BirdDog | WALLPLATE

USER GUIDE

May 2022

NDI

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IMPORTANT INFORMATION

Legal Notice

To ensure account security, please change the password after your first login. You are recommended to set a strong password (no less than eight characters).

The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.

Best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.

The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.

Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual.

Use of this document and the subsequent results shall be entirely on the user's own responsibility.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

LVD/EMC Directive

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

Welcome to BirdDog

Thank you for purchasing BirdDog Wallplate. If you have any questions regarding the device, please contact your authorized dealer.

Using This Manual

Your BirdDog Wallplate is a powerful and sophisticated device, so please read this manual before use to familiarize yourself with its capabilities and retain for future reference.

Tip

You can use the controls in your browser or PDF reader to increase the page size when viewing the diagrams in the manual to reveal much more detail.

First Step

Firmware Upgrade

Before you use your new Wallplate, it's a good idea to upgrade to the lastest firmware. We are always adding new features and improving the performance of our products, so installing the latest firmware will provide you with the best user experience.

To upgrade the firmware, please follow the **Firmware Upgrade Instructions** located in your firmware download folder and perform upgrade process.

The latest firmware files are available for download here.

We're Invested In Your Success

We pride ourselves on being approachable and easily contactable. We'd love to hear from you.

Dan Miall

Co-Founder and CEO
dan@bird-dog.tv

Eamon Drew

Co-Founder and CMO
eamon@bird-dog.tv

BirdDog Wallplate Overview

BirdDog Wallplates are the answer to elegant NDI® installations. With two models to choose from, dual input or dual output, they have been designed to make boardroom setups a breeze.

Like all BirdDog products, Wallplates are built upon BirdDog's custom NDI® chip and can be completely automated via the programmable RESTful API. They also feature PoE for simple, single Ethernet cable connection, and an easy to use web management console for optimising Wallplate settings.

Wallplate IN

Wallplate IN features two independent HDMI inputs and is designed for converting the output of cameras, laptops, and other devices into NDI® video. Perfect for installation into boardroom tables, meeting spaces, lecterns, stages, and anywhere you have sources that need to convert to NDI® video.

Wallplate OUT

Wallplate OUT features two independent HDMI outputs and is designed for driving content to screens. Output the video conferencing group to one screen and output the presentation or laptop screen share to another screen to make for super engaging meetings.

Features

- HDMI auto detection. Wallplate IN supports EDID connectivity to enable the source device to output 1080p video resolution.
- RESTful API for DIY automation.
- Flush mounted.
- One cable for power, video and audio.
- Interchangeable faceplates with soft glow indicators.
- Web management console.
- Distribute NDI® content everywhere. Just add BirdDog Central.

Welcome to the Future

What is NDI®?

Your new BirdDog Wallplate has been designed from the ground up to support the cutting edge NDI® video transmission standard.

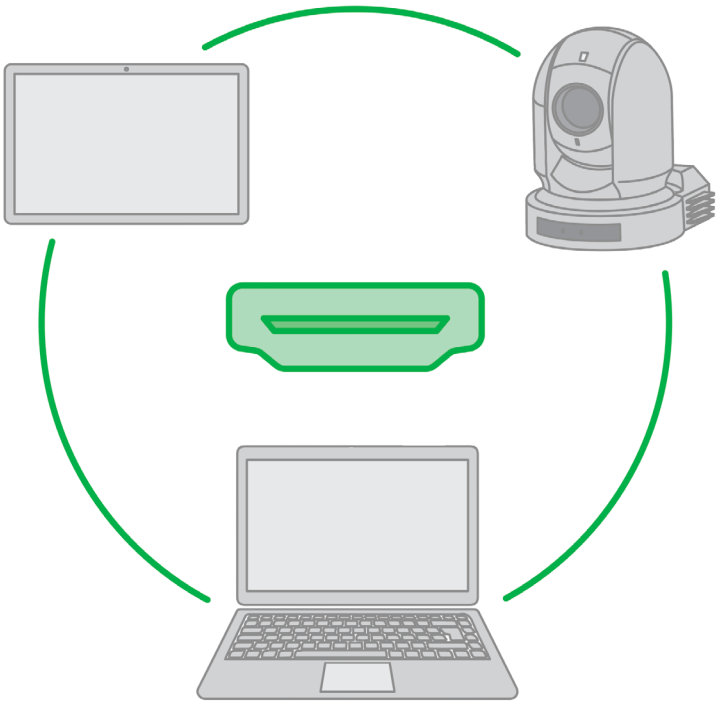
NDI® (Network Device Interface) is a high-quality, low-latency, frame-accurate standard that enables compatible devices to communicate, deliver, and receive high definition video over your existing Gigabit Ethernet network.

Operating bi-directionally, NDI® devices can be auto-detected, powered and controlled over the same Ethernet cable used to send the video and audio to anywhere on a network. Even fill and key alpha channel information, as well as Tally, can be sent over this same cable. If you have a Gigabit network, you have a now have the potential for a streamlined, interconnected, video production environment.

Transitioning to NDI® can also occur gradually. Existing SDI or HDMI signals can easily be converted to an NDI® stream and piped where required on your network and converted back only at the neccessary endpoints.

BirdDog has been on the NDI® journey since the very beginning and your Wallplate is just one of our products designed to take advantage of the features and potential of NDI®.

For more information on NDI®, please refer to this page on our website.



Wallplate IN

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Central Lite

The free BirdDog Central Lite application offers an elegant and streamlined way to drive your Wallplate IN content to your Wallplate OUT.

NDI Tools

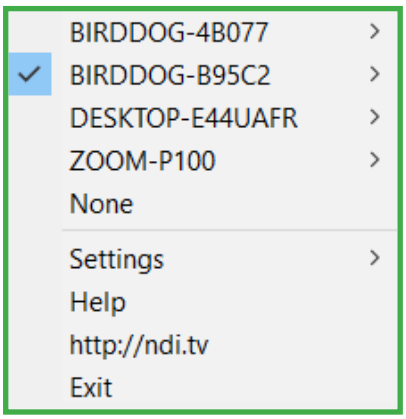
NDI® Tools is a free suite of applications designed to introduce you to the world of IP video and is available here.

One of the NDI® Tools is Studio Monitor. Studio Monitor is a very useful application that gives you two key capabilities:

1. It displays all NDI® sources on your network.
2. It offers a convenient, one-click access to the Wallplate Web UI.

Once installed, launch the Studio Monitor application. Right-click on the Studio Monitor window to view your NDI® sources. In the example below, three cameras and a desktop computer are shown as NDI® sources.

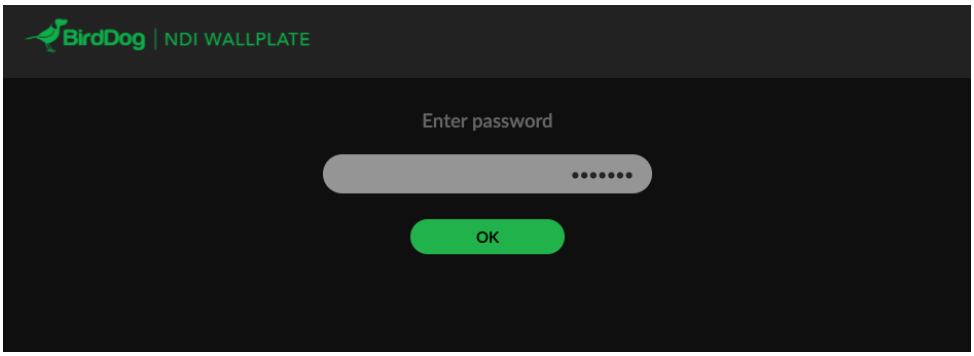
To open the Web UI for your Wallplates, select your desired Wallplate Input and click on the gear icon on the lower right of the window.



WebUI

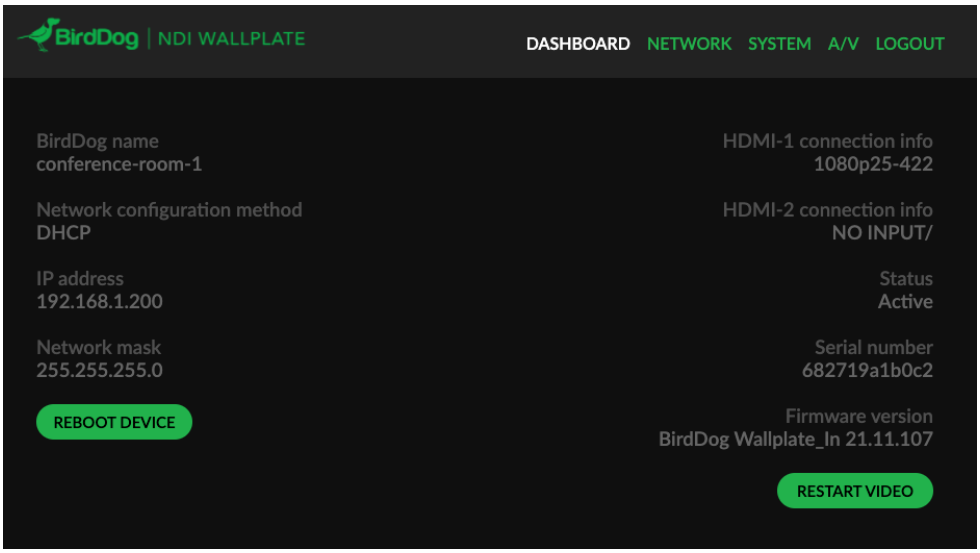
While Wallplate IN has default settings that will usually provide an immediate 'plug and play' experience, you can fine tune Wallplate to provide optimum performance for your particular application. This configuration is done via the web user interface panel (WebUI).

Log In



Once you direct your web browser to the Web UI you will need to log in to change any settings. The WebUI is secured by a user-selectable password. The default password is: **birddog** (one word, lower case). Refer to Password Settings to change the default password.

Dashboard



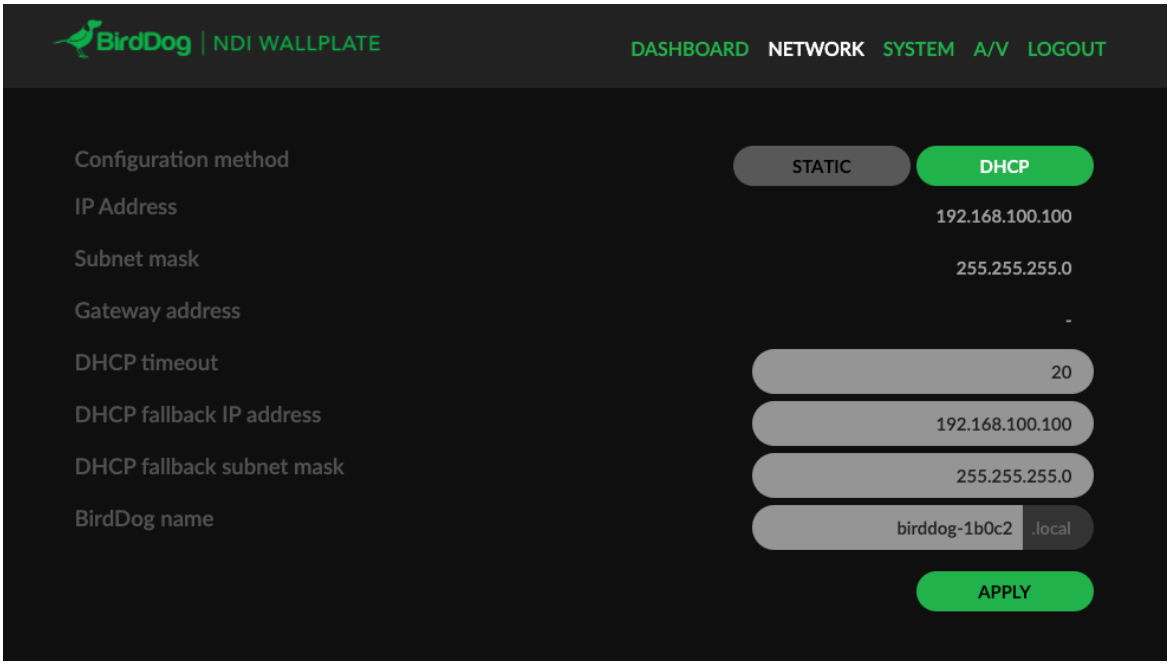
In the displayed window, type the default password '**birddog**' (all lower case) and click the OK button. The Dashboard window is displayed, and shows important basic settings, such as:

- Name of the Wallplate (this is user assignable), Wallplate Status, Network settings overview, Video format of connected cameras and serial number and firmware version.

You can also:

- **Reboot Device** – Allows you to soft reboot the device, for example, after installing new firmware.
- **Restart Video** – Useful for ensuring that the NDI® video engine will process as per any manual settings you may have made.

Network



IP Address Configuration Method

You can configure P200 to operate on the network with a dynamic (DHCP) IP address or a fixed address. For smaller networks DHCP networking is generally suitable, however larger networks with managed operations will often determine each device needs to have a dedicated, static IP address.

DHCP

DHCP is set as the network configuration by default for Mini.

Static

To enable a static IP address, change configuration method to static and fill in the details required in Address, Mask and Gateway. Particular attention should be paid to the Address and Mask fields as incorrect information entered will result in Wallplate not being visible on the network and a factory reset will be required in order to recover the unit.

DHCP Timeout, Fallback IP address, Fallback Subnet Mask

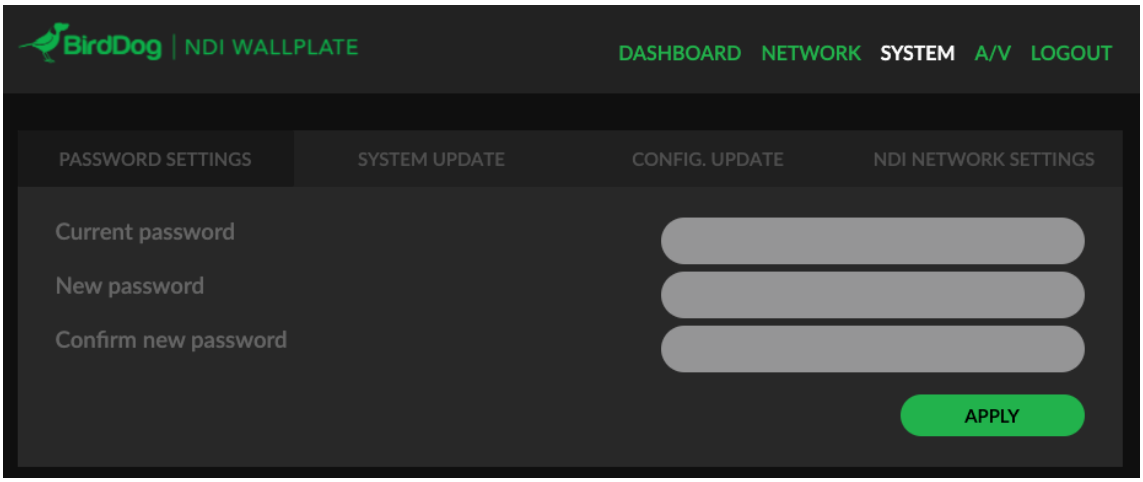
You can set the timeout period during which Wallplate will look for a DHCP IP address. After this period, the device will default to the designated fallback IP address.

BirdDog Name

You can name each Wallplate with a friendly name to make identification. Be sure to make the name unique, as no two devices on the network should have the same name. This name will appear on any NDI® receiver when it looks for video on the network. The name must not include any special characters and can be any combination of 'a-z, 0-9, and –'. After renaming your Wallplate, navigate back to the Dashboard and click REBOOT DEVICE. The device will re-initialize and you'll be good to go.

System

Password Settings

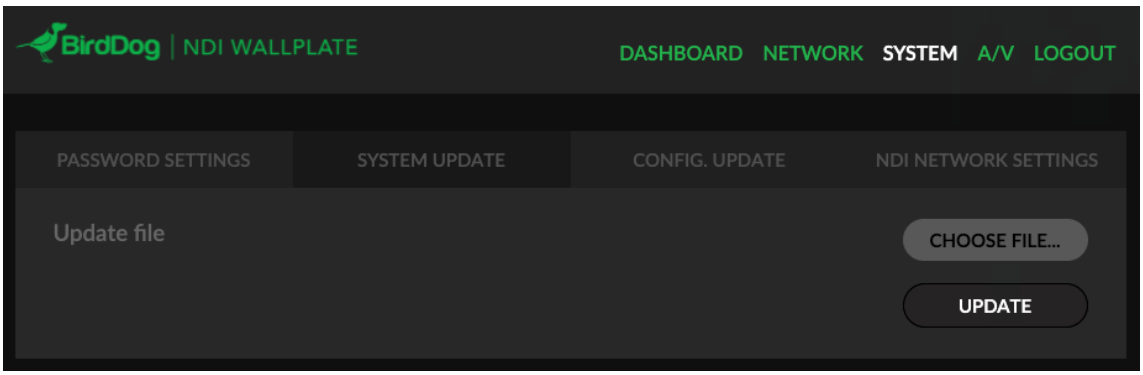


The WebUI is secured by a user-selectable password. The default password is **birddog** (one word, lower case). It is recommended that the default password be changed, since the Web UI grants full access to the Wallplate configuration settings.

You can change the password in the *Password Settings* tab.

1. Enter the current password.
2. Enter the new password. It is recommended to change this password to retain administration rights to prevent unauthorized changes. so in a network environment where PTZ Keyboard is shared with other users (e.g. not private). Confirm the new password and click *Apply*.

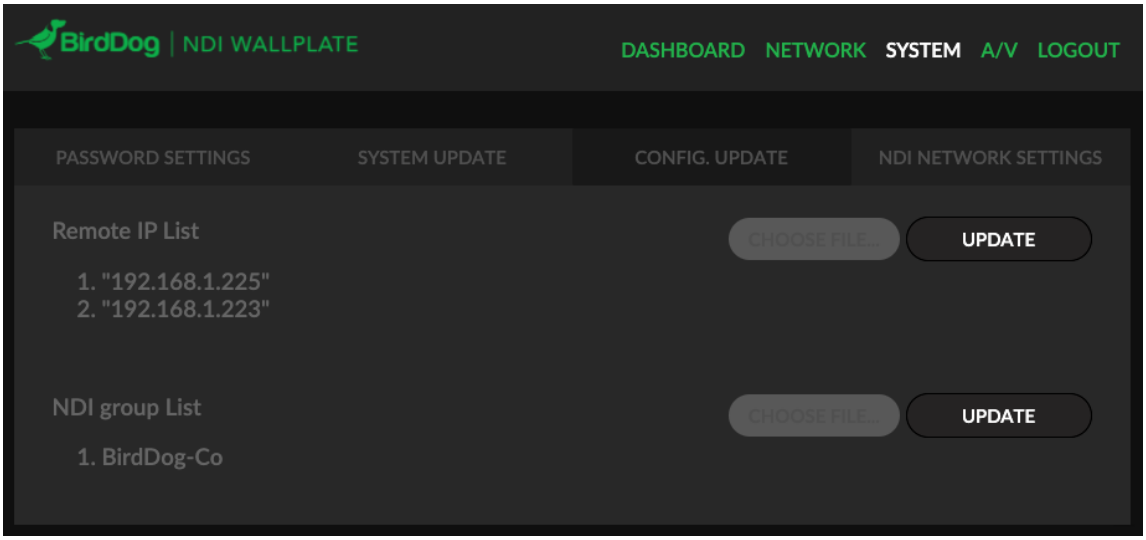
System Update



We are always adding new features and improving the performance of our products, so installing the latest firmware will provide you with the best user experience. To upgrade the firmware, please follow the **Firmware Upgrade Instructions** located in your firmware download folder and perform upgrade process.

The latest firmware files are available for download here:
Firmware Updates

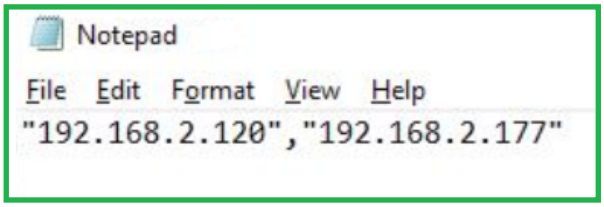
Config. Update



Remote IP List

By default, NDI® devices are visible to each other only when they're on the same VLAN. If you want visibility or control of a device on a different VLAN, you need to add it's address manually as a Remote IP.

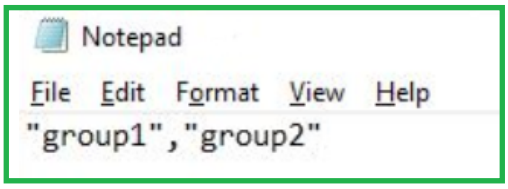
1. Click the CHOOSE FILE button to load your Remote IP List in UTF-8 encoded string format.
2. Click the UPDATE button. Do not upload a blank list.



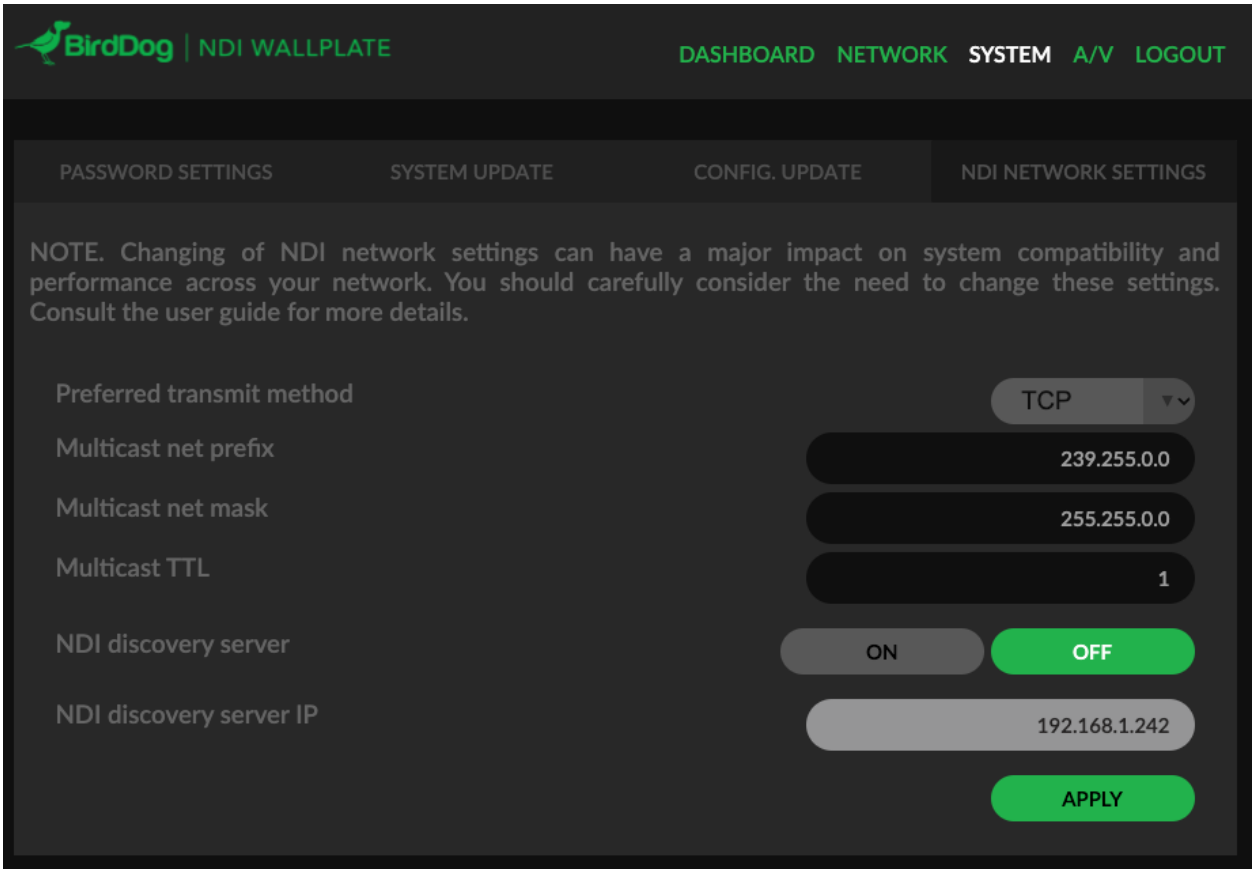
NDI® Group List

Set the NDI group list . NDI® groups allow you to restrict communication to only devices that belong to the same NDI® group. NDI® Groups can be very useful in larger environments to control visibility and access amongst various groups.

1. Click the CHOOSE FILE button to load your NDI Group List in UTF-8 encoded string format.
2. Click the UPDATE button. Do not upload a blank list.



NDI® Network Settings



Wallplate operates with the latest NDI® Libraries. There are several options to configure its behaviour in an NDI® network. Each configuration has its benefits, however it is recommended to utilise the default TCP transmit method unless you have reason to change.

Preferred Transmit Method

TCP

TCP is the default transmission method for NDI®, it operates well within local networks with predictable latency and limited jitter. BirdDog recommends that TCP be used for typical applications, and only using alternative transports for specific reasons.

UDP

UDP is recommended for networks where there is extended latency from one end to the other. The nature of UDP means that it does not need to receive a confirmation of each packet being received successfully – vastly improving performance on distance WANs. UDP can have some consequences if there are other issues on the network such as jitter or lost packets as it will not inherently re-sent a lost packet.

Multicast

Multicast is especially useful for use-cases that require a single source to be received on multiple receivers simultaneously. Utilising Muliticast offloads the distribution of the NDI® A/V packets from the Wallplate to the network infrastructure. You should take care to ensure your network is specifically configured to support Multicast as using it on an ill-prepared network can create unintended network problems.

NDI Discovery

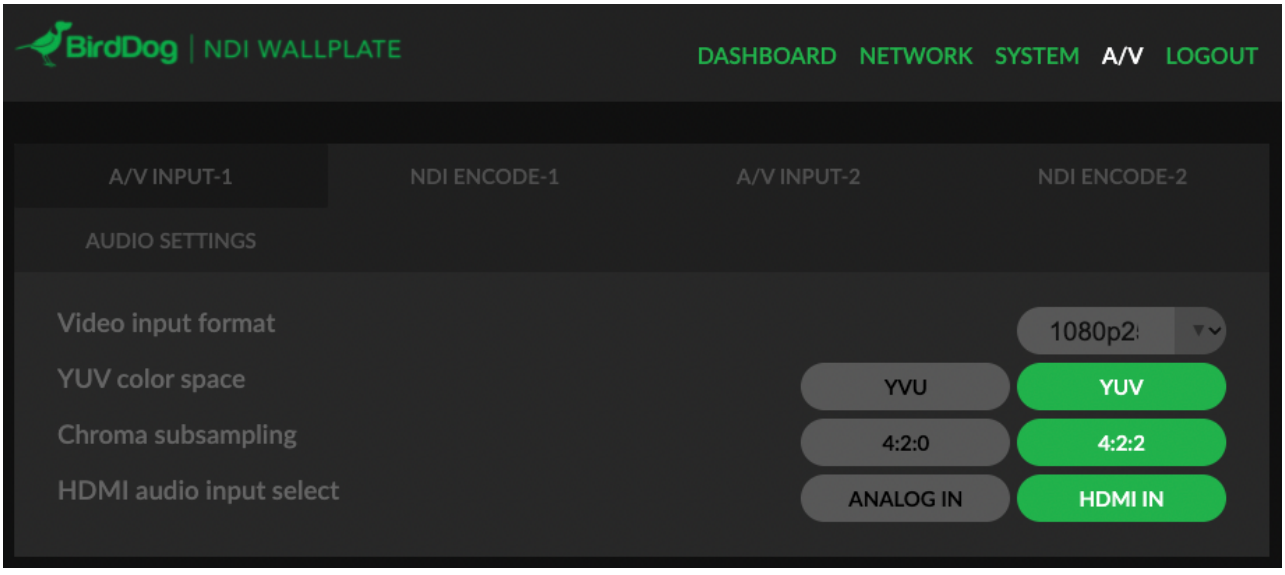
If you choose to use a NDI® Discovery Server, you can configure it in this tab. By default, NDI® utilizes mDNS (multicast Domain Name System) to create the zero configuration environment for discovery. The primary benefits of using mDNS is that it requires little or no administration to set up. Unless the network is specifically configured to not allow mDNS, NDI® sources will be discovered.

The NDI® Discovery Service is designed to allow you to replace the automatic discovery NDI® uses with a server that operates as an efficient centralized registry of NDI® sources that requires much less bandwidth. NDI® discovery server also helps with location of devices that reside on different subnets. The NDI® Discovery Server is available in the free NDI SDK.

1. If you are using a NDI® Discovery Server, click the ON button.
2. Enter the IP address of your server.
3. Click the APPLY button to save your changes.

AV

Input-1 / 2



Video Input Format

Click on the dropdown list to select the video input format.

YUV Color Space

Select the desired video color space.

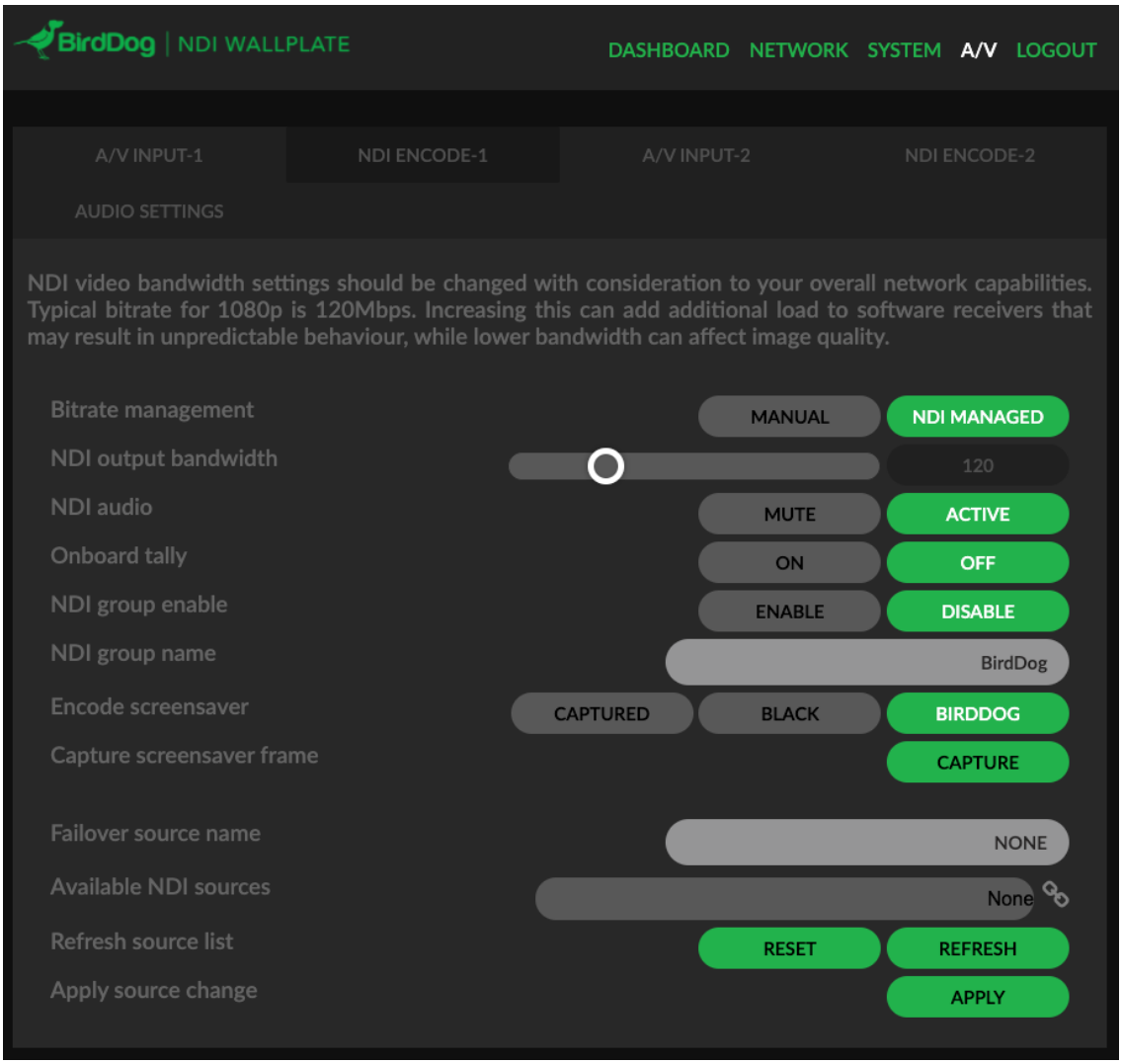
Chroma Subsampling

Select the desired level of chroma subsampling.

HDMI Audio Input Select

Please note that analogue audio input is not currently active.

NDI Encode-1 / 2



Bitrate Management

Birddog Devices allow you to set your target NDI® output bitrate. This allows you to select a compression ratio that is more efficient for your networking infrastructure (lower bandwidth) or higher image quality for critical footage. The scale allows you to select the range of 60Mbps – 360Mbps.

By setting Bitrate Management to NDI® MANAGED, the target bitrate will be set in accordance with the NDI® standard. By selecting MANUAL you are able to manually select a target bitrate (NDI® output bandwidth). Select MANUAL with care, as you will need to account for the capacity of the network and the receiving device.

NDI Audio

Select mute to disable the NDI® audio.

NDI Group Enable

NDI® supports groups. This allows you to set Wallplate to only announce it's availability to other devices that belong to the same NDI® group. By default this setting is DISABLED. When enabled the receiver device needs to also be set to the same identical group name. NDI® Groups can be very useful in larger environments to control visibility and access amongst various groups. Click on the NDI® group name field to enter a group name.

Encode Screensvaver

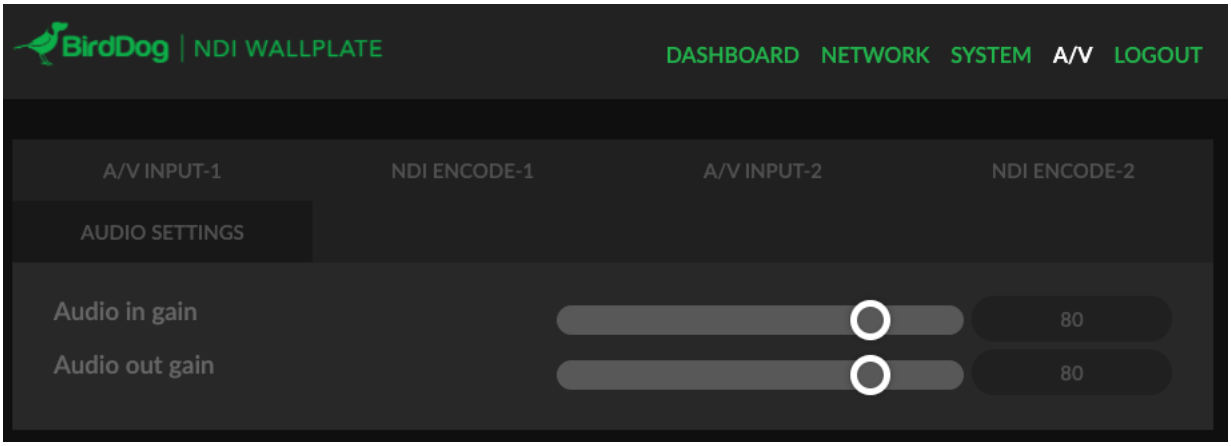
If no current HDMI source is selected, you can choose whether to display a captured video frame, a black screen or the BirdDog Wallplate logo. Click the Capture button to capture a frame from your video that will be displayed when you select Captured as your screensaver.

Failover Source Name

If the selected HDMI source is interrupted for any reason, Wallplate can automatically switch to a pre-determined alternative NDI® source.

Select an available NDI® source for the failover function from the *Available NDI® sources* dropdown list. Pressing the Refresh button will add new sources to the list, whereas pressing Reset will populate the list with only active NDI® sources. Click the Apply button to apply your failover source change.

Audio Settings



Please note that analogue audio input and output is not currently active.

Wallplate OUT

Wallplate OUT features two independent HDMI outputs and is designed for driving content to screens. For example, you can use one output to send a video conferencing group to one screen, and use the second output to send a laptop presentation to another screen.

Central Lite

The free BirdDog Central Lite application offers an elegant and streamlined way to drive your Wallplae Input content to your Wallplate OUT.

Web UI

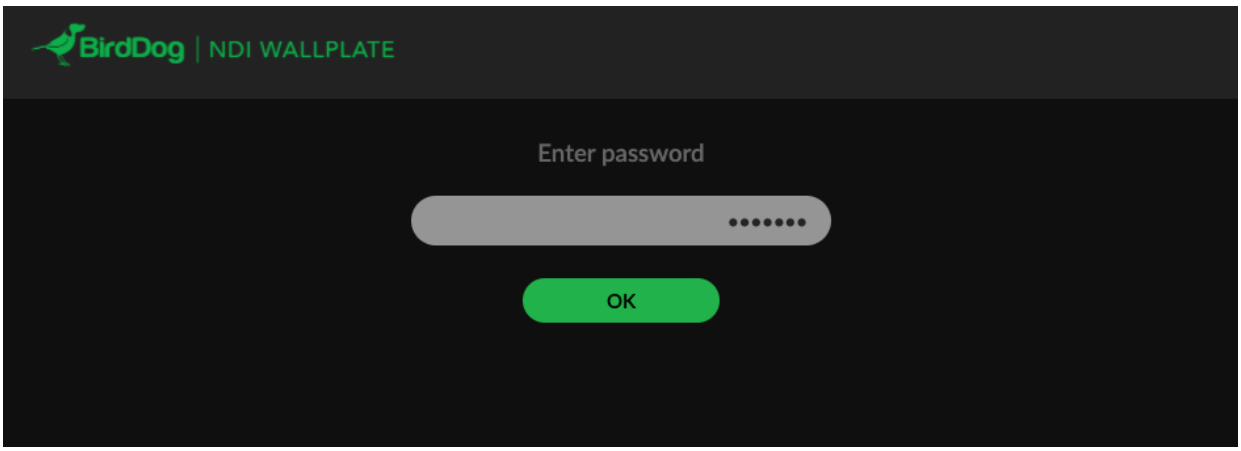
The Wallplate OUT Web UI allows you to:

1. Fine tune the performance of Wallplate OUT to suit your particular application.
2. Select the NDI® source that you want to direct to the HDMI output connectors.

When a HDMI monitor is plugged into Wallplate OUT, the IP address of the device will be displayed on the screen. Open a browser on your computer and type in this IP address. The Log In window will be displayed.

Log In

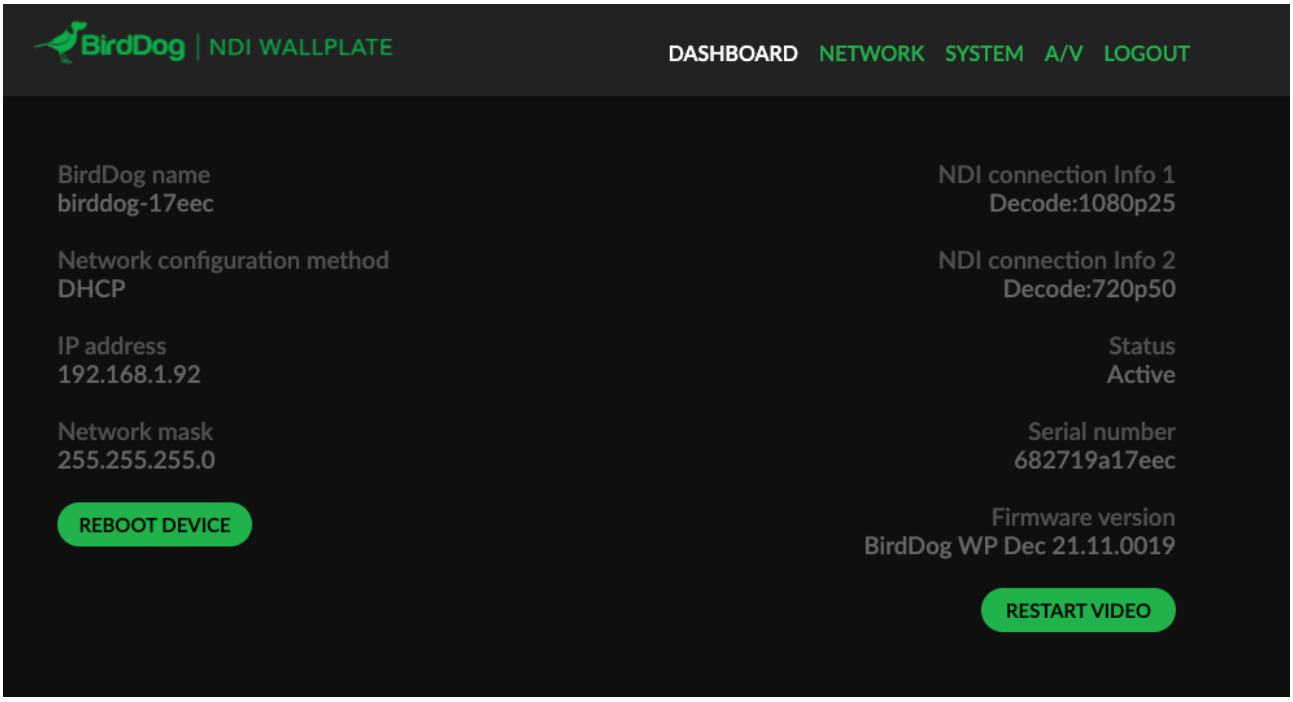
Default Password



The WebUI is secured by a user-defined password. The default password is: **birddog** (one word, lower case).

Enter the default password **birddog** (all lower case) and click the OK button.

Dashboard



The Dashboard shows important basic settings, such as:

- Name of the Wallplate (this is user assignable).
- Network settings overview
- Video format of connected NDI® sources directed to the HDMI-1 and HDMI-2 outputs.
- Wallplate operational Status.
- Serial number and firmware version.

You can also:

- **Reboot Device** – Allows you to soft reboot the device, for example, after installing new firmware.
- **Restart Video** – Useful for ensuring that the NDI® video engine will process as per any manual settings you may have made.

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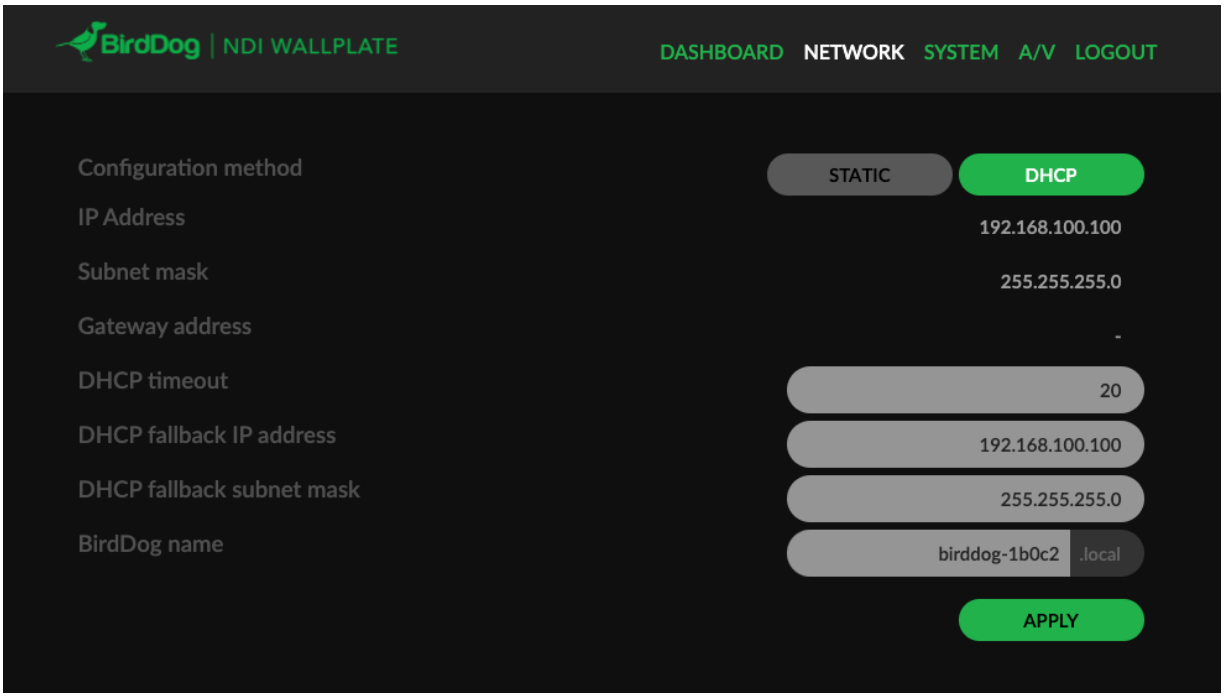

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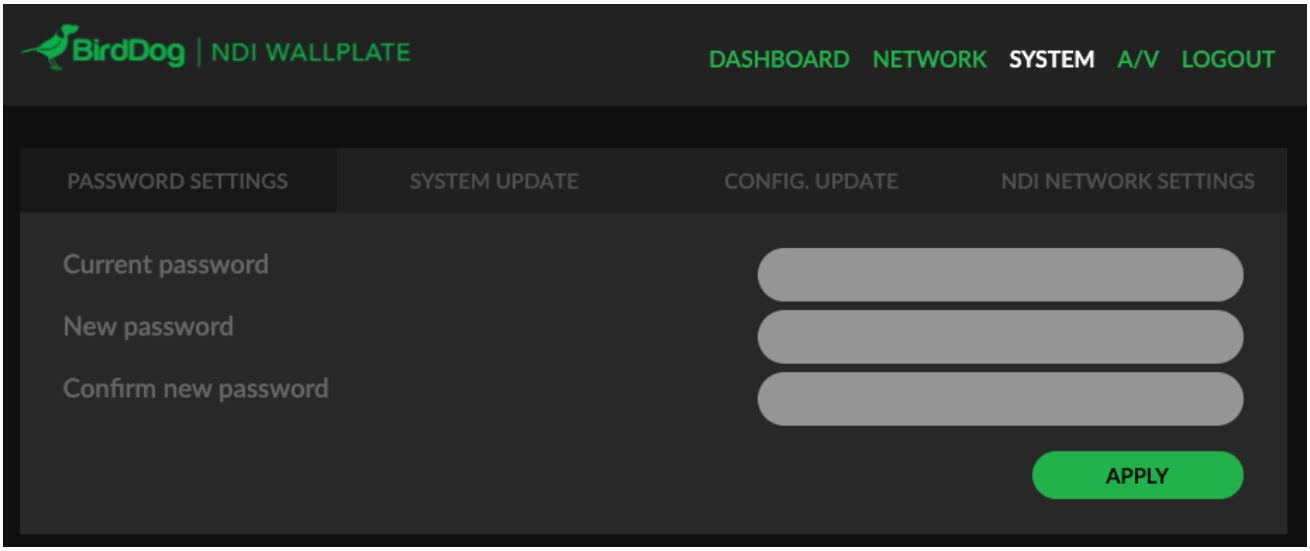
Password Settings



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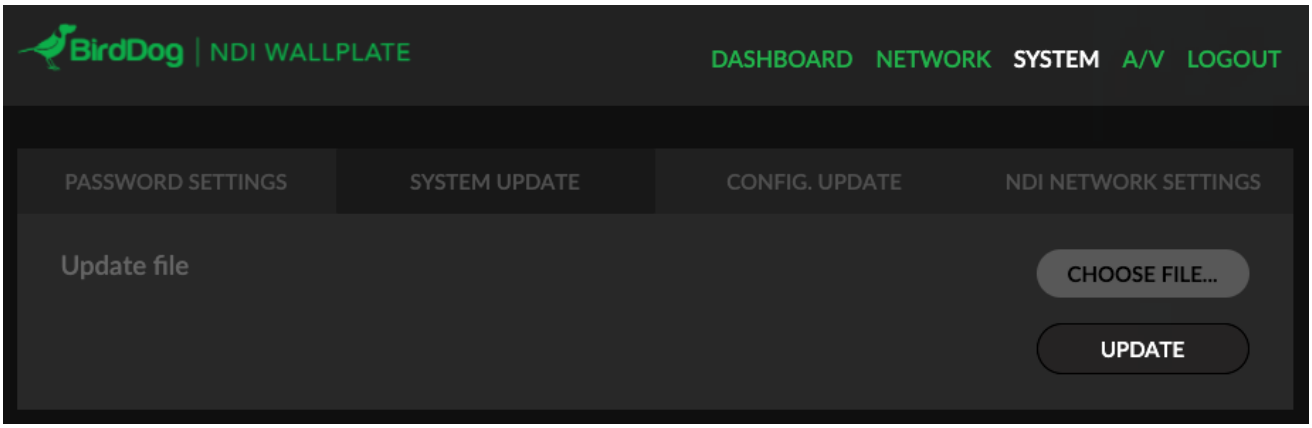

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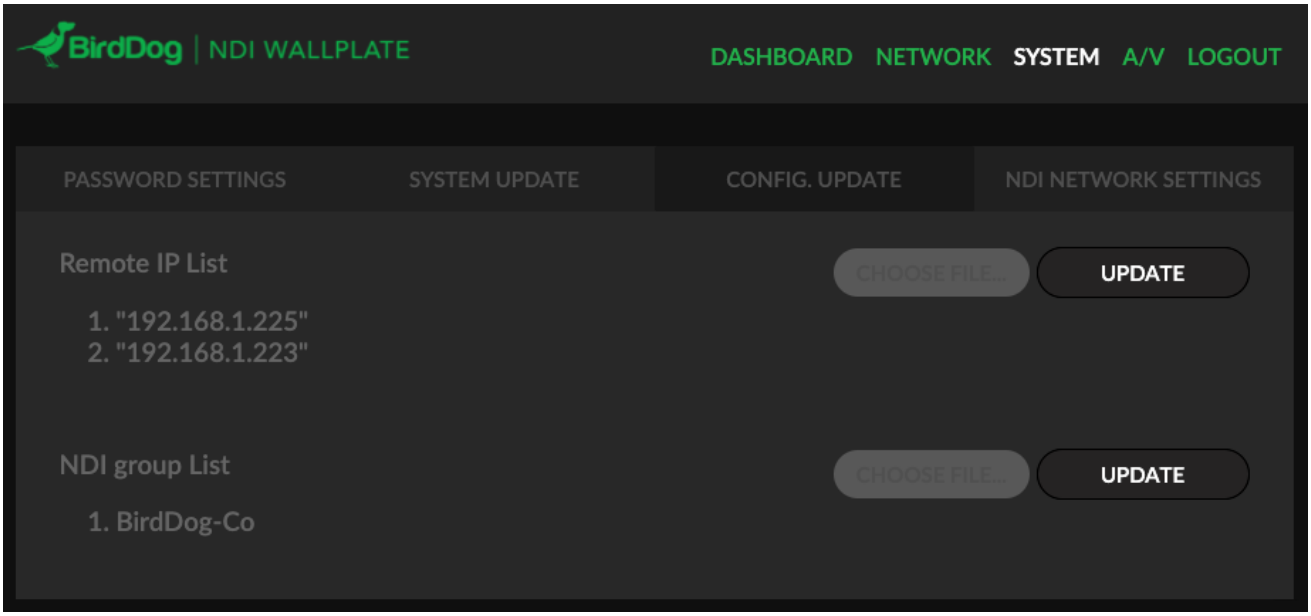

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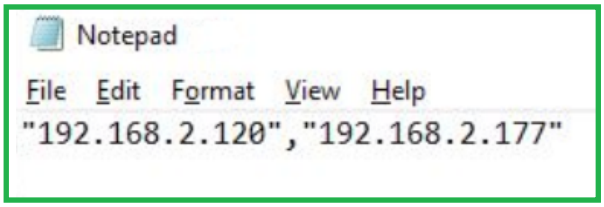

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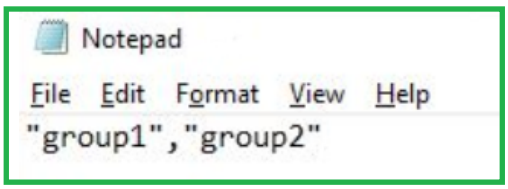
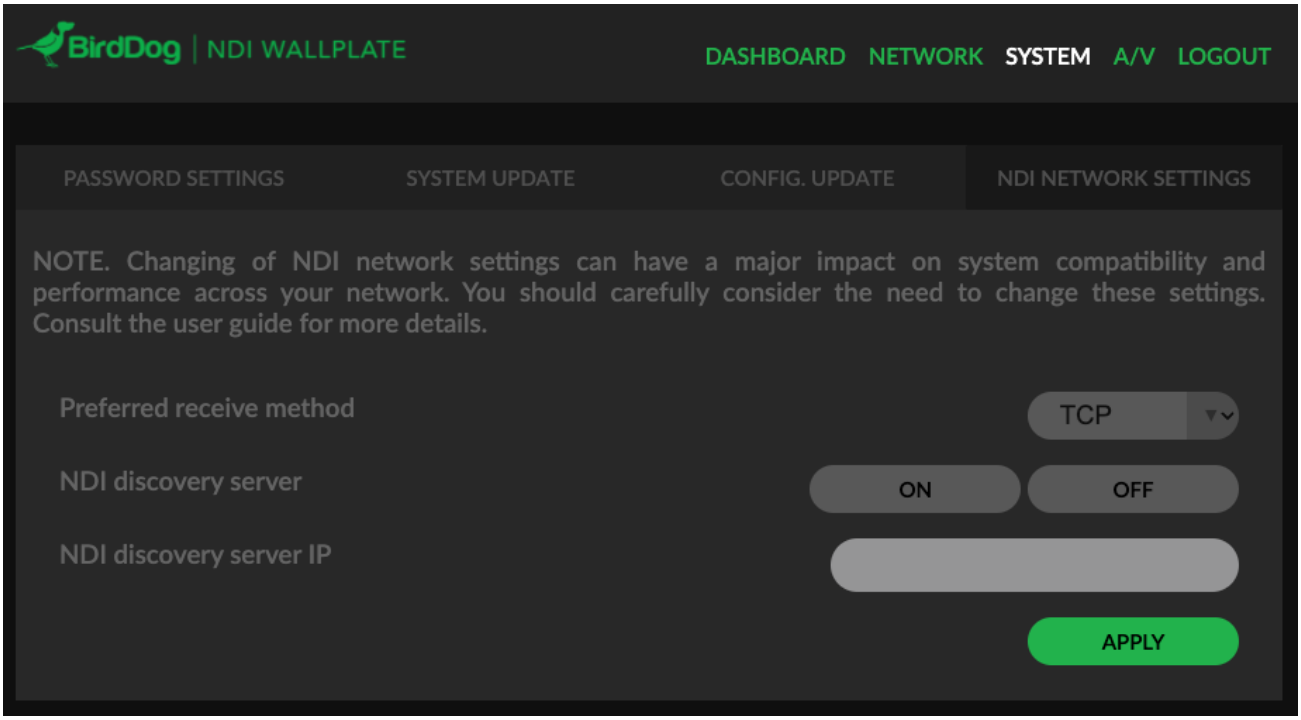


NDI Network Settings



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Preferred Receive Method

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UDP

UDP is recommended for networks where there is extended latency from one end to the other. The nature of UDP means that it does not need to receive a confirmation of each packet being received successfully – vastly improving performance on large WANs. UDP can have some consequences if there are other issues on the network such as jitter or lost packets as it will not re-send a lost packet.

NDI® Discovery

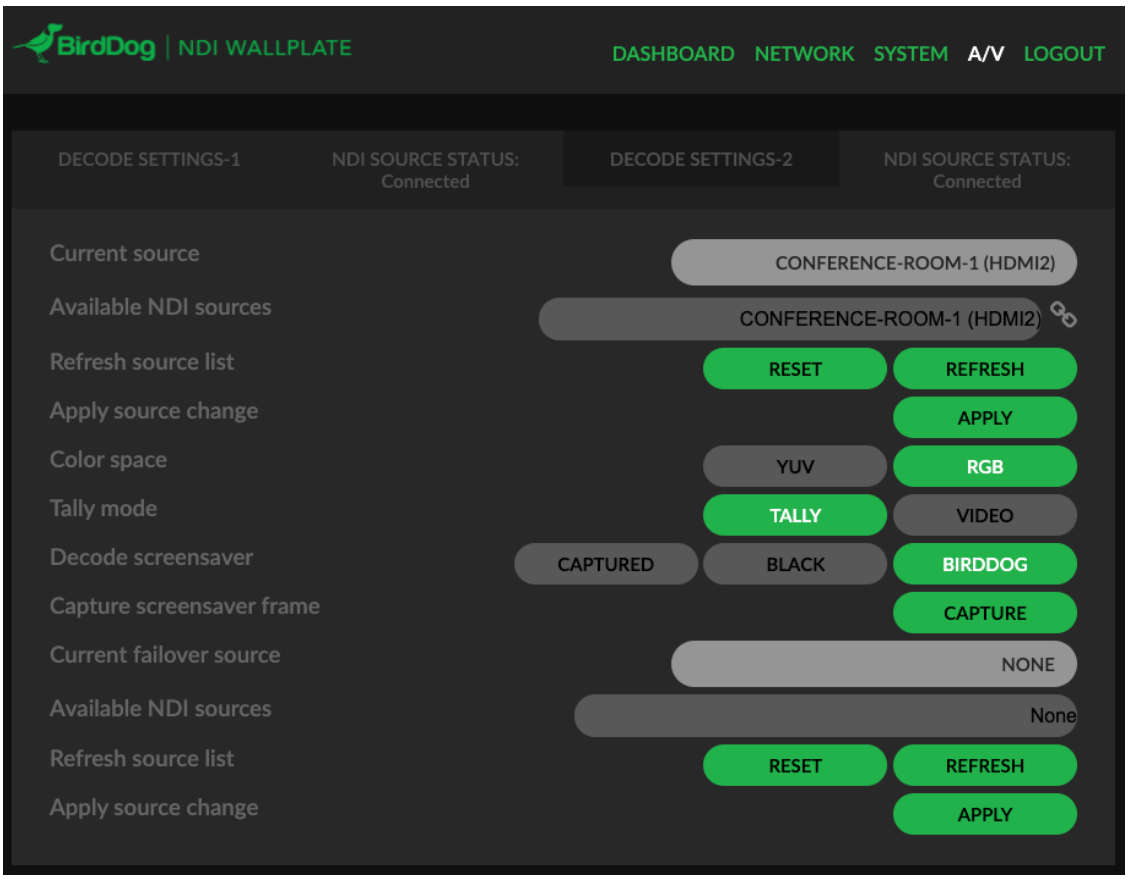
If you choose to use a NDI® Discovery Server, you can configure it in this tab. By default, NDI® utilizes mDNS (multicast Domain Name System) to create the zero configuration environment for discovery. The primary benefits of using mDNS is that it requires little or no administration to set up. Unless the network is specifically configured to not allow mDNS, NDI® sources will be discovered.

The NDI® discovery service is designed to allow you to replace the automatic NDI® discovery system with a server that operates as a centralized registry of NDI® sources that also requires much less bandwidth. NDI® discovery server also helps with location of devices that reside on different subnets. The NDI® Discovery Server is available in the free NDI SDK.

1. If you are using a NDI® Discovery Server, click the ON button, otherwise click the OFF button.
2. Enter the IP address of your server.
3. Click the APPLY button to save your changes.

A/V

Decode Settings-1 / 2



Current Source

1. Click on the *Available NDI Sources* dropdown list to select the source that you wish to output via the Wallplate HDMI output.
2. Click on the Apply Source Change button. The source will then be displayed in the *Current Source* field. In this example, a BirdDog Wallplate IN named Conference Room 1 has been selected as the NDI® source.

Refresh / Reset Source List

Click the Refresh button to add newly discovered sources to the available sources list or the Reset button to show only active, available sources.

Colour Space

BirdDog Wallplate has built-in colour space conversion. Some NDI® computer sources can provide video in RGB or YUV colour space. If you experience inverted colours on your computer-based source, you can swap RGB for YUV colour space.

Tally Mode

Tally: The HDMI output connection illuminates red if there is a connected NDI® source.

Video: The HDMI output connection illuminates green if there is a connected NDI® source.

Decode Screensaver

If no current NDI® source is selected, you can choose whether to display a captured video frame, a black screen or the BirdDog Wallplate logo. Click the *Capture* button to capture a frame from your video that will be displayed when you select *Captured* as your screensaver.

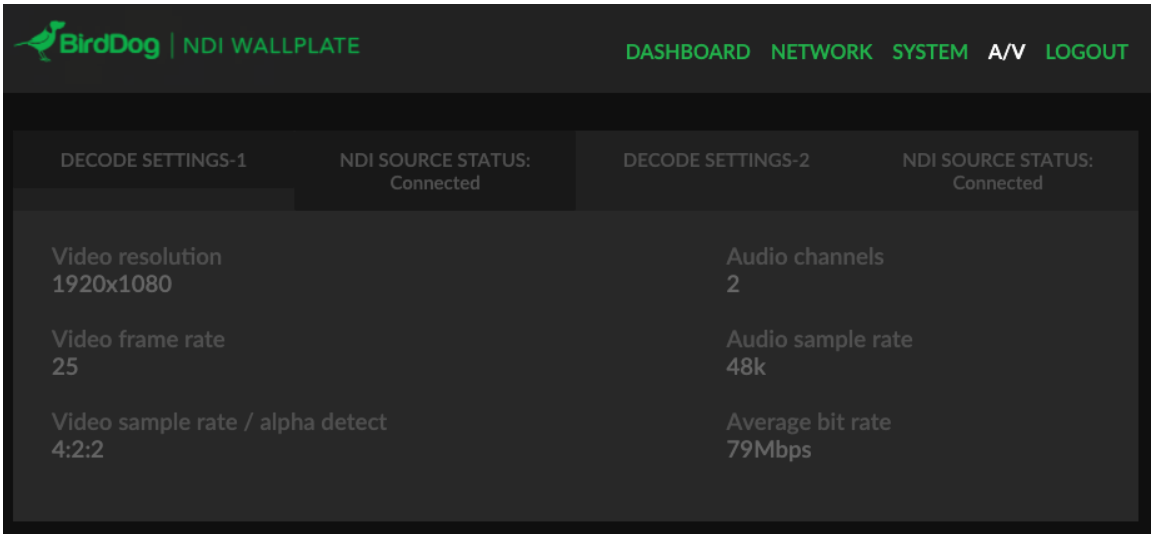
Failover Source Name

If the selected NDI® stream is interrupted for any reason, Wallplate can automatically switch to a nominated, alternative NDI® stream.

Select an available NDI® source for the failover function from the *Available NDI® sources* dropdown list. Pressing the Refresh button will add new sources to the list, whereas clicking *Reset* will populate the list with only active NDI® sources. Click the *Apply* button to apply your failover source change.

NDI® Source Status 1 / 2

This tab provides an overview of your selected NDI® source.



BirdDog Central Lite

Central Lite is a free version of BirdDog Central Pro and offers an elegant and streamlined way to direct your NDI® sources to your Wallplate OUT. By teaming up Central Lite with any NDI® sources, including all BirdDog hardware capable of creating NDI® sources, you can now drive your NDI® streams directly to Wallplate OUT to decode the NDI® back to HDMI.

Sign up for your free copy of Central Lite.

Simple Routing

Select your source, select your destination, and click apply. Your NDI® content is now sent to the the designated single Wallplate OUT or any of your groups.

Wallplate Groups

By grouping your BirdDog Wallplate OUT devices, you can instantly drive content to multiple screens. Select any of the BirdDog Wallplates in your destination windows and assign to a group.

Touch Interface

By using a Windows 10 Pro enabled touchscreen tablet, you have NDI routing control at your fingertips.

Installation

During installation, BirdDog Wallplate is mounted within a two-gang Carlon device box. These are available for both old work and new work.

Old Work

Click the link below for specifications and installation videos for the Carlon old work device box.

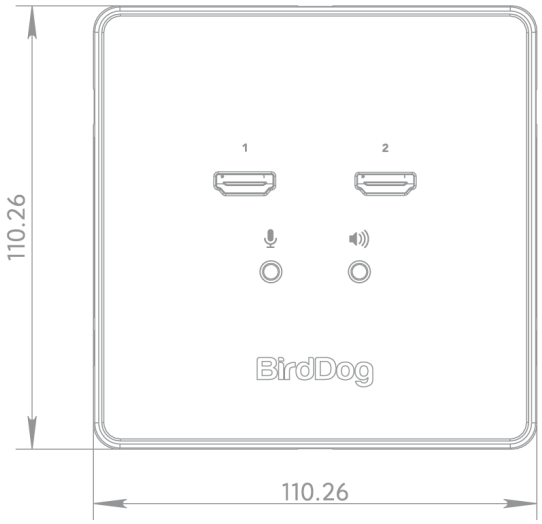
Carlon Old Work Device Box

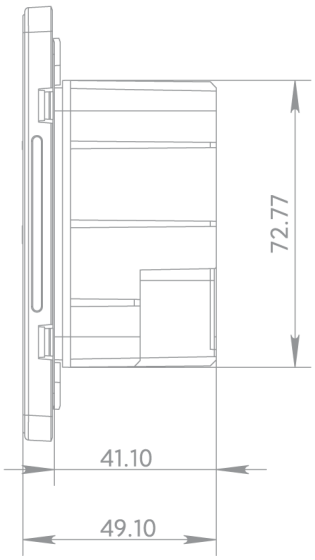
New Work

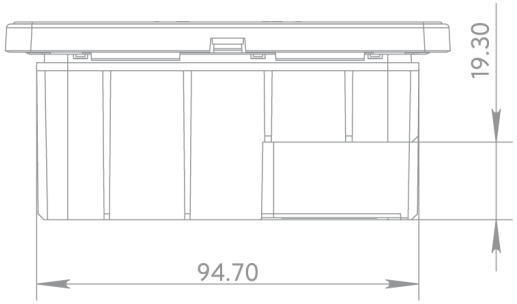
Click the link below for specifications and installation videos for the Carlon new work device box.

Carlon New Work Device Box

BirdDog Wallpate Dimensions







Glossary

Domain

A domain contains a group of computers that can be accessed and administered with a common set of rules. Domain can also refer to the IP address of a website on the Internet.

DNS

DNS (Domain Name System) is a system used by the Internet and private networks to translate domain names into IP addresses.

mDNS

mDNS (Multicast DNS) refers to the use of IP multicast with DNS to translate domain names into IP addresses and provide service discovery in a network that does not have access to a DNS server.

EDID

Extended Display Identification Data (EDID) is an AV industry standard which automatically communicates specification between devices, allowing your AV source to send the most compatible signal to your screen.

Ethernet

Ethernet, standardized as IEEE 802.3, refers to a series of technologies used to connect computers and other devices to a LAN (Local Area Network) or wide area network (WAN).

Firmware

Firmware is a class of software held in non-volatile memory that provides the low-level control for a device's hardware.

Gigabit Ethernet (GigE)

An Ethernet capable of transmitting frames at a rate of a gigabit per second. A Gigabit capable Ethernet network is recommended for NDI® production workflows.

IP

IP (Internet Protocol) is the communications protocol for the Internet, many wide area networks (WANs), and most local area networks (LANs) that defines the rules, formats, and address scheme for exchanging datagrams or packets between a source computer or device and a destination computer or device.

LAN

LAN (Local Area Network) is a network that connects computers and devices in a room, building, or group of buildings. A system of LANs can also be connected to form a WAN (Wide Area Network).

Mbps

Mbps (Megabits per second) is a unit of measurement for data transfer speed, with one megabit equal to one million bits. Network transmissions are commonly measured in Mbps.

NDI®

NDI® (Network Device Interface) is a standard allowing for transmission of video using standard LAN networking. NDI® comes in two flavours, NDI® and NDI®|HX. NDI® is a variable bit rate, I-Frame codec that reaches rates of around 140Mbps at 1080p60 and is visually lossless. NDI®|HX is a compressed, long-GOP, H.264 variant that achieves rates around 12Mbps at 1080p60. BirdDog uses NDI®.

PELCO

PELCO is a camera control protocol used with PTZ cameras. See also VISCA.

PoE

Power over Ethernet

Port

A port is a communications channel for data transmission to and from a computer on a network. Each port is identified by a 16-bit number between 0 and 65535, with each process, application, or service using a specific port (or multiple ports) for data transmission. Port can also refer to a hardware socket used to physically connect a device or device cable to your computer or network.

PTZ

Pan, tilt and zoom.

RJ45

A form of standard interface commonly used to connect computers onto Ethernet-based local area networks (LAN).

RS422, RS485, RS232

Physical layer, serial communication protocols.

Subnet

Subnet or subnetwork is a segmented piece of a larger network.

Tally

A system that indicates the on-air status of video signals usually by the use of a red illuminated lamp.

TCP

TCP (Transmission Control Protocol) is a network communications protocol.

UDP

UDP (User Datagram Protocol) is an alternative protocol to TCP that is used when reliable delivery of data packets in not required.

VISCA

VISCA is a camera control protocol used with PTZ cameras. See also PELCO.

WELCOME TO THE FUTURE.

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