VMX-8x8/ 16x16/36x36

Digital Modular Video Wall Controllers
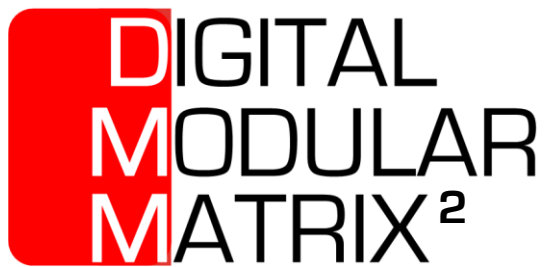
DIGITAL MODULAR MATRIX²

Pro Matrix Software Guide

Smart-e

SYMBOLS

To ensure the safe and correct use of equipment, we use a range of symbols on the equipment and in the manuals. These symbols demonstrate the risk of physical harm or possible damage to property for the user or others and provide guidance on standards and disposal. Symbol indications and their meanings are as follows. Please ensure that you correctly understand these instructions before reading the manual and operating the equipment.

Symbol	Meaning
⚠	WARNING. This symbol is used to indicate where important instructions are provided to ensure the correct operation of the equipment and user safety.
⚡	To prevent fire or shock hazards, do not expose this equipment to rain or moisture. Also, do not use this equipment's polarized plug with an extension cord receptacle or other outlets unless the prongs can be fully inserted. Refrain from opening the cabinet as there are high voltage components inside. Please refer all servicing to qualified service personnel.
CAUTION DO NOT OPEN RISK OF ELECTRIC SHOCK	This symbol warns user that uninsulated voltage within the unit may have sufficient magnitude to cause an electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.
WiFi	This is a WiFi product, which may cause or be susceptible to radio interference. Users may need to take additional measures to mitigate the interference.
Bluetooth	This is a Bluetooth product, which may cause or be susceptible to radio interference. Users may need to take additional measures to mitigate the interference.
((•))	This is an RF Radio product, which may cause or be susceptible to radio interference. Users may need to take additional measures to mitigate the interference.
IR	This is an Infrared product, which may cause or be susceptible to frequency interference. Users may need to take additional measures to mitigate the interference.
HDBT	This is a product which conforms to HDbaseT specification.
HD 1080p	This product supports full High Definition 1080p resolution.
4K UHD	This product supports 4K Ultra High Definition resolution.
3D	This product supports 3D definition display.
CE	CE certification means that the product has reached the directive safety requirements defined by the European Union.
SGS	SGS certification means that the product has reached the quality inspection standards proposed by the world's largest quality standards body - SGS.
TÜV CERT ISO9001:2000	This product has passed the ISO9001:2000 international quality certification
🗑	EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your equipment, please follow the guidance of your local authority, or ask the agent where you purchased the product. If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.

WARNING

In order to ensure the reliable performance of the equipment and the safety of the user, please observe the following matters during the process of installation, use and maintenance. :

INSTALLATION

◆ Please do not use this product in the following places: places with high levels of dust or soot; places with high electric conductivity; places with corrosive or combustible gas; places exposed to high temperature, condensation, wind or rain; places subject to the occasion of vibration or impact.

◆ When installing screw or wiring, make sure that metal scraps and wire heads will not fall into the screw shaft of the equipment, as it could cause a fire, fault, or incorrect operation.

◆ When the installation work is completed, ensure there is nothing left on the ventilated vents of the equipment, including packaging items. Blocked vents may cause a fire, fault, incorrect operation.

◆ Avoid wiring and inserting cable plugs in a charged state, otherwise it is easy to cause shock, or electrical damage.

◆ The installation wiring should be strong reliable and earthed.

◆ For installations in areas of high interference, the installer should choose shielded cable as the high frequency signal input or output cable, so as to improve the anti-interference ability of the system.

◆ Switch off and disconnect the equipment from all power sources prior to handling, installation or wiring, otherwise it may cause electric shock or equipment damage.

◆ This product grounds to earth by the grounding wires. To avoid electric shocks, grounding wires and the earth must be linked together. Before the connection of input or output terminals, please make sure this product is correctly grounded.

◆ All terminals and wiring should be fully sheathed or otherwise covered before connecting the equipment to a power supply so as to avoid cause electric shock.

OPERATION AND MAINTENANCE

◆ Be sure to read this manual, and fully comply with the safety recommendations, before undertaking maintenance or operation.

◆ Do not touch terminals whilst the equipment is in a powered state, or it may cause a shock, incorrect operation.

◆ Switch off and disconnect the equipment from all power sources prior to cleaning or tightening terminals or connections. These operations can lead to electric shock in a live current state.

◆ Switch off and disconnect the equipment from all power sources prior to the connection or disconnection of communication signal cables, expansion modules, or other adapters, or it may cause damage to the equipment, incorrect operation, or lead to electric shock in a live current state.

◆ Do not dismantle the equipment, and avoid damaging the internal electrical components. Please refer all servicing to qualified service personnel.

DISPOSAL

◆ Be sure to dispose of the equipment in accordance with local regulations.

CONTENTS

1 SOFTWARE INSTALLATION

1.1 MINIMUM SYSTEM REQUIRMENTS

Firstly, please ensure the PC to which you wish to install the Pro Matrix software meets the following minimum system requirements:

- **Windows XP (SP3)**
- **300MHz Processor**
- **128MB of Ram**
- **300MB available Hard Disk Space**
- **800x600 resolution monitor**

1.2 PERITHERALS

Please ensure you have all of the required peripherals:

- **1x USB Serial Key Dongle**
- **Available communication port on PC (not applicable if communicating over network)**
- **Latest .exe file version of Pro Matrix Software**

If you are unsure about any of the above items, please contact Smart-e support team for assistance.

1.3 INSTALLATION

- **Double click on the Pro Matrix .exe file**
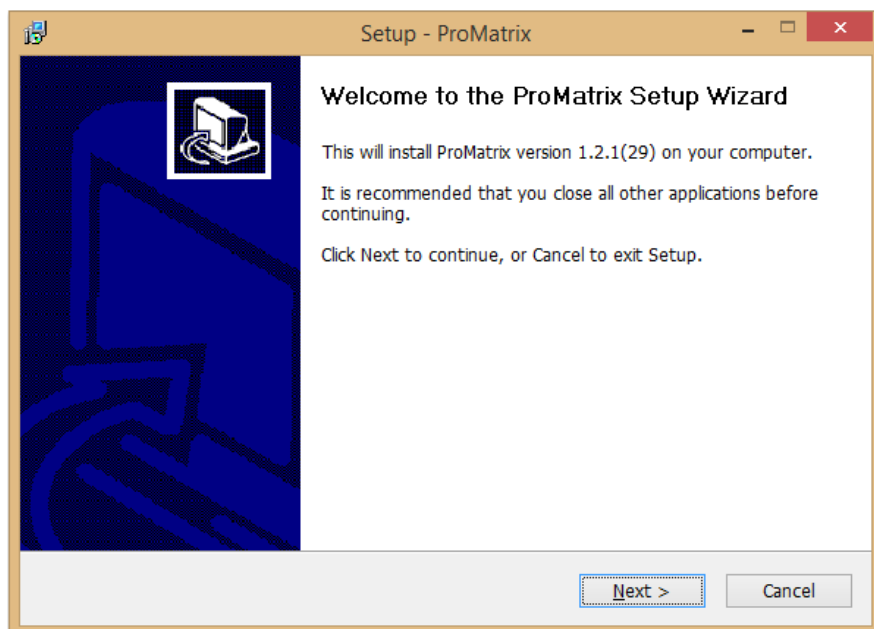
Figure 1: Initial installation window

- **Click next to commence installation**
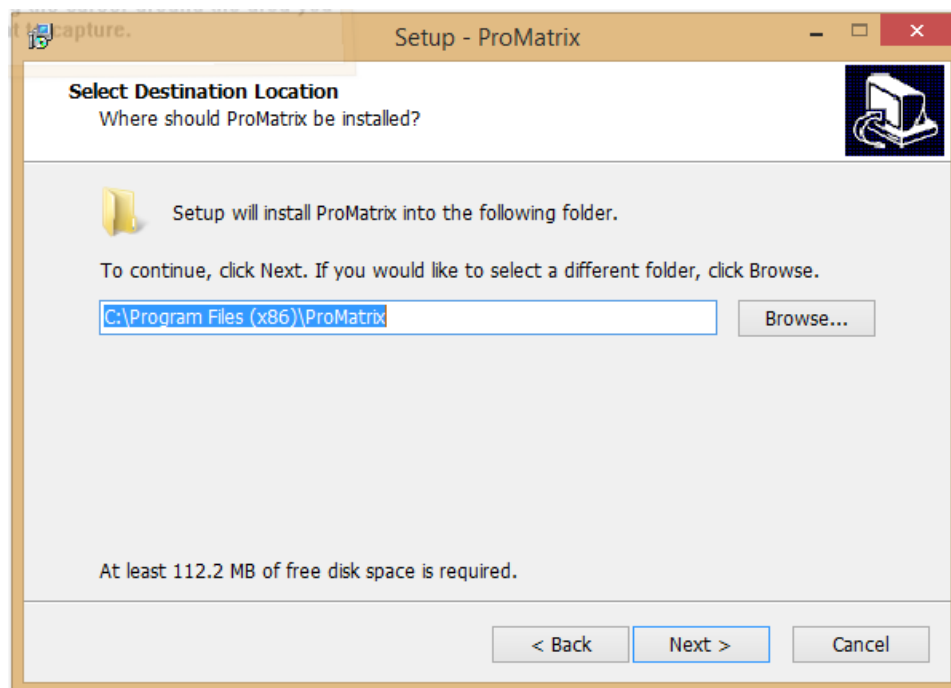
Figure 2: Directory Choice

- **As shown above in figure 2 you will then be asked to choose the directory where you would like to install the Pro Matrix Software. We recommend this path is left as default. Once you have chosen the directory click next**
- **The next two windows will offer you to choose the start menu names for installation (recommended this is left as default; ProMatrix) and then whether you would like to create desktop and quick launch icons, please choose as desired**

Figure 3: Installation check

- A window will then present you with chosen install options, please check these details and if correct click install
- Your PC will then install the software to your chosen directory

Figure 4: Installation Success Window

- Once installation has been successfully completed the window as shown above in figure 4 will be displayed. It is recommended you de-select the Launch ProMatrix tick box before clicking on finish
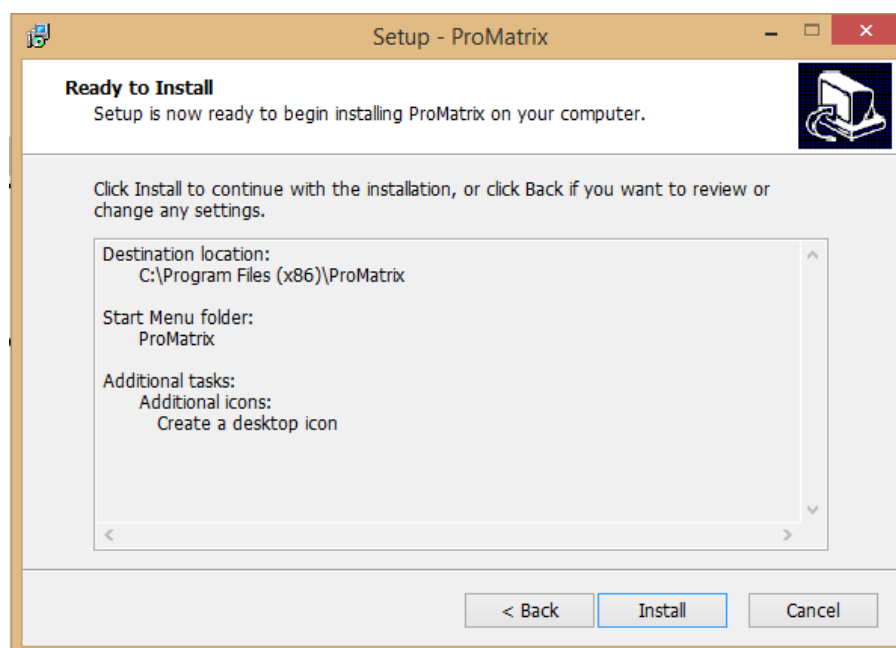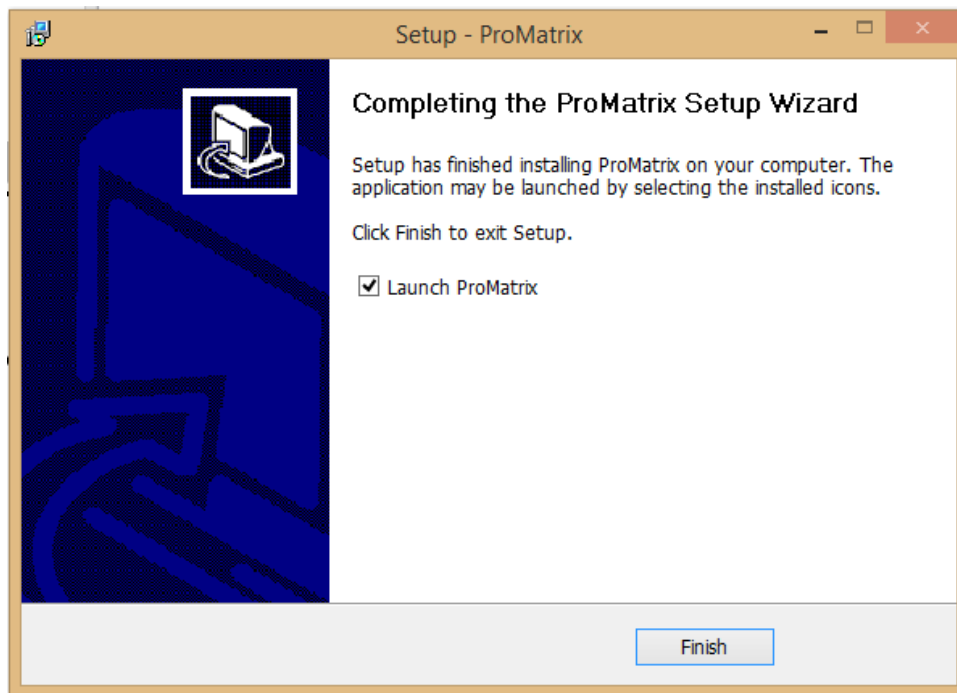
<u>NOTE:</u> IF YOU ENCOUNTER ANY ISSUES DURING THE INSTALLATION PROCESS FIRSTLY CONTACT YOUR IT ADMINISTRATOR TO ENSURE YOU HAVE ALL THE RELEVANT PERMISSIONS TO INSTALL SOFTWARE. IF ISSUES PERSIST PLEASE CONTACT THE SMART-E SUPPORT TEAM

1.4 LAUNCHING THE SOFTWARE

- At this point the supplied USB Serial Key Dongle should be inserted in to a USB port on your PC

<u>NOTE:</u> A USB SERIAL KEY DONGLE MUST BE INSERTED TO YOUR PC IN ORDER TO LAUNCH THE PRO MATRIX SOFTWARE

- In order to ensure the successful launch of the Pro Matrix software you must make sure the program is run with administrator permissions enabled. If you are unsure how to do this, please contact your IT administrator
- Once the above steps have been completed you are now ready to launch the Pro Matrix software
- A login window will appear, on first running of the software the username field will be completed with ADMIN, the password to be entered for the ADMIN user is admin

Figure 5: Initial boot up window

- **Once successfully logged in you will be greeted with the window as shown above in Figure 5, at the moment we are not connected to a matrix so the window is a generic 16x16 version**

2 USER SETUP & PERMISSIONS

2.1 USER SETUP

This stage is not essential for operation of the VMX unit but is highly advisable. Without setting up a user it would mean anyone who logs in to control the unit would have to use the ADMIN login given them full access to edit all parameters of the unit.
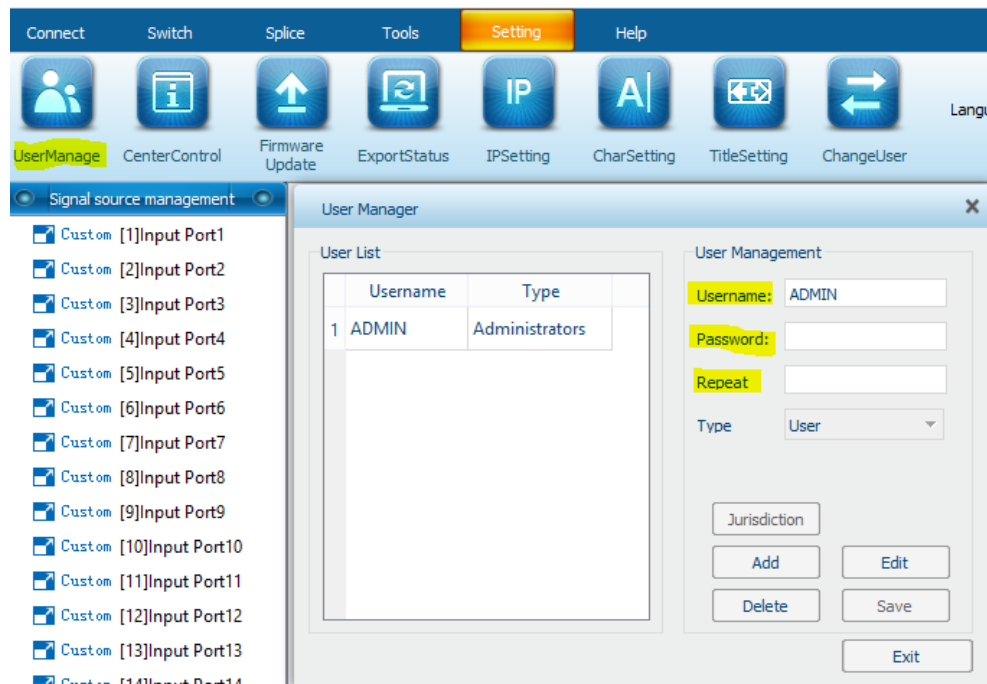

Figure 6: User creation

- All user management is firstly accessed by clicking on the Setting tab along the top line of the Pro Matrix software window, then in the sub menu which appears click on the UserManage button
- This will then open the User Manager window where you can create new users or modify current users including deletion of users
- To create a new user, click on the Add button in the User Manager window, complete the username and password fields as desired click save and a message will appear in the window showing the setting was successful and the user will appear in the user list
- To delete a user, highlight the user in the user list and click the delete button, be aware there is no confirmation stage so ensure the correct user is selected before hitting delete.

NOTE : PLEASE ENSURE THE ADMIN USER IS NEVER DELETED FROM THE SYSTEM, YOU CAN EDIT THE PASSWORD OF THE ADMIN USER BY LOGGING IN TO THE PRO MATRIX SOFTWARE AS ADMIN, HIGHLIGHTING THE ADMIN USER IN THE USER LIST AND CLICK ON THE EDIT TAB. IF THE ADMIN USER IS EVER DELETED IT IS RECOMMENDED A FRESH INSTALL IS CONDUCTED TO RESTORE THE ADMIN USER AS THIS WILL BE ESSENTIAL FOR ANY SUPPORT QUERIES WITH THE UNIT

- During operation it is possible to switch between users by clicking on the ChangeUser button in the Setting menu

2.2 SETTING USER PERMISSIONS

This section will detail how to restrict the rights certain users have to make changes to the VMX system, this can be an essential step in ensuring smooth functionality, making sure users can only see sections of the system relevant to their needs removing confusion if for example a user is presented with outputs which are not visible to them and may be in use by another user.
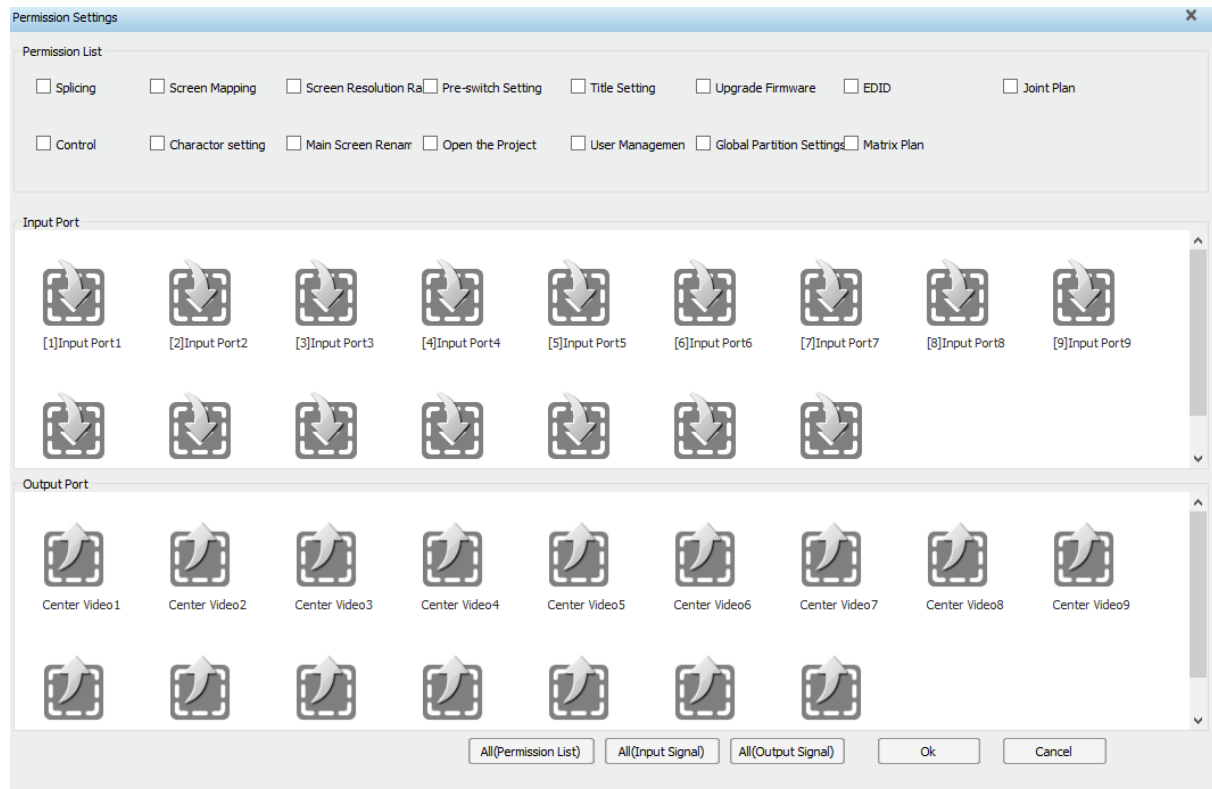

Figure 7: Permission setting screen

- Firstly highlight the desired user from the user list (as detailed in section 2.1) and click on the Jurisdiction button, which will open the Permission Settings window as shown above in figure 7
- This window is split in to 3 sections; Permission List, Input port and Output port
- To allow a user access to all input ports you can simply click on the All (Input Signal) button at the bottom of the window, alternatively you can click on the desired individual Input Ports in the Input Port section of the window, the same applies to the Output Ports

NOTE : THE WINDOW ABOVE IS THE GENERIC 16X16 VERSION BECAUSE WE HAVE NOT YET CONNECTED TO A VMX CHASSIS. IT IS ADVISED THAT PERMISSIONS ARE SET AFTER INPUT AND OUTPUT PORTS HAVE BEEN NAMED THIS WAY THE SETUP CAN BE COMPLETED ACCURATELY AND IN A FAR MORE UNDERSTNADABLE MANNER

- More complicated is the Permission List, determining whether you want a user to have access to any if not all of these sections may not be clear so please refer to the relevant section of this manual detailing the use of this permission to see if it is something you wish a user to have access to. It is recommended all users are given access to the Splicing permission as this is the way in which images are sent to screens
- Once the desired permissions have been set simply click on the Ok button at the bottom of the window, you will then be returned to the User Manager window

3 COMMUNICATIONS

It is possible to connect to the VMX chassis and control the unit via 2 methods:

1. TCP/IP network based connection
2. RS232 serial communication from a local PC or RS232 controller

Both methods have the same control ability of the VMX chassis and can exploit all features of the Pro Matrix software so it is a free choice for the user to select which method fits best with their needs. Please refer to the relevant section below for setup of either control method.

3.1 TCP/IP COMMUNICATIONS

Firstly, to connect your VMX chassis to your local network make sure your VMX chassis is powered down (IEC mains cable is removed from the power socket on the rear of the chassis) and attach a CATx cable between your network switch and the Ethernet control port on the rear of the VMX chassis. The CATx cable should be terminated to the standard T568B termination standard as detailed below in figures 8a & 8b.
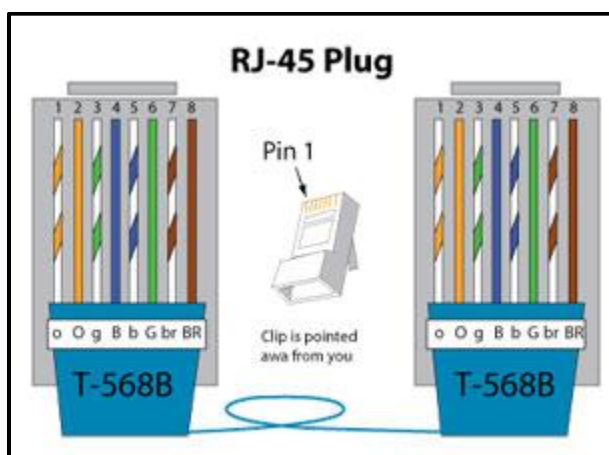

Figure 8a: RJ45 plug guide T568B

Figure 8b: Cable color guide T568B

- **Now the VMX is connected to the network we can apply power to the unit, activity should now be seen on the LEDs of the Ethernet control RJ45 on the rear of the VMX. If no activity is seen it would suggest a problem with either the cabling or network controller, please contact your IT administrator for assistance, if problems persist contact the Smart-e support team**
- **If activity is present, this shows the VMX chassis should now be contactable over TCP/IP so we can now switch over to the Pro Matrix software to verify communications are present**
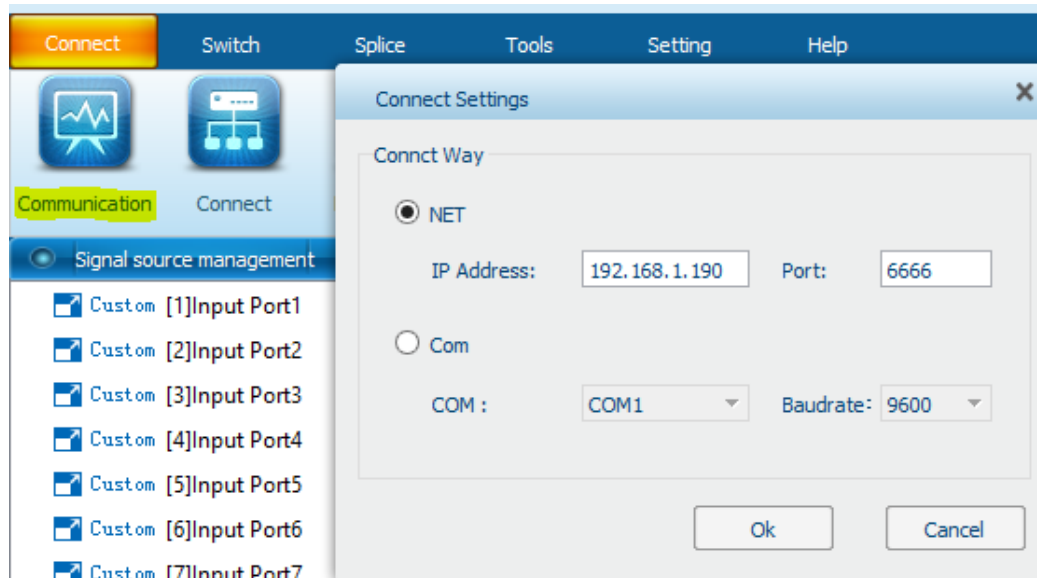
Figure 9: Communication Setting Window

- Launch the Pro Matrix software, login as the **ADMIN** user and head to the Connect tab in the top left corner and then click on the Communication button in the menu below
- This will launch the Connect Settings window as shown above in figure 9
- To connect over TCP/IP ensure the NET option is selected, you can then type in the required IP address and port number to connect to the VMX chassis, if this is a first boot up you can simply click ok

NOTE : BY DEFAULT THE VMX WILL HAVE THE IP ADDRESS 192.168.1.190 AND PORT NUMBER 6666. IF THIS IS OUT OF RANGE OF THE IP ADDRESS FOR THE PC YOU ARE USING, YOU WILL NOT BE ABLE TO CONNECT TO THE VMX UNIT. TO FIND THE IP ADDRESS OF YOUR CURRENT MACHINE LAUCH A COMMAND WINDOW AND TYPE IN THE COMMAND IPCONFIG, IF UNSURE HOW TO COMPLETE THIS STAGE PLEASE CONTACT YOUR IT ADMINISTRATOR, IF PROBLEMS PERSIST PLEASE CONTACT SMART-E SUPPORT. IF IP ADDRESS IS OUT OF RANGE IT IS ADVISED YOU CONNECT A LOCAL PC/LAPTOP VIA RS232 FOLLOWING THE INSTRUCTIONS AS PER SECTION 3.2, THEN YOU MAY SET AN IP ADDRESS BY ENTERING THE MENUS AND CHANGING THE SETTINGS AS DETAILED BELOW.
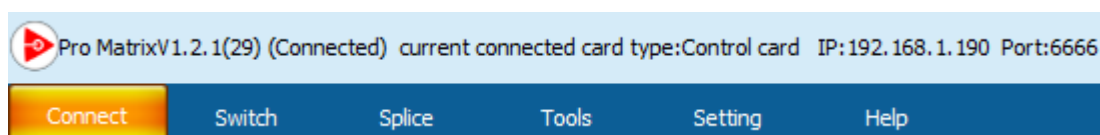

Figure 10: Connected to VMX via IP

- Once you have clicked ok if all settings were correct the title bar in the top left corner should change to show you are connected to the VMX chassis along with details of the current IP address and Port number
- Now a connection is present you can edit the IP settings of the VMX chassis
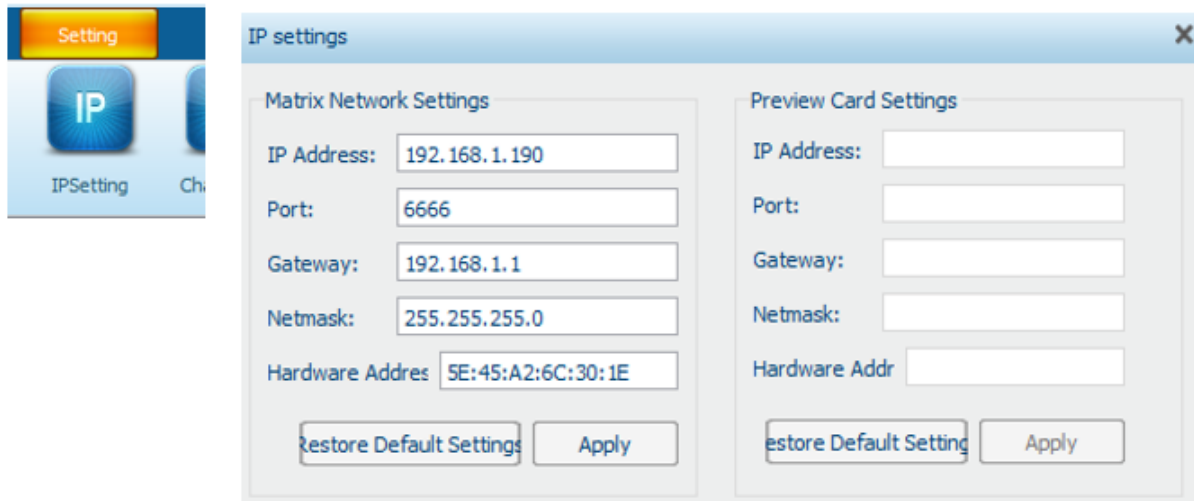
Figure 11: IP settings window

- To access the IP settings window firstly, click on the Setting tab at the top of the Pro Matrix software window and then click on the IPSetting button which will bring up the window as shown in figure **11**
- The window is split in to two halves, the Matrix Network Settings on the left of this window is the one we are concerned with
- Here you may edit the IP address of the unit in the top window making sure the address is in the correct format: <0-255>.<0-255>.<0-255>.<0-255> this format also applies for the Gateway and Netmask windows
- The port window can be changed to overcome any restrictions which may be in place on server firewalls, the valid port numbers acceptable to the VMX are within the range 2000-60000 inclusive

<u>NOTE</u> : EDITING NETOWRK SETTINGS SHOULD ONLY BE COMPLETED BY A QUALIFIED TECHNICIAN OR UNDER DIRECT SUPERVISION OF YOUR NETWORK ADMINISTRATOR. IT IS RECOMMENDED THESE SETTINGS ARE LEFT AS DEFAULT AND CAN BE RETURNED TO DEFAULT AT ANY TIME BY CLICKING THE RESTORE DEFAULT SETTINGS BUTTON IN THE LEFT HAND SIDE WINDOW

- Once the IP settings have been altered to those desired simply click on the Apply button and settings will take effect. If already connected via TCP/IP you will now be disconnected from the unit and will need to head back to the communication settings window to alter the NET settings to the new IP address and/or port number
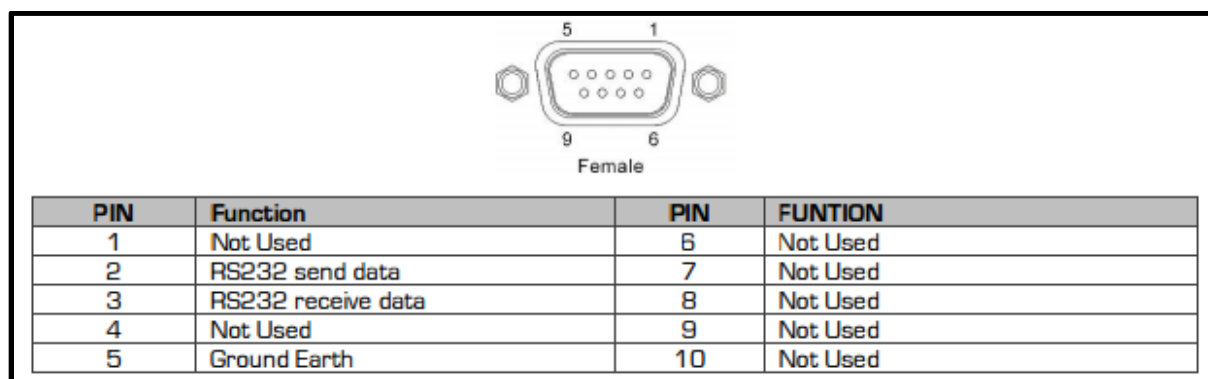
3.2 RS232 SERIAL COMMUNICATIONS

PIN	Function	PIN	FUNTION
1	Not Used	6	Not Used
2	RS232 send data	7	Not Used
3	RS232 receive data	8	Not Used
4	Not Used	9	Not Used
5	Ground Earth	10	Not Used

Figure 12: VMX RS232 port pin assignment

Figure 13: Port Settings

- **Figures 12 and 13 provide information for the configuration of the RS232 port on the VMX chassis. The port settings detailed in figure 13 can be ignored when connecting using the Pro Matrix software as these will be handled automatically, the info in figure 12 must be followed to ensure the correct serial communications cable is used**
- **A cable providing the necessary pin out must be connected for your PC to enable communication. If your PC does not have a D9 port a USB to D9 adapted can be utilised**
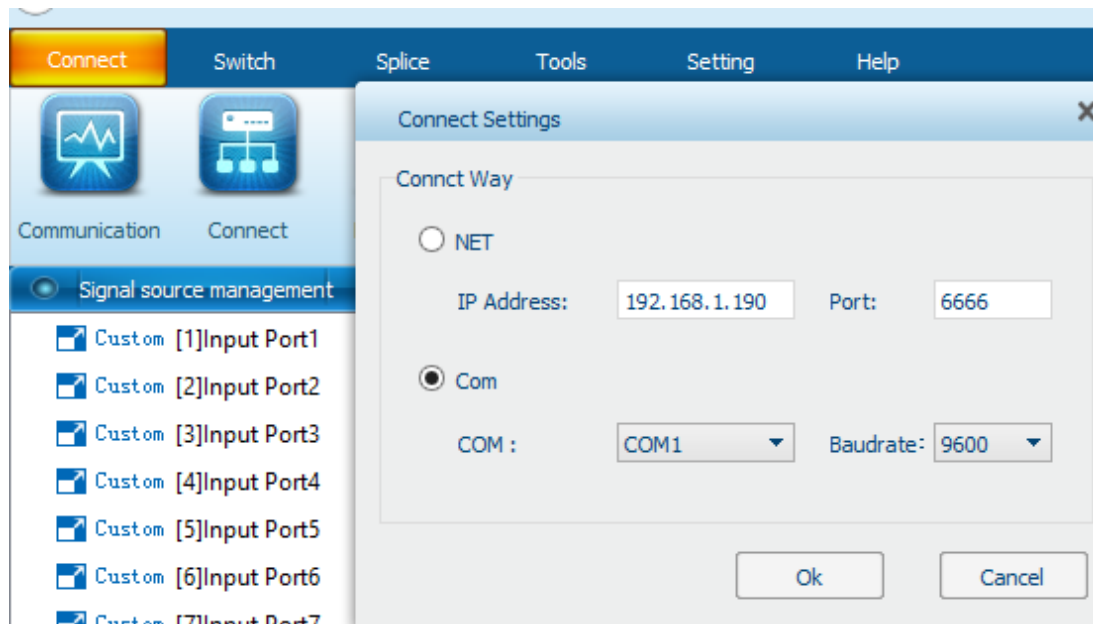
Figure 14: Connect Settings window using RS232 communication port

- To connect to the VMX via RS232 head to the Connect tab in the top left corner of the Pro Matrix software and click on the Communication button
- This will open the Connect Settings window, check the Com option
- The first drop down box in this section will then display the available COM ports currently available on this machine, use the drop down menu to select the correct COM port and leave the Baudrate option set to 9600
- Once the correct COM port has been selected you can now click the Ok button at the bottom of the window
- The software now should detect the VMX on the selected COM port and the title bar in the top left of the software window should show you as connected with details of the port number and baud rate
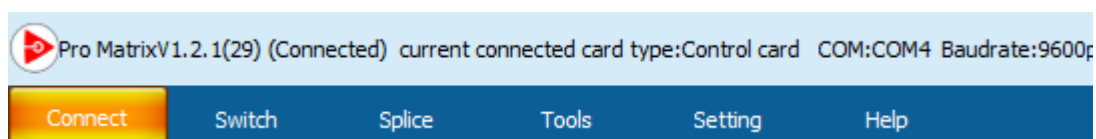

Figure 15: COM port connection successful

4 VIDEO WALL CONFIGURATION

The following three sections will detail the initial steps to configure the Pro Matrix software for your particular hardware setup, this includes setting the number of screens present in your video wall(s), the location of these screens relative to the outputs of your VMX chassis and the resolutions of the screens in your video walls. Steps should be completed in the order as shown below.

4.1 VIDEO WALL SIZING

Figure 16: Entering Splicing menu

- **The sizing of the video walls is accomplished via the splicing menu, accessed by first clicking on the Splice tab at the top of the software window followed by the Splicing button**
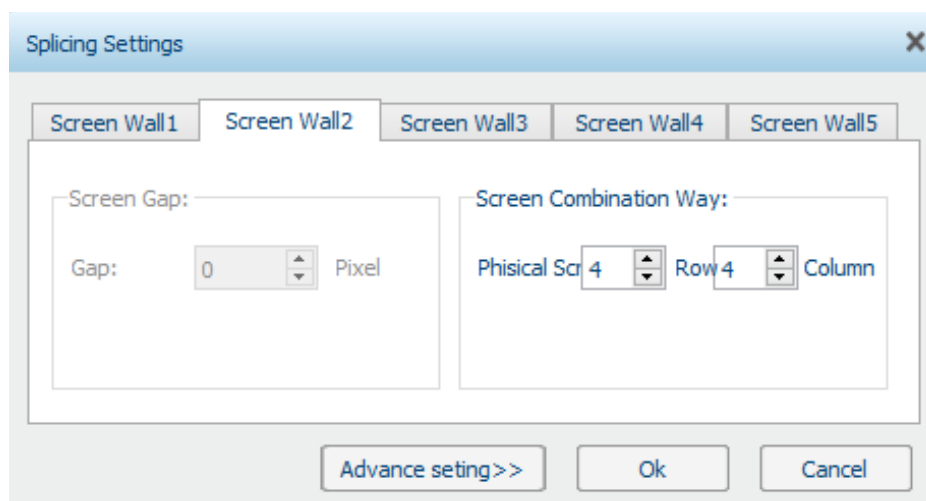

Figure 17: Splicing Settings window

- **The window shown above in figure 17 will be displayed, the maximum number of Screen Walls supported by the Pro Matrix software is 5, to select which video wall you wish to edit select the relevant tab along the top of the Splicing Settings window**
- **Using the Screen Combination Way section on the right hand side of the window you can then set your combination of screens by selecting the number of rows and columns you have present. Figures 18 & 19 show an example for setting a wall to have 2 rows and 4 columns**
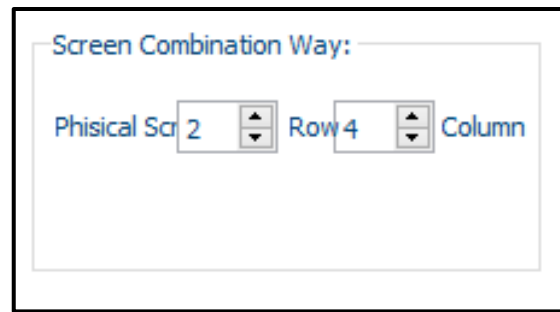
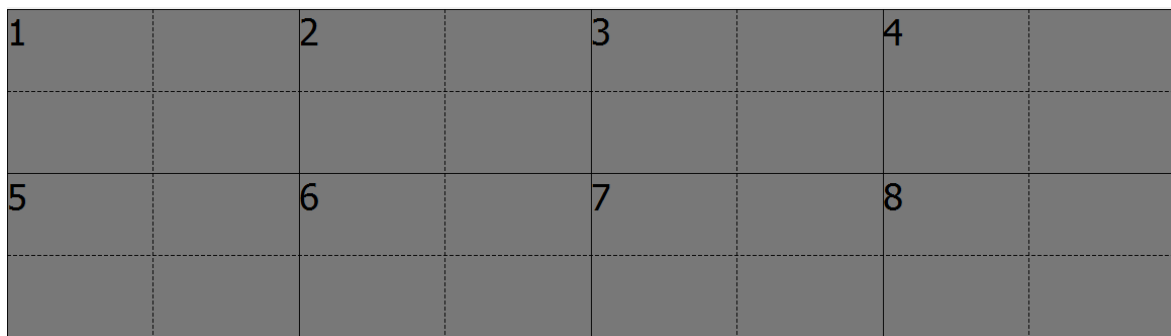*Figure 18: Settings of rows and Columns*

Figure 19: Resulting video wall setup for 2x4

- **Once the screen wall sizing has been completed as desired simply click Ok at the bottom of the window for the changes to take effect**

4.2 SCREEN MAPPING

Mapping your screen allows you to tell the Pro Matrix software which output of your VMX chassis is connected to which screen of your video wall.

Figure 20: Entering Screen Map Menu

- **To enter the screen mapping menu click on the Splice tab at the top of the software window and then click on the ScreenMap button**
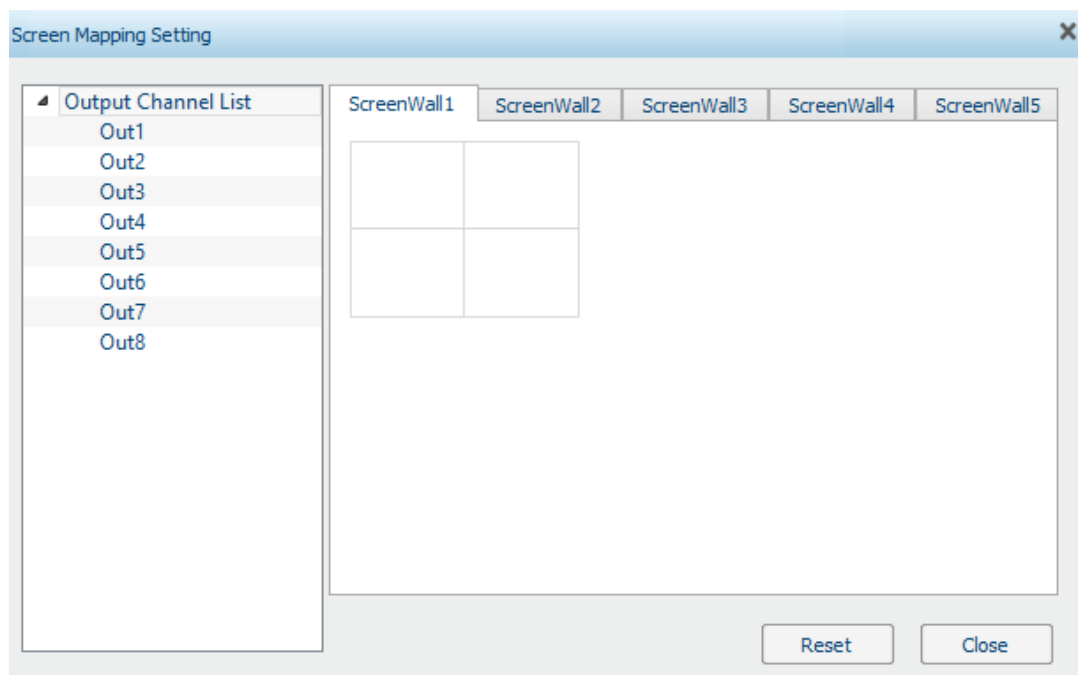- **The Screen Mapping Setting window will then be displayed as shown in figure 21**
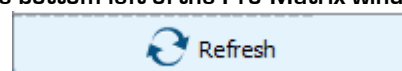
Figure 21: Screen Mapping window

- The Screen Mapping Setting window is divided in to 2 sections. On the left a column shows the available outputs of the VMX matrix, if this column looks incorrect then it may be the unit has not yet detected all available outputs, to manually refresh, in the bottom left of the Pro Matrix window under the input port column should be a refresh button: if you click on this button the available outputs should now be accurately displayed. The right hand side of the window has 5 tabs to select the relevant video wall, all of which should be accurately sized to your setup if section 4.1 has been completed

- There are 2 ways of assigning outputs, double clicking or click and dragging. If you double click on a screen the next available output in the output channel list will be assigned to this screen, alternatively click and hold the output you wish to assign and drag it to the screen you wish this output to be assigned to

NOTE : SCREEN MAPPING IS JUST A WAY OF LETTING THE PRO MATRIX KNOW HOW THE HARDWARE IS CONFIGURED CREATING CONFLICTING MAPS IN THE SOFTWARE TO HOW THE ACTUAL HARDWARE IS CONFIGURED WILL CREATE PROBLEMS
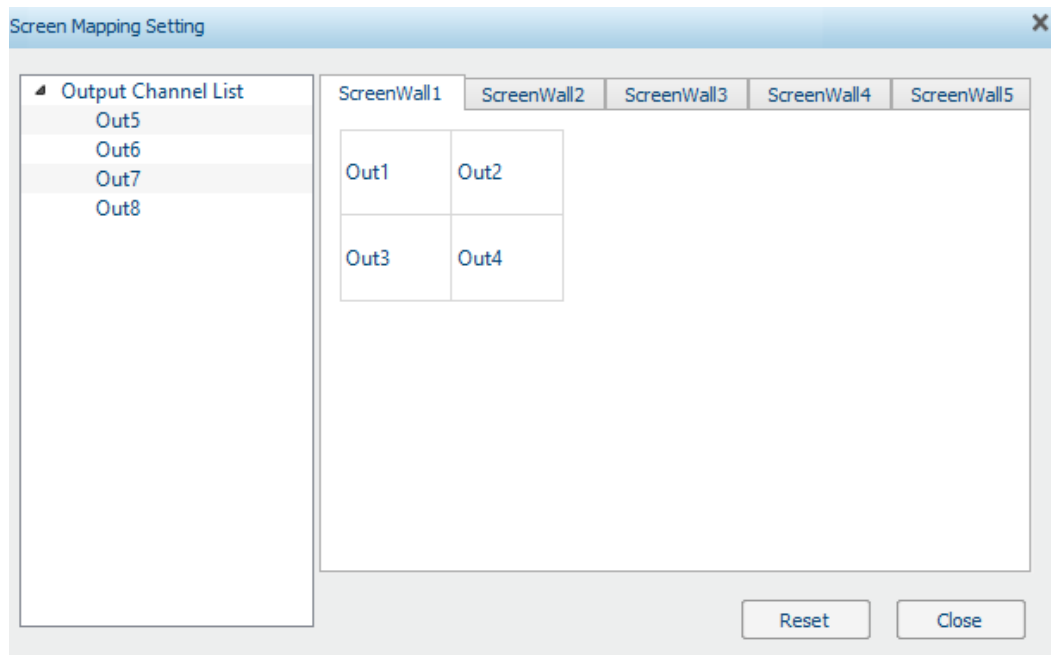
Figure 22: Example for setting outputs 1-4 on screenwall 1

- The above example shows outputs **1-4** have been mapped to **ScreenWall1**, to save these settings simply click on the **Close** button in the bottom right corner of the window. To unassign all of the currently assigned screens simply click the **Reset** button and the outputs will return to being available in the **Output Channel List**

4.3 SCREEN RESOLUTION SETTING

Each individual output of the VMX has an output resolution setting, this is vital in enabling the seamless switching ability of the unit but you must make sure the resolution output by the VMX blades matches the optimal resolution of your screens, providing optimal image quality and clarity. The Pro Matrix software only has the ability to handle video walls where all the screens are the same resolution. If the screens in your configuration are not the same resolution the resolution of the overall video wall must be set to the lowest common denominator. For instance, if you had a 4 screen video wall where you have 3 1080p full HD screens and 1 720p HD monitor, the video wall as a whole would have to be set to 720p in order for all screens to operate.

Figure 23: Entering resolution setting menu

- **To enter the resolution setting menu click on the Splice tab at the top of the software window then on the Resolution button**
- **You will then be presented with the Resolution Setting window as shown below in figure 24**
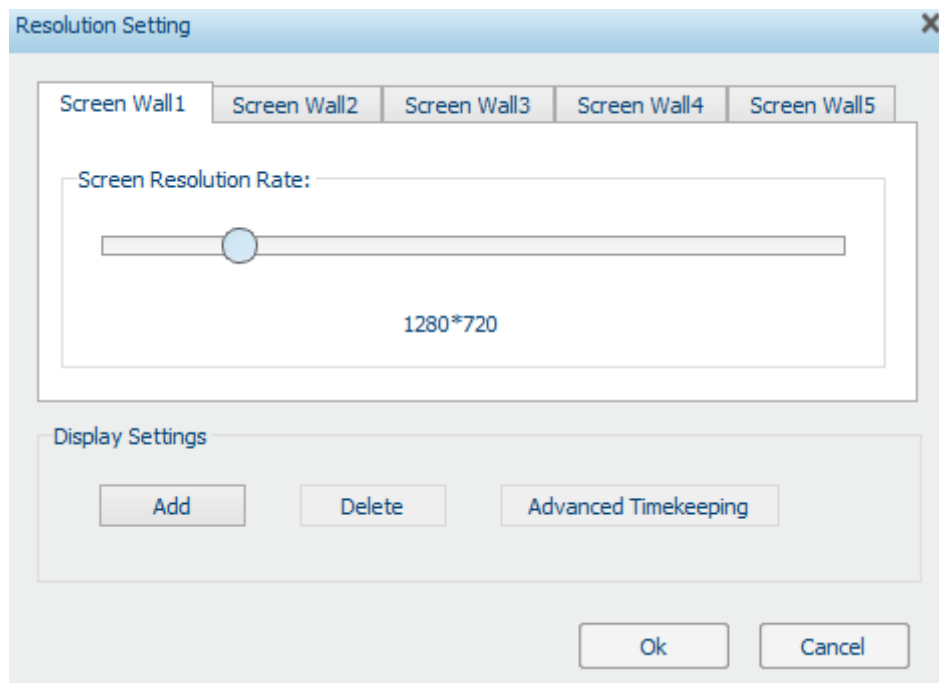

Figure 24: Resolution Setting window

- **By default, all screens are set to 1280x720 (720p)**

- To change resolutions firstly select the Screen Wall you wish to edit via the tabs at the top of the window
- Then you can use the slider to select the desired resolution
- There are **13** preset resolutions to be selected from:
    - 800x600@60Hz
    - 1024x768@60Hz
    - 1280x720@60Hz
    - 1280x768@60Hz
    - 1280x800@60Hz
    - 1280x960@60Hz
    - 1280x1024@60Hz
    - 1360x768@60Hz
    - 1366x768@60Hz
    - 1600x900@60Hz
    - 1600x1200@60Hz
    - 1920x1080@60Hz
    - 1920x1200@60Hz
- Once the desired resolution is shown simply click Ok at the bottom of the window for the change to take effect
- If the resolution has been changed from a previous value, you will notice the screens will drop out and re-time to the new resolution
- It is advised if changing the resolutions of more than one wall to change each wall one at a time click Ok and then re-enter the resolution setting menu to set the resolutions of the other walls which need changing

NOTE : IN THE DISPLAY SETTINGS SECTION OF THE WINDOW IS A TAB MARKED ADD, YOU CAN ENTER THIS TAB TO CREATE CUSTOM RESOLUTIONS, HELPFUL IF FOR EXAMPLE YOU ARE USING PORTRAIT SCREENS. WHEN YOU ADD THESE RESOLUTIONS THEY WILL APPEAR AS AN EXTRA VALUE AS YOU MOVE THE SLIDER THROUGH THE AVALIABLE RESOLUTIONS. IT IS ADVISED YOU CONSULT WITH SMART-E SUPPORT PRIOR TO ADDING CUSTOM RESOLUTIONS TO ENSURE YOUR SYSTEM IS ABLE TO SUPPORT YOUR PARTICULAR CUSTOM VALUE.

5 INPUT CUSTOMISATION

The Pro Matrix allows the user to alter some parameters of the inputs to aid in usability, making the system clearer to understand.
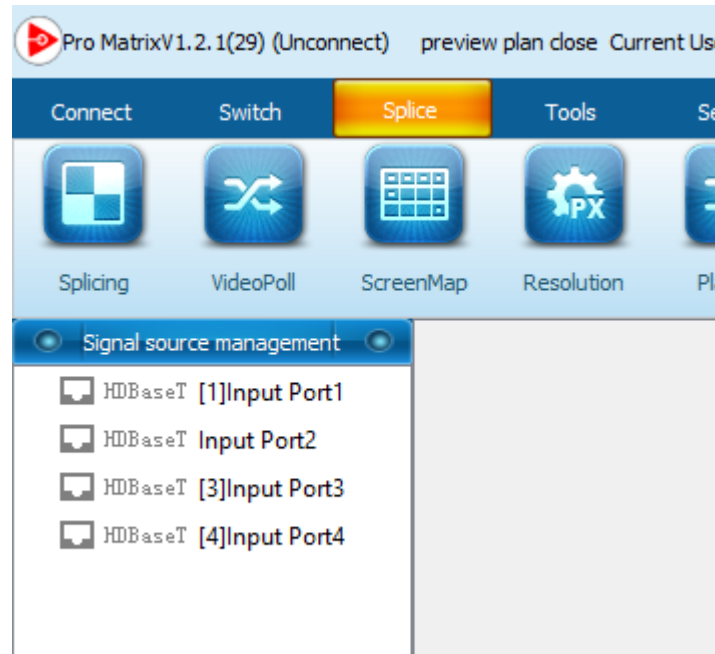

Figure 25: Input List

- **On the left hand side of the Pro Matrix software is a column labelled Signal Source Management this is where the list of detected inputs can be seen**
- **If this list appears inaccurate it could be because of one of two reasons:**
  - **The software may not have read back the number of inputs present correctly, a manual refresh can be performed by clicking on the refresh button:**

    located at the bottom of the signal source management column
  - **A previous ADMIN or user may have changed a setting to hide inactive inputs, see further down in this section of the manual to see how this is accomplished**

- **To access the settings of any input simply right click to bring up the available options**
- **To rename an input right click on the input and then click on rename (TIP: you can also rename an input by highlighting the input in the signal source management icon and use the F2 key on your keyboard**
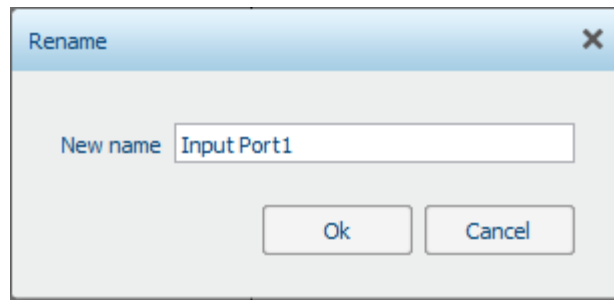
Figure 26: Input renaming window

- **Once this is done the window as above in figure 26 will appear**
- **Simply enter the desired name of the input and click Ok and the new name will appear in the input list**
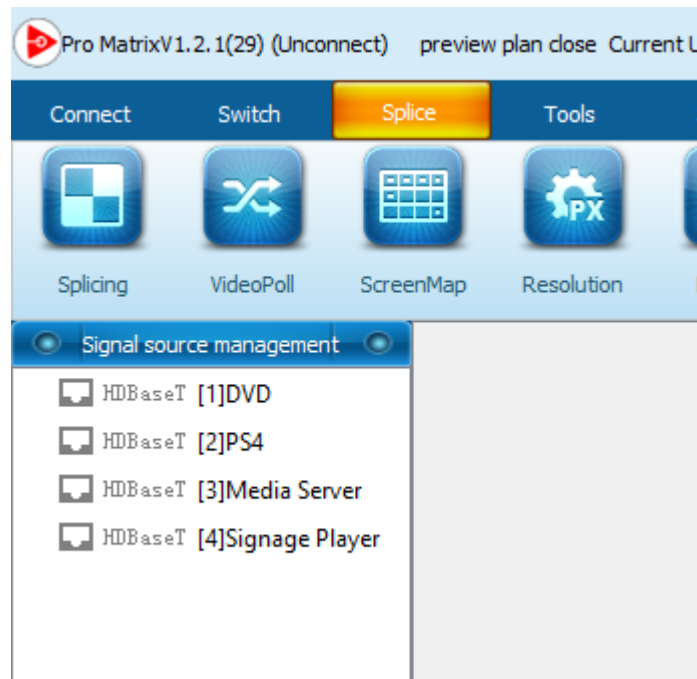

Figure 27: Inputs renamed

- **The inputs as named above now show a user friendly and understandable name in the input list. The type of Input (HDMI, HDBaseT, Fibre…) will still be shown along with a number in square brackets showing the relevant position of this input within the matrix hardware configuration, this is to aid in diagnosing problems which may need to be investigated at the matrix location**
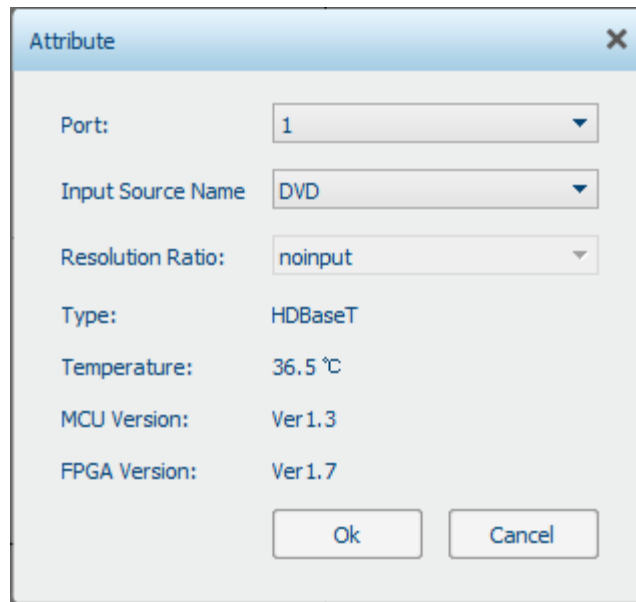- **The second option in the list is labelled Attribute**

Figure 28: Attribute window

- **The attribute window will show identical values for all inputs on each input card, showing the input type, the current operating temperature and the firmware versions installed. This information will be useful to Smart-e Support team should any issues arise**
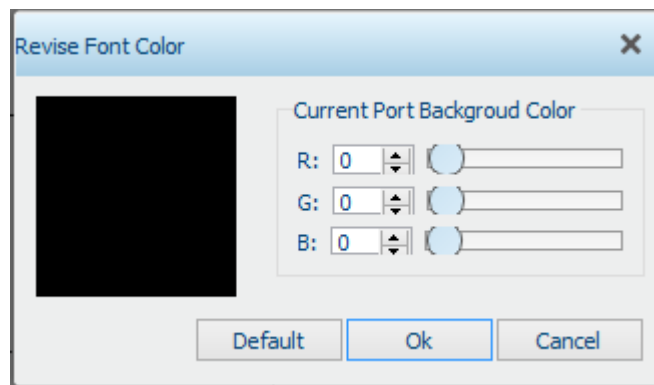- **Another option in the list allows the user to select the colour of text in the input list, customisable for each input**

Figure 29: Input text colour choice

- **To bring up the menu as shown above in figure 29, right click on any input and click the option Colour Setting. You can then use the sliders to select an appropriate colour for the font of that input, an extra tool to help in system organisation. At any point you can press the default button to return the font colour to black**
- **A useful feature of the Pro Matrix software is to hide all inputs which do not have an active source attached, this can be achieved by right clicking on any input in the list and clicking on the Hide all no video input option**
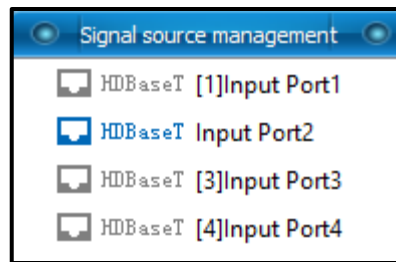
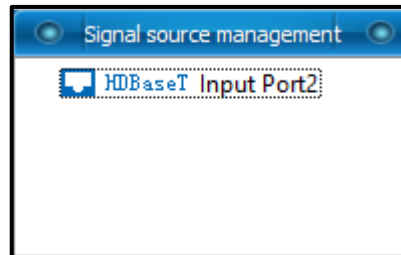*Figure 30: Input list showing all inputs*

Figure 31: Input list showing only active inputs

- **As can be seen from the two figures above active inputs appear in the list highlighted blue so if inactive inputs are not hidden it is still easy for the user to see which inputs have video present**
- **If an input appears to show no video but you believe it should it is advised to check all cabling and remote transmitters for remote input blades. If problems persist, please contact smart-e support**
- **It is advised all other options in this menu are altered only by qualified engineers**

6 VIDEO WALL CONTROL

NOTE : BEFORE TRYING TO DISTRIBUTE IMAGES TO YOUR VIDEO WALL(S) MAKE SURE YOU HAVE COMPLETED THE STEPS AS DETAILED IN SECTION 4 OF THIS USER GUIDE. IF THESE STEPS HAVE NOT BEEN FOLLOWED IT COULD LEAD TO REDUCED IMAGE QUALITY OR INABILITY TO VIEW IMAGES AT ALL.

This section of the manual will detail how to send video signals to your video wall(s) using the Pro Matrix software. The following subsections show different abilities the VMX unit has to handle and distribute video signals across multiple displays. The examples below are conducted on screen wall 1 configured as a 2x2 video wall at a resolution of 1920x1080@60Hz per screen.

6.1 SINGLE IMAGE CONTROL

- **Firstly, click on the Splice Tab at the top of the Pro Matrix software window then select the screen wall you wish to control**
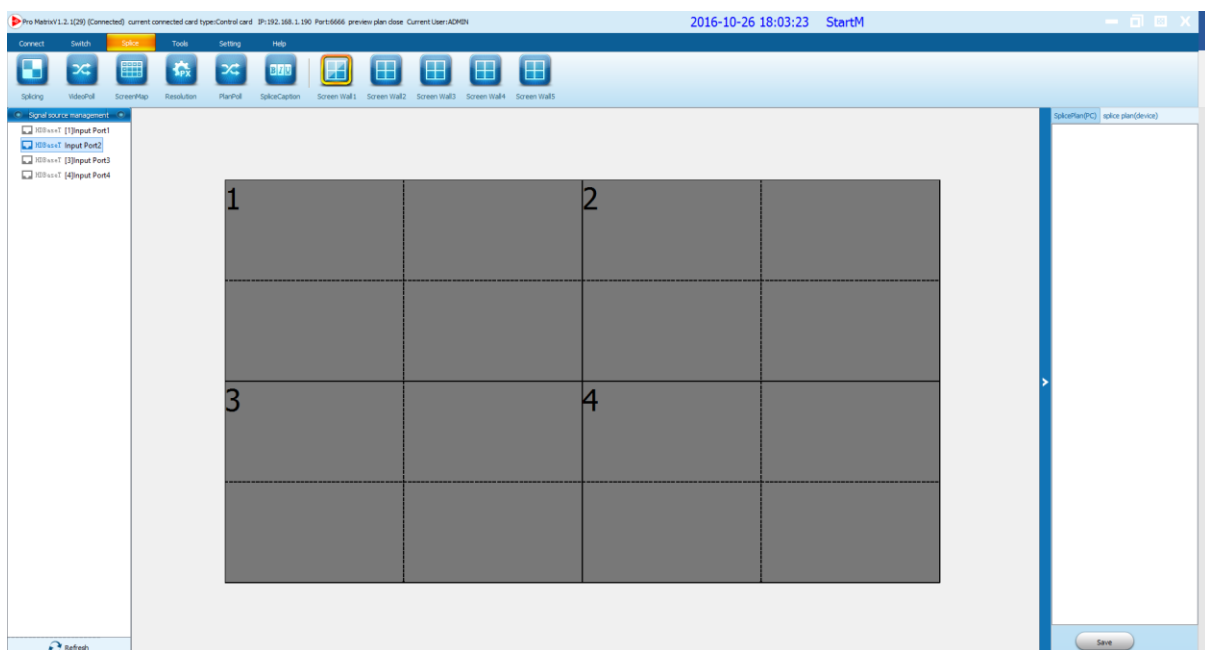

Figure 32: Splice screen showing blank video wall

- **You will now see your video wall layout in the centre panel of the software window. Each screen of your video wall is divided from one another by a solid black line, extra dotted lines then divide each screen into quarters to provide guides for image resizing which is detailed further on in this manual**
- **You can zoom in and out of the video wall layout by placing your mouse pointer anywhere within the video wall layout and use your scroll wheel. This can help with larger wall sizes where individual screens are less visible**
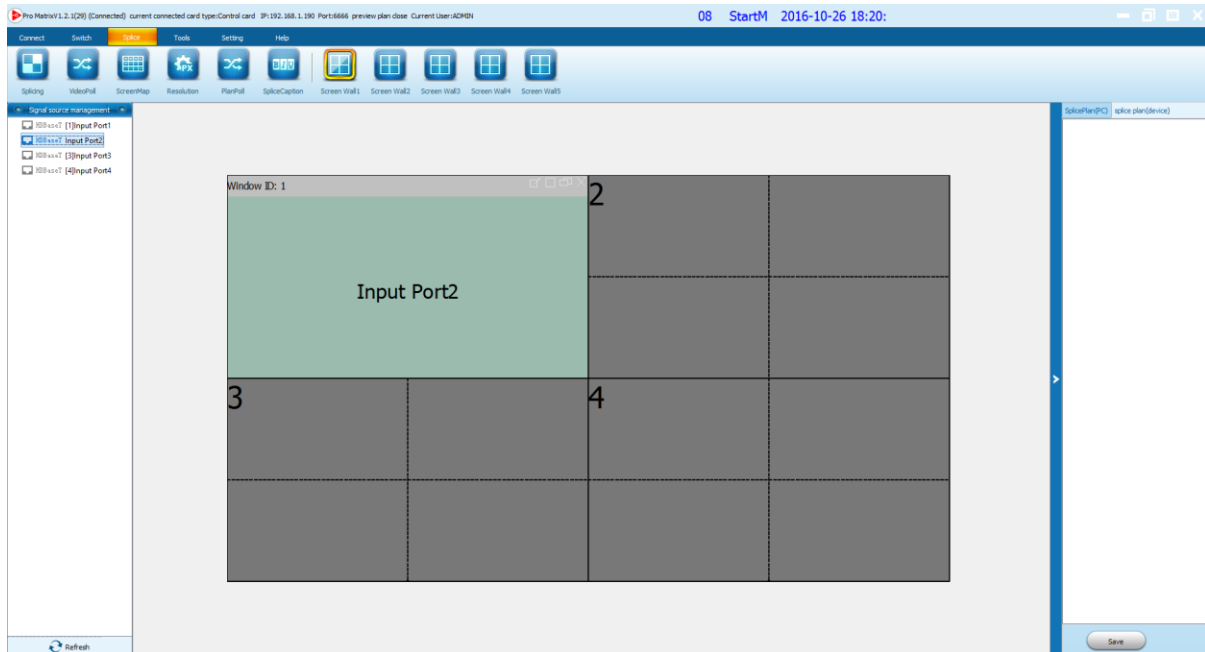
Figure 33: Input 2 sent to screen 1

- **To send an input to an individual screen simply left click and hold on an input from the input list and drag to the screen you wish the image to be displayed, when you release the mouse the image will be placed full screen on the screen where your mouse was positioned. The example above in figure 33 shows input 2 has been dropped on screen 1**
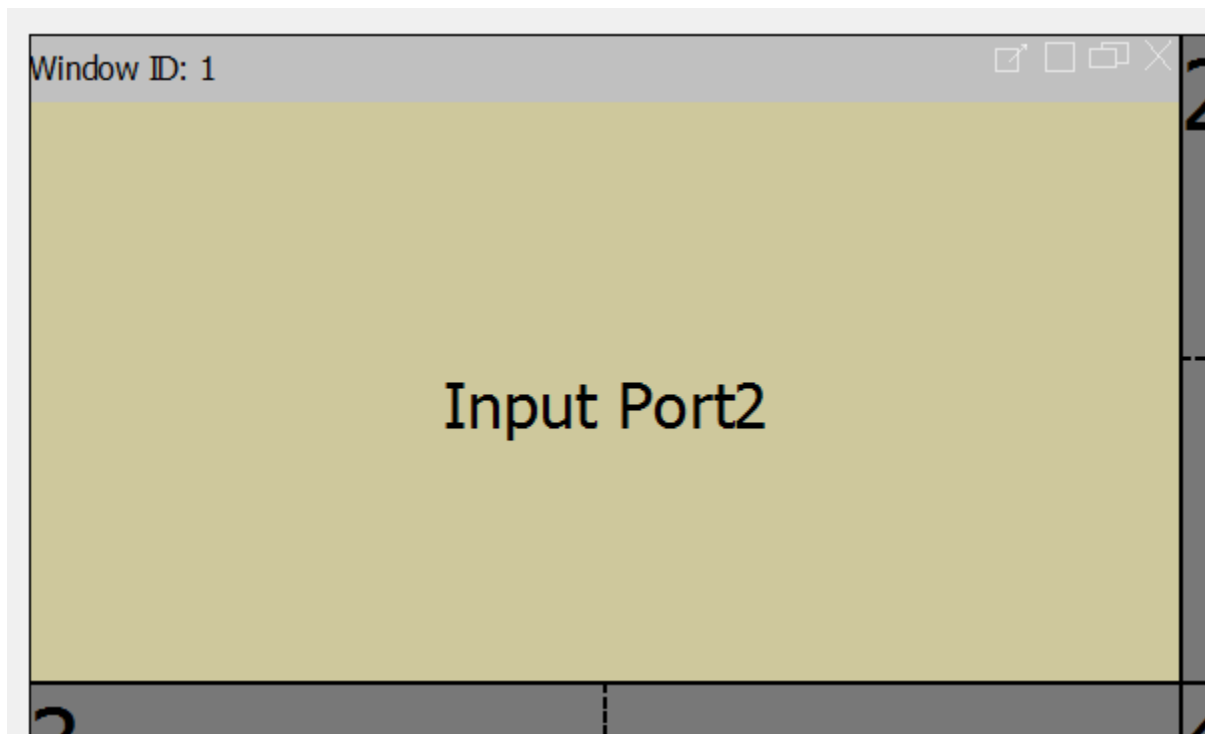- **Now the image is visible on your video wall there are a number of things that we can do to alter how the image is viewed**

Figure 34: Image control icons

- **In the top right-hand corner of the window you will note the maximise ▭ and restore window size ▭ buttons. These work in the same way you are used to with most PC applications, pressing the maximise button will make the image fill your entire video wall (regardless of wall size), the restore window size button will then return the image to its original size**
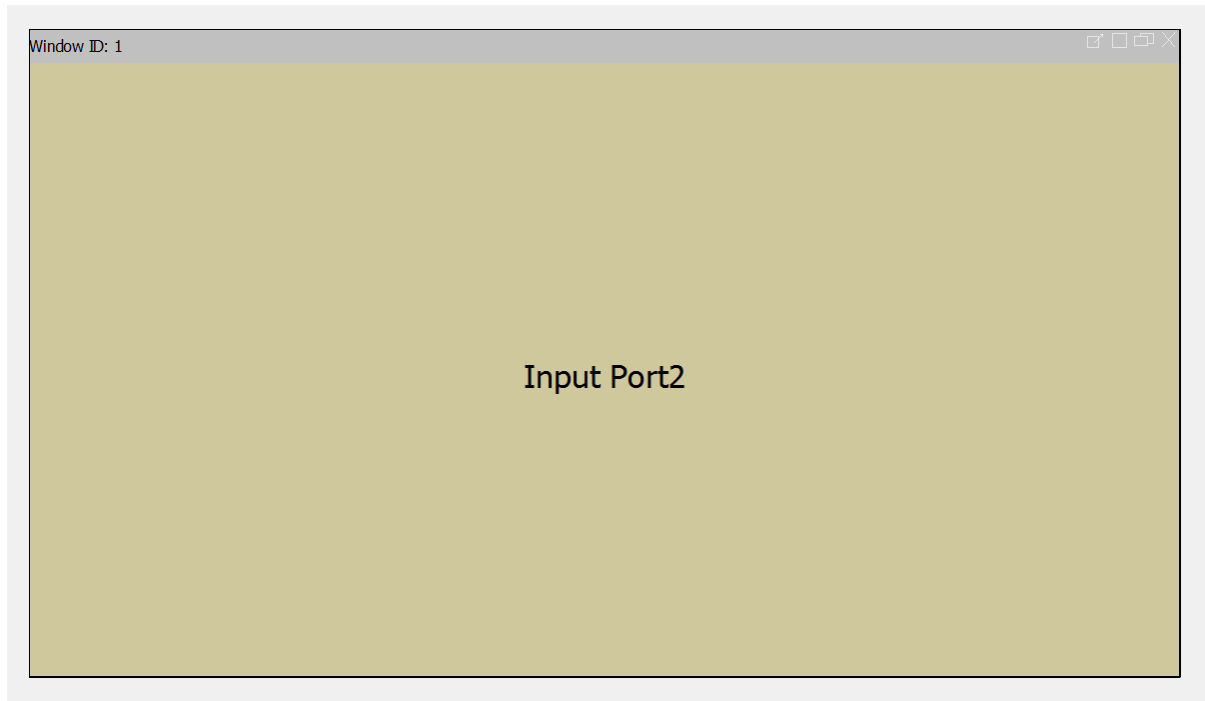
Window ID: 1

Input Port2

Figure 35: Image maximised to fill video wall

- **The close icon ⊠ when clicked will remove that image from the video wall**
- **If you hover your mouse anywhere along the grey banner to the left of the above mentioned icons you will see a hand replaces the mouse pointer, you can then click and drag the image to any desired location on the video wall maintaining the current sizing of your image**
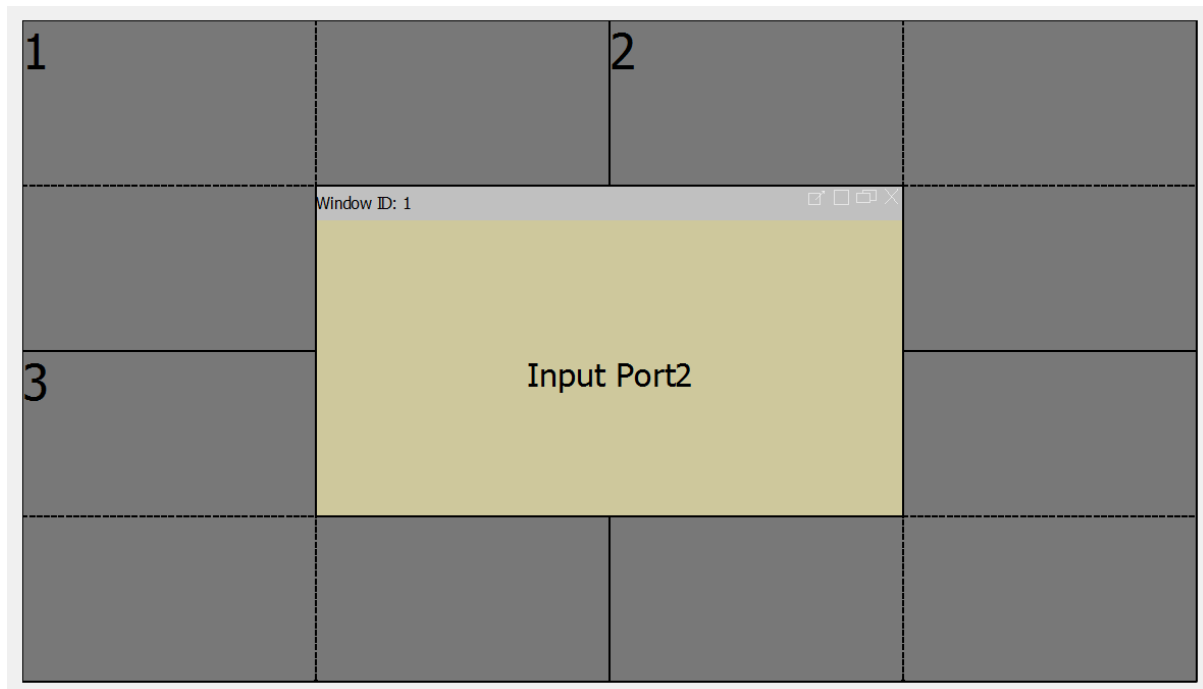
Figure 36: Image re-positioned in centre of video wall

- As you hover your mouse around the edge of the image window you will see arrows appear offering you the opportunity to manually re-size the image
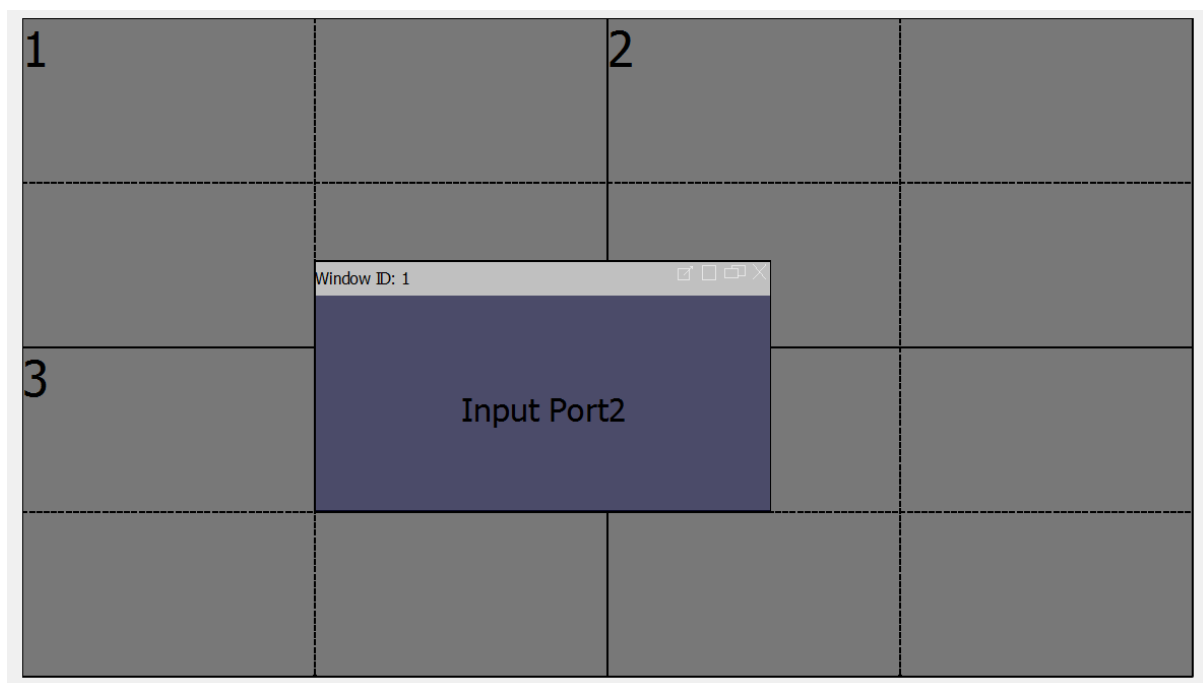

Figure 37: Manual image re-sizing example

<u>NOTE</u> : THE MINIMUM IMAGE RESOLUTION POSSIBLE IS 200x100 PIXELS, THE PRO MATRIX SOFTWARE WILL NOT ALLOW YOU TO MAKE A SMALLER IMAGE

- It is possible for the user to set an initial window size which is not the resolutions of the screens. To do this select the desired input in the input list, then move your mouse to you video wall and click and drag the area you wish the input to be displayed. Once the mouse button is released the image will be dropped in this area and appear on the relative screens

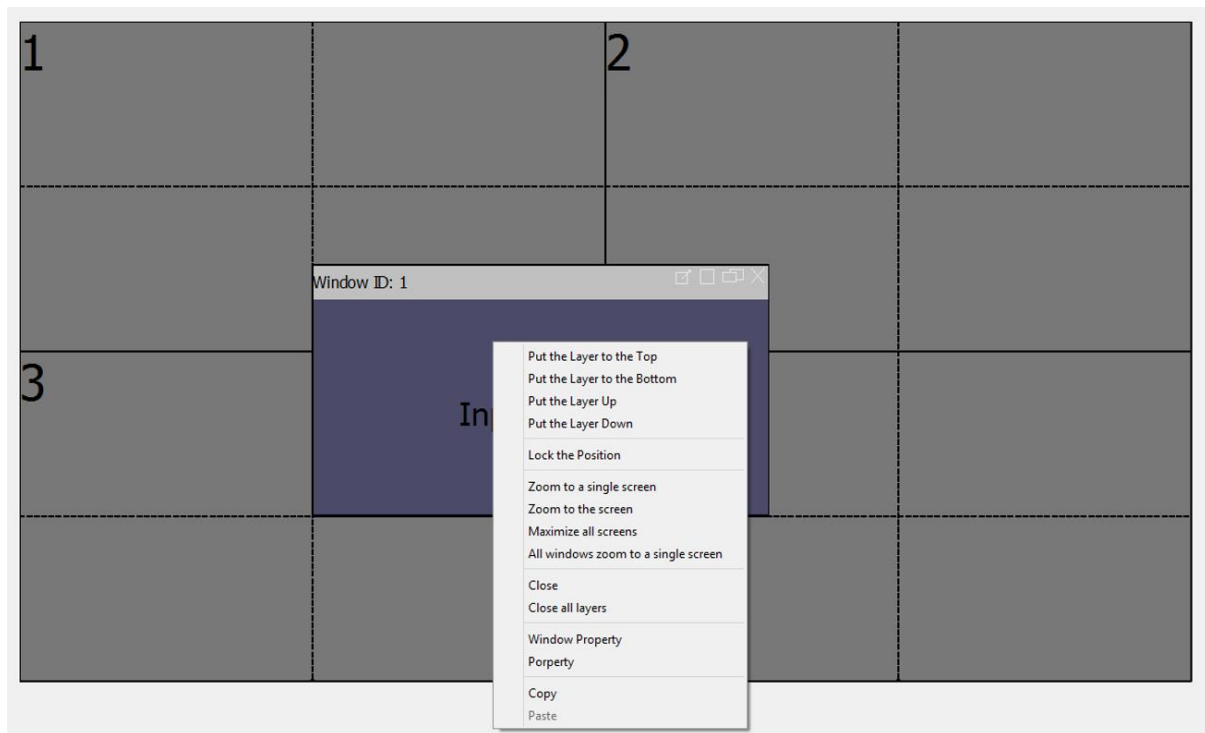## 6.2 ALTERING WIDNOW PROPERTIES

Figure 38: Window property list

- Right clicking on any input on the video wall will bring up the list of options as shown above in figure 38
- Many of these options are applicable only when multiple images are trying to be displayed so will be covered in the next section of this manual, but the first option we will look at here is the Lock the Position option
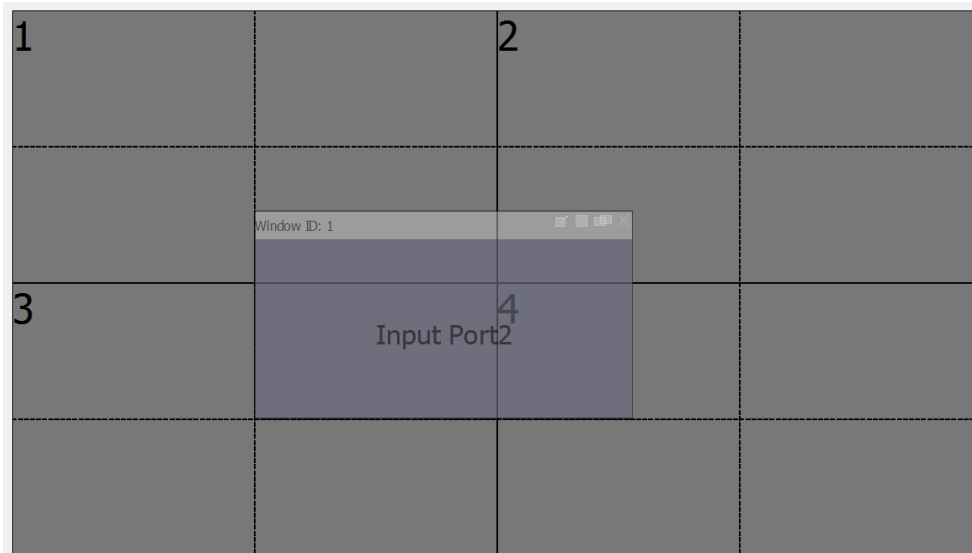
Figure 39: Input position locked example

- **Left clicking on the Lock the Position option will cause the input to change to a transparent appearance as shown above in figure 39. With this option enabled the user is not able to re-position, change the size of or close the image meaning until the lock is removed the image will stay in its current position on the video wall**
- **The next option zoom to a single screen will put the image full screen on only one screen of your video wall configuration. The screen the image fills is determined by the position of the top left corner of the image, designated as pixel 0,0 in x,y co-ordinate terms. When used on the image location from figure 38, pixel 0,0 is in screen 1 so when zoomed to a single screen the image will fill screen 1 as shown below in figure 40**
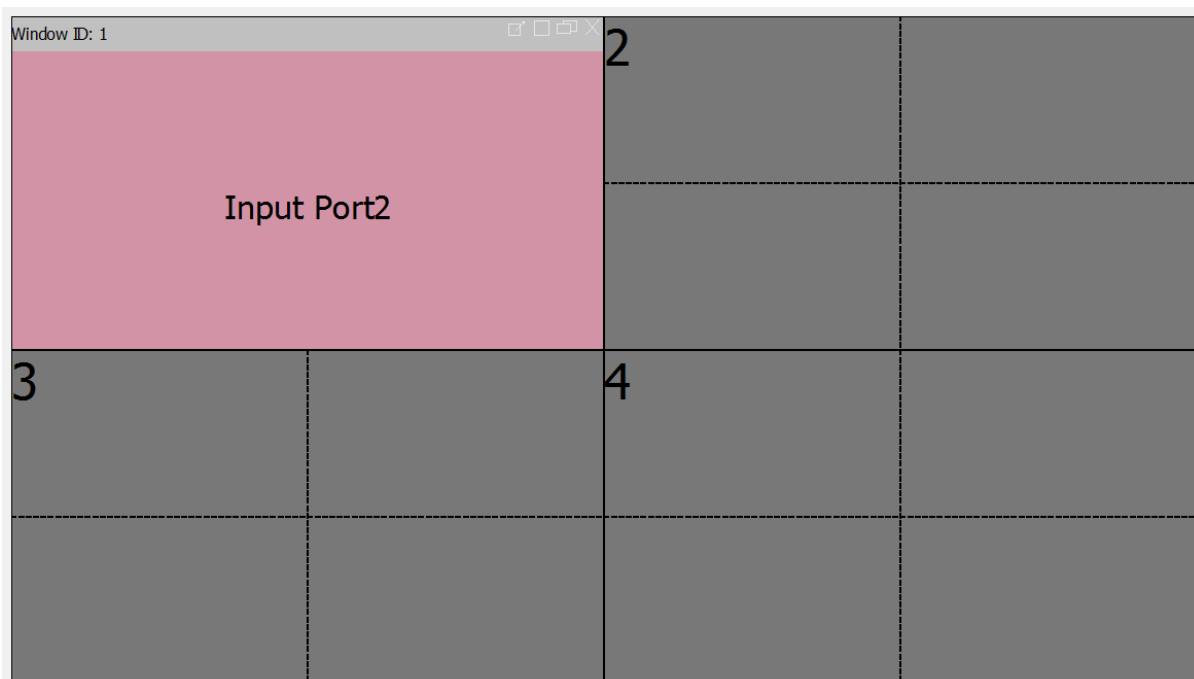

Figure 40: Image zoomed to single screen

- If we were to re-position the image as below in figure 41, pixel 0,0 is now in screen 3 so when zoomed to a single screen it will fill screen 3
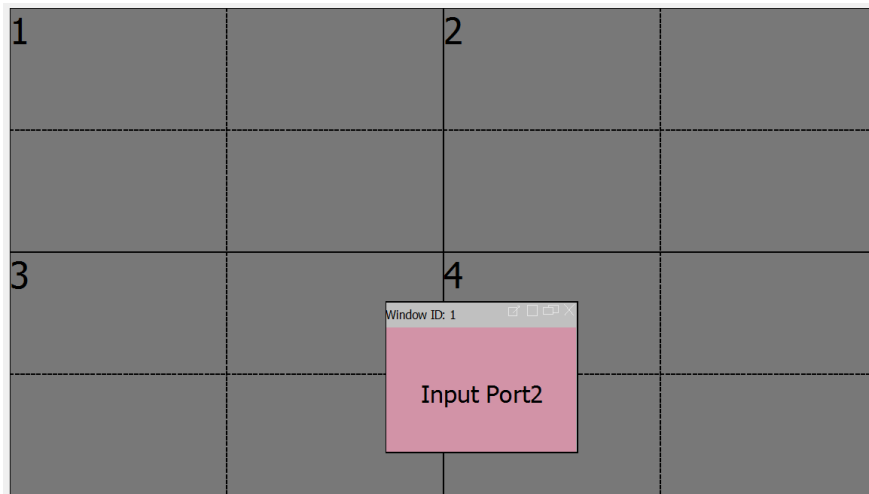

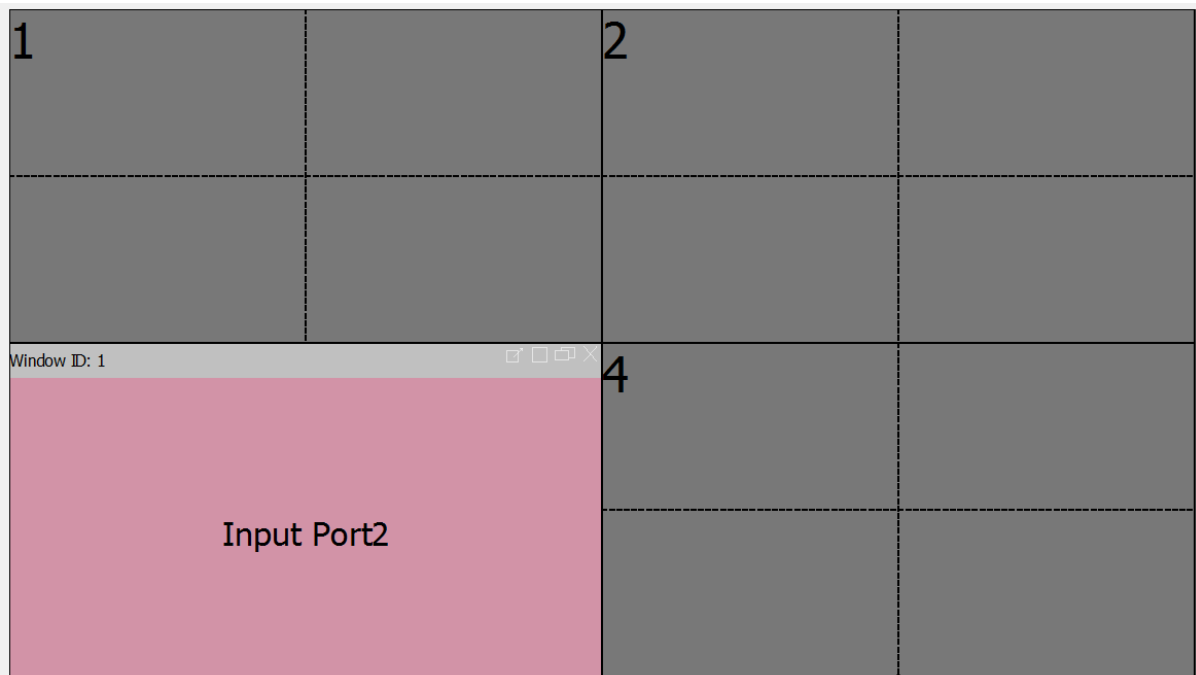*Figure 41: re-positioned image to make pixel 0,0 appear in screen 3*

Figure 42: Image now filling screen 3

- The next option is the zoom to the screen option, this will make the image fill any screens of which part of the image is visible in. Let us say we have the image positioned as below in figure 43
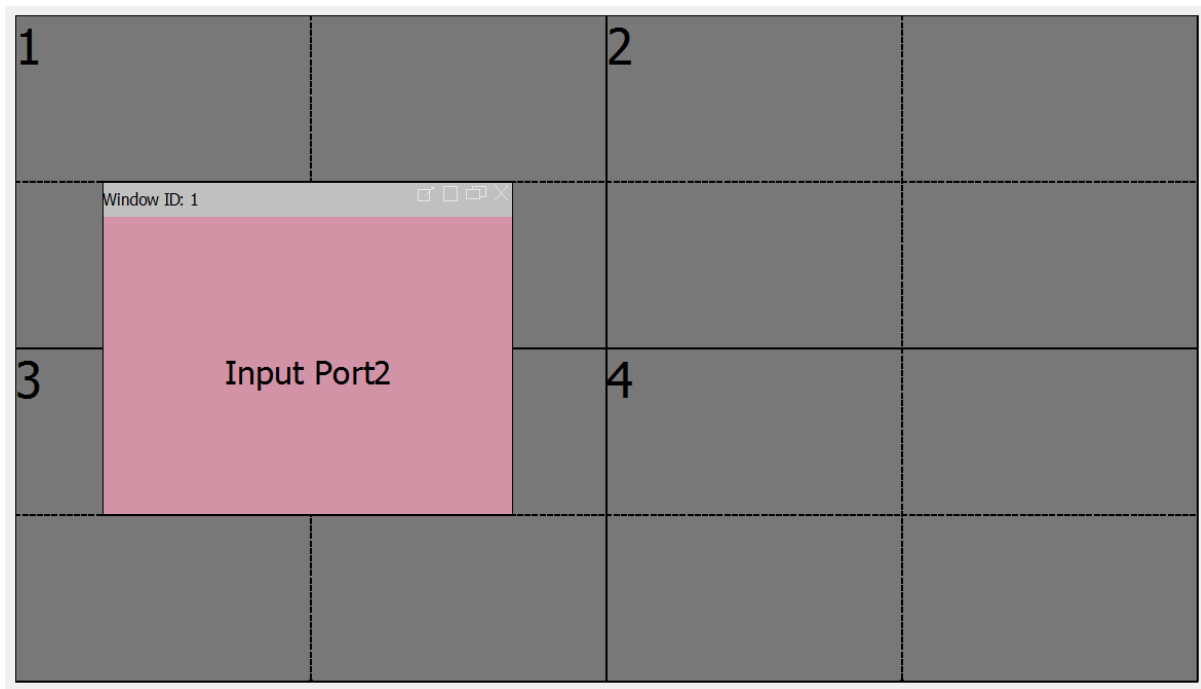
Figure 43: Image present in screens 1 & 3

- **Here parts of input 2 are present on screens 1 & 3, if we now left click on the Zoom to the screen option in the list the resulting image will look as below in figure 44**
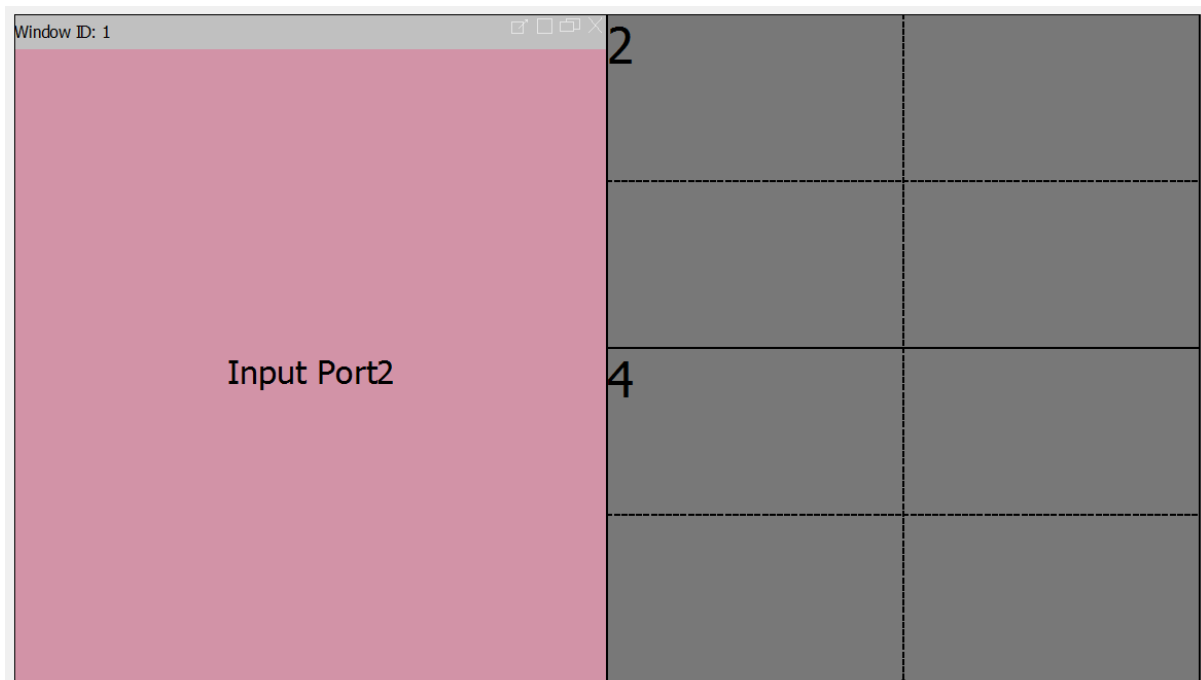

Figure 44: Image scaled to fill screens 1 & 3

- **Another option in the list is the maximise to all screens option, when clicked has the same effect as the maximise button in the top right of the window, stretching your image to fill all screens on your video wall**
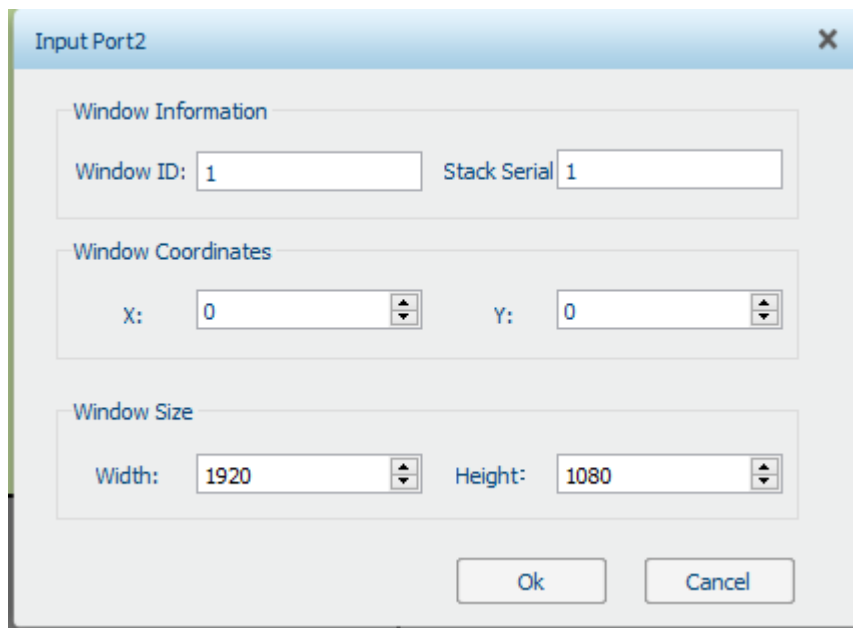- **The close option will remove the image from your video wall**

Figure 45: Window property options

- **Right clicking on an image on the video wall and then left clicking on the window property option will bring up the window as shown above in figure 45**
- **The window is divided in to three sections**
    - **Window information**
    - **Window Coordinates**
    - **Window size**

<u>**Window information**</u>

This data cannot be edited by the user, it simply informing you of the window id and the stack level. These values are only relevant when displaying multiple images on a video wall and will be discussed later in this user guide

<u>**Window Coordinates**</u>

These values determine the X,Y position of the image relative to the entire video wall. The numbers represent the relative position in the wall of the top left of the selected image (pixel 0,0). The example defined here is a 2x2 video wall with screens of resolution 1920x1080 given overall dimensions of 3840x2160. X coordinate range is 0-3840. and Y coordinate range is 0-2160.
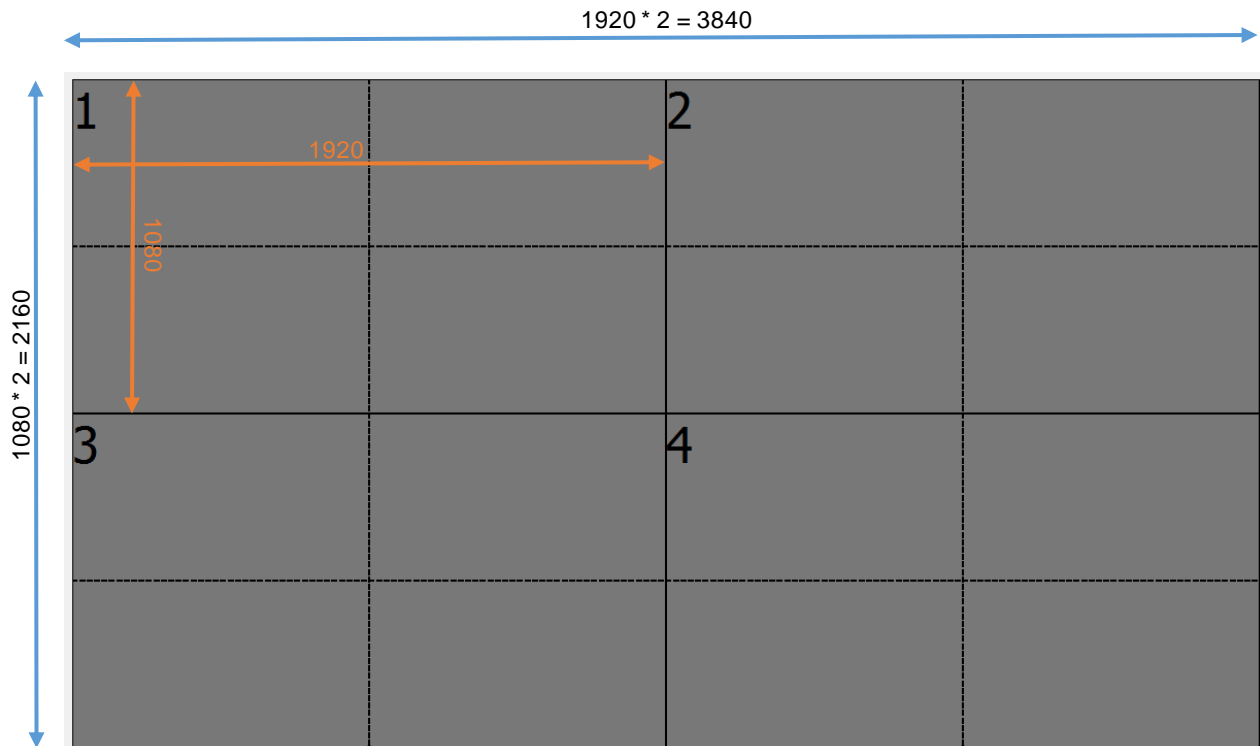
Figure 46: Video wall size illustration

For this example, let us place input 2, full screen on screen 1 and look at the properties window.
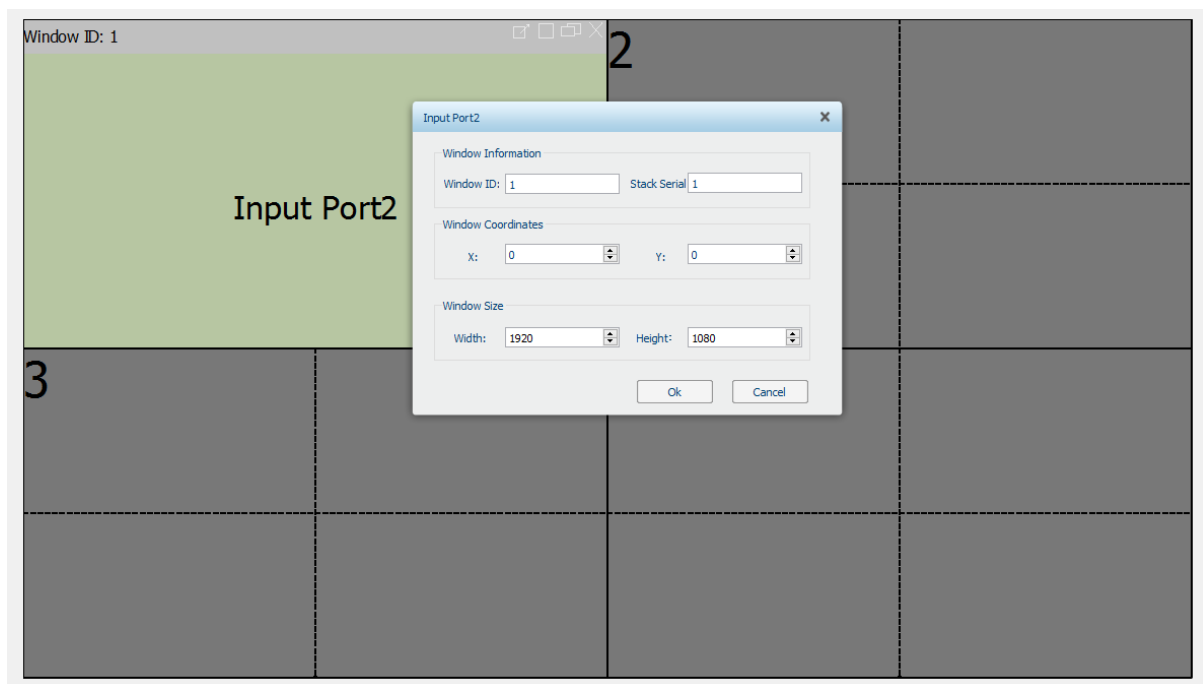

Figure 47: Window property example

We see the X,Y co-ordinates for this image show 0,0, this is because the top left corner of the image is in the top left corner of the overall video wall. Now we can either use the up and down arrows or type numbers within range to change the values and hence the position within the wall. Once you have the position you wish click ok and your change will take effect.
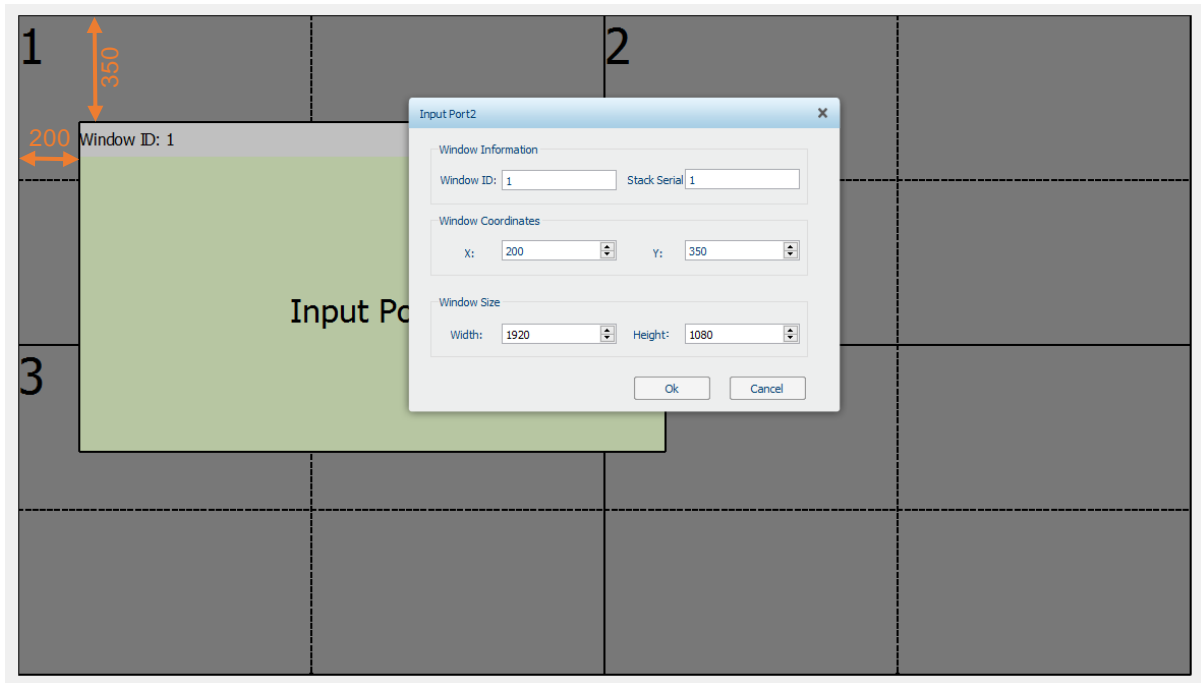

Figure 48: Altered window position illustration

Window Size

The final option is to alter the window size, the physical size of the image on the screen. Continuing from the example previously we had a **1920x1080** image which had been shifted in position. Now using the arrows or typing in to the boxes we can change these values, click ok for the changes to take effect.
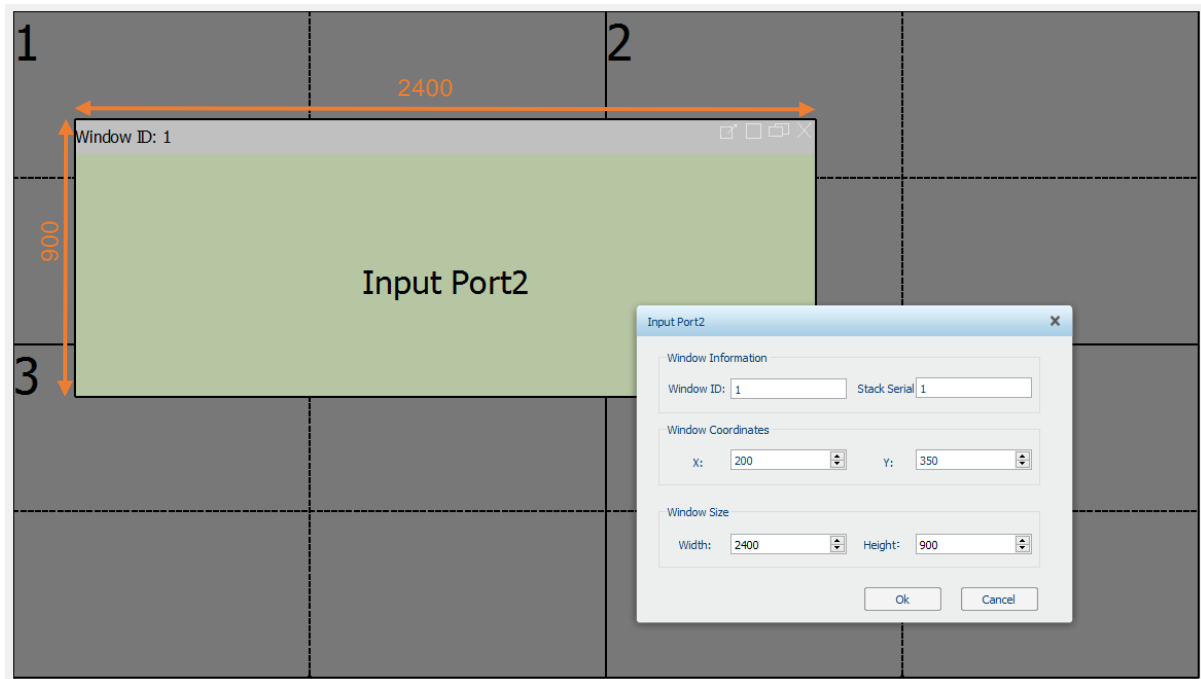
Figure 49: Window re-sizing illustration

<u>NOTE</u> : DURING THE RE-SIZING OF A WINDOW THE POSITION OF PIXEL 0,0 WILL NOT CHANGE SO THE SOFTWARE WILL ONLY ALLOW YOU TO SIZE UP TO A MAXIMUM OF OVERALL WIDTH OF VIDEO WALL MINUS CURRENT X COORDINATE BY OVERALL HEIGHT OF VIDEO WALL MINUS CURRENT Y COORDINATE. AS DISCUSSED PREVIOUSLY THE SMALLEST IMAGE SIZE WHICH CAN BE SET IS 200x100

6.3 MULTIPLE IMAGE CONTROL

- All of the previous examples in this user guide have dealt with a single image being sent to the video wall now we will look at how to send multiples and how the images can interact with one another
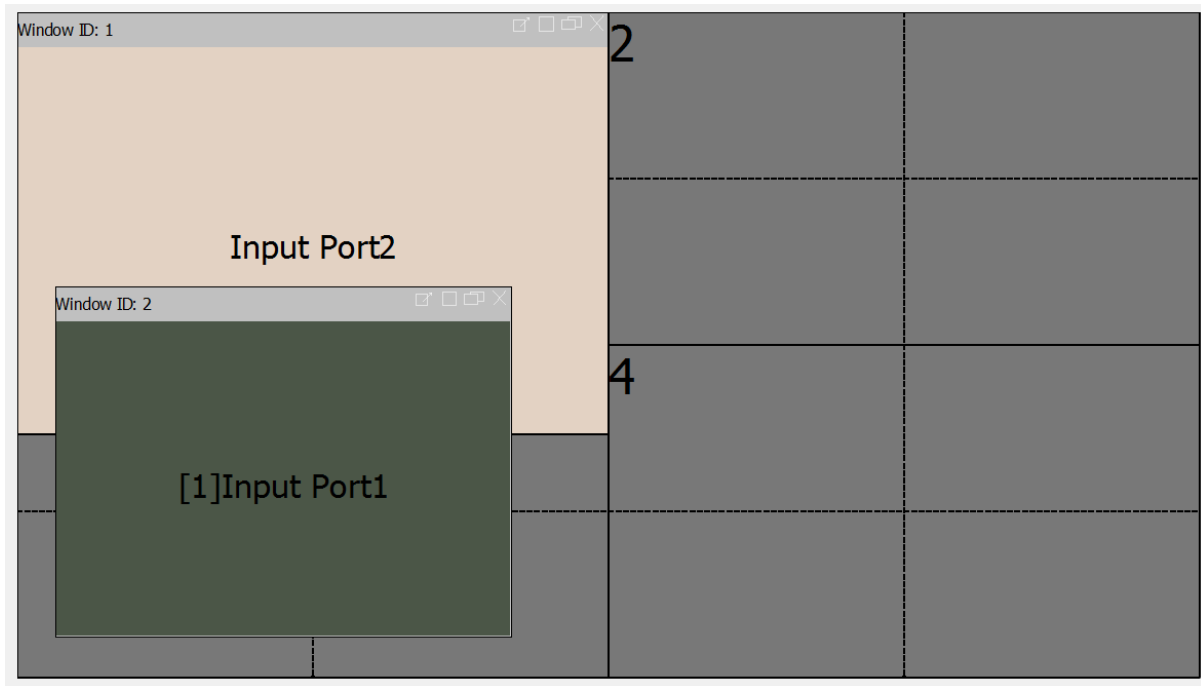- Starting with below example we have input 2 and input1 displaying on the video wall

Figure 50: Multiple input example

- The window ID in the top left is an identifier for each input window, this is the number the software uses to identify each input window being displayed, so now we have 2 windows we have two separate window IDs
- The window ID assigned is the lowest available integer when a signal is added; for example, if 3 inputs are added to the window and then the window with ID 2 is removed the next input which is added to the video wall will receive the ID 2
- In figure 50 input 1 and 2 are both overlaying screens 1 & 3, to determine which input sits on the top and which on the bottom the Pro Matrix software uses layers to determine what portions of what images are displayed
- To change the layer position right click on the window you wish to move up or down
- The top four options in the subsequent menu all deal with the layer positioning. The user can move the layer up by one, down by one or move to the top or bottom
- In the example from figure 50 input 1 is currently on top of input 2, if we right click on input 1 and then left click on put the layer down, input 2 will now overlay input 1
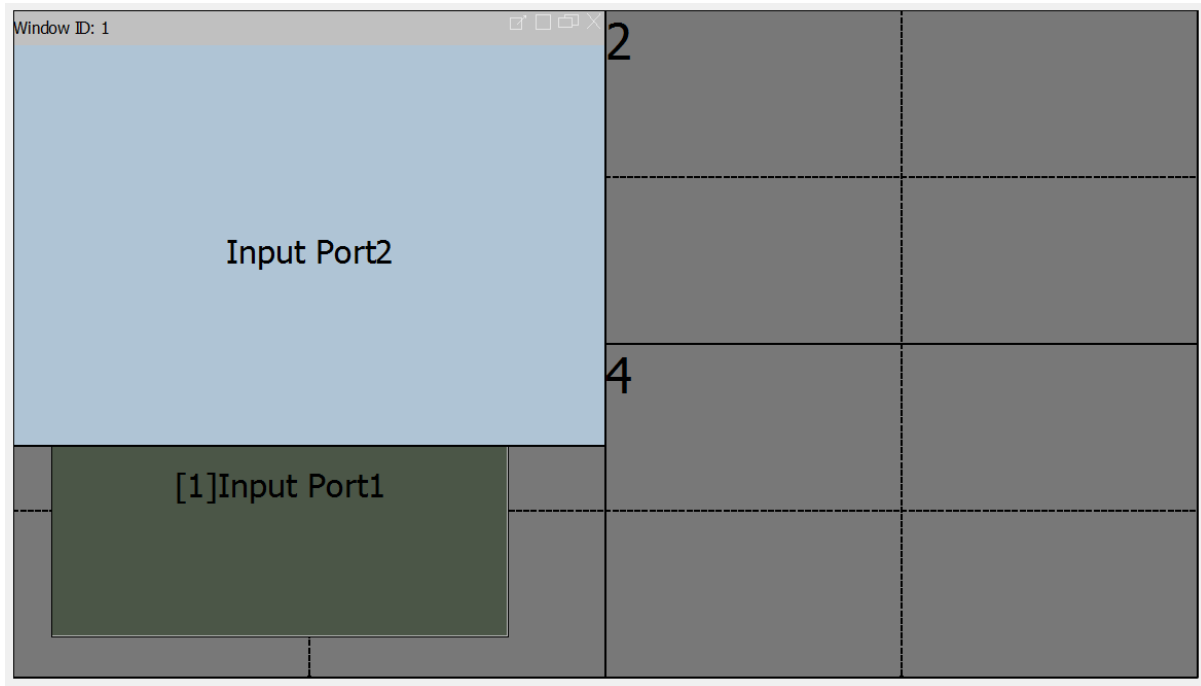
Figure 51: 2 input layer example

NOTE : EACH SCREEN IS ONLY ABLE TO HANDLE 2 LAYERS, THAT MEANS YOU MAY ONLY PLACE FULL OR PORTIONS OF A MAXIMUM OF 2 INPUTS PER SCREEN. IF FOR EXAMPLE WE TRIED TO ADD INPUT 3, FULL SCREEN TO SCREEN 3 THIS WOULD NOT BE POSSIBLE AS SCREEN 3 IS ALREADY DISPLAYING PORTIONS OF INPUTS 1 & 2. WHEN WE TRY TO DO THIS THE FOLLOWING WARNING WILL APPEAR
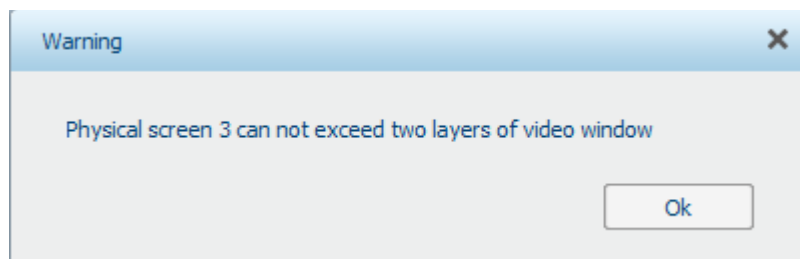

Figure 52: greater than 2 inputs per screen warning

- To demonstrate the need for moving the layer to the top or bottom we will slightly modify the previous example by making input 2 full screen on screen 1 and adding input 3 to the bottom section of screen 3, leaving our video wall looking as below
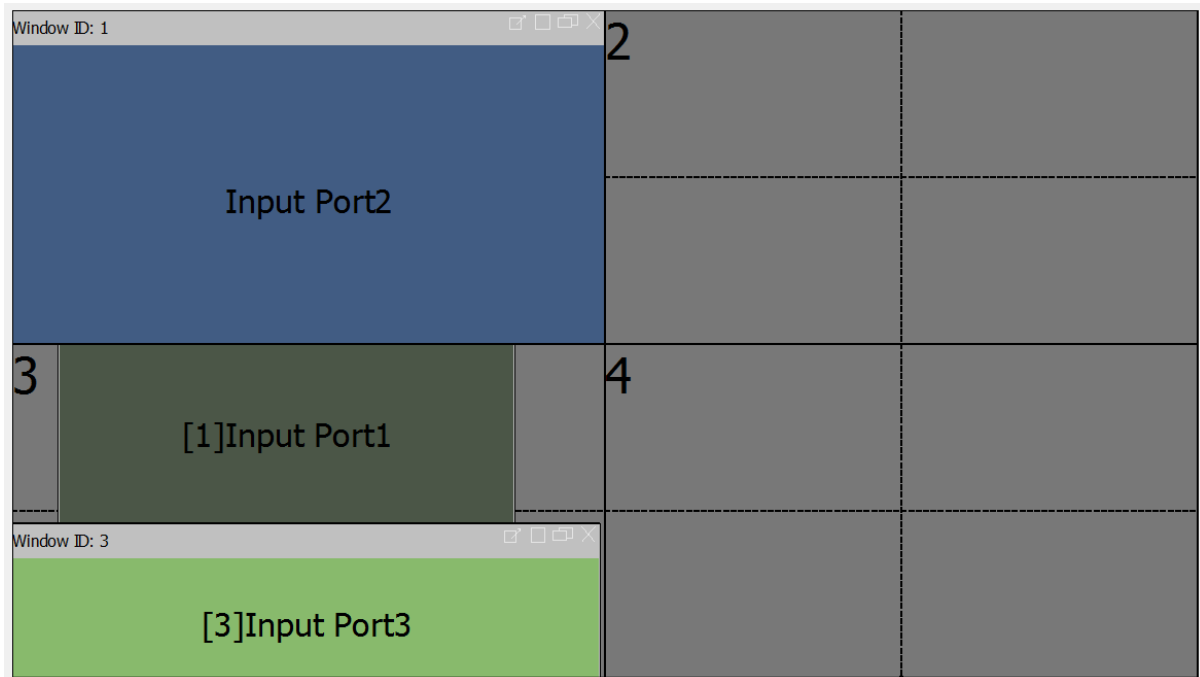
Figure 53: 3 input layer example

- **Using this example we are not breaking the constraints of two layers per screen but adding a complexity in the fact that now input 1 is behind both input 2 and input 3**
- **Right clicking on input 1 and using the Put layer to the top option will now mean it moves inputs 1 layer up in both screen 1 and screen 3 and make the whole of input 1 visible**
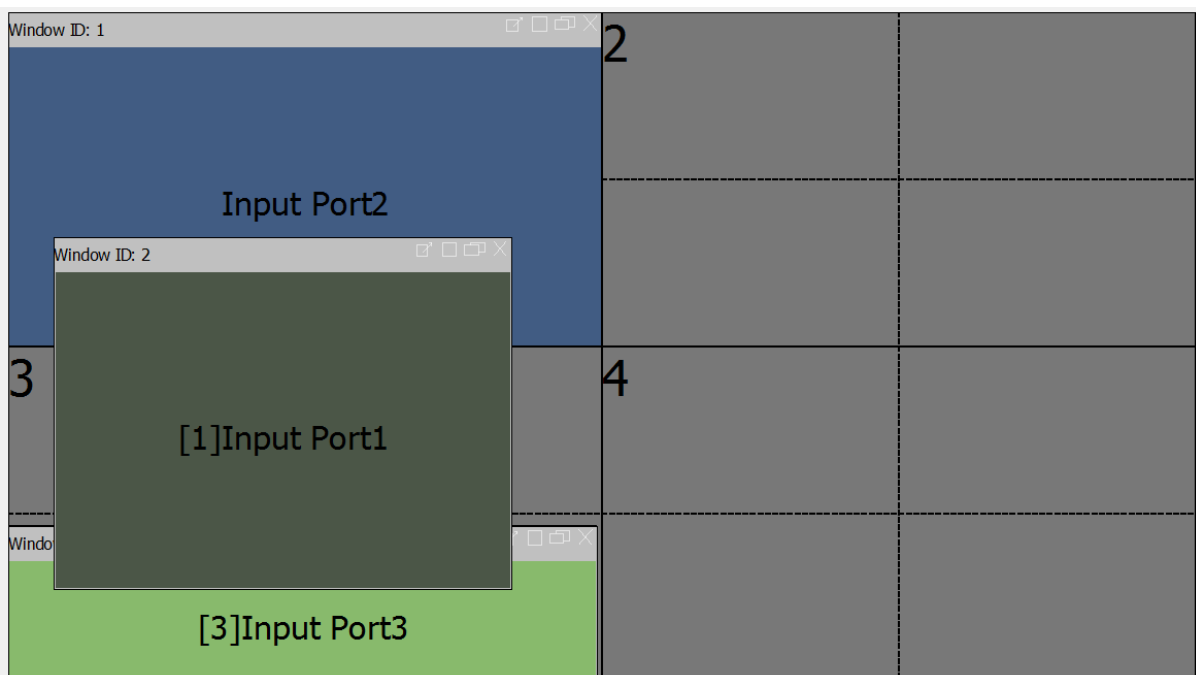

Figure 54: Layer to top example

- **The put layer to bottom option can be used to reverse the process**

- **Right click on an input on the video wall and the next option seen applicable to multiple inputs is the All windows zoom to single screen option**
- **Left clicking on this option will mean all inputs will be displayed full screen in the screen location where the top left corner (0,0 pixel) is located in maintaining all current layer settings. The below example shows the result this would have on the setup from figure 54**
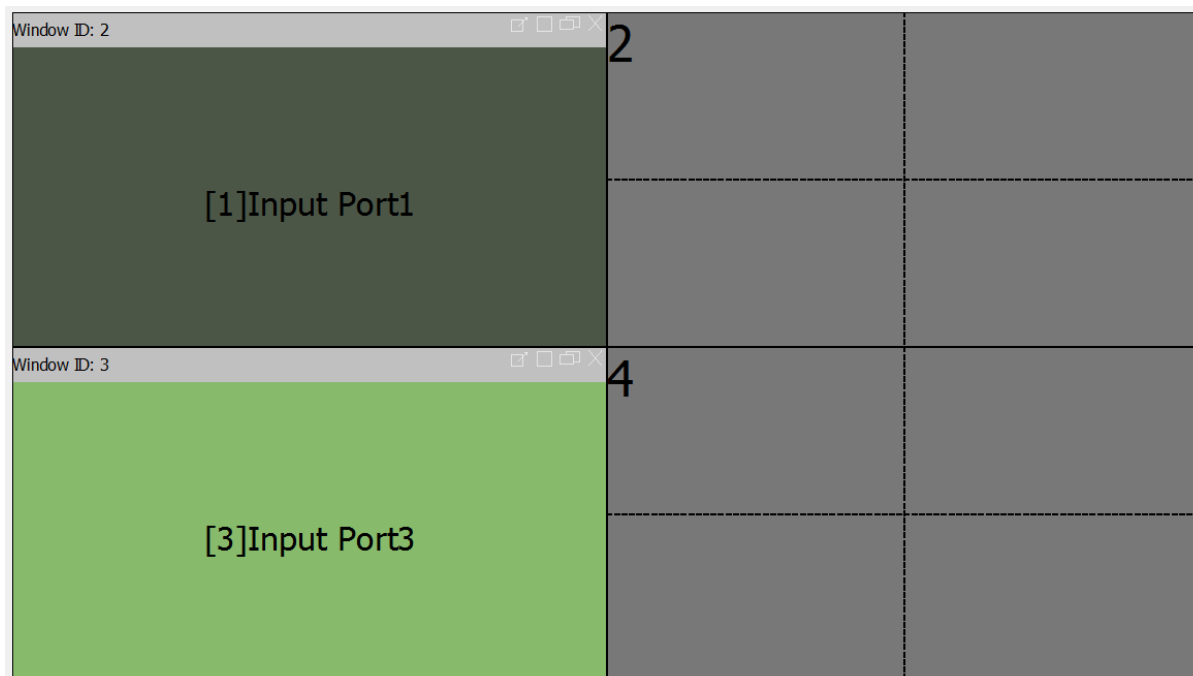

Figure 55: All windows zoomed to single screen example

- **Input 1 has hidden input 2 due to the layer settings but all screens are now full screen in the screen location where their 0,0 pixel location previously was**
- **The final option relevant to multiple images is Close all layers. Clicking on this will clear everything from the current video wall leaving the screen blank. A confirmation window appears to make sure you want to do this to stop this operation being performed in error.**

7 SPLICE PLANS

- The Pro Matrix software allows users to save video wall configurations and call them back in just a couple of clicks making switching between video wall layouts very easy
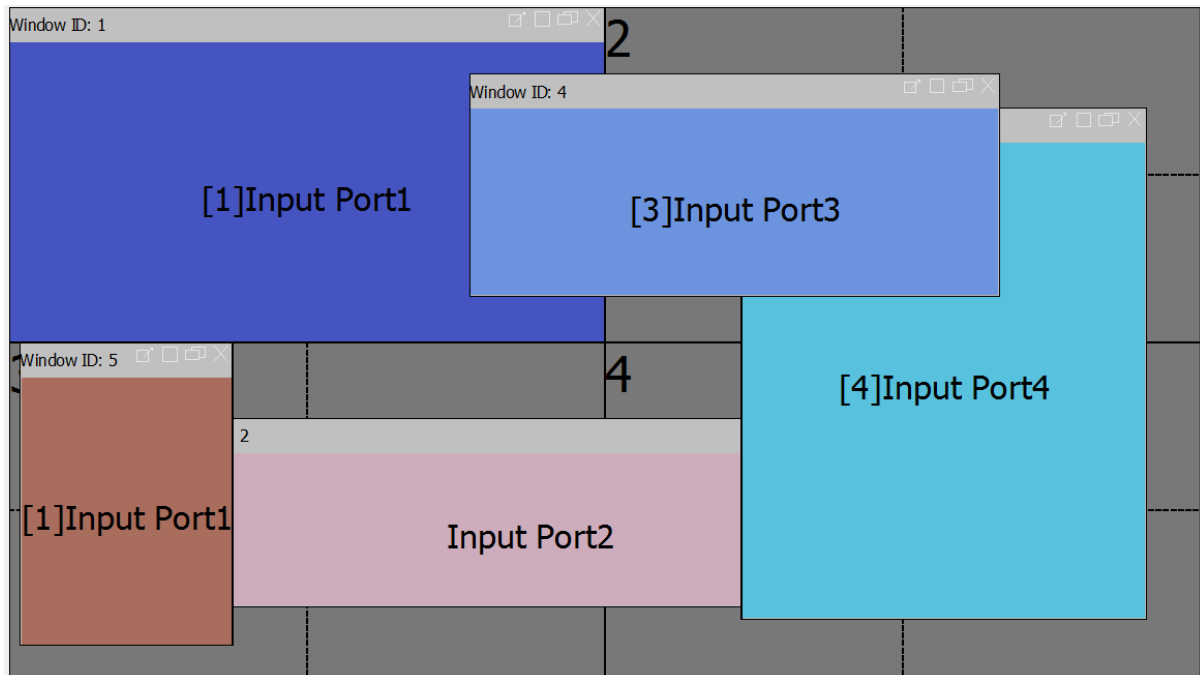

Figure 56: Example for saving matrix plan

- Starting with the above example, head to the right hand side of the Pro Matrix Software window and click on the tab `splice plan(device)`, when you do this a list of 12 slice plans will be shown
- Right clicking on any of these 12 options will offer you 3 options
  - Save Plan
    - Save the current video wall configuration (input assignment and layout)
  - Invoke Plan
    - The saved configuration in this location will be set to the current video wall
  - Clear Plan
    - Will remove the contents in this plan location

NOTE : EACH OF THE 5 SCREEN WALLS IN THE PRO MATRIX SOFTWARE HAS 12 INDIVIDUAL PLANS AVAILABLE. WHEN A WALL IS SELECTED THE 12 PLANS RELEVANT ONLY TO THAT WALL WILL BE VISIBLE IN THE SPLICE PLAN LIST