ACM210

RS-232   NORMAL   RESET   5V   12V   IO1 IO2 IO3 IO4   V OUT
MCU   IO LEVEL

PoE   LINK   LINK
VIDEO LAN (PoE)   CONTROL LAN   IR CTRL   5V   12V   12V ⎓ 1A
IR

▶ # Blustream Multicast ACM200 / ACM210
Advanced Control Module
User Manual

BLUSTREAM
MULTICAST

Thank you for purchasing this Blustream product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems are highly recommended in order to protect and extend the life of your equipment.

Safety and performance notice

Do not substitute or use any other power supply other than approved PoE network products or approved Blustream power supplies.

Do not disassemble the ACM200 unit for any reason. Doing so will void the manufacturer's warranty.

Contents

Introduction

The UHD Multicast distribution platform allows distribution of HDMI video over a 1Gb Network switch. The ACM200 & ACM210 Advanced Control Modules (known as 'ACM' from this point forwards in this guide) allow advanced third party control of the Multicast system using TCP / IP, RS-232 and IR.

The ACM includes a web interface module for control and configuration of the Multicast system and features 'Drag & Drop' source selection with media preview and independent routing of Video, Audio, IR, RS-232, and USB / KVM.

Pre-built Blustream product drivers simplify Multicast product installation and negate the need for an understanding of complex network infrastructures.

This User Guide covers the features and functionality for both the ACM200 and ACM210 Advanced Control Module products from Blustream.

The **ACM200** is currently used for IP50HD, IP200UHD and IP250UHD systems only.

The **ACM210** can be used for individual IP50HD, IP200UHD, IP250UHD, IP300UHD and IP350UHD systems.

Please note: IP200UHD and IP250UHD systems are interoperable. IP300UHD and IP350UHD systems are interoperable. The IP50HD is a standalone system and is not interoperabel with eithe rof the above 2 sets of Multciast systems.

Features

- Web interface module for configuration and control of the Blustream Multicast system

- Intuitive 'Drag & Drop' source selection with video preview feature for active monitoring of system status

- Advanced signal management for independent routing of Video, Audio, IR, RS-232, and USB/KVM

- Auto system configuration

- 2x RJ45 LAN connections to bridge existing network to Multicast video distribution network, resulting in:

    - Better system performance as network traffic is separated

    - No advanced network setup required

    - Independent IP address per LAN connection

    - Allows simplified TCP/IP control of Multicast system

- RS-232 integration for control of Multicast system

- IR integration for control of Multicast system

- PoE (Power over Ethernet) to power ACM from PoE switch

- Local 12V power supply (optional) should switch not support PoE

- Support for iOS and Android App control

- 3rd party drivers available for most control brands

Impotant Note:

The Blustream Multicast system distributes HDMI video over managed network hardware. It is advised that Blustream Multicast products are connected on an independent network switch (or VLAN) to prevent unnecessary interference, or reduction in signal performance due to other network products bandwidth requirements.
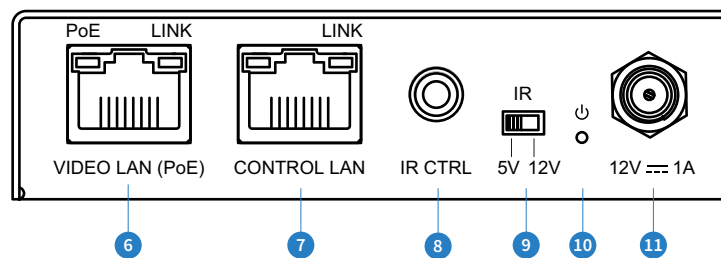
Please read and understand the instructions in this manual and ensure that the network switch is configured correctly prior to connecting any Blustream Multicast products. Failure to do so will result in problems with configuration of the system and video performance.

# Panel Descriptions - ACM200 & ACM210

Front Panel
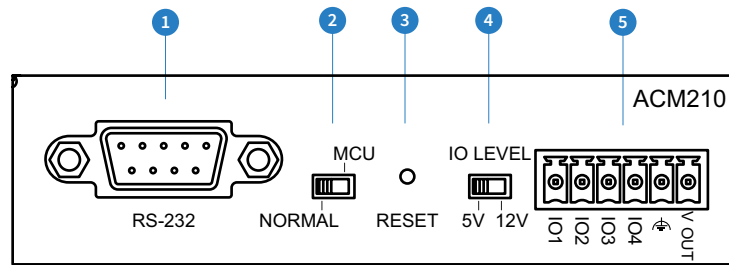
Rear Panel

❶ RS-232 control port – connect to a third party control device for control of the Multicast system using RS-232.

❷ MCU Upgrade toggle - use when upgrading MCU firmware only. **Leave in normal position for standard operation.**

❸ Reset - short press resets the ACM, long press (10 seconds) factory defaults the ACM.

❹ IO Level switch - reserved for future use.

❺ IO Level phoenix - reserved for future use.

❻ Video LAN (PoE) - connect to the network switch that the Blustream Multicast components are connected to.

❼ Control LAN port - connect to existing network that a third party control system resides on. The Control LAN port is used for Telnet/IP control of the Multicast system. Not PoE.

❽ IR Ctrl (IR input) – 3.5mm stereo jack. Connect to third party control system if using IR as the chosen method of controlling the Multicast system. When using the included 3.5mm stereo to mono cable, ensure the cable direction is correct.

❾ IR - adjust IR voltage level between 5V or 12V input for IR Ctrl.

❿ Power LED indicator

⓫ Power port – use 12V 1A DC adaptor (sold separately) if not using a PoE network switch.

ACM Control Ports

The ACM communication ports are located on both end panels and include the following connections:
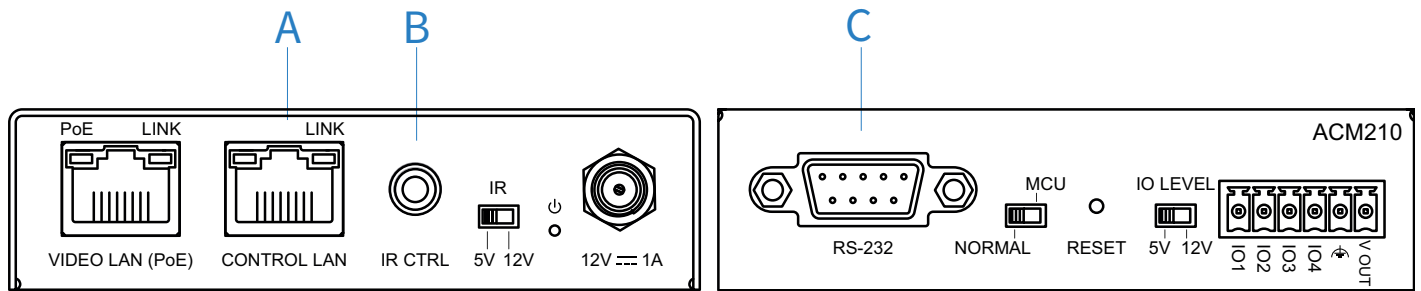
Connections:

A. TCP/IP – for Multicast system control (RJ45 connector)

B. Infrared (IR) Input* - 3.5mm stereo jack - for Multicast I/O switching control only

C. RS-232 – for Multicast system control / RS-232 pass-through (DB9)

* **Please note:** the ACM200 can be used with both 5V and 12V IR line systems. Please ensure that the switch (adjacent to the IR port) is correctly selected to the specification of the IR line input from the control system.

TCP/IP:

The Blustream ACM can be controlled via TCP/IP. For the full list of protocols please see the separate 'API Commands' document which can be downloaded from the Blustream website. A 'straight-through' RJ45 patch lead should be used when connected to a network switch.

Control Port:	23
Default IP:	192.168.0.225
Default Username:	admin
Default Password:	1 2 3 4

Please note: at the first log-in to the ACM, a new password will be required to be entered. It is not possible to reset this without resetting the ACM unit. Please ensure the new password is noted down and kept for future reference.

RS-232 / Serial:

The ACM can be controlled via serial using the DB9 connector. Default settings below. For the full list of protocols please see the separate 'API Commands' document which can be downloaded from the Blustream website.

Baud Rate:	57600
Data Bit:	8-bit
Parity:	None
Stop Bit:	1-bit
Flow Control:	None

The baud rate for the ACM can be adjusted using the web-GUI, or by issuing the following command via RS-232 or Telnet: *RSB x* : Set RS-232 Baud Rate to *X* bps

Where $X =$ 0 : 115200

   1 : 57600

                   2 : 38400

                   3 : 19200

                   4 : 9600

ACM Control Ports - IR Control

The Multicast system can be controlled using local IR control from a third party control system. Source selection is the only feature available when using local IR control - advanced features of the ACM such as video wall mode, audio embedding etc. can only be achieved using RS-232 or TCP/IP control.

Blustream have created 16x input & 16x output IR commands allowing source selection of up to 16x Multicast Transmitters on up to 16x Multicast Receivers. For systems larger than 16x source devices, RS-232 or TCP/IP control will be required.

Third Party Control System
(source selection only)
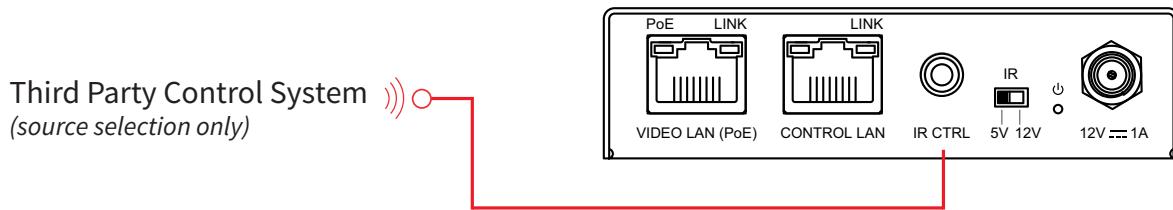
The ACM is compatible with both 5V and 12V IR equipment. When the ACM is being used to receive an IR input into the IR CTRL port, the adjacent switch must be toggled correctly to suit the IR voltage line of the chosen control system **before** connection.
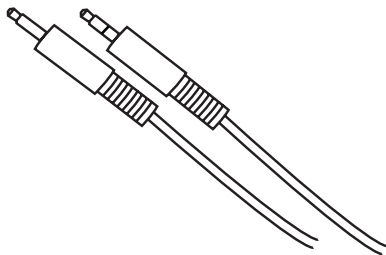
Please note: supplied Blustream IR cabling is all 5V

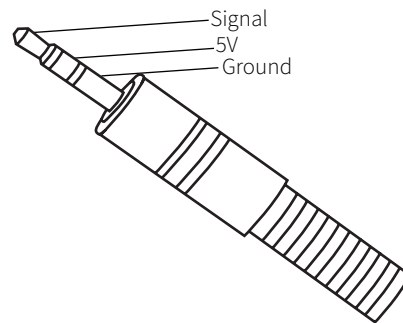**3.5mm Stereo to Mono Cable - IR-CAB (included)**

Blustream IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party control solutions to Blustream products.

Compatible with 12V IR third party products.
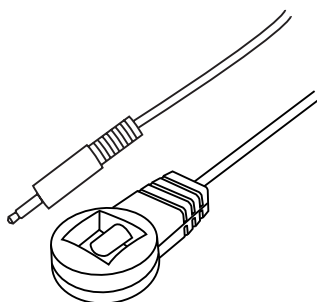
Please note: Cable is directional as indicated

Wiring pin - IR-CAB - stereo 3.5mm jack:
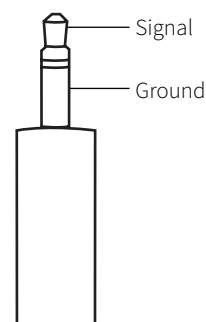
Signal
5V
Ground

IR Receiver - IRR - stereo 3.5mm jack (optional)

Blustream 5V IR receiver to receive an IR signal and distribute through Blustream products

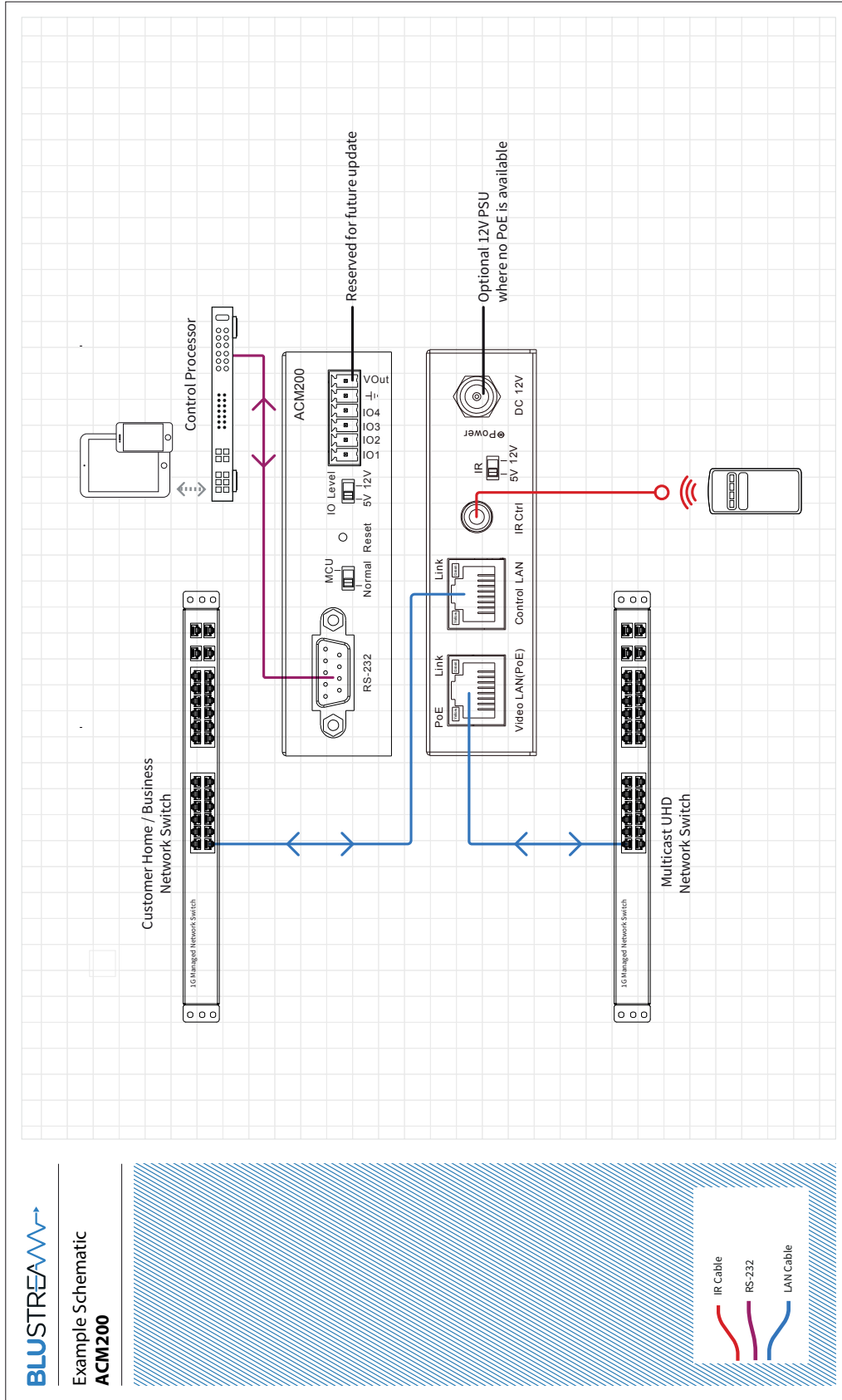**Wiring pin - IR-CAB - mono 3.5mm jack:**
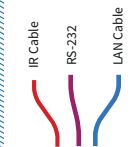
Signal

Ground

ACM Network Connection

The ACM acts as a bridge between the control network and video network to ensure that the data travelling between the two networks are not mixed. The ACM must be connected via CAT cable in accordance with typical networking requirements.

Web-GUI Guide

The web-GUI of the ACM allows for full configuration of a new system, as well as ongoing maintenance and control of an existing system through a web portal.

The ACM can (eventually) be accessed on any internet connected device including: tablets, smart phones and laptops that are on the same 'Control' network. The ACM is shipped with a static IP address (as below), and is not set with DHCP enabled.

Sign In / Log In

We would recommend that a computer / laptop is connected directly to the Control port of the ACM for the initial configuraiton of a new system. As noted previously, the ACM is shipped with a static IP address, not HDCP. There are instructions of how to amend the static IP address of a computer / laptop towards the rear of this manual.

To log in, open a web browser (i.e. Safari, Firefox, MS Edge etc.) and navigate to the default static IP address of the ACM which is:

192.168.0.225
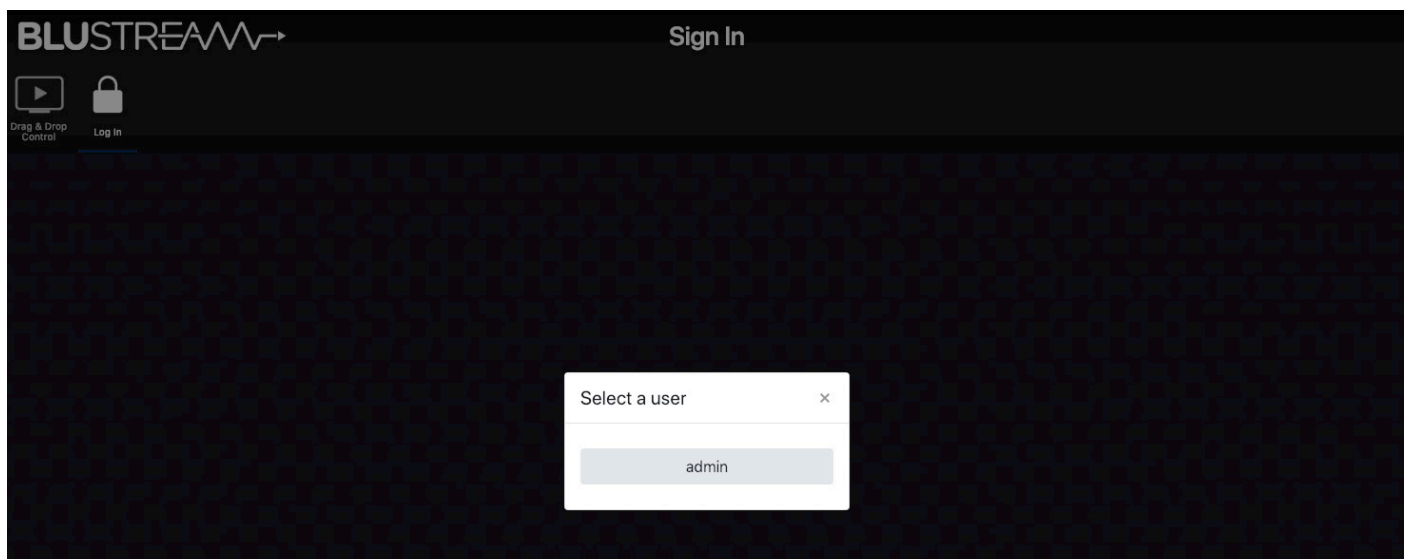
The sign in page is presented on connection to the ACM. The default admin password is: **1 2 3 4**

The ACM requires a new password to be set for the Administrator on first log-in. It is not possible to reset this without resetting the ACM unit. Please ensure the new password is noted down and kept for future reference. Once the new password has been created, the ACM will require this once further to log-into the administration menu of the unit.
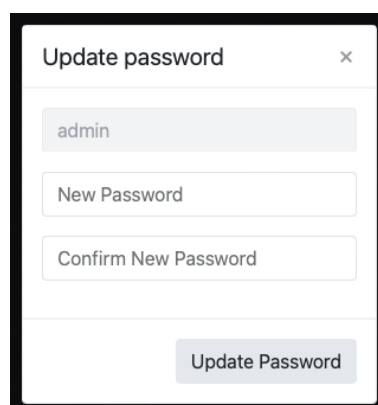
New Project Set-up Wizard

On first log in of the ACM, a Set-up Wizard for configuring all components of the Multicast system will be presented. This has been designed to speed up new system configuration as all default / new Multicast Transmitters & Receivers can be connected to the network switch at the same time, whilst not resulting in an IP conflict during the system configuration. This results in a system in which all components are automatically and sequentially assigned a name and IP address ready for basic system use.
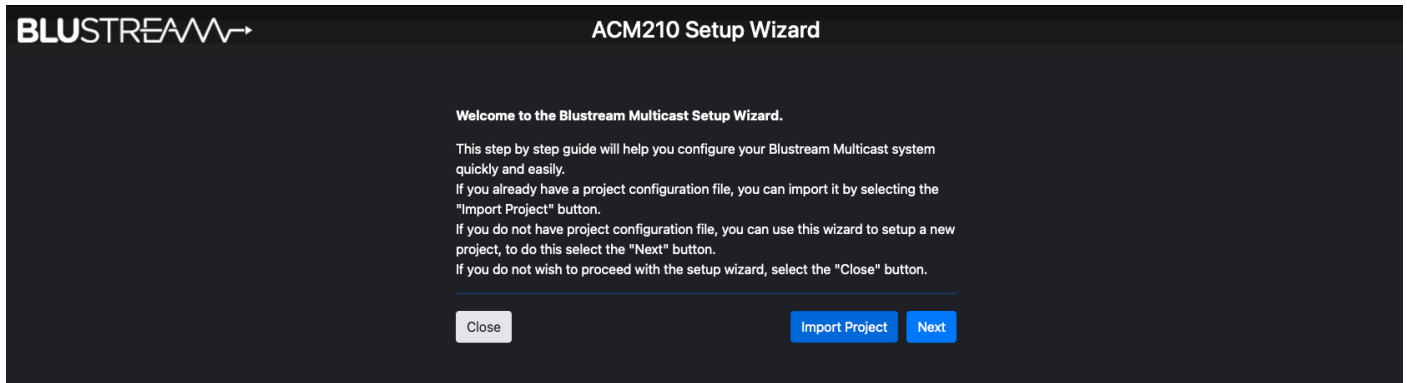
The ACM Set-up Wizard can be cancelled by clicking 'Close'. Please be aware that the system will not be configured at this point, but can be continued by visiting the 'Project' menu. If a Project File is already available (i.e. replacing an ACM on an existing site), this can be imported by using the saved .json file by clicking 'Import Project'.

Click 'Next' to continue set-up:
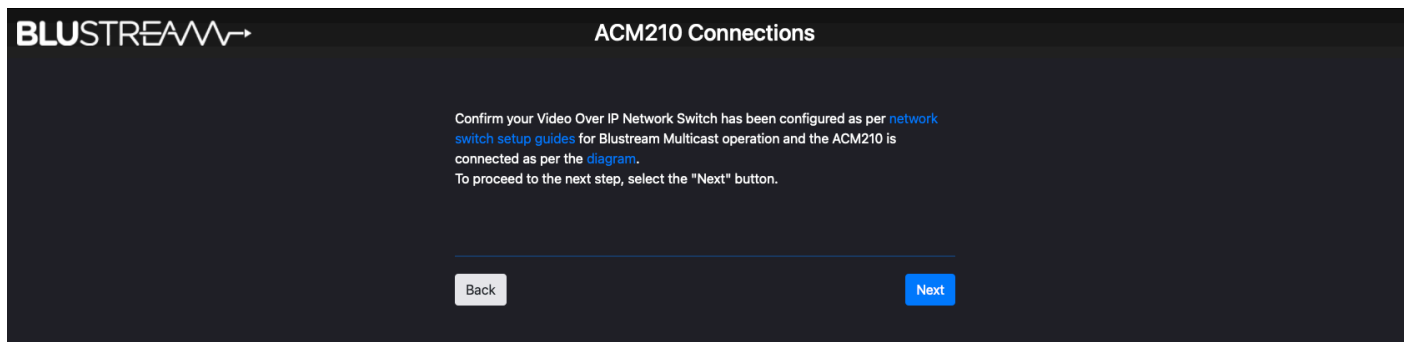
If at this point the chosen Network hardware is not configured for use with a Blustream Multicast system, click on the hyperlink 'network switch setup guides' to navigate to a centralised webpage containing common Network Switch Guides.

An example schematic diagram for the connections of the ACM can be accessed by clicking the hyperlink marked 'diagram'. This will ensure the ACM is connected correctly to the wider Multicast system before the Set-up Wizard begins. Once the connections of the ACM are confirmed, click 'Next'.

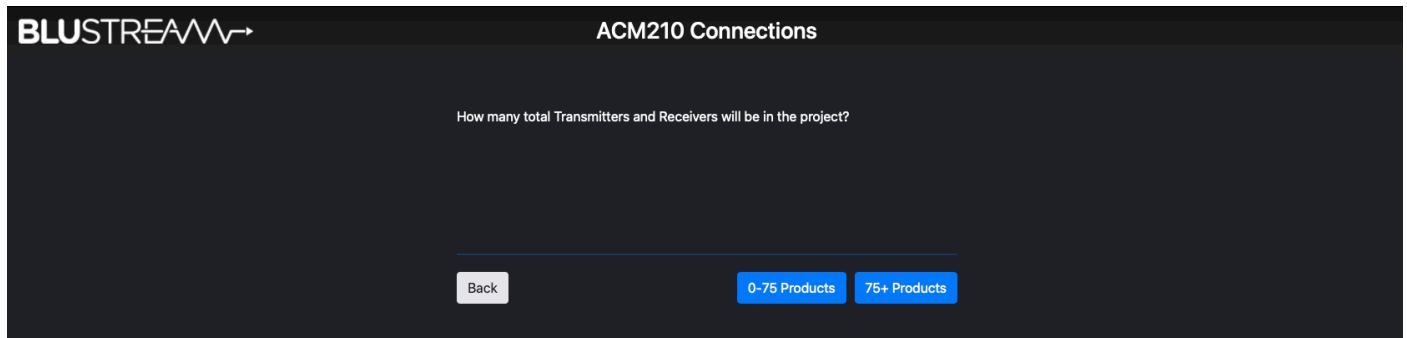# New Project Set-up Wizard - continued...

During normal use, the ACM will poll for status updates and screen-grabs of the media travelling through the system. The polling of this information constantly has an affect with larger systems (75+ end points). The next stage of the configuration is to pre-define the size of project. The options here are:

> 0-75 Products
>
> 75+ Products

This setting can be adjusted in the future should the system size increase.

Click on the relevant button to select the system size:

New Project Set-up Wizard - continued...

There are two methods for adding new Transmitter and Receiver devices to a system:

Method 1: connect **ALL** Transmitter and Receiver units to the network switch. This method will quickly configure all devices with their own individual IP addresses based on the following:

Transmitters:

The first Transmitter will be assigned an IP address of 169.254.3.1. The next Transmitter will be assigned an IP address of 169.254.3.2, and so on....

Once the IP range of 169.254.3.x is filled (254 units), the software will auto assign an IP address of 169.254.4.1, and so on...

Once the IP range of 169.254.4.x is filled the software will auto assign an IP address of 169.254.5.1, and so on until 169.254.4.254

Receivers:

The first Receiver will be assigned the IP address of 169.254.6.1. The next Receiver will be assigned an IP address of 169.254.6.2, and so on....

Once the IP range of 169.254.6.x is filled (254 units) the software will auto assign an IP address of 169.254.7.1, and so on...

Once the IP range of 169.254.7.x is filled the software will auto assign an IP address of 169.254.8.1, and so on until 169.254.8.254

Once complete, devices will need to be identified manually - this method will auto-assign product IP addresses and ID's to each device connected to the network switch randomly (not by switch port).

Method 2: connect each Blustream Multicast Transmitter and Receiver to the network one-by-one. The Set-up Wizard will configure the units sequentially as they are connected / found. This method allows for the control of the sequential assigning of IP addresses and ID's of each product - the Transmitter / Receiver units can therefore be labelled accordingly.

HDCP Mode: Blustream Multicast Receivers will automatically add HDCP onto the outgoing stream (regardless of whether the source device has HDCP encoded onto its outgoing stream). The HDCP Mode selection buttons allow for HDCP to be forced or follow a common compliance. When using commercial equipment where there is no HDCP, and capture software is being used, we would recommend setting the system to 'Bypass'.

New Project Set-up Wizard - continued...

Once the set-up method to configure the system has been chosen, hit the 'Start Scan' button.

The ACM will search for new Blustream Multicast units on the network, and will continue to search for new devices until such time as:

- The green 'Stop Scan' button is pressed
- The blue 'Next' button is pressed to progress the Set-up Wizard once all units have been found

As new units are found by the ACM, the units will populate to the relevant columns marked Transmitters or Receivers. It is recommended to label the individual units at this point.

The Multicast units will be configured with the new IP address information at this point, and will reboot automatically.

Once all units have been found and configured, click 'Stop Scan', then 'Next'.

New Project Set-up Wizard - continued...

The Device Set-up page allows for Transmitters and Receivers to be named accordingly. EDID and Scaler settings for the individual Transmitters or Receivers can be set as required. For help with EDID and Scaler settings, click the relevant buttons marked 'EDID Help' or 'Scaling Help'.

Features of the Device Set-up page include:

1. **Name of Devices** - during configuration the Transmitters / Receivers are automatically assigned default names i.e. Transmitter 001 etc. Transmitter / Receiver names can be amended by typing in the corresponding box.

2. **EDID** - fix the EDID value for each Transmitter (source). This is used to request specific video and audio resolutions for the source device to output. Basic help with EDID selection can be obtained by clicking the button marked 'EDID Help'. Please note, the default EDID for Blustream equipment is: 1080p, 2ch audio.

3. **View (transmitters only)** - opens the following pop-up:
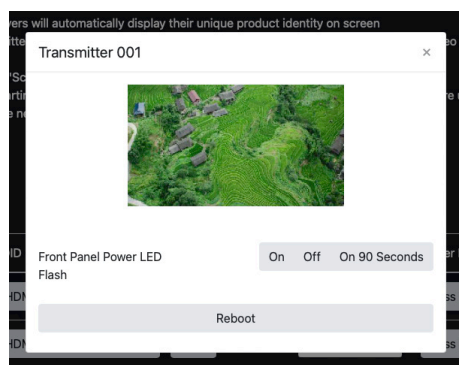
This pop-up shows an image preview of the media currently being accepted by the Transmitter unit for naming purposes. The ability to also identify the unit by flashing the front panel Power LED on the unit, and the ability to Reboot the unit will all assist with the indentification of the unit for naming purposes.

New Project Set-up Wizard - continued...

4. **Scaler** - adjust the output resolution using the built-in video scaler of the Multicast Receiver. The Scaler is capable of both upscaling and downscaling the incoming video signal.

5. **Actions** - opens the following pop-up:
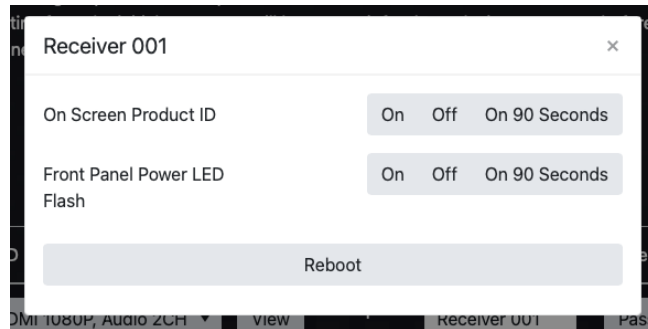
By default, during configuration, an OSD will appear on all screens connected to Receiver units for simple identification of Receivers. The ability to also identify individual units by flashing the front panel Power LED's, and the ability to Reboot the unit is contained here.

7. **Turn OSD Off / On** - toggles the product ID onto all connected screens / displays (on by default during configuration - the OSD will turn off automatically as the wizard progresses).
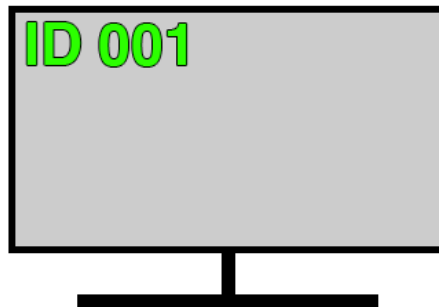
8. **Next** - continues to the Set-up Wizard Completion page
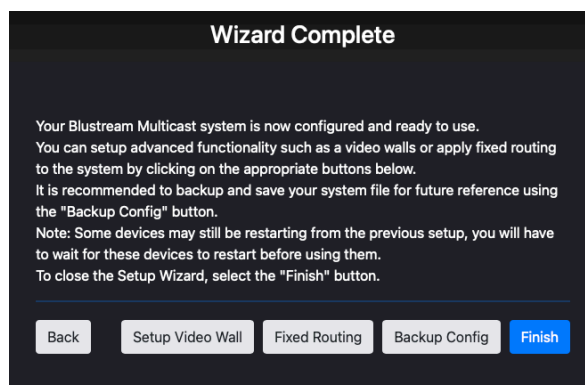
The Wizard Completion page finalises the basic configuration process, providing commonly used links for advanced set-up options for Video Walls (not available for IP50HD systems), Fixed Signal Routing (IR, RS-232, Audio etc), and the ability to back-up to a configuration file *(recommended)*.

Click 'Finish' once completed to continue to the 'Drag & Drop Control' page.

Web-GUI - Menu Overview

The '**User Interface**' menu gives a guest user the ability to switch and preview the Multicast system without allowing access to any settings that can amend the overall infrastructure of the system.
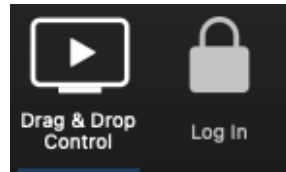
1. **Drag & Drop Control** - control of source selection for each Multicast Receiver including image preview of source devices throughout the system
2. **Video Wall Control** - used for 'Drag & Drop' control of source selection for video wall arrays within the system, including image preview of source devices throughout. Menu item only available where a video wall has been configured within the system
3. **Log In** - used to log into the system as a User, or Administrator

The **Administrator** menu is accessed from a single password as set during initial set up. This menu allows for a Multicast system to be completely configured, with access to all settings and features of the system.

Please note: it is not recommended to leave Administrator access or the Administrator password with an end user.
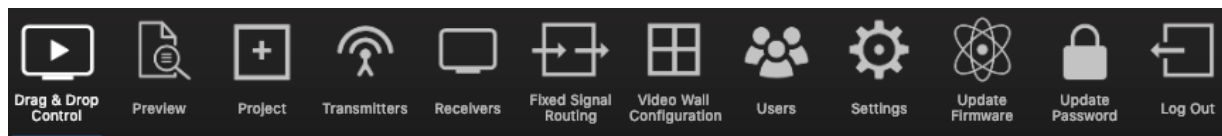
1. **Drag & Drop Control** - control of source selection for each Receiver including image preview of source devices
2. **Video Wall Control** - control of source selection for video wall arrays, including image preview of source devices
3. **Preview** - show the active video stream from any connected Transmitter and/or Receiver
4. **Project** - view or configure a new or existing Blustream Multicast system
5. **Transmitters** - summary of all Transmitters installed, with options for EDID management, checking FW version, updating settings, adding new TX's, replacing or rebooting products
6. **Receivers** - summary of all Receivers installed, with options for resolution output (HDR / scaling), function (video wall mode / matrix), updating settings, adding new RX's, replacing or rebooting products
7. **Fixed Signal Routing** - configure independent routing of Video, Audio, IR, Serial, USB, or CEC signals
8. **Video Wall Configuration** - set-up and configuration of Receivers to create a video wall array of up to a size of 9x9, including: bezel / gap compensation, stretch / fit, and rotation. (**Please note:** video walls are not supported with IP50HD systems).
9. **Users** - set-up or manage users of the system
10. **Settings** - system settings including: network credentials, clearing project, and resetting the ACM
11. **Update Devices** - apply the latest firmware updates to the ACM, and connected Transmitters / Receivers
12. **Update Password** - update Administrator password credentials for access to the ACM web-GUI
13. **Log Out** - log out the current User / Administrator

Web-GUI - Drag & Drop Control

The Drag & Drop Control page is used to quickly and intuitively change a source input (Transmitter) for each (or All) display (Receiver). The naming convention of the Transmitters and Receivers will be updated as per the names assigned during configuration, or as have been updated in the Transmitter or Receiver pages.

Once the system has been fully configured the Drag & Drop Control page will show all online Transmitter and Receiver products. All Multicast products will display the active stream from the device, which refreshes every few seconds.

Due to the size of the display window on certain phones, tablets or laptops, should the number of Transmitters and Receivers be larger than the size available on screen, the User is given the ability to scroll / swipe through available devices (left to right).
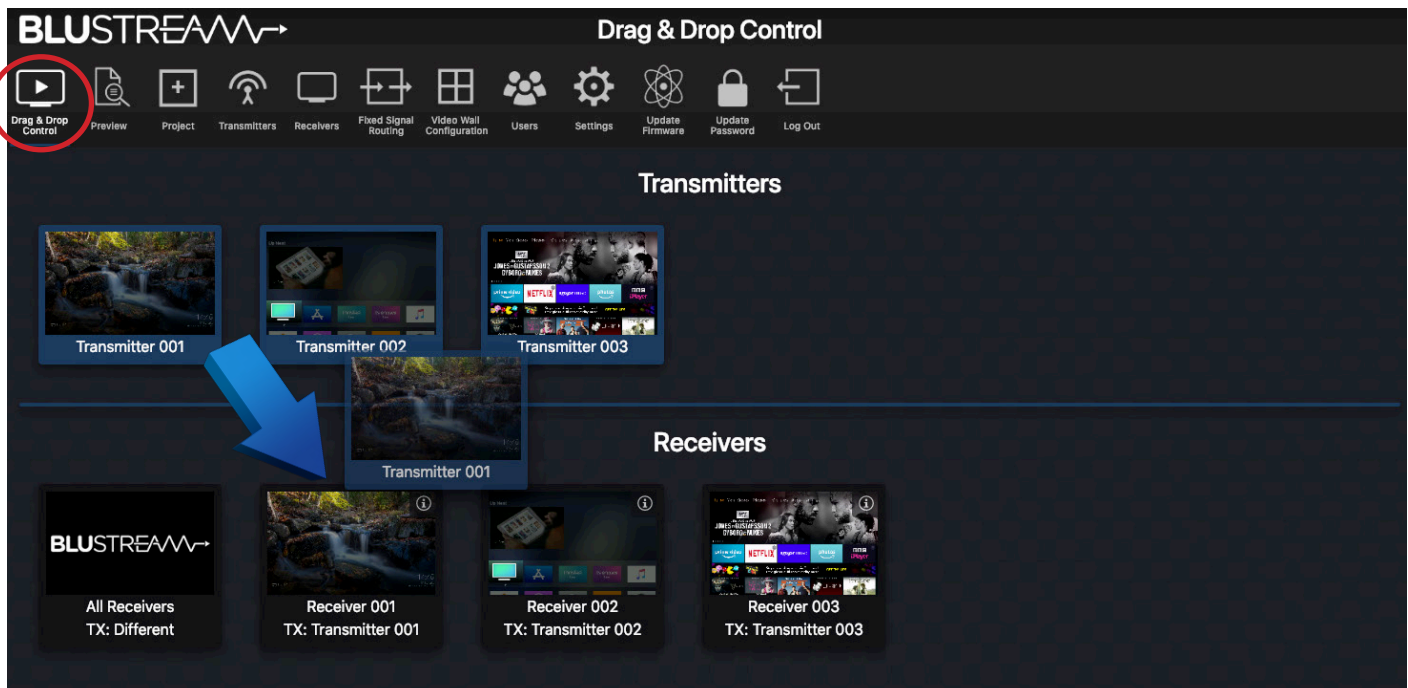
To switch sources, click on the required source / Transmitter, and drag the preview onto the required Receiver preview. The Receiver preview window will update with the stream of the source selected.

The Drag & Drop switch will amend the Video/Audio stream from Transmitter to Receiver, but not Fixed Routing of control signals.

Should 'No Signal' be displayed in the *Transmitter* preview window, please check the HDMI source device is powered on, outputting a signal, and is connected via HDMI cable to the Transmitter. Check also the EDID settings of the Transmitter device are applicable with the source being used.

Should 'No Signal' be displayed inside the *Receiver* preview window, check the unit is connected and powered from the network (switch), and has a valid connection to a working Transmitter unit.

Should 'No Display' be shown inside the Receiver preview window, check the connected display is powered and has a valid HDMI connection to the Receiver.

There is an 'All Receivers' window located on the left of the Receivers window. Dragging and dropping a Transmitter onto this window will change the routing for ALL Receivers within the system to watch the source selected. Should the preview of this window show the Blustream logo, this signifies that there is a mixture of sources being watched across the Receivers within the system. The note underneath 'All Receivers' will display: 'TX: Different' to signify this.

Please note: the Drag & Drop Control page is also the home page for an active Guest user of the Multicast system - only sources that the Guest or User have permission to view will be visible.

Receivers in Video Wall Mode are not displayed on the Drag & Drop page.

Web-GUI - Video Wall Control

To assist wth simplified Video Wall switching control, there is a separate Video Wall Drag & Drop Control page. This menu option is only available once a Video Wall has been configured within the ACM / Multicast system.
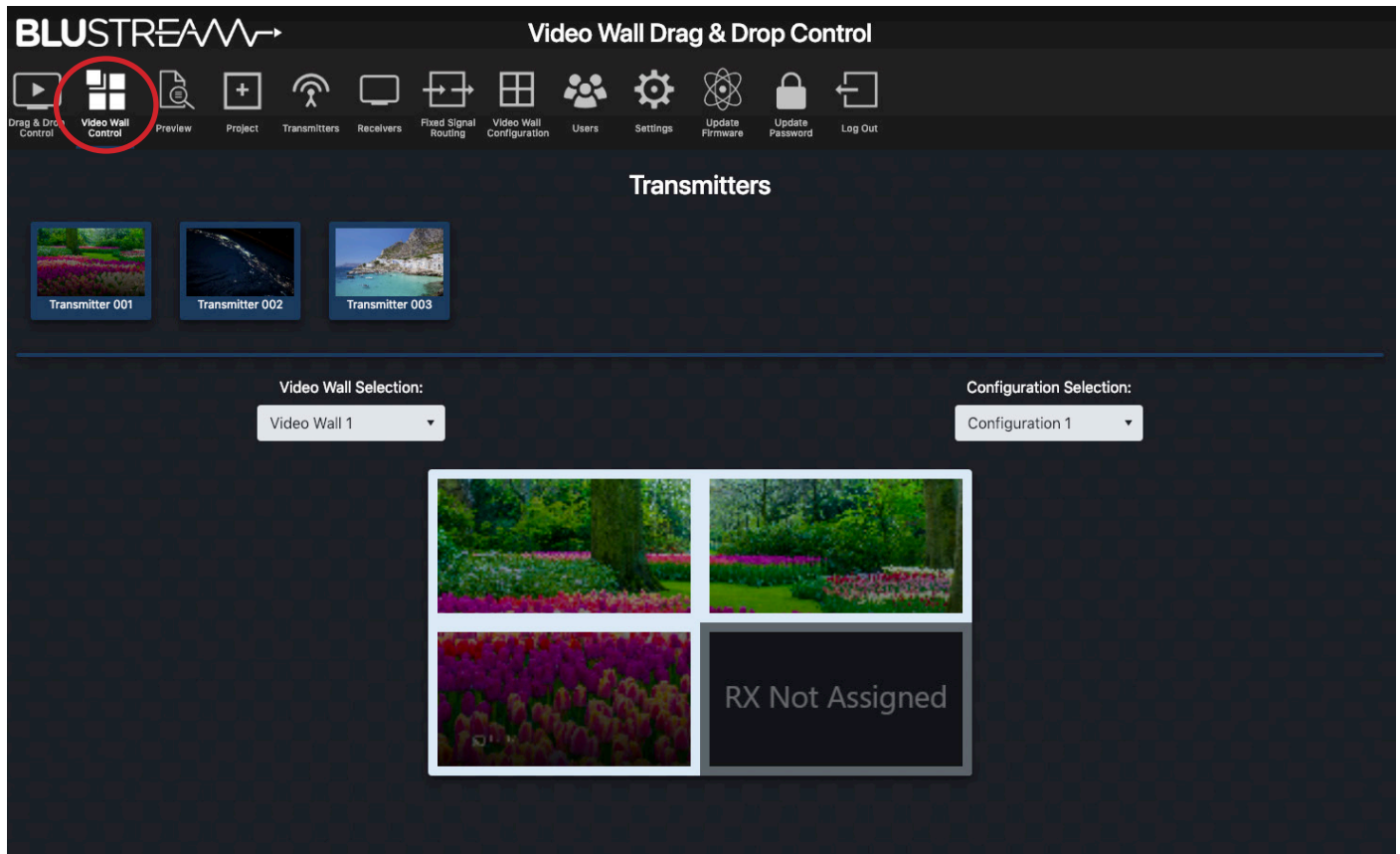
The source (Transmitter) preview windows are shown at the top of the page with the graphical representation of the Video Wall displayed below. To switch the Video Wall array from one source to another, Drag & Drop the source preview window onto the Video Wall preview underneath. This will switch all connected screens within the Video Wall (within a group within a Video Wall only) to the same source / Transmitter in the Configuration that is currently selected (in a group). Or Drag & Drop a Transmitter preview onto a 'Single' screen when the Video Wall array is in an individual screen configuration.

Blustream Multicast systems can have multiple Video Walls (IP2xxUHD, or IP3xxUHD systems only). Selecting a different Video Wall array, or to deploy a pre-defined Configuration / preset for each Video Wall can be carried out by using the drop down boxes above the graphical representation of the Video Wall. This graphical representation will automatically update as you select a different Video Wall or Configuration.

Should a screen within a Video Wall display on the GUI show 'RX Not Assigned', this means that the Video Wall does not have a Receiver unit assigned to the array. Please revert back to the Video Wall set up to assign the Receiver accordingly.

For the advanced API commands for control of Video Wall arrays within a system, please refer to the API Command document available to download from the Blustream website.

Web-GUI - Preview

The Preview feature is a quick way to view the media being streamed through the Multicast system once configured. Preview the stream from any HDMI source device into the Multicast Transmitter, or the stream being received by any Receiver in the system concurrently. This is particularly helpful for debugging and checking source devices are powered on, and outputting a HDMI signal, or to check the I/O status of the system:
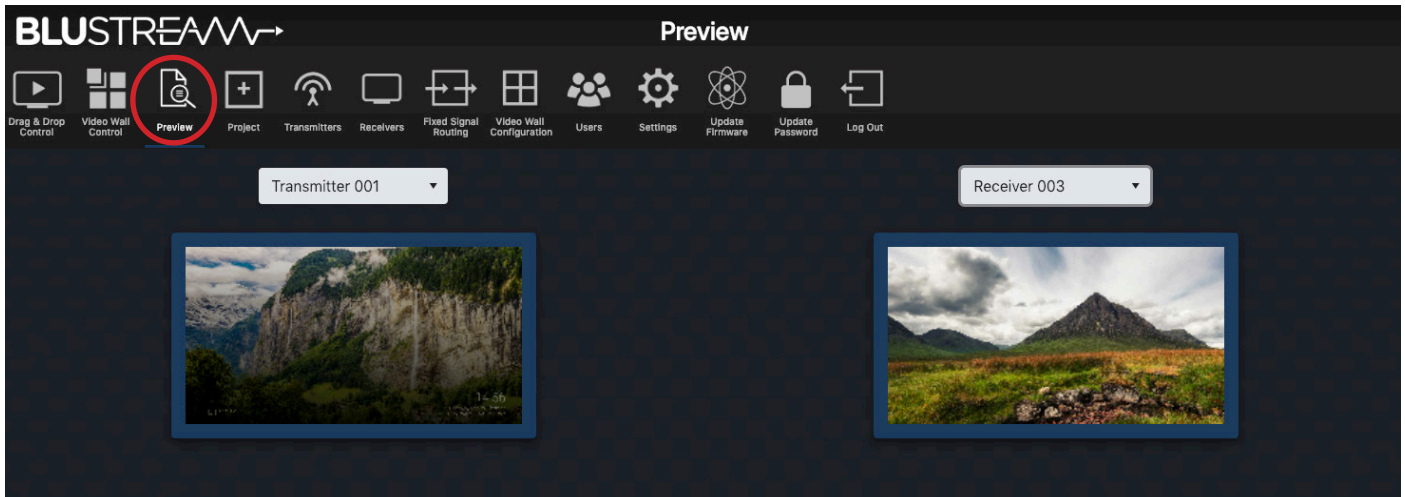
The Preview windows show a screen grab of the media which automatically updates every few seconds. To select the Transmitter or Receiver to preview, use the drop down box to select the individual Transmitter or Receiver to preview.

Web-GUI - Project Summary

Overview of the units that are currently set-up in the Multicast system, or for scanning the network for new devices to assign to the system:

Options on this page include:

1. **System Size:** toggle between: 0-75 Products, and 75+ Products.
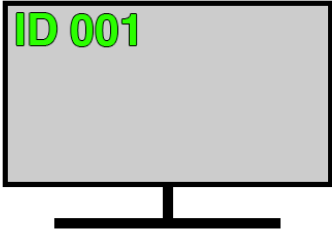
2. **Toggle OSD:** turn On / Off the OSD (On Screen Display). Toggling the OSD On shows the ID number (i.e. ID 001) of the Multicast Receiver on each display as an overlay to the media being distributed. Toggling OSD Off removes the OSD.

3. **Export Project:** create a save file (.json) for the current configuration of the system.

4. **Import Project:** import an already configured project into the current system. This is particularly helpful when setting up a secondary system or expansion to a current system off-site where the two systems can be merged into one.

5. **Clear Project:** clears the current project.

6. **Assign New Devices:** assign devices found in the Unassigned Devices section (at the bottom of this page) to the current system

7. **Continuously Scan & Auto Assign:** continuously scan the network and auto assign new Multicast devices to the next available ID and IP address as connected. If only connecting ONE new unit, use the 'Scan Once' option - the ACM will continue to scan the network for new Multicast devices until found, or select this button again to stop the scan.

8. **Scan Once:** scan the network once for any new Multicast devices connected, and then be presented with a pop up to either manually assign the new device, or auto assign a new unit to the next available ID and IP address as connected.

Web-GUI - Transmitters

The Transmitter summary page is an overview of all Transmitter devices that have been configured within the system, with the ability to update the system as required.
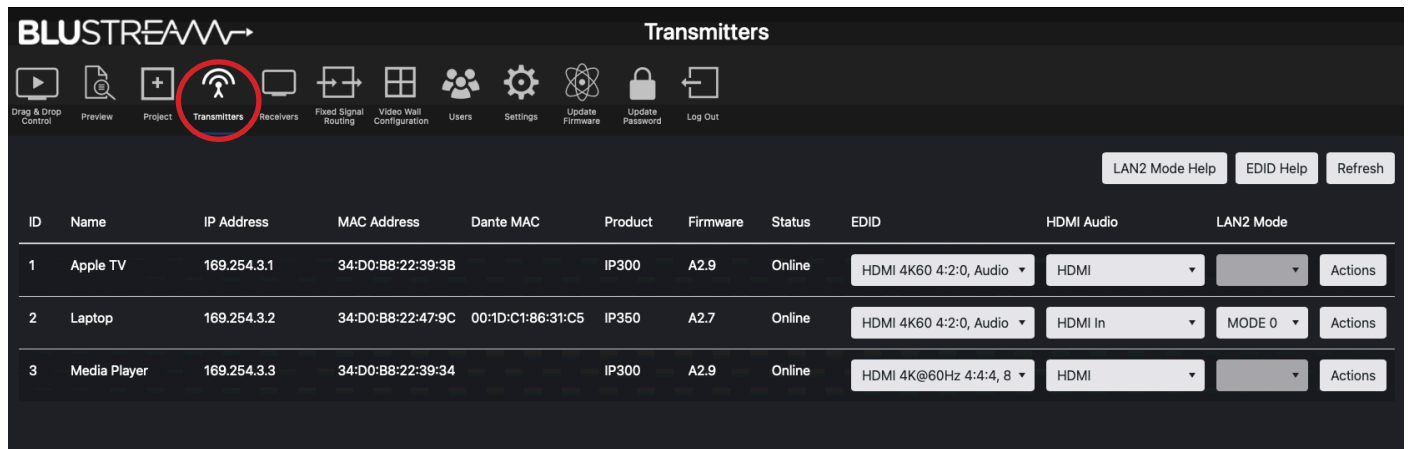
Features of the Transmitter summary page include:

1. **ID** - the ID (input) number is used for control of the Multicast system when using third party control platforms.

2. **Name** - the name assigned to the Transmitter (typically the device attached to the Transmitter).

3. **IP Address** - the IP address assigned to the Transmitter during configuration.

4. **MAC Address** - shows the MAC address of the Transmitter (LAN 1 port).

5. **Dante MAC** - shows the MAC address of the LAN2 port where independent Dante connectivity is being used. Please see the button marked LAN2 Mode Help for further explanation on segregating Video and Dante networks.

6. **Product** - identifies the product in use that is connected to the system.

7. **Firmware** - firmware version currently loaded onto the Transmitter. For more information on firmware updating, please see 'Update Firmware' section.

8. **Status** - shows the Online / Offline status of each Transmitter. Should a product show as 'Offline', check the units connectivity to the network switch, speed of connection to the network.

9. **EDID** - fix the EDID value for each Transmitter (source). This is used to request specific video and audio resolutions for the source device to output. Basic help can be obtained on EDID selection by clicking the button at the top of the page marked 'EDID Help'. The available EDID selections used for IP50HD, IP2xxUHD, and IP3xxUHD systems all differ.

10. **HDMI Audio** - selects either original HDMI audio, or replaces the embedded audio with a local analogue audio input on the Transmitter. Default setting will be 'Auto'.

11. **LAN2 Mode:** where IP250UHD or IP350UHD are being used, the option to separate the Dante audio for connectivity to a separate Dante network is controlled from here. Where IP200UHD or IP300UHD are being used, this option is not selectable. See table below for LAN selection.

12. **Actions** - opens a pop-up window with advanced configuration settings. See following page for further information.

13. **Refresh** - refresh all current information on the devices within the system.

VLAN MODE	PoE/Lan	2nd RJ45	SFP
0 (default)	VoIP+Dante	Disabled	VoIP+Dante
1	VoIP	Dante	Disabled
2	VoIP/Dante	Follow PoE/Lan port	VoIP+Dante

Web-GUI - Transmitters - Actions

The 'Actions' button allows for advanced features of the units to be accessed and configured.

Name - Transmitter names can be amended by entering a name into the free-form text box. **Please note:** this is limited to 16 characters in length, and some special characters may not be supported.

Update ID - Advanced Users Only - the ID of a unit is set (as default) to the same number as the last 3 digits of the units IP address i.e. Transmitter number 3 is assigned an IP address of 169.254.3.3 and will have an ID of 3. Amending the ID of the unit is not recommended.

System Size - amend the system size per Transmitter

HDMI Audio - select between: Auto, HDMI, or Analogue audio

HDCP Mode - select between:HDCP Bypass, Force 2.2, or Force 1.4

CEC Pass-through (On / Off) - allows for CEC (Consumer Electronic Command) to be sent through the Multicast system to and from the source device connected to the Transmitter. Please note: CEC must be enabled on the Receiver unit also for the CEC commands to be sent between. Default setting for this feature is OFF.

Front Panel Display (On / Off) - enable / disable the display on the front of the Transmitter. The front panel display of the Multicast unit will automatically time-out after 90 seconds, and turn off. Press any button on the front of the Transmitter to wake the display when off.

Front Panel Power LED Flash (On / Off / On 90 Seconds) - will flash the power LED on the front panel of the Transmitter to help identify the product following auto configuration. Options are: flash the power light continuously, or flash the LED for 90 seconds before the LED goes back to being permanently lit. **Please note:** the front panel LED's will automatically time-out after 90 seconds with the front panel display. Press one of the CH buttons to wake the unit.

Copy EDID - see next page for further information on 'Copy EDID'.

Serial Settings - turn on serial 'Guest Mode' and set the individual serial port settings for the device (i.e. Baud Rate, Parity etc).

Preview - displays a pop-up window with live a screen grab of the source device connected to the Transmitter.

Reboot - reboots the Transmitter.

Replace - used to replace an offline Transmitter. **Please note:** the Transmitter to be replaced must be offline for this feature to be utilised, and the new Transmitter must be a factory default unit with default IP address: 169.254.100.254.

Remove from Project - removes the Transmitter device from the current project.

Factory Reset - restores the Transmitter to its original default settings and sets the IP address to: 169.254.100.254.

Web-GUI - Transmitters - Actions - Copy EDID

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display then from this information the source will discover what the best audio and video resolutions need to be output.

While the objective of EDID is to make connecting a digital display to a source a simple plug-and-play procedure, issues can arise when multiple displays, or video matrix switching is introduced because of the increased number of variables.

By pre-determining the video resolution and audio format of the source and display device you can reduce the time need for EDID hand shaking thus making switching quicker and more reliable.

The Copy EDID function allows the EDID of a display to be grabbed and stored within the Multicast system. The EDID configuration of the screen can be recalled within the EDID selection of the Transmitter. The displays EDID can then be applied to any source device not displaying correctly on the screen in question.

It is recommended to ensure that the media from the Transmitter with the custom EDID displays correctly on other displays within the system.

Please note: it is important that only one screen is viewing the Transmitter at the time the EDID Copy takes place.
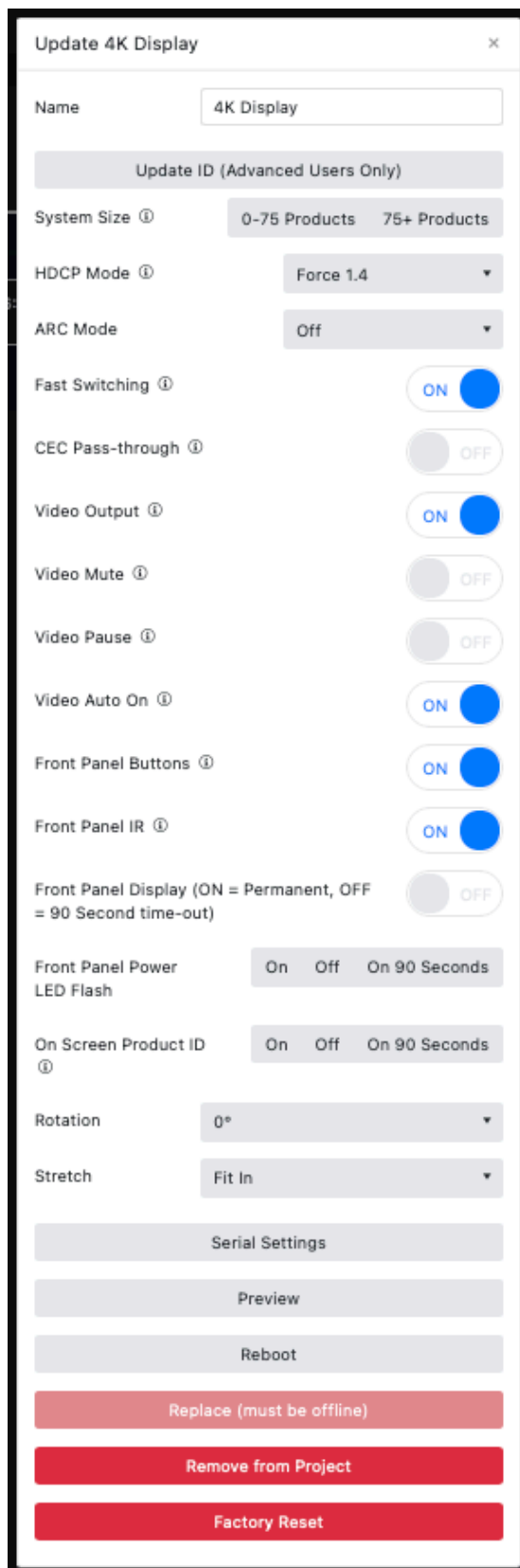
Web-GUI - Receivers

The Receiver summary window shows an overview of all the Receiver devices that have been configured within the system, with the ability to update the system as required.

Features of the Receiver summary page include:

1. **ID** - the ID (output) number is used for control of the Multicast system when using third party control platforms.

2. **Name** - the name of the Receivers (typically the device attached to the Receiver) are automatically assigned default names i.e. Receiver 001 etc. Receiver names can be amended within the Device Setup page (within the Wizard), or by clicking on the 'Actions' button for an individual unit (see next page).

3. **IP Address** - the IP address assigned to the Receiver during configuration.

4. **MAC Address** - shows the MAC address of the Receiver (LAN 1 port).

5. **Dante MAC** - shows the MAC address of the LAN2 port where independent Dante connectivity is being used. Please see the button marked LAN2 Mode Help for further explanation on segregating Video and Dante networks.

6. **Product** - identifies the product in use that is connected to the system.

7. **Firmware** - displays the firmware version currently loaded onto the Receiver. For more information on updating firmware, please see 'Update Firmware' section.

8. **Status** - shows the Online / Offline status of each Receiver. Should a product show as being 'Offline', check the units connectivity to the network switch.

9. **Source** - shows the current source selected at each Receiver. To switch source selection, choose a new Transmitter from the drop-down selection.

10. **Scaler Resolution** - adjust the output resolution using the built-in video scaler inside the Multicast Receiver. The scaler is capable of both upscaling and downscaling the incoming video signal. Basic help can be obtained on scaler selection by clicking the button at the top of the page marked 'Scaling Help'. The available scaled output resolutions for IP50HD, IP2xxUHD, and IP3xxUHD systems all differ.

11. **HDR On/Off** - turns on HDR (High Dynamic Range) compatibillity - only use with screens that support HDR.

12. **Function** - identifies the Receiver as a standalone product (Matrix) or as part of a Video Wall. This selection is greyed out when a Receiver is not part of a Video Wall array.

13. **LAN2 Mode** - where IP250UHD or IP350UHD are being used, the option to separate the Dante audio for connectivity to a separate Dante network is controlled from here. Where IP200UHD or IP300UHD are being used, this option is not selectable. See table on previous Transmitter page for LAN selection options.

14. **Actions** - see next page for breakdown of additional actions options.

15. **Scaling Help** - you can obtain some basic help with scaling selection by clicking the button at the top of the page marked 'Scaling Help'.

16. **Refresh** - click here to refresh all current information on the devices within the system.

Web-GUI - Receivers - Actions

Update 4K Display	×

Name	4K Display

Update ID (Advanced Users Only)

System Size ⓘ	0-75 Products	75+ Products

HDCP Mode ⓘ	Force 1.4 ▾

ARC Mode ⓘ	Off ▾

Fast Switching ⓘ — ON

CEC Pass-through ⓘ — OFF

Video Output ⓘ — ON

Video Mute ⓘ — OFF

Video Pause ⓘ — OFF

Video Auto On ⓘ — ON

Front Panel Buttons ⓘ — ON

Front Panel IR ⓘ — ON

Front Panel Display (ON = Permanent, OFF = 90 Second time-out) — OFF

Front Panel Power LED Flash	On	Off	On 90 Seconds

On Screen Product ID ⓘ	On	Off	On 90 Seconds

Rotation	0° ▾

Stretch	Fit In ▾

Serial Settings

Preview

Reboot

Replace (must be offline)

Remove from Project

Factory Reset

The 'Actions' button allows for advanced features of the Receiver to be accessed and configured.

Name - can be amended by entering a name into the free-form text box. **Please note:** this is limited to 16 characters in length, and some special characters may not be supported.

Update ID - the ID is defaulted to the last 3 digits of the device IP address i.e. Receiver 3 is assigned an IP address of 169.254.6.3. Update ID allows the ID / IP of the unit to be amended.

System Size - amend the system size per Receiver.

HDCP Mode - select between:HDCP Bypass, Force 2.2, or Force 1.4.

ARC Mode - please see ARC explanation on next page.

Fast Switching - switches the video first, with the audio, IR, RS-232, USB / KVM all switched after. **Please note:** whilst the video feed may switch faster, other parts of the feed (i.e. audio, IR etc) will take slightly longer to catch up.

CEC Pass-through (ON / OFF) - allows for CEC (Consumer Electronic Command) to be sent through the Multicast system. Please note: CEC must also be enabled on the Transmitter.

Video Output (ON / OFF) - turns ON / OFF the HDMI video output - requires new handshake when turning back ON.

Video Mute (ON / OFF) - mutes the HDMI output (creates a black screen), maintaining the HDMI handshake.

Video Pause (ON / OFF) - pauses the HDMI video and embedded audio at the frame when command issued. Turning OFF picks up the HDMI feed from the point when command issued.

Video Auto On (ON / OFF) - turns off the video output when no media is being distributed. Output will turn back on when media is started.

Front Panel Buttons (ON / OFF) - the Channel buttons on the front of each Receiver can be disabled to stop unwanted switching.

Front Panel IR (ON / OFF) - enables or disables the Receiver from accepting IR commands.

On Screen Product ID (On / Off / On 90 Seconds) - turn On / Off the On Screen Product ID. Toggling the On Screen Product ID On shows the ID (i.e. ID 001) of the Receiver overlayed on the display connected.

Front Panel Power LED Flash (On / Off / On 90 Seconds) - will flash the power LED on the front panel of the Receiver to help identify the device.

Front Panel Display (On / 90 Seconds) - use this to enable / disable the display on the front of the Receiver. The display of the device will time-out after 90 seconds until woken.

Rotation - rotate the image by: 0, 90, 180 and 270 degrees.

Stretch - re-sizes the image to 'Stretch' to the aspect of the display, or 'Maintain Aspect Ratio' of the source device output.

Serial Settings / Preview / **Reboot** / **Replace** / **Remove from Project** / **Factory Reset** - settings the same as expalined on the Transmitter page previously.

Web-GUI - Fixed Signal Routing

The ACM is capable of advanced independent routing of the following signals via the Multicast system:

- Video
- Audio (**please note:** ARC is only available on IP300UHD and IP350UHD systems)
- Infrared (IR)
- RS-232
- USB / KVM
- CEC (Consumer Electronic Command)

This allows each signal to be fixed from one Multicast product to another and not be affected by standard video switching. This can be useful for IR, CEC or RS-232 control of products in the field using the Multicast system to extend control commands from a third party control solution, or a manufacturers IR remote control.

Please note: with the exception of IR and RS-232, routing can only be fixed from a Receiver to a Transmitter product. Although routing can only be set up one way, the communication is bi-directional between the two products.

By default, the routing of: Video, Audio, IR, Serial, USB and CEC will automatically follow the Transmitter selection of the Receiver unit.

To select a fixed route, use the drop down box for each of the individual signals / Receivers to fix a route.

Once an ACM has been added into a Multicast system, the IR switching control abilities (not IR pass-through) and the front panel buttons of the Multicast Receivers are enabled by default. This is disabled from the Actions function contained within the Receiver summary page (see previous page).

Routing can be cleared by selecting 'Follow' at any point from the web-GUI. More information on Fixed Routing can be found by clicking 'Fixed Routing Help'.

For advanced routing commands for Video, Audio, IR, RS-232, USB and CEC when using with a 3rd party control system, please refer to the separate API Document (available to download from the Blustream website).

Fixed Routed Audio

The ACM allows for the audio component of a HDMI signal to be routed independently throughout the Blustream Multicast system. Under normal operation the embedded audio within a HDMI signal will be distributed with the associated video signal from Transmitter to Receiver/s.

The fixed audio routing capabilities of the ACM allows for the audio track from one source to be embedded onto another Transmitters video stream.
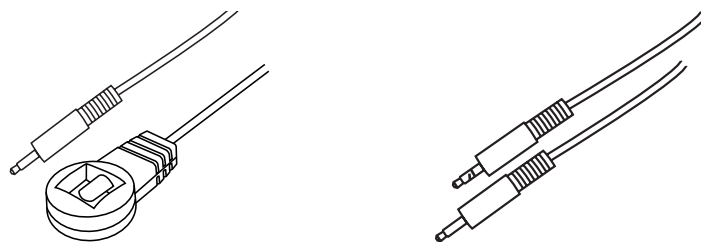
Fixed Routed IR

The fixed IR routing feature allows a fixed bi-directional IR link between 2x Multicast products. The IR signal is only routed between configured RX to TX, or TX to TX products. This can be useful for sending IR from a centrally located third party control solution (ELAN, Control4, RTi, Savant etc) and using the Blustream Multicast system as a method of extending IR out to a display or another product in the system. The IR link is bi-directional so can also be sent back the opposite way at the same time.

Third party control system
i.e. - Control4, ELAN, RTi etc.

To display device
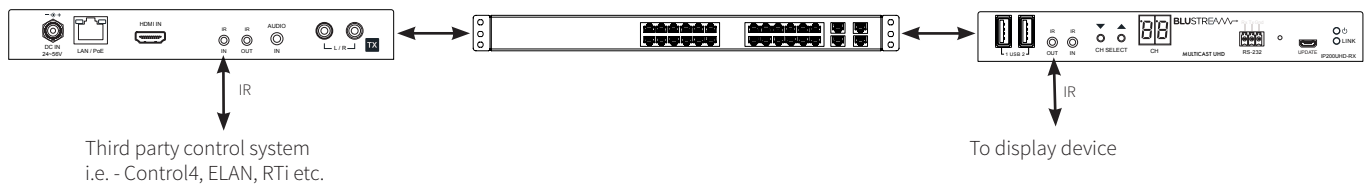
Connections:

The third party control processor IR, or Blustream IR receiver, is connected to the IR RX socket on the Multicast Transmitter or Receiver.

Please note: You must use Blustream 5V IRR Receiver or Blustream IRCAB (3.5mm stereo to mono 12V to 5V IR converter cable). Blustream Infrared products are all 5V and **NOT** compatible with alternative manufacturers Infrared solutions.

The Blustream 5V IRE1 Emitter is connected to the IR OUT socket on the Multicast Transmitter or Receiver.

The Blustream IRE1 & IRE2 Emitters are designed for discrete IR control of hardware.

(IRE2 - Dual Eye Emitter sold separately)
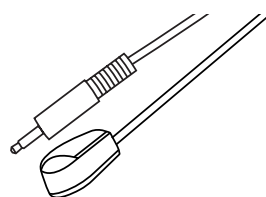
Fixed Routed USB / KVM

The fixed USB routing feature allows a fixed USB link between a Multicast Receiver/s and a Transmitter. This can be useful for sending KVM signals between a users position to a centrally located PC, server, CCTV DVR / NVR etc.
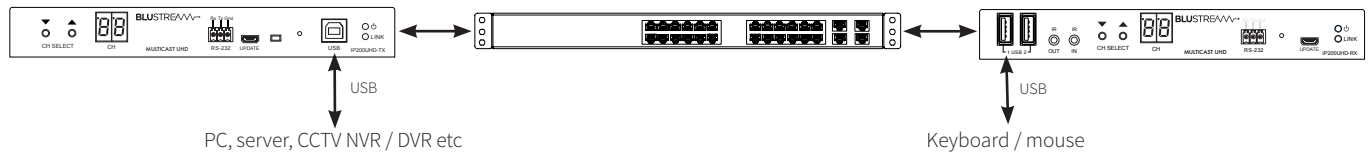
USB Specifications:

USB Specification	USB2.0 (please note: does not support full USB2.0 data transfer rates)
Extension	Over IP, Hybrid redirection technology
Distance	100m
Distance Ext.	via Ethernet switch hub
Max Downstream Devices	5
Topology	1 to 1 1 to many exclusively (USBoIP) 1 to many simultaneously but limited number of USB devices (USBoIP)* 1 to many simultaneously Keyboard / Mouse (K/MoIP)
USB R/W Performance *	R: 69.6 Mbps W: 62.4 Mbps

* Benchmark Reference: Read / Write USB to SATA HD without Multicast system R: 161.6 Mbps / W: 161.6 Mbps

Fixed Routed CEC

CEC or Consumer Electronic Command is a HDMI embedded control protocol that allows for commands to be sent from one HDMI device to another for simple actions such as: Power, Volume etc.

The Blustream Multicast system allows for the CEC channel within the HDMI link between two products (source and sink) to communicate with eachother using the CEC protocol.

CEC must be enabled (this is sometimes referred to as 'HDMI Control') on both the source device and the display device in order for the Multicast system to communicate the CEC commands over the Multicast link.

Please note: the Blustream Multicast system will only transport the CEC protocol transparently. It is advisable to ensure that the source and sink devices will communicate effectively before committing to this control type with Multicast. Should an issue be experienced with CEC communication between the source and sink directly, this will be mirrored when sending through the Multicast system.

Web-GUI - Video Wall Configuration

Blustream Multicast Receivers can be configured to be part of a Video Wall array within the ACM. Any Multicast system can contain up to 9x Video Wall arrays of differing shapes and sizes. Ranging from 1x2 up to 9x9.
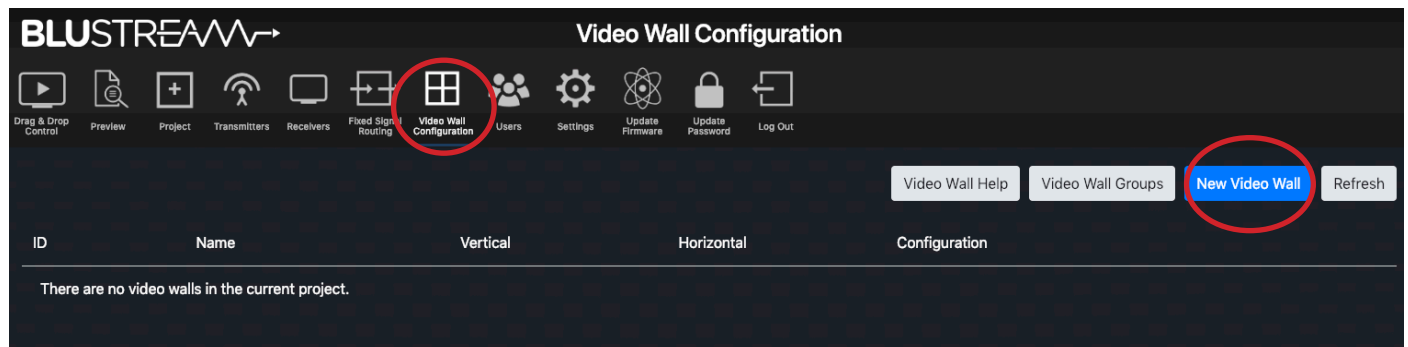

To configure a new Video Wall array, navigate to the Video Wall Configuration menu and click the button labelled 'New Video Wall' as marked at the top of the screen. Help with creating a Video Wall array can be found by clicking the button marked 'Video Wall Help'.

Please note: the Multicast Receivers that will be used for the Video Wall should have been configured as individual Receivers before proceeding past this point. It is good practice to have already named the Multicast Receivers for ease of configuration i.e. "Video Wall 1 - Top Left".

Enter the relevant information into the pop-up window to name and select the number of panels both horizontally and vertically within the Video Wall array. Once the correct information has been inserted onto the screen, select 'Create' to create the Video Wall array template within the ACM.

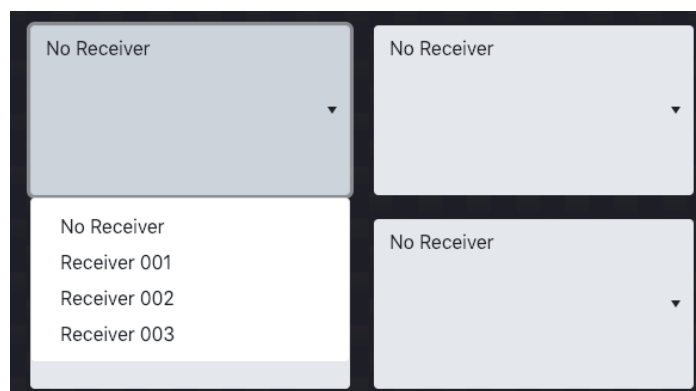# Web-GUI - Video Wall Configuration - continued...
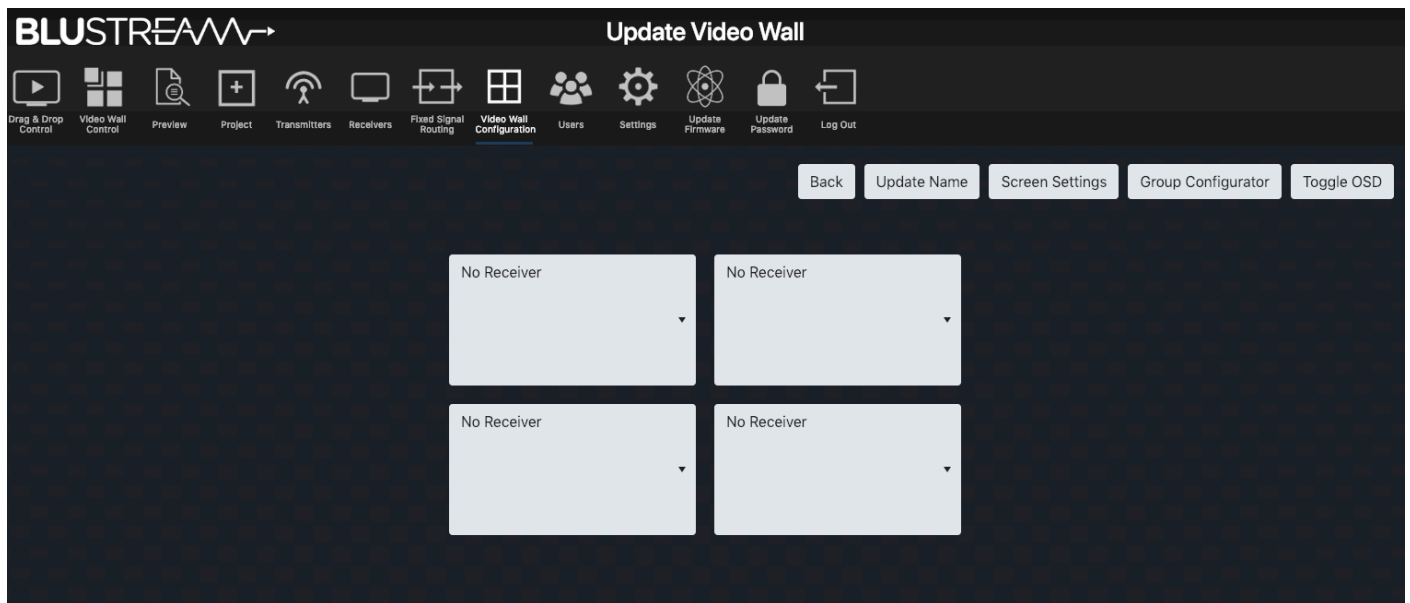
The menu page for the new Video Wall array has the following options:

1. **Back** - returns to the previous page for creating a new Video Wall.
2. **Update Name** - amend the name given to the Video Wall array.
3. **Screen Settings** - adjustment of bezel / gap compensation of the screens being used. See next page for more details on Bezel settings.
4. **Group Configurator** - there are options to be able to create multiple configurations (or 'presets') for each Video Wall array within the Multicast system. The grouping / preset allows for the Video Wall to be deployed in multiple ways i.e. grouping different numbers of screens together to create different sized walls within a single array.
5. **Toggle OSD** - turn On / Off the OSD (On Screen Display). Toggling the OSD On will show the ID number (i.e. ID 001) of the Multicast Receiver on each display connected to the Receiver as an overlay to the media being distributed. Toggling OSD Off removes the OSD. This allows easier identification of displays within a Video Wall during configuration and set-up.

Display / Receiver Assign:

The ACM will create a visual representation of the Video Wall onto the page. Use the drop down arrows for each screen to select the relevant Multicast Receiver product connected to each screen on the Video Wall array.
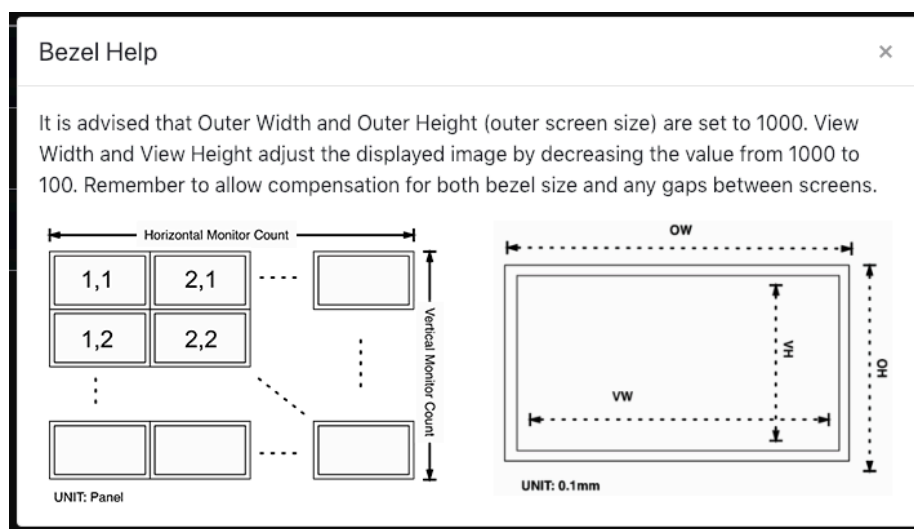
Web-GUI - Video Wall Configuration - Bezel Settings

This page allows for the compensation for the size of each screen bezel within the Video Wall, or alternatively for any gaps inbetween screens. By default, the Multicast system will insert the bezels of the Video Wall screens "inbetween" the overall image (splitting the image). This will mean that the bezels of the screens do not sit "over" any part of the image. By adjusting the Outer Width (OW) vs View Width (VW), and the Outer Height (OH) vs View Height (VH), the screen bezels can be adjusted to sit "on top" of the image that is being displayed.


All units are by default 1,000 - this is an arbitary number. It is recommended to use the dimensions of the screens being used in mm. To compensate for bezel size of the screens being used, reduce the View Width and View Height accordingly to compensate for the size of the bezels. Once the outcome of the corrections required has been obtained, the 'Copy Bezels to All' button can be used to copy the settings to each display. Click 'Update' to confirm settings and return to the previous Update Video Wall screen.

The 'Bezel Help' button opens a pop-up window with guidance to the correction and adjustment of these settings.

Web-GUI - Video Wall Configuration - Group Configurator

Once the Video Wall array has been created, it can be configured for different display options. The Video Wall Configurator allows for presets to be created for deploying the Video Wall to adjust for different groups of images across the array. Click the 'Group Configurator' button from the Update Video Wall screen.
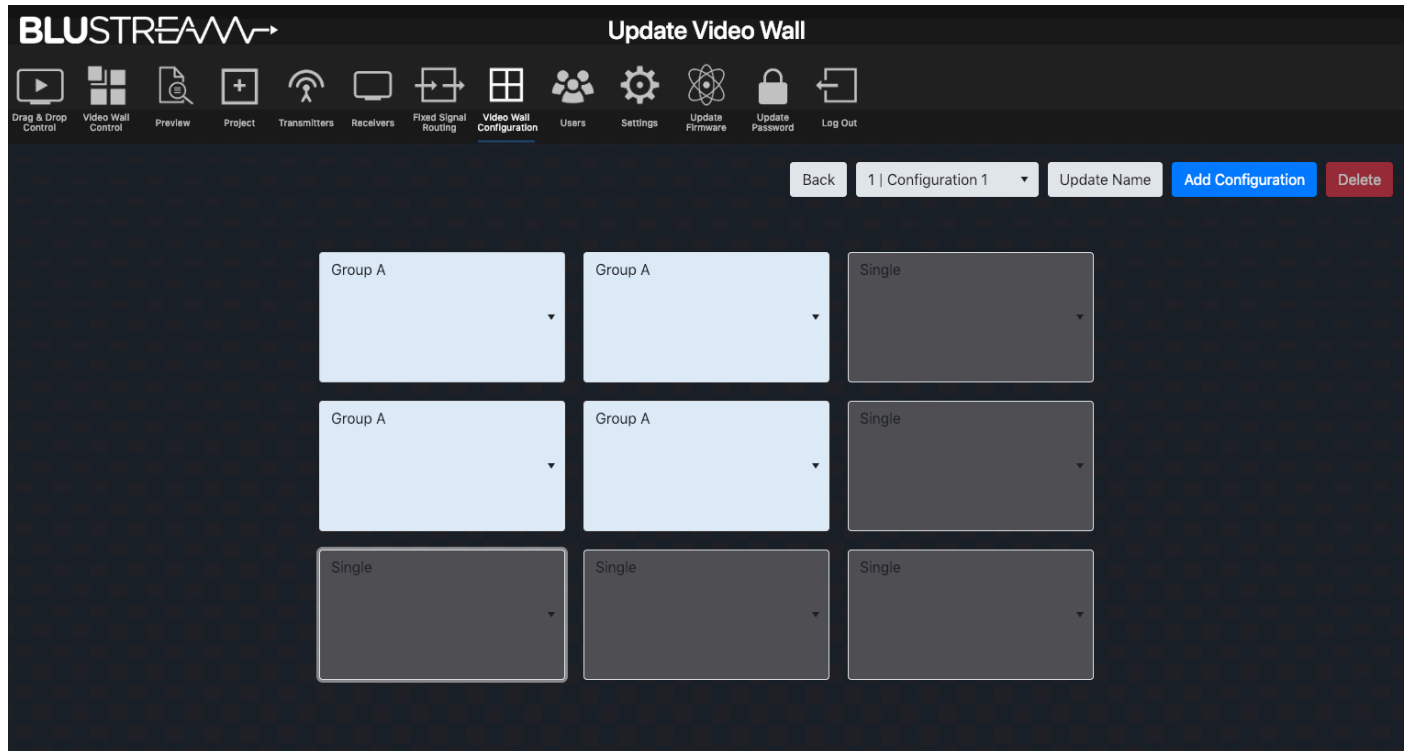

Options within this menu as follows:

1. **Back** - navigates back to the Update Video Wall page without making any changes to the set-up.
2. **Configuration Dropdown** - move between different configurations / presets previously set-up for the Video Wall array. By default, 'Configuration 1' will be inserted for a Video Wall being created and configured for the first time.
3. **Update Name** - set the name of the configuration / preset i.e. 'Single Screens' or 'Video Wall'. By default, configuration / preset names will be set as 'Configuration 1, 2, 3...' until changed.
4. **Add Configuration** - adds a new configuration / preset for the selected Video Wall.
5. **Delete** - removes the currently selected configuration.

Group Assign:

Grouping allows for the Video Wall to be deployed in multiple ways i.e. creating different sized Video Walls within a larger Video Wall array. Use the dropdown selection for each screen to create a Group within the Video Wall:
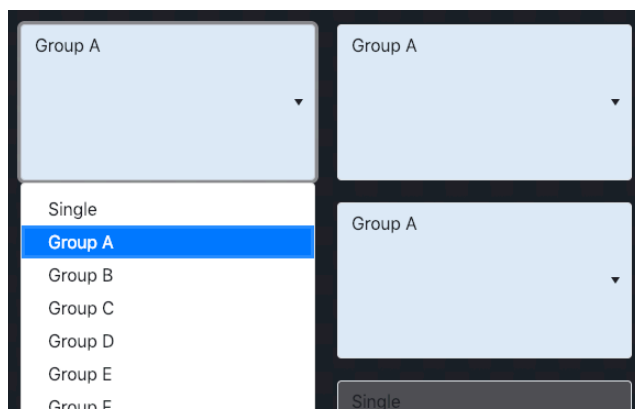
See next page for further explanation on how a larger Video Wall array can have multiple Groups configured within.
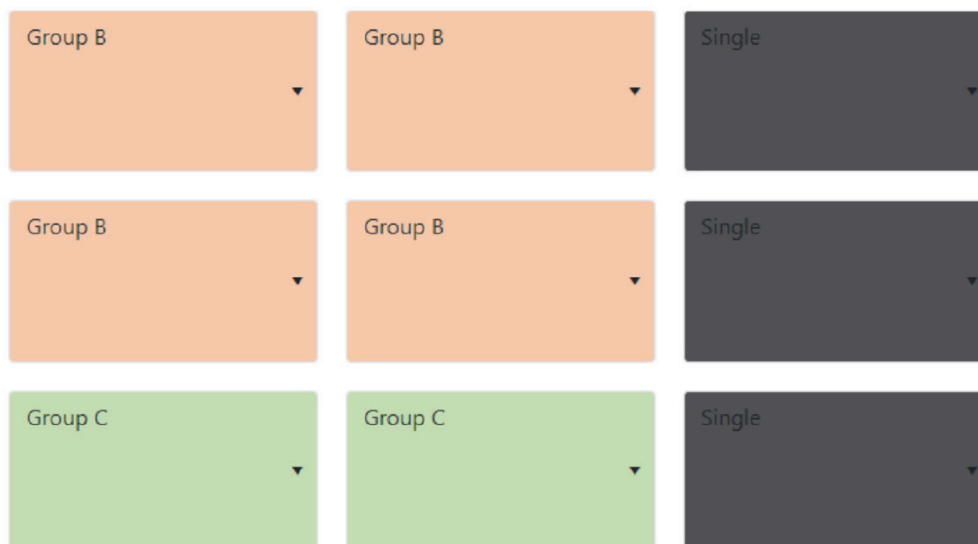
Web-GUI - Video Wall Configuration - Group Configurator

For example: a 3x3 Video Wall array can have multiple configurations / presets:

- For displaying 9x different source media streams - so that all screens work independently with each individual screen showing a single source - not grouped (leave all dropdowns as 'Single').

- As a 3x3 Video Wall - displaying one source media stream across all 9 screens (all screens need to be selected as 'Group A').

- For displaying a 2x2 Video Wall image within the overall 3x3 Video Wall array. This can have 4x different options:

  - With the 2x2 in the top left of the 3x3, with 5x individual screens to the right and bottom (select the 2x2 in the top left as Group A with other screens set as 'Single') - see example below...

  - With the 2x2 in the top right of the 3x3, with 5x individual screens to the left and bottom (select the 2x2 in the top right as Group A with other screens set as 'Single').

  - With the 2x2 in the bottom left of the 3x3, with 5x individual screens to the right and top (select the 2x2 in the bottom left as Group A with other screens set as 'Single').

  - With the 2x2 in the bottom right of the 3x3, with 5x individual screens to the left and top (select the 2x2 in the bottom right as Group A with other screens set as 'Single').

With the above example, there would be the need to create 6 different configurations for the Video Wall array, allocating the grouped screens to a Group using the selection dropdown. The Configurations / Groups can be renamed as required using the 'Update Name' option in the Group Configuration screen.

Additional configurations can be created with screens assigned as groups. This allows multiple video sources to be viewed at the same time and will appear as a Video Wall within a Video Wall. The below example has two different sized Video Walls inside a 3x3 array. This configuration contains 2 groups:

Group B	Group B	Single
Group B	Group B	Single
Group C	Group C	Single

Web-GUI - Video Wall Configuration

Once the Video Wall has been created, named accordingly, and groups / presets have been assigned, the configured Video Wall can be viewed from the main Video Wall Configuration page:

Configurations / presets that have been designed within the system will now appear within the Video Wall Groups page. The Video Wall Configuration page allows for a group to be switched.

The 'Refresh' button refeshes the current page and the configuration of the Video Wall array currently being displayed. This is particularly helpful when testing Video Wall configuration commands from a third party control system.

Please see the advanced API commands for use with third party control systems for Video Wall control, Configuration switching and Group selection which is available to download from the Blustream website.
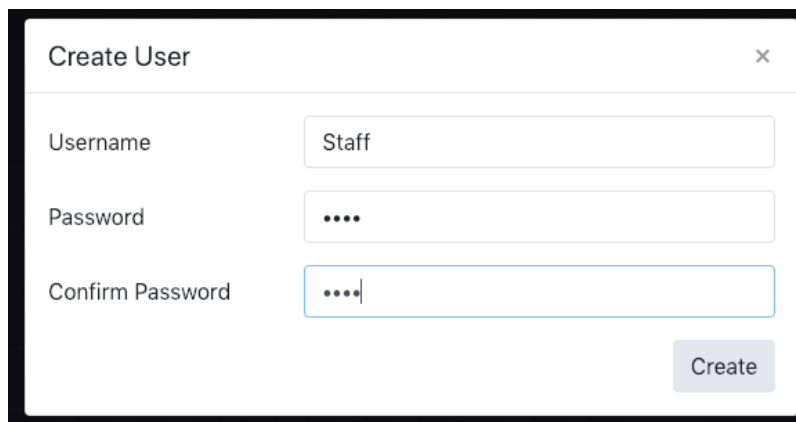
Web-GUI - Users

The ACM has the ability for individual Users to log into the web-GUI of the Multicast system and access individual parts / zones of the system, for full control of the entire Multicast system, or for simple control of which source is being watched in selected locations only. For assistance setting up new Users, click on the button marked 'Users Help'.
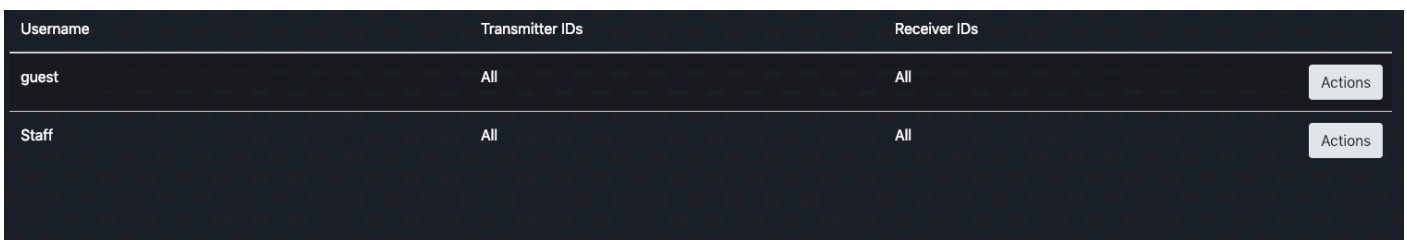
To set-up a new User, click 'New User' at the top of the screen:
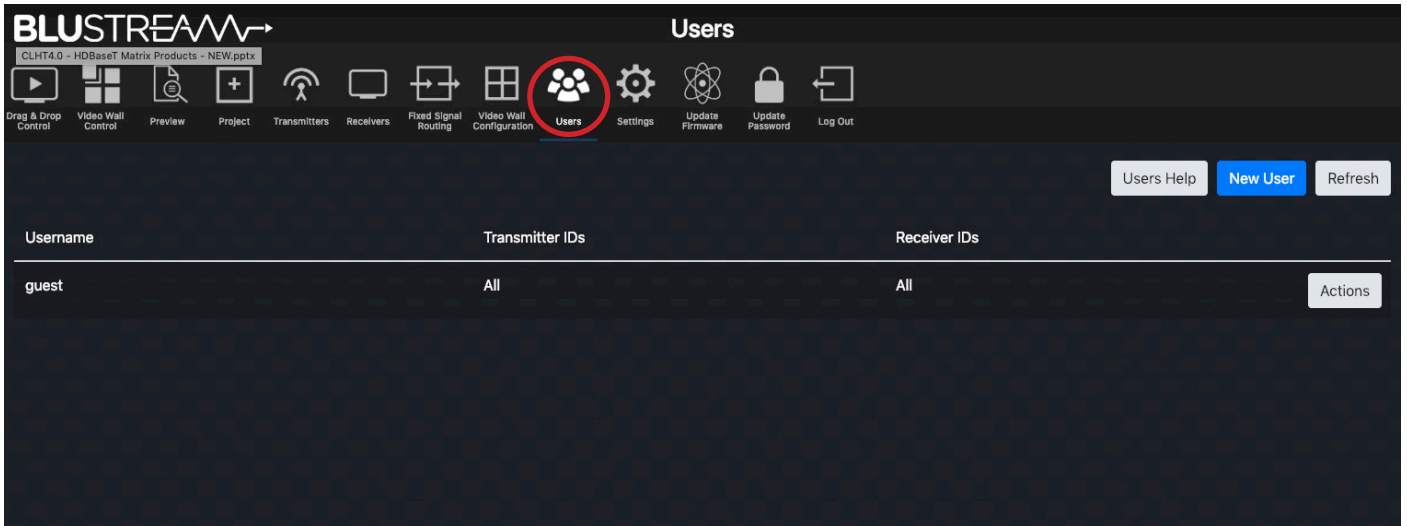
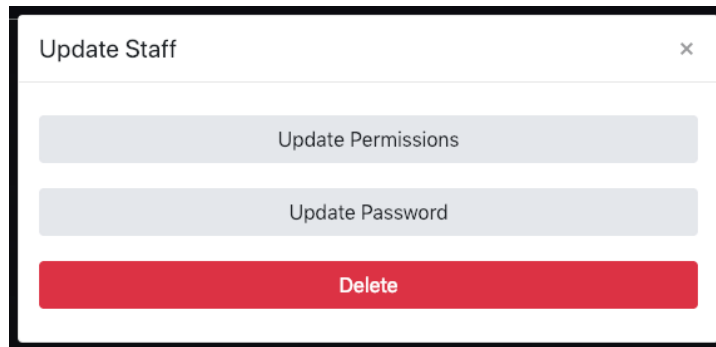Enter the new User credentials into the window that appears and click 'Create' once completed:

The new User will then appear in the Users menu page ready for access / permissions to be configured:

Web-GUI - Users - continued...

To select individual User permissions, update the User password, or to remove the User from the Multicast system, click the 'Actions' button.

The Permissions option gives access to select which Transmitters or Receivers the User can see within their control pages (Drag & Drop Control, and Video Wall Control). With all boxes checked next to each Transmitter or Receiver, the User can preview and switch across the entire system. If the User is only to be able to control one screen / receiver, then uncheck all other Receivers. Likewise, if the User is not to be given access to one (or more) source devices, these Transmitters should be unchecked.

Where there is a Video Wall array in the Multicast system, a User will need access to **ALL** associated Receivers to be able to gain switching control of the Video Wall. If the User does not have access to all Receivers, the Video Wall will not appear in the Video Wall Control page.
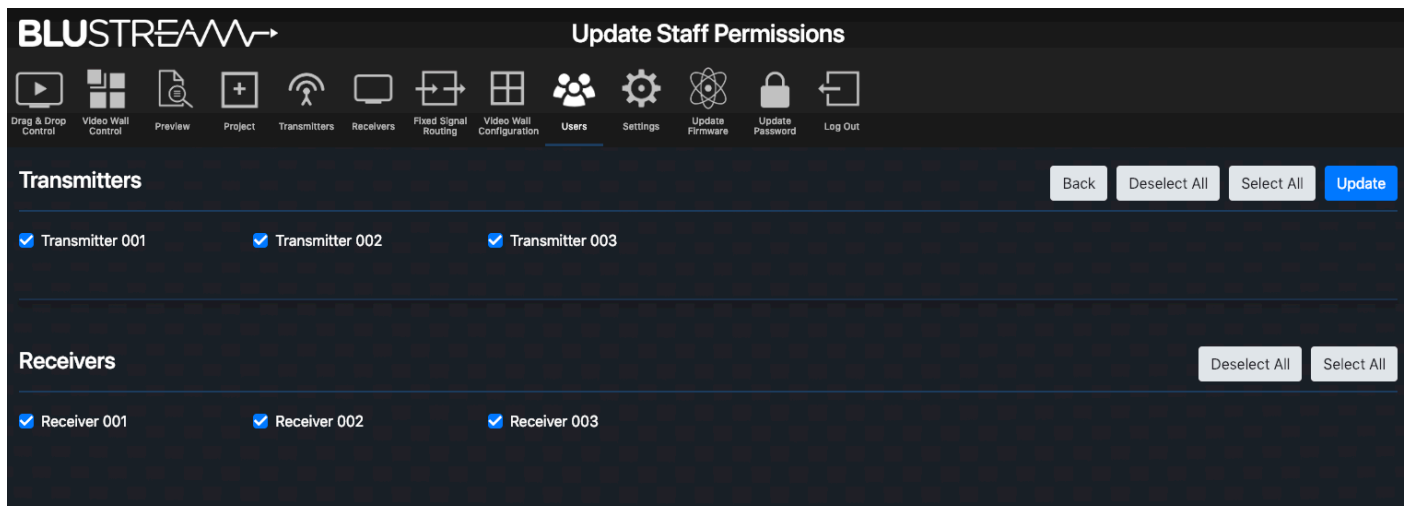
Once the User permissions have been selected, click 'Update' to apply the settings.

Please note: in order to stop non-secure access to the web interface (i.e. with no password), the 'Guest' account must be deleted after a new user with access to the sources / screens applicable set-up. This way, any User of the system is required to enter a password to gain switching control of the system.

Web-GUI - Settings

The Settings page of the ACM will provide an overview of the general settings, and control / video network settings of the unit with the ability to amend and update the unit accordingly.

The 'Clear Project' removes all Transmitters, Receivers, Video Walls and Users that have been created from the current project file contained within the ACM. Confirm by selecting 'Yes'.

**Please note:** the New Project Setup Wizard will appear after using the 'Clear Project' function. Should a project save file not have been created prior to clearing the project, it is not possible to restore the system after this point.
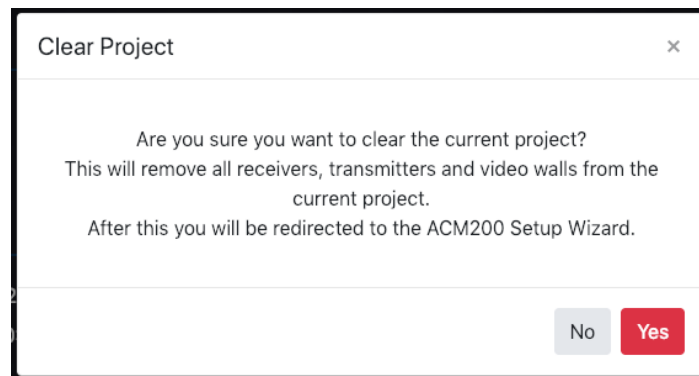
Web-GUI - Settings - continued...

The 'Reset ACMxxx' option allows for the following:

1. Reset System to factory default *(excludes Network settings)*
2. Reset Network to default settings *(excludes System settings)*
3. Reset ALL System and Network settings back to factory default
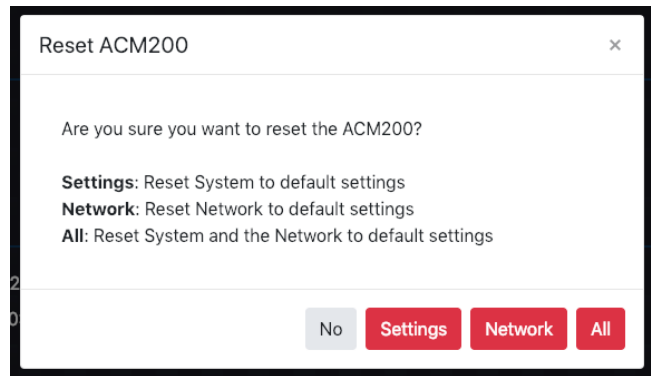
Under general settings, the 'Update' option allows for the following:

1. Turn On / Off IR control to enable / disable the IR input of the ACM from accepting IR commands from a third party control solution.
2. Update the Telnet port number that the Control port of the ACM communicates through. The default port number used is port 23 which will be used for all official Blustream third party control drivers.
3. Update the RS-232 Baud Rate of the DB9 connection of the ACM to suit a third party control processor. The default Baud Rate used is: 57600.

The IP addresses of the two RJ45 ports on the ACM can be updated with individual IP, Subnet and Gateway addresses. Use the 'Update' button for either the Control Network or Video Network to update the information for the ports required. The Control Port can be set to DHCP by selecting 'On':
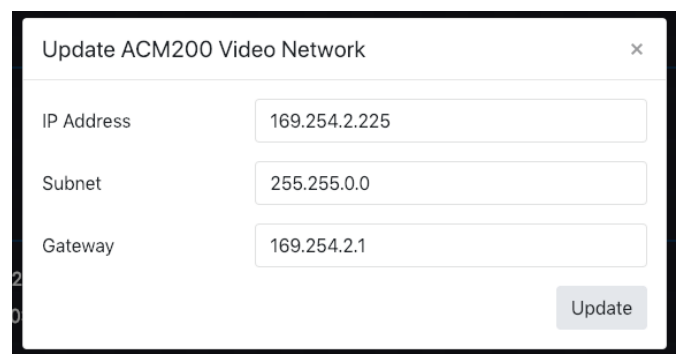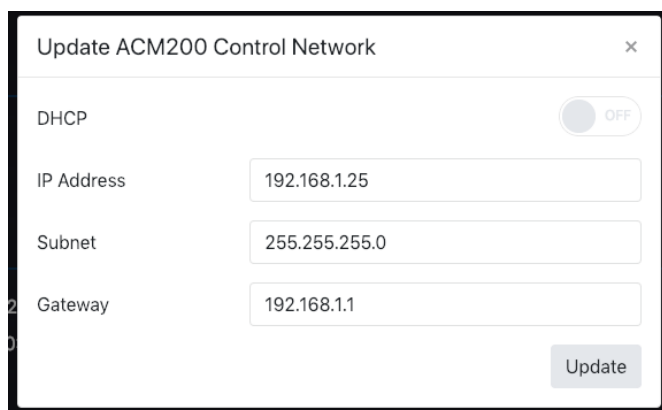
IMPORTANT: Amending the Video Network IP Address out of the 169.254.x.x range will stop communication between the ACM and the Multicast Transmitters and Receivers that have been pre-configured. Whilst the ACM can be moved out of the recommended range, the IP addresses of ALL Transmitters and Receivers would need to be amended to the same IP range to ensure connectivity and control of the Multicast system. **Not recommended.**

Web-GUI - Update Firmware

The Update Firmware page allows for the firmware updating of:

• The ACM unit

• Multicast Transmitter and Receiver units

Please note: firmware packages for the ACM, Multicast Transmitter and Receiver products are individual. It is recommended that firmware updating is only completed from a desktop or laptop PC that is hard-wired into the network.

Updating the ACM:

Download the ACMxxx Firmware file (.bin/.img) from the Blustream website to your computer.
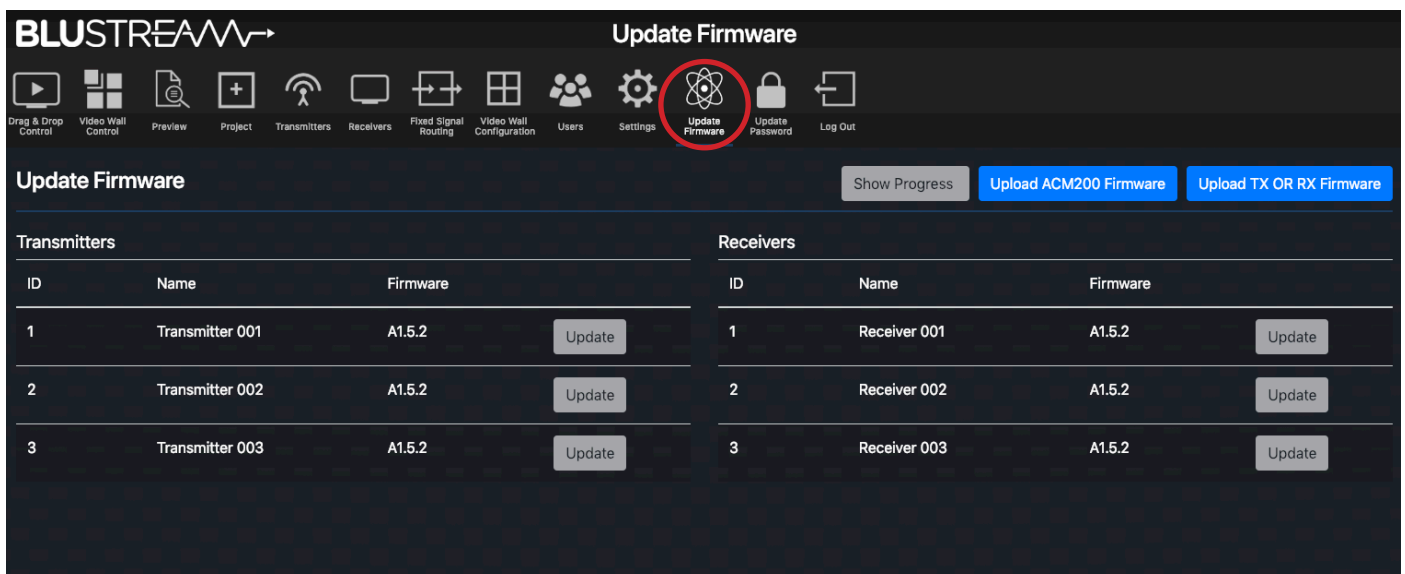
Click on the buttom marked 'Upload ACMxxx Firmware'
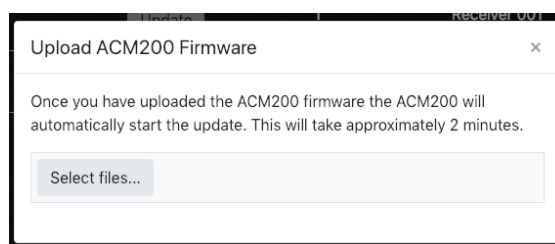
Select the [ACMxxx].bin/.img file already downloaded to your computer for the ACM. The file will automatically upload to the ACM which takes between 2-5 minutes to complete. The page refreshes to the Drag & Drop page once complete.

Web-GUI - Update Firmware - continued...

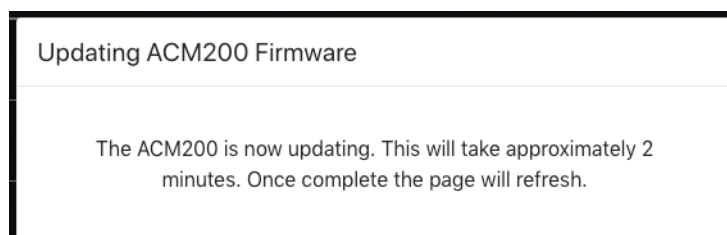The Update Firmware page is also used for firmware upgrading the firmware of Blustream Transmitters or Receivers. The page allows for multiple Transmitter, or, Receiver units to be upgraded (i.e. all Receivers at once, or, all Transmitters at once - not both simultaneously).

The most current firmware version for the Multicast Transmitters and Receivers can be downloaded from the Blustream website.

To upload the firmware files, click the button marked 'Upload TX or RX Firmware', then 'Select Files'. Once the correct firmware (.bin) file has been selected from the computer, the firmware will upload to the ACM.

Please note: this part of the upgrade does not upload the firmware into the TX or RX units, it only uploads to the ACM ready for deployment to the TX or RX.

IMPORTANT: Do not close or navigate away from the upload whilst in progress to avoid firmware data being lost during transfer to the ACM.

Web-GUI - Update Firmware - continued...

On completion of the firmware files being uploaded to the ACM, a notification will appear on screen to feedback the success of the upload:

✓ The device firmware (Receiver.bin) has been uploaded, please select a device to start the update.
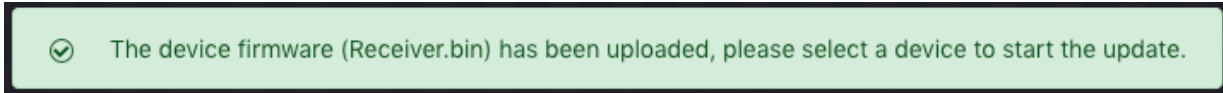
To complete the upgrade of the firmware of either the Multicast Transmitter, or for Receiver units, click the buttom marked 'Update' next to the relevant Transmitter or Receiver. **Please note:** it is only possible to update Transmitters, or Receivers at one time. The firmware upgrade process will then begin:
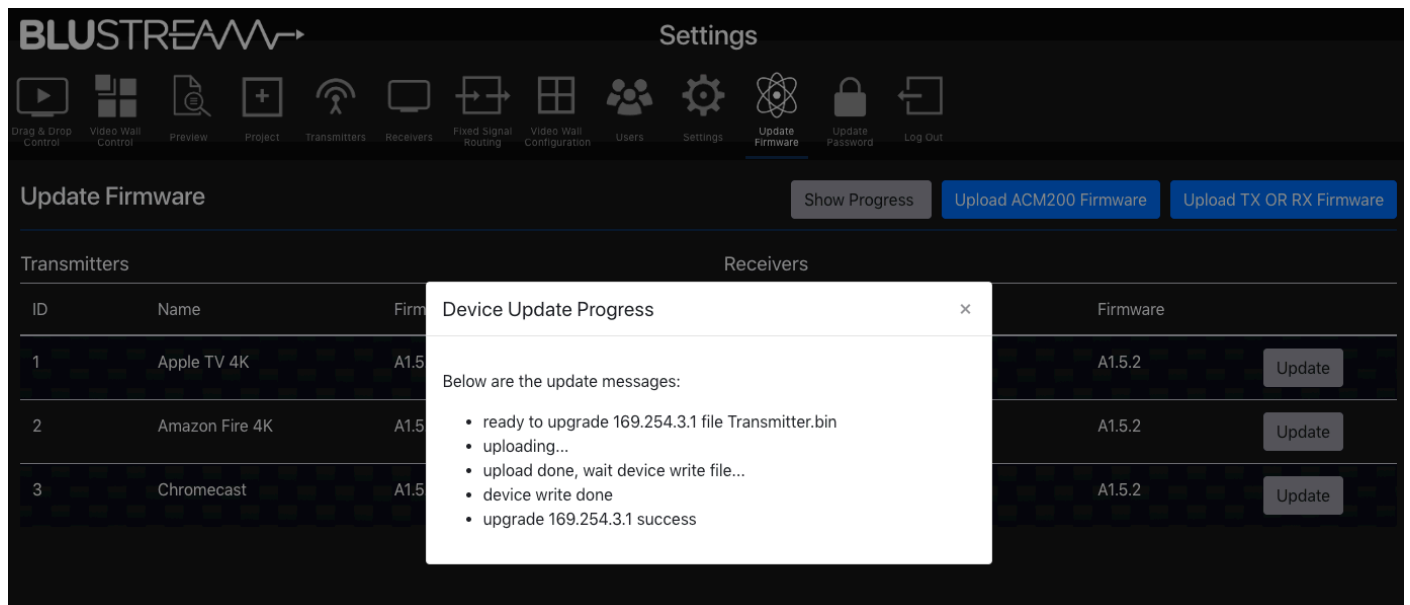
IMPORTANT: Do not disconnect the ACM or TX / RX units whilst in the upgrade process is in progress to avoid firmware data being lost during transfer to the individual Transmitter / Receiver devices.

Update Password

The Admin password for the ACM can be updated to an alpha-numeric password by inserting the new credentials in this pop-up menu option. Click 'Update Password' to confirm:
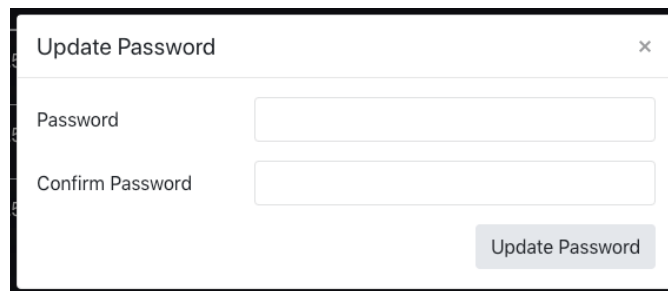
IMPORTANT: Once the Admin password has been changed, it cannot be recovered by the User. If the Admin password is forgotten or lost, please contact a member of the Blustream Technical Support team who will be able to assist in the recovery of the Admin rights of the unit. See email addresses below:

RS-232 (Serial) Routing

The Multicast system features two ways of managing RS-232 command signals:

Type 1 - Fixed Routing:

A static fixed routing for distributing two-way RS-232 commands between a Multicast Transmitter to one multiple Receivers (Fixed Routing). Fixed routing can be left static between two or more products as a permanent connection for the transfer of RS-232 control data, this is configured using the Fixed Routing menu of the ACM.

Type 2 - Guest Mode:

Allows the RS-232 connection of a device to be sent over the IP network (IP / RS-232 command in, to RS-232 out). Type 2 Guest Mode gives third party control systems the ability to send an RS-232 or IP command to the ACM and an RS-232 command to be sent out of a Receiver or Transmitter as a result. This IP to RS-232 signalling, allows the third party control system to have control of as many RS-232 devices as there are Receivers and Transmitters, from the network connection to the ACM.

There are two ways of enabling Type 2 - Guest Mode:

1. Using the ACM web-GUI from the Transmitters and Receiver Action tabs.

2. Via the command set as detailed below. The command to configure the connection is: **IN/OUT xxx SG ON**

RS-232 Guest Mode Connection from a Third Party Control System:

When using Guest Mode on multiple devices within a system, we would recommend turning Guest Mode on and off when required. This is because a serial command being sent into the ACM will be passed to ALL devices that have Guest Mode enabled.

1. To open a Guest Mode connection between the ACM and an IPxxxUHD-TX or RX unit the following command must be sent via IP or RS-232:

         INxxxGUEST   Connect to TX xxx in Guest Mode from the ACM

         OUTxxxGUEST   Connect to RX xxx in Guest Mode from the ACM

         Example: Transmitter ten is ID 010, meaning 'IN010GUEST' will allow bi-directional Serial / IP commands to be sent between the ACM and Transmitter 10.

2. Once a connection is established, any characters that are sent from the ACM will be transmitted to the connected Transmitter or Receiver, and vice versa.

3. To close the connection send the escape command: 0x02 (02 in Hex). If using Telnet, the connection can also be closed by pressing: CTRL + B.

Specifications

ACM200 & ACM210:

- Ethernet port: 2x LAN RJ45 connector (1x PoE support)

- RS-232 serial port: 1x DB-9 female

- RS-232 & I/O port: 1x 6-pin Phoenix connector (reserved for future use)

- IR input port: 1x 3.5mm stereo jack

- Dimensions (W x D x H): 96mm x 110mm x 26mm

- Shipping weight (Kit): 0.6kg

- Operating temperature: 32°F to 104°F (0°C to 40°C)

- Storage temperature: -4°F to 140°F (-20°C to 60°C)

Package Contents

- 1 x ACM200 / ACM210
- 1 x IR control cable - 3.5mm to 3.5mm stereo to mono cable
- 1 x 6-pin phoenix connector
- 1 x Mounting kit

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

Blustream Infrared Commands

Blustream have created 16x input & 16x output IR commands allowing source selection of up to 16x Transmitters to up to 16x Receivers. These are different to the source switching controls sent to a Multicast Receiver.

For systems larger than 16x source devices, please use RS-232 or TCP/IP control.

For the complete database of Multicast IR commands, please visit the Blustream website page for any Multicast product, click on the "Drivers & Protocols" button, and navigate to the folder named "Multicast IR Control".

RS-232 and Telnet Commands

The Blustream Multicast system can be controlled via serial and TCP/IP. Please refer to the RS-232 connections page towards the start of this manual for settings and pin out. For the ACM200 and ACM210, there are individual API Documents availabel to download from the Blustream website that cover all possible commands that can be sent via TCP/IP or Serial to the units.

Common Mistakes

• Carriage return – Some programs do not require the carriage return where as other will not work unless sent directly after the string. In the case of some Terminal software the token <CR> is used to execute a carriage return. Depending on the program you are using this token maybe different. Some other examples that other control systems deploy include \r or 0D (in hex).

• Spaces – the ACM200 can work with our without spaces. It simply ignores them. It can also work with 0 to 4 digits.

eg: 1 is the same as 01, 001, 0001

- How the string should look is as follows OUT001FR002

- How the string may look if spaces are required by the control system: OUT{Space}001{Space}FR002

• Baud Rate or other serial protocol settings not correct

Please note: the maximum number of Transmitters (yyy) and Receivers (xxx) = 762 devices (001-762)

- Receivers (outputs) = xxx
- Transmitters (inputs) = yyy
- Scaler Output = rr
- EDID Input settings = zz
- Baud Rate = br
- GPIO input/output ports = gg

For a full list of all API commands for the ACM200 and ACM210, please see separate Advanced Control Module API Document published on the Blustream website.

Status feedback samples

Command: STATUS

The STATUS feedback gives an overview of the network the ACM is connected to:

```
==============================================================

IP Control Box ACM200 Status Info
FW Version: 1.14

Power  IR    Baud
On     On    57600
In    EDID   IP            NET/Sig
001   DF009  169.254.003.001 On /On
002   DF016  169.254.003.002 On /On

Out   FromIn IP            NET/HDMI Res Mode
001   001    169.254.006.001 On /Off  00  VW02
002   002    169.254.006.002 On /Off  00  VW02

LAN   DHCP   IP          Gateway       SubnetMask
01_POE Off   169.254.002.225 169.254.002.001 255.255.000.000
02_CTRL Off  010.000.000.225 010.000.000.001 255.255.000.000

Telnet LAN01 MAC        LAN02 MAC
0023   34:D0:B8:20:4E:19    34:D0:B8:20:4E:1A


==============================================================
```

Command: OUT xxx STATUS

The OUT xxx STATUS feedback gives an overview of the output (Receiver: xxx). Including: firmware, mode, fixed routing, name etc.

```
==============================================================

IP Control Box ACM200 Output Info
FW Version: 1.14

Out  Net  HPD  Ver   Mode Res Rotate Name
001  On   Off  A7.3.0 VW   00   0     Receiver 001

Fast  Fr   Vid/Aud/IR_/Ser/USB/CEC    HDR  MCas
On    001  001/004/000/000/002/000      On   On

CEC  DBG  Stretch IR   BTN  LED   SGEn/Br/Bit
On   On   Off     On   On   3      Off /9/8n1

IM   MAC
Static 00:19:FA:00:59:3F

IP           GW           SM
169.254.006.001 169.254.006.001 255.255.000.000

==============================================================
```

Status feedback samples

Command: IN xxx STATUS

An overview of the input (Transmitter: xxx). Including: firmware, audio, name etc.

```
===============================================================

IP Control Box ACM200 Input Info

FW Version: 1.14

In   Net  Sig  Ver    EDID   Aud   MCast  Name
001  On   On   A7.3.0 DF015  HDMI  On     Transmitter 001

CEC   LED  SGEn/Br/Bit
On    3    Off /9/8n1

IM     MAC
Static  00:19:FA:00:58:23

IP              GW             SM
169.254.003.001  169.254.003.001  255.255.000.000

===============================================================
```

Command: VW STATUS

The VW STATUS will show all VW status feedback for Video Wall arrays in the system. Additional Video Wall arrays will have individual status feedback i.e. 'VW 2 STATUS'.

```
===============================================================

 IP Control Box ACM200 Video Wall Info

FW Version: 1.14

VW  Col  Row  CfgSel Name
02  02   02   02     Video Wall 2

OutID
001 002 003 004

 CFG   Name
 01    Configuration 1

Group  FromIn  Screen
A      004     H01V01 H02V01 H01V02 H02V02

02           Configuration 2

Group  FromIn  Screen
A      002     H02V01 H02V02
B      001     H01V01 H01V02

===============================================================
```

Troubleshooting the ACM

Try using the below instructions to test the ACM should difficulties be encountered when using a computer to control the ACM.

1.   Connect the computer directly to the ACM Control Port with a CAT cable

2.   The computer must be in the same range as the LAN connection 1 on the ACM device (CONTROL network) as this will simulate the control from a third party control system (i.e. Control4, RTI, ELAN etc). Please see instructions at the rear of this manual for 'Changing your computer IP details'.

3.   Open cmd.exe program (Command prompt). Use the search tool of the computer if unsure where this is located.
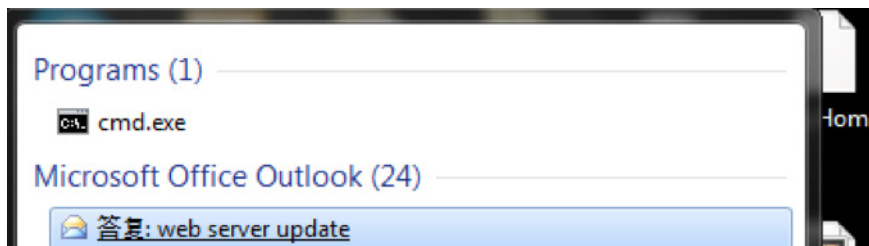
4.   Enter the following command line 'Telnet 192.168.0.225'

The following window will be displayed to confirm being logged into the ACM successfully:
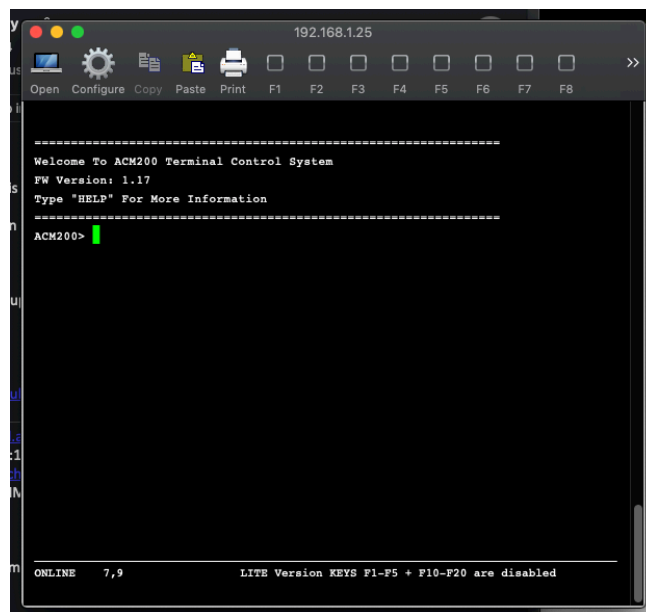
Telnet error

If the error message: '*telnet is not recognised as an internal or external command, operable program or batch file*', activate Telnet on your computer.

Unable to see the LAN ports of the ACM

If unable to communicate (ping) the ports of the ACM, connect directly to the network switch and not via a DHCP modem router to test.

Able to ping the product but not login via Telnet connection

If unable to communicate (ping) the ports of the ACM, connect directly to the network switch and not via a DHCP modem router to test.

Adjusting Your Computer Settings - Enabling TFTP & Telnet

Prior to using the Blustream ACM Firmware update PC program you must activate both TFTP and Telnet features on your computer. This is achieved using the following steps below:

1. In Windows, navigate to Start -> Control Panel -> Programs and Features

2. In the Programs and Features screen, select Turn Windows features on or off in the navigation bar on the left.
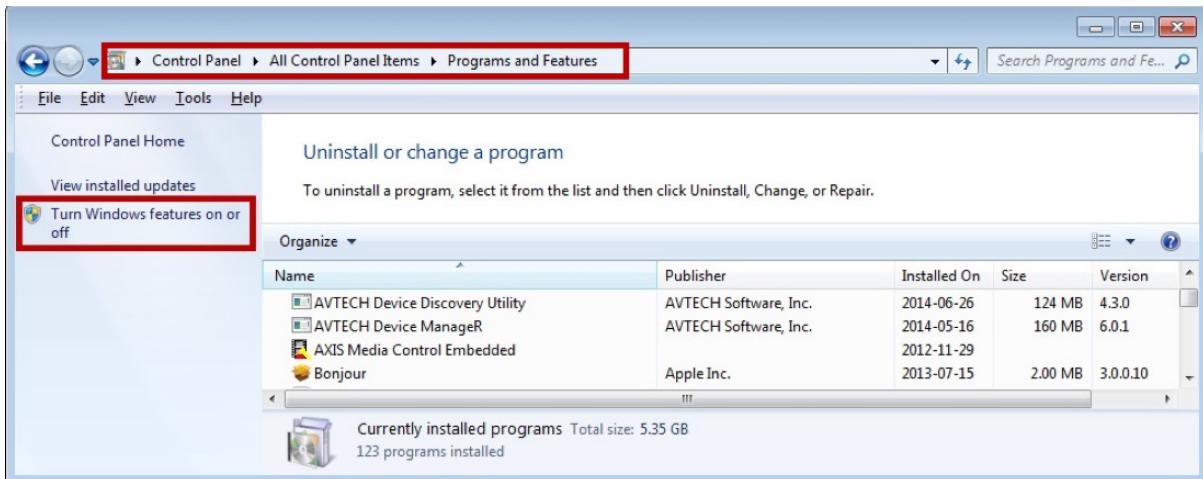
3. Once the Windows Features window populates, scroll down and make sure "TFTP client" and "Telnet Client" are both selected.
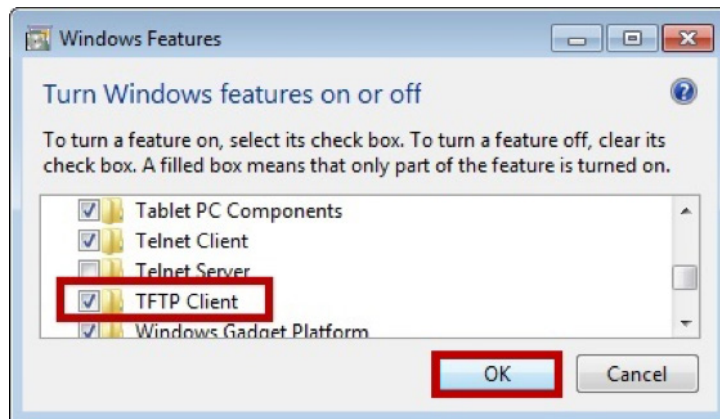
4. Once the progress bar fills and the pop up disappears, the TFTP client is enabled.
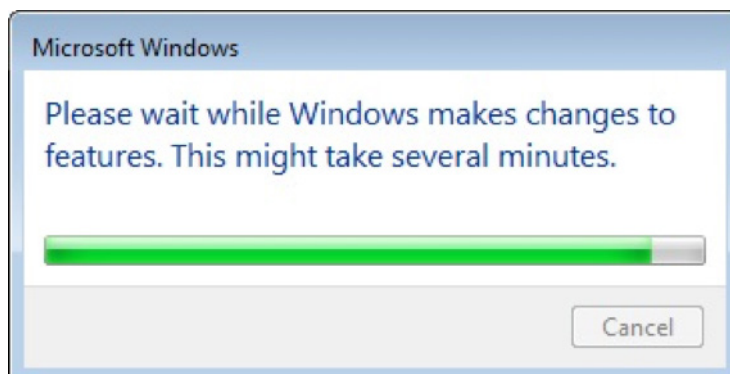
# Setting a fixed IP address in Windows 7, 8, 10 or 11

In order to communicate with the ACM your computer must first be in the same IP range as the ACM Control or Video LAN ports. By default the ports have the following IP address:

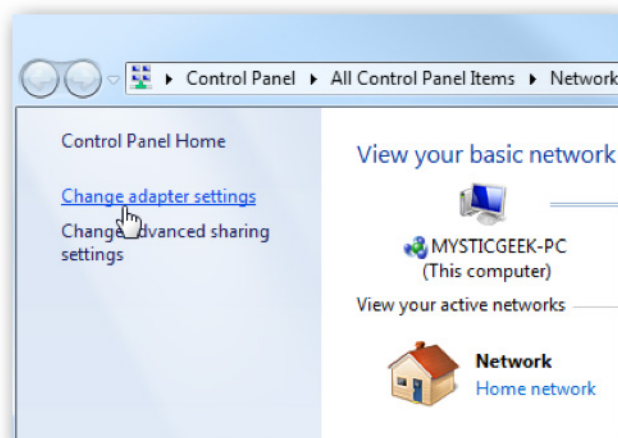Control LAN port   192.168.0.225

Video LAN port   169.254.1.253

The following instructions allow you to manually alter the IP address of your computer allowing you to communicate with Blustream Multicast products.
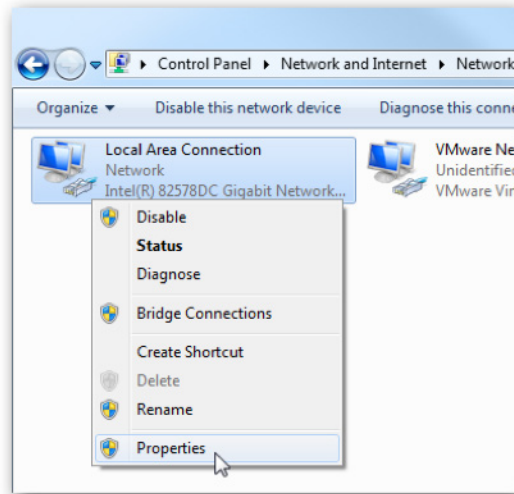
1.   In Windows, type 'network and sharing' into the search box
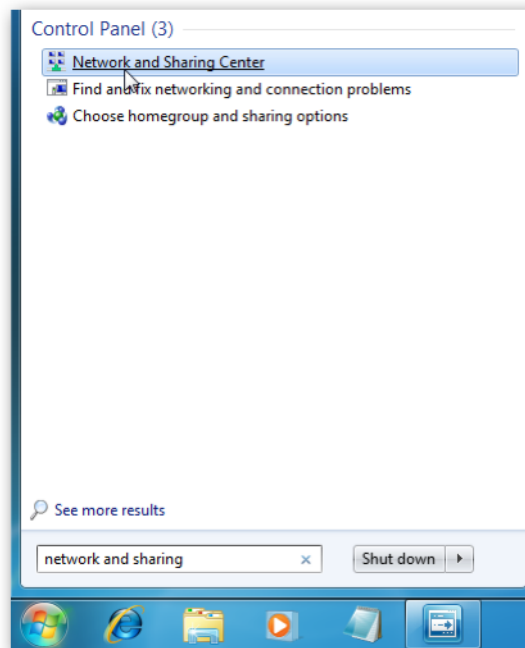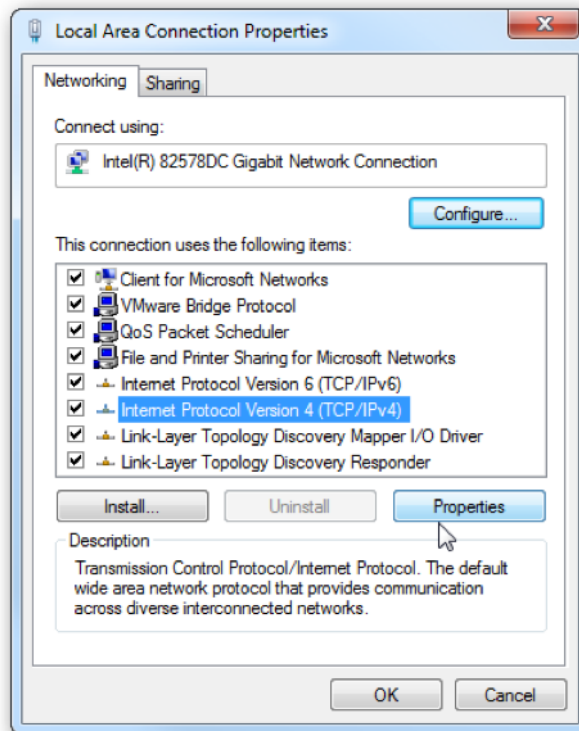

2.   When the Network and Sharing screen opens, click on 'Change adapter settings'.
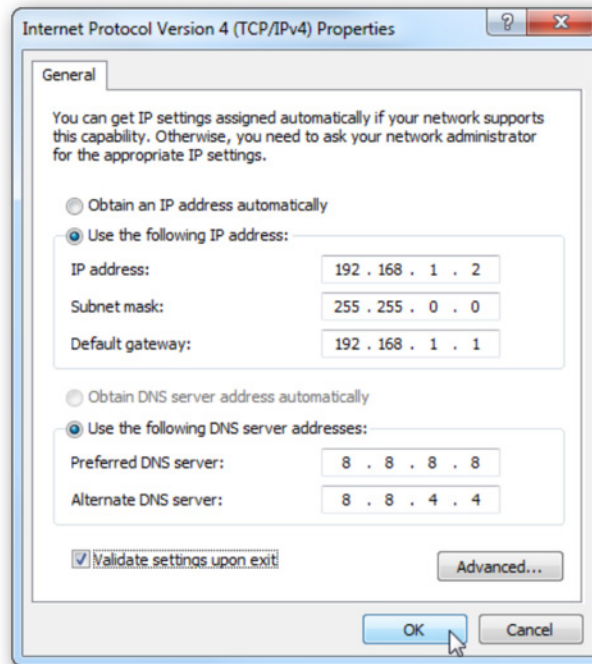
3. Right click on your Ethernet adaptor and click Properties

4. In the Local Area Connection Properties window highlight Internet Protocol Version 4 (TCP/IPv4) then click the Properties button.

5.   Select the radio button Use the following IP address and enter in the correct IP, Subnet mask, and Default gateway that corresponds with your network setup.

6.   Press OK and close out of all network screens. Your IP address has now been fixed.

Notes...

Notes...

www.blustream.co.uk
www.blustream.com.au
www.blustream-us.com