WyreStorm

NETWORK HD

Scalable HD Over IP Solution for Networked Distribution using JPEG2000 compression

Part Number NHD-IP-TX
NHD-IP-RX

WyreStorm HD over IP Solutions

HDMI HIGH DEFINITION MULTIMEDIA INTERFACE · Full HD 1080P · HDCP COMPLIANT · POE

Instruction Manual

CE · RoHS

Thank you for choosing this WyreStorm product.
Please read these instructions carefully before installing to avoid complications later.

Contents

1. Introduction

WyreStorm® NetworkHD™ is a professional grade JPEG2000 HD over IP extender and control system enabling the distribution of HDMI over a dedicated IP network switch with powerful KVM and video wall functionality designed for commercial AV applications.

Comprising of an **NHD-IP-RX** receiver and **NHD-IP-TX** transmitter extender set together with an **NHD-IP-CTL** controller, the **NHD-IP-RX** and **NHD-IP-TX** extenders facilitate the transmission of an HDMI 1.3 signal (including Full HD 1080p video with 2.1 audio) to one or more HDMI LCD/LED panels or digital projectors over standard Ethernet (Cat5e/6/7) infrastructure.

The modular system architecture of NetworkHD removes the limitations of a traditional fixed platform I/O matrix system without compromising quality or reliability, whilst offering significant cost savings when designing large scale infrastructure systems as well as integrating other features such as Video Wall processing.

As simple as it is powerful, NetworkHD functions on a basic Smart switch platform so does not require advanced integrator Network experience to install, nor does it require a managed network switch with VLAN configured, making it one of the simplest HDMI over IP systems available.

Configuring network switches takes minutes and even the largest distributions can be quickly and easily configured and expanded. Adding transmitters and receivers as required to enable the system to grow with the needs of the application. NetworkHD uses Bonjour technology to automatically discover system components to make setup a breeze.

The **NHD-IP-CTL** controller creates a simple, single interface to configure, manage and control the entire NetworkHD system, whilst also capable of fully integrating with WyreStorm Enado control interface for the highest quality total HD distribution and control solution over a network.

For further information on this product and other WyreStorm ranges, visit our website or download our latest product guide.
wyrestorm.com

2. Features

- JPEG2000 lossless video compression
- HDMI Pass-through
- Extend transmission distance to 100m/328ft from the sources at 1080p
- Supports all high definition resolutions: 720p, 1080i, 1080p up to 1920x1200 resolution at 60fps.
- POE (Power over Ethernet)
- RS232 Control & Pass-Through IP control
- API & PC software control suite
- PS/2 USB for signal transmission of KVM (keyboard, video, mouse)
- HDCP Compliant
- HDMI 1.3 compliant
- Web based configuration

WyreStorm reserves the right to change hardware, software, packaging and any accompanying documentation without prior written notice.

3. Safety Precautions

WARNING
To reduce the risk of fire, electric shock or product damage:

1. Do not stack NHD-IP-TX units on top of one another. Ventilation is crucial to consistent operation of this product. Units should be mounted with at least (2.5cm) 1 inch clearance in all directions or preferably using the NHD-FRAME mounting solution from WyreStorm.

2. Do not expose this apparatus to rain, moisture, sprays, drips or splashes and ensure that no objects containing liquids are placed on the apparatus, including cups, glasses and vases.

3. Do not place this unit in a confined space such as enclosed shelving, cabinets or bookshelves. Ensure the unit is adequately ventilated.

4. To prevent the risk of electric shock or fire hazard due to overheating, do not cover the unit or obstruct ventilation openings with material, newspaper, cardboard or anything that may restrict airflow into the unit.

5. Do not install near external heat sources such as radiators, heat registers, boilers or any device that produces heat such as amplifiers or computers and do not place near sources of naked flame.

6. Unplug apparatus from power supply during lightening storms or when unused for long periods of time.

7. Protect the power cable from being walked on, pinched or restricted in any way, especially at plug connections.

8. Only use attachments/accessories specified by the manufacturer.

9. Units contain non-servicable parts - Refer all servicing to qualified service personnel

4. Package Contents

NHD-IP-TX
1 x NHD-IP-TX HD over IP Transmitter
1 x 12V DC power supply
3 x Phoenix Male Connector
2 x Mounting brackets

NHD-IP-RX
1 x NHD-IP-RX HD over IP Receiver
1 x 12V DC power supply
3 x Phoenix Male Connector
2 x Mounting brackets

5. Specifications

Data Rate	150Mbps Maximum
Maximum Transmission Distance	100m/328ft
I/O Connections	**NHD-IP-TX Transmitter** 1 x PS/2 USB for KVM 1 x RJ45 port 1 x HDMI IN 1 x HDMI OUT 1 x RS232 (3.5mm phoenix) **NHD-IP-RX Receiver** 4 x PS/2 USB for KVM 1 x RJ45 port 1 x HDMI OUT 1 x RS232 1 x AUDIO OUT
Power Supply	12V DC, 5.5mm
Power Consumption	5 Watts
Input Video Signal	1.2 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Video Format Supported	DTV/HDTV: 1080P/1080i/720P/576P/480P/576i/480i
Output Video	HDMI 1.3+HDCP
Output Audio	2.1CH Stereo
Operating Temperature	32°F to 95°F (0°C to 35°C) 10% to 90%, non-condensing
Storage Temperature	-4°F to 140°F (-20°C to 70°C) 10% to 90%, non-condensing
Dimensions (HxWxD)	25mm / 0.98 x 140mm / 5.51” x 115mm / 4.53”
Weight	0.9kg / 1.98lb (Pair)
Certification	CE, FCC, RoHS

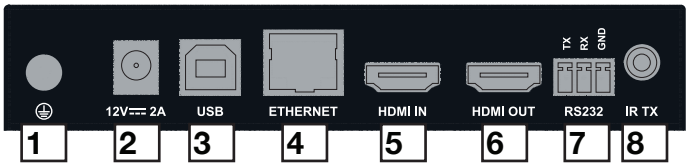
6. Panel Description

i. NHD-IP-TX Transmitter

1 Mode Switcher - Should be set to Normal mode unless instructed by WyreStorm support

2 Power LED - Constantly lit red when the unit is powered on

3 Link LED - Constantly lit blue when the Transmitter and Receiver are linked



1 GND - Grounding

2 Power - 12V / 2A DC power supply input

3 PS/2 USB for KVM

4 Ethernet - TCP/IP Connector

5 HDMI IN - Connect to HDMI source

6 HDMI OUT - HDMI Local By-pass Out

7 RS232 - Connect to a RS232 device

ii. NHD-IP-RX Receiver

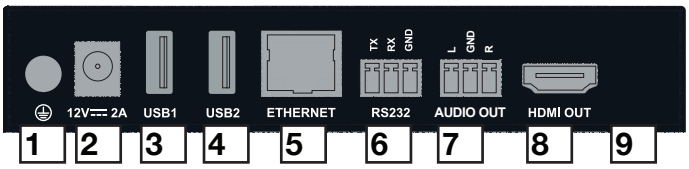
1 Mode Switcher - Should be set to Normal mode unless instructed by WyreStorm support

2 Power LED - Constantly lit red when the unit is powered on

3 Link LED - Constantly lit blue when the Transmitter and Receiver are linked

4 PS/2 USB for KVM

5 PS/2 USB for KVM



1 GND - Grounding

2 Power - 12V / 2A DC power supply input

3 PS/2 USB for KVM

4 PS/2 USB for KVM

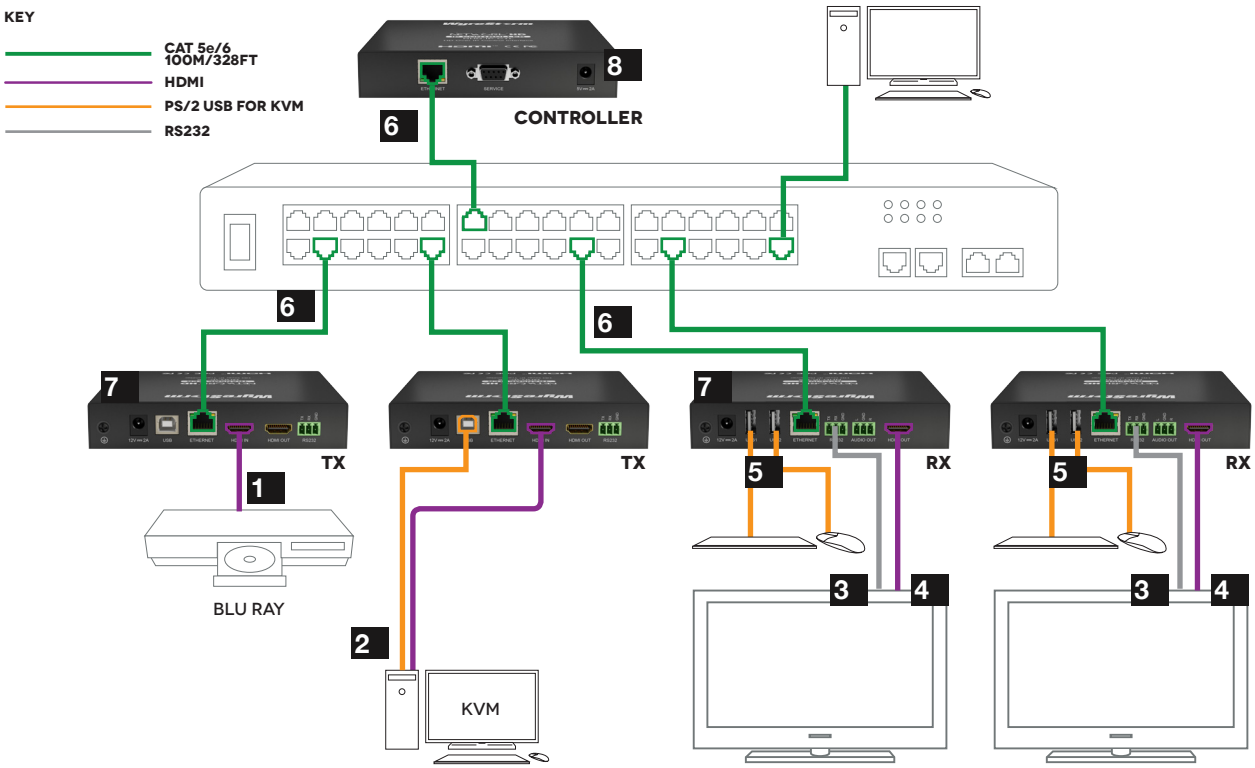
5 Ethernet - TCP/IP Connector

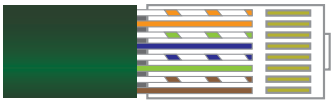
6 RS232 - Connect to a RS232 device

7 Audio Out - Audio break out

8 HDMI Out - HDMI Local By-pass Out

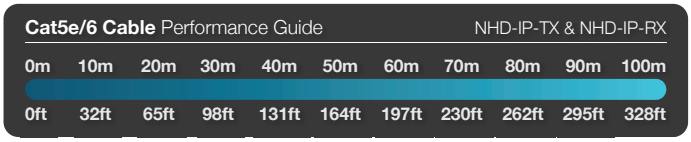
7. Connection





Cat5e Wiring Guide

The quality of termination for every RJ45 is essential. Poor terminations leads to intermittent performance and longer install times.



Attention **Ensure good quality cabling is used throughout your system, with no electrical interference, bends, twists, kinks, or other issues that may interfere with signal transmission, including the use of patch panels or wall outlets. Cable connectors should also be in good condition and correctly terminated to required standards, with straight cable runs used where possible and plugs securely connected to ports without straining port enclosures.**

The presence of any of these factors in your system can jeopardize successful signal distribution and should be eliminated wherever possible.

1 Connect an HDMI source (such as Blu-ray, Satellite/Cable receiver, media server, computer etc.) to any NHD-IP-TX transmitters to be used with a good quality HDMI cable, ensuring firm port connection.

2 Connect the computer to be used for KVM to the transmitter with a good quality USB cable.

3 Connect RS232 from the receiver to the display.

4 Connect an HDMI display to the receiver with a good quality HDMI cable.

5 Connect USB control devices (keyboard, mouse) to the USB of the receiver.

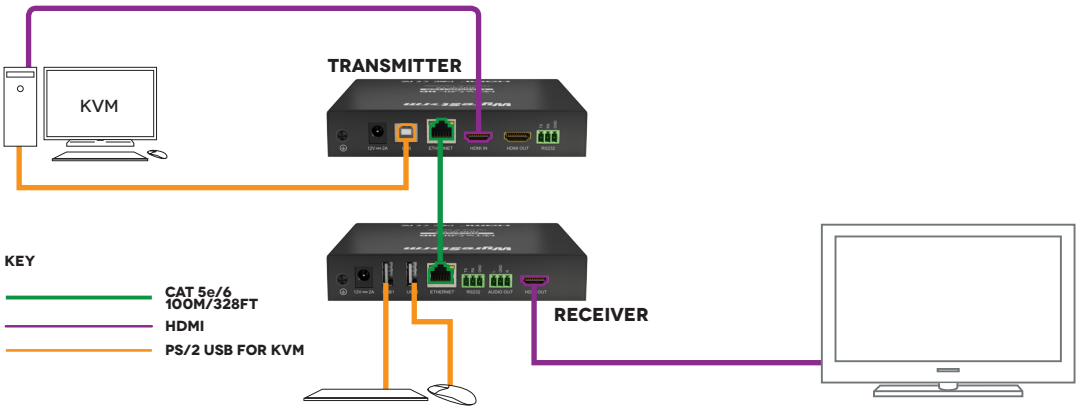
6 Connect good quality, well terminated CAT5e/6 cables of no more than 100m/328ft between the transmitter (TX), receiver (RX) and Controller (CTL) - if in use.

7 Plug in 12V DC power supplies to the TX & RX units. (Not required to the RX if using PoE as power to will be supplied via the TX).

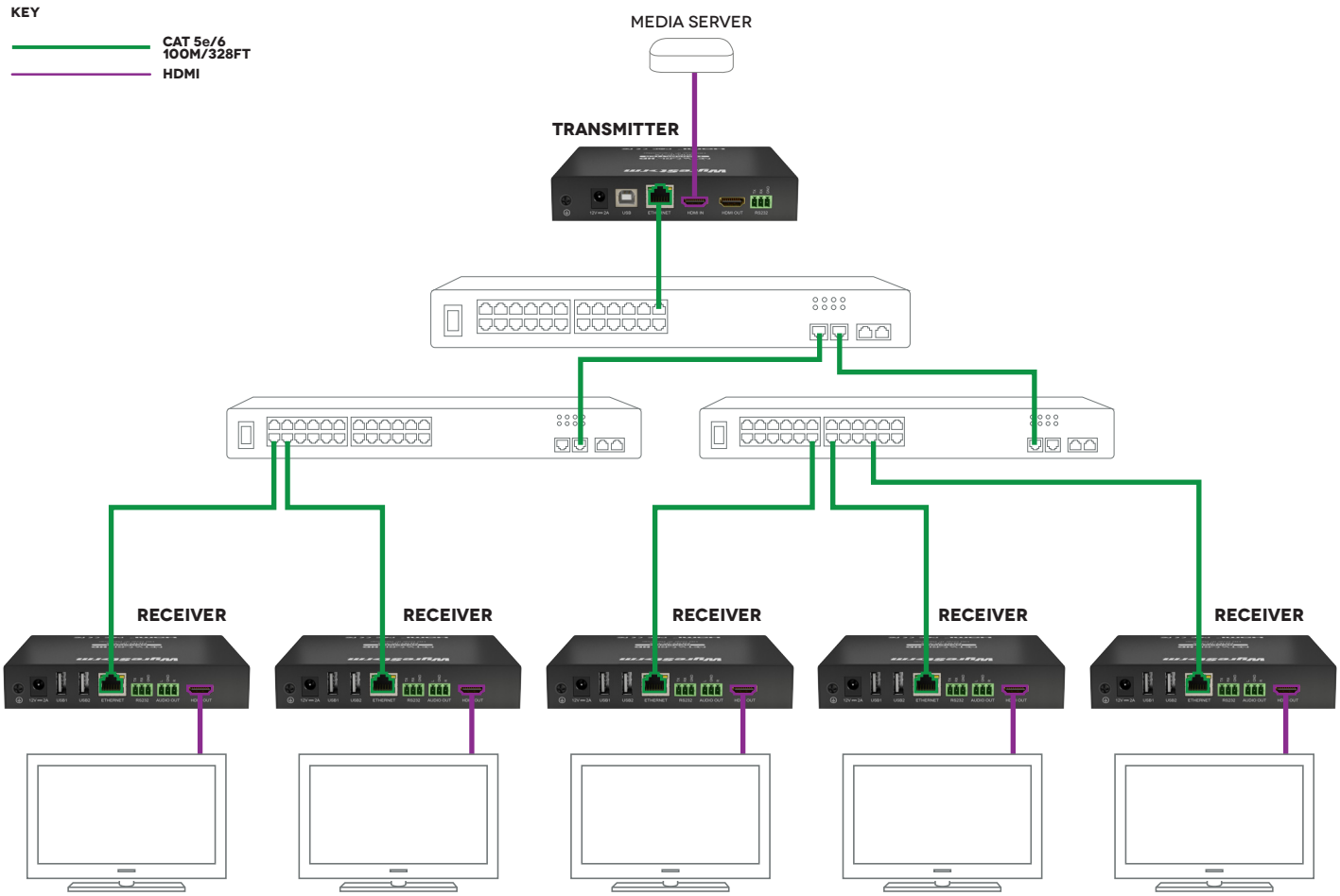
8 Plug in 5V DC power supply to the CTL - unit if in use.

8. Typical Application

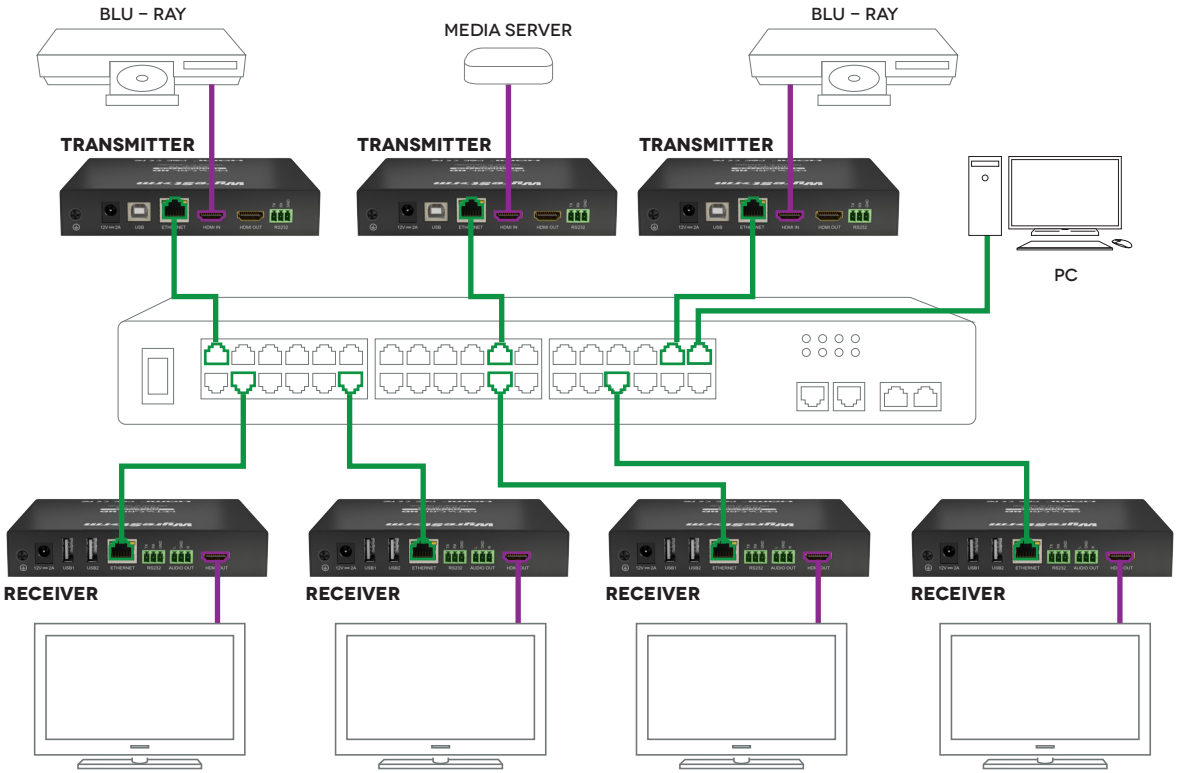
i. One Transmitter To One Receiver



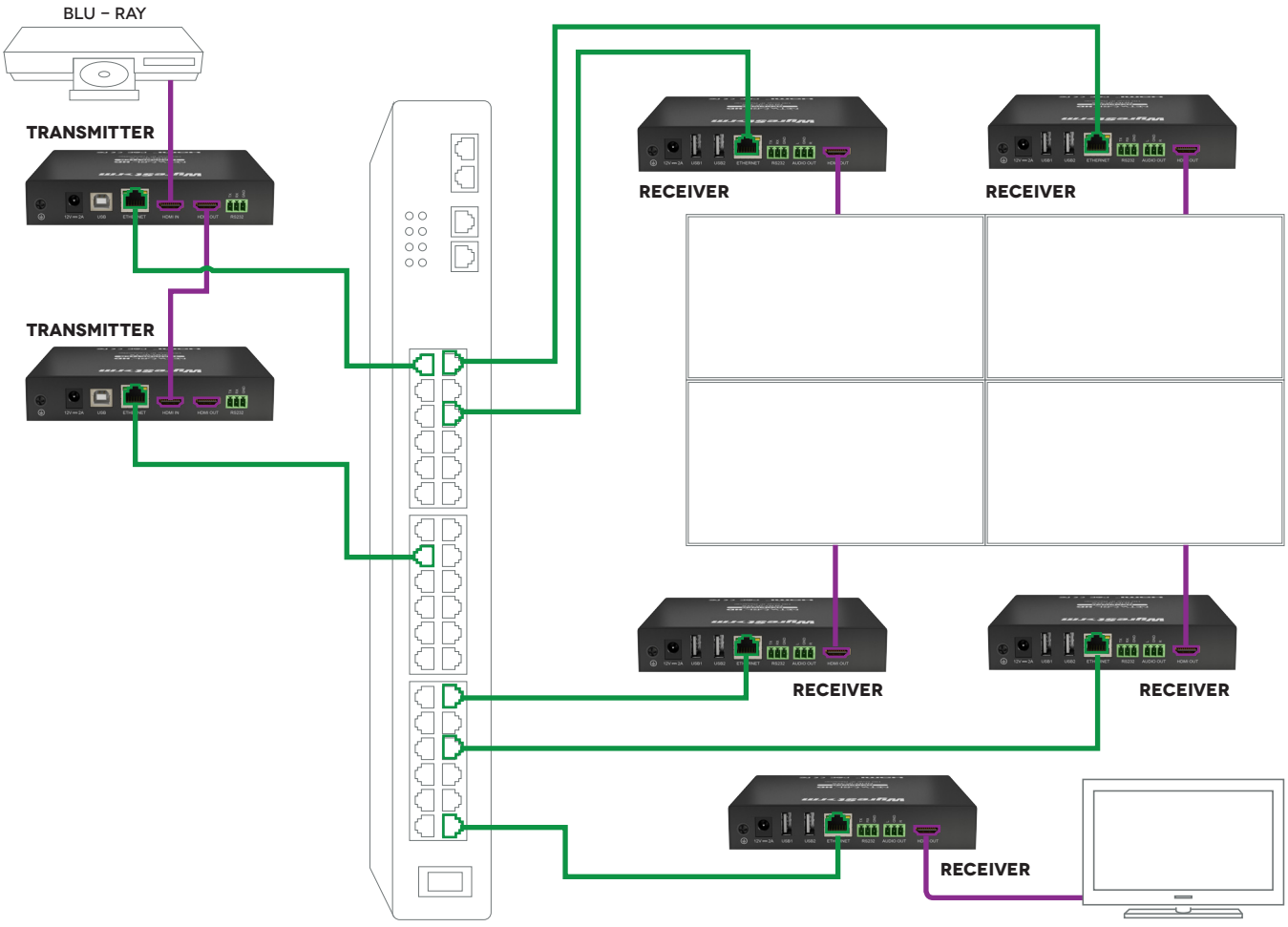
ii. One Transmitter To Multiple Receivers



iii. Multiple Transmitters To Multiple Receivers



iv. Video Wall



9. Switch Settings & Requirements

NetworkHD can be operated with any Gigabit Smart switch to ensure the overall switching capacity or backplane capacity meets the requirements of the number of transmitters/receivers included on the network.

Each NHD-IP-TX transmitter will produce up to 150Mb/s of data > therefore 10 x transmitters will require 10 x 150Mb/s = **1.5 Gbps.**

Attention **If you are unsure about the network requirements for your NetworkHD system please contact WyreStorm or your local WyreStorm distribution partner for support.**

WyreStorm are not liable if network bandwidth is to blame for poor performance from the NetworkHD system.

NetworkHD does not require multiple VLANs to be configured. Third-party controllers communicate directly with the NetworkHD NHD-IP-CTL rather the Ethernet switch.

Visit **wyrestorm.com** for guides on detailed switch configuration and recommended switch suggestions for different sized NetworkHD systems.

CISCO SG300 + SG500 series switches

Navigate to the switches web browser configuration interface and follow these steps:

1. **Enable Bridge Multicast Filtering Status** in **Multicast** > **Properties.**

2. **Enable IGMP Snooping Status** in **Multicast** > **IGMP Snooping.**

3. In **Multicast > IGMP Snooping** select the VLAN NetworkHD is attached to and press **Edit > Enable IGMP Snooping Status, Enable IGMP Querier Status, Select IGMP Querier Version IGMPv2.**

4. In **Multicast > Forward All > Set** to **Forbidden** any ports that have devices connected that are not NetworkHD components, including PC's and third party control systems.

Ensure that settings are saved to the boot configuration or else they will be lost when the switch is power cycled.

Dell PowerConnect 2800 series switches

Navigate to the switches web browser configuration interface and follow these steps:

1. Navigate to **Switching > Multicast Support > Unregistered Multicast > Edit** and set **Unregistered multicast** to **Filtering.**

2. Navigate to **Switching > Multicast Support > Global Parameters** and set both **Bridge Multicast Filtering** and **IGMP Snooping Status to Enable.**

3. Navigate to **Switching > Multicast Support > IGMP Snooping** and set **IGMP Snooping Status** to **Enable,** set **IGMP Querier Status** to **Enable.**

4. Navigate to **Switching > Multicast Support > Unregistered Multicast > Summery** and **Select all** - Press **Apply.**

Ensure that settings are saved to the boot configuration or else they will be lost when the switch is power cycled.

Hewlett Packard 1810 series switches

Navigate to the switches web browser configuration interface and follow these steps:

1 Navigate to **Network > IGMP Snooping > Advanced** and set **IGMP Snooping** to **Enable** and select **Apply.**

2 In **Network > IGMP Snooping > Advanced** click the icon under **Operation** and in the following screen set both **IGMP Snooping** and **Querier** to **Enabled.** Click **Apply.**

3 For any ports that have devices connected that are not NetworkHD components, including PC's and third party control systems navigate to **Network > IGMP Snooping > Basic** and select the port from the **Port** drop down menu, **Enable Fast Leave** and click **Apply.**

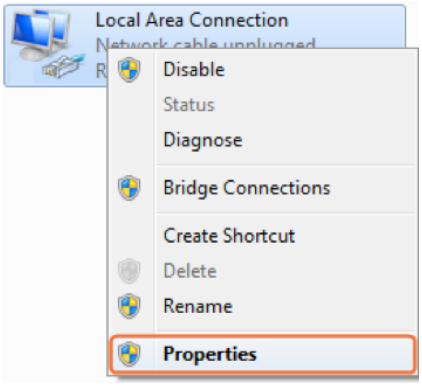
Ensure that settings are all saved to the Boot ROM by pressing Save in the top right hand corner of the web UI.

10. NHD-IP-CTL Browser Configuration & Control

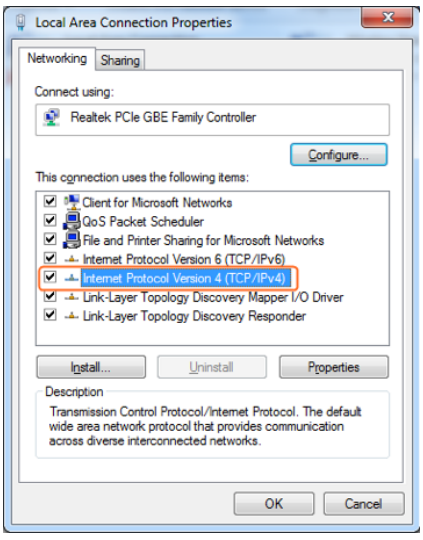
Ensure all NetworkHD components are connected to the network and powered up correctly.

Attention **If you receive a 'server unavailable' system message after entering this address into your browser, ensure your PC is on the same subnet as the CTL box by following these steps:**

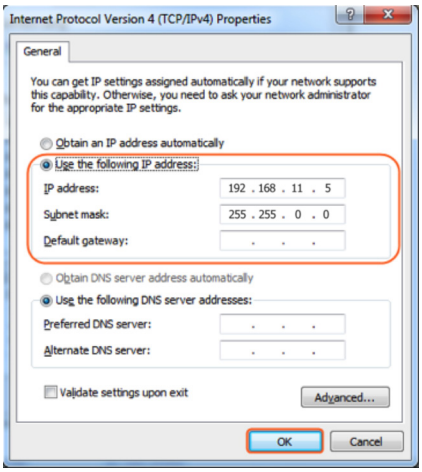
1 Click **Start** menu, go to **Control Panel > Network and Sharing center > Change Adapter Settings > Local Area Connection.** Right click and choose **Properties.**



2 Highlight **Internet Protocol Version 4 (TCP/IPv4)** then click **Properties**



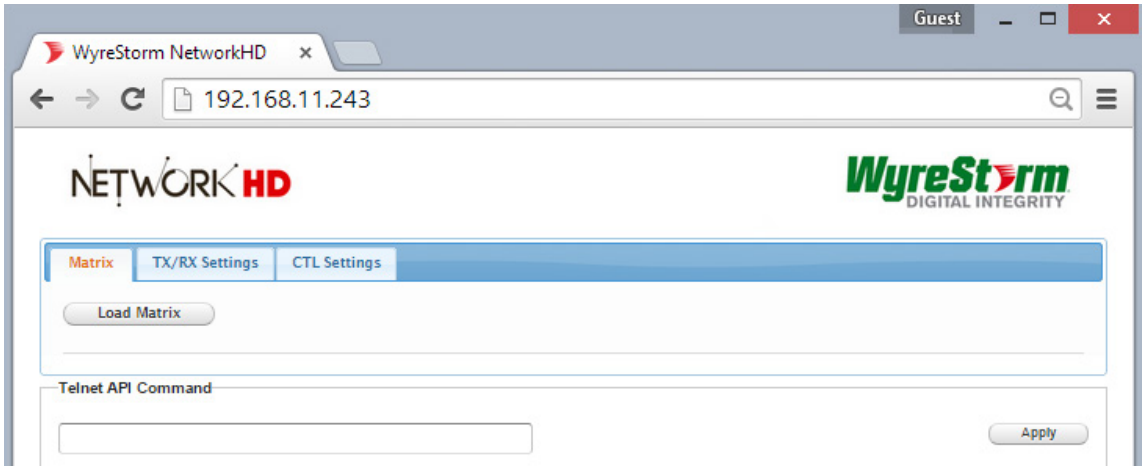
3 Check **Use the following IP address**, for the **IP address** enter **192.168.11.x** (if unsure use **192.168.11.5**) Enter **subnet mask** number **255.255.0.0** Click **OK**, then click **OK** again.



4 Return to your browser and try entering the default IP again (192.168.11.243)

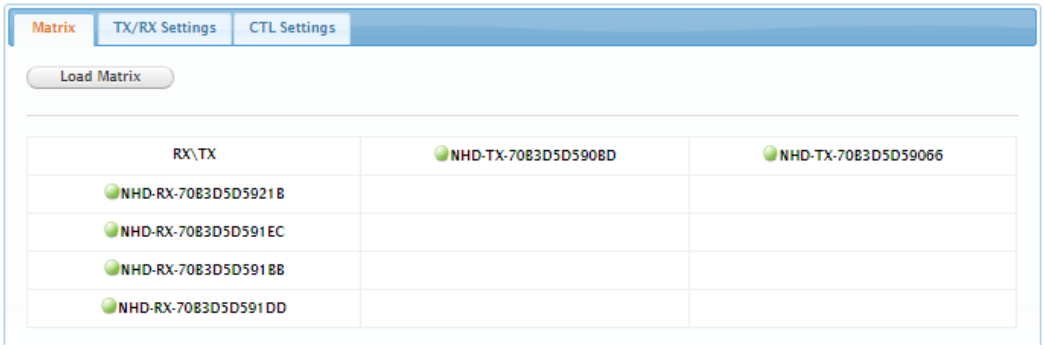
i. Matrix Switching Commands

Tabs at the top of the Home Screen page are used to access settings for Matrix, TX/RX Settings and System Settings. All pages display Telnet API boxes where commands can be entered from the NetworkHD API.



1 Click the Load Matrix button, and the table of devices will appear with TX units across the top and the RX down the left hand side.

2 Press the box that links each TX & RX to test switching of the video to each RX. Devices who's names starts with EX131 are transmitters where as devices that start EX141 are receivers



Device **online**

Device **offline**

A **green bar** represents corresponding TX and RX are **connected.**
Clicking the green bar changes colour to **clear** to signify the corresponding TX and RX are **disconnected.**

A **red bar** denotes TX/RX connection is being processed

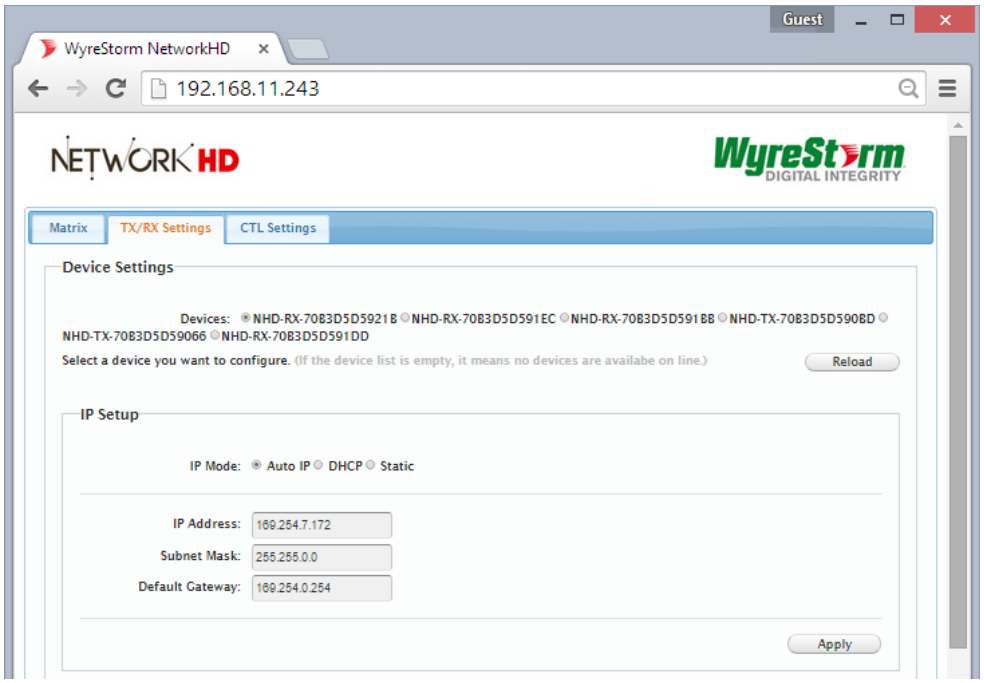
A clear bar signifies corresponding TX and RX are not connected. Click to connect.

Attention **To remove unwanted TX or RX units from the matrix either reset the device or use the API command: config set device remove name (name is the alias or the device number). Please note resetting the device will clear the alias names of all devices on the CTL.**

ii. TX/RX Settings

The TX/RX Settings section enables IP settings and alias of each TX and RX to be configured as well as rebooting the system and factory resetting the devices.

Get started by selecting the device to be configured from the list displayed and configure options as below:



GUI Element	Description
Auto IP	Obtain IP address automatically
DHCP	IP address assigned by DHCP server
Static	IP address manually configured
IP Address	IP address of TX/RX
Subnet Mask	Subnet mask of TX/RX
Default Gateway	Default gateway of TX/RX.

iii. Alias

Attention **Changing the IP address of TX/RX devices requires a restart for the settings to take affect. Please use the reboot button at the bottom of TX/RX Settings page**

Alias' can be used to make identification of system components easier e.g. TV12 or Bluray1. They can also be used instead of device identifiers in API commands.

GUI Element	Description
Alias	Rename TX/RX alias for easier identification and use from API commands

Attention **Alias cannot contain any of the following symbols or combinations of letters/numbers: ',' ';' '_' '@', '*', '&', 'EX131', 'EX363', 'EX373', 'EX383', 'EX393', 'TX', 'EX141', 'EX403', 'RX", ' ', 'NHD'.**

iv. Commands

GUI Element	Description
Factory Default	Restore TX/RX to factory default settings
Reboot	Reboot TX/RX

1. CTL Settings contains the settings for the IP control box itself, comprising of two separate network connections for communication with RX/TX devices and communication to the PC/control system.

2. Each setting must be on the same subnet as other devices to enable communication between all devices.

3. The default Auto IP setting is recommended for RX & TX communication - devices will use Bonjour to discover each other.

11. NetworkHD Console Configuration

Attention **Included in the download package is the Bonjour SDK installer. This must be installed prior to installing the NetworkHD Console software.**

i. NetworkHD Console Software Installation

1 Download the latest installation package of the NetworkHD Configuration Software from **wyrestorm.com** and double-click **NetworkHDConsole.exe** to start the tool.

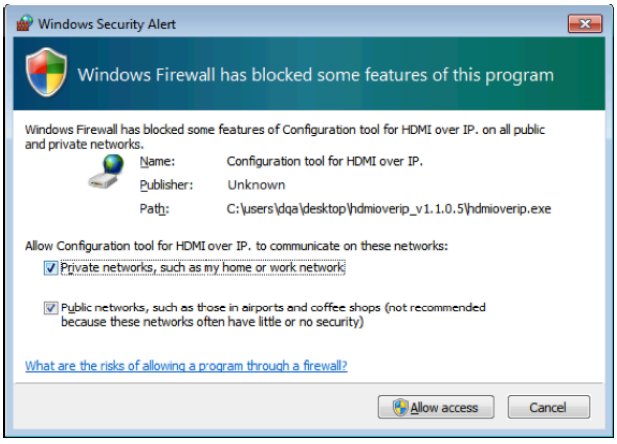
Attention **Your operating System must be Windows XP or later.**

2 The NHD-IP-TX & NHD-IP-RX are configured by default to IP addresses in the range of **169.254.xxx.xxx**, commonly referred to as **Auto IP addresses.** This is not a DHCP assigned address.

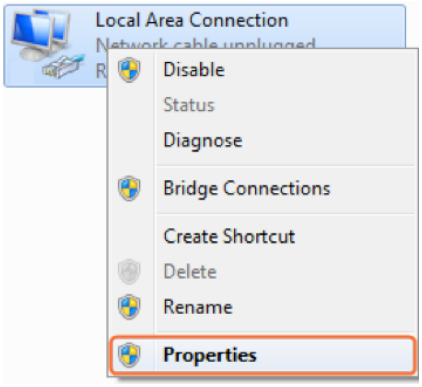
This addressing enables the NHD-IP-CTL to automatically discover NHD TX & RX units without any configuration on any network. Changing an RX or TX devices IP settings will prevent this auto discovery and the system components will require a reset.

NOTE **The example below is based on operation using Windows 7 - steps may differ slightly depending on your operating system.**

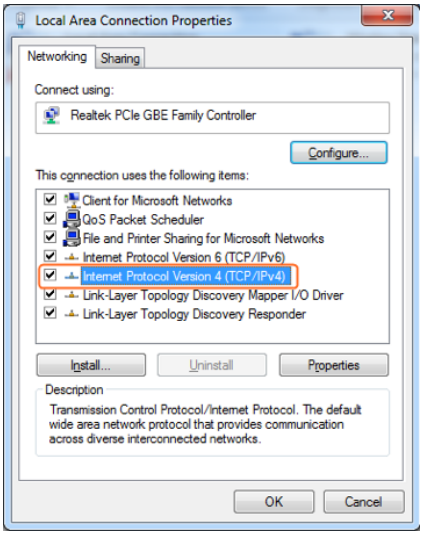
Attention **NetworkHDConsole.exe is Windows only. For configuration from other operating systems the NHD-IP-CTL must be used. If a 'Windows Security Alert' appears, check both boxes and click 'Allow access' (with Administration Authority)**



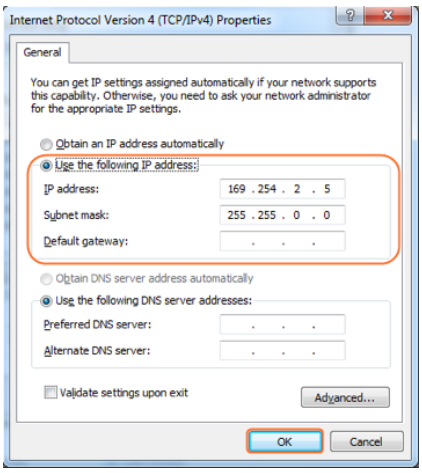
3 Click **Start** menu, go to **Control Panel > Network and Sharing center > Change Adapter Settings > Local Area Connection.** Right click and choose **Properties.**



4 Highlight **Internet Protocol Version 4 (TCP/IPv4)** then click **Properties**

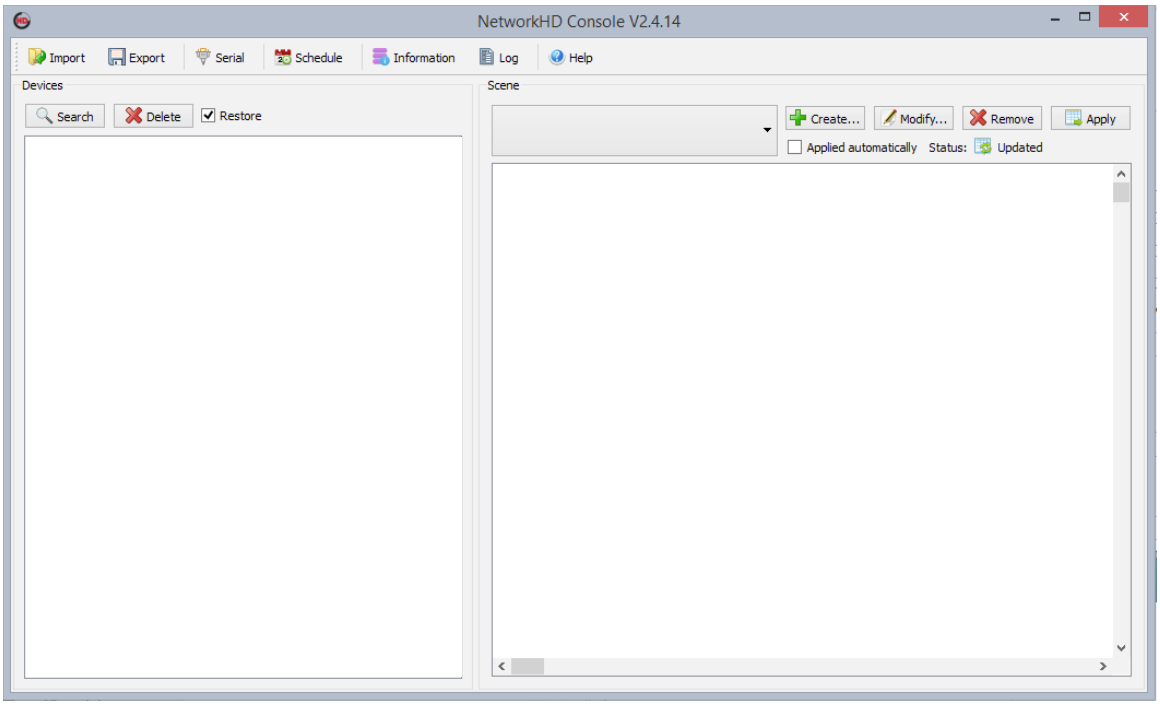


5 Check **Use the following IP address**, for the **IP address** enter **169.254.xx.xx** (if unsure use **169.254.2.5**) Enter **subnet mask** number **255.255.0.0** Click **OK**, then click **OK** again.

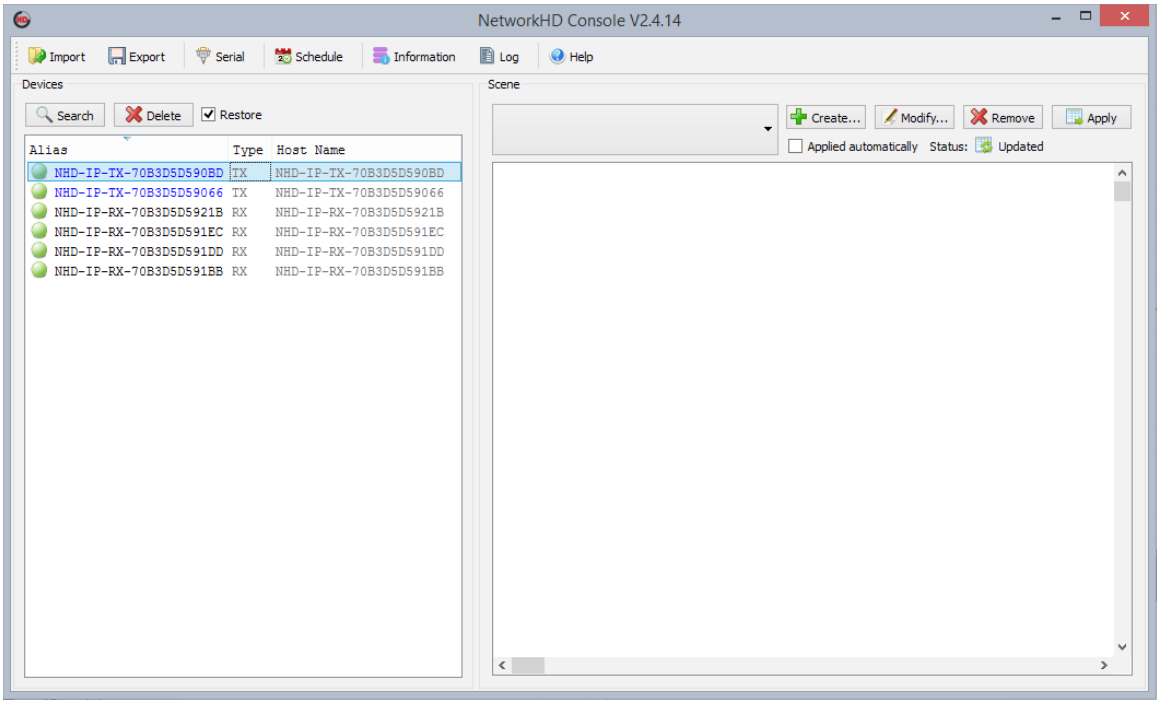


ii. Searching for devices

1 Open the NetworkHD – HDMI over IP Console and click **Search** in the Device list area to begin the search – a green progress bar will illustrate process % remaining.



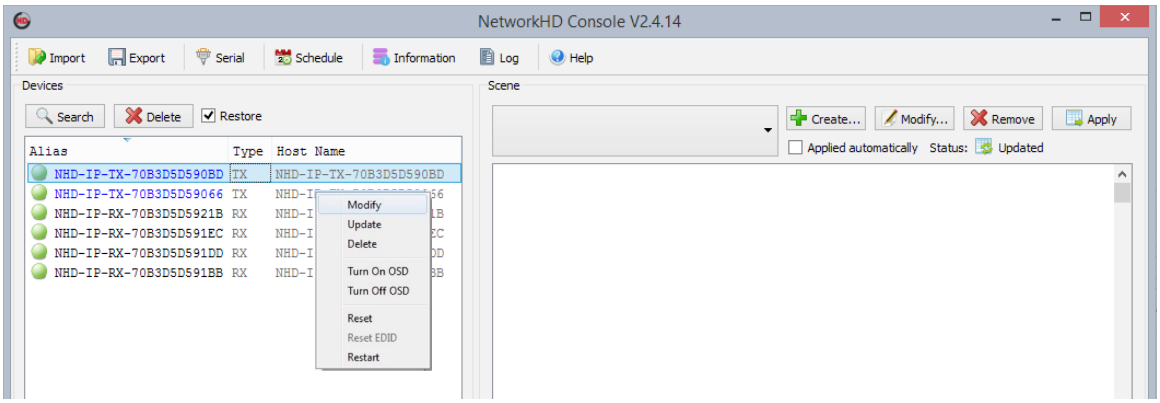
2 When the search is complete authenticated devices will be displayed in the **Devices** area. **Restore** is checked by default.



Attention **If no devices are found, please refer to #1 of the Troubleshooting section of this guide.**

iii. Setting Device Parameters

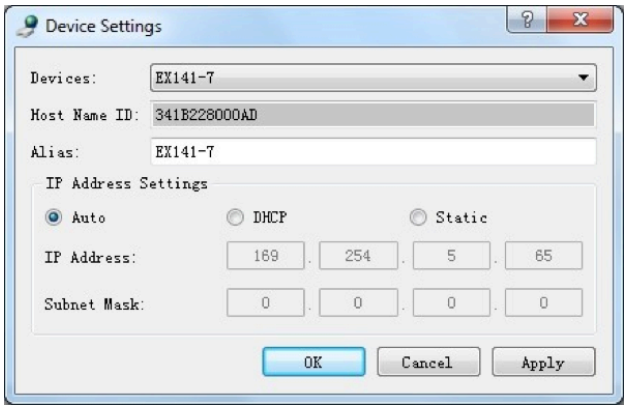
Right click a device in Devices - all available functions are displayed in the pop-up menu.



Operation	Description
Modify	Modify device parameters - available only when a single device is selected.
Update	Update device status (such as Alias, Type, etc.) - valid when one or more devices are selected.
Delete	Delete devices - valid when one or more devices are selected.
Turn on OSD	Turn on On-screen Display - identifies which device is connected to TX. For example, highlight a TX, choose Turn On OSD, the device which TX connected to will display “123456”.
Turn Off OSD	Turn off On-screen Display.
Reset	Restore device to factory settings. After a factory Reset, it is recommended to press Delete and then Search to discover the device again. This may require you to change your computer IP address.
Reset EDID	Reset Extended Display Identification Data - valid when a TX device is selected.
Restart	Restart device.

iv. Device Settings

Right click a device in Devices and choose Modify, the Device settings dialog box is displayed.



GUI Element	Description
Devices	Current device
Host Name ID	Host Name ID - generated by the system and cannot be changed
Alias	User-defined device name containing a maximum of 80 characters
IP Address	Device IP address - can be set only when static mode is selected
Subnet Mask	Subnet mask for the device - can be set only when static mode is selected
Auto	Obtain IP address automatically
DHCP	IP address assigned by DHCP server in router or switch
Static	IP address is manually configured - if Static is chosen, enter 255.255.0.0 in Subnet Mask

Attention **Restart the TX or RX device after making any changes to the IP address for the settings to take affect. You may need to re-search for the device after it has restarted.**

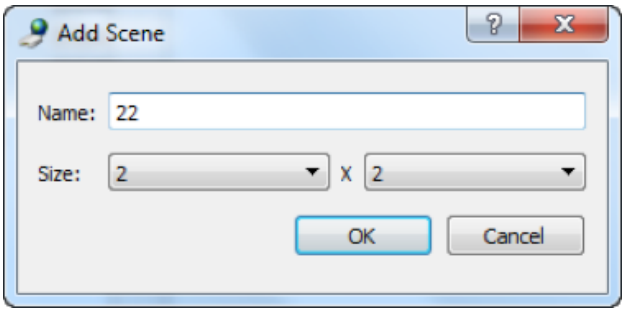
v. Creating Scenes

Scenes are preset configurations of matrix routing or video walls that can be recalled at any time.

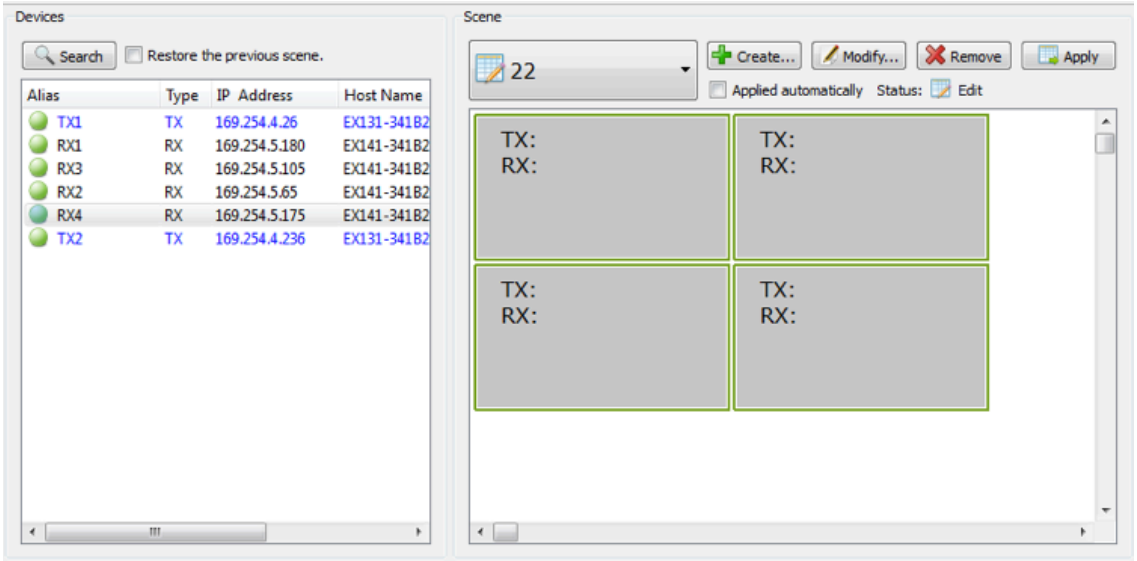
Connecting Devices

The **Scene** displays the current status of devices. TX and RX can be moved from the left devices list to specific cells in the right table and apply the scene setting.

1 **Create a Scene:** Click the **Create** button to create a 2 x 2 scene – the name of the scene can be changed if desired.



Click **OK** and details of the 2 x 2 scene will appear in the window.



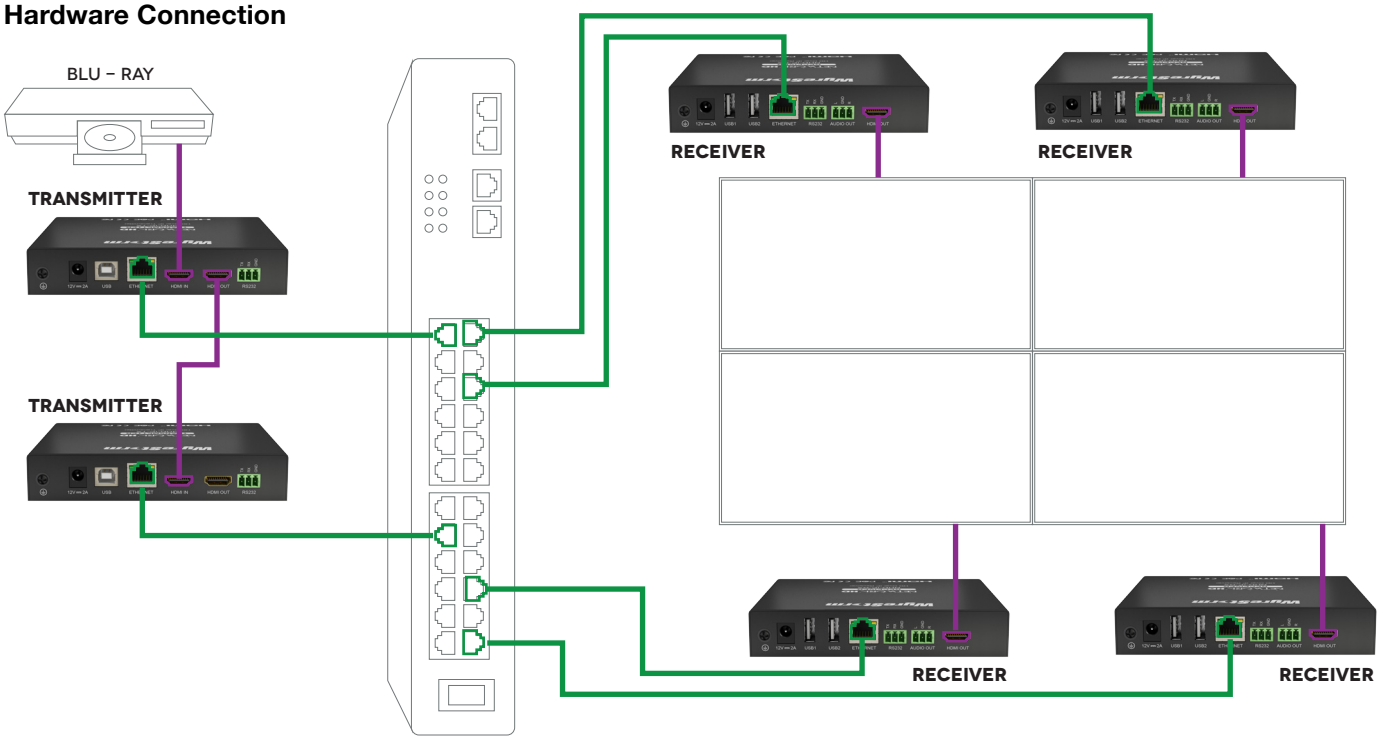
vi. Sample Video Wall Set Up

Video Wall mode combines multiple display (RX) devices to show a complete video source. Select multiple display devices in the scene setting interface, and combine the cells as follows to configure the Video Wall – see below for 2 x 2 scene as an example:

Preparation

- 2 x NHD-IP-TX Transmitters
- 4 x NHD-IP-RX Receivers
- Smart Ethernet Switch
- HDMI source such as a Blu-ray player
- 4 x LCD display panels
- HDMI and Ethernet cables

Hardware Connection



1 Connect the Blu-ray player to HDMI IN port of TX1 with an HDMI cable and connect HDMI OUT port of TX1 to HDMI IN port of TX2.

2 Connect TX1 and TX2 to the Switch with Ethernet cables.

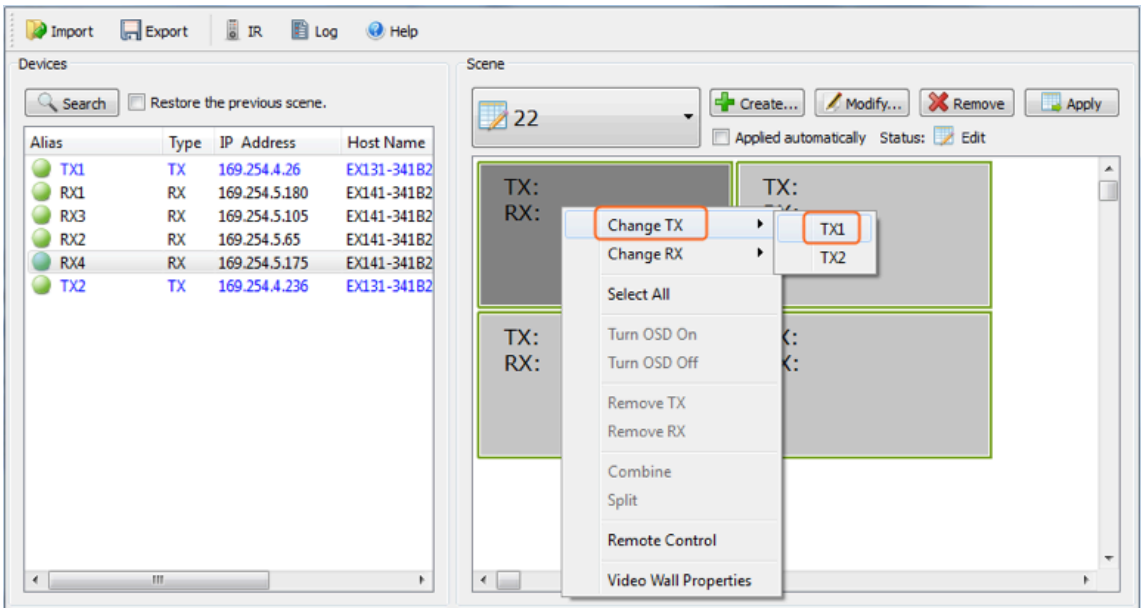
3 Connect RX1, RX2, RX3, and RX4 to the Switch with Ethernet cables.

4 Connect HDMI OUT port of RX1, RX2, RX3, RX4 to the display devices with HDMI cables.

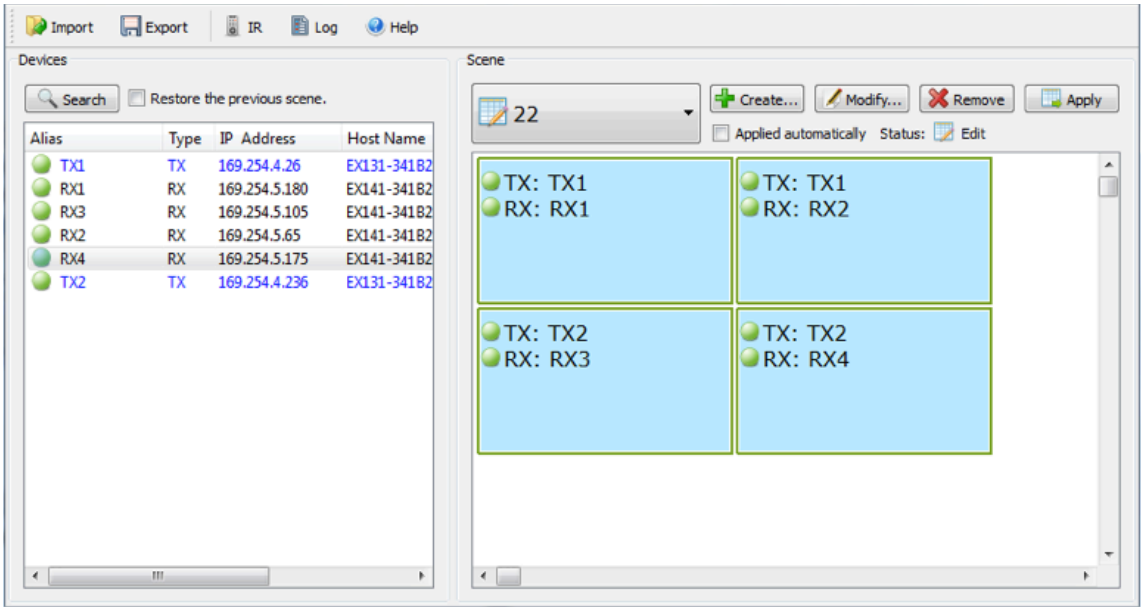
5 Power on all devices

vii. Video Wall Configuration

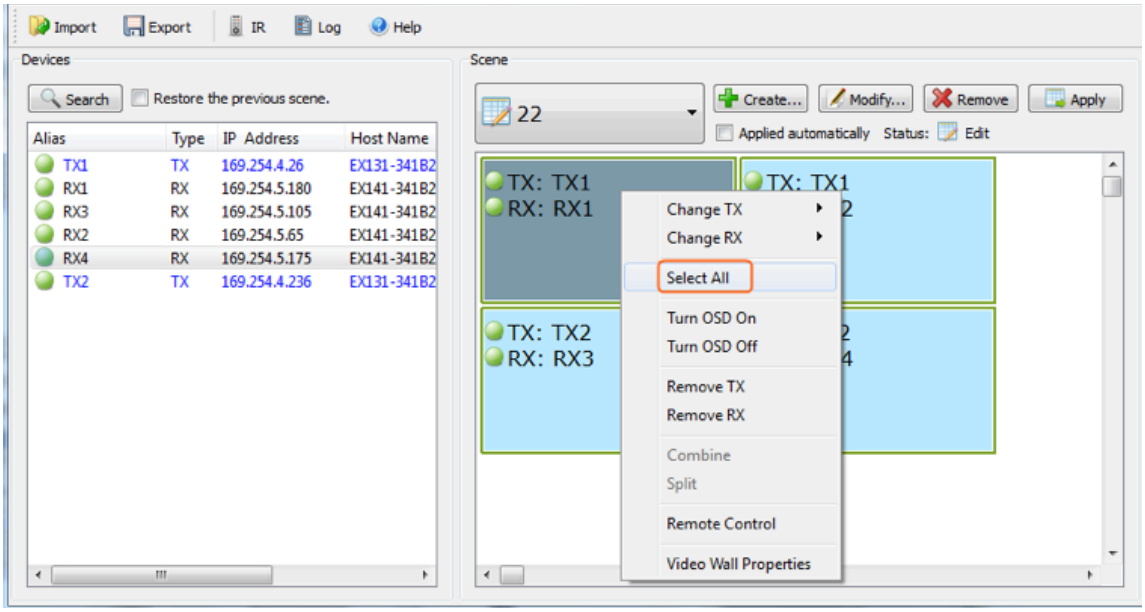
1 **Link the Devices:** To link TX and RX devices, highlight the first cell and right click > select **Change TX** and select **TX1**. Then select **Change RX** and select **RX1**.



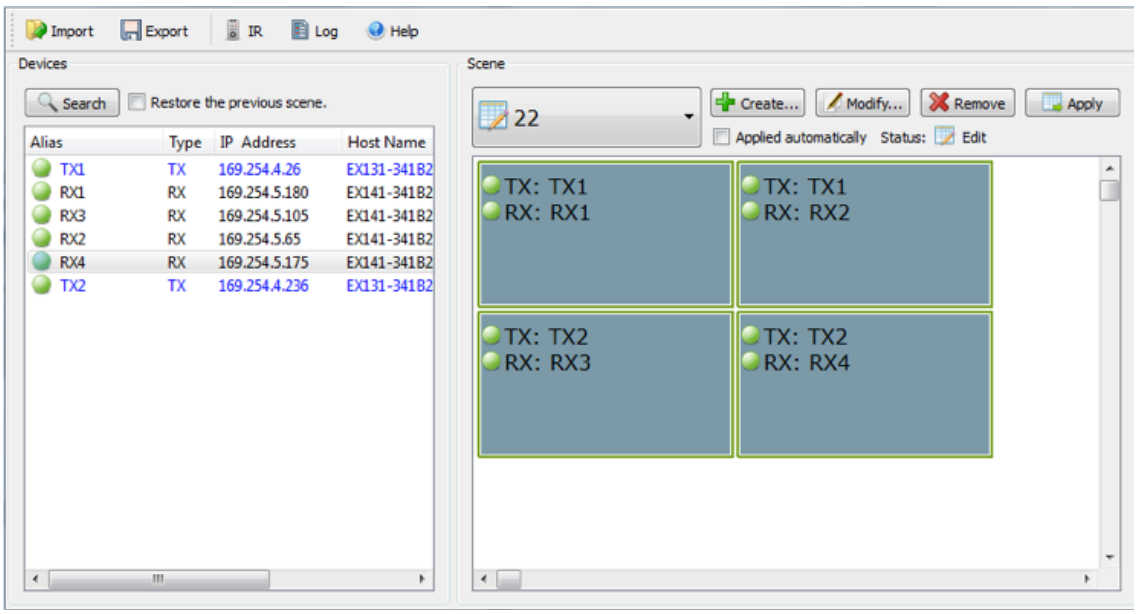
Repeat for the remaining Receivers.



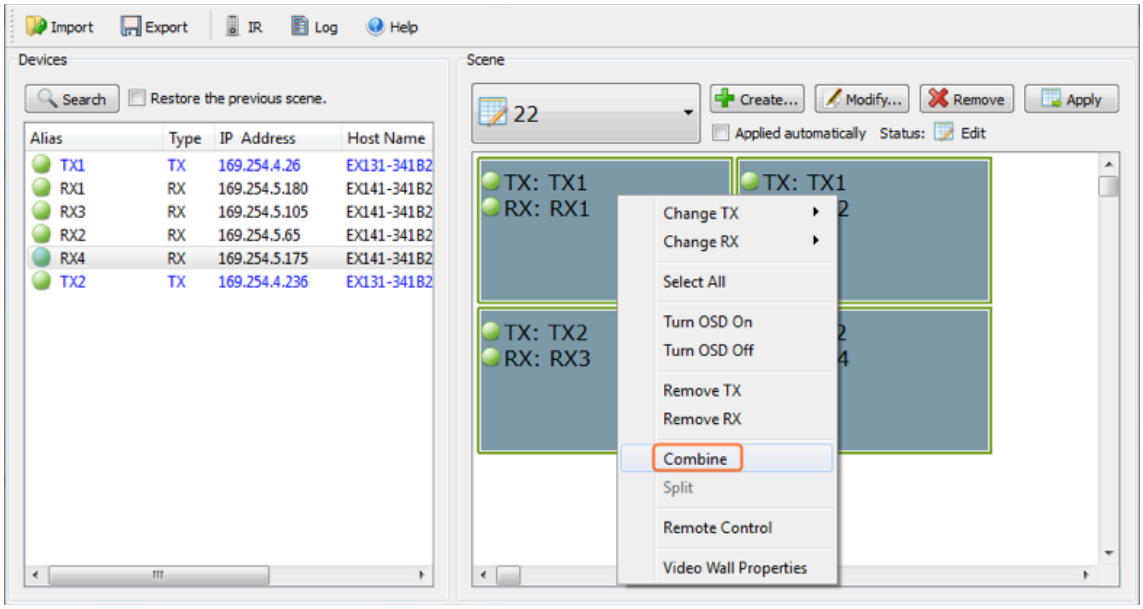
2 **Combine:** Right click any cell > choose **Select All.**



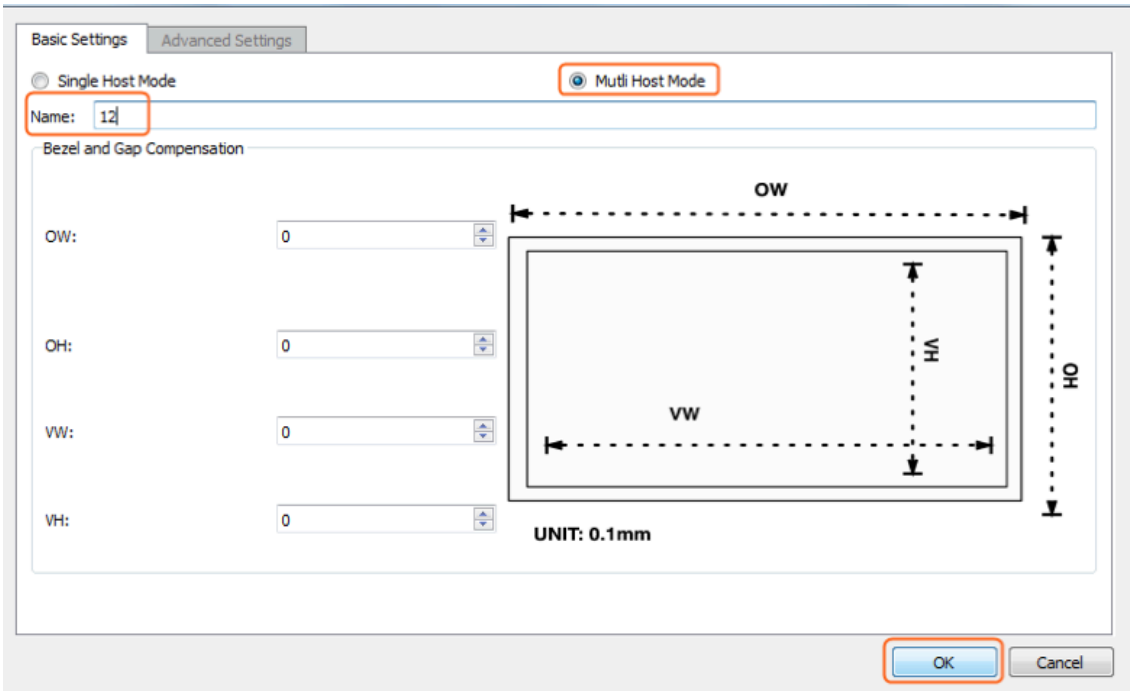
The highlight color will change to indicate all cells have been selected



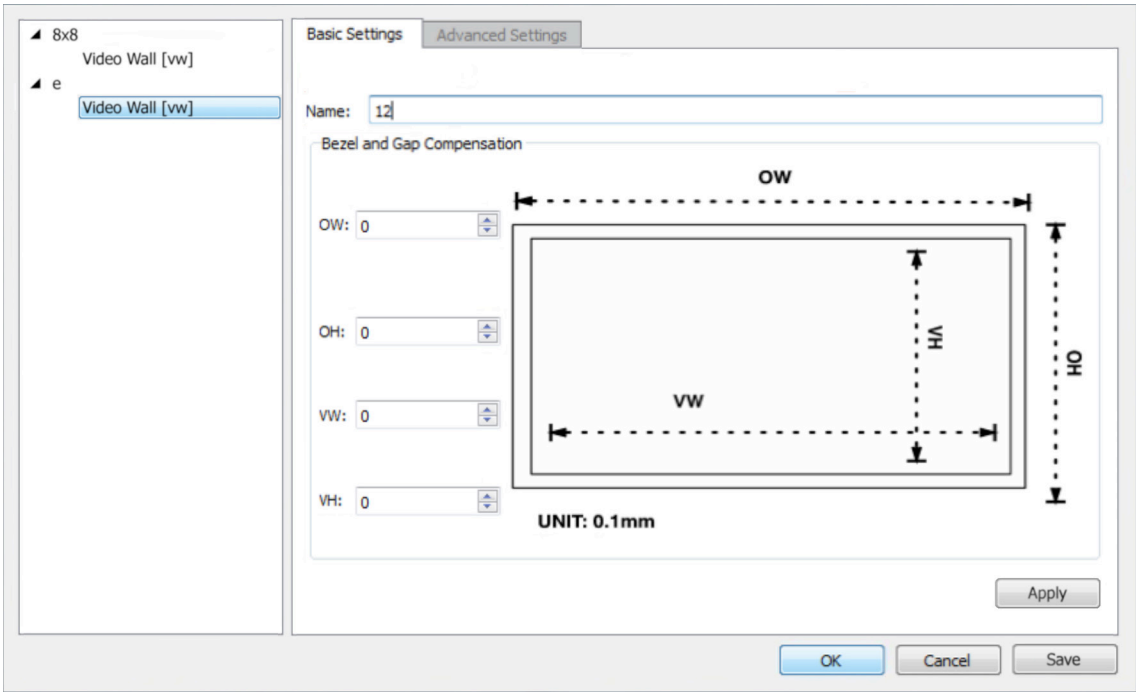
3 Now right click the cells again and select Combine.



4 **Confirm Wall Properties:** Clicking Combine brings up the Video Wall Properties screen. Check **Multi Host Mode >** input a name of choice and click **OK.**



vii. Video Wall Properties



GUI Element	Description
Name	Name the Video Wall
Single Host Mode	Single video-source mode - assign same video-source to all cells.
Multi Host Mode	Multiple video-source mode – assign different cell rows with different video sources (recommended setting)
OW, OH, VH, VW	Set Bezel and Gap Compensation of displays

viii. Configuration File Management

When closing the configuration tool, the software will save a configuration file **default.hoi** in the software installation directory. On next loading the software will automatically read the configuration file.

For windows XP, it is saved in **C:\Documents and Settings\#user#\Local Settings\Application Data\HDMIoverIP**

For Windows Vista or later, it is saved in **C:\Users\#user#\AppData\Local\HDMIoverIP**

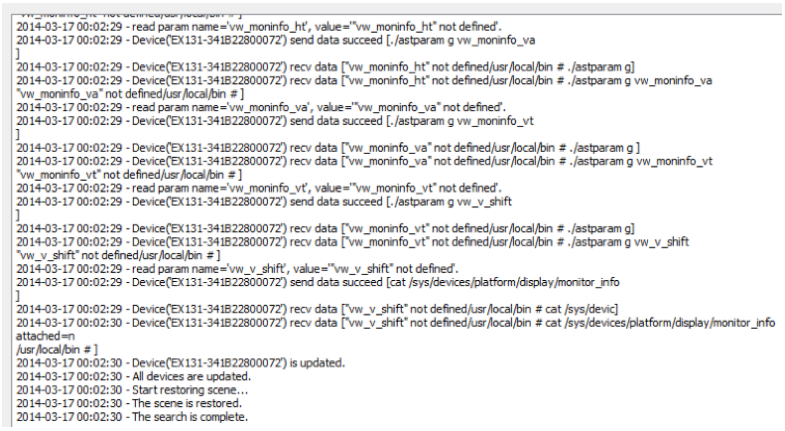
Attention **#user# means the current user of the operating system.**

Attention **Do not modify or delete the default.hoi. file or the software will report an error and refuse to initialize.**

In addition, you can click **Export** to save the configuration file to a specified directory, and click **Import** to import the configuration file from this directory.

The log records the tool operation and device communication information, which can be used for troubleshooting.

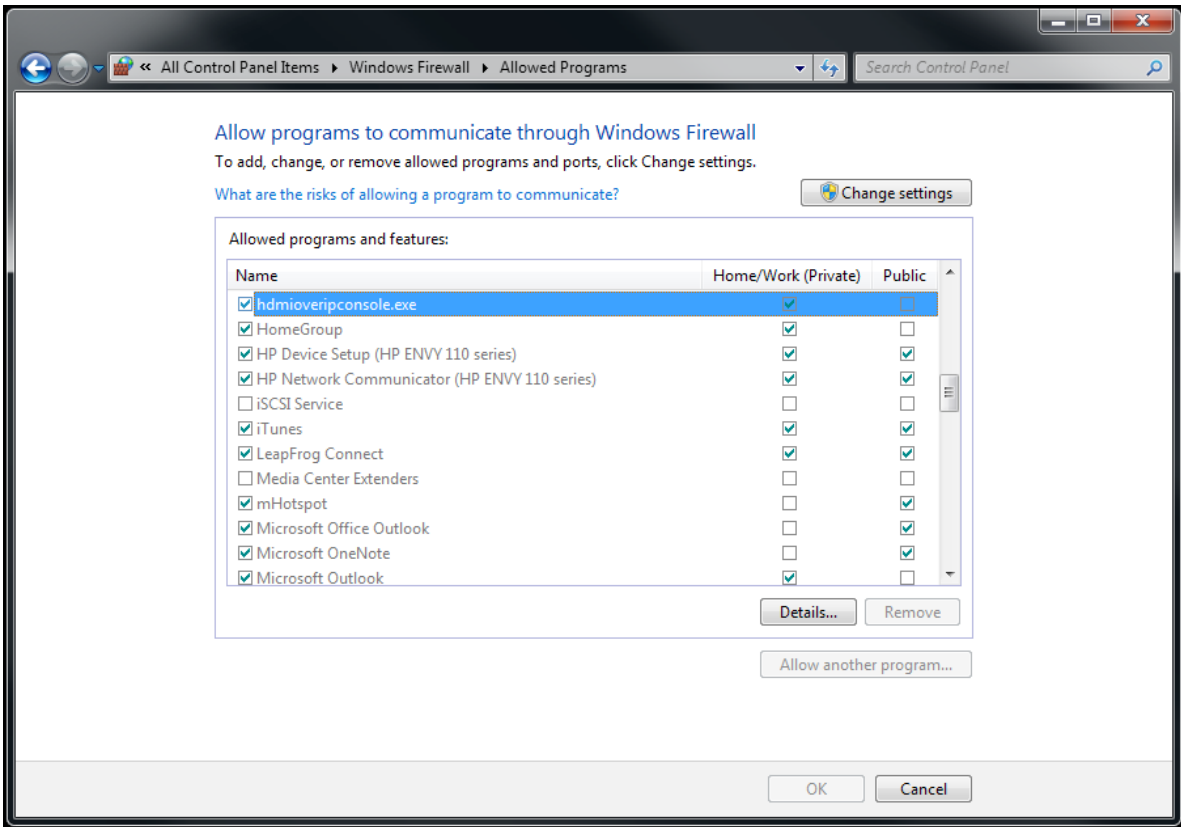
ix. Log



12. Troubleshooting

1) If NetworkHD software console cannot find any devices on the network - If following the network settings advice in sections 10 through 14 above does not yield any devices, check your Windows Firewall settings. Using Windows 7 as an example (Other versions of Windows may differ):

• Click **Start** menu, go to **Control Panel > System** and **Security > Windows Firewall > Allowed Programs**, highlight **HDMI over IP Console**, check **Home/Work (Private)** and **Public.**



• Check the IP address and subnet mask of the PC. The network segment for IP address is **169.254.x.x** and the subnet mask is **255.255.0.0**, the PC and Transmitter/Receiver should be in the same network segment. **(See section 11.)**
• Check the settings of the switch match those in the Switch Configuration Guides available from **wyrestorm.com**

• Ensure that the Bonjour SDK software has been installed on the machine you are using - the installer is available in the NetworkHD software console installation file.

3) If you are unable to access the web management UI

• Check the IP address of your computer. The default IP address of the IP Control Box is 192.168.11.243, so the IP address of the computer should be 192.168.11. X.

• Check the Web browser. We recommend you use Firefox, Opera, Safari Internet Explorer 11 or Chrome. If the problem persists, try to upgrade you browser to the latest version.

• Perform a reset on the NHD-IP-CTL by holding down the reset button on the front of the device.

4) If no devices appear in the Matrix or TX/RX Settings page…

• Ensure the devices are powered up and connected to the same network

• Ensure that the network settings in the router are correct for those set in the RX/TX units

• Refresh the browser

• Reboot all system components including the NHD-IP-CTL

• Perform a reset on the NHD-IP-CTL by holding down the reset button on the front of the device

5) If you do not see an image on the display…

• Screen is completely blank: Check the screen is on and the correct input is selected, ensure the Rx is powered and the lights are stable on the front. Replace the HDMI for a tested cable.

• The message on the screen reports one of the following:

Message	Possible Causes	Solutions
Remote IP: unknown	RX restored to default settings	Configure TX and RX through HDMI over IP console
	RX being rebooted	Wait until RX is rebooted to view the picture
No instructions are displayed	Poor cable connection to RX or TV setting)	Insert the HDMI cable into RX or TV again
Waiting for video source - standby	Poor cable connection to TX or input source	Insert the HDMI cable into TX or input source again
Network link is down	Poor cable connection to RX or switch	Insert the network cable into RX or switch again
Trying to find the transmitter	RX trying to find the Transmitter	Wait until the picture is displayed
	Poor cable connection to TX	Insert the network cable into the TX again
	TX/RX not linked	Configure TX and RX through HDMI over IP console

• Only part of the Image is displayed: The device is in video wall mode, send a commend to exit the device from video

6) If you cannot set a device Alias…

A device may have previously been connected to the NHD-IP-CTL with that Alias.
You will need to factory reset the CTL for it to lose that alias, be aware of alias conflicts if that other device is still connected but powered down.

7) If the RX device continuously reboots…

The RX is set to DHCP but it cannot find a DHCP server. You must connect the unit to a DHCP server so that it can finishing initialising. You will then be able to change the IP settings.

13. Additional Information

Further information about NetworkHD including system configuration & switch configuration guides as well as control drivers and Enado templates can be found at **wyrestorm.com.**

14. FAQs

What compression technology is utilised in NetworkHD?
NetworkHD utilises high quality JPEG2000 compression algorithm to produce very high quality images that are indistinguishable from the original at normal viewing distances. Audio is compressed using the high quality JPAC algorithm for lossless audio quality.

What resolution audio & video does NetworkHD?
NetworkHD supports up to full HD 1080P HDMI video inputs and stereo audio.

How many RX & TX units can I use in a NetworkHD system?
NetworkHD is a highly scalable system tested with up to 1000 TX/RX devices however the theoretical limits of inputs to ouputs is 3000 inputs to 6000 outputs.

15. Maintenance

Clean this unit with a soft, dry cloth only. Never use alcohol, paint thinner or other harsh chemicals.

16. Provided Service

1. Damage requiring service: This unit should be serviced by a qualified service personnel if:

- The power supply or AC adaptor has been damaged.
- Objects or liquid have gotten into the unit.
- The unit has been exposed to rain.
- The unit does not operate normally or exhibits a marked change in performance.
- The unit has been dropped or the cabinet damaged.

2. Servicing Personnel: Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorised servicing personnel.

3. Replacement Parts: When parts need replacing, ensure parts approved by the manufacturer are used – either those specified by the manufacturer or parts possessing the same characteristics as the original parts. Be aware – unauthorised substitutes may result in fire, electric shock, or other hazards and will invalidate your warranty.

4. Safety Check: After repairs or service, ask the service personnel to perform safety checks to confirm the unit is in proper working condition. When shipping the unit, carefully pack and send it prepaid, with adequate insurance and preferably in the original packaging. Please include a document or letter detailing the reason for return and include a daytime telephone number and/or email address where you can be contacted.

17. Mail-in-service

When shipping the unit, carefully pack and send it prepaid, with adequate insurance and preferably in the original packaging. Please include a document or letter detailing the reason for return and include a daytime telephone number and/or email address where you can be contacted.

If repair is required during the limited warranty period, the purchaser will be required to provide a sales receipt or other proof of purchase, indicating date and location of purchase as well as the price paid for the product. The customer will be charged for the repair of any unit received unless such information is provided.

18i. Warranty

Should you feel your product does not function adequately due to defects in materials or workmanship, we (referred to as "the warrantor") will, for the length of the period indicated below (starting from the original date of purchase) either:

a) Repair the product with new or refurbished parts.
or
b) Replace it with a new or refurbished product.

Limited warranty period:
All Wyrestorm products are covered by a 3 year PARTS and LABOUR warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of product if necessary.

The decision to repair or replace will be made by the warrantor. The purchaser must mail-in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferable to subsequent owners, even during the warranty period.

A purchase receipt or other proof of original purchase date is required for the limited warranty service.

18ii. Warranty Limits & Exclusions

1. This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship and DOES NOT COVER normal wear and tear or cosmetic damage.

The limited warranty also DOES NOT COVER damage that occurs in shipment or failures caused by products not supplied by the warrantor, failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, incorrect installation, set-up adjustment, implementation of/to consumer controls, improper maintenance, power line surge, lightening damage, modification, service by anyone other than a manufacturer-approved service centre or factory-authorised personnel, or damage attributable to acts of God.

2. There are no express warranties except as listed under "limited warranty coverage." The warrantor is not liable for incidental or consequential damage resulting from the use of this product or arising out of any breach of this warranty.
For example: damages for lost time, the cost of having a person/persons remove or re-install previously installed equipment, travel to and from service location, loss of or damage to media, images, data or other recorded/stored.

20. Installation Reference Log

NHD-IP-TX TRANSMITTER			
TX#	**IP ADDRESS**	**ALIAS**	**ADDITIONAL INFO**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

NHD-IP-RX RECEIVER			
TX#	**IP ADDRESS**	**ALIAS**	**ADDITIONAL INFO**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

wyrestorm.com

WyreStorm Offices

North America Office: 23 Wood Road, Round Lake, NY 12151

Tel: +1 518-289-1293

EMEA Office: Unit 22, Ergo Business Park, Swindon, Wiltshire, SN3 3JW, UK

Tel: +44 (0) 1793 230 343

WyreStorm Technical Support

US: +1 844-280-WYRE (9973)

UK:- +44 (0) 1793 230 343

Email: support@wyrestorm.com

150803