Airvine WaveCore

Configuration Guide

Part No:	800-00263-001
Revision:	Oct 2024 2.6
SW Release	1.0.0.121

TABLE OF CONTENTS

Introduction

About this Guide

This guide provides information and procedures to configure, manage and monitor the WaveCore devices using a Web Interface.

Related Documents

For additional information about the WaveCore product line, the following additional documents are available at Airvine Support Web Site http://www.airvine.com/support.

- **WaveCore Getting Started Guide (GSG):** A quick reference guide that provides essential information for installing and configuring the devices.
- **WaveCore Hardware Installation Guide:** A guide providing a hardware overview and details about the installation procedures, hardware specifications, and optional accessories.
- **WaveCore Regulatory and Safety Guide:** A guide providing essential information on the country specific safety and regulatory disclosures and norms to be followed while installing the device.
- **WaveCore Configuration Guide:** A guide that gives an overview of the device user interface and explains the step-by-step procedures to configure, manage and monitor the device by using a Graphical User Interface.

Symbols on Equipment or DocumentationPTP

DANGER

DANGER statements indicate potentially hazardous situations including those that could cause loss of life or physical injury.

CAUTION

CAUTION statements alert a possibility of damage to the system, software, or individual items or parts of equipment withing a system. However, this damage presents no danger to a person.

NOTE

A NOTE provides a tip, guidance, or advice and can emphasize important information.

System Overview and Introduction

Airvine WaveCore devices are indoor wireless point-to-point (PTP) devices that provide wireless Layer 2 Ethernet bridge networking solutions for enterprise and business markets. WaveCore devices are sold in pairs, and wirelessly communicate through walls and ceilings (up to 12 inches of concrete[1]), which enables communications without having to drill holes or pull wiring.

A WaveCore pair includes a Controller Node and a Subordinate Node. The Controller Node starts broadcasting on a factory-set frequency band as soon as it is powered up. The Subordinate Node starts searching for the Controller Node broadcast when it powers up, and then locks onto that broadcast so the pair is immediately communicating. Use the Controller Node as the primary device for configuring and monitoring the WaveCore pair.

Both WaveCore devices are configured and monitored via the Controller Node, using the on-board VineManager Web GUI, which can be accessed through a Wi-Fi or wired connection. Any changes made to the Controller Node are automatically applied to the Subordinate Node as well. This ensures that adjustments to Web GUI parameters, including transmission frequency and bandwidth, are synchronized across both WaveCore devices.

WaveCore devices include internal high-gain directional antennas that provide individual transmit and receive links. For optimized transmit and receive rates, the WaveCore antennas must be aligned to within +/-10 degrees of each other. This alignment not only assures maximum transmission rates, but also reduces any interference between the WaveCore pair and any other devices. To ensure optimized transmit and receive rates, the WaveCore devices include on-board signal diagnostics to ensure optimal results.

WaveCore devices are shipped with standard 3-inch mounting brackets. Optional 5-inch mounting brackets can be separately ordered along with other optional accessories listed later in this manual.

The WaveCore devices are powered by 12 VDC, PoE, or both. This allows for power supply redundancy to support failsafe operation.

[1] Thickness of concrete that can be penetrated by WaveCore depends on such factors as regulatory domain and associated EIRP limits, bandwidth, distance between radios. For estimates, use the VineCalculator™ tool located at www.airvine.com/support.

WaveCore Deployment Scenarios

There are many deployment scenarios that WaveCore is designed to handle, many of which involve making wireless connections through walls or ceilings.

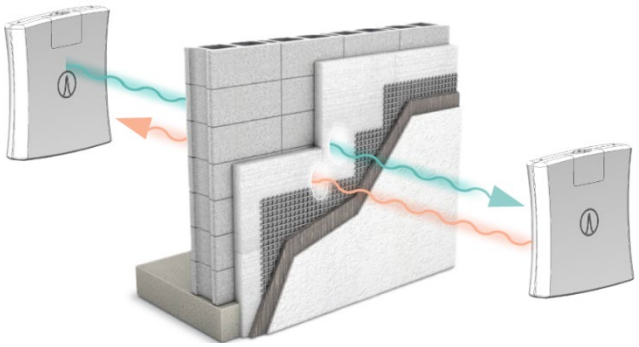
Cement and concrete walls and floors are commonly used in many commercial buildings. Deploying new networks or expanding existing ones in these environments often involves high costs and significant delays due to the need to run network cables through obstacles and across long interior spans.

WaveCore was engineered to enable fast, easy, and cost-effective deployment of high-speed indoor wireless Ethernet connections. eliminating the expense, hassle, and delays associated with having to lay new cable. It can "blast" through obstructions, eliminating the costs and delays typically associated with installing network cables within an enterprise, such as labor expenses, extensive permitting, core and wall drilling, contracting licensed professionals, materials, and x-rays.

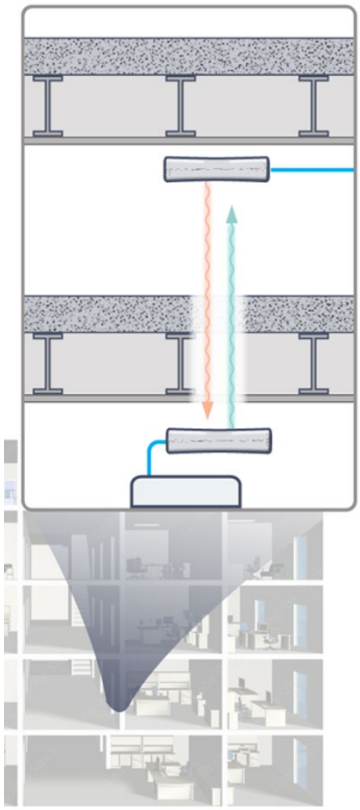
Connecting Wirelessly Through Walls and Ceilings

Specifically connecting networks into or out of:

- HVAC and fire alarm rooms
- Data closets, IDF/MDF
- Floors/ceilings/hallways



Connecting Through Walls



Connecting Through Ceilings

Floor-to-Floor

WaveCore Models

There are currently two versions of the WaveCore product.

Part Number	Description
WC-1000RH-US	This is a complete point-to-point wireless bridge link that contains two 1000RH-US Wireless Radio Devices, and two SHORT Wall/Ceiling Mounting Brackets. This model is designed to be operated only in the US and Canada. Per FCC/ISED regulations, the country code of the model is fixed to "US". It is not possible for users to change the country code.
WC-1000RH-RW	This is a complete point to point wireless bridge link that contains two 1000RH-RW Wireless Radio Devices and two SHORT Wall/Ceiling Mounting Brackets. This model cannot be operated in the US and Canada. With this model, users can select the country code where the device will be deployed.

* The country code can only be configured on the RW "world" model.

Node Types

Controller Node: Initiates and maintains the link to the Subordinate Note.
The Controller Node can only connect to a Subordinate Node

Subordinate Node: The Subordinate Node operates under the control of the Controller Node
The Subordinate Node can only connect wirelessly to a Controller Node

Controller Node **Subordinate Node**

Both Node Types can be individually managed and monitored using the VineManager web-based management utility.

Factory-Resetting a WaveCore

Resetting Using the Reset Button

The WaveCore has a recessed reset button next to the RJ45 Ethernet port. Use this button to reset the WaveCore:

Press for less than five seconds to soft reboot the WaveCore.

Press for longer than five seconds to factory-reset the WaveCore.

In either case, wait until the WaveCore **System and Power** LEDs both display a Solid Green Color.

Resetting Using the VineManager GUI

Alternatively, the VineManager Web GUI can be used to Factory Reset the WaveCore.

VineManager Graphical User Interface (GUI)

Factory Default IP Address and User Login

When shipped from the factory, the WaveCore device will be configured with the following default Management IP Addresses and user login and passwords.

Wired Ethernet Management Parameters:
The following are the factory-default parameters to manage the WaveCore using the HTTP Web GUI or the CLI/SSH **over a wired Ethernet connection** to the WaveCore:

WaveCore Wired Ethernet default IP address:	**192.168.0.250**
WaveCore Management default user login and password:	**admin/admin**

Wi-Fi Management Parameters:
The following are the factory-default parameters to manage the WaveCore using the AirvineMobile App, HTTP Web GUI, or CLI SSH **over a Wi-Fi connection** to the WaveCore:

WaveCore Management Wi-Fi SSID:	**AirVine2**
WaveCore Management Wi-Fi WPA2 passcode:	**airvine!**
WaveCore Management Wi-Fi IP address:	**192.168.3.1**
WaveCore Management default user login and password:	**admin/admin**

Accessing the VineManager Web GUI

The WaveCore uses an intuitive Web-Based GUI for configuration and monitoring. A standard Internet browser running on a PC, Notebook, or mobile device is all that is needed to manage a WaveCore device. To access the VineManager Web GUI, enter the applicable Management IP Address into the browser address bar.

VineManager can be accessed via the following WaveCore interfaces:

A WaveCore Wired Ethernet port

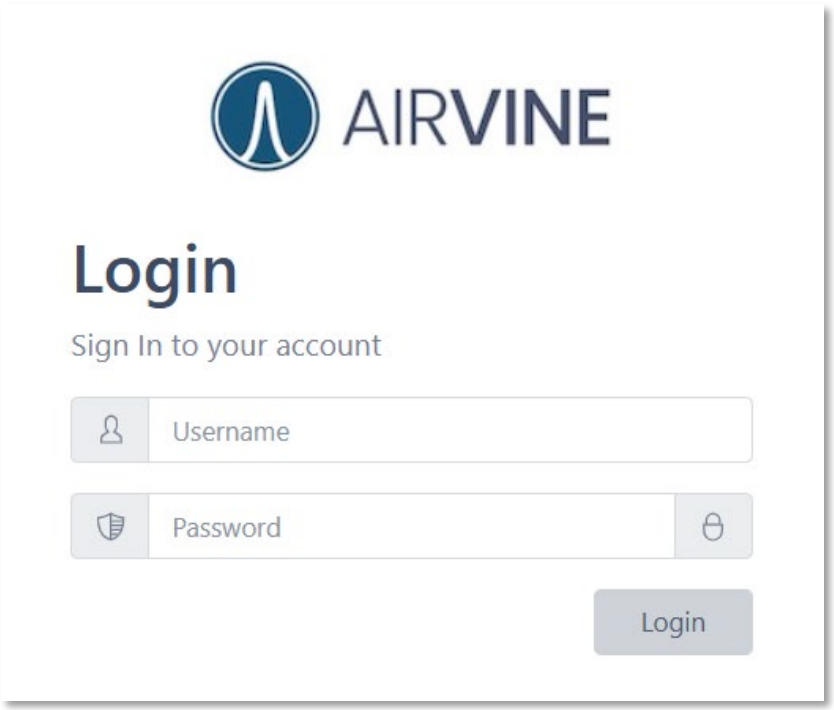
A WaveCore 2.4GHz Local Wi-Fi management interface

Supported Management Interfaces over Wired Ethernet	VineManager, a browser-based Web GUI using HTTP and HTTPS.
Supported Management Interfaces over the WaveCore Wi-Fi Interfaces (Note 1)	VineManager, a browser-based Web GUI using HTTP and HTTPS.
Supported Wi-Fi Browsers	Google Chrome Microsoft Edge Safari Firefox

Note 1: The Web GUI supports both http and https connections. For https connections, the web server of the WaveCore device uses a self-signed certificate. Thus, you need to ignore the security warnings on the browser to bypass the validation.

Logging Into VineManager

When first connecting to the management IP address on your web browser, log onto the VineManager GUI using the default user login and password (admin / admin).



Note

For security, it is recommended to change the password after the first login. To do this, when logged into VineManager, navigate to Configuration-User-Change Password.

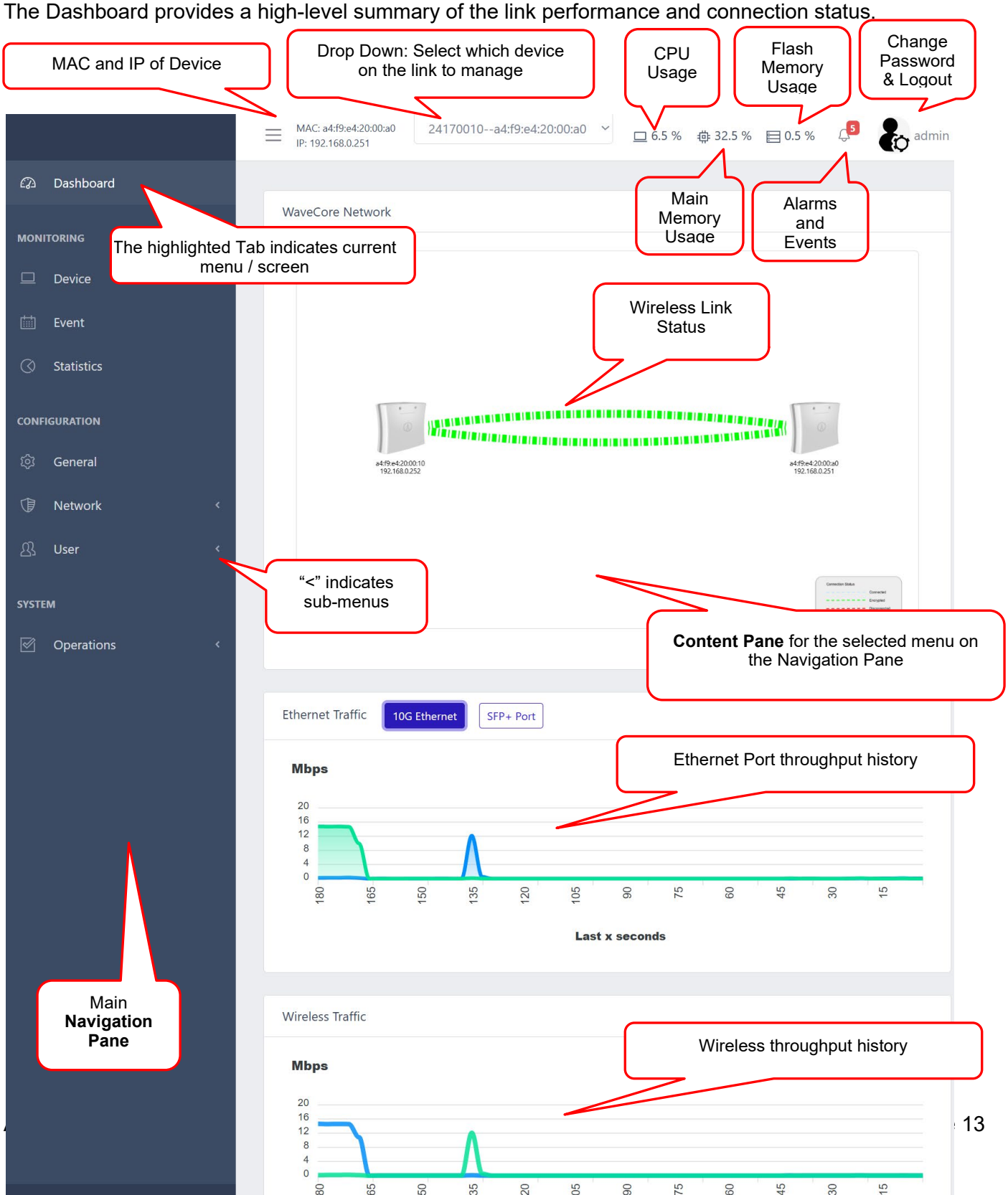
Setting the Country Code

Upon successful login, you may get presented with a screen that directs you to enter the country of operation (country code) with a drop-down list of counties to select from. If you see this screen, please enter the country of operation (example: Germany) and reboot the system by navigating to *System-Operations-System Operations* pane and click “Reboot”. Selecting a country of operation is an important first step as it configures the radio to operate in accordance with radio regulatory requirements for that specific country.

Graphical User Interface Overview

After logging in, the GUI title bar will display at the top of the browser screen along with a **Navigation Pane** on the left of the browser screen, and a main **Content Pane** in the center right of the browser screen.

The Dashboard provides a high-level summary of the link performance and connection status.



Using Single Sign On (SSO) to Manage Both Radios

VineManager allows management of both sides of the wireless link with a single sign-on to one of the radios.

Once a wireless connection is made between two WaveCore radios, it is possible to log on to one radio (Near End Radio) and then manage the other Far End Radio over the wireless link without having to manually re-logon to the Far End Radio).

In this example, the user is logged onto Near End Radio (192.168.0.252 / a4:f9:e4:20:00:10).

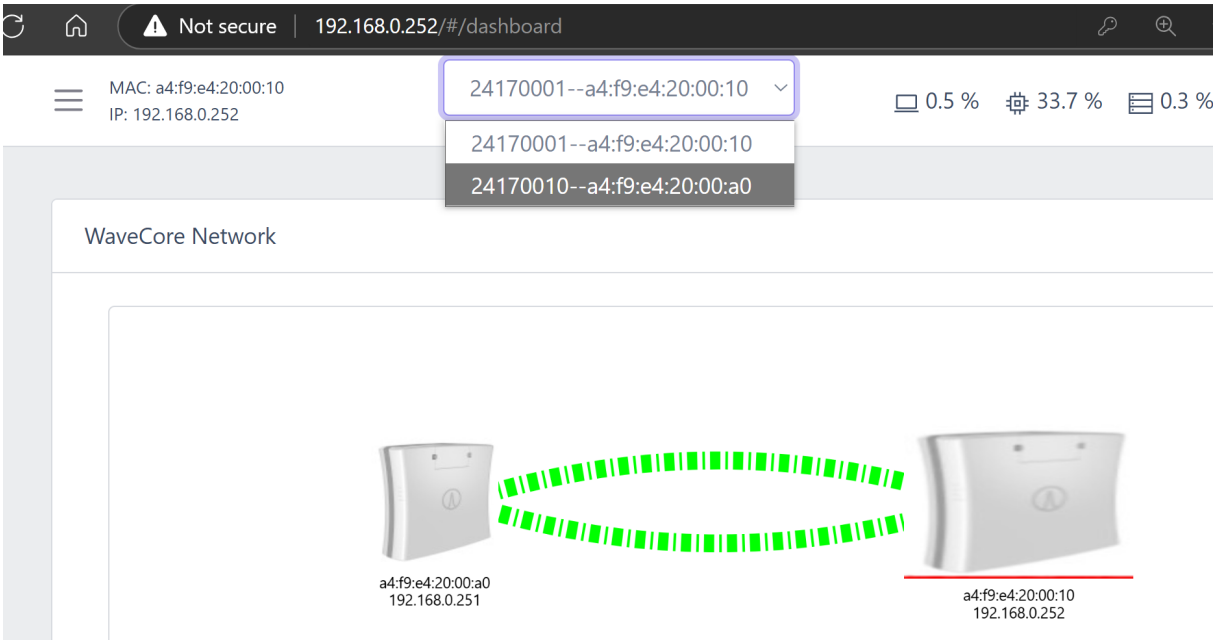
The upper left side of the window (yellow shaded areas) always indicates IP of the device that is logged into. This IP will always be the same as the IP entered in the browser's address bar.

The device currently being managed is indicated by 1) the device listed in the top center device selection drop down box and 2) RED underlined ICON on the WaveCore Network connection dashboard.

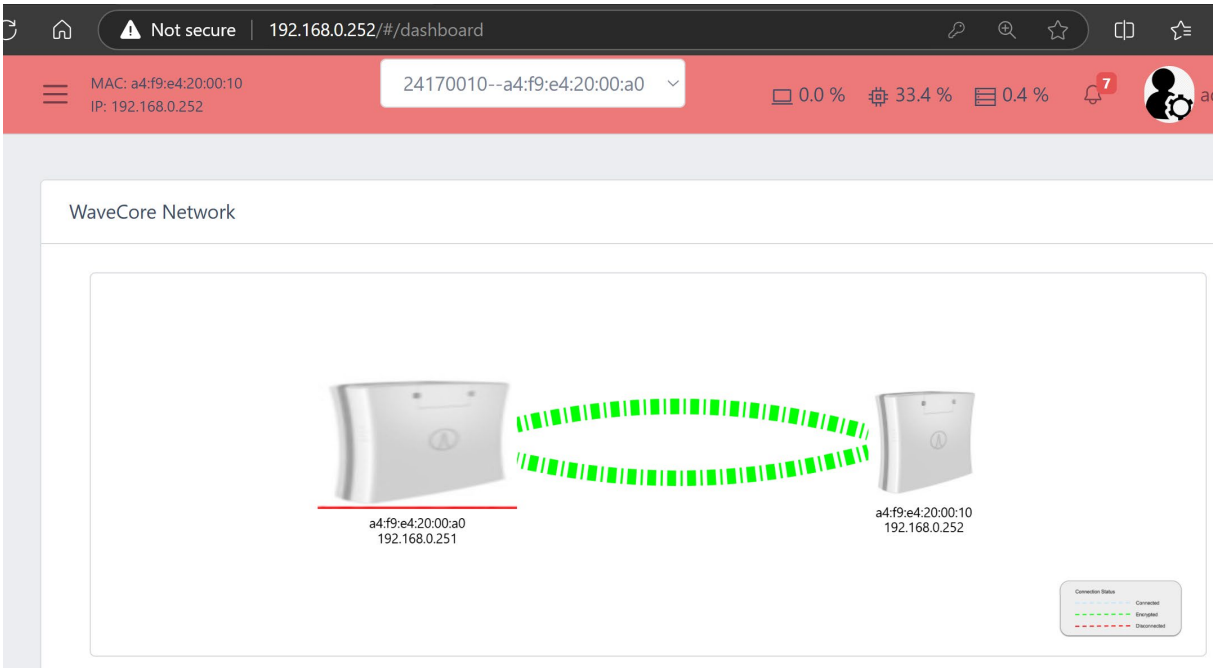
In the example below (196.168.0.252 / a4:f9:e4:20:00:10) both the device that is logged into (yellow) as well as the device being managed (red).

With this SSO mechanism, it is easy and quick to switch back and forth to manage both radios

To select the other device to manage from main dashboard screen, either select the other device's MAC address from the top center drop down menu (a4:f9:e4:20:00:ao) or mouse click on the other device ICON on the WaveCore Network Connection Dashboard.



Once the other node is selected, you are now managing the other device (a4:f9:e4:20:00:a0 / 192.168.0.251) and that device's ICON will now be underlined RED indicating that it is now being managed. Also, the top center device selection drop down menu will also indicates the other device MAC address (a4:f9:e4:20:00:a0). The top part of the screen will now shade "RED" indicating that you are managing a device, via a proxy mechanism, through the original device you are still logged into (192.168.0.252). Note the browser URL address bar and the Left top of the screen both continue to display the IP of the original logged in device (192.168.0.252).

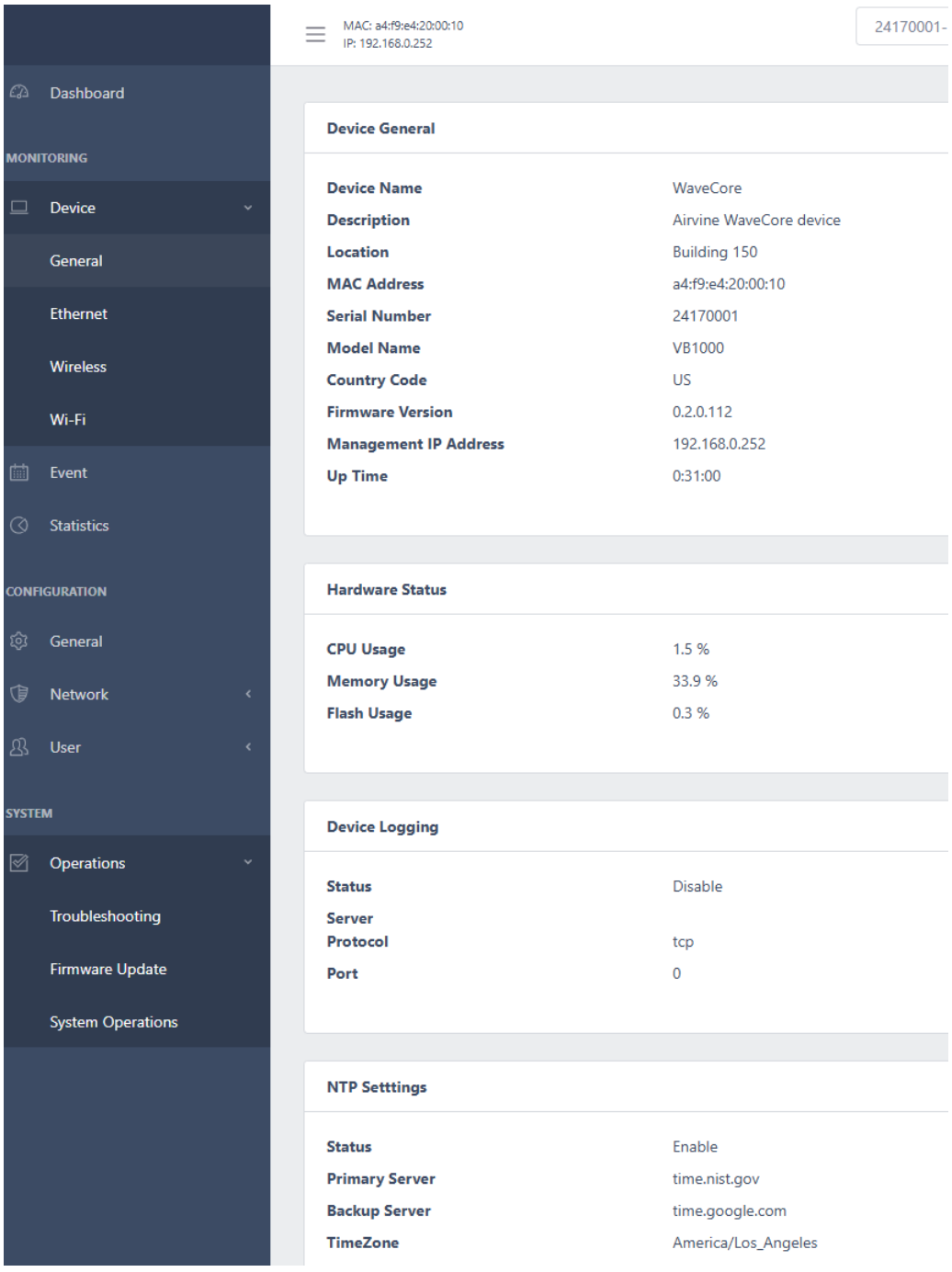


Monitoring

The Monitoring Tabs allow you to view (but not change) the WaveCore system parameters and to view WaveCore performance metrics.

Monitoring/Viewing General Device Status

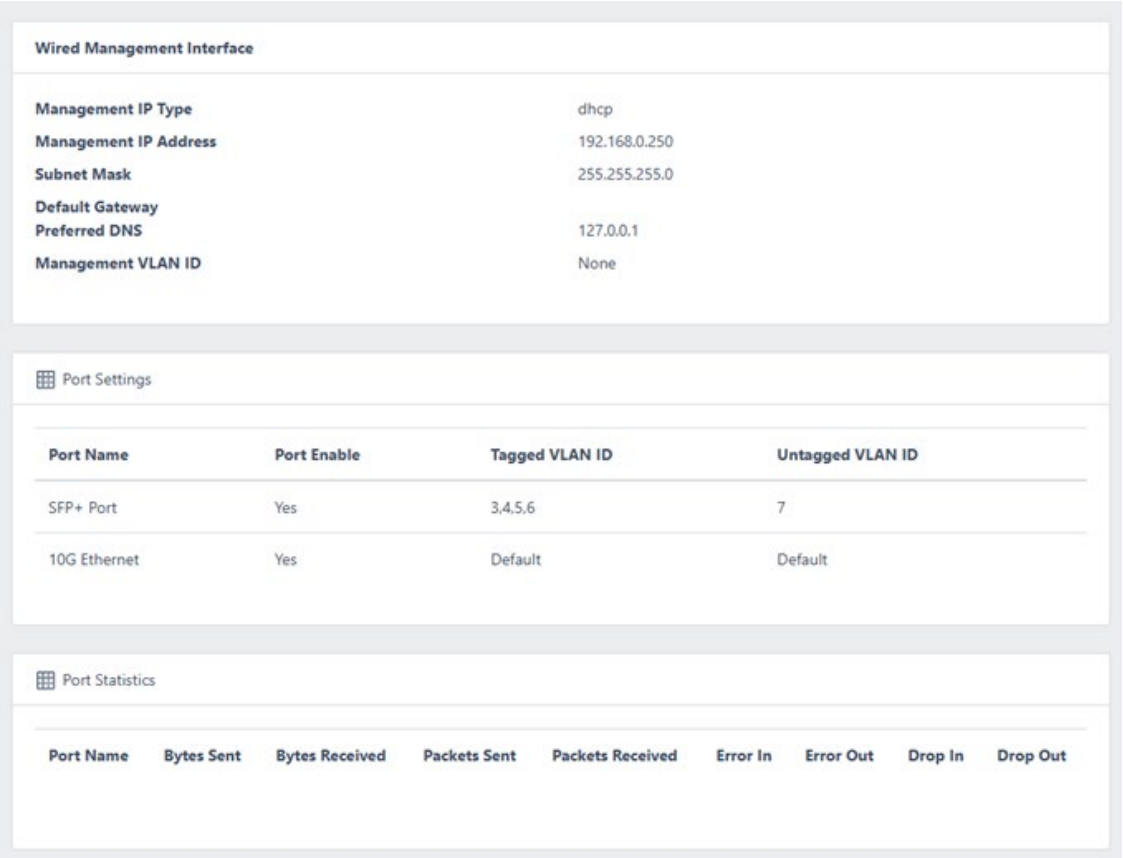
Navigate to **MONITORING/General** to view general device configurations and status.



General Device Parameters	
Device General	
Device Name	Customer-assigned name
Description	Customer-assigned description
Location	Customer-assigned location
MAC Address	Factory-assigned MAC address
Serial Number	Factory-assigned serial number
Model Name	Factory-assigned model name
Country Code	Customer-assigned country code
Firmware Version	Latest installed firmware version
Management IP Address	Customer-assigned Management IP address
Up Time	Elapsed time since last reset
Hardware Status	
CPU Usage	Real-time CPU loading percentage
Memory Usage	Real-time memory use percentage
Flash Usage	Real-time disk use percentage
Device Logging	
Status	Device logging status—enabled or disabled
Server	Target device logging server IP address
Protocol	Device logging protocol—TCP or UDP
Port	Target device logging server port
NTP Settings	
Status	Network Time Protocol—enabled or disabled
Primary Server	Selected NTP primary server name
Backup Server	Selected NTP backup server name
TimeZone	Customer-selected uniform standard time zone

Monitoring/Viewing Ethernet Port Status

Navigate to **MONITORING/Ethernet** to view Wired Ethernet Port and VLAN Settings.



WaveCore Ethernet Parameters	
Management IPV4 Settings	
Management IP Type	IP address assignment type - Static or DHCP
Management IP Address	Management IP address (required)
Subnet Mask	Management IP subnet mask (optional)
Default Gateway	Default gateway (optional)
DNS	Domain name server (optional)
Management VLAN ID	Management VLAN ID (default 4090) (optional)
Port Settings Table	
Port Name	Customer-selected port name (future)
Port Enable	Customer-selected value, Yes (default) or No
Tagged VLAN ID	Indicates if a port is configured as at Trunk port and if so, lists all tagged VLAN ID associated with that TRUNK port. None: Port is not configured as a VLAN TRUNKING port. VLAN ID List: Indicates that port is configured as a VLAN TRUNK port and lists all VLAN ID's associated with that trunk port. VLAN packets whose VLAN ID don't match what is configured on the TRUNK port will be dropped.
Untagged VLAN ID	Indicates if the port is configured as an untagged VLAN port (aka VLAN Access Port). That is, the port will support VLAN tagging and un-tagging. None: Port is not configured as an untagged VLAN port. VLAN ID: A SINGLE VLAN ID number (example: 5) indicates the port is SINGLE configured as an untagged VLAN port. Untagged ingress packets received on the Ethernet port will be tagged with the specified VLAN ID (EX 5) and forwarded to the Wavecore switch. Egress tagged VLAN packets with the specified VLAN ID (ex: 5) received on the port's Ethernet interface from the WaveCore switch, will be untagged before egressing out of the Ethernet port.
Port Statistics	
Port Name	Customer-defined port name (future)
Bytes Sent	Number of traffic bytes sent on WaveCore link
Bytes Received	Number of traffic bytes received on WaveCorelink
Error In	Number of errored packets received
Error Out	Number of errored packets sent
Drop In	Number of received packets dropped
Drop Out	Number of received packets sent

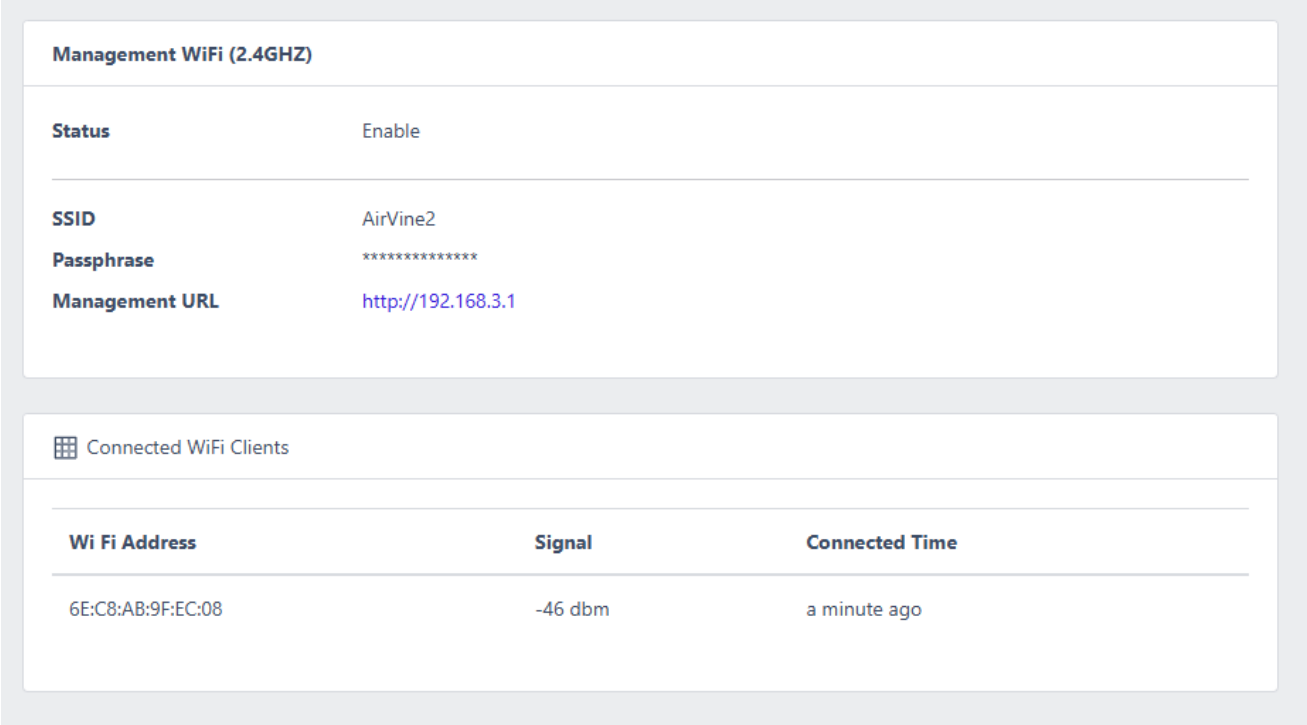
Monitoring/Viewing WaveCore Wireless Radio Status

Navigate to **Monitoring/Device/Wireless** to view important WaveCore Wireless Link settings and real-time statistics.

WaveCore Radio Settings	
MAC address of the Far End Node	MAC Address of the Far End WaveCore Device currently configured.
SSID	Connection ID of the Radio Link - avb_[Network ID]_[far-end WT MAC address]
Channel	Frequency Channel Configured/Desired (note: this doesn't directly
Channel Center	Frequency Channel Actually in Use
Bandwidth	Bandwidth in MHz
RX Signal	RX Received Signal Power. Higher (less negative) numbers indicate a stronger signal and higher over-the-air data rates
TX Power	WaveCore systems have 4 transmitters. This value indicates the TX Power Setting for each of the 4 transmitters.
Device Type	Indicates Device Type of the unit: Controller Node (CN) or Subordinate Node (SN)
Connected Time	Total duration of time that the wireless connection has been made in seconds.

Monitoring/Viewing Management Wi-Fi Status

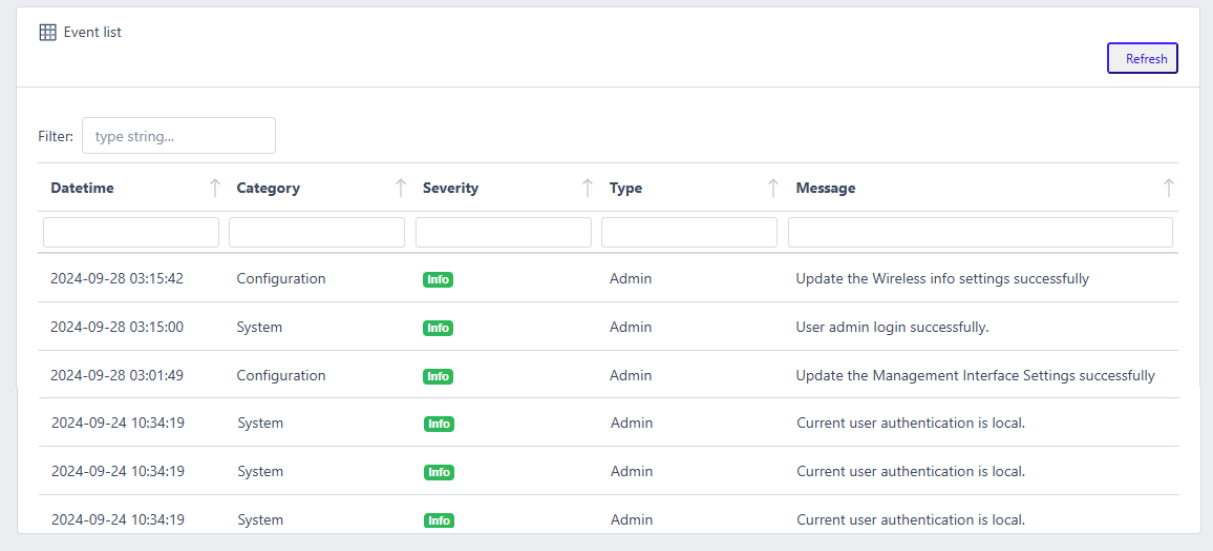
Navigate to **Monitoring/Device/Wi-Fi** to view WaveCore Management Wi-Fi settings and real-time statistics.



WaveTunnel Management Wi-Fi Parameters	
Management Wi-Fi (2.4GHz)	
Status	Customer-selected WLAN status, Enable (default)
SSID	User configured Wi-Fi WLAN SSID (default = Airvine2)
Passphrase	User configured password to establish a secure, encrypted connection to the WaveCore management Wi-Fi.
Management URL	IP Address used to access VineManager Web GUI when connected to the WaveCore management Wi-Fi radio. Once connected to the WaveCore management Wi-Fi radio, enter this URL into your web browser navigation bar and you will be presented with the VineManager log on screen.
Connected Wi-Fi Clients	
Wi-Fi Address	MAC Address of the connected client device
Signal	Signal strength in dBm
Connected Time	Time that the Wi-Fi client has been connected

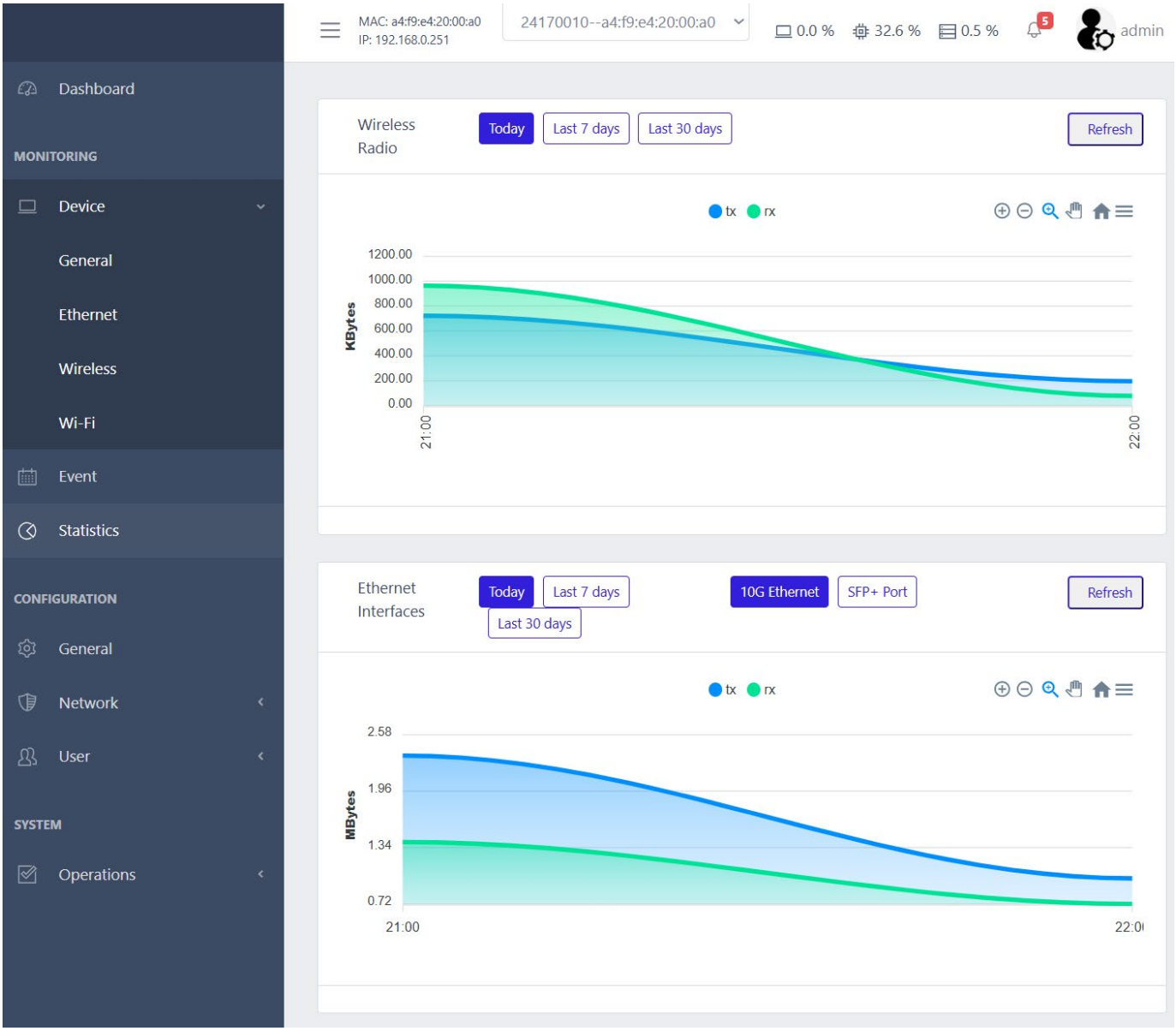
Monitoring/Event

Navigate to **Monitoring/Device/Event** page to view WaveCore event/alarm log and sort by date, category, severity, type, and message.



Monitoring/Statistics

Navigate to **MONITORING/Statistics** to view historical transmit and receive data throughput on each of three data interfaces: Main Wireless Link, Ethernet Port RJ45, and Ethernet Port SFP+.



Device Configuration

The configuration menus are where ~~you~~ a user can make changes to the device settings.

Process to Save and Execute Configuration Changes:

In each configuration screen, clicking "save" will be needed to register the configuration change.

Multiple configuration changes, made on different screens can be "saved" and batched together.

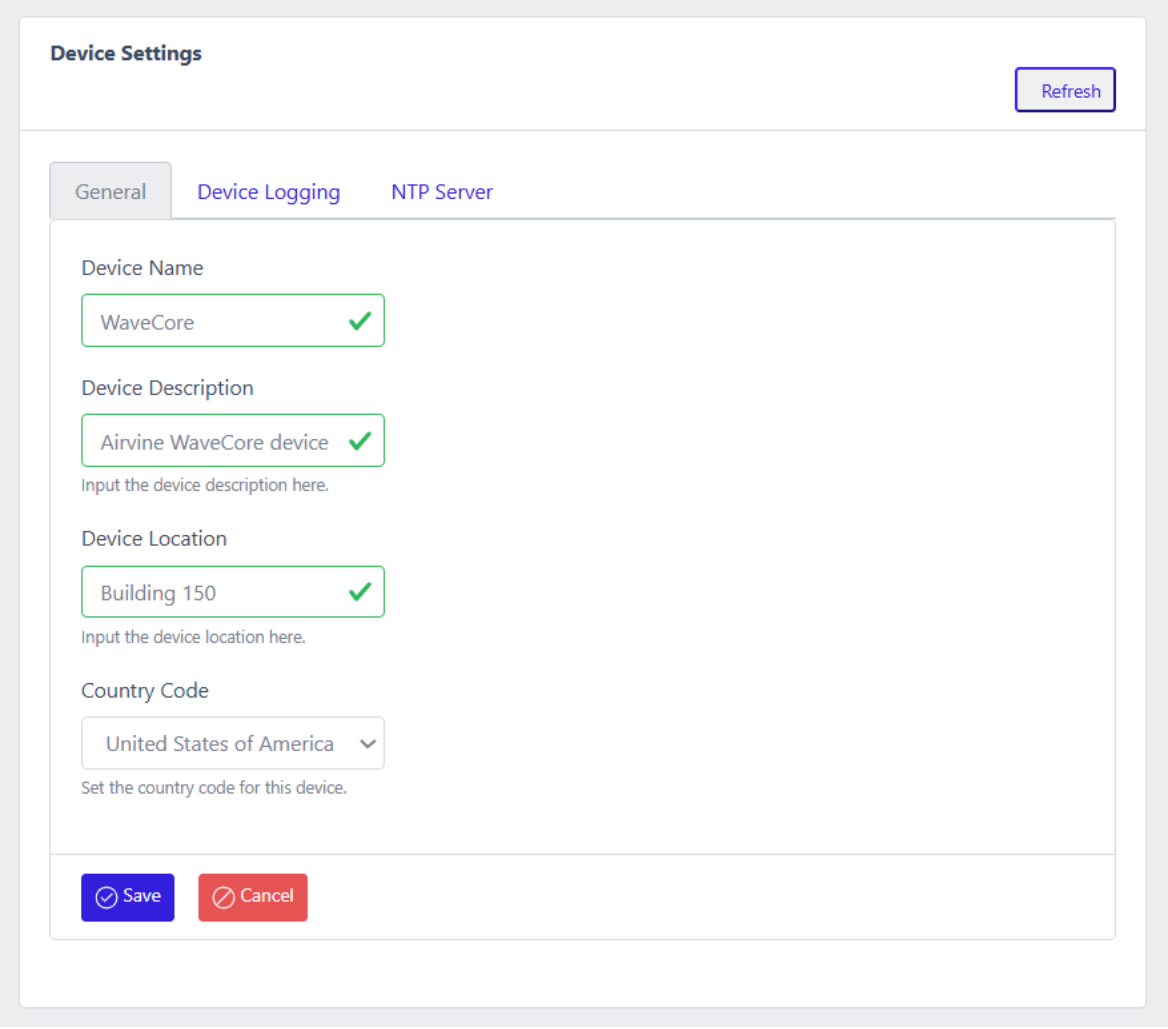
Rebooting the system will be required before the saved changes are committed and executed by the system. Unless the system is rebooted, the configuration changes will not be implemented and used by the system.

The system can be rebooted by either navigating to **SYSTEM/System Operations** screen and pressing the "Reboot" button or by pressing the WaveCore physical reset button located under the removeable interface bay cover for less than 5 seconds.

Configuration/General/General Tab

Navigate to **CONFIGURATION/General/General** tab to configure general device settings. In the General tab, enter or select the following:

Parameter	Select or Enter	Then
Device Name	Enter a name for the device (required)	
Device Description	Enter a WaveCore Device Name (optional)	Click "Save".
Device Location	Enter a WaveCore location (optional)	
Country Code	Select the country code from the drop-down list (required) Note: Certain WaveCore models like 1000RH-US will not allow changes to the country code.	

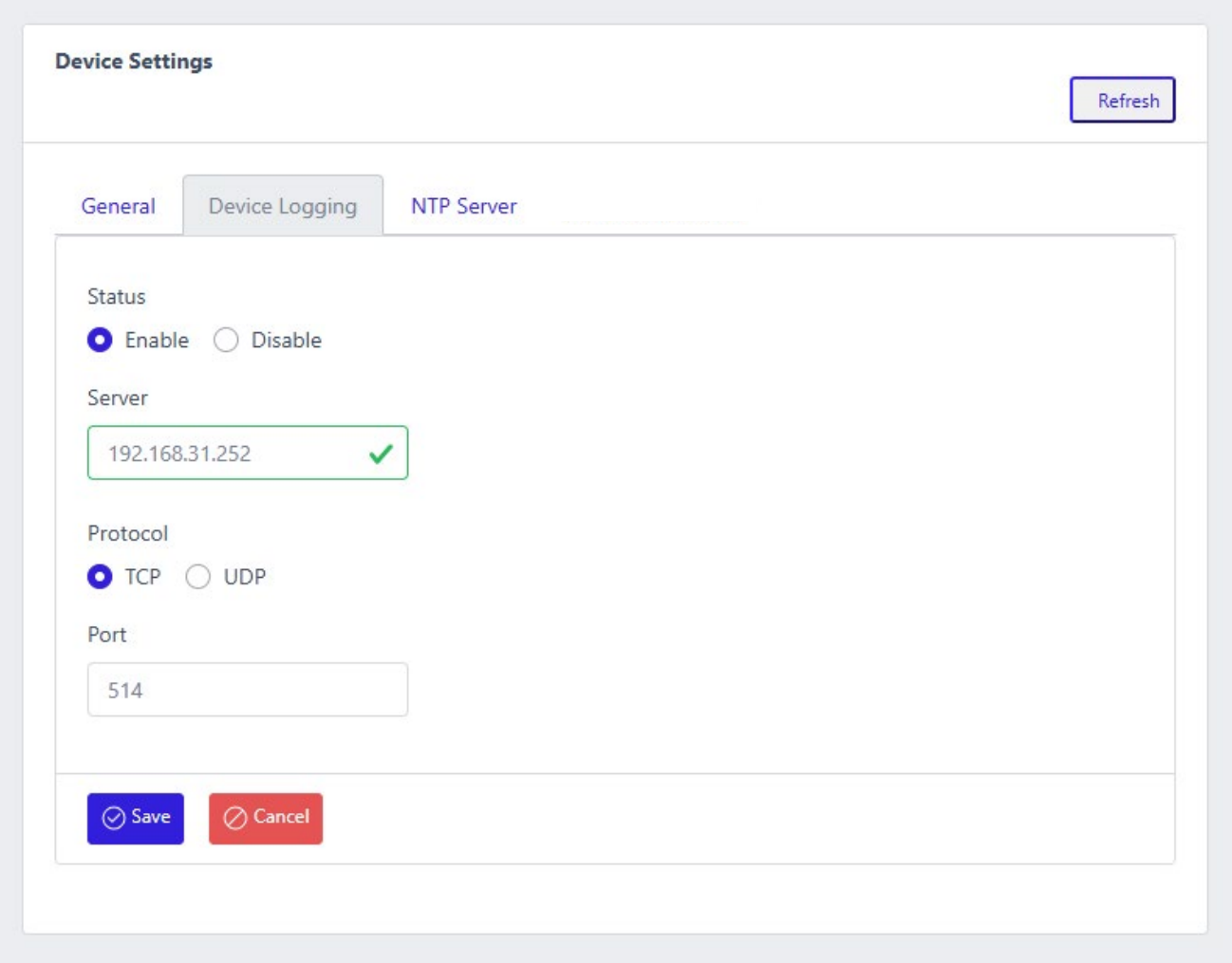


Note
The country code must be set identically on both radios (CN and SN).

Configuration/General/Device Logging

Navigate to **General/Device Settings/Device Logging** tab to configure a remote SYSLOG server to send the event log to. In the Syslog Settings page, enter or select the following:

Parameter	Select or Enter	Then
Status	Select Enable or Disable (default) SYSLOG server logging	Click "Save".
Server	Enter the IP address for the syslog server	
Protocol	Select UDP or TCP for the syslog server connection	
Port	Enter the port number for the syslog server connection (optional)	



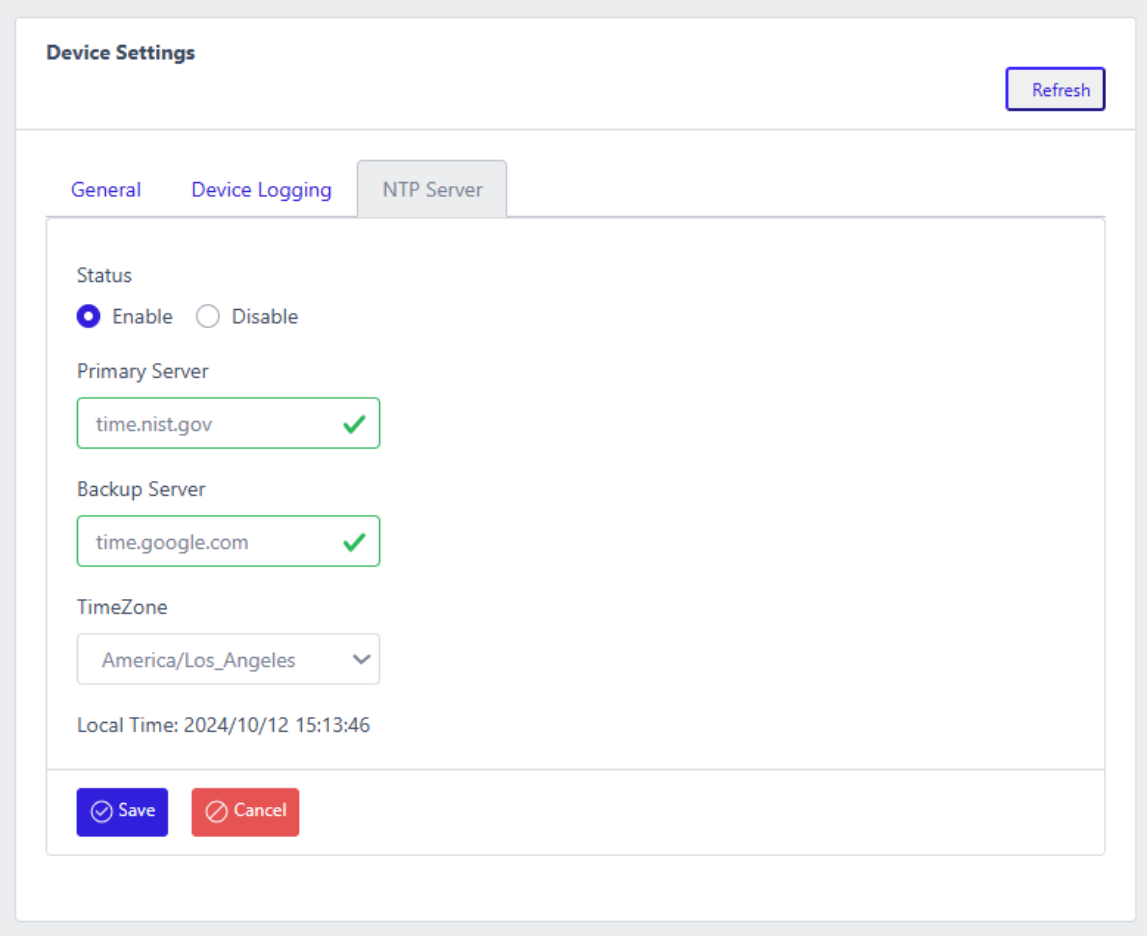
Configuration/General/NTP Server

Navigate to **Settings/Device Settings/NTP Server** tab configure a remote NTP server to set/maintain the system time.

In the NTP Settings page, enter or select the following:

Parameter	Select or Enter	Then
Status	Select Enable (default) or Disable for the NTP Server function	Click "Update".
Primary Server	Enter the primary NTP Server URL	
Backup Server	Enter the backup NTP Server URL	
TimeZone	Select the time zone from the drop-down menu	
Note: The WaveCore node displays the current local date and time at the bottom of the NTP Settings screen.		

Note: If a NTP server is not configured, the system will adopt the time of your local client device that is accessing the system.

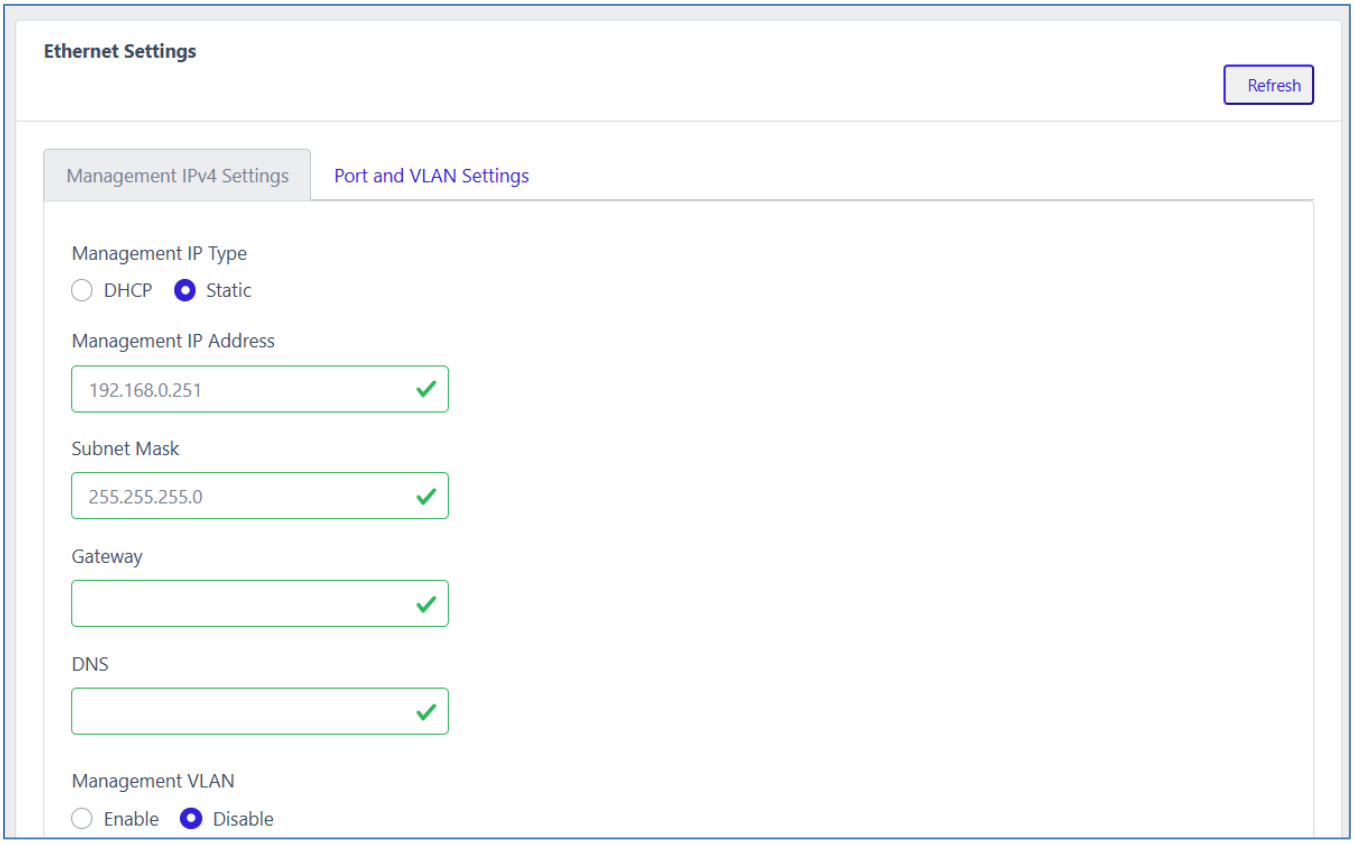


Configuration/Network/Ethernet

In the Network sections, you can configure and change the management IP of the WaveCore device, define a management VLAN, and change Ethernet Port and VLAN settings.

Configuration/Network/Ethernet/Management IPv4 Settings

Navigate to **CONFIGURATION/Network/Ethernet/Management IPv4 Settings Tab** to update the WaveCoremanagement IP settings. Select or enter the required parameter values.



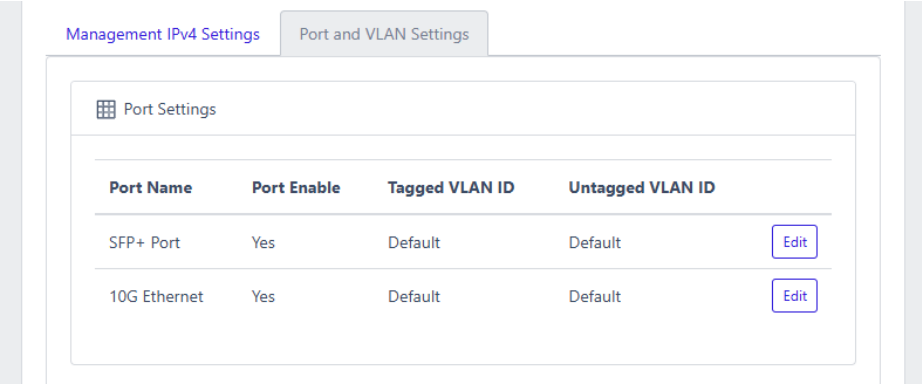
Parameter	Select or Enter	Then
Management IP Type	Select DHCP (Default) or Static. Note: If a DHCP server cannot be reached upon bootup, the system will configure the default "static" IP Address which is 192.168.0.250.	Click "Update".
IP Address, Subnet Mask, Default Gateway	If you selected Static, enter a user-defined Wired management network IP address, subnet mask, and optional gateway, and optional DNS server as required. The default Static IP address is 192.168.0.250 and default subnet mask is 255.255.255.0	
Preferred DNS, Alternate DNS	If you selected DHCP, also enter the Preferred DNS.	
Management VLAN	If you selected Static, also select Management VLAN Enable or Disable; default = Disable If you selected Management VLAN Enable, then also enter the Management VLAN ID; default = 4090	

Configuration/Network/Ethernet/Port and VLAN Settings

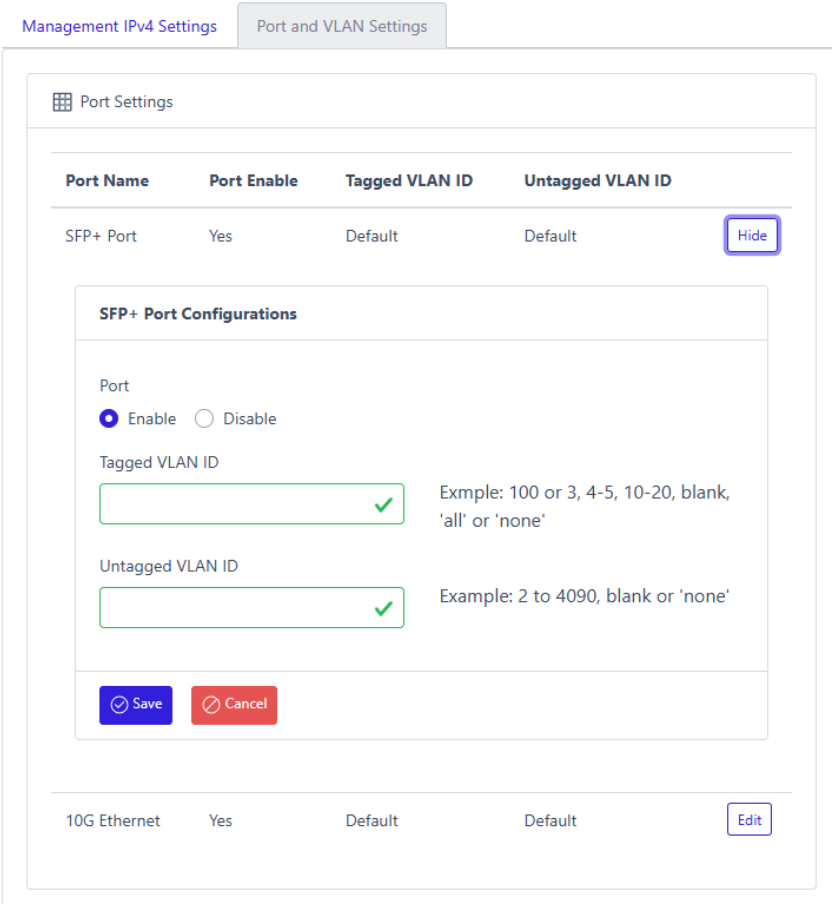
Navigate to **CONFIGURATION/Network/Ethernet/Port and VLAN Settings Tab** to update the WaveCore wired Ethernet Port and VLAN setting.

To update these settings, select or enter the required parameter values.

The main Port and VLAN Settings tab indicates the current settings status of each wired Ethernet port.



Click “Edit” to change a port’s VLAN setting.

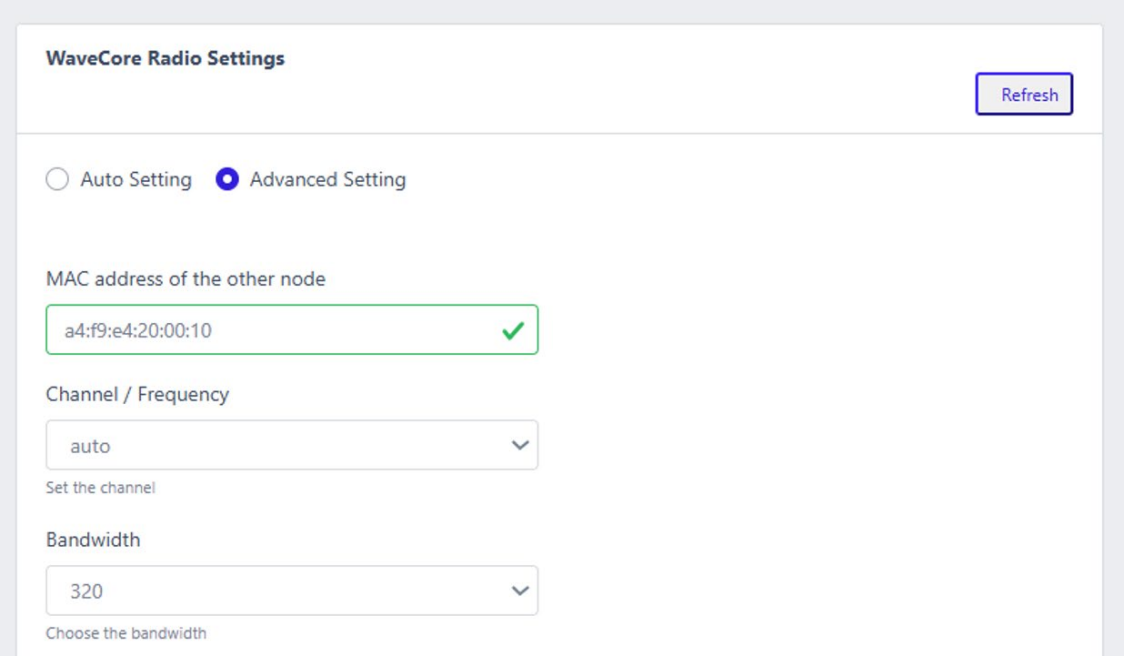


Setting WaveCore Ethernet Parameters	
Management IPV4 Settings	
Management IP Type	IP address assignment type - Static or DHCP
Management IP Address	Management IP address (required)
Subnet Mask	Management IP subnet mask (optional)
Default Gateway	Default gateway (optional)
DNS	Primary domain name server (optional)
Management VLAN ID	Management VLAN ID (default 4090) (optional)
Port Settings Table	
Port Name	Customer-selected port name (future)
Port Enable	Customer-selected value, Yes (default) or No
Tagged VLAN ID	Indicates if a port is configured as at Trunk port and if so, lists all tagged VLAN ID associated with that TRUNK port. To configure a TRUNK port with a list of VLAN IDs, enter, for example, 100, 3, 6-8, 10-20 or leave blank (default) to allow all tagged and untagged traffic. When a list of VLAN IDs is configured, VLAN packets received on that port whose VLAN IDs don't match the list configured on the TRUNK port will be dropped while VLAN packets received on the port that matches the VLAN ID in the list will be forwarded.
Untagged VLAN ID	Indicates if the port is configured as an untagged VLAN port (aka VLAN Access Port). That is, the port will support VLAN tagging and un-tagging. Enter (2-4090) to configure an Access Port with a Untagged VLAN ID A or leave blank (default). When a VLAN Access Port if configured with a VLAN ID (example VLAN 5), untagged packets received on the Ethernet port will be tagged with the specified VLAN ID 5 and then forwarded while tagged VLAN packets (with VLAN ID 5) received on the port will be untagged then forwarded as a standard, non-VLAN packet.

Configuration/Network/Wireless (6 GHz Transport Radio)

Navigate to **CONFIGURATION/Network/Wireless** to update the settings for the WaveCore 6 GHz wireless transport radio.

Setting WaveCore Wireless Radio Parameters	
Management IPV4 Settings	
MAC address of the other node	Configure the MAC address of the far end node that this device will establish a communication link with. WaveCore devices are sold as a complete link. Each radio is configured in the factory to communicate with the other radio so this parameter should always be configured. In the case one of the radios becomes defective and needs to be replaced, the replacement radio will not be pre-configured and as such, each radio in the link will need to be configured with the MAC address of the other node in order to re-establish the link.
Channel / Frequency	Configure the frequency of the radio link (default: auto) It is recommended to leave at "auto" as the controller node will scan the frequency band and will determine the optimal frequency channel to use.
Bandwidth	Configure the bandwidth of the radio link: 80 MHz, 160 MHz, and 320 MHz (default)



Note:

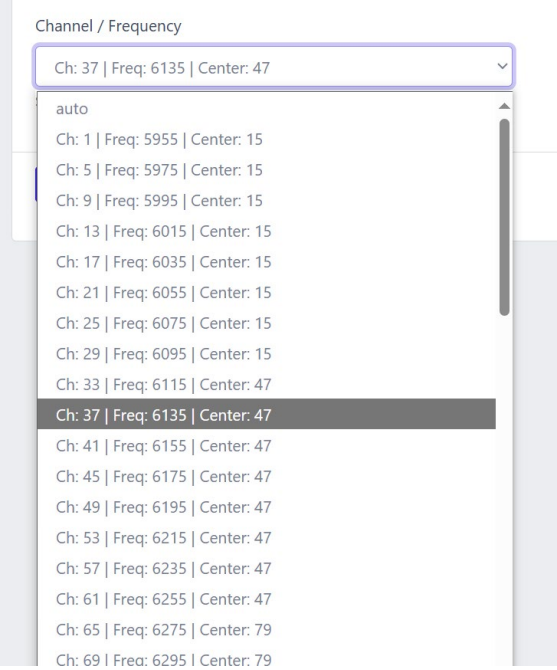
Bandwidth should be configured the same on both WaveCore nodes.

If the radio on one side is configured at a lower bandwidth (say 160 MHz) than the radio on the other side (say 320 MHz), then the resulting bandwidth of the link will be the lower of the two bandwidths; in this case the link bandwidth would be 160 MHz.

Manual Configuration of Channel Frequency

While it is recommended to leave the **Channel / Frequency** as “auto”, users have the option to manually configure a specific frequency channel for ratio transmission. The drop-down list displays all available channels and this list will vary based on the bandwidth and country code configured for the radio.

To manually configure a channel, select the channel number from the drop-down list based on the right side of the list “**| Center: Chan Number**”. In the example below, the 160 MHz Center: 47 channel is selected (with a center frequency of 6145 6145 MHz per the frequency table below). When the device is rebooted, the radio link will tune to channel 47 (6145 MHz).



The following table maps the unique channel numbers to their corresponding frequencies grouped by bandwidth.

80 MHz Channels			
Channel #	Lower Frequency (in MHz)	Center Frequency (in MHz)	Upper Frequency (in MHz)
7	5945	5985	6025
23	6025	6065	6105
39	6105	6145	6185
55	6185	6225	6265
71	6265	6305	6345
87	6345	6385	6425
103	6425	6465	6505
119	6505	6545	6585
135	6585	6625	6665
151	6665	6705	6745
167	6745	6785	6825
183	6825	6865	6905
199	6905	6945	6985
215	6985	7025	7065

160 MHz Channels			
Channel #	Lower Frequency (in MHz)	Center Frequency (in MHz)	Upper Frequency (in MHz)
15	5945	6025	6105
47	6105	6145	6265
79	6265	6305	6425
111	6425	6465	6585
143	6585	6625	6745
175	6745	6785	6905
207	6905	6945	7065

320 MHz Channels							
Channel #	Lower Frequency (in MHz)	Center Frequency (in MHz)	Upper Frequency (in MHz)	Channel #	Lower Frequency (in MHz)	Center Frequency (in MHz)	Upper Frequency (in MHz)
31	5945	6105	6265				
				63	6105	6265	6425
95	6265	6425	6585				
				127	6425	6585	6745
159	6585	6745	6905				
				191	6745	6905	7065

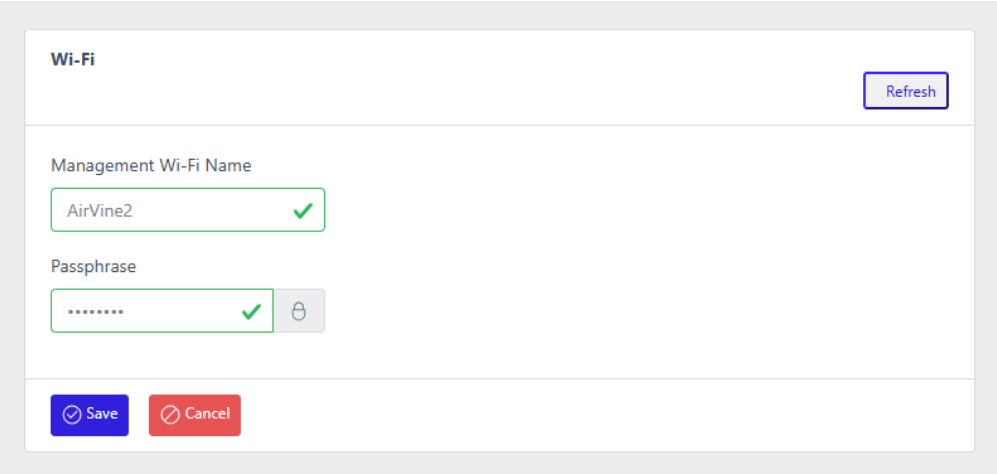
Configuration/Network/Wi-Fi (2.4 GHz Local Mgmt. Radio)

Navigate to **CONFIGURATION/Network/Wi-Fi** to update the settings for the local management Wi-Fi radio.

The local management Wi-Fi radio is used to locally access and manage the WaveCore device. The maximum range of the Wi-Fi radio is about 20 meters.

When your client device (Laptop or Mobile Device) is connected and authenticated to the Management Wi-Fi, you can access the VineManager WEB GUI by entering 192.168.3.1 into the web browser's address (URL) bar.

Parameter	Select or Enter	Then
Management Wi-Fi Name	This is the SSID of the Management Wi-Fi radio. Enter a Wi-Fi SSID; default = AirVine2	Click "Save".
Passphrase	Enter a new Wi-Fi passphrase; default = airvine!	



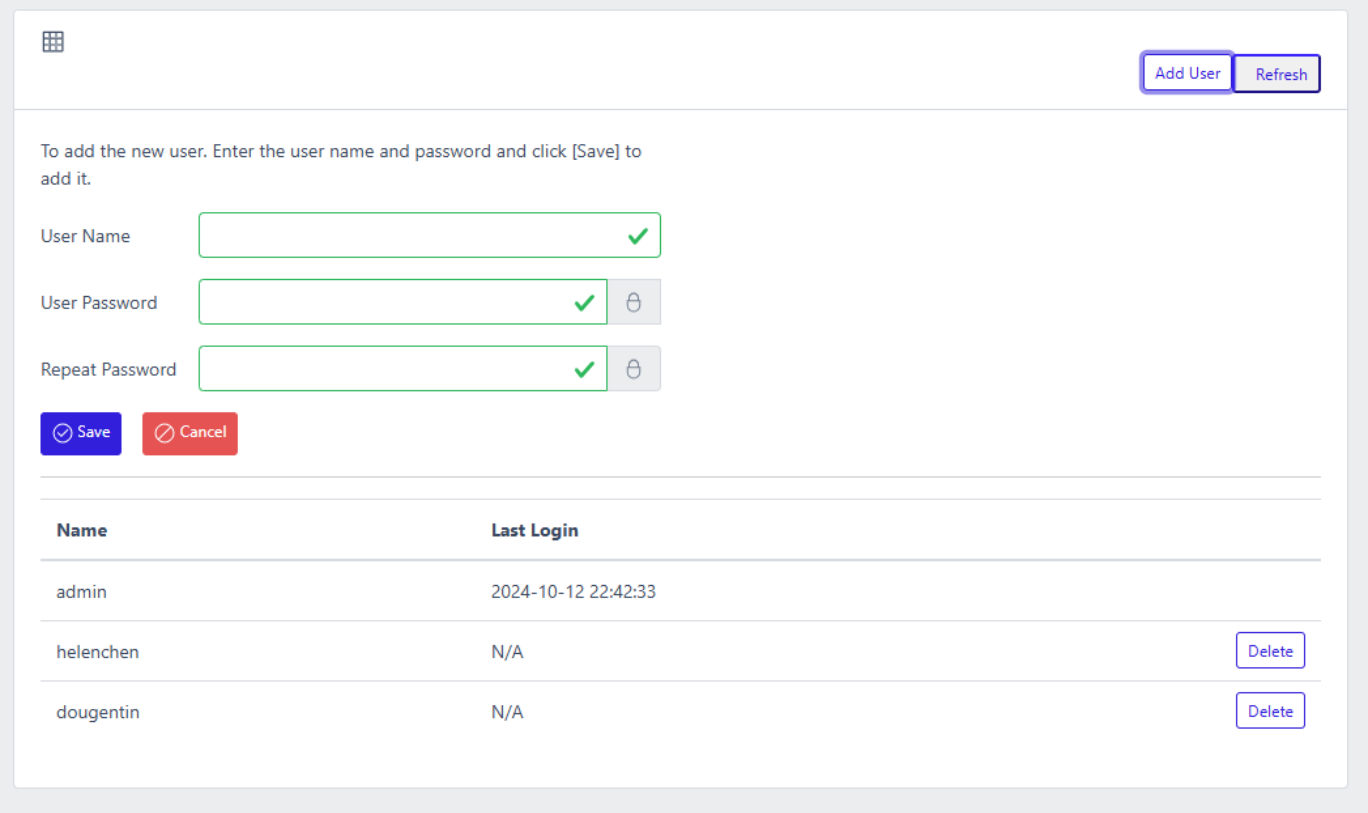
Configuration/User/User Management (add/change user accounts)

Navigate to **CONFIGURATION/User/User Management** to add, delete, or change user accounts.

Click “Add User” to add a new user account and then set the User Name and User Password.

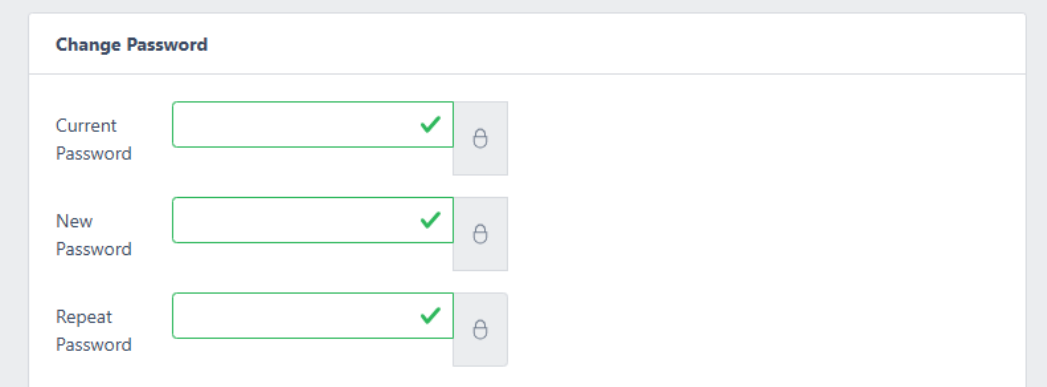
Click “Delete” to delete a specified user account.

To change the password of a different account (from the one you are currently logged in as), you must first log out, then log on to that account and navigate to CONFIGURATION/User/Change Password to change the password.



Configuration/User/Change Password

Navigate to **CONFIGURATION/User/Change Password** to change the current account password.

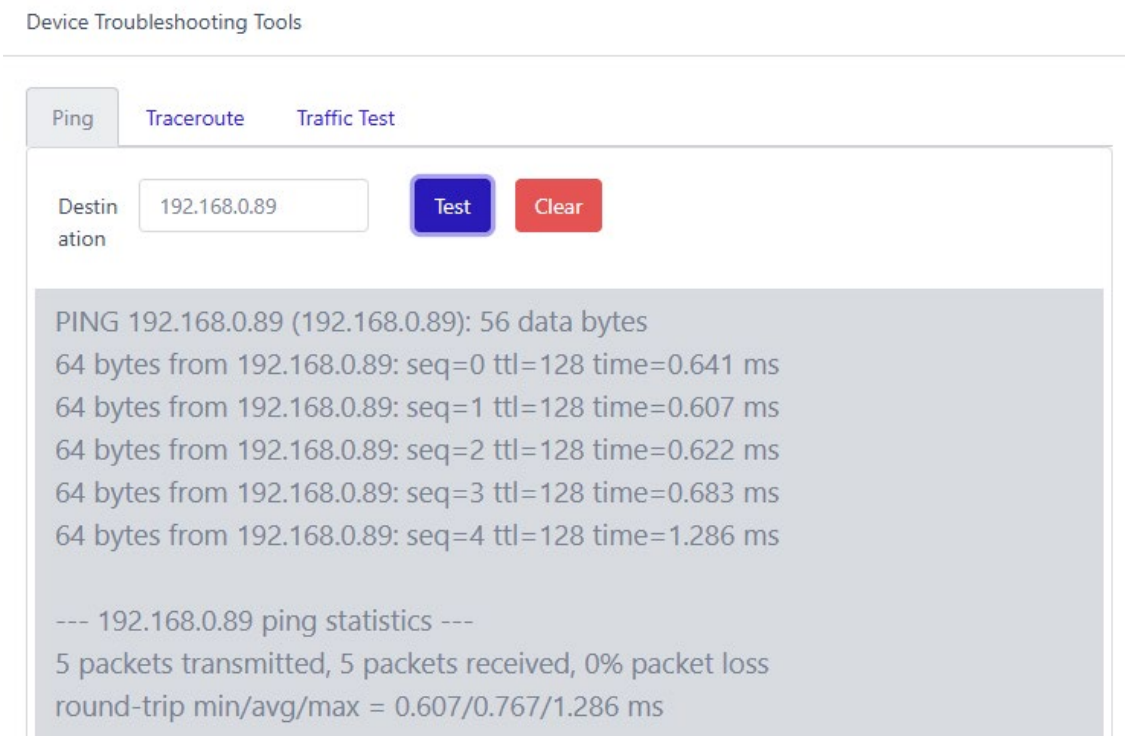


System

System/Operations/Troubleshooting/Ping Tab

Navigate to **SYSTEM/Operations/Troubleshooting/Ping Tab** to run the internal ping utility to test connections to a remove device's IP.

To run, enter remote device's IP, and click "Test".



System/Operations/Troubleshooting/Traceroute Tab

Navigate to **SYSTEM/Operations/Troubleshooting/Traceroute Tab** to run the internal traceroute utility to test connections to a remove device's IP.

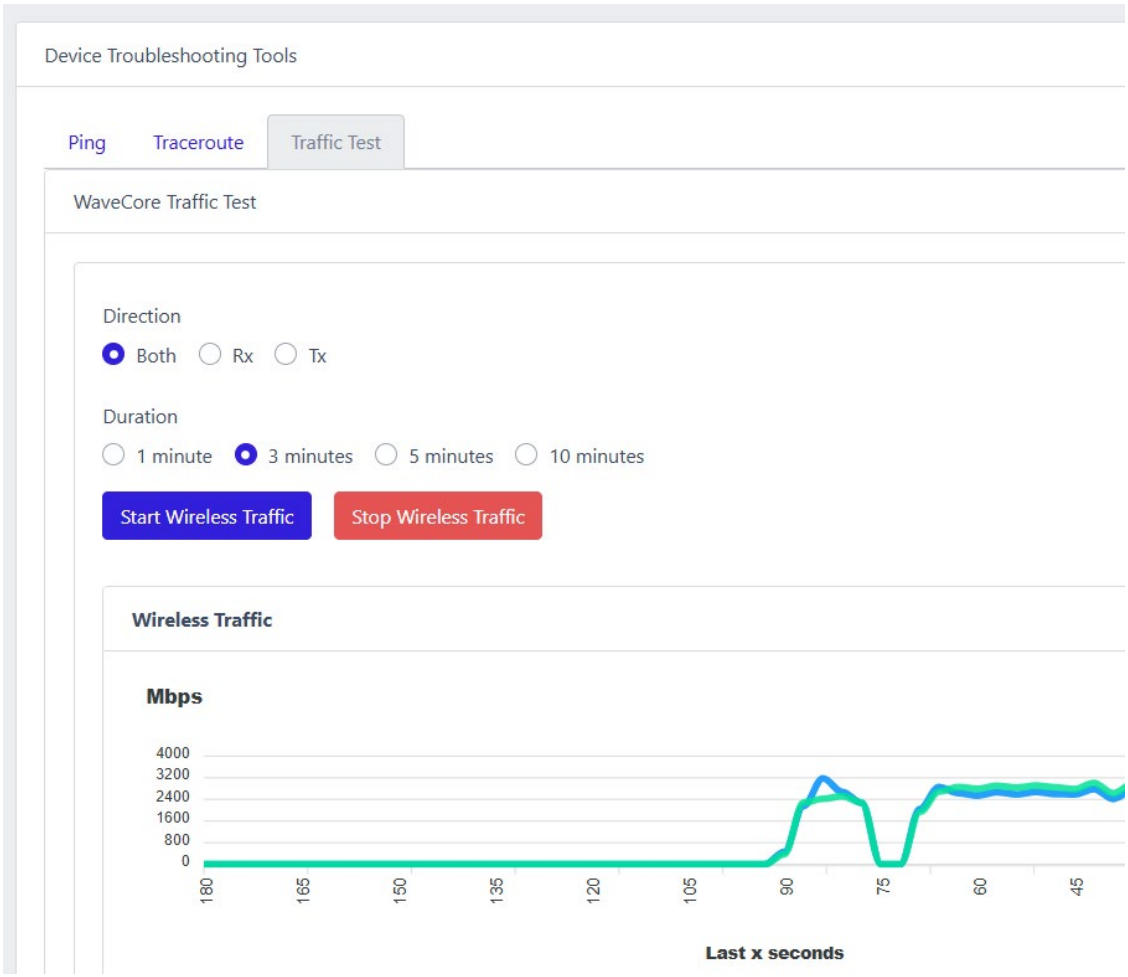
To run, enter remote device's IP, and click "Test".

System/Operations/Troubleshooting/Traffic Test

Navigate to **SYSTEM/Operations/Troubleshooting/Traffic Test tab** to run the internal traffic test across the wireless link to gauge the links performance. Test traffic utilizes the TCP protocol. Running the traffic test can be a useful diagnostic before and after installing the WaveCore units.

To run, enter the Direction of the traffic test and Duration of the test then click "Start Wireless Traffic".

Parameter	Select or Enter
Direction	Both – Send Traffic in both directions across the link RX – Send and report traffic from far end device to current device TX – Send and report traffic from current device to far end device.



System/Operations/Firmware Update

Navigate to **SYSTEM/System/Operations/Firmware Update** to upgrade and manage the firmware.

Up to two images of VineOS firmware can be locally stored in the WaveCore device (a Primary Image and a Backup Image).

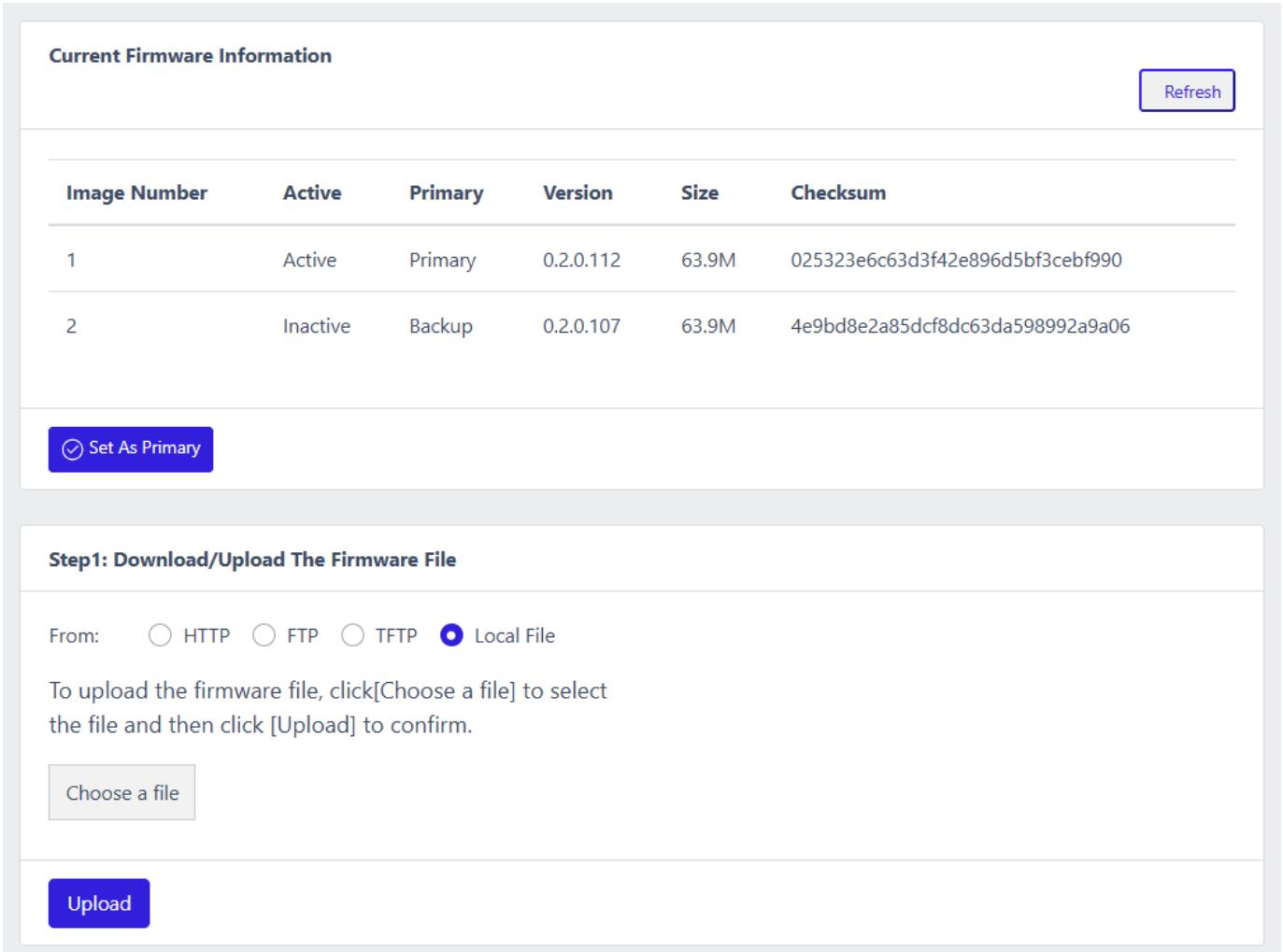
The **Current Firmware Information** screen shows which VineOS images are stored in the device; each image is identified by its Version Number, Size, and the images Checksum.

The **Active** column indicate which image is currently running on the device:

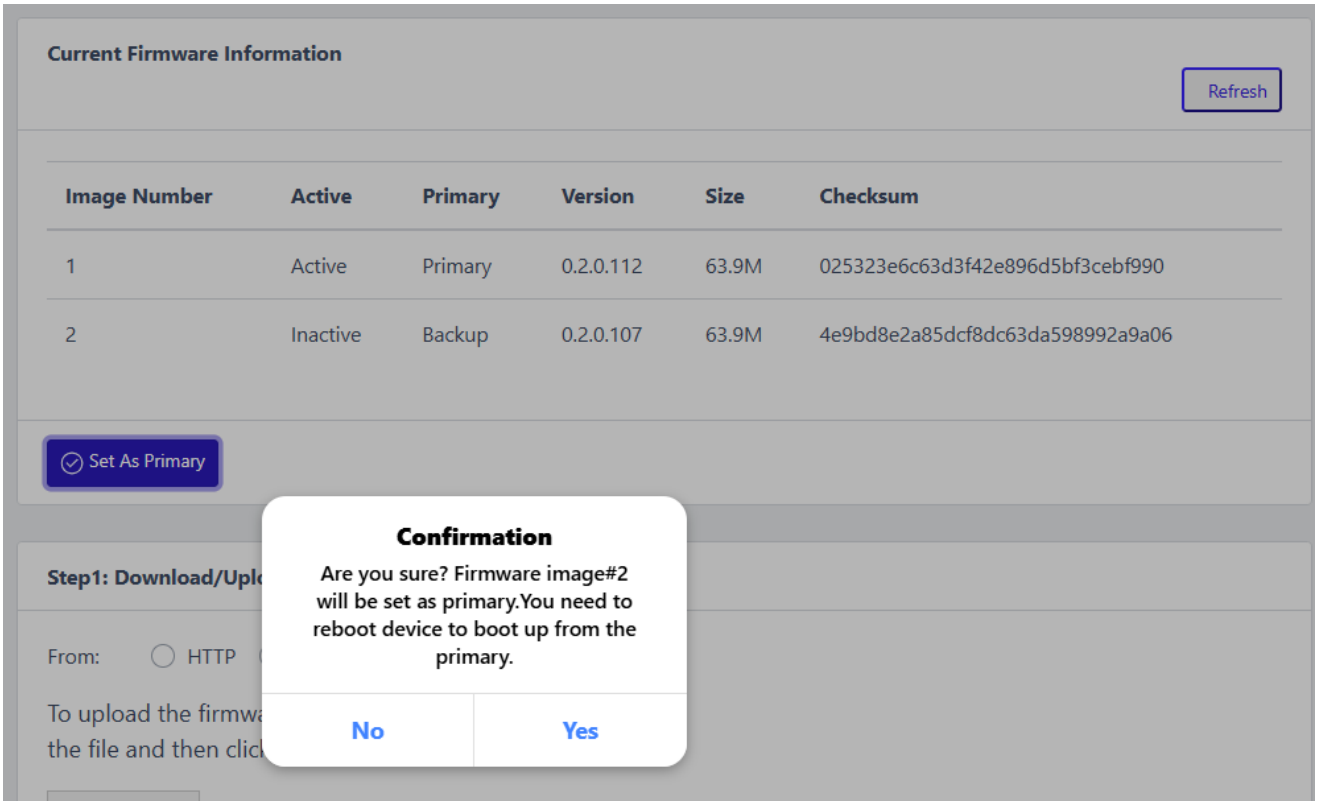
Active	Indicates the image that is currently running on the device.
Inactive	Indicates the image that is in storage, but not running on the device.

The **Primary** column indicate which image is currently running on the device:

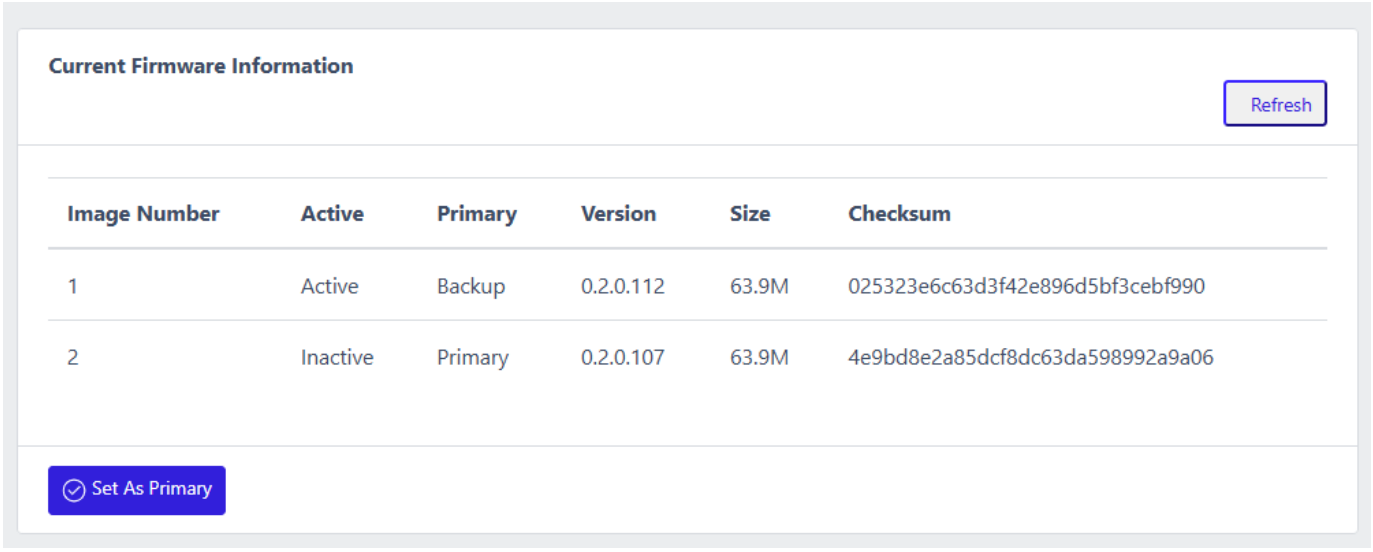
Primary	Indicates the image that will be used on the next reboot of the system.
Backup	Indicates the image that will NOT be used on the next reboot of the system.



To make a "Backup" image the "Primary", simply select the Row that is the Backup image (the row will then shade grey) and click "Set as Primary".



The table will now show the "Inactive" image as "Primary".



When you reboot, that Inactive image will now show as "Active" and "Primary" in the table.

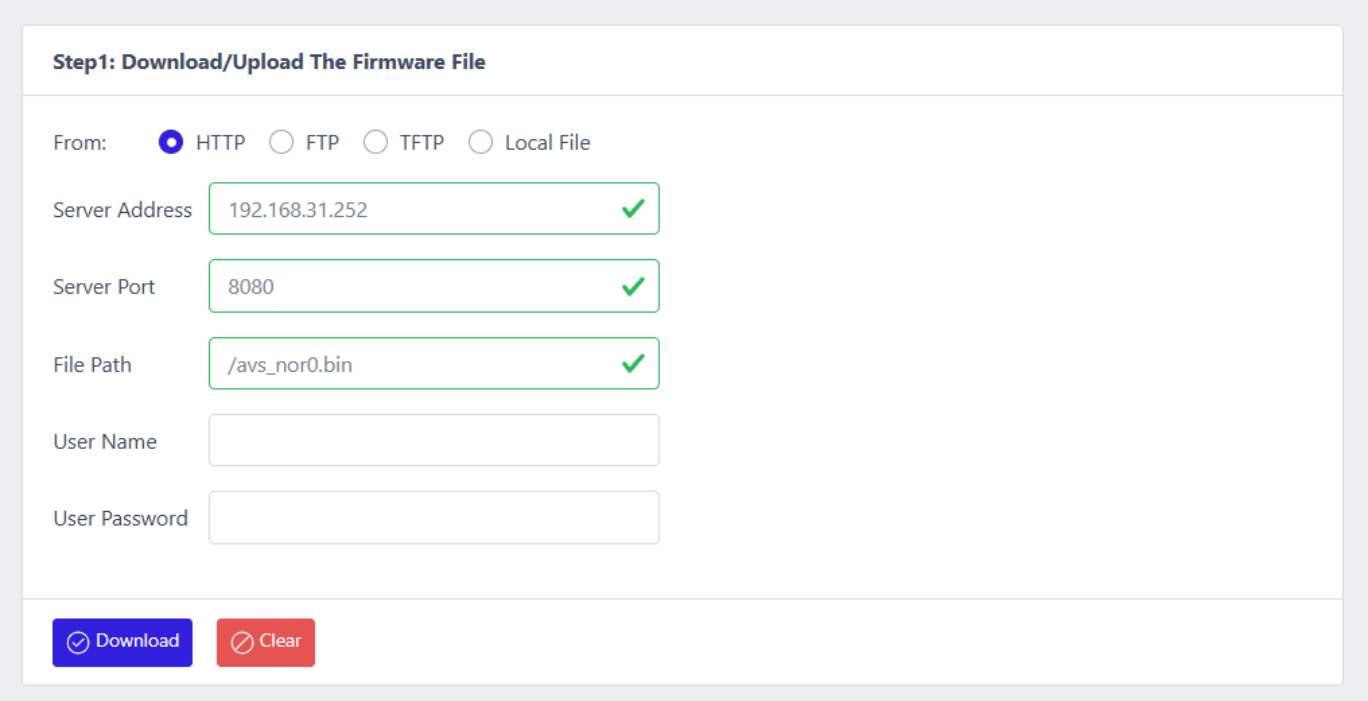
System/Operations/Firmware Update

To upload a new VineOS firmware image to the device, WaveCore allows two methods:

1. Upload an image from a remote site/server using: HTTP/HTTPS, TFP, or TFTP.
2. Upload an image as a Local File directly from your connected device (typically a PC or Laptop).

Step 1: Select the method and file to upload to the WaveCore device.

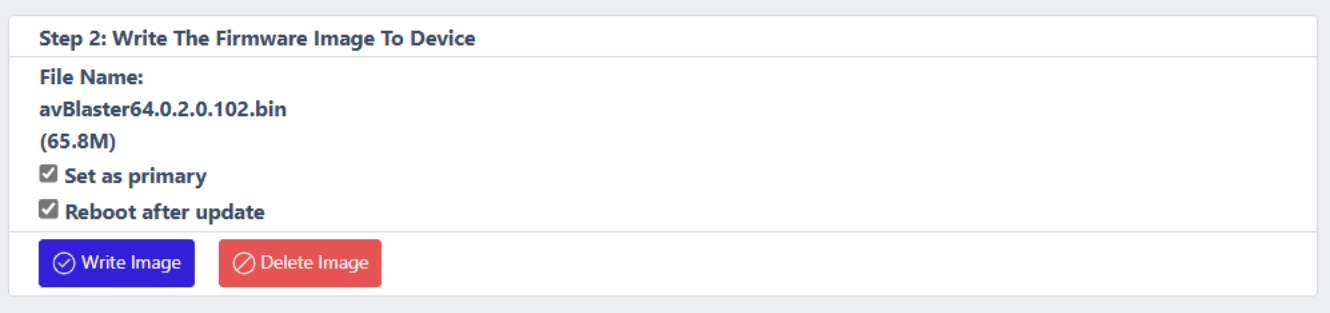
After the image has been identified (server logged in or local file selected), click the “Upload” button to upload the image to the WaveCore device.



Step 2: Write the Firmware Image to the Device

Click if you want to “Set as primary” the image as primary (or if unclicked it will overwrite the backup slot).

Click “Reboot after update” if you wish to automatically reboot the system which is needed to write the image.



SYSTEM/Operations/System Operations

Navigate to **SYSTEM/Operations/System Operation** to:

- Backup the system configuration into either local memory or into a downloadable file that you can use to load into other WaveCore devices which can save configuration time.
- Reboot the system which must be done whenever configuration changes are to be permanently saved or to write VineOS firmware images into permanent system memory.
- Factory reset the system which resets the WaveCore to factory default configuration settings. While factory resetting the system will result in losing all of your configuration settings but will boot back up and run the current Primary firmware image.
- Download System Support Logs to your local PC or Laptop. The Airvine support team occasionally may request support logs to help troubleshoot technical issues.