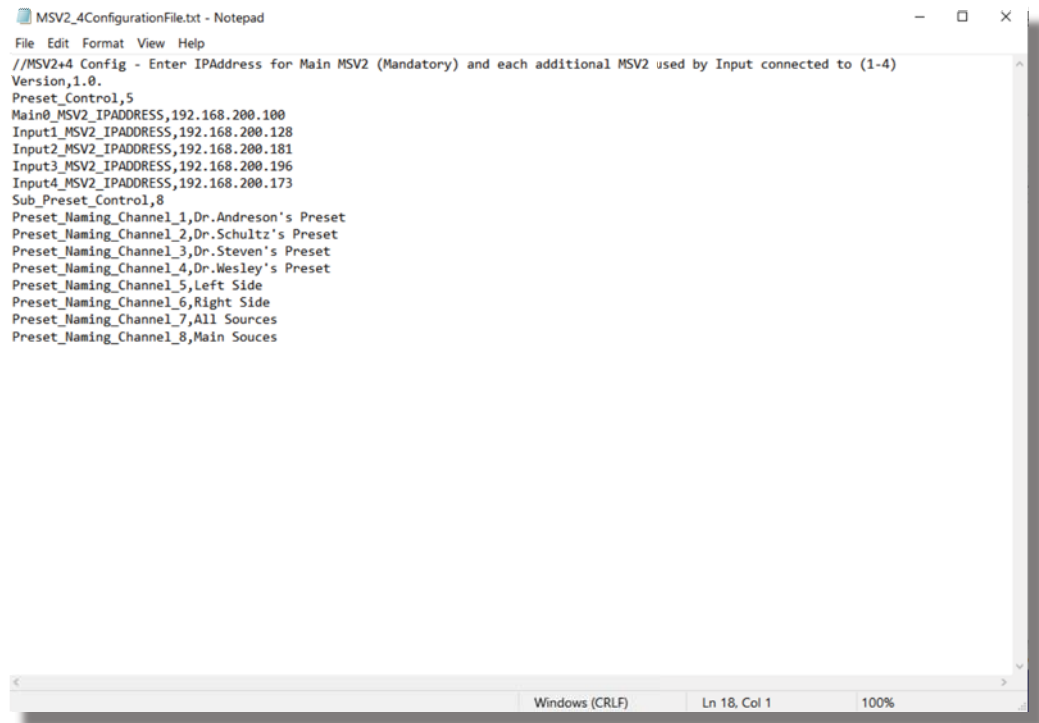


```
MSV2_4ConfigurationFile.txt - Notepad
File Edit Format View Help
//MSV2+4 Config - Enter IPAddress for Main MSV2 (Mandatory) and each additional MSV2 used by Input connected to (1-4)
Version,1.0.
Preset_Control,8
Main0_MSV2_IPADDRESS,000.000.000.000
Input1_MSV2_IPADDRESS,000.000.000.000
Input2_MSV2_IPADDRESS,000.000.000.000
Input3_MSV2_IPADDRESS,000.000.000.000
Input4_MSV2_IPADDRESS,000.000.000.000
Sub_Preset_Control,8
Preset_Naming_Channel_1,Preset 1
Preset_Naming_Channel_2,Preset 2
Preset_Naming_Channel_3,Preset 3
Preset_Naming_Channel_4,Preset 4
Preset_Naming_Channel_5,Preset 5
Preset_Naming_Channel_6,Preset 6
Preset_Naming_Channel_7,Preset 7
Preset_Naming_Channel_8,Preset 8
Windows (CRLF) Ln 11, Col 33 100%
```

Main Presets and Sub Presets are assigned to the maximum eight (8) automatically. All IP Addresses are set at '000.000.000.000'.

- 3) Input IP address for each MSV 2 box.
 - a. Main MSV 2 IP address should be entered on the 4th line, labeled "Main0_MSV2_IPADDRESS" after the ','. Make sure this is entered correctly; otherwise this will result in the application failing to connect.
 - b. Sub MSV 2 IP Addresses should be entered on the subsequent lines, starting with "Input(1-4)". If there is no MSV 2 box connected for the specific input, leave "0" after the ','.

A completed Configurator file with 4 sources attached to it will appear like this:



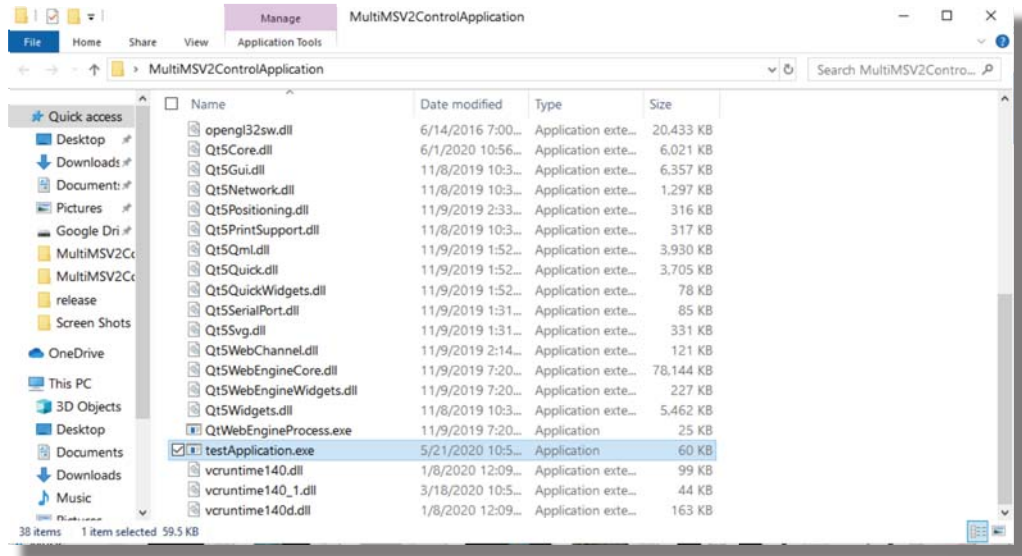
```
MSV2_4ConfigurationFile.txt - Notepad
File Edit Format View Help
//MSV2+4 Config - Enter IPAddress for Main MSV2 (Mandatory) and each additional MSV2 used by Input connected to (1-4)
Version,1.0.
Preset_Control,5
Main0_MSV2_IPADDRESS,192.168.200.100
Input1_MSV2_IPADDRESS,192.168.200.128
Input2_MSV2_IPADDRESS,192.168.200.181
Input3_MSV2_IPADDRESS,192.168.200.196
Input4_MSV2_IPADDRESS,192.168.200.173
Sub_Preset_Control,8
Preset_Naming_Channel_1,Dr.Andreson's Preset
Preset_Naming_Channel_2,Dr.Schultz's Preset
Preset_Naming_Channel_3,Dr.Steven's Preset
Preset_Naming_Channel_4,Dr.Wesley's Preset
Preset_Naming_Channel_5,Left Side
Preset_Naming_Channel_6,Right Side
Preset_Naming_Channel_7,All Sources
Preset_Naming_Channel_8,Main Sources
Windows (CRLF) Ln 18, Col 1 100%
```

**ADDITIONAL- At any time, the administrator may choose to limit the number of presets on the Main MSV 2. This is done by opening this Configurator file and changing the number on line #3. At release, this is set to the maximum number of 8, but can be changed to as few as 0. Administrator will simply enter the desired number other side of the ','. Setting this to 0 will result in not being able to change presets on the program, leaving it to function solely as a preview window. Do not change this unless you specifically wish to have fewer presets available for the application user.

**Administrator is also able to assign names for Presets for the Main MSV 2 box, you may enter them on lines 10-17, labeled "Preset_Name_Channel", after the ','. This is also something a user can do in the application (see below on page 19).

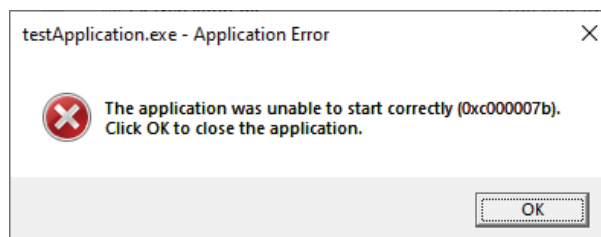
4) Launch and test application.

Run the application titled 'testApplication.exe'.

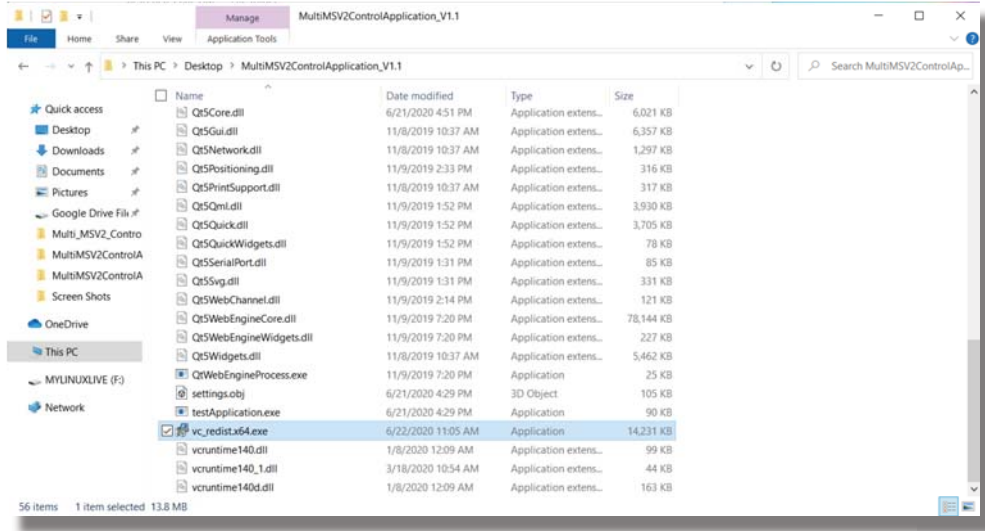


5) Potential Error Message.

Certain machines may show an error message when Application is first opened. The error message will display as follows:

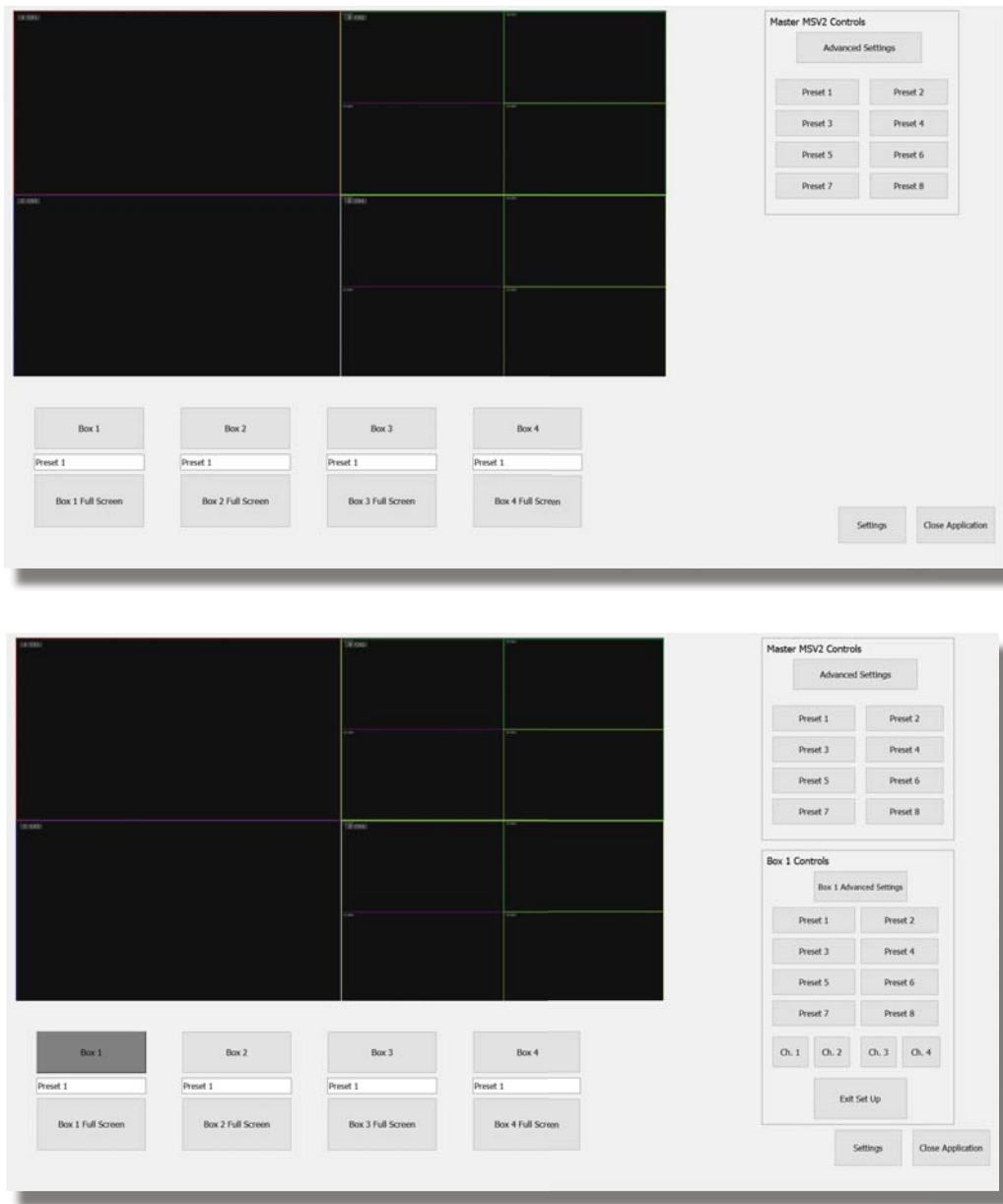


If this error message is to appear, a Microsoft plug in simply needs to be installed on the computer before the Application can run. Locate 'vc_redist.x64.exe' and double click to run. It will ask if you would like to proceed with the installation. Follow the prompts and it will install fairly quickly, closing once it is complete.

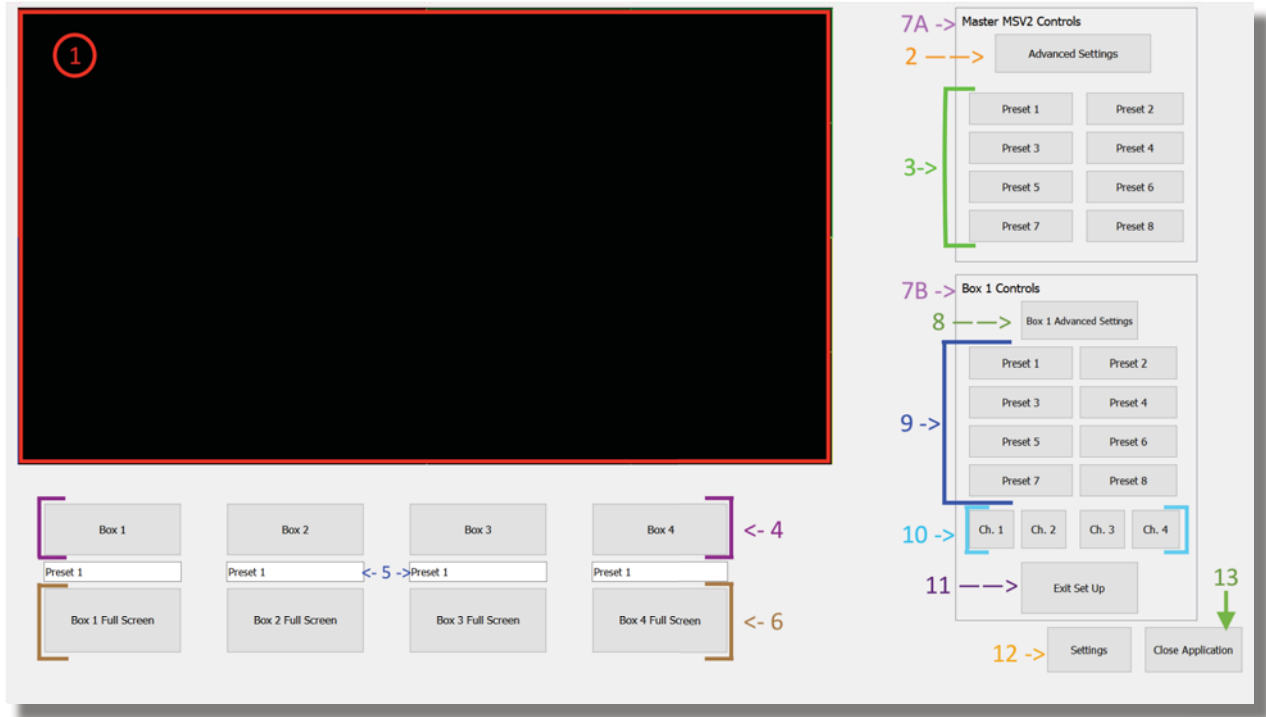


Once the update is installed, go back to step 4 and run 'testApplication.exe'.

Application Interface:



When the application is fully configured and running, it will display as shown above. Designed to be scalable and simple to operate, the Multi MSV 2 Control Application has access to fast switching between presets on the Main MSV 2, previewing of the feeding MSV 2 windows, and quick access to the full tool kit via your preferred web browser.



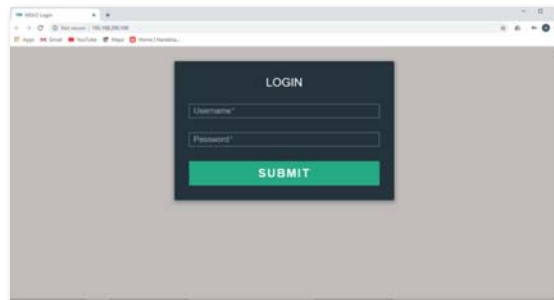
1. Preview Window.

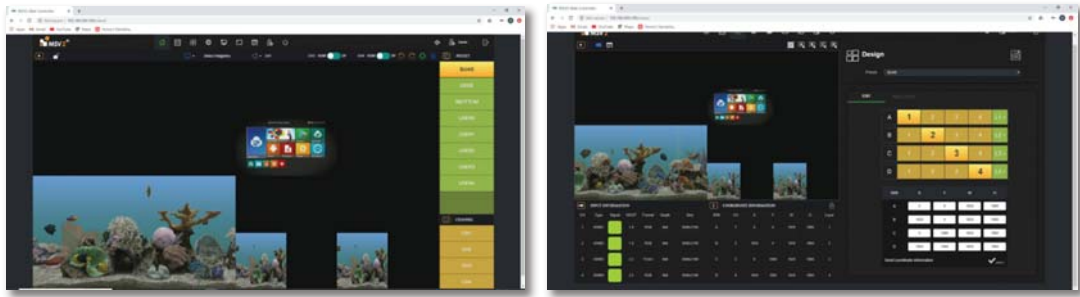
This is where the live preview will display. Whichever preset is selected, or sub MSV 2 window preview is active, it will display in this area.

2. Advanced Settings Button.

This will launch the web controls, which holds more of the complex, customizable features. This will run on Google Chrome, Mozilla Firefox, or any other preferred web browsers. When launched, enter the login credentials and proceed to make any changes required. Application will continue to operate while web browser is active.

The Advanced Settings is meant for Administrator controls. A confirmation pop up window will asks the user to confirm they wish to proceed. If user does not have administrative controls, the confirmation window will prevent them from proceeding.

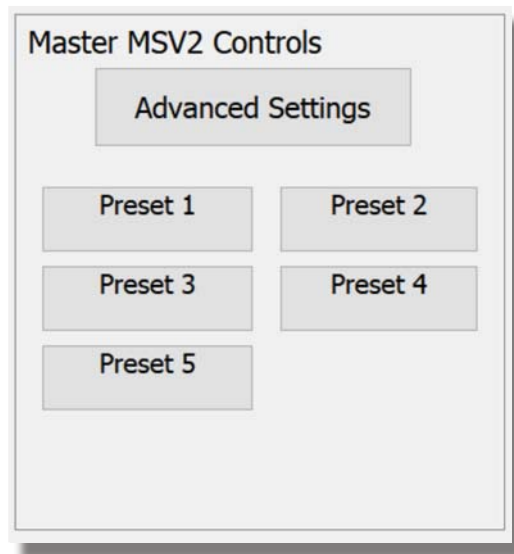




3. Preset Buttons for Main MSV 2 box

This is the main way a user will quickly switch between presets on the Main MSV 2 box. By selecting a different Preset, the display window will automatically shift to that layout.

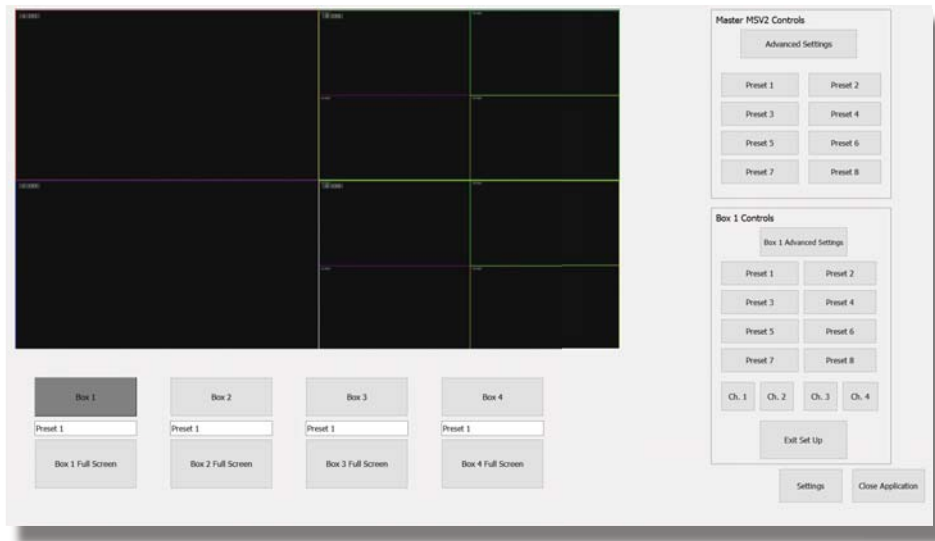
The number of presets available is set up in the Configurator file. The Application will automatically display 8 presets, unless the administrator sets a different number of available presets. For instance, when the number is set to 0, there will be no buttons appearing below the 'Advanced Settings' button, or if the administrator sets the number of presets to 5, the button layout will appear like this:



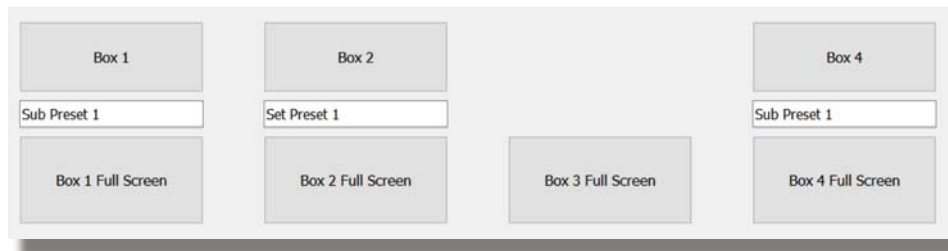
4. Box Buttons.

These buttons will give control access to the sub MSV 2 boxes if the user wishes to change its layout, or launch its advanced settings (see below #7-#9). When a Box is

selected, the selected box will be highlighted in dark grey and a new box will appear on the right side of the screen under the Main MSV 2 buttons. This box will include several important controls for the selected Sub MSV 2 box including 'Advanced Settings', sub Box Presets, individual source selection for Sub MSV 2 boxes:



If there are fewer than 4 Sub MSV 2 boxes, or if there is a box with an incorrect IP address, the Application will not show these buttons. You will only be able to access the web controls to verified MSV 2 boxes. An example of having fewer than 4 Sub MSV 2 boxes will appear like this:

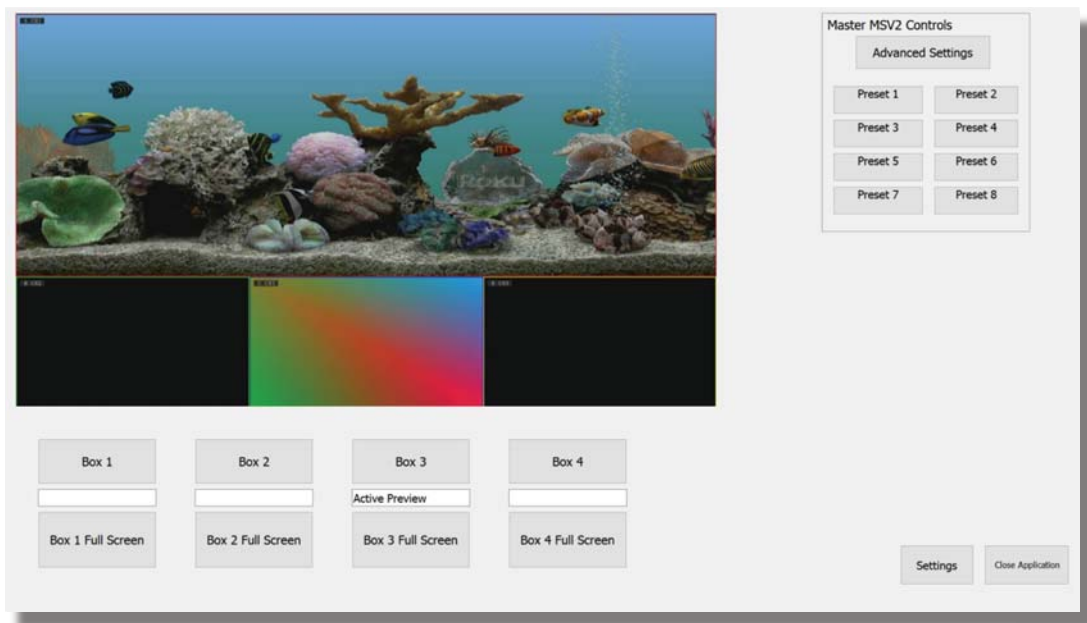


5. Activity Indicator.

This is an indicator to establish what is displayed in the preview window. If a different Sub preset is selected for a Sub MSV 2 box, the activity label will allow the user to keep track of this.

6. Box Full Screen Buttons.

This will allow you to isolate an individual Sub MSV 2 or source in the display. If the user only wants to select an individual MSV 2 sources, this will allow that particular Sub MSV 2 box to take up the full display window. Additionally, if the user is unfamiliar with the set up of the Main Preset and wishes to figure out which Sub box is in which quadrant, this will act as a quick preview.



7. Box Indicator Label

7A – This label indicates the control buttons work on the Main MSV 2 box. These will be the most commonly used presets.

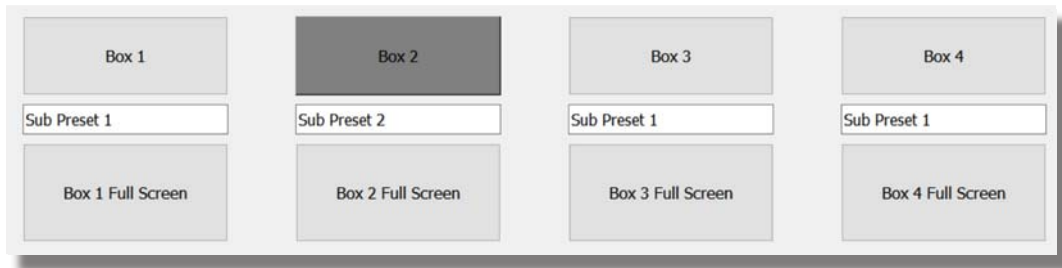
7B – This label will indicate which sub MSV 2 box is active for button control. Since the user will only be able to control one sub box at any given time, this indicator will remind the user which box is active, along with the Sub Box turning to dark grey highlight.

8. Box (#) Advanced Settings Button.

Similar to the Advanced Settings button (#2 above), this will launch the web controls for the selected sub MSV 2 box. Again, this is for administrative use only, so a confirmation prompt will appear when button is pressed.

9. Box (#) Preset Buttons.

This will allow the user to select a different preset for the specific Sub MSV 2 box selected. User has 4 presets they may select from. When a different preset is selected from the Main, the Activity Indicator will keep track of what is on display for the User:



10. Channel #1-#4.

The Channel buttons will route a single source to that particular Sub box's quadrant. Similar to selecting a "Box # Full Screen button", however instead of taking up the full viewing area, this will only affect the quadrant of the box. If that single source is the lone desired source to display in full screen, simply select:

Box # -> the desired channel to be active -> Box # Full Screen button.

11. Exit Set Up.

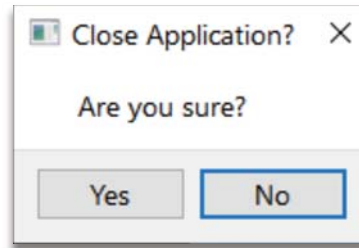
When User is no longer making changes to the Sub MSV 2 layout, they may press the Exit Set Up button which will have the Sub MSV 2 controls disappear. Selecting a Preset button on the Main MSV 2 will also cause the Sub MSV 2 buttons to disappear.

12. Settings.

Settings will open a pop up control window with advanced features for the application. The main function of this is for users to change/save new names for presets. See further instructions below (page #19).

13. Close Application button

In order to exit application, click “Close Application” button. A pop up window will confirm that you wish to proceed.



Select “Yes” to close application, and “No” to return to the Application.

Presets:

You can establish up to 8 Main presets in the configurator file. These are predesigned layouts that already take into account the source inputs, scale of each source, brightness and position on monitor. If you would like to manage fewer available layouts at any time, simply adjust the number of Main presets in the configurator file.

In order to change a Main preset:

- 1) Click “Launch MSV 2 Web” button.
- 2) Sign into the admin account.
- 3) Go to users.
- 4) Make the changes.
- 5) Save and exit out of web browser.

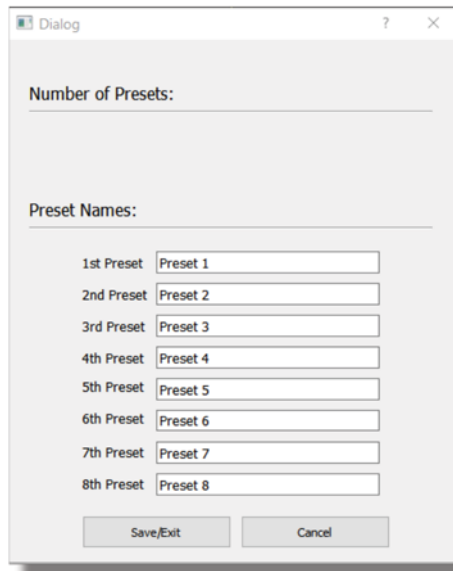
Changing the layout in a sub MSV 2 box:

- 1) Identify which sub box you would like to change. (hint: if you are unsure which window you wish to change, cycle through the “Window Preview” buttons until the window you wish to adjust is displayed in the preview area.)
- 2) Press the “Window” button to launch the MSV 2 Web Controls for that particular MSV 2 box.
- 3) Sign into the admin account.
- 4) Make changes, either through that sub MSV 2 available presets, or by following the directions above to create a new preset.
- 5) Once the layout of this sub MSV 2 is selected, exit out of the web browser. The preset of this particular box will now be shown in that window of the Main MSV 2 layout.

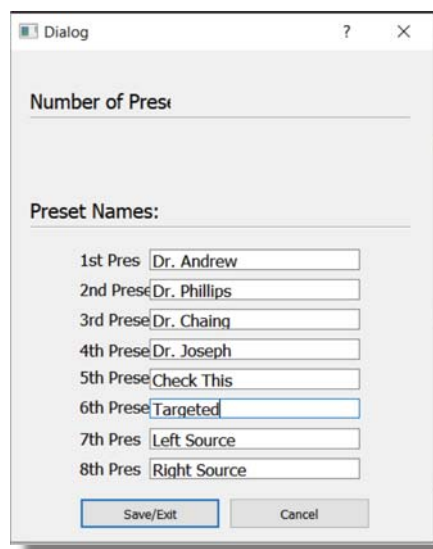
Preset Naming:

The application allows for users to rename and save names for desired presets directly on the Multi MSV 2 Control Application. This is useful if a doctor has a preferred layout and wants to save it under their name, or if there is a specific layout for each procedure. Now Users will not have to go into the back pages of the program to change the names.

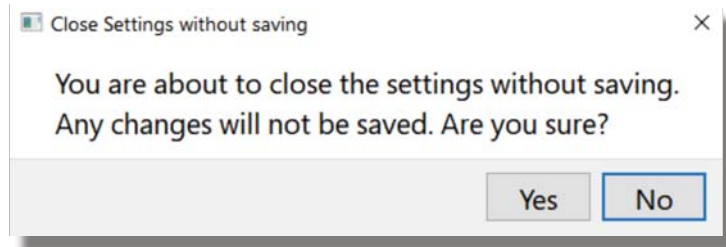
1. Opening Settings. Select “Settings” button. A pop up window will appear like this:



2. Entering new names. When the User wishes to change the name, simply replace the current name in the corresponding text box. User is able to change as many names they would like at the same time. A completed renaming set may look like this:



3. Cancel. Should User wish to dismiss the names they changed and keep the original names, simply hitting cancel will close the Settings window without making any changes. When User hits Cancel, this pop up confirmation will appear:



Selecting “Yes” will close the Settings window will close, and User will be able to access the regular functionality of the Application without any changes being made.

Selecting “No” will bring the User back to the Settings window.

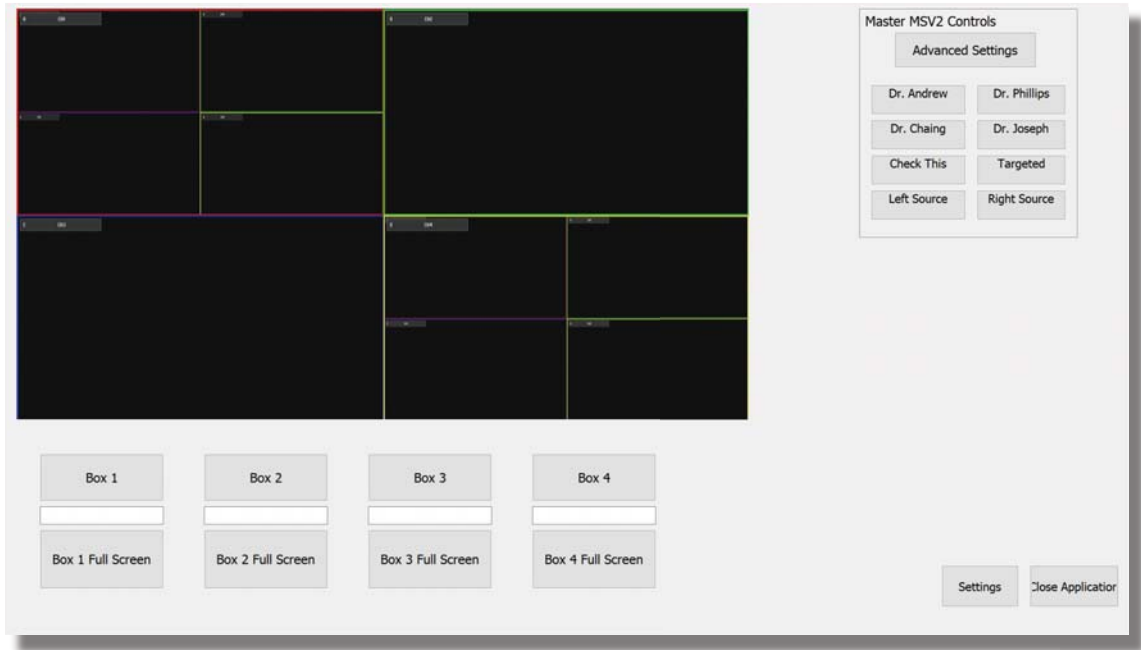
4. Save & Exit. Once User has reviewed their changes and would like to keep them, simply select the button “Save/Exit”. A pop up confirmation window will appear like this:



Selecting “Yes” will close the pop up Settings window, and show the new names instantly on the Application.

Selecting “No” will bring the User back to the Settings Window.

5. Instant Change to Application. Once user choses to save new names and confirms, they will be brought back to the Application with the Preset's displaying their new names:



These names will remain even after application is closed and reopened, until they are changed in the Settings Window.



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