



Wyrestorm NHD500 series

Application and Configuration Guide

NHD-500-CTL v1.2.5

NHD-500-RX|TX v 1.1.9

OCTOBER 2022 v.1



Overview

Wyrestorm NetworkHD 500 series offers a full HDMI 2.0 AV over IP solution, capable of encoding up to 4K60 4:4:4 8bit with support for high framerate Dolby Vision, HDR10 and HLG content.

The 500 series also include support for ARC for residential applications along with high-speed USB extension for commercial installs. All of this is achieved over a 1GbE network.

This application guide covers configuration of Netgear AV Line series switches and the Wyrestorm CTL-PRO controller for various AVoIP scenarios.

Pre-requisites

This document assumes that you have installed network cabling with a minimum specification of CAT6 (copper) or OM3 (fibre) and followed Habitech best networking practices.

Firmware on NHD500 units should be as follows:

NHD500TX/RX v1.2.5 or higher.

NHD-CTL-PRO v 1.1.9 or higher.

This guide also assumes that you have downloaded and installed Wyrestorm Management Suite. The system may also be configured using the Web User Interface of the CTL-PRO.



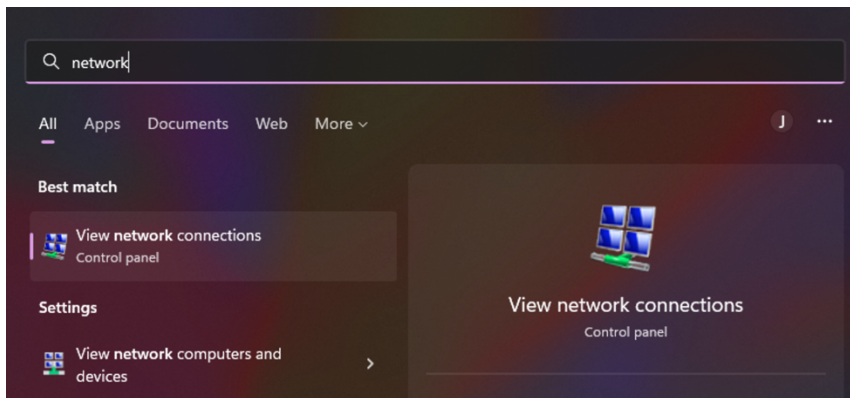
Switch Configuration

Configure the switch using a fixed IP Address

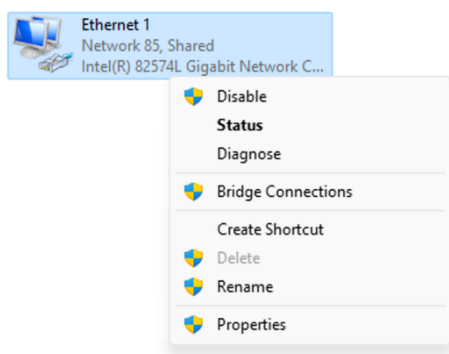
Netgear AV Line switches have an OOB (Out of Band) port which allows configuration from the IPv4 address 192.168.0.239.

To configure the switch, it is necessary to use a Windows or Mac computer with the IP Address manually set within the same IP Scope. The following instructions are for a computer running Windows 10 or 11:

1. Click the Start button in Windows and Type network. Windows will search for matching terms. Click **View network connections**.

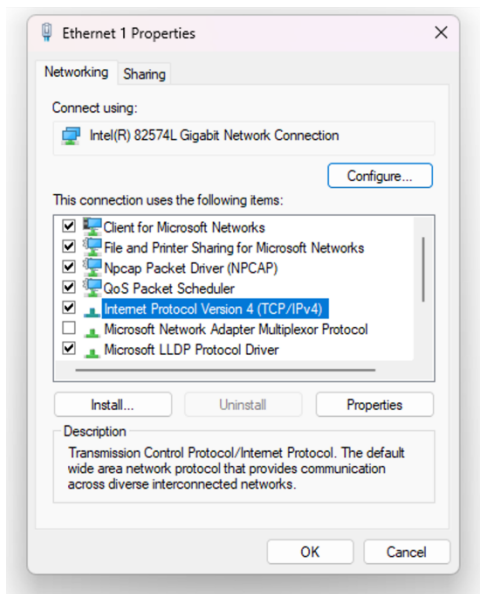


2. Right-click the Ethernet adapter you wish to use and then click **Properties**.

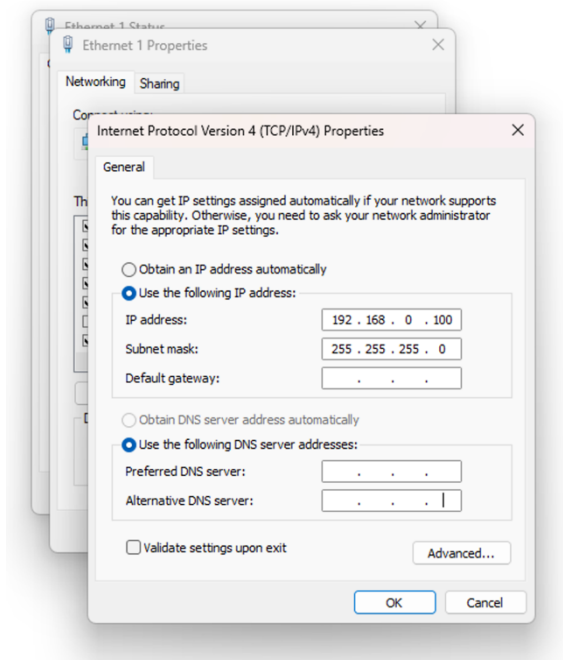




3. Double-click **Internet Protocol Version 4 (TCP/IPv4)**



4. In the properties box, set the IP Address to **192.168.0.100** and the Subnet mask to **255.255.255.0**:



Note that the **Default gateway** and **DNS** settings do not need to be populated or changed. Click **OK** to save the setting, **OK** to close the properties pane and **close** to close the status box.

5. Connect an ethernet patch lead between the **network port** on the PC and the **OOB port** on the Netgear Switch.
6. Open a browser and type **192.168.0.239 (enter)** in the address bar.



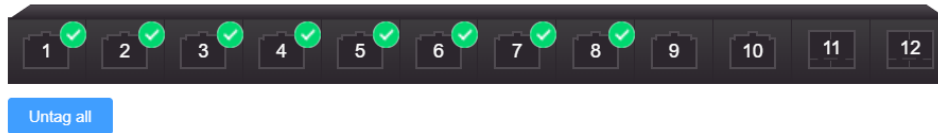
7. Access the AV UI by entering enter admin for the user name. Leave the password field blank and click the AV UI Login button.

The switch will prompt you to set a new password for future configuration.

8. From the left hand menu, choose **AV Profiles**. This is how the switch is configured for use with AVoIP.
9. In the AV Profiles page, scroll down to choose the **Video** profile and click the configuration cog.



10. The graphic in the profile screen will vary according to the port capacity of the switch. In any case, set the Profile Name to **AVoIP**, the VLAN ID to **100** and choose a colour to identify the ports.
11. Next, click all of the ports that will be used for NHD500 TXs and RXs, an additional port for the AV connection of the CTL-PRO, and another port to configure the CTL-PRO from the PC.



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Profile Settings

Configure your profile settings and preferences.

Profile Name AVoIP	Profile Template Video
VLAN ID 100	Color #04A3F2
Enable VLAN Routing / DHCP server	
VLAN IP Settings Static	VLAN IP Address
Subnet Mask	
DHCP Server Off	
Cancel	Save

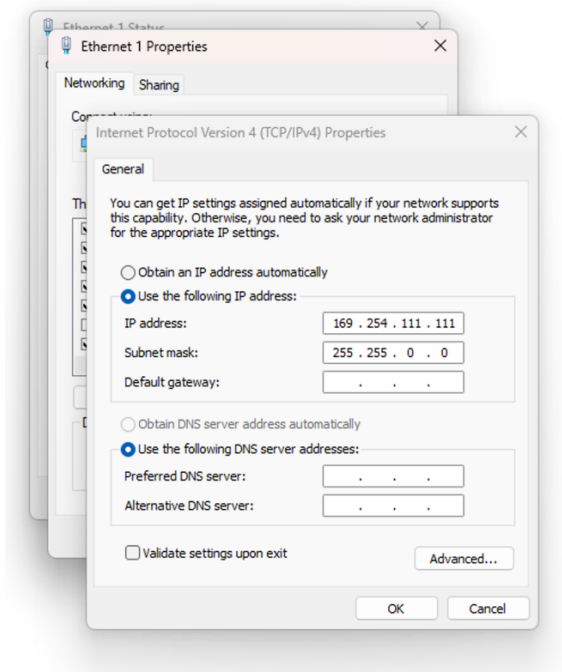
12. Click **Save**.
13. Connect the NHD500 TX and RX Devices to the appropriate ports on the switch and connect the HDMI inputs/outputs to the source/display devices.



Configure the CTL-PRO using a fixed IP Address

1. Follow the procedure “Configure the switch using a fixed IP Address” earlier in this document, but instead:

In the properties box, set the IP Address to **169.254.111.111** and the Subnet mask to **255.255.0.0**:



Click **OK** to save the setting, **OK** to close the properties pane and **close** to close the status box.

2. Make sure that the AV Port of the CTL-PRO is connected to one of the AVoIP Profile ports on the switch. Switch the power on.
3. Connect the ethernet patch lead between the **network port** on the PC and another AVoIP Profile port on the switch.
4. The front display on the CTL-PRO will show the AV IP Address of the unit:





5. From a browser on the PC, type the address 169.254.1.1 to get to the CTL-PRO Interface.



TIP:

It is also possible to configure the CTL-PRO using the HDMI output and a USB Keyboard/Mouse connected

Configure the CTL-PRO using a fixed IP Address

The default username/password for the CTL-PRO is admin|admin.

1. From the top menu choose the **Controller** option. From the right pane on this page you can set the Control Port IP Address for the control system.
2. Once this has been done click **Apply & Reboot** to save the new address.

The screenshot shows the NETWORKHD web interface in a browser window. The address bar displays 169.254.1.1. The top navigation menu includes: Tx/Rx Status, Matrix Status, Video Wall, Multiview, Advanced, NHD Touch, and **Controller** (which is highlighted). The main content area is divided into two columns under the heading "IP Address Settings".

AV Port Settings:

- IP Address: 169.254.1.1
- Subnet: 255.255.0.0
- Gateway: 169.254.1.254
- Default Gateway: ☒

Control Port Settings:

- IP Address: 192.168.11.243
- Subnet: 255.255.0.0
- Gateway: 0.0.0.0
- Default Gateway: ☐

Below these settings is an orange button labeled "Apply & Reboot".

Alias Programming Section:

- Telnet Alias Programming:** ☒. Below it is a "Telnet Password" field with a hint "1-10 characters" and a restriction "Alphanumeric only". An "Apply" button is at the bottom.
- RS-232 Alias Programming:** ☒. Below it is an "Apply" button.

At the bottom of the interface, there are tabs for "Service" and "API".



Naming Devices

By default the TX and RX Devices are named in the convention **[model]-[type]-[mac address]**.

For better identification it is recommended that devices are identified and renamed using their location and name. Example: Rack-AppleTV-1 or BED4-Samsung.

To do this, choose the Tx/Rx Status menu, then choose Transmitters or Receivers to locate the device to be renamed.

Double-click the **Hostname** of the device and type a new name. **Note:** spaces are not allowed. Use dashes instead.

Click **Apply**.

The screenshot shows the NETWORKHD web interface. The 'Tx/Rx Status' menu is active, with 'Transmitters' selected. A table lists devices with columns: Hostname/Alias, IP Address, Firmware, Input Timing, HDCP, EDID, Connected RX, and Vi. Two devices are visible: 'Rack-AppleTV-1' and 'NHD-500-TX-E4CE021225FB'. A modal dialog is open for renaming a device, showing the current hostname 'NHD-500-TX-E4CE021225CE' and a text input field with 'Rack-AppleTV-1'. The dialog has 'Cancel' and 'Apply' buttons.

Hostname/Alias	IP Address	Firmware	Input Timing	HDCP	EDID	Connected RX	Vi
Rack-AppleTV-1	169.254.5.1	63					
NHD-500-TX-E4CE021225FB	169.254.6.1	32					



Audio Routing Options

NHD-500 TX and RX devices have flexible audio routing options, configured by the CTL-PRO.

The **NHD-500-TX** has the following audio routing capabilities:

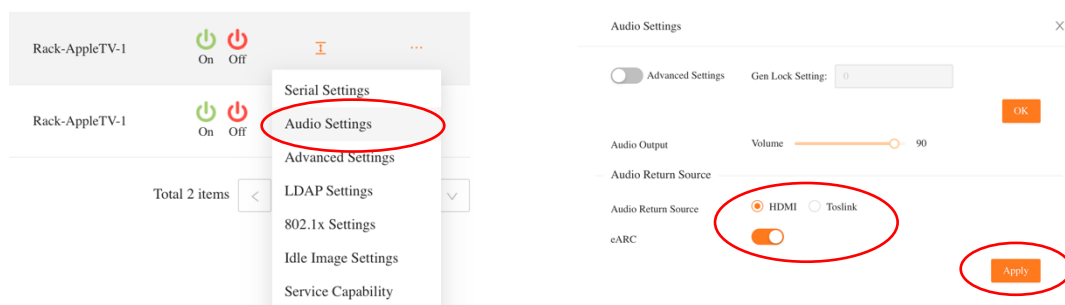
- Audio in from a 3.5mm TRS Jack
- HDMI Audio from the HDMI Input Source
- Audio Out from a Balanced Analog Audio connector
- Audio Out from a TOSLINK connector
- ARC Audio Return from the HDMI connector (assuming the HDMI is connected to an AVR or Soundbar with ARC capability)
- eARC Audio Return from the HDMI connector (available in a future firmware release)

The **NHD-500-RX** has the following audio routing capabilities:

- Audio Return input via TOSLINK (for displays that do not support ARC over HDMI)
This is the default setting.
- Audio Return from the HDMI port, using the ARC format provided by the display.

Audio Routing Configuration

1. Choose the **Tx/Rx Status TAB**
2. Click the ... Options button associated with the device you wish to configure and choose **Audio Settings**



3. From the Audio Settings Page, choose the desired audio settings for the device and click **Apply**.



Set the ARC Route using the CTL-PRO

Even with the Audio Return Source set as HDMI on an NHD-500-**RX**, it is necessary to configure the Audio Matrix to choose which NHD-500-**TX** connects to the ARC audio. (e.g.: is connected to an AVR, Soundbar etc.)

1. From the **Matrix Status** Tab, choose **Audio Return**
2. Click the appropriate **Radio button** to route ARC Audio from an RX to a TX.
3. Note that clicking the **Radio Button** a second time deselects the option

