

Wall Controller

User Guide

2nd Generation Wall Controllers

VSN972, VSN1172

VSN982, VSN1182

VSN1192



Engineering the **world's best** visual solutions


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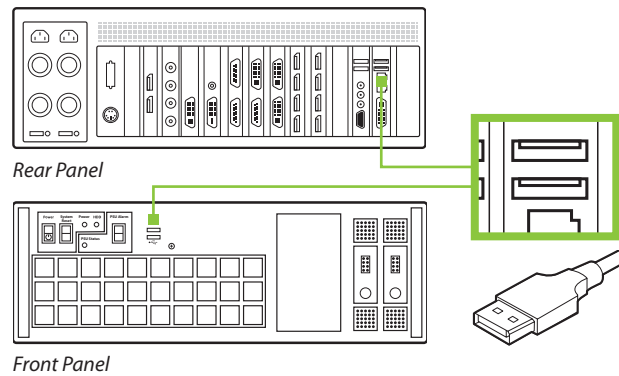
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STEP 1 - KEYBOARD AND MOUSE

Connect Keyboard and Mouse to convenient USB Ports.

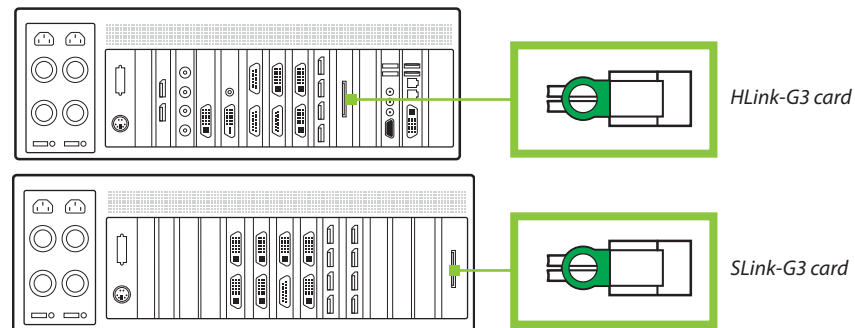
USB Ports are located on both the front and rear panels of the system. If the intention is to mount the VSN wall controller in a rack, it may be more convenient to use the USB ports on the front for easy access.

- 4 x external USB 2.0 ports (2 front panel, 2 rear panel)
- 2 x external USB 3.0 ports (rear panel)



STEP 2 - CONNECT EXPANSION CHASSIS (OPTIONAL)

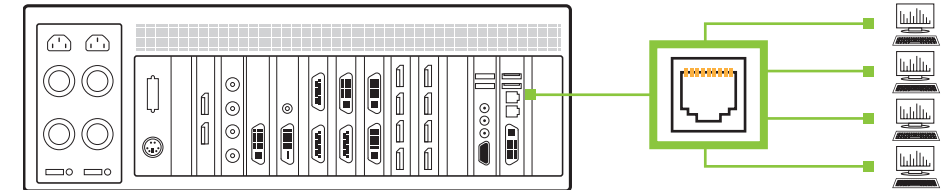
A VSN Expansion Chassis may have been purchased as part of a large video wall system or ordered separately. Connect the HLink-G3 card in the main system to the SLink-G3 card in the expansion chassis using the ExCable-G3. The ExCable-G3 is packaged and shipped with the VSN Expansion system.



For connecting Optical Expansion products please consult the User Guide located on the documentation media.

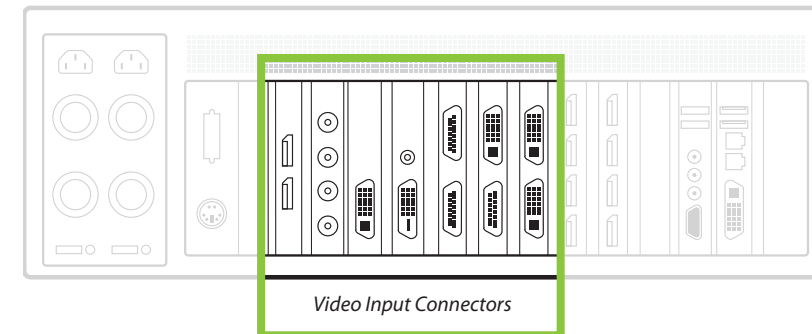
STEP 3 - CONNECT TO A NETWORK (OPTIONAL)

If the VSN wall controller is to be used over a network, connect the controller to a network point (cables not supplied) using one of the LAN connectors on the rear panel.



STEP 4 - CONNECT INPUT SOURCE

As each VSN wall controller is custom built, the number and type of video inputs will differ from system to system. If you have purchased a VSN wall controller with video inputs, the input connectors are located on the rear panel as shown in the example below:

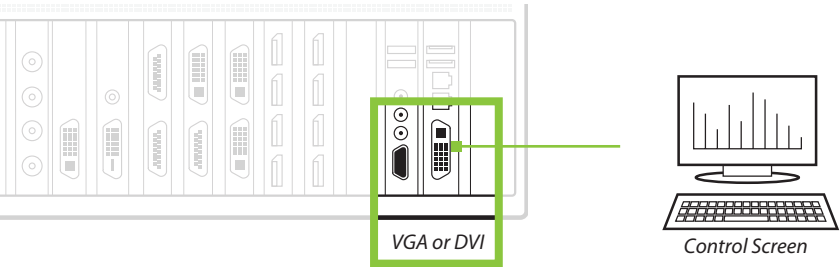


The printed input/output diagram shipped with your VSN wall controller shows where the video inputs are located and the types of input connectors installed in your system.

Connect the input sources to the relevant video input connectors, cables may be supplied for some inputs, see content list for details.

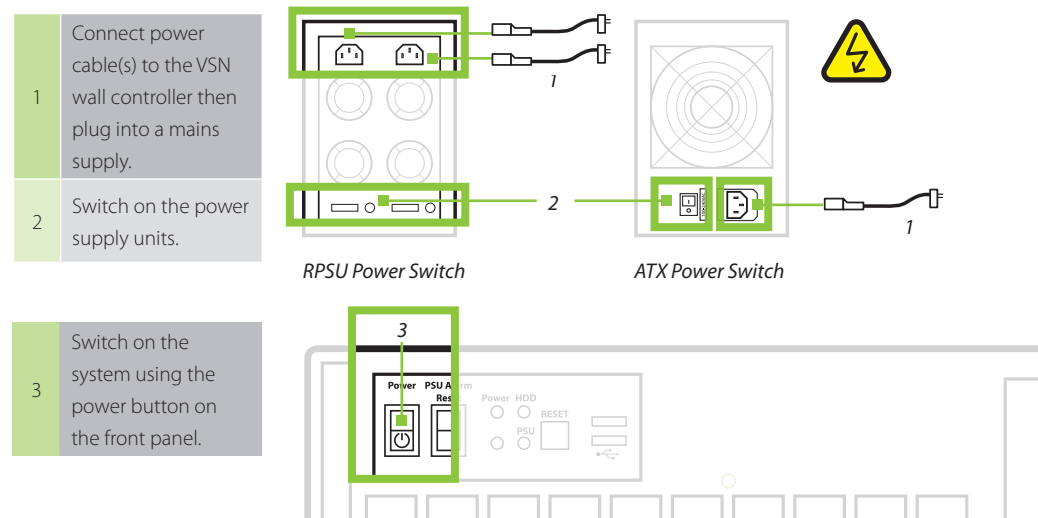
STEP 5 - CONNECTING A CONTROL SCREEN

Your VSN wall controller is configured to use a control screen connected to the systems internal graphics device prior to leaving the factory. Connect the control screen to the motherboard graphics output connector on the rear of the VSN wall controller. A control screen is initially required to set up the system including the operating system (Windows 10).



STEP 6 - POWERING UP THE SYSTEM

VSN wall controllers are supplied with either a Redundant Power Supply Unit (RPSU) or an ATX power supply. An RPSU power supply requires two power cables and an ATX supply requires one power cable. All power cables are supplied with your VSN wall controller.

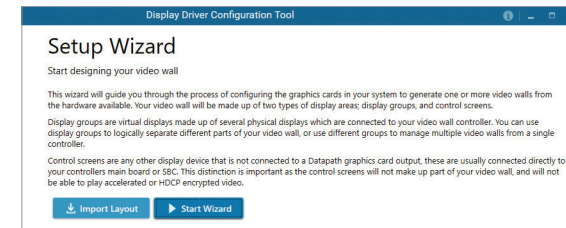


Note: If you have a VSN Expansion Chassis connected to the main unit (Step 2), the power supply units on the expansion chassis should be switched on prior to the main VSN wall controller. There is no requirement to switch on the expansion chassis on the front panel (3).

STEP 7 - WINDOWS® 10 SETUP

Once the system has been built and configured in our factory the operating system is resealed, therefore when switching the system on for the first time, the operating system setup commences. You will be prompted to enter information to set up the Windows 10 operating system.

There is no requirement for users to activate Windows 10, activation is done automatically. An internet connection is required for the automatic activation.



STEP 8 - DISPLAY CONFIGURATION

Once the Windows 10 setup is complete, the VSN wall controller will reboot and the control screen will show a Windows desktop displaying the Display Driver Configuration Tool (DDCT). The DDCT will guide you, step by step, through the configuration of the graphics outputs, enabling you to quickly create one or more video walls.

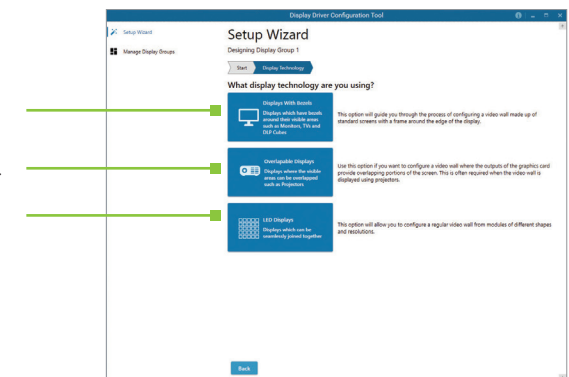
On the final stage of the configuration, the DDCT will recommend the optimum way to connect your VSN wall controller to your video wall displays.

A full description of the DDCT can be found in the User Guide located on the Documentation Media.

It is recommended that you carefully read the instructions on each page of the wizard. To commence your wall configuration, click on "Start Wizard".

Select the type of displays being used on your wall:

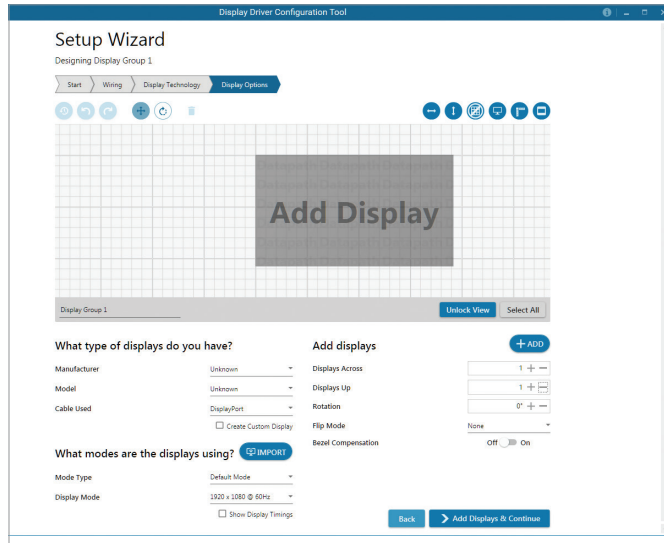
- Displays With Bezels – Monitors, TVs and DLP Cubes.
- Overlapable Displays – Projectors.
- LED Displays.



Wall Controller Quick Start Guide

Click on “Continue”.

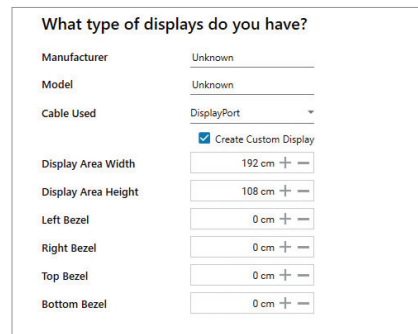
The tool will then display a configuration page for the type of display you selected.



What Types of Displays do you Have?

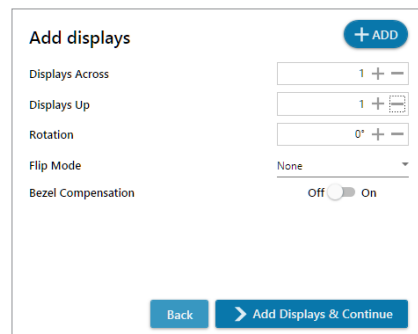
Use the “Manufacturer” and “Model” dropdown lists to select the displays you are using for your wall. If the wall consists of different displays, select each one in turn to configure the type of display. The DDCT has an extensive database of displays, however if your display is not contained in the list, you can input the details manually by selecting “Create Custom Display”.

It is strongly recommended that measurements are taken from the display manufacturer’s specifications if available.

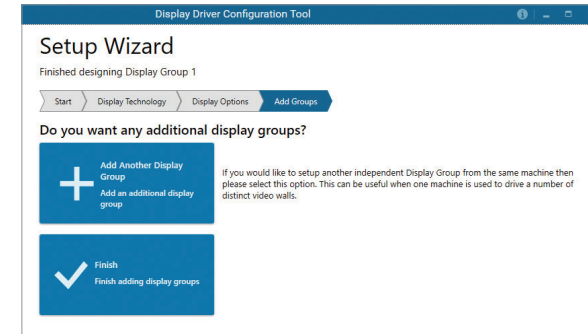


Add Displays

Add Displays is available for displays with bezels or overlappable displays. Use the “Displays Across” and the “Displays Up” to create your Display Group. Once created, configure the displays using “What Type of Displays Do You Have?” When using overlappable displays “Display Overlap” becomes available, enabling you to select a percentage of overlap between displays.

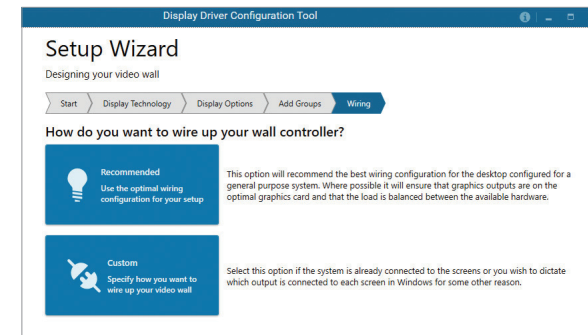


Wall Controller Quick Start Guide



At this stage of the set up you can choose to create another independent display group from the same system, this would be considered if one machine will be used to drive a number of separate video walls. See User Guide for more details.

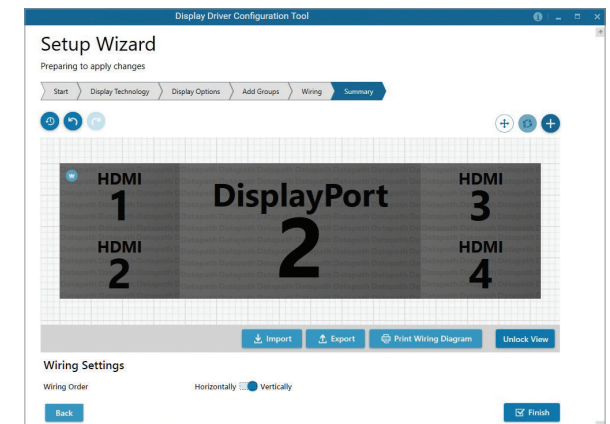
If another display group is not required, click on “Finish” and the following page is displayed:

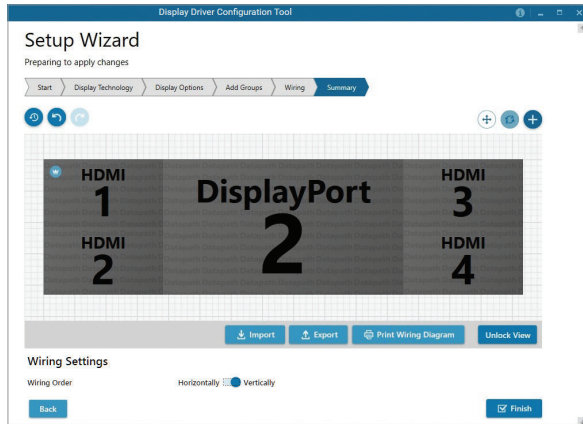


The DDCT can recommend the best wiring configuration for the displays and your system, ensuring the load is balanced between the graphics hardware. Click on “Recommended” for the optimal configuration for your system.

(Should you wish to manually wire your system and decide for yourself which output is connected to which display, click on “Custom”).

You will be next be presented with the Summary page:

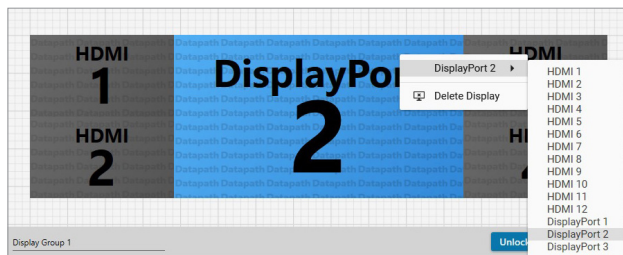




If you chose to have the DDCT configure your wiring, this page will display the recommended display connections, as shown above. Connect each display to the corresponding output connector on the rear of the VSN wall controller. The printed input/output diagram shipped with the your VSN wall controller shows where the display output connectors are located on your system. If your VSN wall controller is connected to a printer, you can print a copy of the wiring diagram using "Print a Wiring Diagram".

Note: The Datapath Diagnostic Suite must be installed to print a wiring diagram. The suite can be downloaded from the Datapath website downloads page should it not already be installed on your system.

To manually select the outputs right click on the display group and select "Edit", you can then select each individual display and allocate your preferred output. Right click on a selected display to reveal the list of outputs available:



When all outputs have been allocated by either "Recommended" or "Custom" click on "Finish". You will then be prompted to save the changes to your video wall and restart your system. When restarted, the Windows Desktop will be displayed across the wall.

You can access the configuration tool at anytime should you wish to make changes. Right click on the desktop and select Display Driver Configuration Tool from the menu.

STEP 9 - WALLCONTROL 10 (OPTIONAL)

Before opening the WallControl 10 Client interface you may need to start the WallControl 10 Server should it not start automatically. The Server icon is displayed in the System Tray.



Server icon

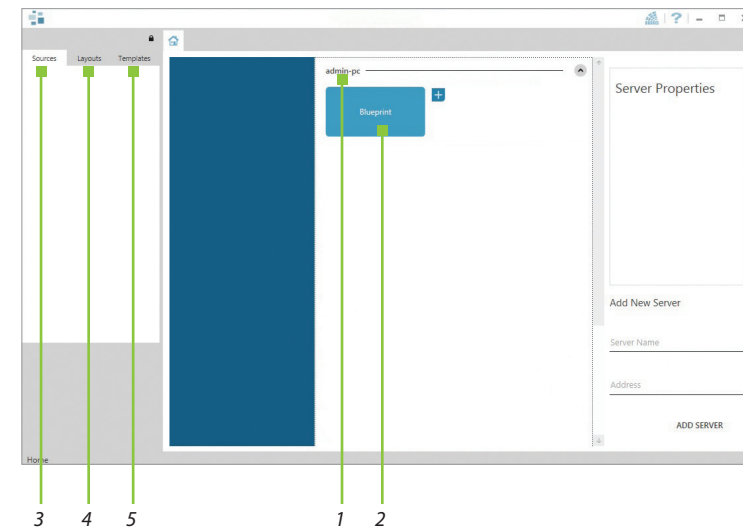
If the Server fails to start automatically, start the Server by clicking on it in the "All Programs" menu. The WallControl 10 Client will only detect servers that are running.

Start | All Programs | WallControl 10 - Server

Open the WallControl 10 Client

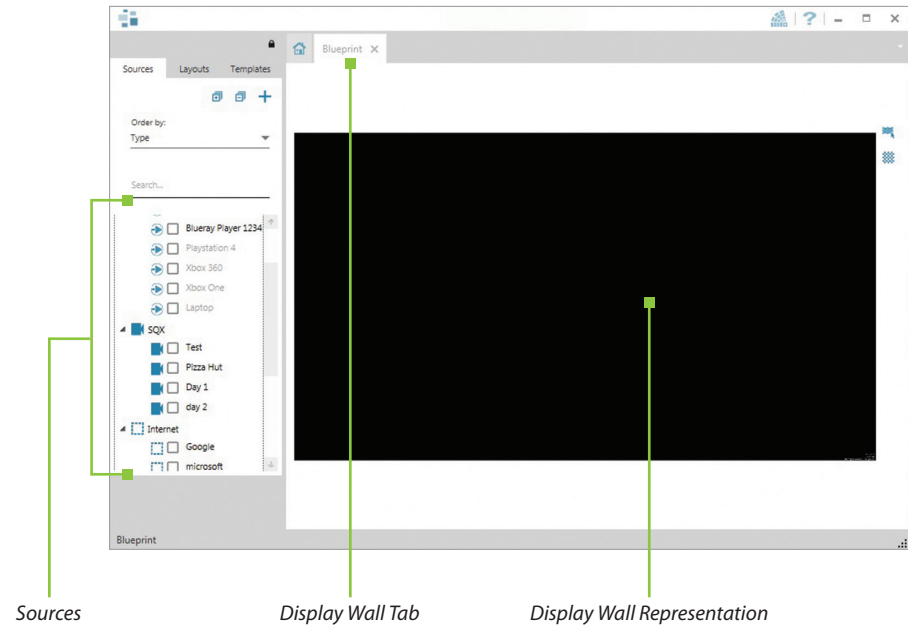
Start | All Programs | WallControl 10 - Client

The WallControl 10 - Client



- 1 Indicates the server you are connected to.
- 2 A representation of the display wall associated with the server.
- 3 Sources Tab - Displaying all the sources connected to the server for use on your display wall.
- 4 Layouts Tab - Use to save, recall and share display wall layout configurations.
- 5 Templates Tab - Use templates to assist in the design of specific display wall layouts.

Click on the display wall representation (2) as shown on the previous illustration, to open the display wall tab.



When opened, the display wall tab shows a live representation of the physical wall and the sources available to display on it. To place a source on the video wall, simply click on the required source in the sources tab and drag it onto the display wall representation. (**Note: It is not possible to drag Application sources, double click to open**).

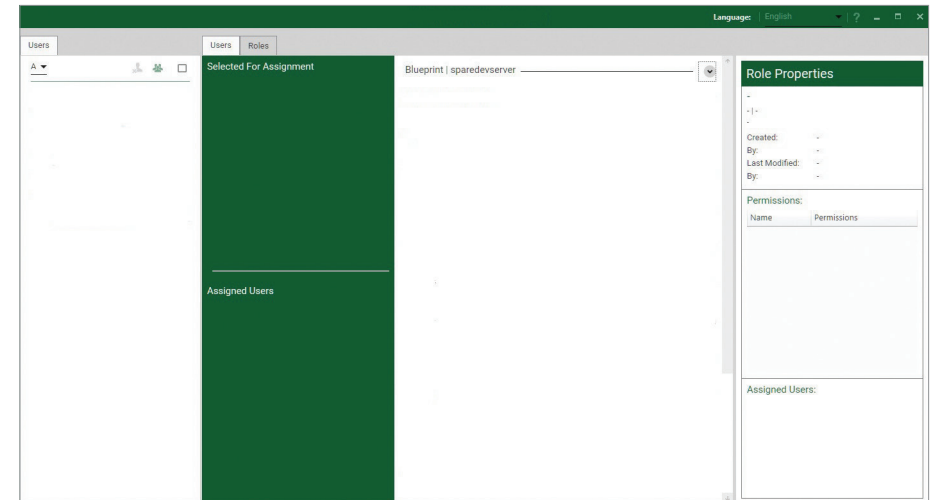
The application help file contains information explaining how multiple sources can be selected, how to use and create templates and how to save, recall and share layout files.

The WallControl 10 - Security Administration Client (Only Available with WallControl 10 Pro)

A WallControl 10-Pro serial dongle must be inserted into a vacant USB port. If the dongle is removed or swapped, the Security Client will not open and an error message is displayed, therefore it is important the dongle is not removed.

If you have purchased WallControl 10 Pro, the licence dongle can be located in the accessories box.

 Start | All Programs | WallControl 10 - Security Administration Client



The WallControl 10 - Security Administration Client allows Administrators to assign specific users to roles on a wall by wall basis. For example, a user can be assigned a role allowing unrestricted access on one wall but assigned a role on another wall which only allows the opening of pre-determined layouts.

Prior to the Security Client being used for the first time, the SecurityOnOff.exe program must be running to enable security protection for the application. To manually run the SecurityOnOff.exe, ensure you are logged into Windows with Administrator Rights.

Locate and double click on the SecurityOnOff.exe file:

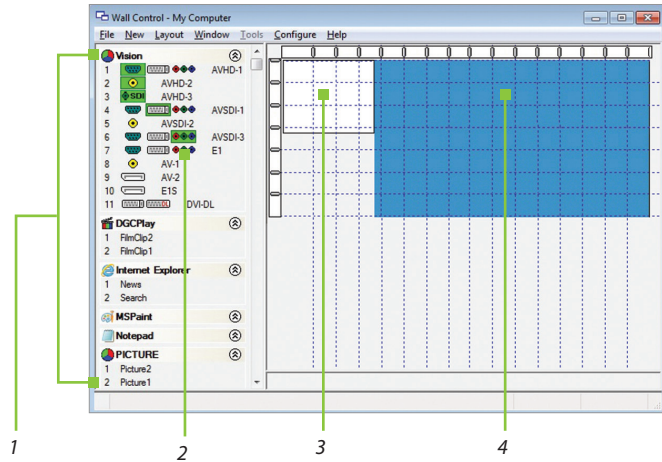
Program Files | WallControl 10 | Security Server | SecurityOnOff

The WallControl 10 Security Application help file contains information on how to:

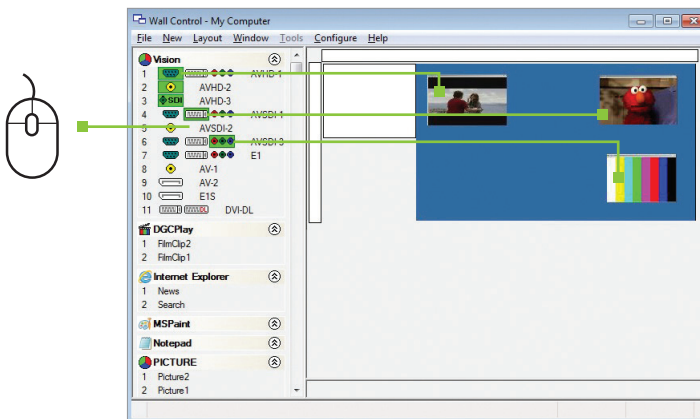
- Import users from the Windows Active Directory into the database.
- Create and edit roles.
- Assign permissions to providers, layouts and sources giving specific roles access to them.
- Assign roles to walls.

STEP 10 - WALLCONTROL-RED/SQX (OPTIONAL)

 Start | All Programs | Wall Control | Wall Control-My Computer



- 1 The icons displayed in the application toolbar identify which type of source is available to each input.
- 2 Icons highlighted green indicate an active capture for that particular input.
- 3 Representation of the control screen if one is being used.
- 4 Representation of the video wall desktop.



To open a video window click and drag an active capture into the Wall Control application.

Use the Help Menu for a comprehensive guide on the features of the Wall Control application.

CHAPTER 1 - INTRODUCTION

1.1 Introduction

Congratulations on your purchase of the Datapath Wall Controller system. The wall controller has been manufactured and tested to the highest standards offering unparalleled quality and reliability. The aim of this user guide is to assist you through the installation of the system safely and effectively and act as a reference guide for future use. Do not switch on the system until all the relevant cables have been connected.

1.2 Systems

The systems covered by this user guide are the VSN9x2 and the VSN11x2 video wall controllers and expansion chassis ranges.

1.3 How the User Guide is Organised

The user guide is broken down into chapters and each chapter into sections. Chapters, sections and pages are numbered individually. Pages are numbered in Arabic numerals with the exception of the cover page (no numbering).

1.4 Fonts and Symbols

1.4.1 Fonts

The font used throughout the user guide is Myriad Pro however the following font styles mean:

Bold	Used to describe menu titles, buttons in software or elements that you must type exactly as shown in the Command Line Interface
Ellipsis (...)	Parameter that can be repeated several times in a command line.
Between brackets ([])	Optional items.
Between braces ({})	Set of choices (separated by) from which you must choose only one.
<i>Italic</i>	NEED TO SPECIFY: (e.g.. "Text used to emphasise a point", "example text")
Courier	Indicates code or program output.
<u>Blue Underlined</u>	Indicates a hyper-link. Some hyper-links may be linked to live websites.

1.4.2 Symbols

Symbols are used throughout this user guide to assist the user in quickly identifying important safety information and notes.



Yellow triangle indicates that failure to observe the instructions could result in injury and/or damage to the system.



Lifting precautions should be considered.



White arrow in a blue box indicates a useful tip.



White exclamation mark in a blue box indicates important information.

1.5 Terminology and Definitions

1.5.1 Backplane

Datapath manufactures two types of backplanes; the Express9 Gen 3 (9 slots) and the Express11 Gen 3 (11 slots).

The Express 9 Gen 3 is used in the VSN982/990 and the VSN900X expansion chassis and the Express 11 Gen 3 is used in the VSN1182/1192 and the VSN1100X expansion chassis.

The backplanes use advanced PCI Express switches to create a high bandwidth fabric that connects up to 9 or 11 PCI Express plug in cards in a single system. This system can be expanded to create more PCI Express slots using the VSN900x/1100X expansion units.

1.5.2 BIOS

Basic Input/Output System: Used during system boot up to initialise and test system hardware and load the operating system. Each BIOS is specifically designed to work with a particular motherboard.

1.5.3 Command Line Interface

Preferred means by advanced users of issuing commands and controlling an application or operating system. Programs with a Command Line Interface are generally considered easier to automate via scripting.

1.5.4 Control Screen

All systems are shipped with the BIOS configured to boot the system off the onboard graphics device. This output can then be used as the Control Screen for a typical video wall. The content of the control screen is not displayed on the video wall desktop and can be used to host the Wall Control application window.

1.5.5 SBC

A Single Board Computer built on a single circuit board. SBC's in the VSN systems are plugged into the PICMG1.3 slot on the Express9 and Express11 backplanes.

1.5.6 SDK

Software Development Kit: A set of software development tools which allows the creation of certain applications .

1.5.7 WallControl 10 (Optional)

An optional software application for controlling and managing Vision, IP-Camera and third party application windows on a Datapath Wall Controller. Providing a graphical representation of the video wall and a toolbar through which to manipulate all available input sources and applications.

1.5.8 WallControl 10 Security Administration Client (Optional)

The WallControl 10 Security Administration Client allows Administrators to assign specific users to roles on a wall by wall basis. The Security Administration Client is only available with WallControl 10-Pro.

1.5.9 Wall Monitor

A software application that enables the user to monitor the temperatures and voltages of system components.

1.5.10 Screen Order

The order in which the screens appear on the display wall.

1.5.11 SQX

SQX is Datapath's collective name for its video streaming and compression technologies.



CHAPTER 2 - SAFETY

2.1 Safety Precautions

To prevent damage to your Datapath product or injury to personnel operating the equipment, please read the following safety precautions prior to operation. These instructions should be made available to all those who will use and operate Datapath products.

2.1.1 Power Supply

All Datapath products require a mains power supply. This power supply must be disconnected when equipment is being upgraded or relocated.

2.1.2 Cables

Do not expose cables to any liquids; doing so may cause a short circuit which could damage the equipment. Do not place heavy objects on top of any cables as this can cause damage and possibly lead to exposed live wires.

2.1.3 Ventilation

All computer equipment should be located in a well ventilated area. All ventilation holes on the computer casing must be kept clear of any obstruction at all times. Failure to do so will result in the system over heating and damaging your equipment.

2.1.4 Working Environment

The equipment should be located in an environment free from dust, moisture and extreme changes in temperature and should be placed on a stable and solid work surface. Liquids (hot/cold drinks etc) should not be placed near the equipment as spillage could cause serious damage.

2.1.5 Gas/Flammable Liquids

Electronic equipment should never be used in the presence of gas or any flammable liquid, doing so could result in an explosion or serious fire.

2.1.6 Smoke/Unusual Smells

Should you notice smoke or unusual smells being emitted from your system, turn off and unplug the system from the mains supply. The system should then be passed to a qualified technician for inspection. Continued operation could result in personal injury and damage to property.

2.1.7 Maintenance

Apart from what is detailed in this user guide, maintenance should only be carried out by competent technicians, any Datapath plug-in cards that are physically damaged should be returned to Datapath for repair using Datapath RMA procedures.

2.1.8 Replaceable Batteries

Caution: Risk of explosion if batteries are replaced by an incorrect type. Dispose of used batteries according to the local laws / regulations and manufacturer's instructions.

2.2 Rack Mount Safety Instructions

2.2.1 Temperature

If VSN982/1172 systems are to be installed in a closed or multi-unit rack assembly, the installation should be such that the amount of air flow required for safe operation of the equipment is not compromised. The operating ambient temperature of the rack environment should be maintained below 35 degrees centigrade under all conditions. Appropriate cooling arrangements should be built into the cabinet to ensure that this specification is maintained.

2.2.2 Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

2.2.3 Circuit Overloading

Consideration should be given to the connection of the equipment to the mains supply circuit and the effect that overloading of the supply might have on any over-current protection or supply wiring. Appropriate consideration of equipment nameplate ratings should be used.

2.2.4 Reliable Earthing

Reliable earthing of all rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).



2.3 Unpacking and Initial Inspection

2.3.1 Unpacking

The system is heavy; lifting precautions should be considered.

To unpack the system follow the instructions provided on the outside of the packaging. All packaging materials should be retained for future transit.

2.3.2 Initial Inspection

All systems are carefully prepared for shipment and every effort is made to ensure you receive the product in pristine condition. On receipt, you should carefully inspect the outer packaging for any transit damage i.e. any signs that the system may have been dropped etc.

Use the packing list enclosed to establish that all the items are present. Should any items from the packing list be missing, contact Datapath for further instructions.

Check the chassis for damage that could have an adverse affect on the operation of the system or could cause injury to the operator. Should there be any physical damage to the power supply unit, for example damaged power sockets or exposed wiring do not connect to a power source, contact Datapath for further instructions.

CHAPTER 3 - GENERAL

3.1 Overview

Datapath's 2nd generation systems are powerful video wall controllers, capable of delivering Ultra High Definition video across large, multi-screen display installations. For use in a host of environments, from CCTV security suites to sports stadia, and from military installations to utility management centres. Fully compatible with Datapath's world leading portfolio of PCI Express video capture and graphics cards that offer Ultra High Definition video for storage and display, including the ability to capture HDCP sources without any display restrictions.

Each system has been designed for use in demanding control room environments. Each component has been subjected to rigorous testing to ensure the highest levels of performance and reliability.

In summary:

- High performance and reliability in demanding conditions
- Suited for 24/7 applications
- Can be operated via a network
- PCIe switched fabrics enables systems to be expanded using additional expansion chassis
- Wall Control software (optional) - Display video on the desktop in real time using an array of features
- Wall Monitor software (optional) - Provides monitoring of the temperature and voltage sensors on system components

3.2 Systems in the 2nd Generation Range

Systems	Features									
	Express 9 Backplane	Express 11 Backplane	SBC 5	SBC 6	SBC 7	Intel® Core i7	Dual E5® Core Xeon	Single E3 Intel® Core Xeon	RPSU	ATX
VSN972*	x			x		x			x	x
VSN1172		x		x		x				
VSN982	x				x			x	x	
VSN1182		x			x			x	x	
VSN1192		x	x				x		x	
VSN900X*	x								x	x
VSN1100X		x							x	

* Available with either and RPSU or ATX power supply.

3.3 Associated Output/Input Cards and Related Products

The following table lists the range of Datapath products associated with the VSN982/1172 range of video wall controllers:

Product	Description
ImageDP4+	Quad output DisplayPort graphics card.
ActiveSQX	Dedicated IP Streaming decoding card.
VisionSC-UHD2	Two independent HDMI 2.0 capture channels with HDCP 2.2 support.
VisionSC-DP2	Dual channel, 4K UHD DisplayPort capture card.
VisionSC-SDI4	Four channel 3G-SDI video capture card.
VisionSC-HD4+	Quad HDMI video capture card.
VisionAV-HD	Four lane PCI Express capture card with 2 x HD DVI-I and 1 SD channels.
VisionAV-SDI	Four lane PCI Express capture card with 1 x HD DVI-I, SD, SDI channels.
VisionHD4	Eight lane PCI Express capture card with four independent DVI-I HD channels.
VisionRGB-E1s	Single channel HD video capture card.
VisionAV	Single Channel HD and single channel SD video capture card.
VisionRGB-E2s	Dual channel HD video capture card.
VisionDVI-DL	Single channel Dual-Link video capture card.
VisionSD4+1s	Video capture card with four channels of SD and one of HD.
VisionSDI2	Dual channel HD-SDI video capture card.
VisionSD8	Eight channel SD video capture card.
HLink-G3	Host link card for Gen.3 expansion systems.
SLink-G3	Slave link card for Gen.3 expansion systems.
ExCable-G3	Copper cable Gen.3 for expansion systems.
HLink-Optical	Host link card for optical linked expansion system.
SLink-Optical	Slave link card for optical linked expansion system.
ExCable-Optical	Locking optical cable available in 50m and 100m lengths.

We are constantly updating our product portfolio, for the latest details on our full product range please visit our website:

www.datapath.co.uk

3.4 Product Datasheets

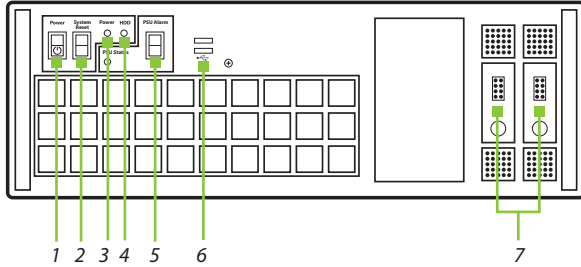
Product datasheets are available to download from www.datapath.co.uk

CHAPTER 4 - HARDWARE

4.1 VSN Chassis

4.1.1 Front

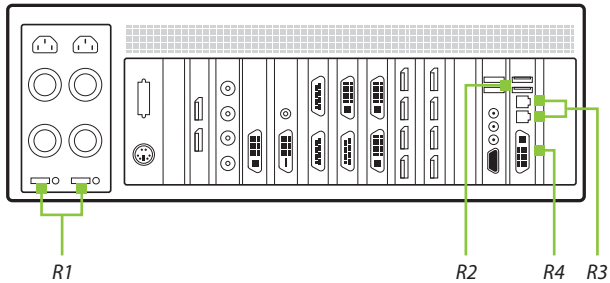
Front Panel



1	Power, on-off
2	PSU Alarm Reset
3	Power LED
4	HDD LED
5	Reset Button
6	USB Ports
7	Removable Hard Drives

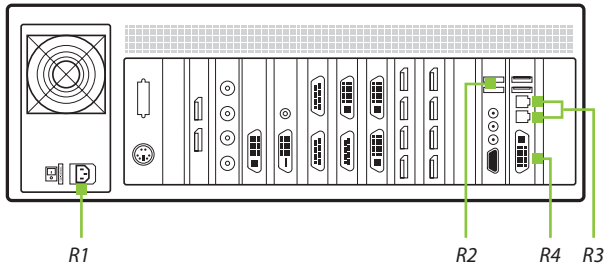
4.1.2 Rear

Rear Panel - RPSU



R1	Power Switch
R2	USB Ports
R3	Ethernet Ports
R4	DVI-I Output

Rear Panel - ATX (VSN 972 only)



4.2 SBC's

Datapath have developed, tested and qualified an SBC for use in the range of video wall controllers providing improvements to the BIOS and a higher performance for Windows based software applications.

4.2.1 SBC5

The Advantech PCE-9228G2:

- An Intel® Dual Xeon® E5-2600v3.
- Used in the VSN1192.

4.2.2 SBC6

The Portwell 8113-Q170:

- An Intel® 7th Gen Kaby Lake Pentium Core i7.
- Used in the VSN972 and the VSN1172.

4.2.3 SBC7

The Portwell 8113-C236:

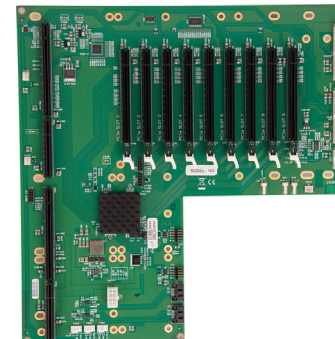
- A Single E3 Xeon processor.
- Used in the VSN982 and the VSN1182.

4.3 Backplanes

The Datapath backplanes use advanced PCI Express switches to create a high bandwidth fabric for connecting multiple PCI Express into a system.

4.3.1 Express9-G3

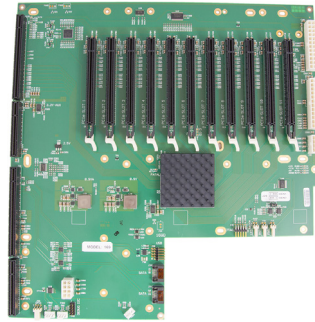
- Nine slot PCI Express backplane - 8 x 4 lane slots, 1 x 8 lane slot and 1 x PICMG 1.3 slot.
- Used in the VSN972, VSN982, and the VSN900X.



Express9-G3

4.3.2 Express11-G3

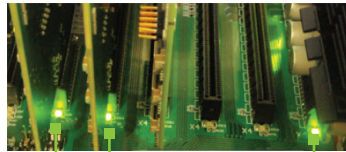
- Eleven slot PCI Express backplane - 11 x 8 lane PCI Express slot and one PICMG 1.3 slot.
- Used in the VSN1172, VSN1182, VSN1192 and the VSN1100X.



Express11-G3

4.4 Backplane LED's

Both the Express9-G3 and the Express11-G3 backplanes have a LED's fitted for each PCI Express slot and the PICMG1.3 slot. The LED's indicate the following:



LED's

4.4.1 Express9-G3

LED1	ON = +5V standby voltage present
LED2	ON = +5V supply present
LED3	ON = +12V supply present
LED4	ON = +3.3V supply present
LED5	ON = PICMG link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED7	ON = PCIe Slot 1 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED9	ON = PCIe Slot 2 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED10	ON = PCIe Slot 3 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED11	ON = PCIe Slot 4 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED12	ON = PCIe Slot 5 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED13	ON = PCIe Slot 6 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED14	ON = PCIe Slot 7 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED15	ON = PCIe Slot 8 link speed = Gen3, FLASH-FAST = Gen2, FLASH-SLOW = Gen1
LED16	Not Used

4.4.2 Express11-G3

D1	ON = +12V supply present
D2	ON = +3.3V supply present
D3	ON = +5V supply present
D4	ON = +5V Standby supply present
D5	ON = PICMG link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D6	ON = PCIe Slot 1 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D7	ON = PCIe Slot 2 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D8	ON = PCIe Slot 3 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D9	ON = PCIe Slot 4 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D10	ON = PCIe Slot 5 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D11	ON = PCIe Slot 6 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D12	ON = PCIe Slot 7 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D13	ON = PCIe Slot 8 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D14	ON = PCIe Slot 9 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D15	ON = PCIe Slot 10 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D16	ON = PCIe Slot 11 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D17	ON= PLX Fatal Error
D24	ON = PSU FAULT

No LED's flashing indicates that lane width has not been established. The LED's will not flash on slots where no cards are installed.

CHAPTER 5 - CABLING

This Chapter will cover:

- Connecting keyboard and mouse
- Connecting to a network
- Connecting monitors
- Connecting an expansion chassis
- Connecting input sources
- Connecting power cables
- Connecting a control screen

5.1 Connecting the Keyboard and Mouse

The keyboard and mouse supplied with your system both have a USB interface. Identify vacant USB ports on the front or rear panel of the chassis and plug them in.



The location of the USB ports are identified [here](#)

5.2 Connecting an Expansion Chassis

The Datapath range of expansion chassis are solutions that allow system builders and integrators the flexibility to extend a PCIe based PC or motherboard enabling a larger, distributed system architecture. The optical expansion chassis can be used to create systems with distances of up to 100m between the host PC and the expansion chassis.

The expansion link is created using a combination of Host Link (HLink) and Slave Link (SLink) cards connected together using a cable or a series of cables (copper or optical). These combined provide a high bandwidth PCI Express link from an upstream host to a distributed expansion unit.

Expansion Chassis Model	Backplane	Number of available PCIe slots
VSN900X	Express9-G3 (SLink-G3 pre installed)	9
VSN1100X	Express11-G3 (SLink-G3 pre installed)	11
VSN900X-Optical	Express9-G3 (SLink-Optical pre installed)	9
VSN1100X-Optical	Express11-G3 (SLink-Optical pre installed)	11

5.2.1 Connecting the VSN900X and VSN1100X

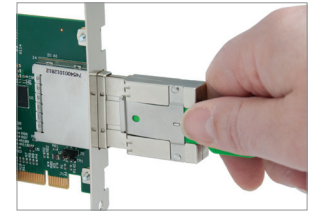
If your expansion chassis is supplied as part of a wall controller system the HLink-G3 card will be pre-installed in the host machine which contains the SBC. If the expansion chassis has been supplied separate to a host machine the HLink-G3 card provided needs to be installed in the host PC.

You are likely to need a flat blade and/or a cross head screwdriver for the installation of the HLink-G3 card; it would be useful to have these to hand before you begin. Power down the PC (including peripherals), switch off at the mains and disconnect all the cables connected to the computer and expansion chassis. Remove the PC cover. Locate a vacant PCIe slot (x8 on the motherboard and remove the backing plate (retain all screws).

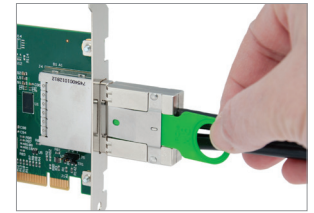
Remove the HLink-G3 card from its packaging and secure it firmly into the empty PCIe slot. Screw the bracket to the back panel of the PC and replace the cover.

Connect the HLink-G3 and SLink-G3 using the ExCable-G3 provided.

The correct way to insert the cable is to have the release tab facing away from the card. The rectangular connector needs to be fully inserted into the card until a definite click can be heard. This locks the cable in place. Failure to lock the connector in place can result in the ExCable-G3 becoming separated from the card and the link between chassis being lost.

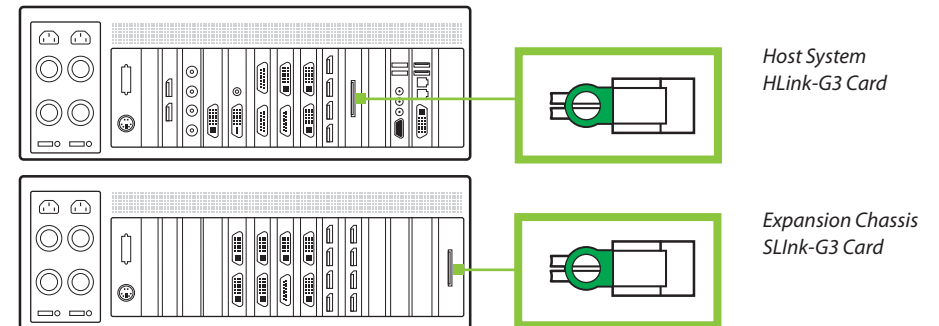


To remove the connector gently pull the ring pull tab to unlock the connector from the card then slide the connector out fully.



Normal copper cable handling precautions should be observed to avoid tight loops or kinks in the ExCable-G3.

If more than one expansion chassis is supplied, ensure the cards are paired correctly by connecting the cards labelled "Link1" together, the pair labelled "link2" together and so on. In the event that this is not possible i.e. the expansion chassis are shipped separately and the cards are not labelled, connect the cards using the ExCables-G3 provided and re-install the Datapath Driver Install package to reset the pairings.



The example above shows the connection of a VSN1192 - VSN1100X. For detailed instructions/information on connecting multiple expansion chassis, refer to the Datapath Expansion Chassis User Guide supplied with your expansion chassis.

5.2.2 Connecting the VSN900X-Optical and the VSN1100X-Optical

The Datapath optical solution allows expansion chassis to be located up to 100m away from the main controller. The Optical solution can support up to PCIe Gen 3 x8 bandwidths between an HLink-Optical, located in the host machine and an SLink-Optical, located in the expansion chassis. Full bandwidth is achieved by using two ExCable-Optical cables between each HLink and SLink-Optical card.

Alternatively, PCIe Gen3 x4 bandwidth can be achieved using only one ExCable-Optical between each HLink-Optical and SLink-Optical. This will reduce the total amount of video signal that can be transferred between the chassis. If x4 bandwidth is acceptable, one HLink-Optical can be connected to two SLink-Optical cards, providing that the HLink-Optical is located in a x8 slot.



See [creating a PCIe x4 lane and x8 lane link](#)

If your optical expansion chassis is supplied as part of a complete wall controller system the HLink-Optical card will be pre-installed in the host machine which contains the SBC. If the expansion chassis has been supplied separate to a host machine, the HLink-Optical card provided needs to be installed in the host PC.

You are likely to need a flat blade and/or a cross head screwdriver for the installation of the HLink-Optical card. Power down the PC (including peripherals), switch off at the mains and disconnect all the cables connected to the computer and expansion chassis. Remove the PC cover. Locate a vacant PCIe slot (x8) on the motherboard and remove the backing plate (retain all screws).

Remove the HLink-Optical card from its packaging and secure it firmly into the empty PCIe slot. Screw the bracket to the back panel of the PC and replace the cover.

If more than one expansion chassis is supplied, ensure the cards are paired correctly by connecting the cards labelled "Link1" together, the pair labelled "link2" are connected together and so on. In the event that this is not possible i.e. the expansion chassis are shipped separately and the cards are not labelled, connect the cards using the ExCables-Optical provided and re-install the Datapath Driver Install package to reset the pairings.

5.2.2.1 Connecting to a VSN1172/VSN1182

If the VSN1100X-Optical is being connected to a VSN1172/VSN1182, the full bandwidth (x8) is available in all PCIe slots. When using the Datapath VSN1182 as a host machine it is recommended to connect multiple expansion chassis in a "Star" configuration (i.e place all HLink-Optical cards in the VSN1182 host machine). This is because each slot of the VSN1172/VSN1182 is capable of supporting the full x8 Gen.3 connection to the HLink-Optical card. Other host machines that support multiple x8 or greater slots should also be configured this way. For detailed instructions/information on connecting multiple expansion chassis, refer to the Datapath Expansion Chassis User Guide supplied with your expansion chassis.

The ExCables-Optical should be inserted firmly into the connector on the HLink and SLink-Optical cards.

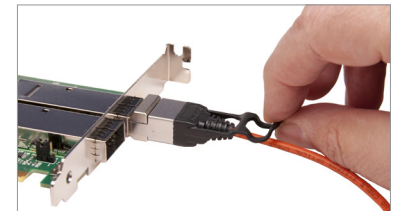
The correct way to insert the cable is to have the manufacturers label facing the card as shown.



The rectangular connector needs to be fully inserted into the card until a definite click can be felt. This locks the cable in place. Failure to lock the connector in place can result in the ExCable-Optical becoming separated from the card and the link between chassis being lost.

Normal fibre handling precautions should be observed to avoid tight loops or kinks in the ExCable-Optical. Bend radii below 75mm are not recommended and may result in fibre breakage.

To remove the connector gently pull the ring pull tab to unlock the connector from the card then slide the connector out fully.

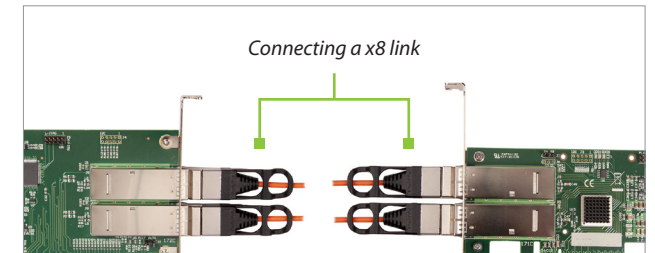
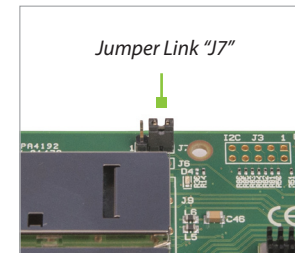


5.2.3 Creating the PCIe Link - x8 (Optical)

For maximum bandwidth, the HLink \SLink -Optical cards should be connected using two optical cables to form an eight-lane ("x8") link, capable of 64G-transfers/sec (approx 6.4GB/s effective data rate in each direction).

In "x8" mode the Jumper Link "J7" on the HLink-Optical card must be set to position 2-3 as shown below.

When creating the "x8" link, the ExCable-Optical connected into the top connector on the HLink-Optical card must also be connected to the top connector on the SLink-Optical card. Similarly the second ExCable-Optical must connect between the lower card connectors.

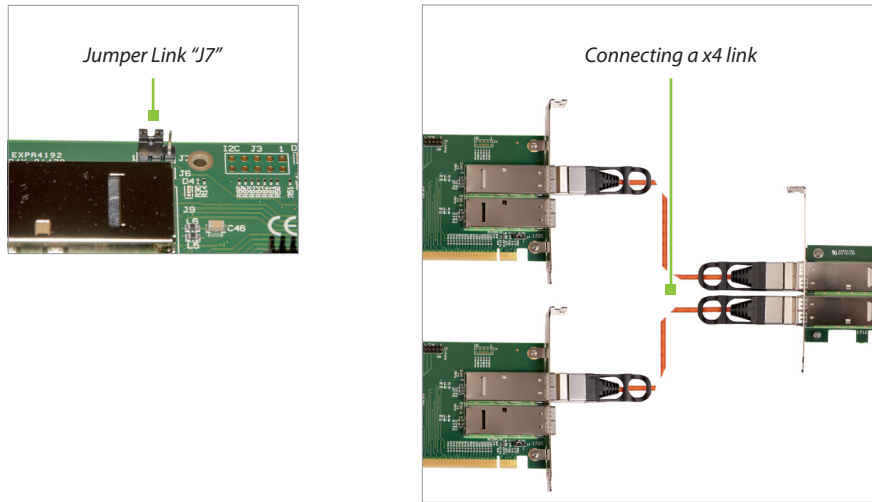


5.2.4 Creating the PCIe Link - x4 (Optical)

For a reduced bandwidth connection or where a single HLink-Optical is used to connect to two separate SLink-Optical cards (i.e. "Star" connection of two expansion chassis). In this configuration, for a single ExCable-Optical link the PCIe connection is "x4" and the bandwidth is reduced to 3.2GB/s.

In "x4" mode the Jumper Link "J7" on the HLink-Optical card must be set to position 1-2 as shown below.

Either (or both) connectors on the HLink-Optical card can be used, but only the top connector of the SLink-Optical card.



5.2.5 Frame Locking

When using the Datapath Optical Expansion Link it is not possible to maintain display frame locking. It is assumed that displays controlled from the expansion chassis would be sufficiently far away from the host machine that this will not be a problem. It should be noted that all displays within an expansion chassis (or cluster of chassis) connected using a standard HLink-G3 and ExCable-G3 will remain frame-locked to each other.

5.3 Slots and Bandwidths - Optical Systems

The optical solutions offer a variety of configurations and bandwidths depending on customer requirements. Each HLink-Optical is capable of transferring up to PCIe Gen.3 x8 bandwidths across distances up to 100m. To achieve this the HLink-Optical must be installed in a x8 PCIe slot on the host backplane and connected to the corresponding SLink-Optical card pre-installed in the PICMG 1.3 slot in the expansion chassis using two ExCable-Optical cables.

A x4 bandwidth can also be achieved by connecting the HLink-Optical (installed in a x8 PCIe slot) to two separate SLink-Optical cards. If the HLink-Optical is installed in a PCIe x4 then it can only be connected to one SLink-Optical card.

5.3.1 VSN972/VSN982 - Optical Expansion

PCIe Slot Number	Host						Expansion	
	Bandwidth		ExCable-Optical		HLink-Optical		SLink-Optical	
	X8	X4	1 Cable	2 Cables	Top Connector	Bottom Connector	Top Connector	Bottom Connector
1	x			x	x	x	x	x (1)
1		x	x		x			x (2)
2	N/A	x	x		x			x
3	N/A	x	x		x			x
4	N/A	x	x		x			x
5	N/A	x	x		x			x
6	N/A	x	x		x			x
7	N/A	x	x		x			x
8	N/A	x	x		x			x
9	N/A	x	x		x			x

(1) SLink-Optical card is pre-installed in the PICMG 1.3 slot in the expansion chassis.

(2) Two ExCables-Optical connecting to two separate SLink-Optical cards (see section: Creating the Link -x4 optical on page 29)

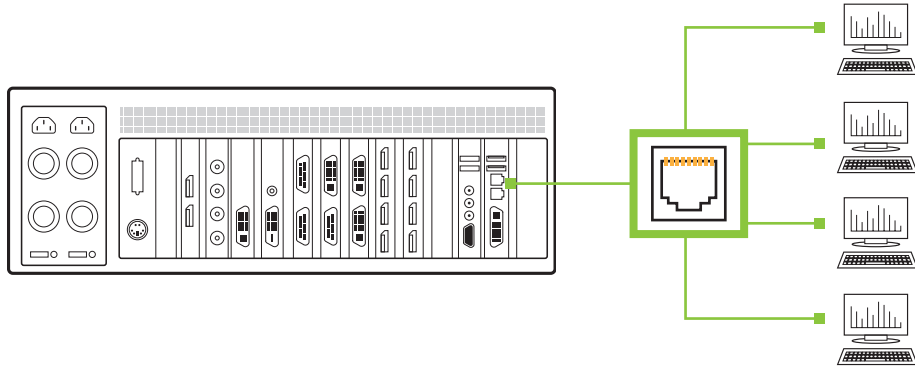
5.3.2 VSN1172/VSN1182/VSN1192 - Optical Expansion

PCIe Slot Number	Host						Expansion	
	Bandwidth		ExCable-Optical		HLink-Optical		SLink-Optical	
	X8		1 Cable	2 Cables	Top Connector	Bottom Connector	Top Connector	Bottom Connector
1	x		(3)	x	x	x	x	x
2	x			x	x	x	x	x
3	x			x	x	x	x	x
4	x			x	x	x	x	x
5	x			x	x	x	x	x
6	x			x	x	x	x	x
7	x			x	x	x	x	x
8	x			x	x	x	x	x
9	x			x	x	x	x	x
10	x			x	x	x	x	x
11	x			x	x	x	x	x

(3) All 11 slots in the VSN1100X-Optical expansion chassis are PCIe x8 lane therefore two ExCables-Optical are required. If the requirement is for x4, only one ExCable-Optical is required, however this reduces the available bandwidth by 50% and therefore reduces the amount of video signal that can be transferred.

5.4 Connecting to a Network

The optional Wall Control software enables the user to operate and manage the video wall display remotely, via a network. The VSN systems have two LAN ports, plug in your network cable (not supplied) to a LAN port and connect the wall controller to the LAN, as shown below:

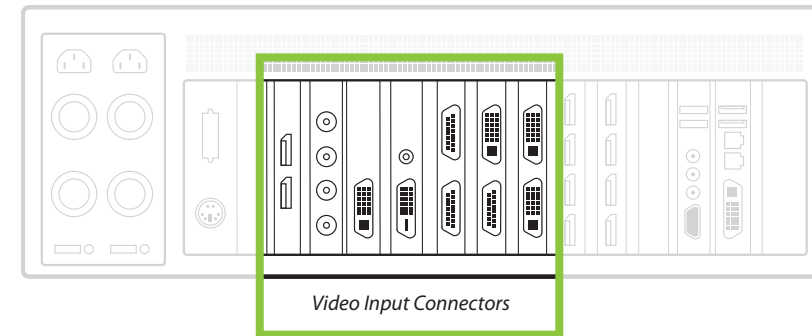


5.4.1 Network Security

It should be noted that network ports have a potential vulnerability. If your system is working in a secure environment you probably don't need to worry about unauthorised access to the LAN port. If your system is on a network that is generally accessible, you will probably want to restrict access to the ports. The Wall Control software application enables you to configure access to the ports using a network access dialogue, see the Wall Control help file (located on the Recovery Media) for more detailed information.

5.5 Connecting Input Sources

As each VSN wall controller is custom built, the number and type of video inputs will differ from system to system. If you have purchased a VSN wall controller with video inputs, the input connectors are located on the rear panel as shown in the example below:



The printed input/output diagram shipped with your VSN wall controller shows where the video inputs are located and the types of input connectors installed in your system.

Connect the input sources to the relevant video input connectors, cables may be supplied for some inputs, see the system content list for details.



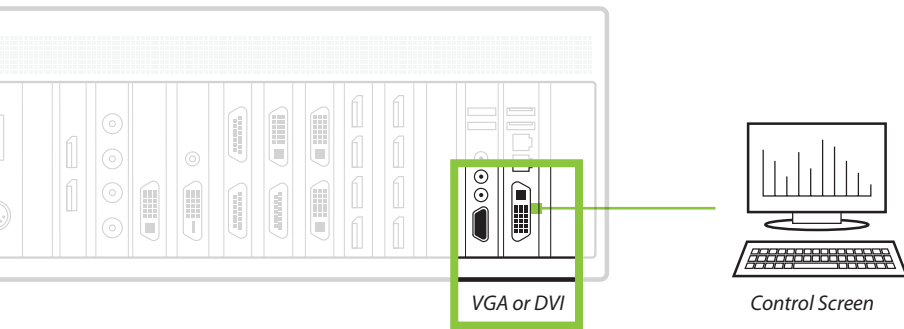
5.5.1 Cable Handling

Great care must be taken when connecting cables. Ensure the cable connectors are the correct type for the connector on the cards. Push the cable connector on squarely, there is no requirement to force the connector in place. Poor cable handling could result in damaged pins in the cable connector, this in turn could cause serious and irreversible damage to the printed circuit board. Any damage caused this way is not covered under the warranty.

5.6 Connecting a Control Screen

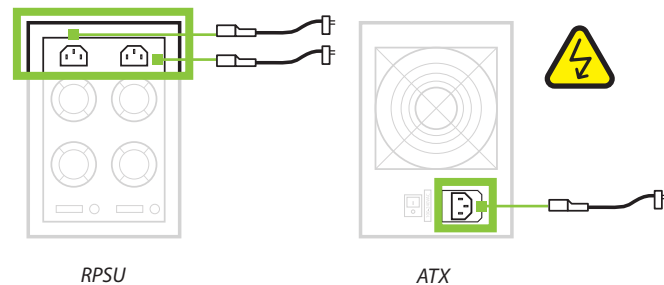
Datapath 2nd Generation systems are configured to boot off the onboard graphics device therefore there is a requirement to connect a control screen. The control screen is a standalone monitor which is separate from the monitors on the display wall. The control screen is configured as a secondary monitor in the Windows® Display Settings and the display wall is configured as the primary monitor. A control screen is initially required to set up your VSN system including the operating system (Windows 10) and the Display Driver Configuration Tool.

Connect the control screen as follows:



5.7 Connecting Power Cables

This section applies to both the RPSU and the ATX powered systems and expansion chassis.



Ensure cable(s) are fully inserted into the power supply sockets on the rear of the VSN wall controller, failure to do so could result in the cable becoming dislodged and the system inadvertently shutting down.

In systems with an RPSU, both cables must be connected otherwise an audible alarm will be triggered when the system is switched on.

! Only use the power cable(s) supplied with your system, for advice on replacements please contact Datapath.

CHAPTER 6 - OPERATION

This chapter will cover:

- Switching on.
- Initial system boot on delivery.
- Setting up the operating system.
- Configuring the video wall displays.
- Opening Wall Control.
- Displaying video captures.

6.1 Switching On

When switching the system on for the first time you will need to complete the initial system boot steps as described in Initial System Boot on Delivery below.

6.1.1 Switching on the Main System

All systems are supplied with either RPSU or ATX power supplies, see [System Features](#) for details.

- 1 Switch on the power supply units (rear panel) ensuring both units on the RPSU are switched on.
- 2 Turn on the main system power switch which is located on the [front panel](#).

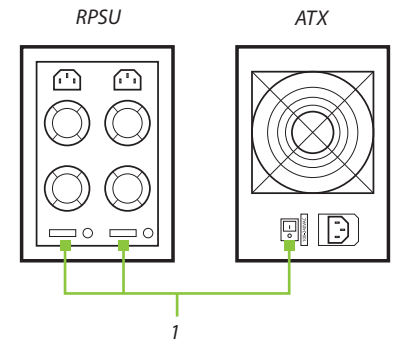
The BIOS and boot messages will be displayed on the control screen as the system boots. Once the system boot up is complete, the display wall will open up into a Windows® desktop.

6.1.2 Switching on with an Expansion Chassis

If your system has a VSN900X or VSN1100X expansion chassis the following procedure should be followed when switching on:

- Switch on all the power supply units ensuring both units on a RPSU system are switched on.
- Turn on the main system power switch on the host system located on the [front panel](#). There is no requirement to turn on the main power switch on the expansion chassis as it will be switched on automatically by the host VSN system.

The BIOS and boot messages will be displayed on the control screen as the system boots. Once the system boot up is complete, the display wall will open up into a Windows® desktop.



6.2 Initial System Boot on Delivery

Once the system has been configured in the factory the operating system is resealed, meaning that when switching on the system for the first time the operating system setup commences.

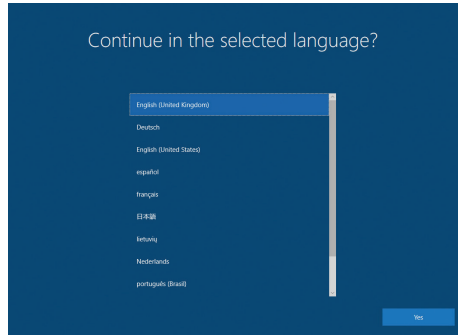
You will be prompted to enter information to set up the operating system on your controller, starting with the selecting the language pack option.

6.2.1 Select Language Pack

Language selection is the responsibility of the customer and is not part of the system pre configuration prior to shipment. Windows 10 language settings can be changed using **Control Panel/Language**. Language packs are available to download as optional updates.

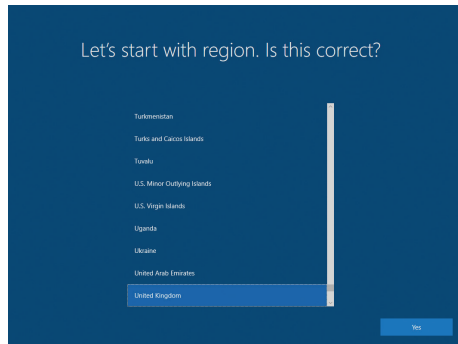
The following languages are pre-installed:

- German
- English (UK)
- Spanish
- French
- Italian
- Japanese
- Polish
- Portuguese (Brazilian)
- Russian
- Simplified Chinese



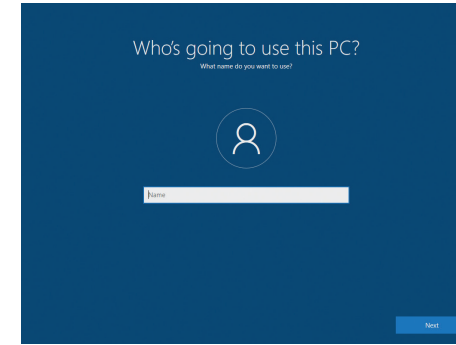
6.2.2 Select Country and Region

Use the scroll bar to select the region, the time zone and currency and the keyboard layout. These localised settings can be changed if required using the dialogue in **Control Panel/Region and Language**. You will then be required to accept the Windows 10 Licence Agreement before moving on to create an account.



6.2.3 Names and Password

Next, you will be prompted to create an account for your computer by entering a user name, a computer name and a password.



It is recommended that only Internet-standard characters are used in the computer name. The standard characters are the numbers 0 through to 9, upper and lower-case letters from A through to Z and the hyphen character. Computer names cannot consist entirely of numbers, contain spaces or use special characters such as: < > ; : " ? * + = \ | ? , .

You will then be prompted to create a password and three security questions, the security questions are compulsory once a password has been created.

Your Windows 10 system does not require a product key to activate the operating system.

6.2.4 System Backup

It is strongly recommended that some form of system recovery media is created once your system is up and running. This will enable you to restore your Windows 10 Operating System should serious problems occur.

See Chapter 13 for details on how to create your own Windows 10 restore media.

6.3 Display Driver Configuration Tool (DDCT)

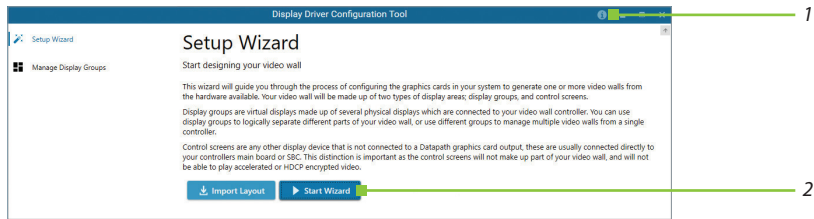
The DDCT is a configuration tool designed to guide you through the design and creation of your video wall using a VSB system. The DDCT will guide you, step by step, through the configuration of the graphics outputs, enabling you to quickly create one or more video walls.

On the final stage of the configuration, the DDCT will recommend the optimum way to connect your VSN wall controller to your video wall displays.

Once the Windows Operating System has been configured and rebooted, the DDCT Setup Wizard is displayed on your control screen.

It is recommended that you read the information on each page carefully.

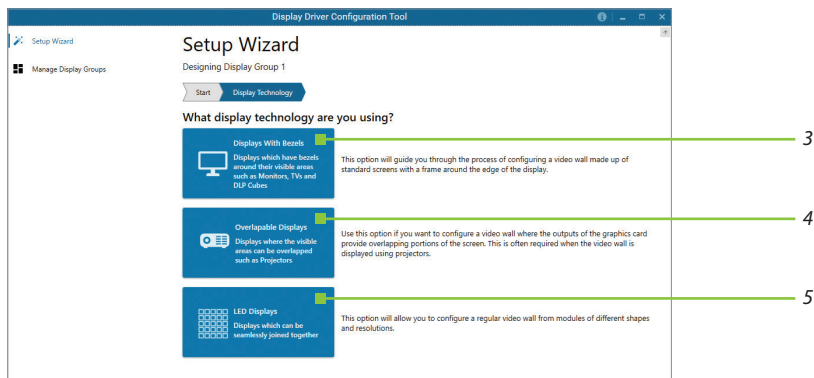
- 1 Click on the "Information Icon" to open a sliding window which gives version details and copyright information. The latest version of the DDCT is available to download from the Datapath website.
- 2 To commence your wall configuration, click on "Start Wizard." "Import Layout" is covered later.



6.3.1 Display Technology

Select the type of displays being used on your wall:

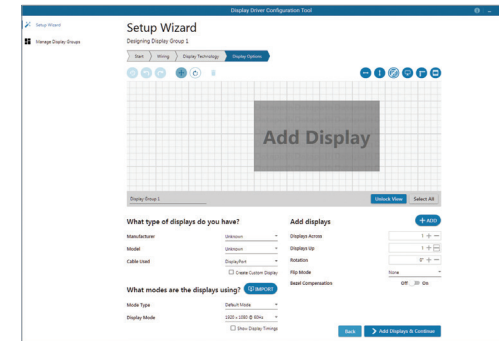
- 3 Displays With Bezels – Monitors, TV's and DLP Cubes.
- 4 Overlapable Displays – Projectors.
- 5 LED Displays.



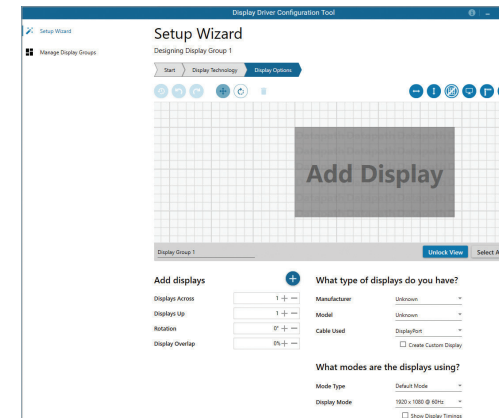
Click on "Continue".

The tool will then display a configuration page for the type of display you selected:

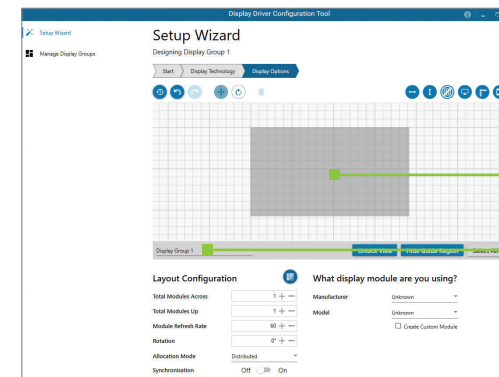
6.3.2 Displays with Bezels



6.3.3 Overlapable Displays



6.3.4 LED Displays



- 6 Representation
- 7 Wall Naming

6.3.5 Application Tools

The application tools enable the user to manipulate the design of the wall.

The table below describes the tool functionalities

	Undo All – Undo all commands made on this page.
	Undo – Undo the last command.
	Redo – Redo the last command.
	Move displays – When selected, move the displays by clicking on and dragging the displays around the representation.
	Rotate displays – When selected click on a display and drag the cursor up or down, left or right to rotate the display. The display can be rotated 90, 180 or 270 degrees.
	Delete displays/Display Groups – Select the displays you wish to remove from the layout then click on the delete button to delete all those selected.
	Enable X Axis – Enables the display to be moved from left to right, and right to left.
	Enable Y Axis – Enables the display to be moved up and down.
	Snap to Grid – When selected, if a display is dragged and released it will snap and position itself to the nearest grid line.
	Snap to displays – When selected, if a display is dragged close to another display and released, it will snap and position itself to the display.
	Snap to Guides – When selected, if the display is dragged and released near to the axis of another display it will position itself on the same axis.
	Show Display Bezels – Select to show or hide the bezels on all the displays in the representation.
	Configure Outputs - Available in the Manage Display Group dialogue. Select an output and configure its properties.
	Add Button - Used to add displays to your group or to create a new group.
	Layout Configuration - Used to add LED modules to your group or to create a new group.
	Edit - Used to edit a selected Display Group.
	Primary Display - Indicates which display within the display group is the primary display/boot screen. If more than one group is available, the Primary Display can be assigned to either group.

Representation

The representation grid **(6) see page 41** displays the physical arrangement of the wall as it is being created. Displays can be arranged as required by clicking and dragging them to their required positions using the application tools.

Wall Naming

Click on the edit box **(7) see page 41** to allocate a name to your wall (optional but recommended). This will be used if you choose to export your layout in the future.

Unlock View

When unlocked, the wall representation can be dragged to a preferred position using the mouse. Use the mouse wheel to zoom in and out of the representation.

Select All

Choosing “Select All” enables the user to select all the displays on the representation to apply common attributes to all displays.

6.3.6 What Type of Displays Do You Have?

Displays with Bezels and Overlapable Displays

The first step to creating your wall is to select the type of displays you have. Use the “Manufacturer” and “Model” dropdown lists to select each display you are using on your wall. The DDCT has an extensive database of displays, however if your display is not contained in the list, you can input its details manually by selecting “Create Custom Display”.

It is strongly recommended that measurements are taken from the display manufacturers specifications if available.

Cables Used

Select the cable types for each monitor. An error message will be displayed if the cable limits are exceeded.

6.3.7 What Modes are the Displays Using?

Use the drop down lists to select the “Mode Type” and “Display Mode” for your selected display. Select “Show Display Timings” if you wish to view the display timings.

What type of displays do you have?

Manufacturer

Model

Cable Used

Create Custom Display

Display Area Width

Display Area Height

Left Bezel

Right Bezel

Top Bezel

Bottom Bezel

6.3.8 Add Displays

Add displays is available for displays with bezels or overlapable displays. It enables you to configure the layout of your wall or display group. Use the “Displays Across” and the “Displays Up” to create a plan of your layout. Once your layout has been created you can then configure the displays using “What Type of Displays Do You Have?” When using overlapable displays “Display Overlap” becomes available enabling you to select a percentage of overlap between displays.

6.3.9 Layout Configuration

Layout Configuration is available if LED display technology has been selected.

The layout configuration setting enables you to configure the layout of your wall or display group. Use the “Total Modules Across” and the “Total Modules Up” to create a plan of your layout. Once your layout has been created then you can configure the modules using “What display module are you using”.

Allocation Mode

The “Allocation Mode” enables you to select how the distribution of the modules is configured.

Distributed

Creates an even distribution of the modules from all the system outputs. (Recommended).

Unbalanced

Creates an uneven distribution of modules by allocating as many pixels to the first modules as possible. This creates an unbalanced load on the system outputs.

Synchronisation

Synchronises all the outputs in the system.

It is recommended that the synchronisation is set to “On”. Turning “Off” the synchronisation can cause tearing when a video source is displayed however it does allow display timings to be edited manually.

6.3.10 What display module are you using?

The first step to creating your wall is to select the type of LED modules you have. Use the “Manufacturer” and “Model” dropdown lists to select the LED module you are using on your wall. The DDCT has an extensive database of modules, however if yours is not contained in the list, you can input its details manually by selecting “Create Custom Module”.

It is strongly recommended that measurements are taken from the display manufacturers specifications if available.

Once a layout has been designed and the type of displays have been selected you can add the displays to the representation by clicking on the “Add Displays” icon or “Layout Configurations” if LED modules are being used.

When displayed on the “Representation Grid”, each display can be configured separately by clicking on it. Use the tools to position your displays creating the desired layout. To deselect the display, click on it again.

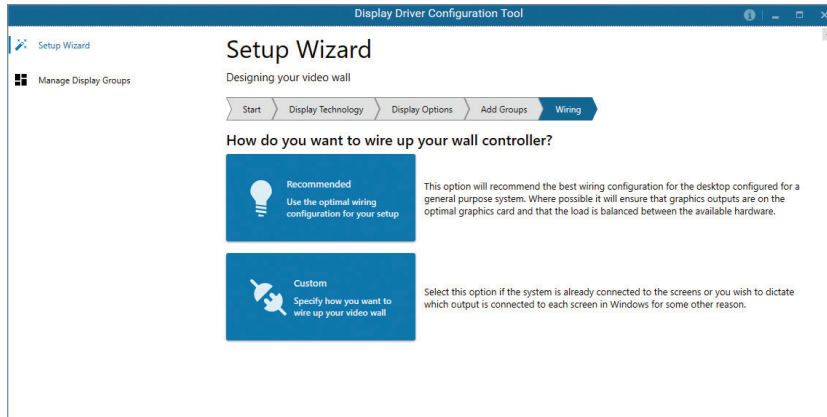
When the display wall or display group has been finalised click on “Continue” and the following page is displayed:

6.3.11 Add Groups

At this stage of the set up you can choose to create another independent display group from the same system, this would be considered if one machine will be used to drive a number of separate video walls.

Click on the “Add Another Display Group” should you wish to add another group of displays, this will return you to the “Display Technology” page. It should be noted that when creating new display groups there is no restriction to the type of display technology you can use for each group you create.

If another display group is not required, click on “Finish” and the following page is displayed.

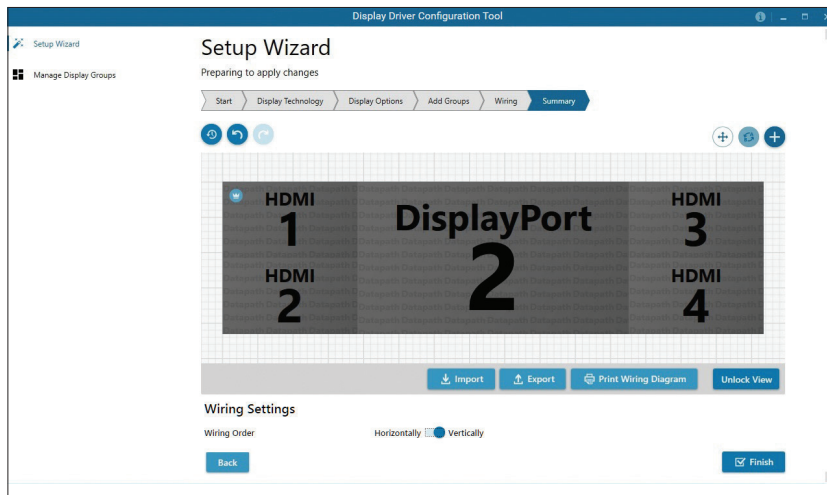


6.3.12 Wiring

How do you want to wire up your wall controller?

The DDCT can recommend the best wiring configuration for your system, ensuring the load is balanced between the graphics hardware. Click on “Recommended” for the optimal configuration for your system.

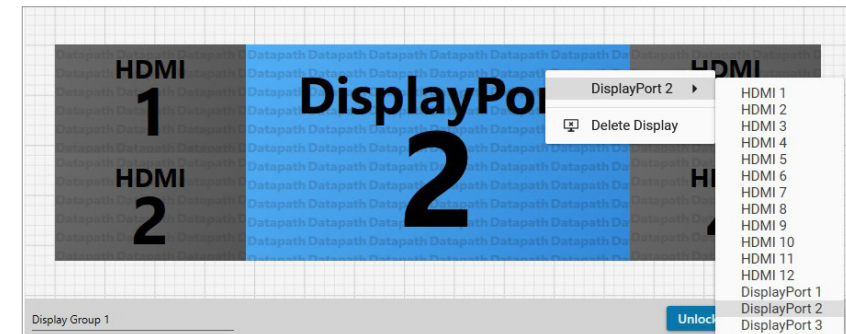
Should you wish to manually wire your system and decide for yourself which output is connected to which display, click on “Custom”. You will be next be presented with the Summary Page:



If you chose to have the DDCT configure your wiring then the page will display the recommended connections, as shown above. You can print a copy of the wiring diagram using “Print a Wiring Diagram”.

Note: *The Datapath Diagnostic Suite must be installed on the system to print a wiring diagram.*

To manually select the outputs right click on the display group and select “Edit”, you can then select each individual display and allocate your preferred output. Right click on a selected display to reveal the list of outputs available:



Import

Click on “Import” to import a previously saved layout. It should be noted that if the system the layout is being imported to does not have the hardware capability to run the layout, the imported layout will be rejected.

Once imported, onto the system, the layout can be edited in the “Manage Display Group” page.

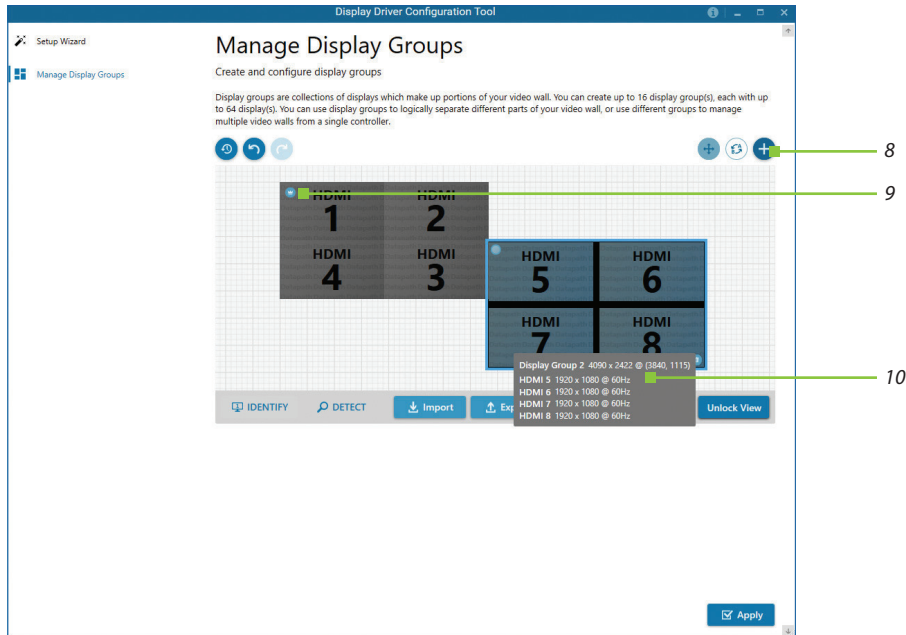
Export

Click on “Export” to generate and export a layout as a .wall file. The layout can then be imported onto a another system.

When all outputs have been allocated either “Recommended” or “Custom” click on “Finish”. You will then be prompted to save the changes to your video wall and restart your system.

6.3.13 Manage Display Groups

Display groups are collections of displays which cover different portions of your video wall. Display groups can be used to separate different areas of your video wall or use different groups to manage multiple video walls from a single controller.



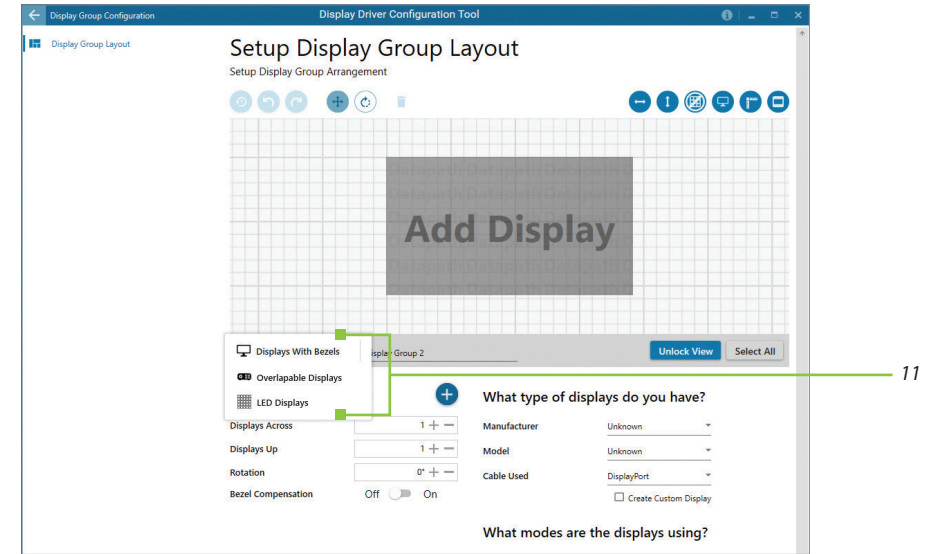
The “Manage Display Groups” dialogue allows you to edit current groups and create new groups. In the example above two groups have been created.

10 Hover the mouse over each group to display basic information about the display group:

- The group name
- Resolution
- Details of each output

9 The “Primary Display” can be assigned to any group by clicking on the icon and toggling between each display group.

8 To create a new display group click on the “Create a new display group” icon and the following dialogue is displayed.



11 Create a new display group by first selecting the type of technology you will be using for your displays by clicking on the dropdown list. Continue to create your new group layout in the same way you created your initial display group.

6.4 Opening WallControl 10 (Optional)

WallControl 10 is an optional video/display wall management software application specifically designed for Datapath Wall Controllers. WallControl 10 consists of two separate elements that work together to enable you to control the display wall, the Client (application) and the Server.

The WallControl 10 Start Menu has four options, WallControl 10 Client, WallControl 10 Server, WallControl 10 Security Server and WallControl 10 Security Administration Client.

6.4.1 WallControl 10 Server

The WallControl 10 Server is used to display Vision/IP and application windows. The Server element of WallControl 10 needs to be installed on the machine to which your video wall is connected. The Server is the machine that drives your display wall, a Server can be located locally or via a network. WallControl 10 will automatically seek out and display all servers available to you. Each server can run multiple display walls depending on the version of WallControl 10 you have. Before opening the Client interface you may need to start the Server manually by clicking on it in the Programs menu. The WallControl 10 Client will only detect Servers that are running.

 Start | All Programs | WallControl 10 | WallControl 10 Server

6.4.2 WallControl 10 Client

The WallControl 10 Client should be installed on the machine that has been identified to control the display wall. This could be any machine on the network including the machine driving the display wall. The application element of WallControl 10 is used to control the position, size and properties of each window displayed on the Server machine.

The WallControl 10 Client can be installed on systems running up to and including Windows 10 Operating Systems.

Open the WallControl 10 Client application:

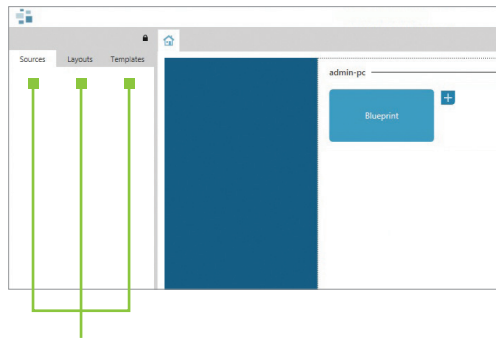


6.4.3 WallControl 10 - User Interface

Open the application by selecting WallControl 10 Client and the user interface will be launched.



A detailed summary of WallControl 10 features can be found in Chapter 7, alternatively a comprehensive help file is available within the application.



Tools: Sources, Layouts & Templates

6.4.4 WallControl 10 Security Administration Client

The WallControl 10 Security Administration Client allows Administrators to assign specific user roles on a wall by wall basis.

Users are assigned Roles based on their Windows® login. Roles can be structured to allow only specific tasks to be carried out on a wall using the WallControl 10 Client. For example, a user can be assigned a role allowing unrestricted access on one wall but assigned a role on another wall which only allows the launching of pre-determined layouts.

The application allows you to carry out the following User Rights Management Tasks:

- Import users from the Windows® Active Directory into the application database
- Create and edit roles
- Assign permissions to providers, layouts and sources giving specific roles access to them
- Assign Roles to walls.

6.5 Opening WallControl-red/ WallControl-SQX (Optional)

WallControl-red/SQX are optional video/display wall management software applications specifically designed for Datapath Wall Controllers. Both WallControl-red and WallControl-SQX consist of two separate elements that work together to enable you to control the display wall, the Wall Control Application and the Wall Control Server.



Start | All Programs | Wall Control

The Wall Control Start Menu offers two methods of opening the application, Wall Control and Wall Control-My Computer.

6.5.1 Wall Control-My Computer

Wall Control-My Computer refers to your system having both the Wall Control Application and the Wall Control Server installed. Selecting Wall Control-My Computer will open the Wall Control application window having activated both the Server and the Application. The application window will display all inputs available in the system.

6.5.2 Wall Control

Selecting Wall Control will launch the application window but will not connect to a Wall Control Server. For more information regarding connecting to a Wall Control Server, consult the application help file.

6.6 Displaying Video Captures

Once a connection to a WallControl-red server has been established then windows can be created for display on your video/display wall. Some video formats may not be supported, see Installing video CODECS in the Advanced User Chapter.

Windows can be created using the **New** menu or the application **Toolbar**.

6.6.1 New Menu

Displays options for each window type:

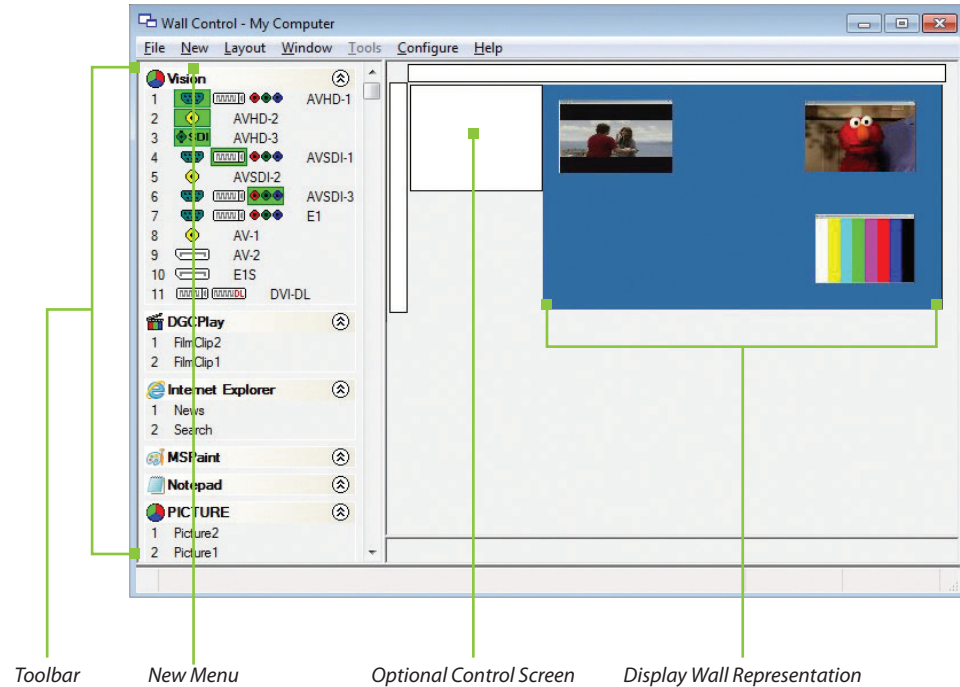
- Preset Window
- IP-Camera Window
- Vision Window
- Run an Application

6.6.2 Toolbar

The application Toolbar displays a list of the type of windows that can be opened, depending on the hardware you have installed in your machine.

To open the required inputs:

- Select the required input using the cursor and drag to a preferred position on the wall.
- Double click on the required input and the window will open, positioned at the top left of the display wall.
- Open multiple inputs by pressing the shift key and clicking the required number of inputs with the mouse.



CHAPTER 7 - SOFTWARE

This chapter will cover:

- WallControl-red/SQX
- Wall Monitor
- WallControl 10
- Utilities

7.1 WallControl-red/SQX (Optional)

The optional Wall Control software application (WallControl-red / WallControl-SQX depending on your order) is pre-installed and tested prior to shipment of your system therefore no installation of the software is required.

Wall Control displays the desktop of the machine that is being controlled. It allows you to remotely display Vision, IP-Camera (WallControl-SQX required) and Application windows across a network on another machine or locally on the same machine.

You can use Wall Control to interactively move, size and position application windows and control Vision and IP-Camera windows by using the Windows Properties sheet. Wall Control also has a guide and grid function to aid the positioning of windows on the display wall.

Wall Control allows you to save specific wall layouts as .lay files enabling them to be re-called when required.

There is an area of the application around the desktop where windows can be dragged allowing them to be manipulated without being displayed on the video/display wall.

7.1.1 Icons displayed in the Wall Control Toolbar

The Icons displayed in the application toolbar identify which type of source is available to each input:

	Composite Source.		Dual-Link DVI Source.
	S-Video Source.		DisplayPort Source.
	Analogue Source.		SDI / HD-SDI / 3G Source.
	Component Source.		IP-Camera Source.
	DVI Source.		If an Icon is displayed with a green surround, this indicates the type of source currently being captured for that particular input.

7.1.2 Wall Control - Features and Tools

Wall Control has a range of advanced features to enable you to manage your video/display wall either locally or remotely over a network. The following list provides a brief summary of the features and tools contained within the application. However, all the features and tools are documented in depth in the WallControl-red help file which can be accessed through the Help menu or by pressing F1 when the application is active.

7.1.3 Layout Files

Save and recall specific desktop configurations using layout files. Window properties including the position, size and any On Screen Displays are also saved in layout files.

7.1.4 Offline Configuration

The Wall Control offline layout editor allows layout files to be created and edited without physically displaying any windows on the display wall. Wall Control can be connected offline on either the server machine or a machine without any display wall hardware, for example a laptop.

An offline connection in Wall Control is initiated by opening a configuration file. This file must have been exported from a server machine and will contain a snapshot of the hardware and software configuration on that machine.

7.1.5 Vision and IP Window

Control over presenting captured video and IP camera streams on the display wall. Configure window properties including:

- Position and size of windows
- Aspect ratio enforcement
- Exclude window borders and menu bar
- Create on screen display captions
- Control capture rate

7.1.6 Application Windows

Support for controlling applications such as Internet Explorer, Microsoft Powerpoint. Application can be opened direct from the Wall Control Toolbar, through the Command Line Interface or from previously saved layout files.

7.1.7 On Screen Display (OSD)

Highly configurable OSD function to overlay bitmaps (not on all types of window) and text over Vision and IP-Camera windows. Add descriptions and logos with transparency support and create specific display variables such as frame rates.

7.1.8 Carousel Support

The Carousel function can automatically cycle through configured lists of different inputs for Vision and IP-Camera windows over defined time periods. A double buffering mechanism will automatically start IP-Camera streams prior to the carousel input switch.

7.1.9 Split into Sub- Windows

Divide an active Vision window into sub-windows. Each sub-window will display a cropped portion of the original Vision window.

7.1.10 Audio Support

Control digital and analogue audio content associated with specific Vision windows.

7.1.11 Command Line Interface

Wall Control comes with a powerful Command Line Interface to enable you to automate almost any operation from opening layout files, moving windows around the display wall and changing specific input settings.

7.1.12 Support for Crestron / AMX Controllers

- Remote Command Line Interface for automation via Crestron/AMX Controllers:
- Control the display wall remotely from a Crestron/AMX controller
- Access to the full local Command Line Interface
- Support for RS-232 (via serial cable) and TELNET (via a local network)
- Integrated user interface support to configure and monitor the Remote Command Line

7.2 WallControl 10 (Optional)

WallControl 10 provides users with interface required to quickly and effectively manage content that includes video captures, IP streams and local applications. Users are able to place any input source on any part of the video wall using a simple drag and drop operation. Precise positioning of each piece of content can be achieved through the mouse and keyboard, or via the template tool.

The Template Tool allows users to not only place their own templates across an entire wall which evenly distributes content but WallControl 10 also allows users to apply a template to an individual window so multiple windows can be grouped together and moved as a single item.

WallControl 10 also introduces a tabbed interface that will allow a single user to seamlessly manage multiple video walls, user can see unique walls side by side to ensure things are running smoothly.

WallControl 10 allows multiple walls to be delivered by a single VSN system. Walls in separate areas of a building can be independently driven from a single location. Multiple walls can be easily set up using the Wall Management functionality and if required each wall can be assigned a unique set of sources or video resources.

Before opening the Client and Security Administration Client interfaces you may need to start the WallControl 10 - Server by clicking on it in the Programs menu. Starting the Server loads both the WallControl 10 Server and the WallControl 10 Security Server. The WallControl 10 Client will only detect servers that are running. The Server icon is displayed in the System Tray.



Start | All Programs | WallControl 10 - Server



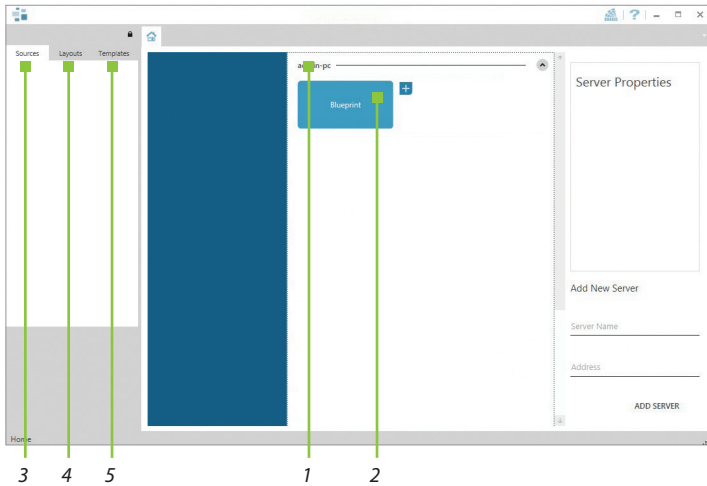
Server icon

Opening the WallControl 10 Client

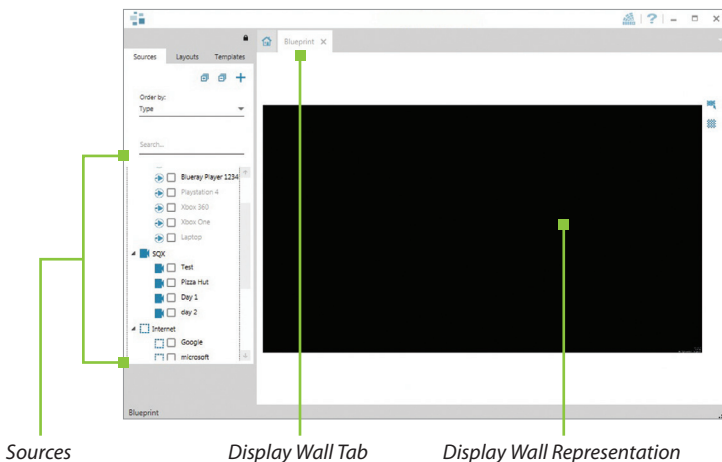


Start | All Programs | WallControl 10 - Client

The WallControl 10 - User Interface



- 1 Indicates the server you are connected to.
- 2 A representation of the display wall(s) associated with the server.
- 3 Sources Tab - Displaying all the sources connected to the server for use on the display wall.
- 4 Layouts Tab - Used to save, recall and share display wall layout configurations.
- 5 Templates Tab - Use templates to assist in the design of specific display wall layouts.



When opened, the display wall tab shows a live representation of the physical wall and the sources available to display on it. To place a source on the video wall, simply click on the required source in the sources tab and drag it onto the display wall representation.

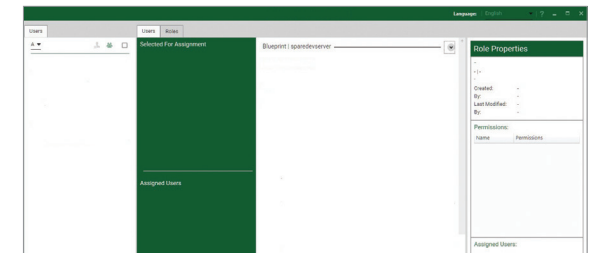
The application help file contains information explaining how multiple sources can be selected, how to use and create templates and how to save, recall and share layout files.

The WallControl 10 - Security Administration Client (Only Available with WallControl 10-Pro)

A WallControl 10-Pro serial dongle must be inserted into a vacant USB port. If the dongle is removed or swapped, the Security Client will not open and an error message is displayed, therefore it is important the dongle is not removed.

If you have purchased WallControl 10 Pro, the licence dongle can be located in the accessories box.

Start | All Programs | WallControl 10 - Security Administration Client



The WallControl 10 - Security Administration Client allows Administrators to assign specific users to roles on a wall by wall basis. For example, a User can be assigned a role allowing unrestricted access on one wall but assigned a role on another wall which only allows the opening of pre-determined layouts.

Prior to the Security Client being used for the first time, the SecurityOnOff.exe program must be run to enable security protection for the application. To run the SecurityOnOff.exe, ensure you are logged into Windows® with Administrator Rights.

Locate and double click on the SecurityOnOff.exe file:

Program Files (x86) \WallControl 10\ Security Server\SecurityOnOff

A WallControl 10-Pro serial dongle must be inserted into a vacant USB port. If the dongle is removed or swapped, the Security Client will not open and an error message is displayed, therefore it is important the dongle is not removed.

The WallControl 10 Security Application help file contains information on how to:

- Import users from the Windows® Active Directory into the database.
- Create and edit roles.
- Assign permissions to providers, layouts and sources giving specific roles access to them.
- Assign roles to walls.

7.3 Wall Monitor (Optional)

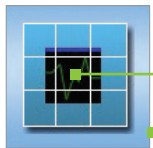
The optional Wall Monitor software application enables you to monitor the temperatures and voltages of the following system components:

- Backplanes
- Capture Cards
- SQX Cards
- SBC
- CPU Cores
- Graphics Cards

Should any overheating or voltage surge be imminent within the system, the Wall Monitor application will alert the user via a pre-configured alarm.

When running, the Wall Monitor application can display a transparent floating icon which can be placed anywhere on the desktop.

Cursor tooltips are available throughout the application offering information and advice. Hover the cursor over different areas of the application to reveal the tooltips. The application also has a help file to assist you, click on any help button or press F1 on your keyboard to access the help files.



Left click the centre of the icon to open the application or right click to display the application menu.

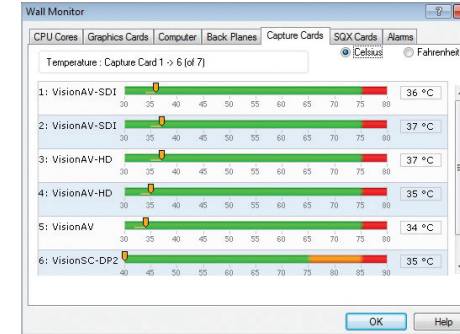
Left click and hold on the border of the icon to move it around the desktop.

Wall Monitor Icon

7.3.1 Monitoring System Components

Each of the system components listed above have built in temperature and/or voltage sensors which enables the Wall Monitor application to display any increase or decrease in voltage and temperature. The temperature and voltage ranges are graded as follows:

Green	Normal operating conditions.
Amber	An indication that voltages or temperatures are operating outside of normal thresholds and if configured and alarm will activate.
Red	Indicates that the voltages or temperatures have exceeded the acceptable working thresholds and a system shutdown is imminent.



7.3.2 Wall Monitor Application Window

The Wall Monitor application window (above) is displaying the temperature of the capture cards in the system. To view different components, click on the relevant tabs of the application. Temperatures can be displayed in either degrees Fahrenheit or degrees Celsius.

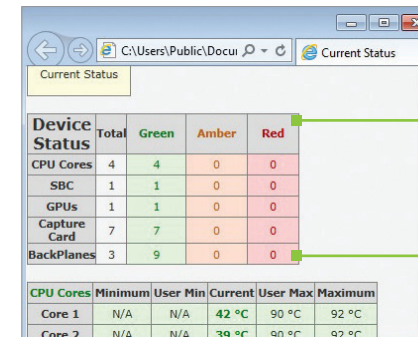
7.3.3 Configuring Alarms

Wall monitor allows you to configure three types of alarm to warn of impending problems:

- **System Buzzer** - The system buzzer can be configured to determine the amount of time the buzzer will be audible up to a maximum of 5 seconds, an audio alarm is activated within the system. On some systems, speakers may have to be connected.
- **Email** - Should you not be in the proximity of your system and email warning can be configured. An email is sent to a nominated email address giving details of impending problems.
- **On Screen** - Text is displayed on screen to warn of impending problems with the system. The Wall Monitor icon adopts an amber border when the alarm is issued.

7.3.4 Current Status

At any time you can check the current status of the monitored components by selecting **Show Current Status in Browser** from the **Application** menu. This will display a browser window, similar to the following:



Summary of the status of all monitored devices

7.4 Vision Application (Optional)

When purchased separately, Vision capture cards are supplied with a powerful software application for configuring the format of input sources and displaying the data.

7.4.1 Video Streaming

DirectShow drivers for WDM Streaming driver supports the following applications, to encode, record and stream video over networks or the Internet:

- Microsoft Media Encoder®
- VLC
- VirtualDub
- Any other DirectShow encoding software

For streaming applications, Vision cards can be used with Windows Media Encoder to compress and stream captured video. To replay the video, use Windows® Media Player.

Any application compatible with Windows® DirectShow technology can use Vision capture cards due to their built-in WDM support.

7.4.2 Vision Software Capabilities

Timestamp support for streaming synchronisation:

- Synchronisation of multiple inputs across multiple cards
- Synchronise systems using network clock synchronisation
- For edge blending and other applications

Flexible and configurable EDID Management:

- Allows programming of custom EDID parameters for capture cards
- Low Input to Output Capture Latency.

DMA to third party graphics vendors back and front buffers via Direct3D:

- Compatibility with AMD DirectGMA
- Compatibility with Nvidia GPUDirect

User Mode filter for source selection:

- Enables cropping support in DirectShow on all inputs
- Supports Start and Stop trigger interface on all Vision inputs

Datapath Unified Vision Driver:

- Multiple cards per system, 16 streams per input
- Frame sync and time stamping
- DirectShow interface
- The RGBEasy API for advanced audio and video control
- Fully integrated for use with Datapath Wall Control software for video wall applications

7.4.3 MultiStream

Datapath's MultiStream feature is available on all Datapath capture cards and enables multiple, independently formatted video streams to be set up in parallel.

Each stream can be formatted completely independently and individual selection of resolution, colour space and cropping region can be set for each stream. This maximises bandwidth utilisation of the capture card and PCIe interface, and also simplifies development tasks for application developers who do not need to implement video stream reformatting separately.

7.4.4 Vision Application Overview

- The application displays the connected source in a window; it has the following features:
- Scales the data to fit in the window
- Ability to set up sources accurately (settings automatically saved)
- Save a single frame to a file in one of the following formats: BMP, JPEG, GIF, TIFF, PNG
- Print a single frame
- Maintain the aspect ratio of the displayed captured data
- Cropping
- Display text over the data (on-screen display)
- Command line interface
- HDCP supported (not supported in SQX encoding)
- Help file documenting all features

Note: *The supplied drivers and software require you are using :*

- Up to and including Windows®10
- DVD ROM Drive

7.5 Software Utilities

Datapath provides a group of software utilities designed to assist you fine tune your system for specific individual system requirements. All the software utilities can be found on the Recovery Media that was shipped with your system, alternatively, you can download the most up-to-date versions from the Datapath website.

7.5.1 Desktop Utility

Used to define a desktop resolution which can compensate for display bezels or projector overlap.

7.5.2 Custom Mode Utility

A utility for defining custom display timings for video modes not available in the display driver or EDID.

7.5.3 Multi Resolution Configuration Tool (MultiResConfig)

Developed to assist in the design and configuration of a video wall that contains a mixture of multi resolution displays.

7.5.4 Diagnostic Tool (diagtool)

A diagnostic tool that gathers information to assist in diagnosing problems with hardware and software configurations. Information is gathered and compressed into a zip file for onward transmission to the Datapath Support Team.

7.5.5 PCICFG Tool

A diagnostic program that prints out the PCI configuration information.

Note, this tool must be run from either a USB or MSDOS boot disk, it cannot be run from Windows®.

7.5.6 Sleep Utility

Designed to generate a pause within a script. This can be used when sequencing the loading of files or application windows.

CHAPTER 8 - TROUBLESHOOTING

8.1 Frequently Asked Questions (FAQs) WallControl-Red

8.1.1 I can't Save a Layout file?

The server does not have a USB License Dongle installed and so Wall Control is working in limited Demo mode.

8.1.2 Access is denied

This message means that the attempt to connect to the server application failed because the authentication information provided was not acceptable.

One of the following has occurred:

- The user name, the password or the machine/domain that you have entered are not correct. Try entering the details again.
- If the machine to which you are connecting is running Windows XP Service Pack 2 and you have not entered a password, you will need to change your account so that you have a password.
- If the machine you are connecting to is running Windows XP and it is not participating in a domain, you will need to change the Network Authentication settings on the machine.

8.1.3 RPC Server Unavailable

This message means that the attempt to connect to the server failed.

If you are connecting to My Computer:

- Is the server application running?
- Did an error occur that prevented the server application starting the RPC server?
- Are you using the correct port name?

If you are connecting across a network:

- Has the WallControl-red server been activated?

When WallControl-red is installed on the server, a serial number must be entered to enable the networking features.

- Is the WallControl-red server configured for network access?
- Is the server application running?
- Did an error occur that prevented the server application starting the RPC server?
- Are you using the correct port?

If a connection is possible with the Wall Control application either remotely or locally, you can use the Server Application

Manager dialogue to find out if the server application has been installed, is running and which port and port name it is using and if an error occurred. In the Wall Control application, go to the Configure menu and select Server Applications.

If a connection is not possible with the Wall Control application, you will need to look at the application event viewer on the Wall Control Server.

8.1.4 The endpoint is a duplicate

This error message suggests that an attempt to open a communication port failed because it is already in use.

If the Wall Control server has not been activated or the networking has been disabled in the Wall Control Administrator dialogue or Wall Control has not been activated, the problem is with the port name.

If networking is enabled, the problem could be with either the port number or the port name.

You can find out the port number and the port name that the server application is using through the Server Application Manager dialogue or the application event viewer.

You can find out which port numbers are in use on a machine with the netstat command. There is no way to find out which port names are in use.

Use Wall Control | Configure Menu | Server Application Manager to change the port number and/or port name and restart the server application.

8.1.5 The remote procedure call failed and did not execute

This is displayed when trying to contact a server application that has been stopped after it had been connected to successfully. Go to the Server Application Manager dialogue and start the server application again.

8.1.6 Changing Screen Resolution

Prior to making any changes to the resolution, it is recommended that the Vision server be stopped beforehand. This can be done using Wall Control | Configure Menu | Server Application Manager.

The servers retain resources on the graphics card which may not be available if the resolution is changed.

8.1.7 How do I connect a remote command controller via RS-232 or IP-Telnet? E.G. Crestron or AMX controllers.

Support for RS-232 and IP remote control of Datapath machines is provided through our WallControl-red software. This package includes a 'remote command line interface' that can be used to select and configure the required method of control. This can be accessed under the 'Configure->Remote Command Line' menu option while Wall Control is connected to the server. Once configured, the WallControl-red program does not need to remain open and the system will process remote commands until the configuration is changed.

In order to use the remote command line you must first select the required method of control via the 'Active Server' drop down list in the 'remote command line' dialogue. This allows you to select between 'Com Port Command Line Interface' (RS-232) and 'Telnet Command Line Interface' (IP network based control). Once a server has been selected, its settings can be configured by pressing the 'Settings' button and it must also be enabled via the 'Enabled' checkbox; the server specific settings include options such as ports and transmission speed. Once the selected server has been activated then the 'Status' on the 'Remote Command Line' dialogue should change to 'Connected'. At this point the software should be ready to receive remote commands and the Wall Control software can then be closed.

RS-232 and Telnet commands can be sent by any suitable remote device, including Crestron Controllers or PCs. Please note that we do not provide any client software or support for the configuration or usage of these remote devices themselves though.

The commands sent to the controller via the remote command line interface should be in the format of Wall Control's local command line interface. The command usage includes the ability to open and close layout files, manipulate individual windows properties and to change capture sources. These commands, which are detailed in the help file topic 'Command Line Interface', can be tested by executing them locally on the server machine via the Windows command prompt 'CMD.EXE'. When using the 'Com Port Command Line', each command will be executed when a carriage return or line feed character is encountered. For Telnet, a carriage return immediately followed by a line feed is used to signify that the command should be executed. When testing usage of the remote command line, the 'Monitor' window in the 'Remote Command Line' dialogue will display all commands as they are received.

Full information on usage of the Remote command line interface can be found in the WallControl-red help file by either searching for 'remote command line' or pressing the 'Help' button on the 'Remote Command Line' dialogue itself. It should be noted that WallControl 10 only supports Telnet.

8.1.8 When I recall a Fire Fox or Chrome web browser page, the window is not positioned where I saved it?

Wall Control only supports Internet Explorer. Full functionality is not available using any other web browser.

All the cards in your system are driven together to display a single, virtual desktop across multiple screens. Users should be aware that although error code 43 is reported, this is in fact normal operation and there are no faults with the ImageDP4 cards installed in your system.

8.2 Technical Support

Registered users can access our technical support using email and the Support Enquiry Form on our website, usually with a response within 24 hours (excluding weekends).

8.2.1 Email

Send an email to support@datapath.co.uk with as much information about your system as possible. To enable a swift response our support team will need to know the following details:

- Specification of the PC - including processor speed.
- Datapath Hardware/Software.
- Operating system.
- The exact nature of the problem
- Application Software.
- please be as specific as possible.

Please quote version and revision numbers of hardware and software wherever possible.

8.2.2 Support Procedures

During the support process you may be asked by one of our support staff to carry out certain tasks and procedures to assist them in solving any problem you may encounter. Details and up to date instructions can be found in the support section of the Datapath website.

CHAPTER 9 - MAINTENANCE

9.1 Filter Maintenance

The system filter is an integral part of the wall controller and as such it needs to be maintained correctly. Failure to maintain the filter can result in the system overheating and causing it to fail. In normal operating conditions the filter should be removed and cleaned every 3 months. However, this 3 month period is a guide only and it can be increased to every 6 months or decreased to one month depending on the levels of dust in the environment the system is operating in.

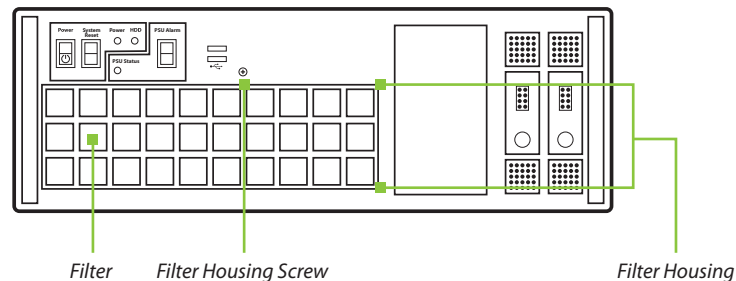
It is recommended that the condition of the filter is checked at regular intervals.

The filter can be removed and cleaned whilst the system is in operation, system shutdown is not necessary.

Note: Failure to maintain the system filter could result in damage to your system and invalidate the warranty.

9.1.1 Remove the Filter

Open the front panel door and locate the filter housing screw, remove the screw and lift the filter housing away from the front panel.



Remove the filter from the housing and shake it to remove any dust particles, this should not be done in close proximity to the system to avoid dust ingress. Ideally, the filter should be cleaned using a vacuum cleaner.

Note: The filter should never be immersed in water or any other cleaning liquid.

For advice on replacement filters, please contact Datapath Ltd.

10.1 Certification and Compliances

10.1.1 CE



EU- Class A Declaration of Conformity

Datapath Ltd declares that this product complies with the essential requirements and other relevant provisions of Directives 2014/30/EU, 2014/35/EU and 2011/65/EU.

A copy of our Declaration of Conformity is available on request:

Datapath Ltd
Bemrose House
Bemrose Park
Wayzgoose Drive
Derby, DE21 6XQ
United Kingdom

10.1.2 FCC

These devices comply with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Caution: Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

10.1.3 Disposal

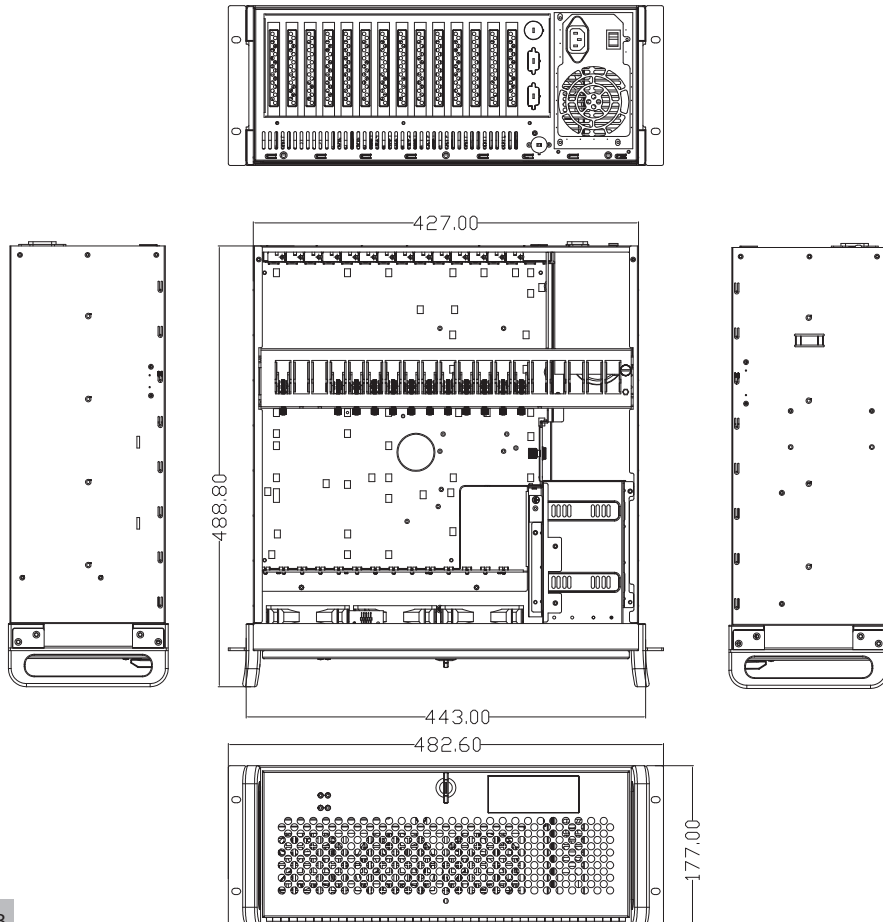
At the end of life all Datapath products should be disposed of as per local laws and regulations dictate. In the UK contact Datapath to arrange disposal. Our WEEE registration number is WEEE/AA0005ZR.

CHAPTER 11 - SPECIFICATIONS

This chapter will cover:

- Technical drawings of the chassis
- Technical specification of the VSN972, VSN982, VSN1172 and VSN1182
- Technical specification of the VSN900X
- Technical specification of the VSN1100X
- Technical specification of the Express9-G3 backplane
- Technical specification of the Express11-G3 backplane

11.1 Technical Drawings



11.2 Technical Specification - VSN972/VSN982

VSN972/VSN982
19" 4U Industrial PC chassis
Dimensions (approx) Length 500mm (incl handles, Height 177mm, Width 481mm (incl mounting brackets)
SBC6 - Supports an Intel® Core i7 processor (VSN972) SBC7 - Supports Single E3 Intel® Core Xeon processors (VSN982)
32GB DDR2 1600 DDR3 non-EEC registered system memory
Express9-G3 PCIe back plane providing 1 x8 lane slot and 8 x4 lane slots
Two 240GB removable SSD hard drives, upgrade option of 480GB SSD.
Ethernet ports -Dual 10Base-T/ 100Base-TX/ 1000 BaseT
On-board Graphics - DVI-I output for VSN972/VSN982. (Used as a control screen)
RS232 - For control
USB - 2 x 3.0 (back panel) 6 x 2.0 2 front, 2 back, (2 internal - for security dongles)
500 Watt ATX (VSN972 Only) 600 Watt Hot Swappable RPSU (VSN972 / VSN982)
Noise - 48.6dB(A) up to 67.9 db(A); Dependent on system configuration and ambient temperature
Triple cooling fans with removable air filter
Includes keyboard and mouse
Windows® 10 LTSC
Operating temperature: 0 to 35 °C
Weight - 19 to 25kgs, Shipping Weight - 30 to 33kgs
Compliance - FCC/CE/RoHS/UL/CCC

11.3 Technical Specification - VSN1172/VSN1182/VSN1192

VSN1172/VSN1182/VSN1192
19" 4U Industrial PC chassis
Dimensions (approx) Length 500mm (incl handles, Height 177mm, Width 481mm (incl mounting brackets)
SBC5 - Supports an Intel® Dual E5 Xeon Processor (VSN1192) SBC6 - Supports an Intel® Core i7 processor (VSN1172) SBC7 - Supports Single E3 Intel® Core Xeon processors (VSN1182)
32GB DDR2 1600 DDR3 non-EEC registered system memory 64GB DDR2 1600 DDR3 non-EEC registered system memory. (VSN1192 only) 128GB DDR2 1600 DDR3 non-EEC registered system memory. (Option available for VSN1192 only)
Express11-G3 PCIe back plane providing 11 x8 lane slots
Two 240GB removable SSD hard drives, upgrade option of 480GB SSD.

11.2 Technical Specification - VSN972/VSN982 (cont.)

VSN972/VSN982 (cont.)	
Ethernet ports-Dual 10Base-T/ 100Base-TX/ 1000 BaseT	
On-board Graphics - DVI-I output enabling connection to DVI/VGA using the cable provided. Can be used as a control screen (Only a VGA connector available on the VSN1192).	
RS232 - For control	
USB - 2 x 3.0 (back panel) 6 x 2.0 2 front, 2 back, (2 internal - for security dongles)	
800 Watt RPSU Dual Redundant	
Noise - 48.6dB(A) up to 67.9 db(A); Dependent on system configuration and ambient temperature	
Triple cooling fans with removable air filter	
Includes keyboard and mouse	
Windows® 10 LTSC	
Operating temperature: 0 to 35 °C	
Compliance - FCC/CE/RoHS/UL/CCC	

11.4 Technical Specification - VSN900X

VSN900X	
Express9-G3 PCIe backplane providing 1 x 8 lane slot and 8 x4 lane slots	
600W Redundant PSU or 500W ATX	
Dual cooling fans with removable air filter	
Noise - 48.6dB(A) up to 67.9dB(A); Dependent on system configuration & ambient temperature	
Weight - 19-25kg (shipped 30-33kg)	
Operation temperature: 0 to 35 °C	

11.5 Technical Specification - VSN1100X

VSN1100X	
Express11-G3 PCIe backplane providing 11 x 8 lane slots	
800W Redundant PSU	
Dual cooling fans with removable air filter	
Noise - 48.6dB(A) up to 67.9dB(A); Dependent on system configuration & ambient temperature	
Weight - 19-25kg (shipped 30-33kg)	
Operation temperature: 0 to 35 °C	

11.6 Technical Specification - Express9-G3

11.6.1 Pin Connectors

FAN1 FAN2 FAN3	4 pin fan speed control header Pin 1 : GND Pin 2 : +12V Pin 3 : TACH Pin 4 : PWM	J11 J12	SATA 2.0 Pin 1 : 0V Pin 2 : A+ Pin 3 : A- Pin 4 : 0V Pin 5 : B- Pin 6 : B+ Pin 7 : 0V-
FAN5 FAN6 FAN7 FAN8	3 pin fan header (non speed control) Pin 1 : GND Pin 2 : +12V Pin 3 : N/C	J13	Debug I2C Pin 1 : SCL Pin 2 : 0V Pin 3 : SDA Pin 4 : N/C Pin 5 : N/C Pin 6 : N/C Pin 7 : N/C Pin 8 : N/C Pin 9 : N/C Pin10 : 0V
FAN9	2 pin fan header (non speed control) Pin 1 : GND Pin 2 : +12V	J14 J15	USB 2.0 Pin 1 : +5V Pin 2 : +5V Pin 3 : USB1N Pin 4 : USB0N Pin 5 : USB1P Pin 6 : USB0P Pin 7 : 0V Pin 8 : 0V Pin 9 : N/C Pin10 : N/C
J1 J2	ATX Power Connector Pin 1 : +3.3V Pin 2 : +3.3V Pin 3 : 0V Pin 4 : +5V Pin 5 : 0V Pin 6 : +5V Pin 7 : 0V Pin 8 : PWR_ON Pin 9 : +12V Pin10 : +12V Pin11 : +12V Pin12 : +3.3V Pin13 : +3.3V Pin14 : -12V Pin15 : 0V Pin16 : PS_ON# Pin17 : 0V Pin18 : 0V Pin19 : 0V Pin20 : N/C Pin21 : +5V Pin22 : +5V Pin23 : +5V Pin24 : 0V	J16	Panel LED Connector Pin 1 : LED Anode Pin 2 : LED Cathode
J7	Panel Power Push button Connector Pin 1 : PWRBUT Pin 2 : 0V	J17	PLX EEPROM Select Pin 1-2 : EEPROM U4 Pin 2-3 : EEPROM U14
J8	Panel Reset Push button Connector Pin 1 : SHB_RST Pin 2 : 0V	J18	AUX Power Connector Pin 1 : 0V Pin 2 : 0V Pin 3 : 0V Pin 4 : 0V Pin 5 : +12V Pin 6 : +12V Pin 7 : +12V Pin 8 : +12V
J6	AUX Power Connector Pin 1 : 0V Pin 2 : 0V Pin 3 : 0V Pin 4 : 0V Pin 5 : +12V Pin 6 : +12V Pin 7 : +12V Pin 8 : +12V	J19	PLX I2C Pin 1 : SCL Pin 2 : 0V Pin 3 : SDA Pin 4 : N/C Pin 5 : N/C Pin 6 : N/C Pin 7 : N/C Pin 8 : N/C Pin 9 : N/C Pin 10 : 0V

11.6.2 PCIe Port Width

PICMG	X8
SLOT 1	X8
SLOT 2	X4
SLOT 3	X4
SLOT 4	X4
SLOT 5	X4
SLOT 6	X4
SLOT 7	X4
SLOT8	X4
SLOT9	X4

11.6.3 Power and Environment

Max Power (without SBC)	16W
Power requirements	Max current at +3.3V < 0.5A Max current at +12V < 0.5A Max current at +5V < 1.5A
Form Factor	PICMG1.3 Host SBC interface 1 x PCI Express (x8) expansion slot 8 x PCI Express (x4) expansion slots
ATX PSU	4 x 24 pin power connectors
SATA Ports (2.0)	2 x ports via PICMG1.3 interface
USB Port (2.0)	2 x ports via PICMG1.3 interface
Operating Temperature	0 to 35 °C/32 to 95 °F
Storage Temperature	-20 to 70 °C/-4 to 158 °F
Relative Humidity	5% to 90% non-condensing

11.7 Technical Specification - Express11-G3

11.7.1 Pin Connectors

FAN1 FAN2 FAN3	4 pin fan speed control header Pin 1 : GND Pin 2 : +12V Pin 3 : TACH Pin 4 : PWM	J30 J31	SATA 2.0 Pin 1 : 0V Pin 2 : A+ Pin 3 : A- Pin 4 : 0V Pin 5 : B- Pin 6 : B+ Pin 7 : 0V-
FAN5 FAN6	3 pin fan header (non speed control) Pin 1 : GND Pin 2 : +12V Pin 3 : N/C	J33	2 pin fan header (non speed control) Pin 1 : GND Pin 2 : +12V
J17	Panel Power Push button Connector Pin 1 : PWRBUT Pin 2 : 0V	J38	USB 2.0 Pin 1 : +5V Pin 2 : +5V Pin 3 : USB1N Pin 4 : USB0N Pin 5 : USB1P Pin 6 : USB0P Pin 7 : 0V Pin 8 : 0V Pin 9 : N/C Pin10 : N/C
J18	Panel Reset Push button Connector Pin 1 : SHB_RST Pin 2 : 0V	J40	JTAG Pin 1 : TCK Pin 2 : 0V Pin 3 : TDO Pin 4 : +3V Pin 5 : TMS Pin 6 : +3V Pin 7 : N/C Pin 8 : TRST Pin 9 : TDI Pin10 : 0V
J19	Panel LED Connector Pin 1 : LED Anode Pin 2 : LED Cathode	J42	Debug + PLX I2C Pin 1 : SCL Pin 2 : 0V Pin 3 : SDA Pin 4 : N/C Pin 5 : N/C Pin 6 : N/C Pin 7 : N/C Pin 8 : N/C Pin 9 : N/C Pin10 : 0V
J23 J24	ATX Power Connector Pin 1 : +3.3V Pin 2 : +3.3V Pin 3 : 0V Pin 4 : +5V Pin 5 : 0V Pin 6 : +5V Pin 7 : 0V Pin 8 : PWR_ON	J49	PLX Debug Speed Select Pin 1-2 : All slots Gen 1 Pin 2-3 : All slots Gen 3 Pin 9 : +12V Pin10 : +12V Pin11 : +12V Pin12 : +3.3V Pin13 : +3.3V Pin14 : -12V Pin15 : 0V Pin16 : PS_ON# Pin17 : 0V Pin18 : 0V Pin19 : 0V Pin20 : N/C Pin21 : +5V Pin22 : +5V Pin23 : +5V Pin24 : 0V
J25 J26	AUX Power Connector Pin 1 : 0V Pin 2 : 0V Pin 3 : 0V Pin 4 : 0V Pin 5 : +12V Pin 6 : +12V Pin 7 : +12V Pin 8 : +12V	J50	GPIO Pin 1 : GPI Pin 2 : 0V Pin 3 : GPO

J29	PLX EEPROM Select
	Pin 1-2 : EEPROM A - U13
	Pin 2-3 : EEPROM B - U14

11.9.2 PCIe Port Width

PICMG	X8
Slot 1	X8
Slot 2	X8
Slot 3	X8
Slot 4	X8
Slot 5	X8
Slot 6	X8
Slot 7	X8
Slot 8	X8
Slot 9	X8
Slot 10	X8
Slot 11	X8

11.9.3 Power and Environment

Max Power (without SBC)	25W	
Power requirements	Max current at +3.3V < 0.5A	Max current at +12V < 0.5A
	Max current at +5V < 4A	
Form Factor	PICMG1.3 Host SBC interface (x8 PCIe) 11 x PCI Express (x8) expansion slot	
ATX PSU	2 x 24 pin power connectors	2 x 8 pin AUX power connectors
SATA Ports (2.0)	2 x ports via PICMG1.3 interface	
USB Port (2.0)	2 x ports via PICMG1.3 interface	
Operating Temperature	0 to 35 °C/32 to 95 °F	
Storage Temperature	-20 to 70 °C/-4 to 158 °F	
Relative Humidity	5% to 90% non-condensing	

CHAPTER 12 - WARRANTY

12.1 Warranty Statement

Datapath provides a return to manufacturer warranty on all its products for a standard 36 month period, see the table below for non standard warranty periods. It is important that RMA procedures are followed prior to products being returned as often issues can be resolved quickly without the need for products being returned.

Component	Standard 36 Month Warranty	12 Month Warranty
Image DP4+ Graphics Cards	X	
Vision Capture Cards (including ActiveSQX)	X	
Express9-G3 / Express11-G3	X	
HLink / SLink Cards (G3 and Optical)	X	
ExCable (G3 and Optical)	X	
SBC6		X
Power Supply Units		X
Hard Drives, RAM, Fans		X

12.2 RMA Returns Policy

If your Datapath product is not working as you expect, we recommend that you contact Datapath Ltd in the first instance for support, since many issues that may first appear as hardware faults, are actually installation or set-up problems and can normally be resolved without having to ship any hardware back to us. This route is therefore often the quickest, easiest and cheapest way of solving the problems that you are experiencing. Please email support@datapath.co.uk including as much detail regarding the failure as possible (for example: system description, signal types, input or output resolutions and any other relevant background information).

It is essential for you to know the serial number of the product(s) when contacting us.

If it appears that the fault is most likely to be hardware related, please email rma@datapath.co.uk stating the serial number and as much additional information regarding the nature of the failure as possible. Detailed explanation of the fault will help us to better identify the problem and will direct additional focused testing if necessary. We will then issue an "RMA Number" to you.

At the time that the "RMA Number" is issued we will inform you of the warranty status of the product and the cost of the repair, if appropriate - see paragraph **(b)** below. The product should then be returned, at your cost, to Datapath Ltd following the steps below.

There are 4 possible scenarios when a product is returned to us:

(a) The product is in warranty and is either found to be genuinely faulty or no fault is found. In these cases, the product will be repaired as necessary, or replaced by a new or previously repaired product, and returned to you at our cost.

(b) The product is out of warranty and is found to be faulty. The product if possible will be repaired or replaced at fixed cost, as stated in the RMA authorisation email. To cover this payment, you will be required to either provide a Purchase Order or Credit Card details, when the product is returned to us. (However, we will not issue an invoice or charge the credit card until the repair has been completed and is about to be returned to you)

(c) The product is in warranty but is found to be damaged by mis-use.

This will be treated as **(b)** above.

(d) The product is out of warranty and is obsolete. In the unlikely situation that the product can be neither repaired nor replaced, because some of its components are obsolete and we have no swap-out stock left, then the product will either be returned to you, or disposed of at your request, with no charge.

PLEASE NOTE: *Datapath will not accept responsibility for the safety, integrity or security of any programmes, data or other content held on hard drives or any other type of rewritable media which is sent to us either separately or as part of any equipment returned to us for repair or for any other purpose. Customers are advised to take back-ups of anything that they deem to be valuable or important before returning the equipment to us and anything which is confidential should be erased from the media before it's returned.*

Once the RMA Number has been issued, you need to raise your Purchase Order, or supply your credit card details, and return the product to: Datapath Ltd, Bemrose House, Bemrose Park, Derby DE21 6XQ, United Kingdom - securely packed and with the RMA Number clearly displayed on the outside of the box. To prevent unnecessary carriage and handling please only send back products or accessory items you believe to be faulty.

In the case of paragraph **(c)**, the fixed charge will be levied after we have seen the product and identified the misuse. In this case we will request you to issue a purchase order or provide credit card details before any repairs are completed.

Our policy is to return the repair (or swap-out) to you within 10 UK business days of receipt.

CHAPTER 13 - ADVANCED USERS

This chapter is aimed towards advanced users and covers the following:

- WallControl-red Command Line Interface
- WallControl 10 Command line Interface
- Software Development Kit (SDK)?
- RAID
- Replacing Cards
- Updating Firmware
- System Recovery

13.1 WallControl-red Command Line Interface

The WallControl-red command line interface allows you to open layout files.

Example Usage

- Open the Layout file "`c:\layouts\layout.lay`" and exit without showing the WallControl-red application window.
`"C:\Program Files (x86)\Wall Control\wallctl.exe" -Layout="c:\layouts\layout.lay" -exit`
- Connect to a computer named VideoWall and close all existing windows.
`"C:\Program Files (x86)\Wall Control\wallctl.exe" -Machine=VideoWall -CloseWindows=Yes`
- Connect to a computer named VideoWall without showing the WallControl-red application window and save the configuration to a layout file named "`c:\layouts\snapshot.lay`".
`"C:\Program Files (x86)\Wall Control\wallctl.exe" -Machine=VideoWall -Save="c:\layouts\snapshot.lay" -exit`

Commands

-Layout=*layout file*

- This command line argument specifies the layout file to be loaded.
- If the layout file name or path contains spaces then enclose the path in quotes, for example:
`-layout="C:\Documents and Settings\user\Desktop\file.lay"`
-layout is not compatible with -machine.

-Exit

- When used with the -layout option, -Exit will cause the WallControl-red application to load the layout file without the application window being displayed and to terminate once the layout file has been loaded.
- Use this option to open a layout file without displaying the WallControl-red application.
- When -Exit is specified on the command line, an exit code is returned.

-Quiet

- Used in conjunction with -Exit to suppress user interface dialogue boxes.

-CloseWindows={Yes|No}

- Use `-CloseWindows=Yes` to close existing windows.
- Use `-CloseWindows=No` to keep existing windows open.
- When the -layout command line option is specified, the default value for -CloseWindows is Yes.
- When the -machine command line option is specified, the default value for -CloseWindows is No.

-ShowState={Minimised|Restored|Maximised}

- Controls the appearance of the WallControl-red application window.

-Window=[top],[left],[width],[height]

- This option enables the WallControl-red application window to be positioned.
- If a number is left out of the list then the value saved when the application was last terminated is used.
- To change the position of the window without changing the size:
`-window=100,200`
- To change the size of the window without changing the position:
`-window=, ,800,600`

-AlwaysOnTop={True|False}

- This sets the Always on Top state of the WallControl-red application window.
- To enable the window to behave normally, the value should be set to false.
- To force the window to be displayed on top of all other normal windows the value should be set to true.
- 1 or on can be substituted for true.
- 0 (zero) or off can be substituted for false.

-Save=Layout file

- Allows the saving of a layout file from the command line. It's not compatible with the -layout or -closewindows options but can be used with -exit

Networking Options

To control a machine other than the one you are working on you will need some of the following options:

-Machine={machine name|IP address}

- This option specifies the machine to connect to.
- If the machine name contains spaces then enclose the name in quotes, for example:
`-machine="My Computer"`
- You can also specify an IP address, for example:
`-machine=10.0.0.21`
- -machine is not compatible with -layout.

If the server requires a User Name and Password the following options should be used:

`-UserName=user name`

`Password=password`

If the machine is not participating in a domain, the account must be on the machine you are connecting to.

If the machine is participating in a domain, you have a choice:

- The account can be on the machine you are connecting to.
- It can be an account on the domain.

If the account is on the domain, the domain name must be specified with the following option:

`-Domain=domain name`

`-Port=port number`

You need specify the port if you are attempting to connect to another machine and WallControl-red has been configured to listen on a port other than the default port.

A port number is any integer between 1 and 65535.

13.1.1 IP Camera

The command line interface allows you to create, modify or close IP-Camera windows. The command line interface can be accessed in a number of ways:

- From a shortcut specifying IPCAMCMD.EXE as the target followed by the command line options separated by spaces.
- From a command prompt by specifying the full path of IPCAMCMD.COM or by having the folder where the IP-Camera software was installed on the path.
- From a batch file. The same rules as command prompt apply.

-ID=*number*

When a window is created it can be allocated an ID. To modify or close a window, specify its ID so the correct window is modified or closed.

An ID is any integer between 1 and 65535. The ID is specific to IP-Camera windows.

-Input=*camera name*

■ Specifies the name of a camera. This camera must already have been configured in Wall Control

-Close

■ If this command line option is specified with an ID, the window with that ID is closed.

-ShowState={*Minimised|Restored|Maximised|Show|Hide*}

■ Sets the show state of the window.

■ To activate a window use Restored.

-AlwaysOnTop={*On|Off*}

-AspectRatio={(*On|Off*),*[width],[height]*}

■ Switch the maintain aspect ratio feature on or off and specify the ratio of the width and height of the window.

■ All the values are optional but the commas must be used.

-Caption=

■ Set the caption of the window. To include spaces, enclose the string in double quotes (").

-ShowFrameRate={*On|Off*}

■ Display or remove the current frame rate in the title bar,

-ShowMenuBar={*On|Off*}

■ Use to specify if the menu bar is to be displayed.

-Window=*[top],[left],[width],[height]*

■ Change the position and size of the window.

■ All the values are optional but the commas must be used.

-WindowStyle={*BorderAndTitleBar|BorderOnly|NoBorderOrTitleBar*}

The following command line options allow changes to the appearance of the IP-Camera source.

The numbers correspond to the values displayed on the Input Settings sheet.

Networking Options

To control a window on a machine other than the one you are working on you will need some of the following options:

-Machine={*machine name|IP address*}

■ Use this option to specify the machine to connect to.

-Port=*port number*

■ You need to specify the port if you are attempting to control a window on another machine and the server has been configured to listen on a port other than the default port 1049.

■ A port number is any integer between 1 and 65535.

■ If the server requires a User Name and Password, the following options should be used:

-UserName=*user name*

-Password=*password*

If the machine is not participating in a domain, the account must be on the machine you are connecting to.

If the machine is participating in a domain you have a choice:

■ The account can be on the machine you are connecting to.

■ It can be an account on the domain.

If the account is on the domain, the domain name must be specified with the following option:

-Domain=*domain name*

13.1.2 Vision Windows

The Vision command line interface allows you to create, modify or close Vision windows.

-ID=*number*

■ When a window is created it can be allocated an ID. To modify or close a window, specify its ID so the correct window is modified or closed.

■ An ID is any integer between 1 and 65535. The ID is specific to Vision windows.

-Close

■ If this command line option is specified with an ID, the window with that ID is closed.

-ShowState={*Minimised|Restored|Maximised|Show|Hide*}

■ Sets the show state of the window.

■ To activate a window use Restored.

-AlwaysOnTop={On|Off}

-AspectRatio={[On|Off|Source],[width],[height]}

- Switch the maintain aspect ratio feature on or off and specify the ratio of the width and height of the window.
- If Source is specified, the width and height of the source are used as the aspect ratio.
- All the values are optional but the commas must be used.

-Caption=

- Set the caption of the window. To include spaces, enclose the string in double quotes (").

-ShowFrameRate={On|Off}

- Display or remove the current frame rate in the title bar

-ShowMenuBar={On|Off}

- Use to specify if the menu bar is to be displayed.

-Window=[top],[left],[width],[height]

- Change the position and size of the window.
- All the values are optional but the commas must be used.

-WindowStyle={BorderAndTitleBar|BorderOnly|NoBorderOrTitleBar}

-ExcludeBorders={On|Off}

-DisplayMessageAfter=time in milliseconds

-CaptureFormat={Automatic|5-5-5|5-6-5|8-8-8}

-TransferData={ViaSystemMemory|DirectToGraphicsCard}

-Scaling={Fast|Slow}

-ActiveCaptureRate=percentage

- Select one of the following percentages: 1, 5, 10, 15, 20, 25, 33, 50 or 100. If you use a number that is not in the list, it will be rounded down to the closest number lower in the list.

-InactiveCaptureRate=percentage

- Select one of the following percentages: 1, 5, 10, 15, 20, 25, 33, 50, 100. If you use a number that is not in the list, it will be rounded down to the closest number lower in the list.

-DifferentCaptureRate={On|Off}

-Input=input number

-Reset

- Discards the capture settings for the mode the Vision source is currently generating.

-ShareCaptureSettings={On|Off}

- With ShareCaptureSettings switched on, the changes made to the capture settings controls are shared with other Vision windows. The capture settings are saved automatically so that the next time a Vision window is created, the capture settings can be used.
- With ShareCaptureSettings switched off, the changes made to the capture settings controls are applied to this Vision window only.
- When switching ShareCaptureSettings on, the capture settings for the Vision window will be discarded.
- By default, ShareCaptureSettings is switched on.

-Cropping={[On|Off],[top],[left],[width],[height]}

-Deinterlace={Weave|Bob|Field0|Field1}

- Select Weave for sources with little or no motion.
- Select Bob for sources displaying motion.
- Select Field for a single field to be displayed.

The following command line options allow changes to the appearance of the Vision source. The numbers correspond to the values displayed on the Input Settings sheet.

-CaptureWidth=number

-CaptureHeight=number

-HorizontalPosition=number

-HorizontalSize=number

-Phase=number

-VerticalPosition=number

-BlackLevel=number

-Brightness=number

-Contrast=number

-Saturation=number

-Hue=number

-Rotation={0|90|180|270}

- Sets the orientation for the current input signal.

-Information

- Creates a text file called information.ini in the current directory. The file contains details of the minimum and maximum values and supported features that can be used with the command line.
- The information.ini file is over written every time the -information is used.

-CursorStyle=Show

- Always shows the cursor within the client area of the window

-CursorStyle=Hide

- Always hide the cursor within the client area of the window

-CursorStyle=HideWhenActive

- Only hide the cursor within the client area of the window when the window is the active window on the desktop.

Networking Options

To control a window on a machine other than the one you are working on you will need some of the following options:

-Machine={*machine name*|*IP address*}

- Use this option to specify the machine to connect to.

-Port=*port number*

- You need specify the port if you are attempting to control a window on another machine and the Vision server has been configured to listen on a port other than the default port 1049.
- A port number is any integer between 1 and 65535.

- If the server requires a User Name and Password, the following options should be used:

-UserName=*user name*

-Password=*password*

If the machine is not participating in a domain, the account must be on the machine you are connecting to.

If the machine is participating in a domain you have a choice:

- The account can be on the machine you are connecting to.
- It can be an account on the domain.

If the account is on the domain, the domain name must be specified with the following option:

-Domain=*domain name*

13.1.3 Application Windows

The command line interface allows you to create, modify or close Application windows, it can be accessed in a number of ways:

- From a shortcut specifying APPCMD.EXE as the target followed by the command line options separated by spaces.
- From a command prompt by specifying the full path of APPCMD.COM or by having the folder where the software was installed on the path.
- From a batch file. The same rules as command prompt apply.

Non-Configured Applications

The command line interface can be used to control windows for third-party applications that have not been specifically configured in. See Starting Non-Configured Applications below.

Configured Applications

An abbreviated version of the command line is available for starting applications that are already configured in Wall Control. See Starting Configured Applications below. This includes pre-supported applications automatically configured during installation and also custom applications added by the user after installation. See Configuring Applications in Wall Control.

Example Usage – Configured Applications

- Open the Internet Explorer application 'iexplore.exe with the configured input ID 1.
`"C:\Program Files (x86)\Wall Control\apccmd.exe" -AppName="Internet Explorer" -Input="Search" -ID=1`
- Dynamically switch input for an Internet Explorer window with the ID of 1.
`"C:\Program Files (x86)\Wall Control\apccmd.exe" -ID=1 -Input="News"`

Example Usage – Non-Configured Applications

- Open the application 'notepad.exe' to display the file "c:\info.txt".
`"C:\Program Files (x86)\Wall Control\apccmd.exe" -AppName="notepad.exe" -CmdArgs="c:\info.txt"`
- Open the Internet Explorer application 'iexplore.exe' with the URL "http://www.google.com" and assign the ID 1.
`"C:\Program Files (x86)\Wall Control\apccmd.exe" -AppName="C:\Program Files\Internet Explorer\iexplore.exe" -CmdArgs="-nomerge http://www.google.com" -ID=1`
- Dynamically switch inputs for an Internet Explorer window with the ID of 1.
`"C:\program files (x86)\Wall Control\apccmd.exe" -ID=1 -CmdArgs="http://www.google.com/news"`
- Move the application window with the ID 1 to the origin of the desktop without changing its size.
`"C:\Program Files (x86)\Wall Control\apccmd.exe" -ID=1 -Window=0,0,,`
- Close the application with the ID 1.
`"C:\Program Files (x86)\Wall Control\apccmd.exe" -ID=1 -Close`

-ID=*number*

- When a window is created it can be allocated an ID. To modify or close a window, specify its ID so the correct window is modified or closed.
- An ID is any integer between 1 and 65535. The ID is specific to windows.

-Close

- If this command line option is specified with an ID, the window with that ID is closed.

-ShowState={*Minimised|Restored|Maximised|Show|Hide*}

- Sets the show state of the window. To activate a window use Restored.

-AlwaysOnTop={*On|Off*}

-ShowMenuBar={*On|Off*}

- Use to specify if the menu bar is to be displayed.

-Window=[*top*],[*left*],[*width*],[*height*]

- Change the position and size of the window.
- All the values are optional but the commas must be used.

-WindowStyle={*BorderAndTitleBar|BorderOnly|NoBorderOrTitleBar*}

Starting Non-Configured Applications

- A non-configured application involves any application that has not been added to Wall Control's list of configured applications: See Configure Applications.

-AppName=*"application name"*

- The full path of the application must be specified (eg. "C:\Program Files\Internet Explorer\iexplore.exe")

-CmdArgs=*"Command line arguments"*

- Specifies optional parameters for the application. Many applications accept the name of a file to be opened. For details of command line arguments, refer to your application documentation.
- -CmdArgs can only be used in conjunction with -AppName for non-configured applications. If -AppName contains the name of a pre-configured or custom application then -Input should be used instead.
-CmdArgs="-File="C:\My Pictures\picture.jpg\""

Starting Configured Applications

Configured applications include pre-supported applications automatically added during Wall Control installation and custom applications added by the user after installation: See Configure Applications.

-AppName=*"application name"*

- The name of a pre-configured or custom configured application in Wall Control must be specified (eg. "DGCPlay").

-Input=*"input name"*

- The input name must specify the name of an input that has been configured for the application (eg. "FilmClip1").

Networking Options

To control a window on a machine other than the one you are working on you will need some of the following options:

-Machine={*machine name|IP address*}

- Use this option to specify the machine to connect to.

-Port=*"port number"*

- You need specify the port if you are attempting to control a window on another machine and the Application server has been configured to listen on a port other than the default port 1049.
- A port number is any integer between 1 and 65535.

- If the server requires a User Name and Password, the following options should be used:

-UserName=*"user name"*

-Password=*"password"*

If the machine is not participating in a domain, the account must be on the machine you are connecting to.

If the machine is participating in a domain you have a choice:

- The account can be on the machine you are connecting to.
- It can be an account on the domain.

If the account is on the domain, the domain name must be specified with the following option:

-Domain=*"domain name"*

Dynamically Switching Inputs for Configured Applications

The `-Input` command can be used to change the input displayed in a window for a configured application without closing and re-opening either the window or the application. This is an application specific feature that requires the window to be in a visible state and not obstructed by other windows on the desktop.

-Input="input name"

- The input name must specify the name of an input that has been configured for the application that owns the window.
- The `-Input` switch must be used with the `-ID` switch to specify the target window.
- Example of dynamically switching the input for an Internet Explorer window with the ID of 1.

```
"C:\Program Files (x86)\Wall Control\appcmd.exe" -ID=1 -Input="News"
```

Dynamically Switching Inputs for Non Configured Applications

`-CmdArgs` can be used to change the open file/URL displayed in a window for a non configured application without closing and re-opening either the window or the application. This is an application specific feature that requires the window to be in a visible state and not obstructed by other windows on the desktop.

-CmdArgs="File pathname or URL"

- The value in `-CmdArgs` must specify the full pathname or URL.
- `-CmdArgs` must be used with the `-ID` command to specify the target window.
- The value in `-CmdArgs` should only include the pathname/URL and should not include any application specific commands that were used to start the application.
- Example of dynamically switching inputs for an Internet Explorer window with the ID of 1.

```
"C:\program files (x86)\Wall Control\appcmd.exe" -ID =1 -CmdArgs="http://www.google.com/news"
```

13.1.4 On Screen Display

-OSDType={Disabled|SimpleText}

- Switches the OSD on or off

-OSDText=

- Specifies the on screen display text.
- If the text includes spaces, the text must be enclosed in double quotes.
- Line breaks are indicated by the characters `\n`. If you wish to include a `\` in the text, it must be preceded by a `\`.

For example `-OSDText="The quick\nbrown fox\njumps over\nthe lazy dog."`

Gives the on screen display:

```
The quick
brown fox
jumps over
the lazy dog
```

-OSDScaling={FixedSize|ScaleWithWindow}

- Allows you to specify how the OSD is scaled. When `FixedSize` is specified, the OSD is displayed at the same size regardless of the size of the window. When `ScaleWithWindow` is specified, the OSD is scaled up or down according to the size of the window.

-OSDFontName=font name

- Specifies the name of the font to be used for OSD text. If the font name includes spaces, the name must be enclosed in double quotes.

-OSDFontSize=number

- Specifies the point size of the font to be used for OSD text.

-OSDFontStyle={Regular|Bold }

-OSDFontItalic={On|Off}

-OSDFontStrikeout={On|Off}

-OSDFontUnderline={On|Off}

-OSDFontColour=red,green,blue

- Specifies the colour of the text in red, green and blue components. Each of the components is a number from 0 to 255.

-OSDBackground={Transparent|Opaque}

- When `Transparent` is specified, the Vision capture in the area behind the text is visible.
- When `Opaque` is specified the area behind the text is displayed in the colour specified using the `OSDBackgroundColour` option.

-OSDBackgroundColour=red,green,blue

- When OSDBackground is set to Opaque, this option specifies the colour displayed behind the text in red, green and blue components. Each of the components is a number from 0 to 255.

-OSDMargins={top],[left],[right],[bottom]}

- The margins define the area in which OSD is displayed.
- If ScaleWithWindow is specified, the margins are measured in pixels of the Vision source. If FixedSize is specified, the margins are measured in pixels of the interior of the Vision window.
- Any part of the OSD that falls outside the margins is not displayed.

-OSDTextWrap={On|Off}

- When text wrapping is switched on, if the text does not fit between the left and right margins, spaces between words are replaced with line breaks to produce shorter lines.
- When text wrapping is switched off, the text is displayed with the same spaces and line breaks as it has been entered.

-OSDHorizontalAlignment={Left|Centre|Right}

- If you specify Left, the left edge of the OSD will be positioned against the left margin and each of the individual lines will be left aligned.
- If you specify Centre, the centre of the OSD will be positioned half way between the left and right margins and each of the individual lines will be centred.
- If you specify Right, the right edge of the OSD will be positioned against the right margin and each of the individual lines will be right aligned.

-OSDVerticalAlignment={Top|Centre|Bottom}

- If you specify Top, the top edge of the OSD will be displayed against the top margin.
- If you specify Centre, the centre of the OSD will be positioned half way between the top and bottom margins.
- If you specify Bottom, the bottom edge of the OSD will be displayed against the bottom margin.

13.1.6 Audio

The Audio command line interface controls analogue, digital and line out audio streams.

-AudioEnable={On|Off}

- Enable or disable for the specified window.

-AudioFocusMute={On|Off}

- Use to mute audio for the specified window unless it has focus.

-AudioLineOutMute={On|Off}

- Mute line out in hardware.

-AudioLineOutGain=gain

- Specify the numeric gain value to be applied to the line out.

-AudioLineOutSource={Digital|Analog}

- Set line out source to as digital or analogue line out source .

-AudioDigitalMute={On|Off}

- Mute digital input in hardware.

-AudioDigitalPair={0|1|2|3}

- Select the stereo channel pair sampling for a digital input.
0: 0-1 1: 2-3 2: 4-5 3: 6-7

-AudioUnbalancedMute={On|Off}

- Mute unbalanced input in hardware.

-AudioUnbalancedGain=gain

- Specify the numeric gain to be applied to the unbalanced input.

-AudioBalancedMute={On|Off}

- Mute balanced input in hardware.

-AudioBalancedBoost={On|Off}

- Add a 20dB boost to the balanced input.

-AudioBalancedGain=gain

- Specify the numeric gain to be applied to the balanced input.

-AudioADCMute={On|Off}

- Mute the output mixer in hardware.

-AudioADCGain=gain

- Specify the numeric gain to be applied to the output mixer.

13.2 WallControl 10 -Command Line Interface

The WallControl 10 command line interface can be accessed from a command prompt and also by using Telnet for issuing commands remotely, specifying wcmd.exe.

If you intend using a Telnet connection, the following procedures should be followed prior to using the Telnet Client:

- Run the WallControl 10 Telnet Server:
C:\Program Files\WallControl 10\Telnet Server\WallControl 10 Telnet Server.exe (double click on the .exe file)

This will start the WallControl 10 Telnet Server and ensures it runs continually after the machine is rebooted.

- Switch on the Telnet Client:
Control Panel/Programs and Features/Turn Windows features on or off.

Ensure the Telnet Client checkbox is selected.

- Type "telnet" into the command prompt followed by the name of the machine you wish to connect to, by default Telnet is accessible on port 23, if you have it configured for something different then you will need to specify the port number to connect on. If the machine name contains spaces then enclose the name in quotes, for example:

```
telnet 127.0.0.1
```

or

```
telnet 127.0.0.1 23
```

The command line arguments are grouped into three categories:

- Information
- Action
- Authentication

Command line arguments are provided with both a long switch and a short switch where shown.

Information Commands

Long Switch	Short Switch	Description/Example
-help	-?	Displays a list of available command line arguments and some examples.
-exitcodes	-ec	Displays a list of all known exit codes.
-layouts	-l	Displays a list of all layouts on the server.
-providers	-prs	Displays a list of all providers installed in the system.
-openwindows	-ow	Displays a list of all windows currently open on the wall.
-inputs		Displays a list of available inputs in the following format: Alias="friendly name", Provider="web", Input="http://xxxxxxxx"

Action Commands

Long Switch	Short Switch	Description/Example
Inputs		
-provider	-pr	-provider={Capture Video Word Application Quant Image IPDecode Web Pdf Remote} Target a type of provider on the server. The types of Provider that may be available are: Images, MS Word, IP, Internet, Quant, Applications and PDF providers. wcmd.exe -provider=<provider> -id=<window number> -input=<name identity> -window=<left>,<top>,<width>,<height>
-input	-in	-input=name The name of the input to target on the server. The name of the input will depend on the type of provider being used. For example, if the input you are selecting is from the Capture then the input name will be a number from 1 upwards. For other Providers (IP) it will be a friendly name. If the input comes from the Video then the full path is required. wcmd.exe -provider=<provider> -id=<window number> -input=<name identity> -window=<left>,<top>,<width>,<height>
-addinput	-ai	Add a new source. Currently only available for IPDecode and Web sources. addinput="rtsp://10.0.0.1:522/Ch2" addinput="http://www.google.com" When adding a new input, the URL or IP stream address must be unique and not already exist in the list of sources. wcmd.exe -provider=<provider> -addinput=<url> -alias=<name>
-alias	-a	Use in conjunction with -addinput to allocate a friendly name. -alias="Camera 1"
-readonly	-ro	Use in conjunction with -addinput to specify if the source alias is editable. -readonly="true" Renders the input alias uneditable. -readonly="false" Renders the input alias editable. wcmd.exe -provider=<provider> -addinput=<url> -alias=<name> -readonly=<true false>
-shared	-sh	Use in conjunction with -addinput . -shared="true" Places the source in the Global Media Store. -shared="false" Places the source in the Local Wall Content Store. wcmd.exe -provider=<provider> -addinput=<url> -alias=<name> -shared=<true false>

Action Commands

Long Switch	Short Switch	Description/Example
-streamusername	-sun	Used to specify a username for a stream source. Must be paired with password. wcmd.exe -provider=<provider> -addinput=<url> -alias=<name> -streamusername=<username> -streampassword=<password>
-streampassword	-spwd	Used to specify a password for a stream source. Must be paired with username. wcmd.exe -provider=<provider> -addinput=<url> -alias=<name> -streamusername=<username> -streampassword=<password>
-deleteinput	-di	Deletes a specified input from the Local source repository. Currently only available for IPDecode and Web sources. -deleteinput=<input url> Only sources specific to a wall can be deleted. Global sources cannot be deleted using the -deleteinput switch. wcmd.exe -provider=<provider> -deleteinput=<name identity>
-createcrop	-cc	Allows a user to create a permanent crop of a specific input. Used in conjunction with -id , -provider and -input . wcmd.exe -machine=<server>:<port> -provider=<Capture IpDecode> -input=<input> -alias=<name> -createcrop=<top>, <left>, <width><height> -sourcesize=<sourceWidth>, <sourceHeight>
-sourcesize	-sz	Used in conjunction with -createcrop . To create a crop, the size of the original source is required when using the -createcrop switch as the source is not open prior to the crop being created. For example: wcmd.exe -machine=<server>:<port> -provider=<Capture IpDecode> -input=<input> -alias=<name> -createcrop=<top>, <left>, <width><height> -sourcesize=<sourceWidth>, <sourceHeight>

Layouts

-layout	-ol	-layout=<layout file> Open a specific layout file. If the layout name contains spaces then enclose the name in quotes, for example: wcmd.exe -layout="CCTV One"
---------	-----	---

Action Commands

Long Switch	Short Switch	Description/Example
-schedule	-s	Used in conjunction with the -layout command to create a scheduled task to execute a specific layout. This creates a single scheduled task: wcmd.exe -layout=<name> -schedule=<datetime> Specify date time format as "DD/MM/YYYY HH:mm:ss" dependent on windows culture settings.
-savelayou	-sl	-savelayou=<name> Allows you to save the current wall view as a layout. If the layout name contains spaces then enclose the name in quotes, for example: wcmd.exe -savelayou="Layout One"
-deletelayout	-dl	Delete a specific layout file. If the layout name contains spaces then enclose the name in quotes, for example: -deletelayout="CCTV One" If User Rights Management is enabled, only Layouts located within the Layout store can be deleted. Any attempt to delete Layouts saved locally will result in an error message being displayed.

Walls

-getpowerstate	-gps	wcmd.exe -getpowerstate Obtains the power state of the compatible displays for the current wall, valid results are On and Off. For example: wcmd.exe -machine:mywallserver:8081 -getpowerstate Valid results are on off . When used locally on the controller you can obtain the power state of the "Blueprint" wall by omitting the -machine switch. For example: wcmd.exe -getpowerstate
-setpowerstate	-sps	wcmd.exe -machine -setpowerstate=on off> Sets the power state of the compatible displays for the current wall. Valid states are on off. Note: A delay can occur when setting the power state due to the hardware.
-getpowerlevel	-gpl	wcmd.exe -machine getpowerlevel Gets the power level of the screens for the current wall, valid results are Normal, Eco, EcoAdvanced, or Bright .

Action Commands

Long Switch	Short Switch	Description/Example
-setpowerlevel	-spl	<p>wcmd.exe -setpowerlevel=<Eco EcoAdvanced Bright Normal></p> <p>Sets the power level of the screens for the current wall, valid levels are Eco, EcoAdvanced, Bright and Normal</p> <p>Note: A delay can occur when setting the power level due to the hardware.</p>
-wallstate	-wallstate	<p>It is possible to get the current state of all walls or an individual wall by specifying its name.</p> <p>An example of getting all the wall states:</p> <p>wcmd -wallstate</p> <p>An example of getting a specific wall state:</p> <p>wcmd -wallstate=wall name</p>
-startwalls	-startwalls	<p>Starts all walls on the specified server.</p> <p>wcmd-startwalls</p> <p>By default, this will only start all walls set to AutoStart, if you require it to start all walls regardless of the autostart setting.</p> <p>wcmd -startwalls=all</p>
-startwall	-startwall	<p>Starts a specified wall on the server.</p> <p>wcmd -startwall=<wall name></p>
-stopwalls	-stopwalls	<p>Stops all the walls on the specified server.</p> <p>wcmd -stopwalls</p>
-stopwall	-stopwall	<p>Stops the specified wall on the server.</p> <p>wcmd -stopwall=wall name</p>

Action Commands

Long Switch	Short Switch	Description/Example
Window		
-window	-w	<p>-window=[left],[top],[width],[height]</p> <p>Set the position and size of the window.</p> <p>Commas must be used between values.</p> <p>Must be used in conjunction with the -id switch.</p> <p>To display a Vision window a typical command line argument would be:</p> <p>To open a window:</p> <p>wcmd.exe -provider=<provider> -id=<window number> -input=<name identity> -window=<left>,<top>,<width>,<height></p> <p>To move/resize an open window:</p> <p>wcmd.exe -id=<window number> -window=<left>,<top>,<width>,<height></p>
-id		<p>When a window is created it can be allocated in ID. To modify or close a window, specify its ID so the correct window is addressed. Only one window can exist on the wall at any time with the allocated ID.</p> <p>wcmd.exe -id=<window number> -aspectratio=<true false></p>
-closewindows	-cw	<p>Closes all open windows.</p> <p>wcmd.exe -closewindows</p>
-closewindow	-c	<p>Used with a specific ID will close that window.</p> <p>wcmd.exe -id=<window number> -closewindow</p>
-windowstyle	-ws	<p>Sets the style of the window.</p> <p>wcmd.exe -id=<window number> -windowstyle=<BorderAndTitlebar NoBorderAndTitlebar></p> <p>It can also be used with the open window command (-window)</p>
-sendto	-st	<p>Allows the user to send a selected window forward or backward, valid values are front and back. For example:</p> <p>wcmd.exe -id=<window number> -sendto=<front back></p> <p>It can also be used with the open window command (-window)</p>

Action Commands

Long Switch	Short Switch	Description/Example
-aspectratio	-ar	<p>IpDecode, Video and Capture sources only.</p> <p>Allows the user to switch aspect ratio on or off <true/false> for a selected capture. For example:</p> <p>wcmd.exe -id=<window number> -aspectratio=<true false></p> <p>Note: when applying aspect ratio to IpDecode sources it is advisable to send the command to a source that is already open and decoding.</p> <p>It can also be used with the open window command (-window)</p>
-audio	-au	<p>Enables or Disables audio for Video and Capture sources only.</p> <p>wcmd.exe -id=<window number> -audio=<[on/true] [off/false]></p> <p>It can also be used with the open window command (-window)</p>
-pixelformat	-pf	<p>Used with a Vision source only = Auto, RGB565,RGB888 or YUY2</p> <p>wcmd.exe -id=<window number> -pixelformat=< Auto RGB565 RGB888 YUY2></p> <p>It can also be used with the open window command (-window)</p>
-rotate	-rx	<p>Capture sources only.</p> <p>Allows the user to apply rotation to Capture sources, valid values are 0, 90, 180, 270, For example:</p> <p>wcmd.exe -id=<window number> -rotate=<0 90 180 270></p> <p>It can also be used with the open window command (-window)</p>
-hscroll	-hs	<p>Specifies a horizontal scroll offset within the web page specified in pixels. Only used with a Web Provider.</p> <p>wcmd.exe -id=<window number> -hscroll=<pixels></p> <p>It can also be used with the open window command (-window)</p>
-vscroll	-vs	<p>Specifies a vertical scroll offset within the web page specified in pixels. Only used with a Web Provider.</p> <p>wcmd.exe -id=<window number> -vscroll=<pixels></p> <p>It can also be used with the open window command (-window)</p>

Action Commands

Long Switch	Short Switch	Description/Example
-refresh	-rf	<p>Only valid for Web Provider.</p> <p>Allows a web page to be refreshed every X seconds. For example:</p> <p>wcmd.exe -id=<window number> -refresh=<seconds></p> <p>It can also be used with the open window command (-window)</p>
-zoom	-zm	<p>Used in conjunction with the web provider. Specifies a zoom as a percentage. It can also be used with the open window command (-window)</p> <p>Example Usage:</p> <p>-zoom=<percentage></p> <p>Minimum zoom is 25% Maximum zoom is 500%</p> <p>wcmd.exe -id=<window number> -zoom=<percentage></p>

On Screen Display (OSD)

-osdfonts	-osdfo	<p>Get a list of the fonts supported by the wall.</p> <p>wcmd.exe -osdfont</p>
-osdvariables	-osdsv	<p>Get a list of the OSD variable placeholders.</p> <p>wcmd.exe -osdvariables</p>
-osdtext	-osdt	<p>Sets the OSD text content, required for all OSD calls.</p> <p>Using OSD defaults:</p> <p>wcmd.exe -id=<window id> -osdtext=<text></p> <p>If you want to override any of the default OSD parameter append any of the below examples to end of the string above.</p>
-osdtextwrapping	-osdtw	<p>Sets the OSD word wrapping, true or false. Used as part of the definition of an OSD.</p> <p>Default = true</p> <p>wcmd.exe -id=<window id> -osdtext=<text> -osdtextwrapping=<true false></p>

Action Commands

Long Switch	Short Switch	Description/Example
-osdtextbold	-osdtb	Sets the OSD text to be Bold, true or false. Used as part of the definition of an OSD. Default = <i>false</i> wcmd.exe -id=<window id> -osdtext=<text> -osdtextbold=<true false>
-osdtextitalic	-osdti	Sets the OSD text to be Italic, true or false. Used as part of the definition of an OSD. Default = <i>false</i> wcmd.exe -id=<window id> -osdtext=<text> -osdtextitalic=<true false>
-osdtextunderlined	-osdtu	Sets the OSD text to be Underlined, true or false. Used as part of the definition of an OSD. Default = <i>false</i> wcmd.exe -id=<window id> -osdtext=<text> -osdtextunderlined=<true false>
-osdfontcolour	-osdfc	Sets the OSD content's Font colour, in the format red, green, blue in the range 0-255. Used as part of the definition of an OSD. Default = 255,79,79 wcmd.exe -id=<window id> -osdtext=<text> -osdfontcolour=<red, green, blue>
-osdfontsize	-osdfs	Sets the OSD's Font size, in the range 1-1000. Used as part of the definition of an OSD. Default = 36 wcmd.exe -id=<window id> -osdtext=<text> -osdfontsize=<size>
-osdfont	-osdf	Sets the OSD's Font using the name of an installed font. Used as part of the definition of an OSD. Default = <i>Consolas</i> or the first alphabetically listed font wcmd.exe -id=<window id> -osdtext=<text> -osdfont=

Action Commands

Long Switch	Short Switch	Description/Example
-osdbtransparent	-osdbt	Sets the OSD content's background to be transparent, true or false. Used as part of the definition of an OSD. Default = <i>false</i> wcmd.exe -id=<window id> -osdtext=<text> -osdbtransparent=<true false>
-osdbccolour	-osdbc	Sets the OSD content's background colour, in the format alpha, red, green, blue in the range 0-255. Used as part of the definition of an OSD Default = 255.0.0.0 wcmd.exe -id=<window id> -osdtext=<text> -osdbccolour=<alpha, red, green, blue>
-osdscaled	-osds	Sets the OSD content to scale with window size or be fixed sized using scaled or fixed. Used as part of the definition of an OSD. Default = <i>fixed</i> wcmd.exe -id=<window id> -osdtext=<text> -osdscaled=<fixed scaled>
-osdhalignment	-osdha	Sets the OSD content Horizontal alignment, in the format left, center or right. Used as part of the definition of an OSD. Default = <i>left</i> wcmd.exe -id=<window id> -osdtext=<text> -osdhalignment=<left center right>
-osdvalignment	-osdva	Sets the OSD content Vertical alignment, in the format top, center or bottom. Used as part of the definition of an OSD. Default = <i>top</i> wcmd.exe -id=<window id> -osdtext=<text> -osdvalignment=<top center bottom>
-osdmargins	-osdm	Sets the margins around the OSD draw area, in the format left, top, right, bottom side. Used as part of the definition of an OSD. Default = 0,0,0,0 wcmd.exe -id=<window id> -osdtext=<text> -osdmargins=<left, top, right, bottom>
-removeosd	-rosd	wcmd.exe -id=<window id> -removeosd

Action Commands

Long Switch	Short Switch	Description/Example
System		
-machine	-m	wcmd.exe -machine=<server>:<port> -closewindows wcmd.exe -machine=<server> -wall=<wall name> -closewindows
-wall	-wn	This has been added so that users are not required to know about the random port numbers for direct connection to a wall, they can still be specified if required but not used in conjunction with the -wall=wallname switch as the value returned by the wall name will override anything provided by the user as part of the -machine=server:port command. wcmd.exe -machine=<server> -wall=<wall name> -layouts
-serverport	-sp	User to specify a custom port number which should be used to communicate with the desktop server. This will override the default port number 19821. wcmd.exe -serverport=<port number> -stopwalls
-echo	-e	This allows the error level to be returned to the command line so that it can be used with AMX/Crestron controllers. If the -echo switch is not used then the exit code is not returned on the command line. For example: zero (0) represents a success and the exit code is printed to the output. wcmd -layouts -echo ExitCode: 0 <i>Layout1, Layout2</i> An exit code greater than zero is an error and is shown below. wcmd -layout="Layout3" -echo ExitCode: 3 Using the Command Line without the -echo switch. wcmd -layouts <i>Layout1, Layout2</i> wcmd -layout="Layout3" In these usage scenarios the user can detect the command line exit code by using the %ERRORLEVEL% value in DOS as previously (although that will not work in conjunction with AMX / Crestron, hence the -echo change).

Action Commands

Long Switch	Short Switch	Description/Example
-help	-?	-help=<command> Example Usage: To return a list of all command switches and comment wcmd -help To return specific help for a command wcmd.exe -helpwcmd.exe -help=<command>

Authentication Commands

Long Switch	Short Switch	Description/Example
-username	-un	Only relevant is the user is using User Rights Management (URM). If you are trying to connect to a machine other than the one you are using a username and password may be required: -username="user name" wcmd.exe -username=<username> -password=<password> -layouts
-password	-pwd	Only relevant is the user is using User Rights Management (URM). If you are trying to connect to a machine other than the one you are using a username and password may be required: -password=password wcmd.exe -username=<username> -password=<password> -layouts

Example Commands

Below is a list of example commands:

Open a window using input number 2 positioned at the top left of the wall with a height and width of 500 pixels:

■ `wcmd -machine=10.0.0.21:8081 -id=1 -provider=Capture -input=2 -window=100,100,500,500`

Open an video window using Input wildlife:

■ `wcmd -machine=10.0.0.21:8081 -id=5 -window=1920,1080,1920,1080 -input="C:\users\desktop\videos\wildlife.wmv"`
The full path is required for the input.

Change the source of Window 1 to a known internet source

```
wcmd -machine=10.0.0.21:8081 -id=1 -provider=Web -input="google"
```

Note: The input used must exist within the repository and the name "google" must exist as an internet source accessible via the source menu.

Move Window 1 to a different position on the wall.

```
wcmd -machine=10.0.0.21:8081 -id=1 -window=5000,450,500,500
```

Get a list of available layouts

```
wcmd -machine=10.0.0.21:8081 -layouts
```

Save a layout

```
wcmd -machine=10.0.0.21:8081 -savelayout="my layout"
```

Load a layout

```
wcmd -machine=10.0.0.21:8081 -layout="my layout"
```

Schedule a task to load a layout

```
wcmd -machine=10.0.0.21:8081 -layout="my layout" -  
schedule="15/05/2017 09:00:00"
```

Get a list of all open windows on the wall

```
wcmd -machine=10.0.0.21:8081 -openwindows
```

Turning on/off the audio for an Capture window

```
wcmd.exe -machine=10.0.0.21:8999 -id=1 -provider=Capture -audio=on
```

Adding a new web input source into the Global Media Store with an editable friendly name:

```
wcmd -machine=10.0.0.1:522 -provider=web -alias=Google  
-addinput="http://www.google.com" -shared=true -readonly=false
```

Adding a new IPDecode source to a Local Wall Content Store with an uneditable friendly name:

```
wcmd -machine=10.0.0.1:522 -provider=IPDecode -alias="Camera 1"  
-addinput="rtsp://10.0.0.1:522/Ch2" -shared=false -readonly=true
```

13.2.1 Display Driver Configuration Tool - Command Line Interface

It is possible to Import and Export Display Driver Configuration files via the Command Line. However, this will require Driver Install Version 5.0 or higher.

Import

To import and apply a Display Driver Configuration via the command line please use the following command:

```
C:\Program Files\Datapath Drivers\ModeSetupTool\ModeSetupToolCmd.exe  
-import="[path to file].wall"
```

The command line tool will return one of three values when it has applied the new configuration:

0	The operation completed successfully and the new configuration is active.
1	The operation completed successfully, a reboot is required to enable the new desktop configuration.
2	The operation failed and the new configuration has not been applied.

If the command line operation fails then a more detailed error description can be found by loading the file into the graphical Display Driver Configuration Tool.

Export

To export the current Display Driver Configuration to a file, via the command line, please use the following command:

```
C:\Program Files\Datapath Drivers\ModeSetupTool\ModeSetupToolCmd.exe  
-export="[path to file].wall"
```

The command line tool will return one of the following values when it has saved the configuration:

0	The operation completed successfully and the configuration has been saved to the specified file.
1	The operation failed and the file has not been saved.

13.3 Verify RAID

To verify the RAID set up on your Wall Controller follow these instructions.

13.3.1 Enter the BIOS Setup

Restart the Wall Controller and press the keyboard delete button when the Boot-Up splash screen is displayed. This will direct you to the BIOS Setup Utility.

Use the keyboard arrows to navigate across to the Advanced Tab:

- Confirm that **Configure SATA#1** is set to RAID.
- Press F10 to save and exit the BIOS Utility.

When the wall controller restarts press CTRL+I at the BIOS splash screen to enter the RAID BIOS utility.

13.3.2 Degraded RAID Array

If a RAID array degrades this does not necessarily mean that the hard drive or any other hardware within the system is faulty. What it does mean is that there is an inconsistency in DATA across the array. This could be caused by many different factors including a BSOD, the system hanging, an application conflict or power outage.

As stated above, the degrade of a RAID array does not necessarily mean hardware failure but should the problem occur on a regular basis then further diagnostics should be performed/undertaken. It is recommended, as with any system, that regular backups are made to safeguard information.

If a RAID array is degraded take note of the physical port number and the drive serial number of the degraded disk. The degraded disk will normally be highlighted with an error in red in the RAID BIOS Utility. Working drives are normally set to green.

Use the keyboard arrow keys and navigate to Reset disks to Non-RAID and press enter.

Use the keyboard arrow keys to select the degraded disk and press the keyboard spacebar to assign it for Reset.



Ensure the correct disk is selected before continuing.

Once a disk has been reset the BIOS RAID Utility will detect the disk as a new one and a prompt will appear asking if you want to use the selected disk to repair the RAID. Accept and continue.

Both disks should now be displayed as **Member Disk (x)** with the status highlighted in yellow as Rebuild.

Exit the Utility by clicking Esc and RAID will commence the rebuild process once the operating system has loaded.

13.4 Backplane Slot Ordering

The order which the System BIOS enumerates the cards is dictated by the way the PCI Express slots are mapped onto the PCI Express switch on the backplane. Unfortunately this is dictated by the routing of the tracks from the slot to the switch on the backplane. The track routing is designed to provide the highest signal integrity possible, and this means that there is not necessarily a straight mapping between physical slot number and logical BIOS enumeration.

Physical Slot	Express9 Bus Number	Express9-G3 Bus Number ¹	Express11 Bus Number
1	1	1	3
2	2	2	2
3	3	3	7
4	4	4	6
5	5	5	11
6	6	9	10
7	7	8	9
8	8	7	8
9	9	6	5
10	--	--	4
11	--	--	1

¹ This order was introduced in Revision F of the Express9-G3 backplane. Prior to this the ordering was as found in the original Express9. The revision can be determined from the backplane serial number, and the Revision F serial number will always start 163F.

It can be seen from the table that the first card enumerated by the BIOS when using an Express9-G3 is the one in Slot 1. However, on an Express11 the first card enumerated would be the card in Slot 11.

The last card enumerated in an Express11 would be the one in Slot 5. If we were using an SBC₄ with this backplane then an ImageDP₄ card would be programmed with the IO Enabled BIOS. Additional cards could have their IO requirement disabled. If Slot 5 is not populated with an ImageDP₄, the card which would require IO would be the one with the highest bus number.

The last slot enumerated in an Express9-G3 by the SBC₄ would be Slot 6. In the same manner as the Express11 if an ImageDP₄ is placed in this slot it should be the IO enabled card.

It is also worth noting that once booted into Windows the Datapath Drivers will reorder our hardware so that it appears in the order dictated by the jumpers on the card, or by the physical slot if the jumpers are not set. We hide the logical bus order from the user to simplify the wiring of the inputs and outputs.

13.5 Installing Additional ImageDP₄+ Cards

As the number of required screens increase, the likelihood of reaching a system limitation or encountering problems increases. The system limitations are the amount of address space available and the capacity of the power supply.

13.5.1 Power

The amount of current a power supply can deliver on each voltage rail is limited. Often there is also a limit on the total power.

Each ImageDP₄+ card requires 0.25A at +3.3V and 1.2A at +12V.

You can calculate the amount of current and the amount of power required for the ImageDP₄+ cards. For example, the requirements for a 24-screen system of ImageDP₄+ cards is calculated as follows:

Current

$$+3.3V \ 6 \times 0.25A = 1.5A$$

$$+12V \ 6 \times 1.2A = 7.2A$$

Power

$$(3.3V \times 1.5A) + (12V \times 7.2A) = 91.35W$$

These are the requirements for the ImageDP₄+ cards; you must take into account the requirements of all the other devices in the system.

13.5.2 ImageDP₄+ Jumper Links

Multiple ImageDP₄+ cards may have had jumper links fitted, when fitted the links control the order in which the display driver uses the ImageDP₄+ therefore any additional cards need to have their jumper links set accordingly. Details on how the jumper links are set can be found in the ImageDP₄+ user guide. If a damaged card is being replaced, the new card must have the same jumper settings as the damage one coming out of the system.

13.5.3 Installing the Display Drivers

If any graphics cards are added (or removed) from the system the Display Drivers need to be re-installed from the Recovery Media that came with your system or by downloading the latest drivers from the Datapath website.

13.5.4 Screen Order

Any additional graphics cards will change the way the screens on your video wall are ordered. The Wall Control -red application has a screen order tool which can be used to configure which order the screens appear on the desktop. This allows the screen order to be changed without physically swapping any of the output cables between graphics cards.

13.6 Installing CODEC Packs to Play Video

DGCPay utilises the DirectShow codecs installed on the computer to playback a video file. A standard installation of Windows includes codecs for playing WMV files, plus some AVI and MPG files. Many video files require additional 3rd party codec files.

For many of AVI and MPG formats the open source ffdshow package will contain codecs which will allow playback using DGCPay. ffdshow is available from:

<http://ffdshow-tryout.sourceforge.net>

MOV files are supported through QuickTime. By default QuickTime is not available through DirectShow. With additional software it is possible to make QuickTime video files available however. There are a number of codecs which do this, for instance:

http://www.codecguide.com/download_kl.htm

Datapath do not provide any warranty or assurance that these examples will be suitable for commercial use. We simply list them as an example of those available through 3rd parties. Before deployment we advise that any of the above, and any other codec selected, is thoroughly evaluated to confirm their suitability.

13.7 Firmware Updates

The procedures for updating the firmware of your cards can be found in the relevant user guide which is available on your **Support Tile** on the **Start Menu**. Check the Datapath website for the latest version of the user guides.

13.8 Restoring Windows 10

It is strongly advised that a Restore USB Flash Drive is created which can then be used to restore the operating system should any serious problems arise.

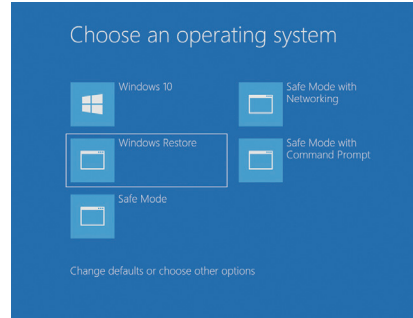
13.8.1 Creating a Windows 10 Restore USB Flash Drive

To create your Restore USB Flash Drive you will need a USB memory stick with a minimum capacity of 16GB. It is recommended that once your restore flash drive has been created, it is stored in a safe place accessible to personnel who may be required to restore the system.

You will need to boot into the Windows Restore portal to begin the process of creating your Restore USB Flash Drive.

Switch on your machine and when the boot messages display the **“Choose an operating system”** screen, use the cursor keys to select **“Windows Restore”** as shown in the following dialogue.

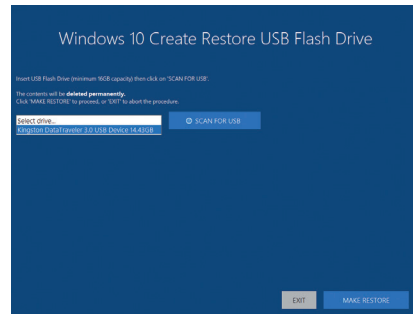
It should be noted that the dialogue is only displayed briefly, approximately 3 seconds.



This will lead you to the Windows 10 Restore Menu as shown below:



Click on the "Create Restore Media" icon then insert the USB flash drive into a vacant USB slot (min capacity 16GB).



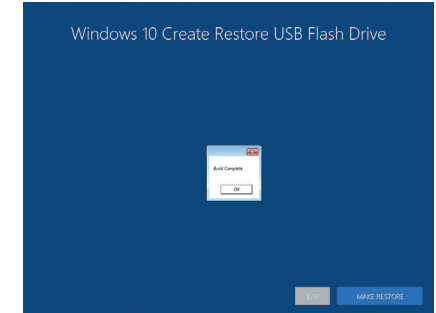
It should be noted that any data currently stored on the USB Flash Drive will be deleted permanently during this process.

Click on "**SCAN FOR USB**".

The application will now scan the system USB ports to detect your USB flash drive. Once the flash drive has been discovered, it will appear in the "Select Drive" dropdown list. Select the flash drive you wish to use from the list and click on "**MAKE RESTORE**".

Once the Windows 10 Restore USB Flash Drive has been created a "**Build Complete**" dialogue is displayed:

Click on "**OK**" to complete the process.



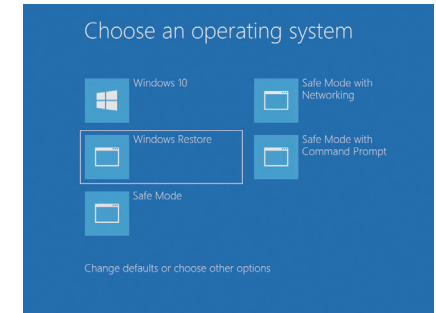
13.8.2 Restoring the Windows 10 Operating System

To restore the Windows 10 Operating System you will need to boot the system from your "**Restore USB Flash Drive**" or the "**Restore Partition**" on your hard drive. If restoring from the USB Flash Drive, place it into any vacant USB port prior to turning on the system.

To restore from the USB Flash Drive, turn on the system and booting process commences, press the F7 key until the "**Select Boot Device**" dialogue is displayed. Select the Boot device (Restore USB Flash Drive). If available, it is recommended the UEFI device is selected. Once the Boot Device has been selected, click "**OK**" and wait until the "**Choose an operating system**" dialogue is displayed.

If you are restoring the Windows 10 Operating System from the "**Restore Partition**" on your hard drive, turn on the system and wait until the "**Choose an operating system**" dialogue is displayed.

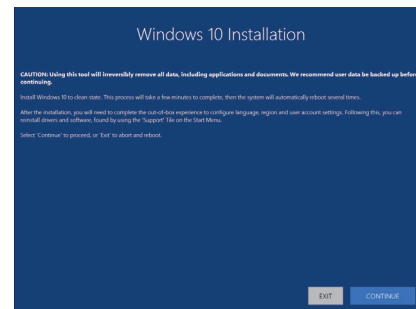
When the "**Choose an operating system**" dialogue is displayed select "**Windows Restore**" as shown below:



The “**Windows 10 Restore Menu**” dialogue will then be displayed.



Click on the “**Restore Windows**” icon and the “**Windows 10 Installation**” dialogue is displayed.



If restoring the Windows 10 operating system using a USB Flash Drive, a check box is displayed in the bottom left corner of the dialogue box. The “**Create Restore Partition**” should be selected. This will create a new Restore Partition on the hard drive.

Click “**Continue**” and you will be prompted to accept the Windows 10 licence Agreement. Click on “**ACCEPT**” to continue with the installation.

Once the installation is complete the system will reboot and the out-of-box experience will commence, you will be required to configure the language and keyboard as if using the system for the first time.

13.8.3 Install Display Drivers and Software

Once the Windows configuration process is complete the Display Drivers need to be re-installed and if required, the Wall Control application software. The Display Drivers and WallControl 10 software can be found in the **Support Tile** on the **Start Menu**. For the latest drivers and software go to www.datapath.co.uk

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