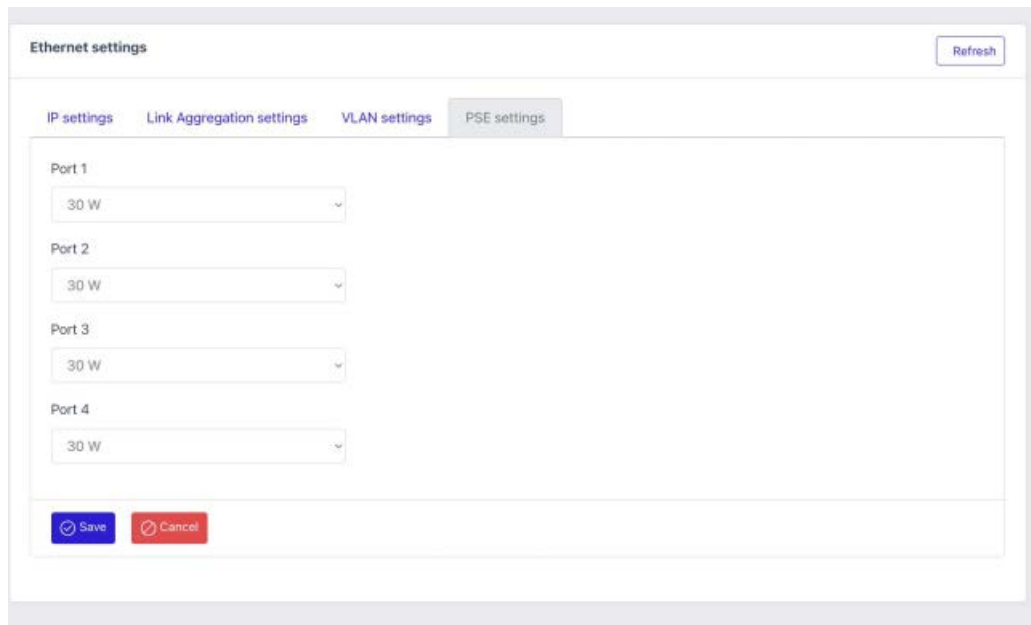


Ethernet Port Power Over Ethernet (POE) PSE settings

If the WaveTunnel device is powered by AC power. The four ethernet ports can be configured to support the POE out. The max. Watt of the total power is limited to 120W. The default PSE is disabled. If you need to power the external device via the WaveTunnel, please configure the proper PSE settings.

[WEB GUI] Configuration-> Network ->Ethernet -> PSE POE



Ethernet settings Refresh

IP settings Link Aggregation settings VLAN settings **PSE settings**

Port 1
30 W

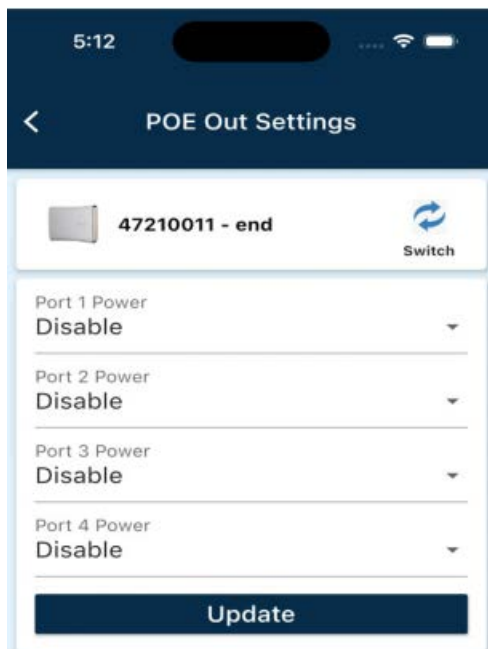
Port 2
30 W

Port 3
30 W

Port 4
30 W

Save Cancel

[Mobile App] Settings -> POE PSE



5:12

< **POE Out Settings**

 **47210011 - end** 
Switch

Port 1 Power
Disable

Port 2 Power
Disable

Port 3 Power
Disable

Port 4 Power
Disable

Update

[CLI] **config -> ethernet -> pse**

```

AVS(config-ethernet-pse)# ll
PSE settings

```

Description	Attribute Name	Current Value
Port 1 Power	port1	Disable
Port 2 Power	port2	Disable
Port 3 Power	port3	Disable
Port 4 Power	port4	Disable

```

AVS(config-ethernet-pse)# set port1 15
Set port1 to 15 .

PSE settings

```

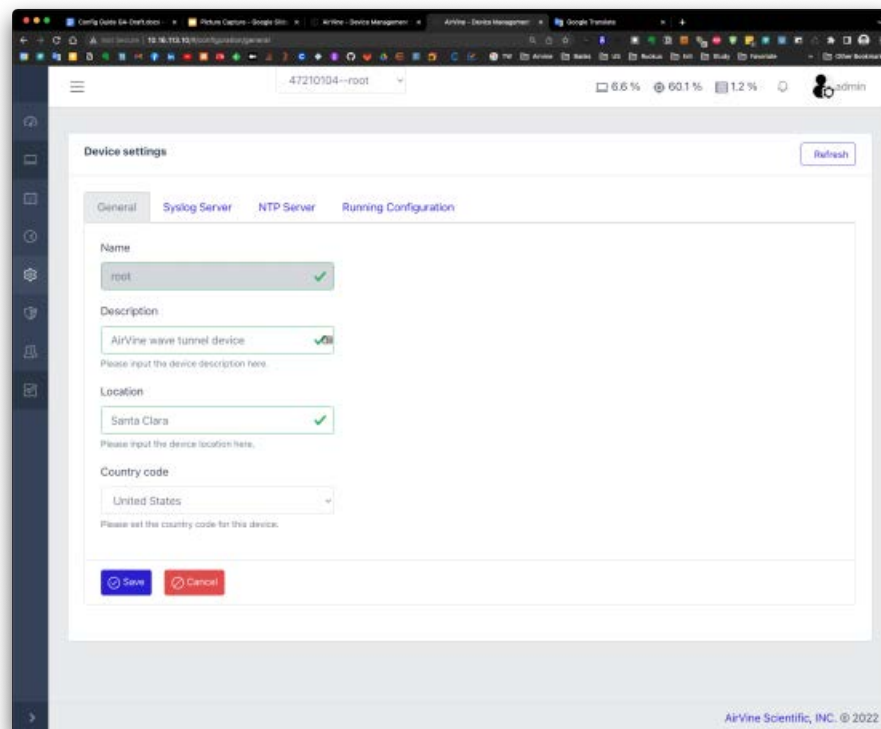
Description	Attribute Name	Current Value	Modified Value
Port 1 Power	port1	Disable	15 (15 W)
Port 2 Power	port2	Disable	
Port 3 Power	port3	Disable	

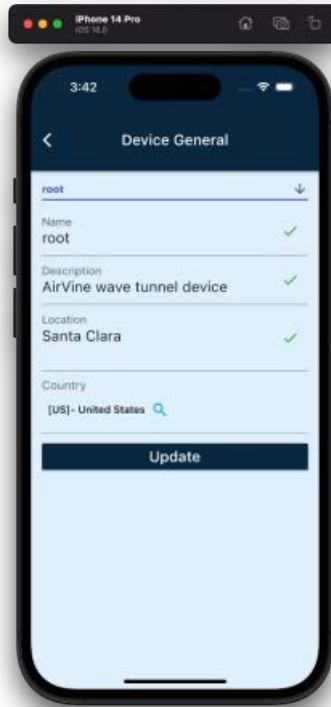
Update the device settings

General settings

To update the description, location, Country code of the WaveTunnel device on this page.

[WEB GUI] **Config -> General**



[Mobile App]
Settings -> General

[CLI]
Config -> device -> general

```

AVS(config-device)#
Help:
  general - Configure the device general settings
  ntp - Configure the NTP server settings
  syslog - Configure the Syslog server settings
  .. - Navigate up one category
  exit - Exit Command Line Interface

AVS(config-device)#
AVS(config-device)# general
Device general settings


| Description  | Attribute Name | Current Value              |
|--------------|----------------|----------------------------|
| Name         | name           | drew01                     |
| Description  | description    | AirVine wave tunnel device |
| Country code | countryCode    | United States              |
| Location     | location       |                            |



AVS(config-device-general)# set location test
Set location to test

Device general settings


| Description  | Attribute Name | Current Value              | Modified Value |
|--------------|----------------|----------------------------|----------------|
| Name         | name           | drew01                     |                |
| Description  | description    | AirVine wave tunnel device |                |
| Country code | countryCode    | United States              |                |
| Location     | location       |                            | test           |



AVS(config-device-general)# save

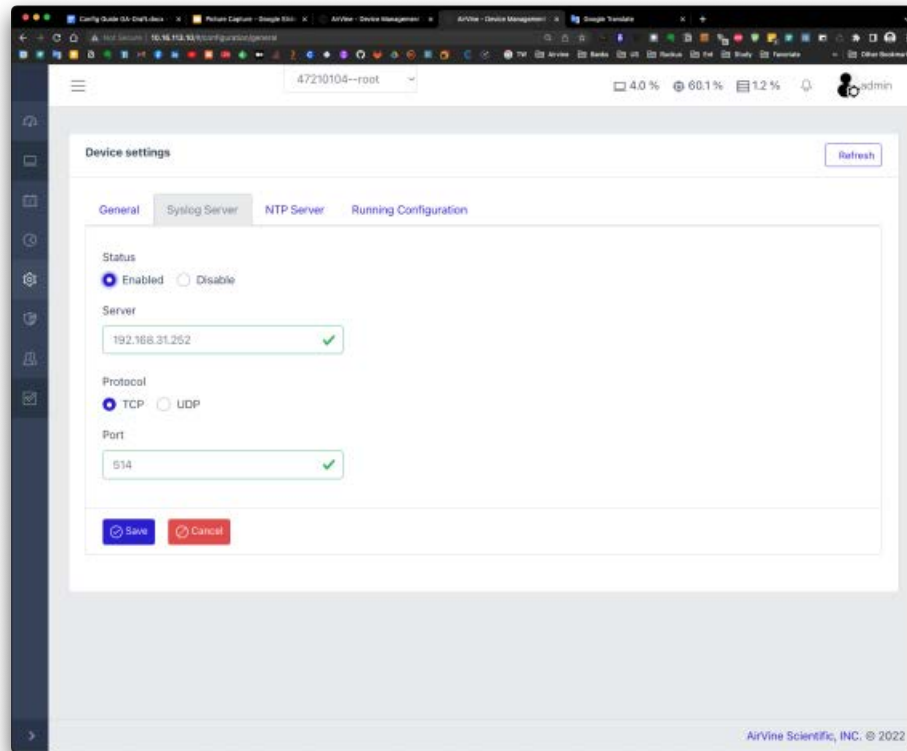
```

Syslog settings

To export the log messages to the external syslog server, you can enable the syslog server on this page. The settings include enabled/disable, server address, port.

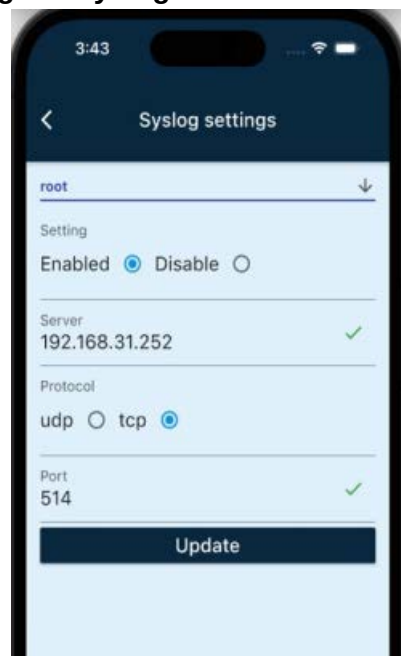
[WEB GUI]

Configuration-> General -> Syslog Server



[Mobile App]

Settings -> Syslog



[CLI] Config -> device -> syslog

```

AVS(config-device)#

Help:
  general - Configure the device general settings
  ntp      - Configure the NTP server settings
  syslog   - Configure the Syslog server settings
  ..      - Navigate up one category
  exit    - Exit Command line interface

AVS(config-device)# syslog

Syslog Server settings



| Description | Attribute Name | Current Value |
|-------------|----------------|---------------|
| Syslog      | enabled        | Disable       |



AVS(config-device-syslog)# set enabled true

Set enabled to true

Syslog Server settings



| Description | Attribute Name | Current Value  | Modified Value |
|-------------|----------------|----------------|----------------|
| Syslog      | enabled        | Disable        | true (Enabled) |
| Server      | server         | 192.168.31.252 |                |
| Protocol    | protocol       | TCP            |                |
| Port        | port           | 514            |                |



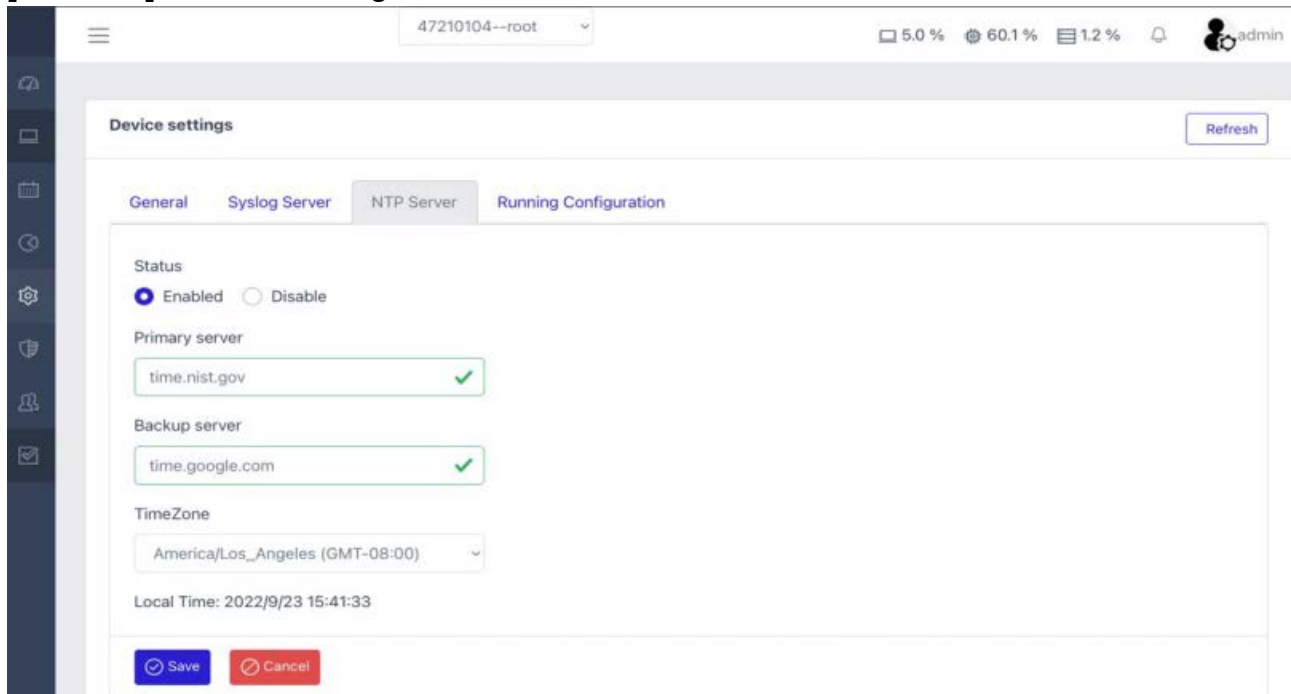
AVS(config-device-syslog)# save

```

NTP settings

You can configure the NTP settings of the WaveTunnel to synchronize the date time with the external server. It requires that your WaveTunnel can reach the NTP server in your local network or Internet. If there is no NTP server available, the WaveTunnel sync up the date time with the user's client device when they login.

[WEB GUI] Configuration-> General ->NTP ->



Device settings Refresh

General Syslog Server **NTP Server** Running Configuration

Status
☒ Enabled ☐ Disable

Primary server
 ✓

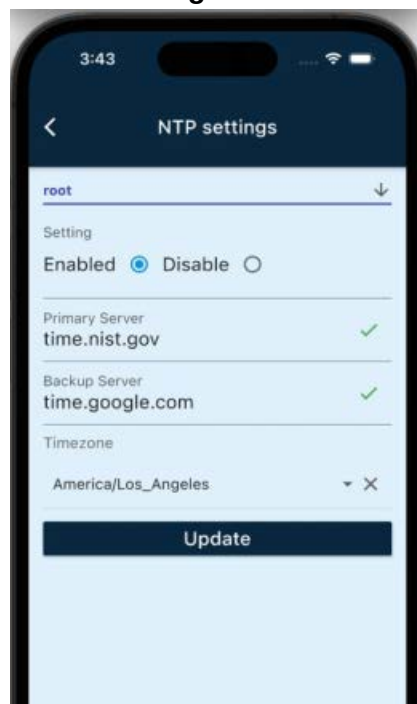
Backup server
 ✓

Timezone

Local Time: 2022/9/23 15:41:33

Save Cancel

[Mobile App] Settings -> NTP



3:43

< **NTP settings**

root ↓

Setting
 Enabled ☒ Disable ☐

Primary Server
 time.nist.gov ✓

Backup Server
 time.google.com ✓

Timezone
 America/Los_Angeles ▼ ✕

Update

[CLI] **config -> device -> ntp**

```

AVS(config-device)#
Help:
  general - Configure the device general settings
  ntp      - Configure the NTP server settings
  syslog   - Configure the Syslog server settings
  ..      - Navigate up one category
  exit    - Exit Command Line Interface

AVS(config-device)# ntp
NTP Server settings


| Description    | Attribute Name | Current Value       |
|----------------|----------------|---------------------|
| NTP            | enabled        | Enabled             |
| Primary Server | server1        | time.nist.gov       |
| Backup Server  | server2        | time.google.com     |
| TimeZone       | timezone       | America/Los_Angeles |



AVS(config-device-ntp)# set server1 time1.nist.gov
Set server1 to time1.nist.gov

NTP Server settings


| Description    | Attribute Name | Current Value       | Modified Value |
|----------------|----------------|---------------------|----------------|
| NTP            | enabled        | Enabled             |                |
| Primary Server | server1        | time.nist.gov       | time1.nist.gov |
| Backup Server  | server2        | time.google.com     |                |
| TimeZone       | timezone       | America/Los_Angeles |                |



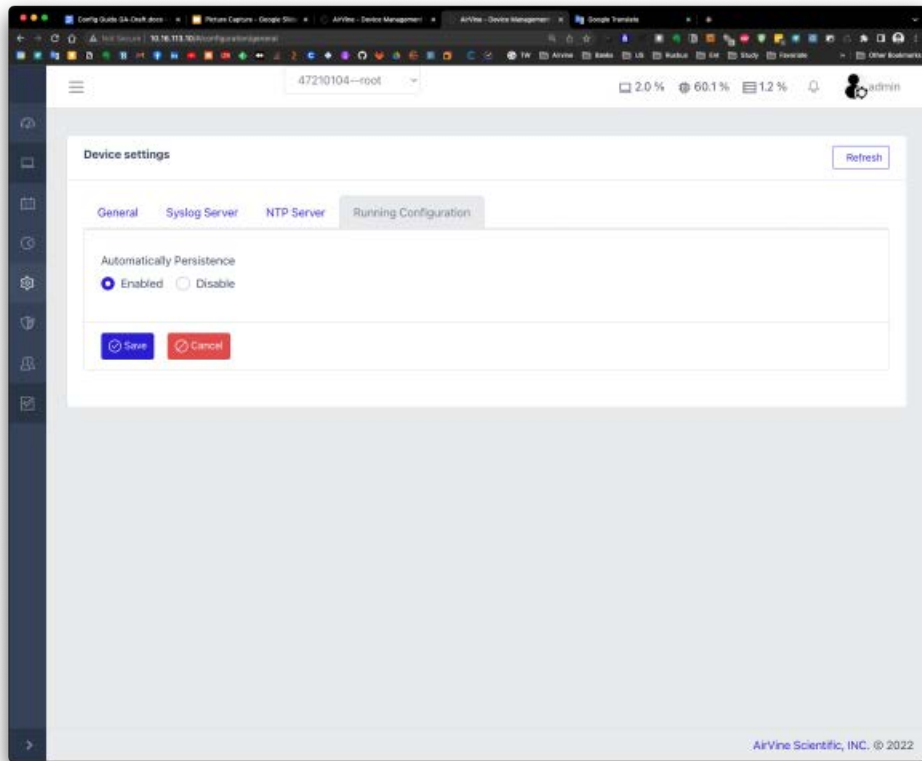
AVS(config-device-ntp)# save

```

Auto persistent settings

There is a mechanism in the WaveTunnel device which you can disable the persistence of configurations. This means the configurations are temporarily stored in memory as “running configuration”. It will be lost if you reboot the WaveTunnel device. It’s useful if you want to test some new functions. If the device runs into any issue, you can just reboot the device back to the previous good configurations.

[WEB GUI] **Configuration-> General ->Running Configuration ->**



[CLI]

Config -> autosave

```

allan@allen-unc: ~
AVS(config)#
Help:
  device - Sub menu to configure the device settings
  ethernet - Sub menu to configure the ethernet settings
  wavelunnel - Sub menu to configure the wave tunnel settings
  wifi - Sub menu to configure the management WIFI settings
  persist - Save the running configuration permanently
  autoSave - Set if persist the running configuraitons automatically
  user - Sub menu to configure the User settings
  snmp - Sub menu to configure the SNMP settings
  .. - Navigate up one category
  exit - Exit Command line interface

AVS(config)# autoSave

Set auto-save option as 'enabled' or 'disabled'

AVS(config)# autoSave enabled

The auto-save is set to enabled

AVS(config)#
  
```


Type “**persist**” command to save the configurations permanently.

```
allan@allen-unc: ~  
AVS(config)#  
Help:  
  device - Sub menu to configure the device settings  
  ethernet - Sub menu to configure the ethernet settings  
  wavetunnel - Sub menu to configure the wave tunnel settings  
  wifi - Sub menu to configure the management WIFI settings  
  persist - Save the running configuration permanently  
  autoSave - Set if persist the running configuraitons automatically  
  user - Sub menu to configure the User settings  
  snmp - Sub menu to configure the SNMP settings  
  .. - Navigate up one category  
  exit - Exit Command line interface  
  
AVS(config)# persist  
Persist the running configurations? (y/n): y  
  
The running configurations has been saved permanently  
AVS(config)#
```

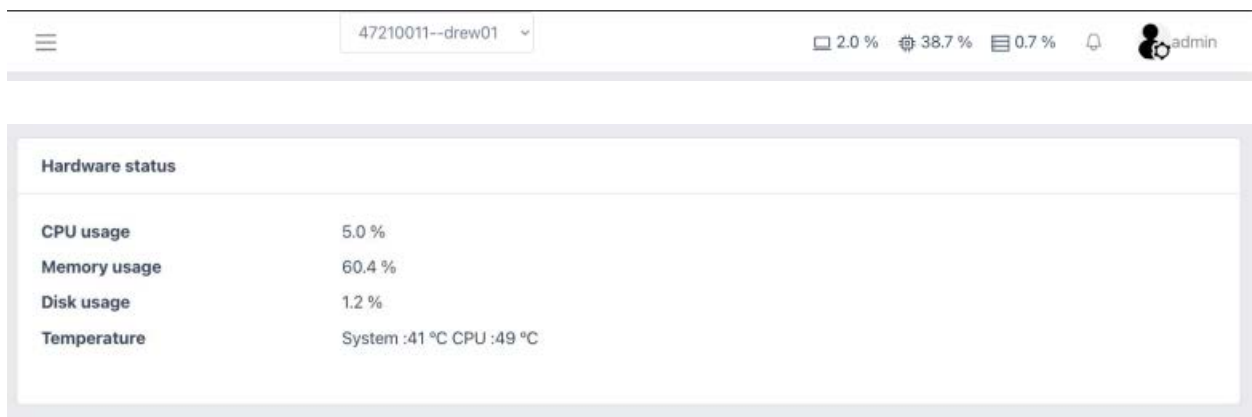
Monitor the WaveTunnel device

There are several pages in the system you can use to monitor the status of your WaveTunnel device. You can check these sections below for more information.

Check the system resource usage

You can check the resource usages of System CPU, Memory, Flash Drive and Temperature on this page

[WEB GUI] Monitoring -> Device -> General

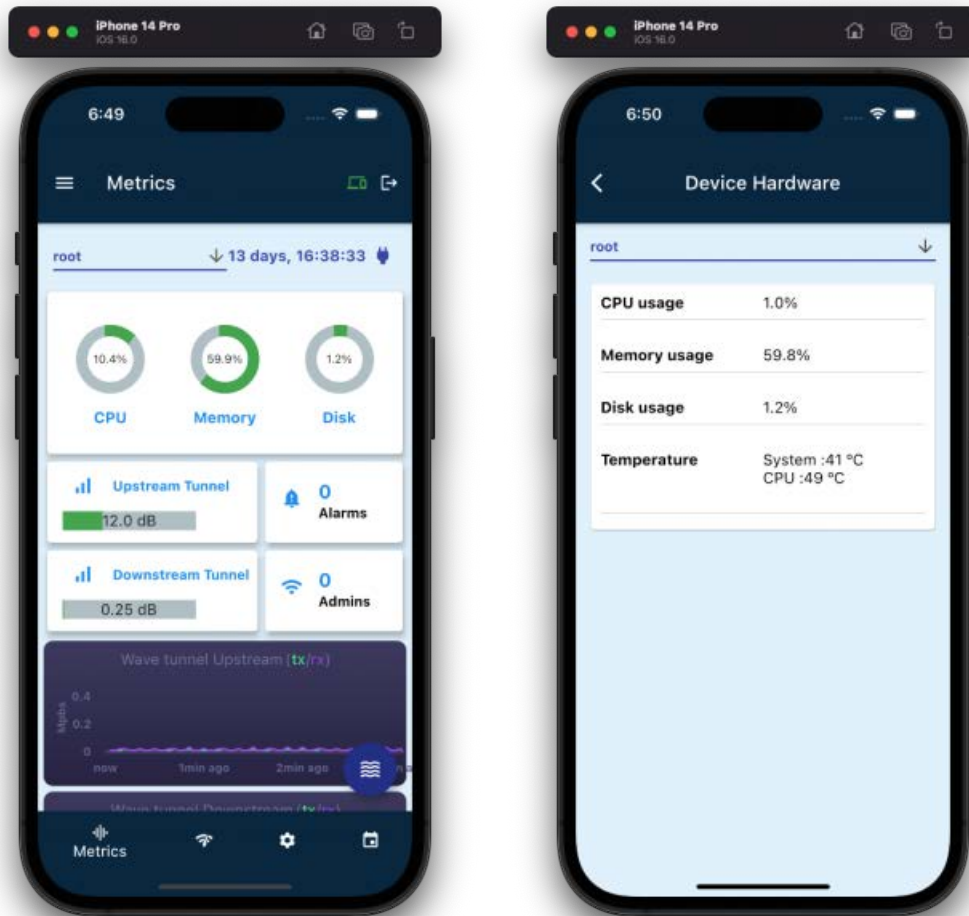


The screenshot shows the Web GUI interface for monitoring a WaveTunnel device. The top navigation bar includes a hamburger menu, a dropdown menu with the value '47210011--drew01', and system resource usage indicators: CPU 2.0 %, Memory 38.7 %, and Disk 0.7 %. A user profile icon labeled 'admin' is also present. The main content area is titled 'Hardware status' and displays the following data:

Hardware status	
CPU usage	5.0 %
Memory usage	60.4 %
Disk usage	1.2 %
Temperature	System :41 °C CPU :49 °C

[Mobile App] Dashboard

You can click the Dashboard widget to see the usage of system resources.



[CLI] Show -> Device -> Hardware

```
ssh admin@10.16.113.10
AVS# show

Incomplete Command: show

Help:
    device - Show the device settings
    ethernet - Show the ethernet interface settings
    wavetunnel - Show the wave tunnel settings
    wifi - Show the management WIFI settings
    events - Show the last n events;Use 'show events n'
    running - Show the running configurations
    permanent - Show the permanent configurations

AVS# show device hardware

Device hardware information
```

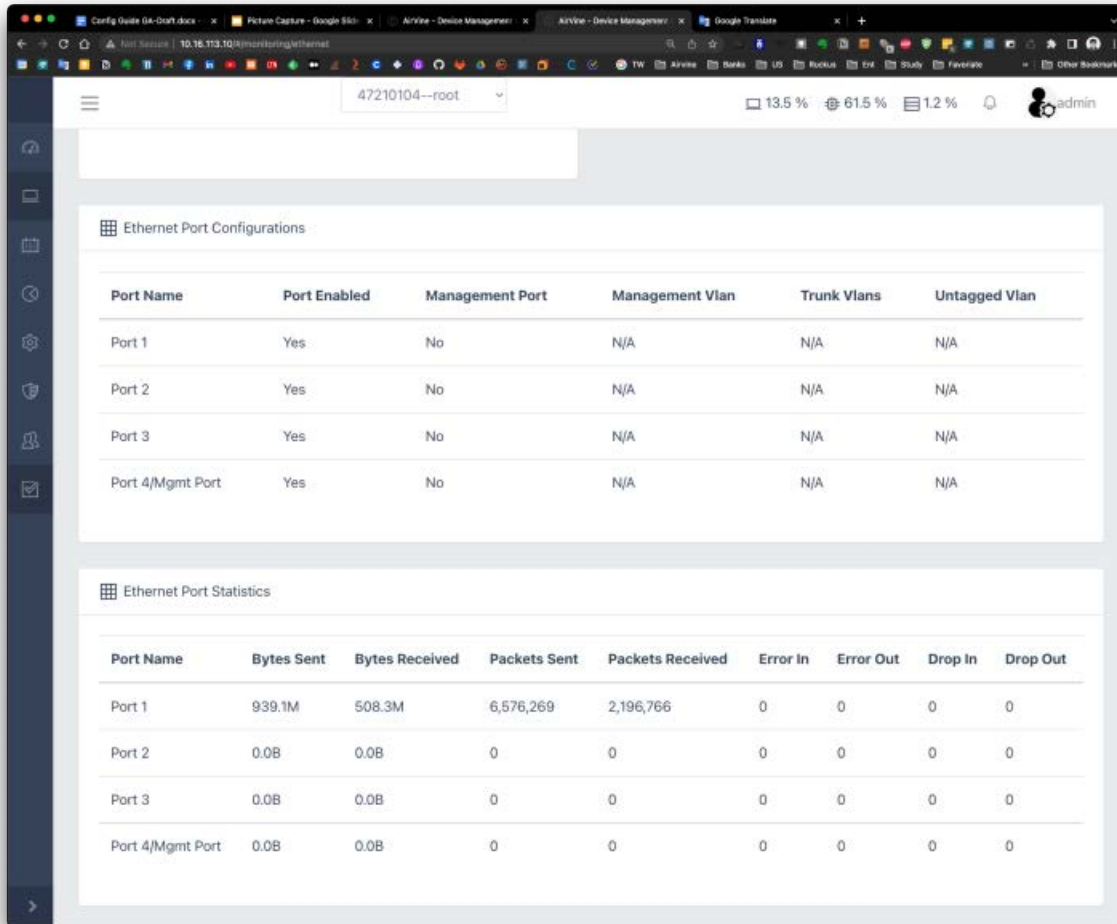
Description	Value
Device Uptime	13 days, 16:39:59
CPU usage %	5.0
Memory usage %	61.5
Disk usage %	1.2
Device Temperature	System :41 °C CPU :50 °C

```
AVS#
```

Check the accumulated traffics of ethernet ports

On this page, you can check the accumulated traffic statistics of each ethernet port since last boot up. It includes Bytes sent, Bytes received, Packets sent, Packets received, Error in, Error out, Drop in and Drop out. These values are reset when the system is rebooted.

[WEB GUI] Monitoring -> Ethernet



The screenshot shows the AirVine Web GUI interface. At the top, there's a navigation bar with a menu icon, a dropdown menu showing '47210104--root', and a user profile icon labeled 'admin'. Below the navigation bar, there are two main sections: 'Ethernet Port Configurations' and 'Ethernet Port Statistics'.

Ethernet Port Configurations

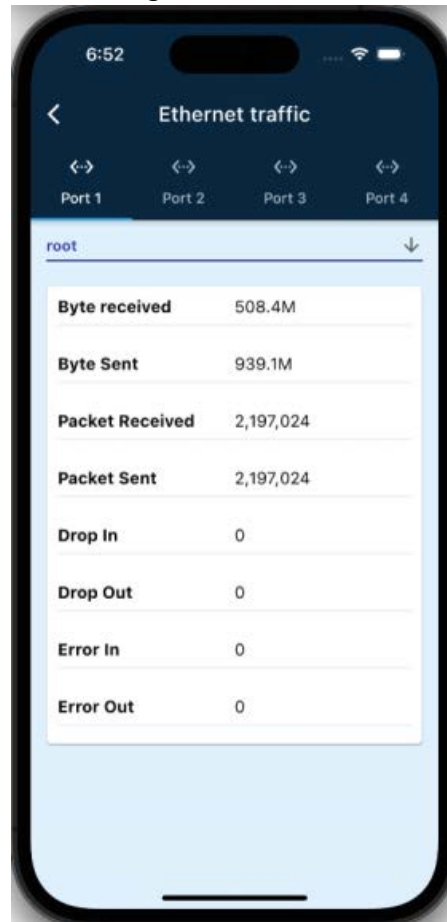
Port Name	Port Enabled	Management Port	Management Vlan	Trunk Vlans	Untagged Vlan
Port 1	Yes	No	N/A	N/A	N/A
Port 2	Yes	No	N/A	N/A	N/A
Port 3	Yes	No	N/A	N/A	N/A
Port 4/Mgmt Port	Yes	No	N/A	N/A	N/A

Ethernet Port Statistics

Port Name	Bytes Sent	Bytes Received	Packets Sent	Packets Received	Error In	Error Out	Drop In	Drop Out
Port 1	939.1M	508.3M	6,576,269	2,196,766	0	0	0	0
Port 2	0.0B	0.0B	0	0	0	0	0	0
Port 3	0.0B	0.0B	0	0	0	0	0	0
Port 4/Mgmt Port	0.0B	0.0B	0	0	0	0	0	0

[Mobile App]

Monitoring - > Ethernet Port - > Traffic



[CLI]

Show -> ethernet -> stats

```

management - Show the management ip settings
internal - Show the internal ip settings
lag - Show the ethernet port link aggregation
port1 - Show the port 1 interface
port2 - Show the port 2 interface
port3 - Show the port 3 interface
port4 - Show the Port 4 interface
stats - Show the ethernet port statistics

AVS#
AVS# show ethernet
Incomplete Command: show ethernet

Help:
management - Show the management ip settings
internal - Show the internal ip settings
lag - Show the ethernet port link aggregation
port1 - Show the port 1 interface
port2 - Show the port 2 interface
port3 - Show the port 3 interface
port4 - Show the Port 4 interface
stats - Show the ethernet port statistics

AVS# show ethernet stats

Ethernet port statistics:

```

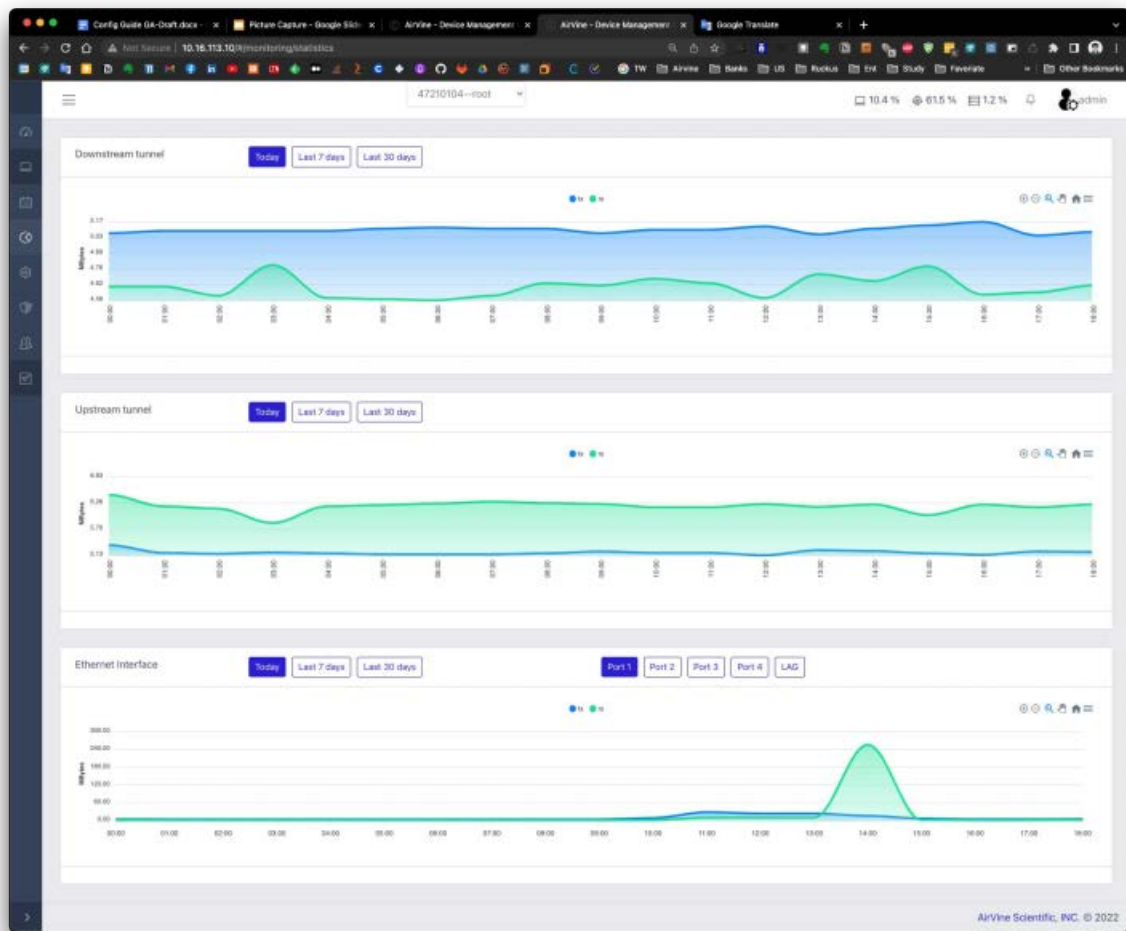
Port Name	Bytes sent	Bytes received	Packets sent	Packets received	Error in	Error out	Drop in	Drop out
Port 1	939.3M	508.4M	6,577,115	2,197,537	0	0	0	0
Port 2	0.0B	0.0B	0	0	0	0	0	0
Port 3	0.0B	0.0B	0	0	0	0	0	0
Port 4/Mgmt Port	0.0B	0.0B	0	0	0	0	0	0

Check the historical statistic

The WaveTunnel collects the historical statistics every 10 minutes, and the collected data last for 30 days. You can query the TX/RX traffic going through the WaveTunnel connection or ethernet ports with different criteria.

[WEB GUI]

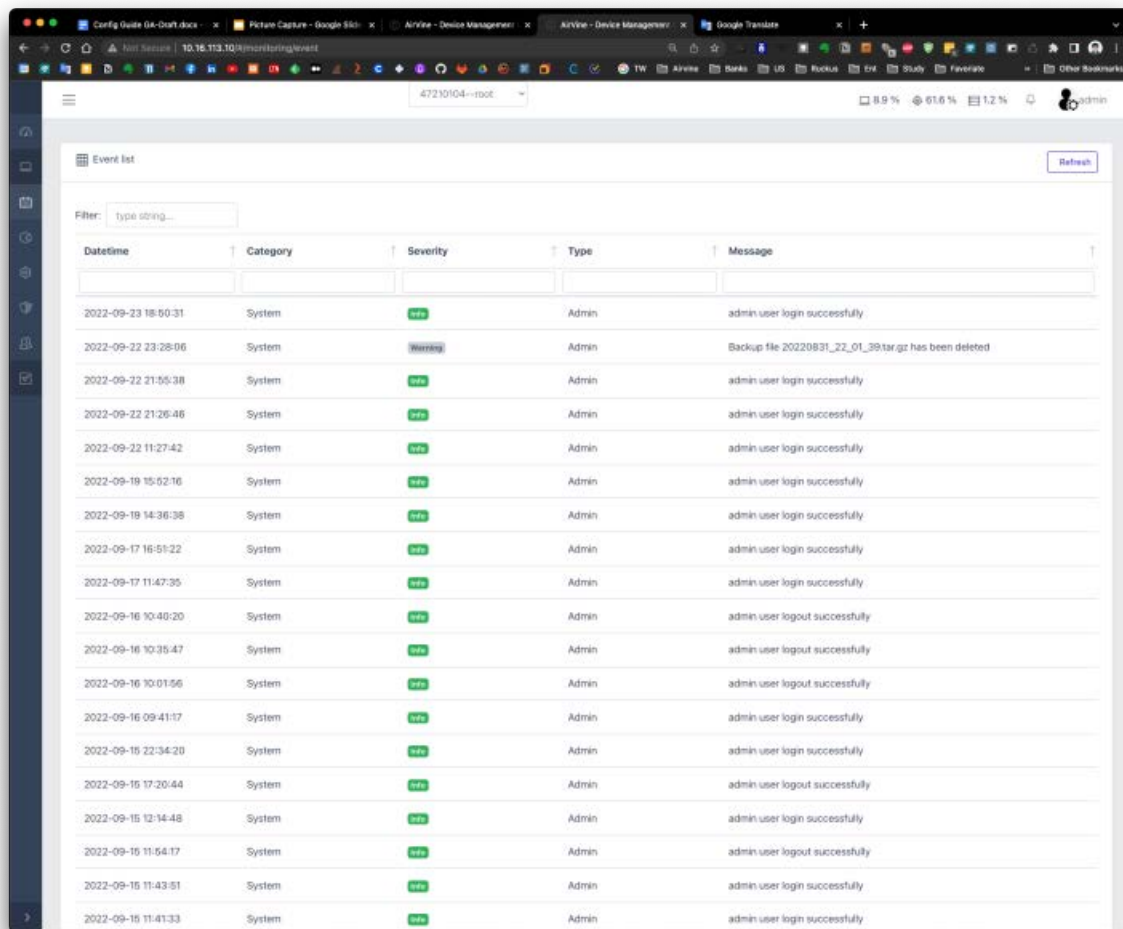
Statistics



Check the events and alarms

The System events and user operations are logged in the event database. These events are classified by category, severity and type. You can do the full search or sorting to locate the events you want to check. For some critical events, it will be translated as an alarm to notify the user on the Dashboard banner or sending out the SNMP trap.

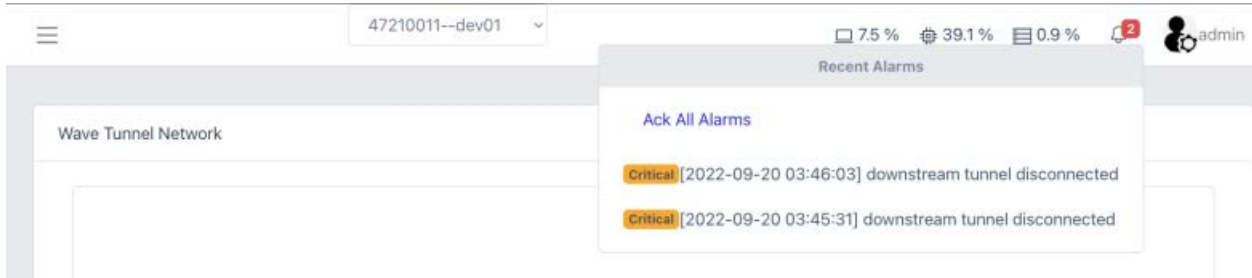
[WEB GUI] Events



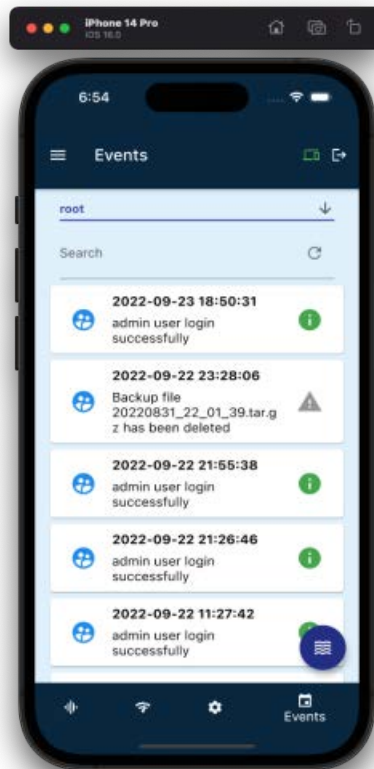
The screenshot shows the 'Event list' page in the AirVine web GUI. It features a search filter and a table with columns for Datetime, Category, Severity, Type, and Message. The table lists various system events, including successful logins and logouts, as well as a warning about a deleted backup file.

Datetime	Category	Severity	Type	Message
2022-09-23 18:50:31	System	Info	Admin	admin user login successfully
2022-09-22 23:28:06	System	Warning	Admin	Backup file 20220831_22_01_38.tar.gz has been deleted
2022-09-22 21:55:38	System	Info	Admin	admin user login successfully
2022-09-22 21:26:46	System	Info	Admin	admin user login successfully
2022-09-22 11:27:42	System	Info	Admin	admin user login successfully
2022-09-19 15:52:16	System	Info	Admin	admin user login successfully
2022-09-19 14:36:38	System	Info	Admin	admin user login successfully
2022-09-17 16:51:22	System	Info	Admin	admin user login successfully
2022-09-17 11:47:35	System	Info	Admin	admin user login successfully
2022-09-16 10:40:20	System	Info	Admin	admin user logout successfully
2022-09-16 10:35:47	System	Info	Admin	admin user logout successfully
2022-09-16 10:01:56	System	Info	Admin	admin user logout successfully
2022-09-16 09:41:17	System	Info	Admin	admin user login successfully
2022-09-15 22:34:20	System	Info	Admin	admin user login successfully
2022-09-15 17:20:44	System	Info	Admin	admin user logout successfully
2022-09-15 12:14:48	System	Info	Admin	admin user login successfully
2022-09-15 11:54:17	System	Info	Admin	admin user logout successfully
2022-09-15 11:43:51	System	Info	Admin	admin user login successfully
2022-09-15 11:41:33	System	Info	Admin	admin user login successfully

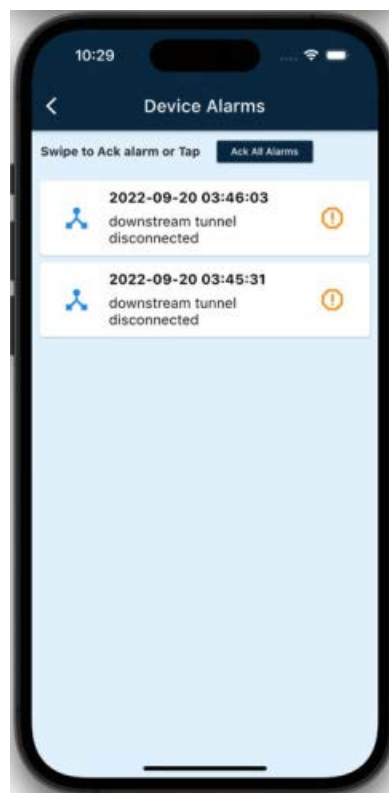
The alarms shown on the top banner. You can check the list and acknowledge it.



[Mobile App] Events



The alarms shown on the top banner. You can check the list and acknowledge it.



[CLI] Show -> events

```

AVS# show
Incomplete Command: show

Help:
  device - Show the device settings
  ethernet - Show the ethernet interface settings
  wavelunnel - Show the wave tunnel settings
  wifi - Show the management WiFi settings
  events - Show the last n events; Use 'show events n'
  running - Show the running configurations
  permanent - Show the permanent configurations

AVS# show events 10

The last 10 events:

```

Datetime	Severity	Type	category	Message
2022-09-23 18:58:31	Info	Admin	System	admin user login successfully
2022-09-22 23:28:06	Warning	Admin	System	Backup file 20220831_22_01_39.tar.gz has been deleted
2022-09-22 21:55:38	Info	Admin	System	admin user login successfully
2022-09-22 21:26:46	Info	Admin	System	admin user login successfully
2022-09-22 11:27:42	Info	Admin	System	admin user login successfully
2022-09-19 15:52:16	Info	Admin	System	admin user login successfully
2022-09-19 14:36:38	Info	Admin	System	admin user login successfully
2022-09-17 16:51:22	Info	Admin	System	admin user login successfully
2022-09-17 11:47:35	Info	Admin	System	admin user login successfully
2022-09-16 18:48:28	Info	Admin	System	admin user logout successfully

```

AVS#

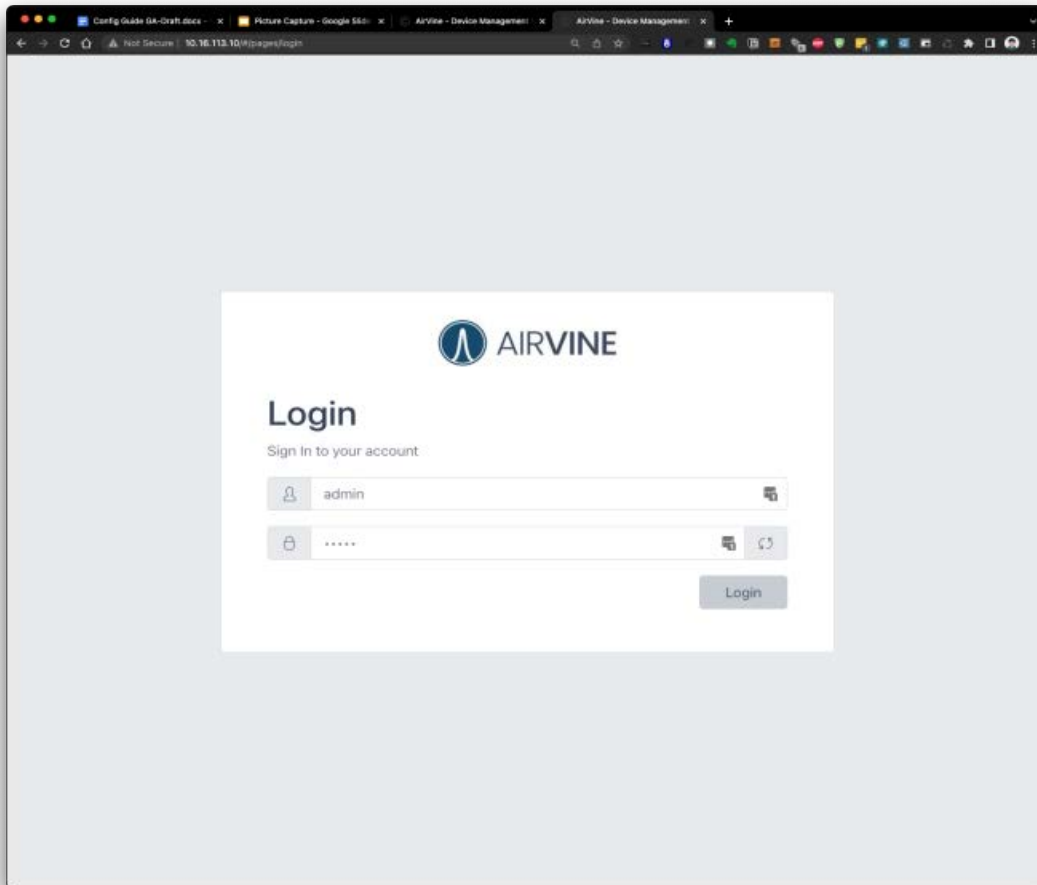
```

User Management

User Login

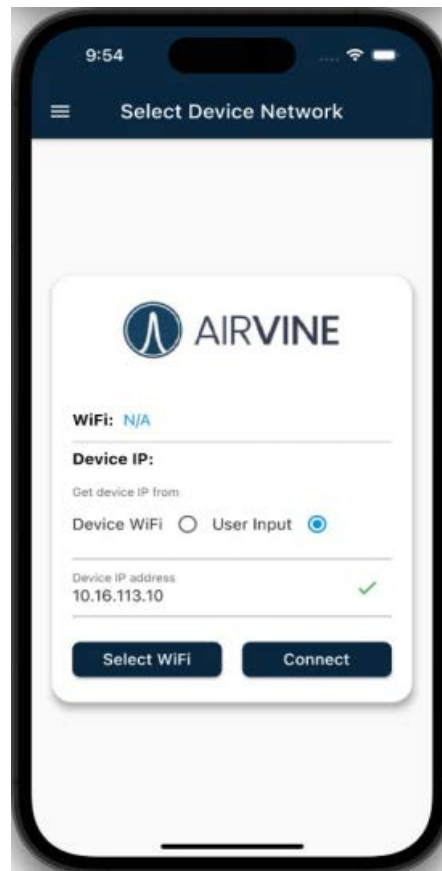
This is the page for the user to login to the management interface. The user authentication is provided by the Linux user database and the default user is “admin”. You can create more admin users based on your needs.

[WEB GUI] Type the `http://[management IP address]` on your browser



[Mobile App]

Select the device you want to connect via WIFI or management IP.



Input the username and password to login the Mobile App.



[CLI] Use SSH client or Serial cable to connect to the CLI.

```
Welcome to minicom 2.7.1

OPTIONS: I18n
Compiled on Aug 13 2017, 15:25:34.
Port /dev/ttyUSB1, 21:17:37

Press CTRL-A Z for help on special keys

drew02 login: █
```

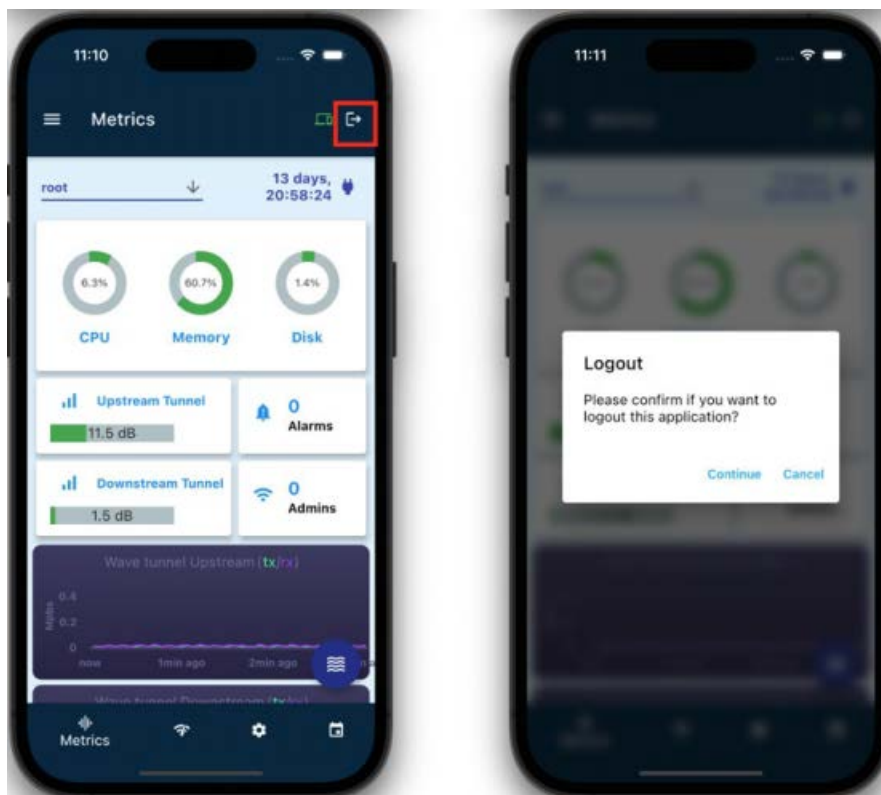
User Logout

There is a button on WEB GUI and Mobile for the user to logout the system. The user session is cleared after the logout.

[WEB GUI] - Logout



[Mobile App] - Logout



[CLI] - Logout

For CLI, type “exit” to logout the console.

```
allen@Allens-Mac-mini:~$ ssh av@10.16.113.10
AVS> enable
Password:
AVS#

Help:
  show - Show the device status
  config - Enter configuration menu
  firmware - Enter firmware menu
  operation - Enter operation menu
  .. - Navigate up one category
  exit - Exit Command line interface

AVS# exit
Do you want to exit CLI? (y/n)?
y
Connection to 10.16.113.10 closed.
allen@Allens-Mac-mini:~$
```

Change the user password

You can change the password on this page

[WEB GUI] – Change Password

Change password

Current password

✓

New password

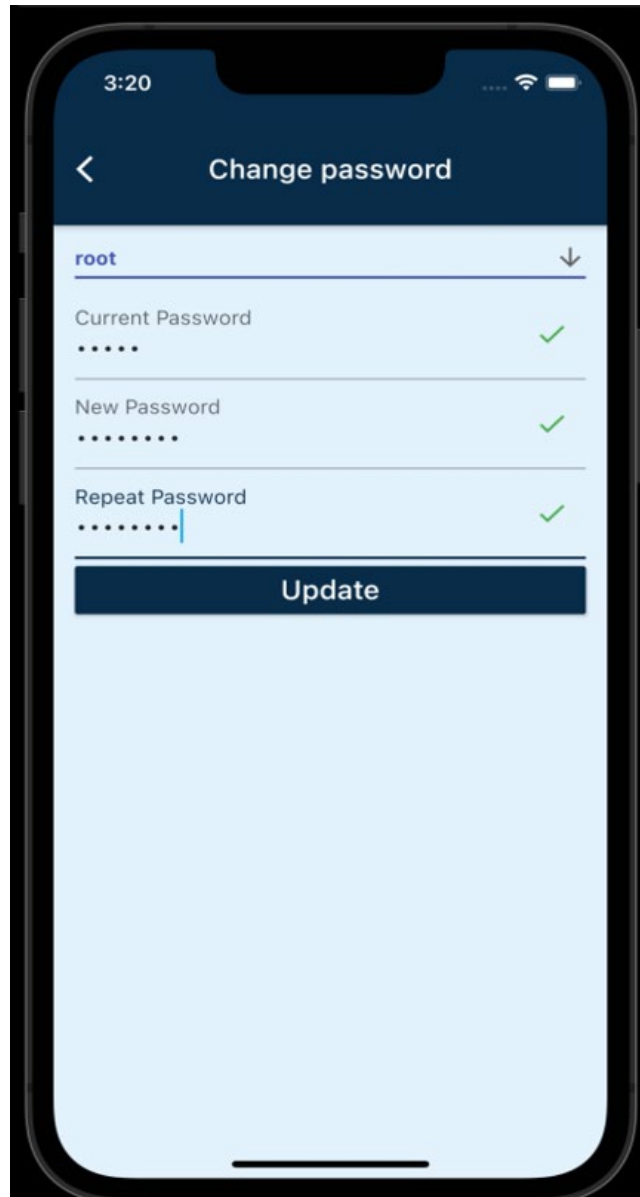
✓

Repeat password

✓

Update

Cancel

[Mobile App] – Change Password

[CLI] – Change Password

```
AVS(config)#  
  
Help:  
    device - Sub menu to configure the device settings  
    ethernet - Sub menu to configure the ethernet settings  
    wavetunnel - Sub menu to configure the wave tunnel settings  
    wifi - Sub menu to configure the management WIFI settings  
    persist - Save the running configuration permanently  
    autoSave - Set if persist the running configurations automatically  
    user - Sub menu to configure the User settings  
    .. - Navigate up one category  
    exit - Exit Command line interface  
  
AVS(config)# user  
AVS(config-user)#  
  
Help:  
    list - List admin users  
    add - Add admin user  
    delete - Delete admin user  
    password - Update the user password  
    .. - Navigate up one category  
    exit - Exit Command line interface  
  
AVS(config-user)# password  
Input your current password:  
Input your new password:
```

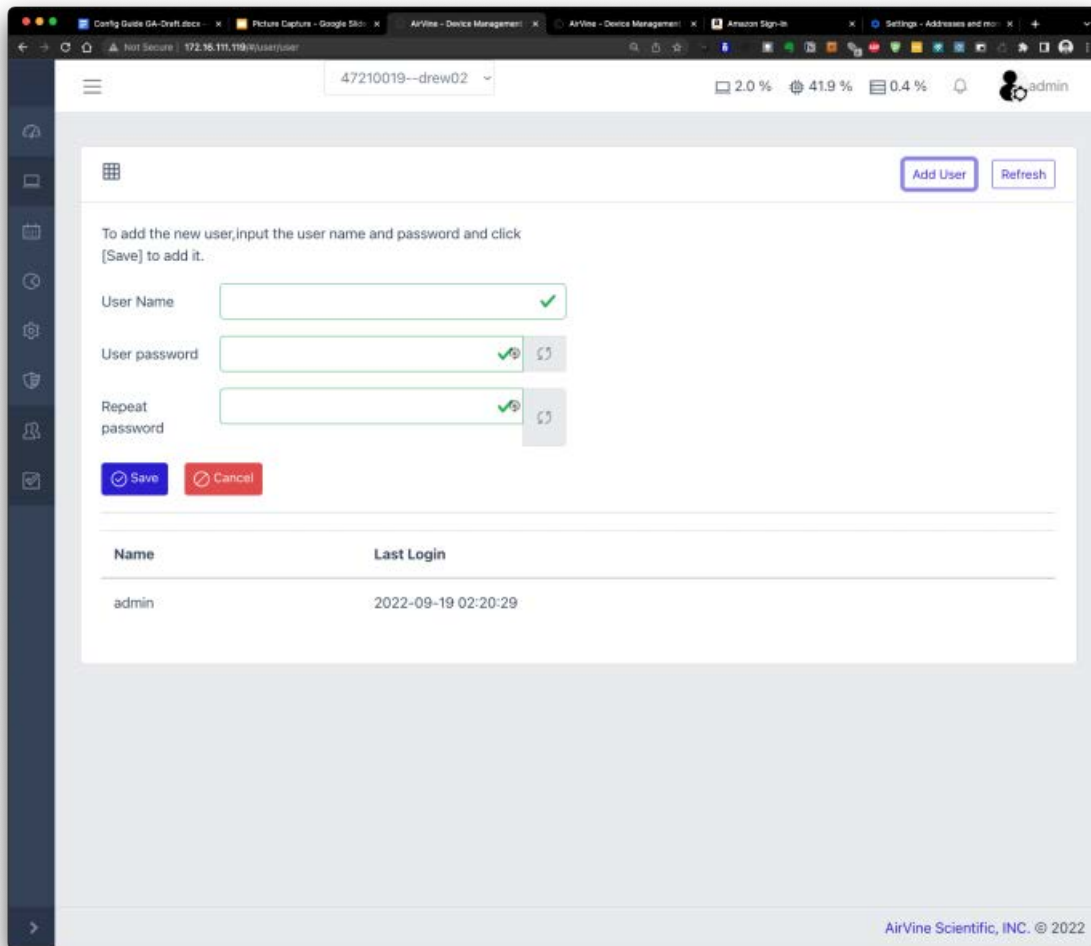
Change the enable password of CLI

For CLI, there are two levels of command set. To enter the second level, you need to input the “enable” password. The default password is blank but you can change it via the following commands.

```
AVS>  
  
Help:  
    deviceinfo - Show the device general information  
    enable - Enter 'enable' for enable mode; 'enable password' to change the password  
    ping - Ping destination ip. Ex: ping 8.8.8.8  
    traceroute - Trace route to destination ip. Ex: traceroute 8.8.8.8  
    .. - Navigate up one category  
    exit - Exit Command line interface  
  
AVS> enable password  
Input the current enable password:  
Input the new enable password: admin  
Repeat the new enable password: admin  
Enable password is updated  
AVS>
```


Add New User

Add a new admin user to the connected WaveTunnel device.



47210019--drew02

2.0 % 41.9 % 0.4 % admin

[Add User](#) [Refresh](#)

To add the new user, input the user name and password and click [Save] to add it.

User Name

User password

Repeat password

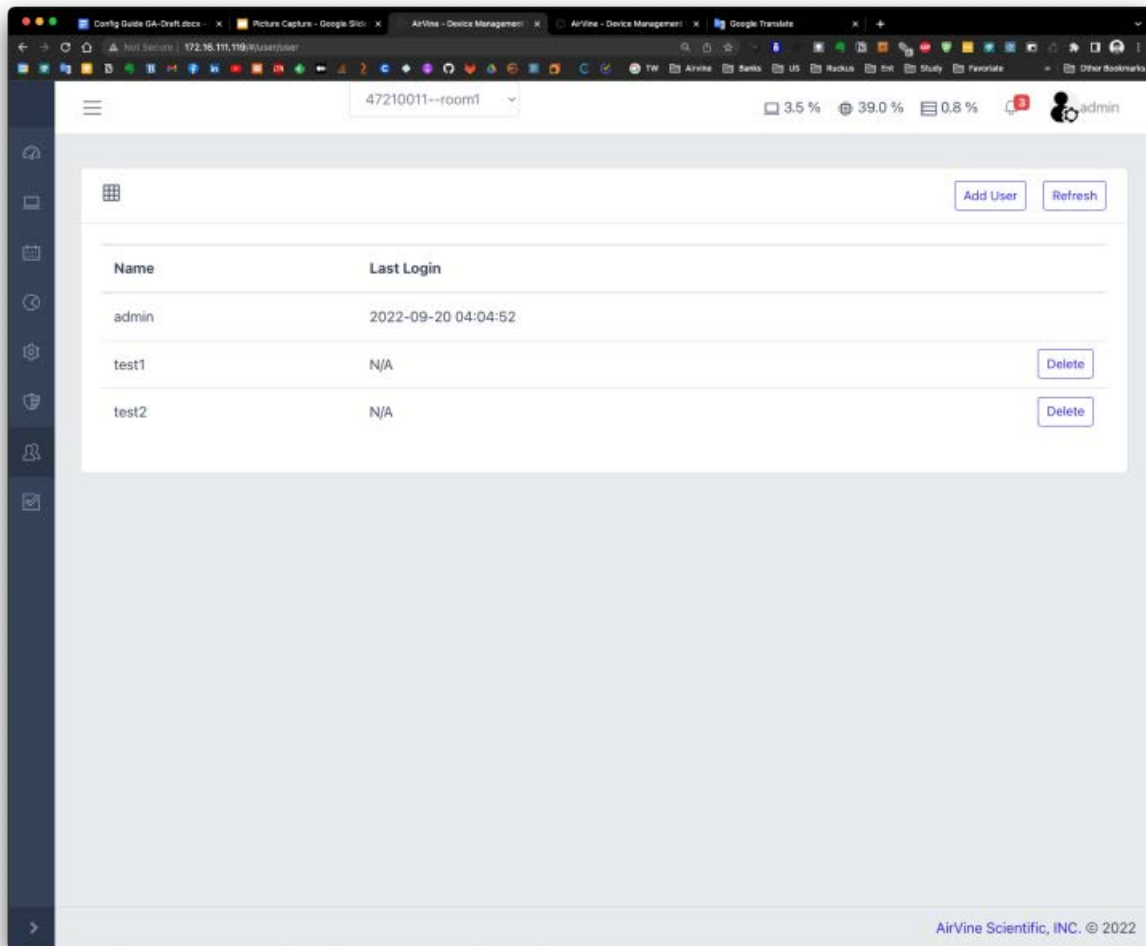
[Save](#) [Cancel](#)

Name	Last Login
admin	2022-09-19 02:20:29

AirVine Scientific, INC. © 2022

Delete User

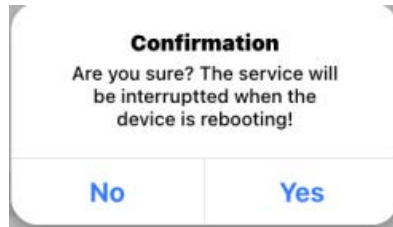
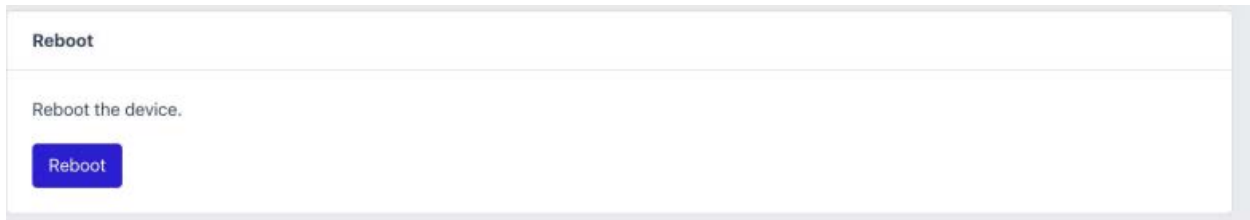
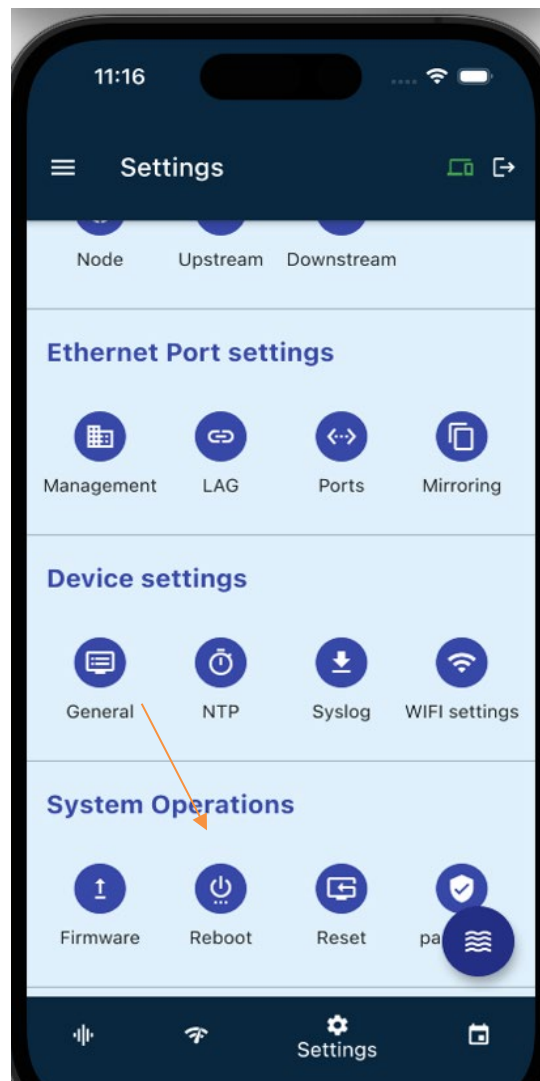
Delete a new admin user from the connected WaveTunnel device.



System Operations

Reboot the WaveTunnel device

To reboot the WaveTunnel device, you can issue the request from the interfaces below. It takes a few minutes for the WaveTunnel device to come back.

[WEB GUI]
Operations-> System Operations-> Reboot

[Mobile App] Settings -> Reboot


[CLI] Operation-> reboot

```

AVS> enable
Password:
AVS# operation
AVS(operation)#

Help:
  reboot - Reboot the device
  reset - Factory reset the device
  diag - Execute troubleshooting command
  log - Log files commands
  backup - Backup the device configurations
  restore - Restore the device configurations
  mirror - Port mirroring settings
  .. - Navigate up one category
  exit - Exit Command line interface

AVS(operation)# reboot
Do you want to reboot this device? (y/n):

```

Reset the WaveTunnel device

To reset the WaveTunnel device, you can issue the request from the interfaces below. To be aware that all the configurations and user data will be lost after this reset operation.

[WEB GUI] Operations-> System Operations-> Reset

Reset

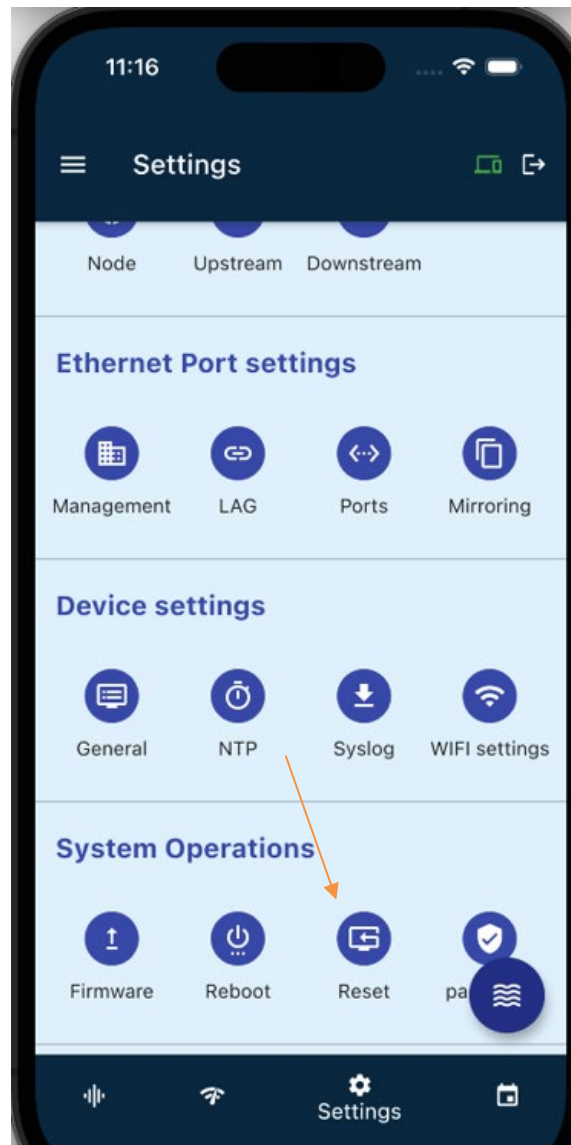
Factory reset the device.

Reset

Confirmation
Are you sure? All the device configuration/data will be lost after system reset

No
Yes

[Mobile App] Settings -> Reset



[CLI] Operation -> reset

```
ssh admin@10.16.113.10
AVS(operation)#
Help:
  reboot - Reboot the device
  reset - Factory reset the device
  diag - Execute troubleshooting command
  log - Log files commands
  backup - Backup the device configurations
  restore - Restore the device configurations
  mirror - Port mirroring settings
  .. - Navigate up one category
  exit - Exit Command line interface

AVS(operation)# reset
Do you want to reset this device? (y/n):
```

Backup the configurations of the WaveTunnel device

On this page, you can back up the configurations of the WaveTunnel device for future use. For example, rollback to the earlier settings or restore it to another replacement device. You can also download the backup file to your local computer to avoid losing the configurations if the device runs into the abnormal state. The max. Number of configurations that can be backup is up to 10.

[WEB GUI] Operations-> System Operations-> Backup

Backup and Restore

Refresh

To backup all settings, including system and network configurations etc.click[backup] and select to open or save the backup file.

Backup

To "Download","Restore" or "Delete" the backup file, please click the button in the selected row.

Number	Name	Size	Datetime			
1	20220919_04_46_07.tar.gz	1.4K	2022-09-19 04:46:07	Download	Restore	Delete
2	20220919_04_46_09.tar.gz	1.4K	2022-09-19 04:46:09	Download	Restore	Delete

[CLI] Operation -> backup

```
AVS(operation-backup)#
```

Help:

```
list - List out the current backup files
execute - Execute the backup command
delete - Delete the backup file
.. - Navigate up one category
exit - Exit Command line interface
```

```
AVS(operation-backup)# execute
```

```
tar: removing leading '/' from member names
```

```
Backup the device configurations successfully
```

```
AVS(operation-backup)# list
```

Number	Name	Size	Datetime
1	20220831_22_01_39.tar.gz	1.0K	2022-08-31 22:01:40
2	20220914_18_04_11.tar.gz	1.0K	2022-09-14 18:04:11
3	20220922_23_27_52.tar.gz	1.0K	2022-09-22 23:27:52

```
AVS(operation-backup)# delete 1
```

```
The backup file 20220831_22_01_39.tar.gz has been deleted
```

```
AVS(operation-backup)#
```

Restore the configurations from the Backup file

[WEB GUI]

Operations-> System Operations-> Restore

Upload the backup file from your laptop.

To upload the backup file,click[Browse...] to select a previously saved backup file and click [Upload] to confirm.

No file chosen

Restore the configurations from the old backup file.

To "Download","Restore" or "Delete" the backup file, please click the button in the selected row.

Number	Name	Size	Datetime			
1	20220919_04_46_07.tar.gz	1.4K	2022-09-19 04:46:07	Download	Restore	Delete
2	20220919_04_46_09.tar.gz	1.4K	2022-09-19 04:46:09	Download	Restore	Delete

[CLI] Operation-> restore

```
AVS(operation-restore)#
```

Help:

```
list - List out the current backup files
execute - Restore the device configuration from the backup file
.. - Navigate up one category
exit - Exit Command line interface
```

```
AVS(operation-restore)# list
```

Number	Name	Size	Datetime
1	20220914_18_04_11.tar.gz	1.0K	2022-09-14 18:04:11
2	20220922_23_27_52.tar.gz	1.0K	2022-09-22 23:27:52

```
AVS(operation-restore)# execute
```

Please specify the number of backup file you want to restore

```
AVS(operation-restore)# execute 1
```

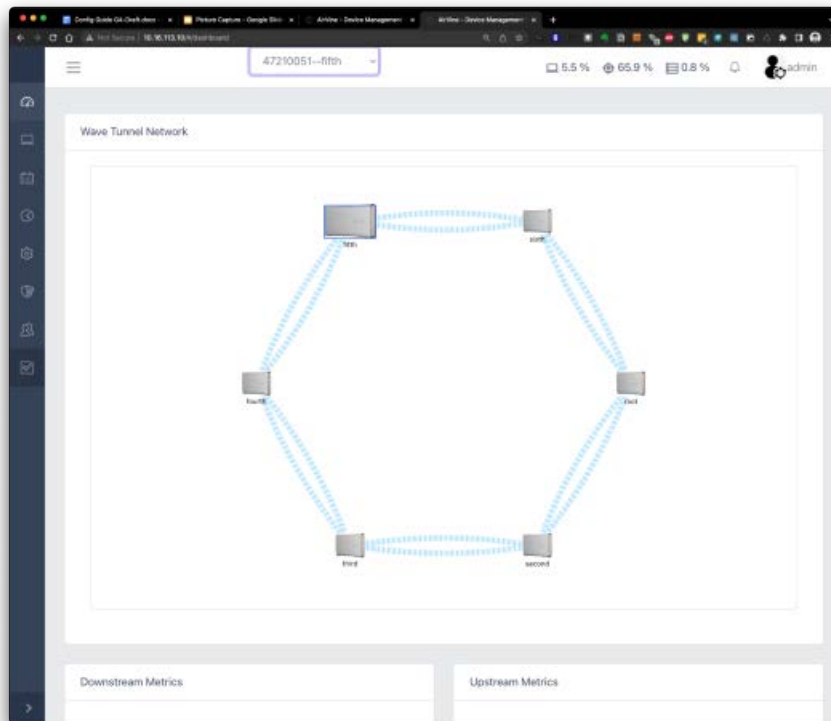
Diagnostic and troubleshooting

Checking the Status of the WaveTunnel connections

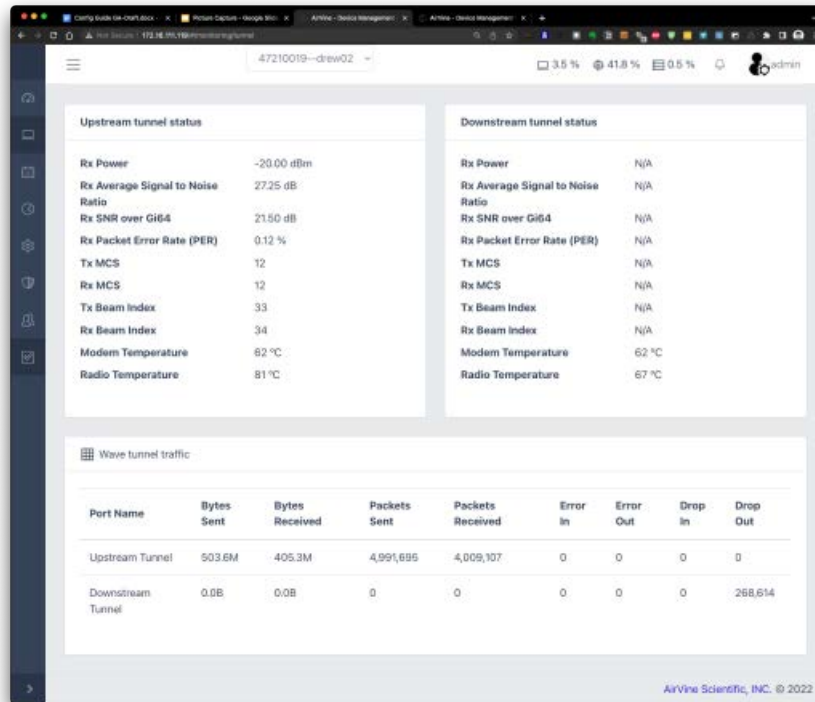
To check the status of the connections of WaveTunnel devices, there are several pages you can visit to get the information. See the explanations in the following sections.

[WEB GUI] Tunnel Topology

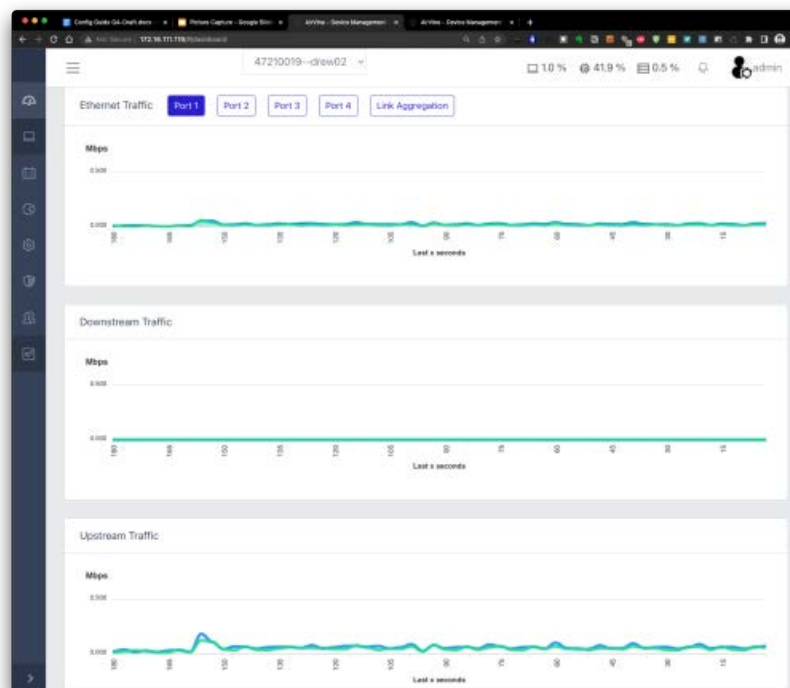
Check the status of connections of your devices and how they are connected. Mouse hover to the device or the link to see more information.



You can check the upstream/downstream tunnel metrics from the “Monitoring-> Wave Tunnel” page.

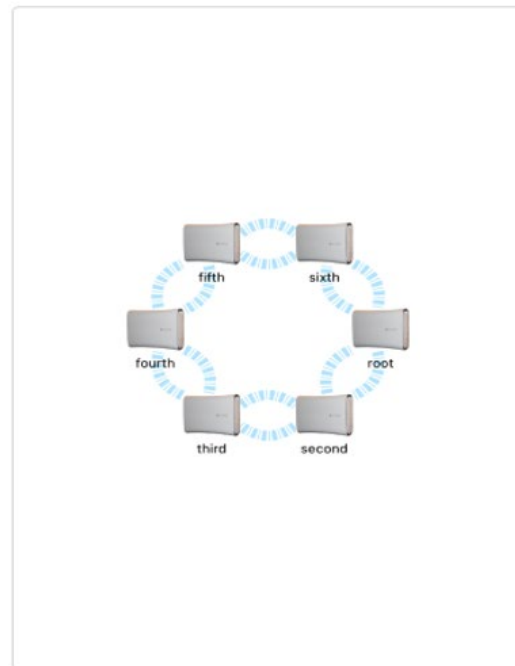
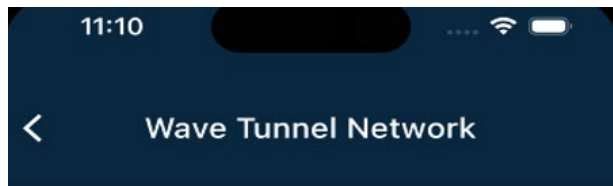
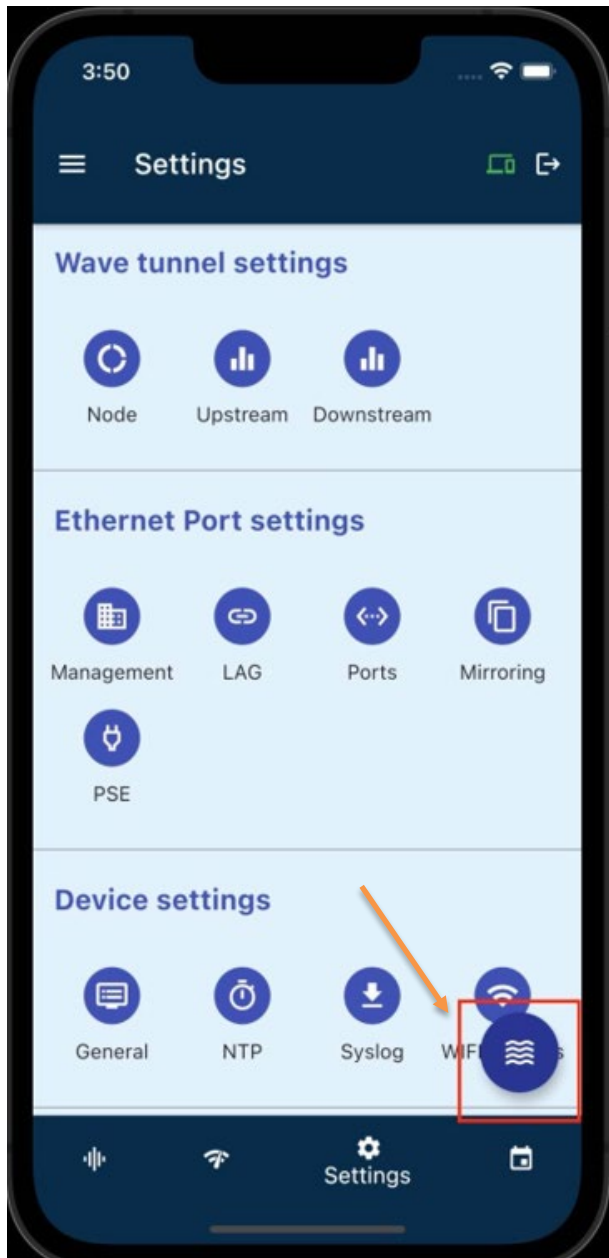


You can also check the realtime traffic widgets on the Dashboard to see the traffic/bandwidth of your wave tunnel connections.



[Mobile App]

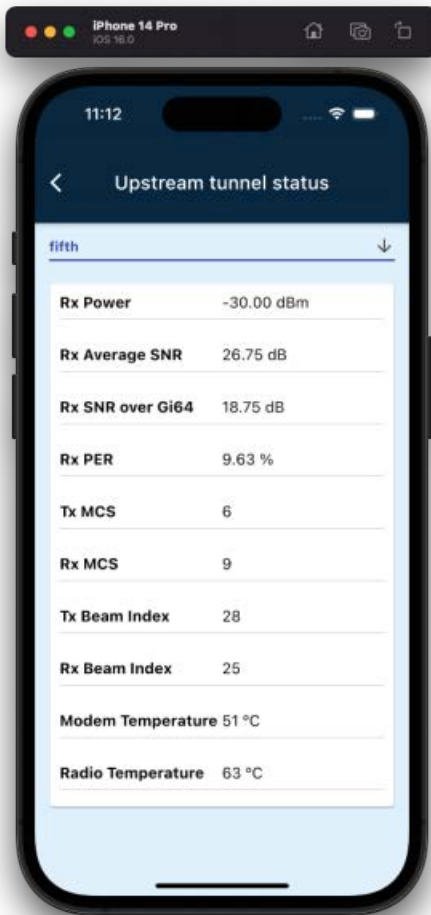
Click the button to check the WaveTunnel connection status in the Topology Screen



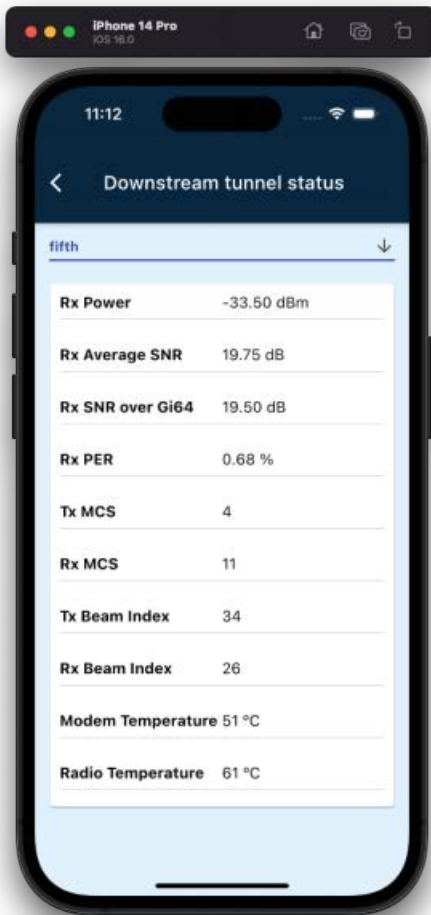
From Dashboard, you can check the real time traffic/bandwidth passing through the WaveTunnel connections.



Check the upstream connection metrics

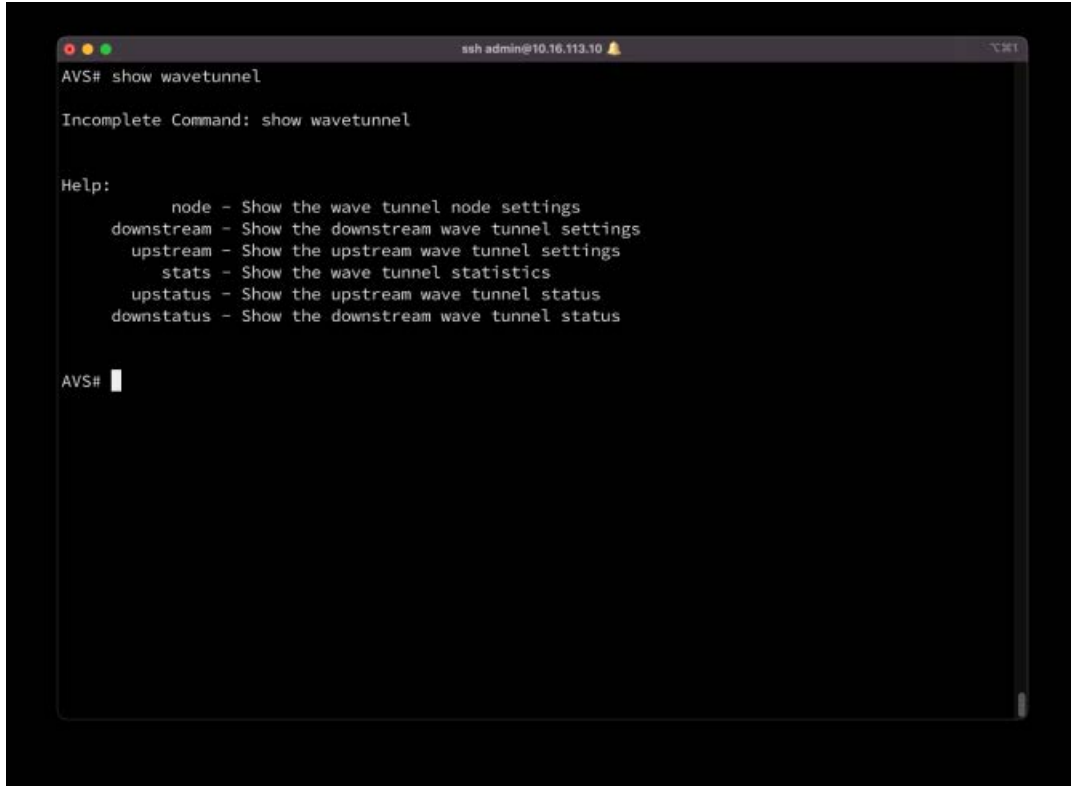


Check the downstream connection metrics



[CLI]

show wavetunnel stats
show wavetunnel upstatus
show wavetunnel downstatus



```
ssh admin@10.16.113.10
AVS# show wavetunnel

Incomplete Command: show wavetunnel

Help:
  node - Show the wave tunnel node settings
  downstream - Show the downstream wave tunnel settings
  upstream - Show the upstream wave tunnel settings
  stats - Show the wave tunnel statistics
  upstatus - Show the upstream wave tunnel status
  downstatus - Show the downstream wave tunnel status

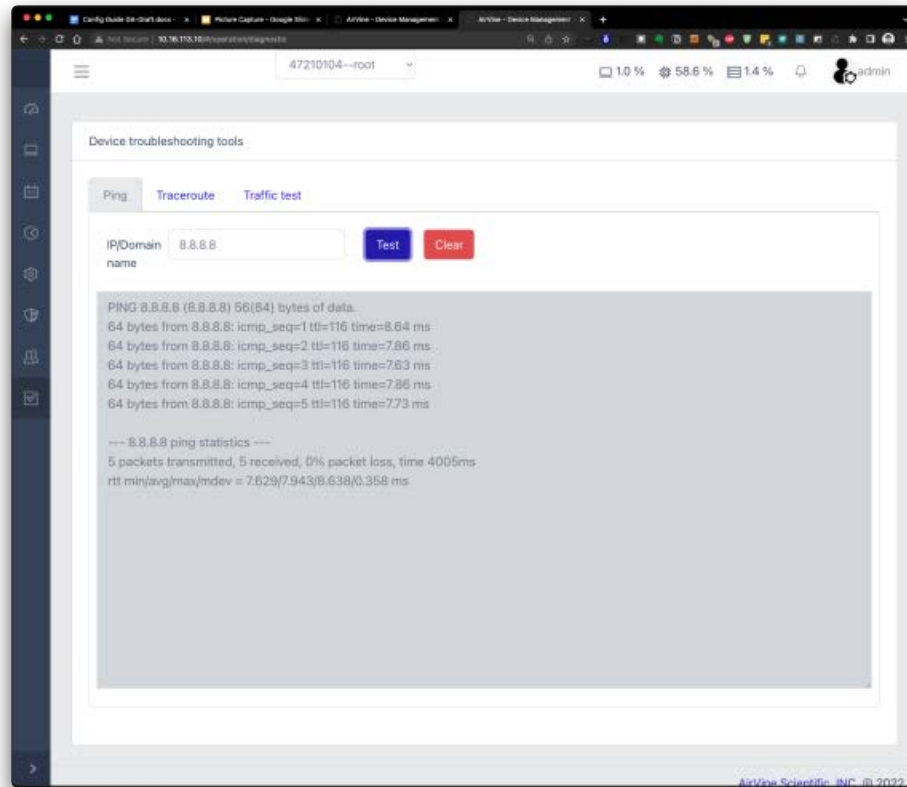
AVS#
```

Ping Test

You can run a “Ping” test to check if the traffic can be sent to the destination.

[WEB GUI]

System > Operations > Diagnostic > Ping



[CLI]

```

AVS>
Help:
deviceinfo - Show the device general information
enable - Enter 'enable' for enable mode; 'enable password' to change the password
ping - Ping destination ip. Ex: ping 8.8.8.8
traceroute - Trace route to destination ip. Ex: traceroute 8.8.8.8
.. - Navigate up one category
exit - Exit Command line interface

AVS> ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=116 time=8.34 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=116 time=7.49 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=116 time=7.80 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=116 time=7.75 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=116 time=7.76 ms

--- 8.8.8.8 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4007ms
rtt min/avg/max/mdev = 7.489/7.827/8.340/0.278 ms
AVS>

```

Traceroute Test

You can run a “Traceroute” test to check how the packets are routed to the destination.

[WEB GUI]

[CLI]

```

AVS>
Help:
  deviceinfo - Show the device general information
             enable - Enter 'enable' for enable mode; 'enable password' to change the password
             ping - Ping destination ip. Ex: ping 8.8.8.8
             traceroute - Trace route to destination ip. Ex: traceroute 8.8.8.8
             .. - Navigate up one category
             exit - Exit Command Line interface

AVS> traceroute www.google.com
traceroute to www.google.com (142.251.32.228), 64 hops max
 1  10.16.113.1  1.206ms  0.390ms  0.463ms
 2  192.168.1.254  1.831ms  1.053ms  0.425ms
 3  104.7.64.1  3.482ms  2.225ms  1.821ms
 4  71.148.149.226  5.486ms  3.389ms  3.741ms
 5  12.242.105.110  12.346ms  7.384ms  7.811ms
 6  * * *
 7  32.130.26.233  6.104ms  4.197ms  3.875ms
 8  12.255.10.242  8.450ms  6.320ms  6.860ms
 9  * * *
10  108.170.242.241  9.389ms  7.320ms  7.902ms
11  108.170.242.237  9.910ms  7.741ms  7.912ms
12  72.14.237.160  8.400ms  *  9.704ms
13  142.250.237.174  15.328ms  13.226ms  16.866ms
14  142.250.238.28  23.667ms  22.088ms  21.896ms
15  142.250.208.140  47.549ms  46.258ms  45.829ms
16  108.170.231.6  48.558ms  46.116ms  47.112ms
17  108.170.228.85  48.232ms  45.126ms  44.950ms
18  108.170.240.193  46.362ms  44.206ms  44.952ms
19  142.251.60.135  46.586ms  44.076ms  43.829ms
20  142.251.32.228  47.331ms  46.357ms  45.840ms
AVS>

```

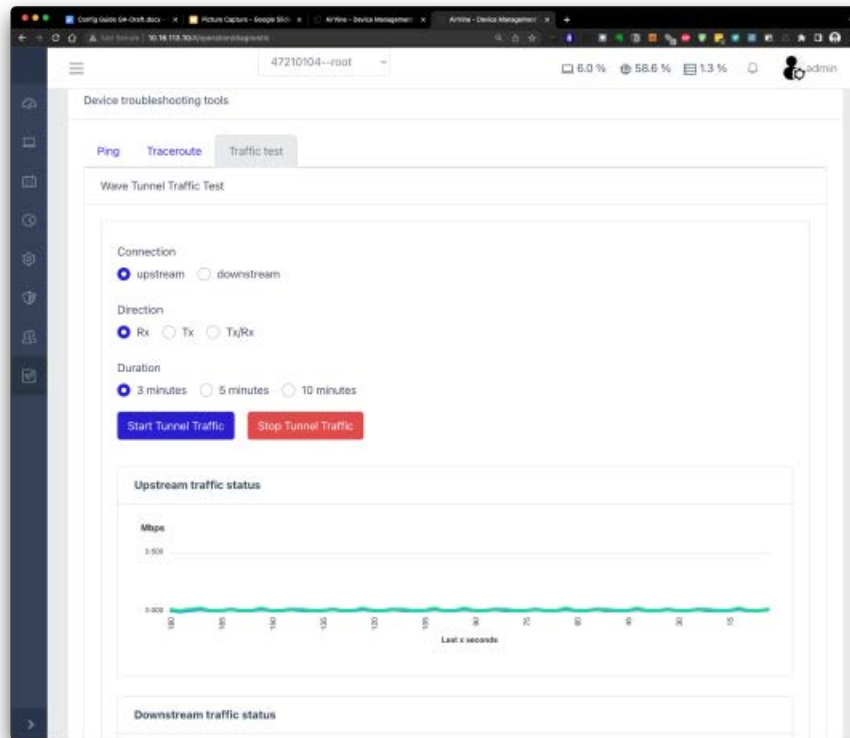
Traffic Test

There is an internal tool in the WaveTunnel we can use to generate the traffic on the WaveTunnel connections.

[WEB GUI]

System > Operations > Diagnostic > Traffic Test

Specify the criteria and traffic direction before generating the traffic and monitor the result on the widgets.



[Mobile App] Monitoring > Link Traffic

Specify the criteria before generating the traffic and monitor the result on the widgets.



Mirroring the Ethernet Port traffic

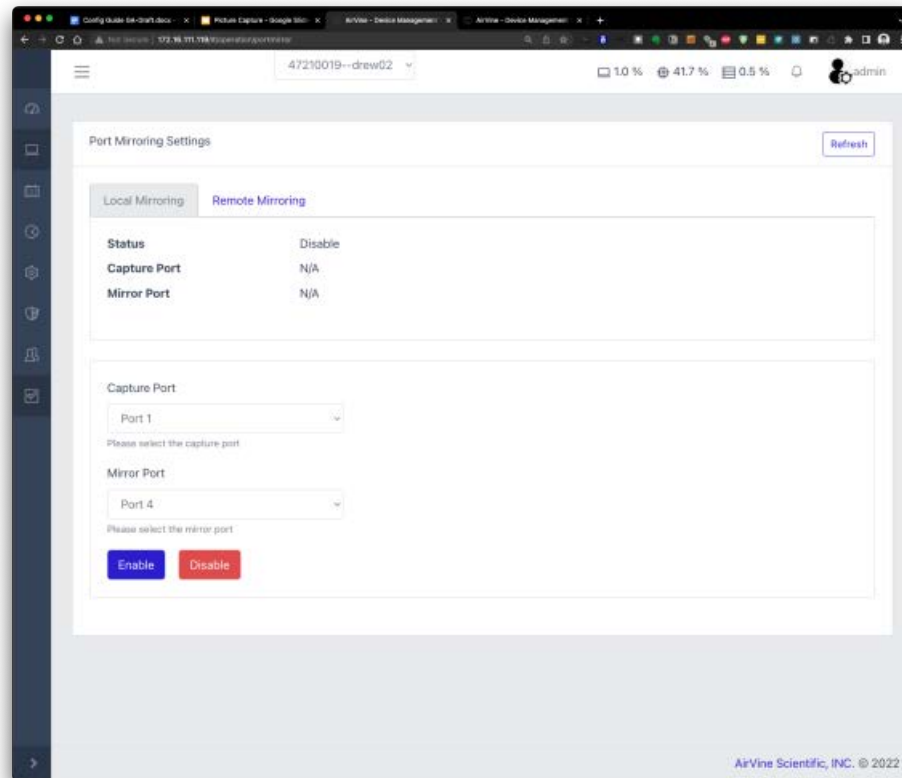
For the troubleshooting purposes, this function provides the capability to mirror the packets on a specific port to another port in the local or neighboring device. To be aware, the settings are not persisted which are cleaned up after system reboot.

[WEB GUI]

System > Operations > Port Mirroring

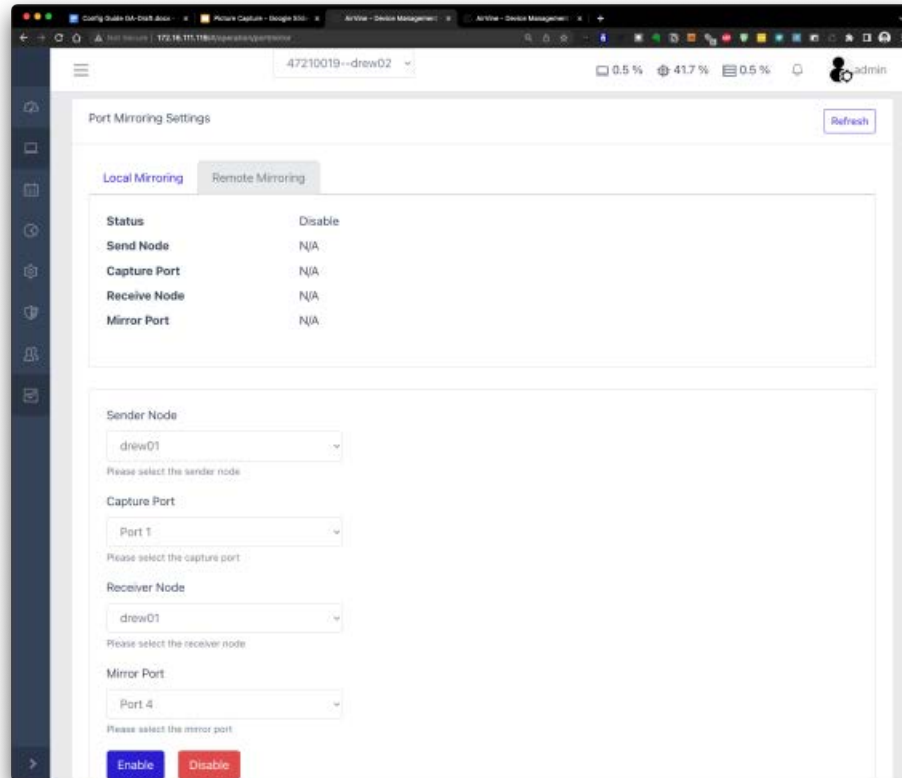
Local Port Mirroring

Operations-> Port Mirroring-> Local



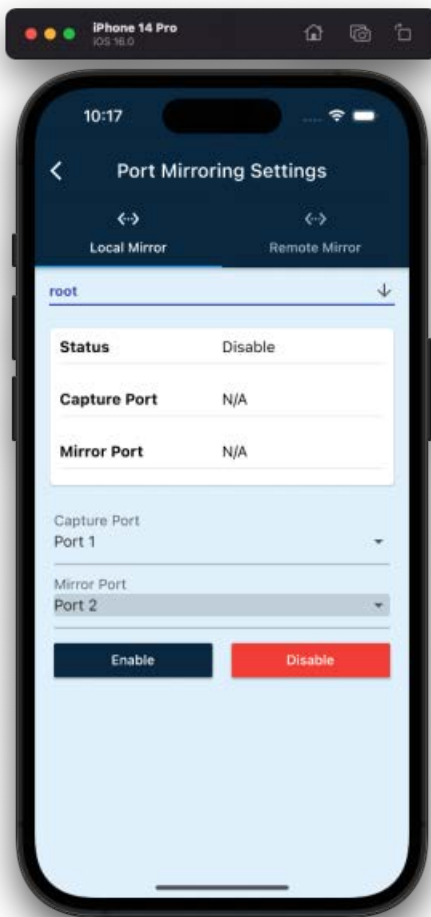
Remote Port Mirroring

Operations-> Port Mirroring-> Remote

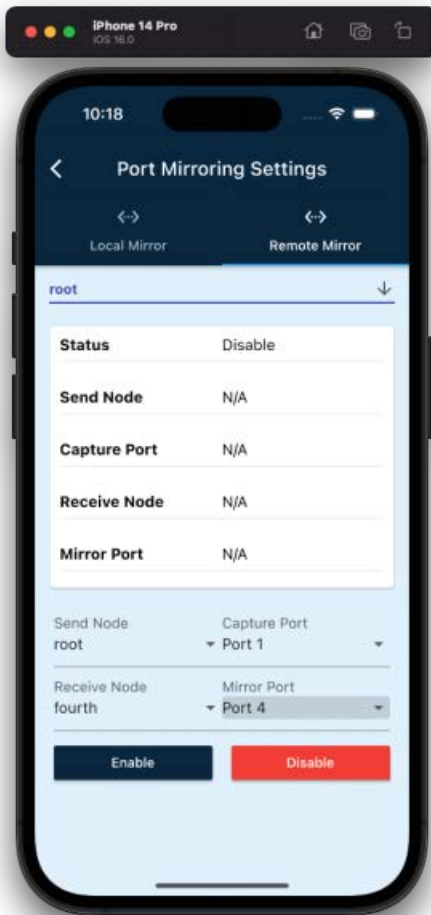


[Mobile App]

Settings > Mirroring > Local Mirroring



Settings > Mirroring > Remote Mirroring



[CLI]

AVS(operation-mirror-local)#

```

disable - Disable the local port mirroring
.. - Navigate up one category
exit - Exit Command line interface

AVS(operation-mirror-local)#
AVS(operation-mirror-local)#

Help:
    list - Show the local port mirroring settings
    enable - Enable the local port mirroring
    disable - Disable the local port mirroring
    .. - Navigate up one category
    exit - Exit Command line interface

AVS(operation-mirror-local)# enable

Which port for captureing packets?
1 (Port 1) 2 (Port 2) 3 (Port 3) 4 (Port 4) [0 to exit]1

Which port for mirroring packets?
1 (Port 1) 2 (Port 2) 3 (Port 3) 4 (Port 4) [0 to exit]4

The local port mirroring has been enabled

Local Port Mirroring:
Status: Enabled



| Capture Port | Mirror Port |
|--------------|-------------|
| Port 1       | Port 4      |



AVS(operation-mirror-local)#

```

```

AVS(operation-mirror-local)#

Help:
    list - Show the local port mirroring settings
    enable - Enable the local port mirroring
    disable - Disable the local port mirroring
    .. - Navigate up one category
    exit - Exit Command line interface

AVS(operation-mirror-local)# list

Local Port Mirroring:
Status: Enabled



| Capture Port | Mirror Port |
|--------------|-------------|
| Port 1       | Port 2      |



AVS(operation-mirror-local)# disable
Disable the local port mirroring? (y/n): y

The local port mirroring has been disable

Local Port Mirroring:
Status: Disable



| Capture Port | Mirror Port |
|--------------|-------------|
| N/A          | N/A         |



AVS(operation-mirror-local)#

```

AVS(operation-mirror-remote)#

```

AVS(operation-mirror)# remote
AVS(operation-mirror-remote)#

Help:
    list - Show the remote port mirroring settings
    enable - Enable the remote port mirroring
    disable - Disable the remote port mirroring
    .. - Navigate up one category
    exit - Exit Command line interface

AVS(operation-mirror-remote)# enable

Which node for captureing packets?
1 (root) 2 (second) 3 (third) 4 (fourth) 5 (fifth) 6 (sixth) [0 to exit]1

Which port for captureing packets?
1 (Port 1) 2 (Port 2) 3 (Port 3) 4 (Port 4) [0 to exit]1

Which node for mirroring packets?
1 (root) 2 (second) 3 (third) 4 (fourth) 5 (fifth) 6 (sixth) [0 to exit]3

Which port for mirroring packets?
1 (Port 1) 2 (Port 2) 3 (Port 3) 4 (Port 4) [0 to exit]3

The remote port mirroring has been enabled

Remote Port Mirroring:
Status: Enabled

```

Send Node	Capture Port	Recv Node	Mirror Port
root	Port 1	third	Port 3

```

AVS(operation-mirror-remote)#

```



```

AVS(operation-mirror-remote)#

Help:
    list - Show the remote port mirroring settings
    enable - Enable the remote port mirroring
    disable - Disable the remote port mirroring
    .. - Navigate up one category
    exit - Exit Command line interface

AVS(operation-mirror-remote)# list

Remote Port Mirroring:
Status: Enabled



| Send Node | Capture Port | Recv Node | Mirror Port |
|-----------|--------------|-----------|-------------|
| root      | Port 1       | third     | Port 3      |



AVS(operation-mirror-remote)# disable
Disable the remote port mirroring? (y/n): y

The remote port mirroring has been disable

Remote Port Mirroring:
Status: Disable



| Send Node | Capture Port | Recv Node | Mirror Port |
|-----------|--------------|-----------|-------------|
| N/A       | N/A          | N/A       | N/A         |



AVS(operation-mirror-remote)#

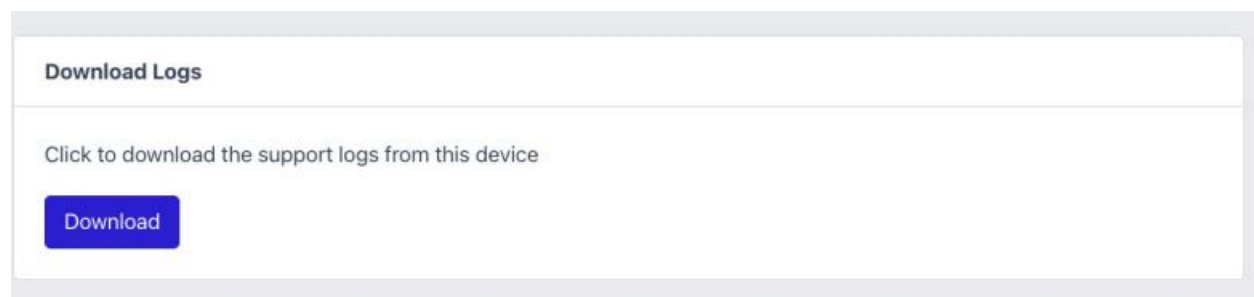
```

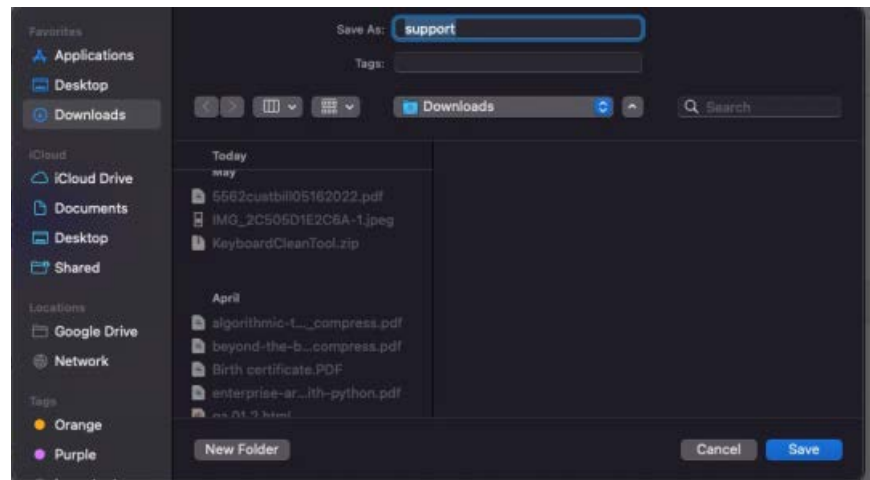
Download the Support Logs

You can download the support logs from this page and send it to Airvine support for further investigations.

[WEB GUI]

System > Operations > System Operation > Download Logs





Appendix 1

Event/Alarm Code Definition

```
{
  "101": {
    "description": "update configuration successfully",
    "type": "Admin",
    "severity": "Info",
    "notification": "False",
    "category": "Configuration"
  },
  "102": {
    "description": "update configuration failed",
    "type": "Admin",
    "severity": "Error",
    "notification": "True",
    "category": "Configuration"
  },
  "103": {
    "description": "country code changed",
    "type": "Admin",
    "severity": "Warning",
    "notification": "False",
    "category": "Configuration"
  },
  "104": {
    "description": "timezone changed",
    "type": "Admin",
    "severity": "Warning",
    "notification": "False",
    "category": "Configuration"
  },
  "105": {
    "description": "user added",
    "type": "Admin",
    "severity": "Info",
    "notification": "False",
    "category": "User"
  },
  "106": {
    "description": "user deleted",
    "type": "Admin",
    "severity": "Info",
```

```
"notification": "False",
"category": "User"
},
"107": {
  "description": "configuration backup",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "Configuration"
},
"108": {
  "description": "configuration restored successfully",
  "type": "Admin",
  "severity": "Warning",
  "notification": "False",
  "category": "Configuration"
},
"109": {
  "description": "configuration restored failed",
  "type": "Admin",
  "severity": "Error",
  "notification": "True",
  "category": "Configuration"
},
"110": {
  "description": "Device support log files have been downloaded",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"111": {
  "description": "firmware upgraded successfully ",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"112": {
  "description": "firmware upgraded failed",
  "type": "Admin",
  "severity": "Error",
  "notification": "True",
  "category": "System"
},
}
```

```
"113": {
  "description": "firmware image corrupted",
  "type": "Admin",
  "severity": "Error",
  "notification": "True",
  "category": "System"
},
"114": {
  "description": "Configuration rollback",
  "type": "Admin",
  "severity": "Warning",
  "notification": "False",
  "category": "Configuration"
},
"115": {
  "description": "Change primary firmware blank",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"116": {
  "description": "Change primary firmware blank failed",
  "type": "Admin",
  "severity": "Critical",
  "notification": "True",
  "category": "System"
},
"117": {
  "description": "Download the firmware image from server",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"118": {
  "description": "Download the firmware image from server failed",
  "type": "Admin",
  "severity": "Warning",
  "notification": "False",
  "category": "System"
},
"119": {
  "description": "Delete the firmware image file from the device",
  "type": "Admin",
```

```
"severity": "Info",
"notification": "False",
"category": "System"
},
"120": {
  "description": "Download the backup file",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"121": {
  "description": "Delete the backup file",
  "type": "Admin",
  "severity": "Warning",
  "notification": "False",
  "category": "System"
},
"122": {
  "description": "Set DHCP IP failed",
  "type": "Admin",
  "severity": "Critical",
  "notification": "True",
  "category": "System"
},
"201": {
  "description": "high CPU usage",
  "type": "Device",
  "severity": "Critical",
  "notification": "False",
  "category": "System"
},
"202": {
  "description": "high memory usage",
  "type": "Device",
  "severity": "Critical",
  "notification": "False",
  "category": "System"
},
"203": {
  "description": "insufficient disk space",
  "type": "Device",
  "severity": "Critical",
  "notification": "True",
  "category": "System"
}
```

```
},
"301": {
  "description": "upstream tunnel disconnected",
  "type": "Device",
  "severity": "Critical",
  "notification": "True",
  "category": "System"
},
"302": {
  "description": "downstream tunnel disconnected",
  "type": "Device",
  "severity": "Critical",
  "notification": "True",
  "category": "System"
},
"303": {
  "description": "weak upstream tunnel signal",
  "type": "Device",
  "severity": "Warning",
  "notification": "False",
  "category": "System"
},
"304": {
  "description": "weak downstream tunnel signal",
  "type": "Device",
  "severity": "Warning",
  "notification": "False",
  "category": "System"
},
"305": {
  "description": "upstream tunnel connected",
  "type": "Device",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"306": {
  "description": "downstream tunnel connected",
  "type": "Device",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"401": {
  "description": "new wifi client",
```

```
"type": "Device",
"severity": "Info",
"notification": "False",
"category": "User"
},
"402": {
  "description": "management SSID disable",
  "type": "Admin",
  "severity": "Warning",
  "notification": "False",
  "category": "Configuration"
},
"501": {
  "description": "device reboot",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"502": {
  "description": "device critical reboot",
  "type": "Device",
  "severity": "Warning",
  "notification": "False",
  "category": "System"
},
"601": {
  "description": "user login success",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"602": {
  "description": "use login failed",
  "type": "Admin",
  "severity": "Warning",
  "notification": "False",
  "category": "System"
},
"603": {
  "description": "user logout",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
```



```
"category": "System"
},
"604": {
  "description": "Add User",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
},
"605": {
  "description": "Delete User",
  "type": "Admin",
  "severity": "Info",
  "notification": "False",
  "category": "System"
}
}
```