

There are 4 pins i.e. TX, RX, RTS, CTS on the terminal block for serial connection and they correspond to the pins in a DB-9 connector as follows:

**DB-9 Pepwave MAX Terminal Block**

Pin 1 –

Pin 2 Rx (rated -+25V)

Pin 3 Tx (rated -+12V)

Pin 4 –

Pin 5 –

Pin 6 –

Pin 7 RTS

Pin 8 CTS

Pin 9 –

The RS232 serial interface is not an isolated RS232. External galvanic isolation may be added if required.

Be sure to check whether your serial cable is a null modem cable, commonly known as crossover cable, or a straight through cable. If in doubt, swap Rx and Tx, and RTS and CTS, at the other end and give it another go.

Once connected, your serial device should be accessible on your Pepwave MAX router LAN IP address at the specified TCP port.

## 23.6 GPS Forwarding

Using the GPS forwarding feature, some Pepwave routers can automatically send GPS reports to a specified server. To set up GPS forwarding, navigate to **Advanced>GPS Forwarding**.

| GPS Forwarding     |                                                                                                                                                                                   |                      |          |                     |                                  |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------|---------------------|----------------------------------|
| Enable             | <input checked="" type="checkbox"/>                                                                                                                                               |                      |          |                     |                                  |
| Server             | Server IP Address / Host Name                                                                                                                                                     | Port                 | Protocol | Report Interval (s) |                                  |
|                    | <input type="text"/>                                                                                                                                                              | <input type="text"/> | UDP      | 1                   | <input type="button" value="+"/> |
| GPS Report Format  | <input checked="" type="radio"/> NMEA <input type="radio"/> TAIP                                                                                                                  |                      |          |                     |                                  |
| NMEA Sentence Type | <input checked="" type="checkbox"/> GPRMC<br><input type="checkbox"/> GPGGA<br><input type="checkbox"/> GPVTG<br><input type="checkbox"/> GPGSA<br><input type="checkbox"/> GPGSV |                      |          |                     |                                  |
| Vehicle ID         | <input type="text"/>                                                                                                                                                              |                      |          |                     |                                  |

| GPS Forwarding                               |                                                                                                                                                                                                                                                                           |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Enable</b>                                | Check this box to turn on GPS forwarding.                                                                                                                                                                                                                                 |
| <b>Server</b>                                | Enter the name/IP address of the server that will receive GPS data. Also specify a port number, protocol ( <b>UDP</b> or <b>TCP</b> ), and a report interval of between 1 and 10 seconds. Click <input type="button" value="+"/> to save these settings.                  |
| <b>GPS Report Format</b>                     | Choose from NMEA or TAIP format for sending GPS reports.                                                                                                                                                                                                                  |
| <b>NMEA Sentence Type</b>                    | If you've chosen to send GPS reports in NMEA format, select one or more sentence types for sending the data ( <b>GPRMC</b> , <b>GPGGA</b> , <b>GPVTG</b> , <b>GPGSA</b> , and <b>GPGSV</b> ).                                                                             |
| <b>Vehicle ID</b>                            | The vehicle ID will be appended in the last field of the NMEA sentence. Note that the NMEA sentence will become customized and non-standard.                                                                                                                              |
| <b>TAIP Sentence Type/TAIP ID (optional)</b> | If you've chosen to send GPS reports in TAIP format, select one or more sentence types for sending the data ( <b>PV—Position / Velocity Solution</b> and <b>CP—Compact Velocity Solution</b> ). You can also optionally include an ID number in the <b>TAIP ID</b> field. |

## 23.7 Ignition Sensing

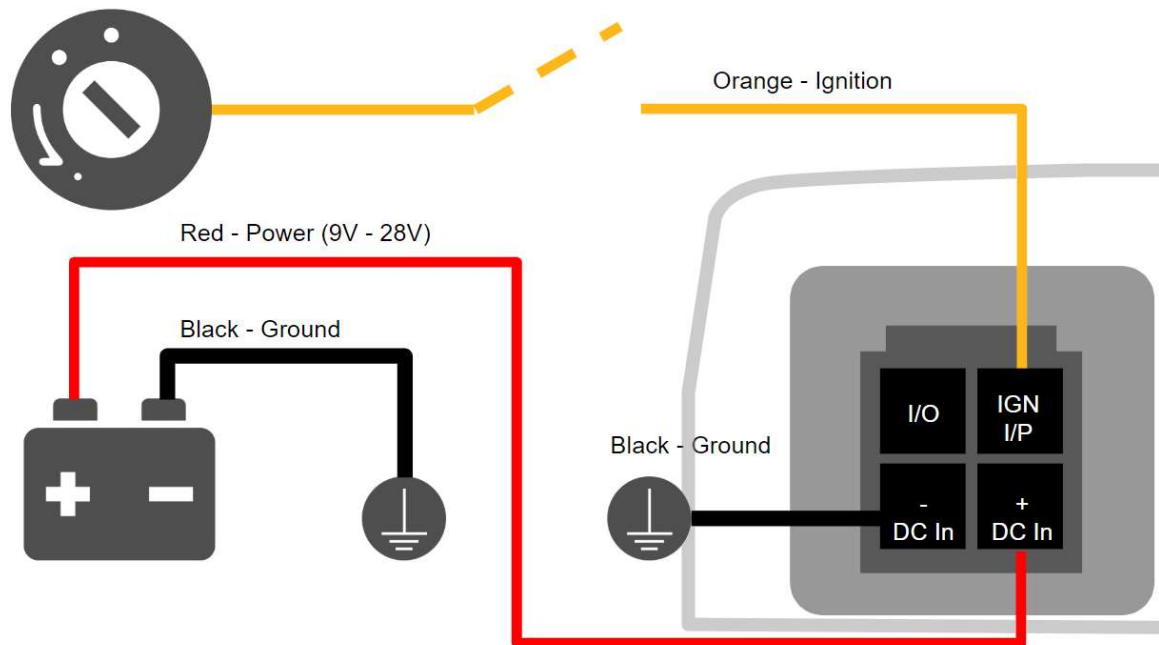
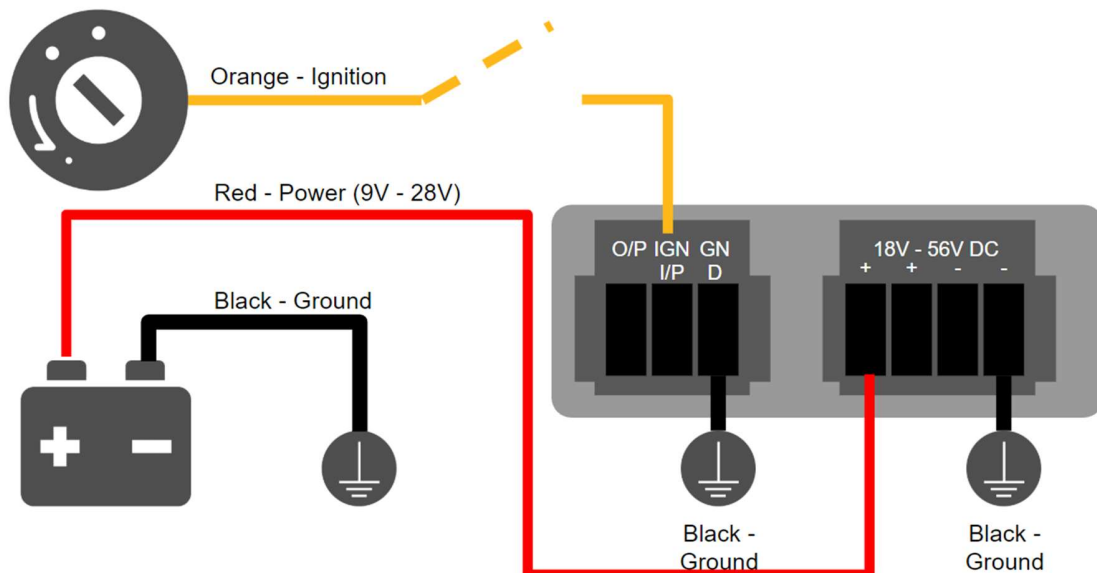
Ignition Sensing detects the ignition signal status of a vehicle it is installed in.

This feature allows the cellular router to start up or shut down when the engine of that vehicle is started or turned off.

The time delay setting between ignition off and power down of the router is a configurable setting, which allows the router to stay on for a period of time after the engine of a vehicle is turned off.

## Ignition Sensing installation

| Function                                                                            |                                                                  | Colour Wire |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------|
|   | I/O optional*                                                    | Brown       |
|                                                                                     | IGN I/P connected to positive feed on the ignition .             | Orange      |
|                                                                                     | DC IN - connected to permanent negative feed (ground)            | Black       |
|                                                                                     | DC IN + connected to permanent positive feed (power 12VDC, 2A)). | Red         |
| * Currently not functional; will be used for additional features in future firmware |                                                                  |             |

**Connectivity diagram for devices with 4-pin connector****Connectivity diagram for devices with terminal block connection**

## GPIO Menu

The Ignition Sensing options are available in **Advanced > GPIO**

The configurable option for Ignition Input is **Delay**; the time in seconds the router stays powered on after the ignition is turned off.

| IGN I/P |                                     |
|---------|-------------------------------------|
| Enable  | <input checked="" type="checkbox"/> |
| Type    | Digital Input ▾                     |
| Mode    | Ignition Sensing ▾                  |
| Delay   | <input type="text"/> seconds        |

Still under development:

O/P (connected to I/O pin on 4 pin connector) can be configured as a digital input, digital output or analog input.

Digital Input - the connection supports input sensing; it reads the external input and determine its settings should be 'High' (on) or 'Low' (off).

Digital Output - when there is a healthy WAN connection, the output pin is marked as 'High' (on). Otherwise, it will be marked as 'Low' (off)

Analog Input - to be confirmed. In most cases should read the external input and determine the voltage level.

| O/P    |                                     |
|--------|-------------------------------------|
| Enable | <input checked="" type="checkbox"/> |
| Type   | Digital Output ▾                    |
| Mode   | WAN Status ▾                        |

## 23.8 Grouped Networks

**Advanced > Grouped Networks** allows to configure destination networks in grouped format.

| Grouped Networks                         |                 |  |
|------------------------------------------|-----------------|--|
| Name                                     | Networks        |  |
| Example                                  | 192.168.1.71/28 |  |
| <input type="button" value="Add Group"/> |                 |  |

Select Add group to create a new group with single IPaddresses or subnets from different VLANs.

| Grouped Networks                                                          |              |                         |  |
|---------------------------------------------------------------------------|--------------|-------------------------|--|
| Name                                                                      | Example      |                         |  |
| Networks                                                                  | Network      | Subnet Mask             |  |
|                                                                           | 192.168.1.71 | 255.255.255.240 (/28) ▾ |  |
|                                                                           |              | 255.255.255.255 (/32) ▾ |  |
| <input type="button" value="Save"/> <input type="button" value="Cancel"/> |              |                         |  |

The created network groups can be used in outbound policies, firewall rules.

## 23.9 SIM Toolkit

The SIM Toolkit, accessible via **Advanced > Misc Settings > SIM Toolkit**, supports two functionalities, USSD and SMS.

### USSD

Unstructured Supplementary Service Data (USSD) is a protocol used by mobile phones to communicate with their service provider's computers. One of the most common uses is to query the available balance.

| SIM Status     |                 |
|----------------|-----------------|
| WAN Connection | Cellular ▼      |
| SIM Card       | 1               |
| IMSI           | 856195002108538 |
| Tool           | USSD ▼          |

| USSD      |                                    |
|-----------|------------------------------------|
| USSD Code | <input type="text"/> <b>Submit</b> |

Enter your USSD code under the **USSD Code** text field and click **Submit**.

| SIM Status     |                     |
|----------------|---------------------|
| WAN Connection | Cellular ▼          |
| SIM Card       | 1                   |
| IMSI           | 856195002108538     |
| USSD Code      | *138# <b>Submit</b> |
| Receive SMS    | <b>Get</b>          |

You will receive a confirmation. To check the SMS response, click **Get**.

| SIM Status     |                              |
|----------------|------------------------------|
| WAN Connection | Cellular ▼                   |
| SIM Card       | 1                            |
| IMSI           | 856195002108538              |
| USSD Code      | *138# <b>Submit</b>          |
| USSD Status    | Request is sent successfully |
| Receive SMS    | <b>Get</b>                   |

After a few minutes you will receive a response to your USSD code

| Received SMS       |                                                                                                                                                                                                                                                                                                                            |                                                                                       |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| May 27 20:02       | <b>PCX</b><br>As of May 27th<br>Account Balance: \$ 0.00<br>Amount Unbilled<br>Voice Calls: 0 minutes<br>Video Calls: 0 minutes<br>SMS (Roaming): 0<br>SMS (Within Network): 0<br>MMS (Roaming): 0<br>MMS (Within Network): 0<br>Data Usage: 7384KB<br>(For reference only, please refer to bill)                          |  |
| Aug 8 , 2013 14:51 | <b>PCX</b><br>iPhone & Android users need to make sure "PCX" is entered as the APN under "Settings" > "Mobile network setting" for web browsing and mobile data service. Other handset models will receive handset settings via SMS shortly (PIN: 1234) (Consumer Service Hotline: 1000 / Business Customer Hotline 10088) |  |

## SMS

The SMS option allows you to read SMS (text) messages that have been sent to the SIM

in your Peplink router.

| SIM Status     |                    |
|----------------|--------------------|
| WAN Connection | Cellular ▼         |
| SIM Card       | 1                  |
| IMSI           | 73421 1 0000000000 |
| Tool           | SMS ▼              |

| SMS                |                                                                                                                                                                                                                                    | Refresh |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Jun 21, 2017 18:00 | Hi,<br>Thank you, your web page can't be reached - you can change this when you first login to <a href="#">www.mn.asia</a>                                                                                                         | ✖       |
| May 06, 2017 12:23 | Hi,<br>Hi, your user still is ready to use. Go to your M2 account on your desktop or on a mobile phone click <a href="#">here</a> <a href="#">http://m2.mn.asia</a> to check your status.                                          | ✖       |
| Mar 15, 2017 10:03 | Hi,<br>Hi, there is planned maintenance in the database that M2 service will be down. If your service is affected, you can get update from <a href="#">http://m2.mn.asia</a>                                                       | ✖       |
| Mar 06, 2017 14:50 | Hi,<br>Hi, your user still is ready to use. Go to your M2 account on your desktop or on a mobile phone click <a href="#">here</a> <a href="#">http://m2.mn.asia</a> to check your status.                                          | ✖       |
| Dec 28, 2016 09:53 | Hi,<br>Hi, we have your support to provide full price offer that we cannot give, this offer applied to your first 10 days. Your monthly recurring charge will be \$10.00. If you want to cancel, please click <a href="#">here</a> | ✖       |
| Dec 06, 2016 13:09 | Hi,<br>Hi, your user still is ready to use. Go to your M2 account on your desktop or on a mobile phone click <a href="#">here</a> <a href="#">http://m2.mn.asia</a> to check your status.                                          | ✖       |
| Nov 08, 2016 11:29 | Hi,<br>Hi, there is planned maintenance in the database that M2 service will be down. If your service is affected, you can get update from <a href="#">http://m2.mn.asia</a>                                                       | ✖       |
| Sep 07, 2016 17:05 | Hi,<br>Hi, there is planned maintenance in the database that M2 service will be down. If your service is affected, you can get update from <a href="#">http://m2.mn.asia</a>                                                       | ✖       |

## 24 AP - access point

### 25 AP Controller

Supported on selected Pepwave models and higher, the AP controller acts as a centralized controller of Pepwave Access Points.

With this feature, users can customize and manage up to 30 Access Points from a single Pepwave router interface.

To configure, navigate to the **AP** tab, and the following screen appears.

| AP Controller |                                                                                                   |
|---------------|---------------------------------------------------------------------------------------------------|
| AP Management | <input checked="" type="checkbox"/> Integrated AP <input checked="" type="checkbox"/> External AP |
| Sync. Method  | As soon as possible ▾                                                                             |
| Permitted AP  | <input checked="" type="radio"/> Any <input type="radio"/> Approved List                          |

| AP Controller        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AP Management</b> | The AP controller for managing Pepwave APs can be enabled by checking this box. When this option is enabled, the AP controller will wait for management connections originating from APs over the LAN on TCP and UDP port 11753. It will also wait for captive portal connections on TCP port 443. An extended DHCP option, <b>CAPWAP Access Controller addresses</b> (field 138), will be added to the DHCP server. A local DNS record, <b>AP Controller</b> , will be added to the local DNS proxy. |
| <b>Sync Method</b>   | <ul style="list-style-type: none"> <li>As soon as possible</li> <li>Progressively</li> <li>One at a time</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Permitted AP</b>  | Access points to manage can be specified here. If <b>Any</b> is selected, the AP controller will manage any AP that reports to it. If <b>Approved List</b> is selected, only APs with serial numbers listed in the provided text box will be managed.                                                                                                                                                                                                                                                 |

### 25.1 Wireless SSID

| SSID                               | Security Policy |
|------------------------------------|-----------------|
| No SSID Defined                    |                 |
| <input type="button" value="Add"/> |                 |

Current SSID information appears in the **SSID** section. To edit an existing SSID, click its name in the list. To add a new SSID, click **Add**. Note that the following settings vary by model.

The below settings show a new SSID window with Advanced Settings enabled (these are available by selecting the question mark in the top right corner).



**SSID**

**SSID Settings**

|                           |                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------|
| SSID                      | <input type="text"/>                                                                         |
| Enable                    | <input checked="" type="checkbox"/>                                                          |
| VLAN                      | Untagged LAN ▼                                                                               |
| Broadcast SSID            | <input checked="" type="checkbox"/>                                                          |
| Data Rate                 | <input checked="" type="radio"/> Auto <input type="radio"/> Fixed                            |
| Multicast Filter          | <input type="checkbox"/>                                                                     |
| Multicast Rate            | MCS0/6M ▼                                                                                    |
| IGMP Snooping             | <input type="checkbox"/>                                                                     |
| Layer 2 Isolation         | <input type="checkbox"/>                                                                     |
| Maximum number of clients | 2.4 GHz: <input type="text" value="0"/> 5 GHz: <input type="text" value="0"/> (0: Unlimited) |

**Security Settings**

|                 |                        |
|-----------------|------------------------|
| Security Policy | Open (No Encryption) ▼ |
|-----------------|------------------------|

**Access Control Settings**

|                 |        |
|-----------------|--------|
| Restricted Mode | None ▼ |
|-----------------|--------|

| SSID Settings |                                                                                                                                                                                                                                                                                                                    |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SSID</b>   | This setting specifies the SSID of the virtual AP to be scanned by Wi-Fi clients.                                                                                                                                                                                                                                  |
| <b>Enable</b> | Click the drop-down menu to apply a time schedule to this interface                                                                                                                                                                                                                                                |
| <b>VLAN</b>   | This setting specifies the VLAN ID to be tagged on all outgoing packets generated from this wireless network (i.e., packets that travel from the Wi-Fi segment through the Pepwave AP One unit to the Ethernet segment via the LAN port). The default value of this setting is <b>0</b> , which means VLAN tagging |

|                                       |                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | is disabled (instead of tagged with zero).                                                                                                                                                                                                                                                                                                |
| <b>Broadcast SSID</b>                 | This setting specifies whether or not Wi-Fi clients can scan the SSID of this wireless network. <b>Broadcast SSID</b> is enabled by default.                                                                                                                                                                                              |
| <b>Data Rate</b> <sup>A</sup>         | Select <b>Auto</b> to allow the Pepwave router to set the data rate automatically, or select <b>Fixed</b> and choose a rate from the displayed drop-down menu.                                                                                                                                                                            |
| <b>Multicast Filter</b> <sup>A</sup>  | This setting enables the filtering of multicast network traffic to the wireless SSID.                                                                                                                                                                                                                                                     |
| <b>Multicast Rate</b> <sup>A</sup>    | This setting specifies the transmit rate to be used for sending multicast network traffic. The selected <b>Protocol</b> and <b>Channel Bonding</b> settings will affect the rate options and values available here.                                                                                                                       |
| <b>IGMP Snooping</b> <sup>A</sup>     | To allow the Pepwave router to listen to internet group management protocol (IGMP) network traffic, select this option.                                                                                                                                                                                                                   |
| <b>DHCP Option 82</b> <sup>A</sup>    | If you use a distributed DHCP server/relay environment, you can enable this option to provide additional information on the manner in which clients are physically connected to the network.                                                                                                                                              |
| <b>Layer 2 Isolation</b> <sup>A</sup> | <p><b>Layer 2</b> refers to the second layer in the ISO Open System Interconnect model.</p> <p>When this option is enabled, clients on the same VLAN, SSID, or subnet are isolated to that VLAN, SSID, or subnet, which can enhance security. Traffic is passed to upper communication layer(s). By default, the setting is disabled.</p> |
| <b>Maximum Number of Clients</b>      | Indicate the maximum number of clients that should be able to connect to each frequency.                                                                                                                                                                                                                                                  |

<sup>A</sup> - Advanced feature. Click the  button on the top right-hand corner to activate.

| Security Settings |                                                                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Security Policy   | WPA2 - Personal ▼                                                                                                                                                                           |
| Encryption        | AES:CCMP                                                                                                                                                                                    |
| Shared Key        | <div>  <input type="password" value="....."/> </div> <input checked="" type="checkbox"/> Hide Characters |

| Security Settings      |                                                                                                                                                                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | This setting configures the wireless authentication and encryption methods. Available options are :                                                                                                                                                            |
| <b>Security Policy</b> | <ul style="list-style-type: none"> <li>• <b>Open</b> (No Encryption)</li> <li>• <b>WPA2 -Personal</b> (AES:CCMP)</li> <li>• <b>WPA2 – Enterprise</b></li> <li>• <b>WPA/WPA2 - Personal</b> (TKIP/AES: CCMP)</li> <li>• <b>WPA/WPA2 – Enterprise</b></li> </ul> |

When **WPA/WPA2 - Enterprise** is configured, RADIUS-based 802.1 x authentication is enabled. Under this configuration, the **Shared Key** option should be disabled. When using this method, select the appropriate version using the **V1/V2** controls. The security level of this method is known to be very high.

When **WPA/WPA2- Personal** is configured, a shared key is used for data encryption and authentication. When using this configuration, the **Shared Key** option should be enabled. Key length must be between eight and 63 characters (inclusive). The security level of this method is known to be high.

| Access Control Settings |                          |
|-------------------------|--------------------------|
| Restricted Mode         | Deny all except listed ▼ |
| MAC Address List        | <div>?</div>             |

### Access Control

#### Restricted Mode

The settings allow administrator to control access using MAC address filtering. Available options are **None**, **Deny all except listed**, and **Accept all except listed**

#### MAC Address List

Connection coming from the MAC addresses in this list will be either denied or accepted based on the option selected in the previous field.  
If more than one MAC address needs to be entered, you can use a carriage return to separate them.

| RADIUS Server Settings | Primary Server                                                              | Secondary Server                                                            |
|------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Host                   | <input type="text"/>                                                        | <input type="text"/>                                                        |
| Secret                 | <input type="text"/><br><input checked="" type="checkbox"/> Hide Characters | <input type="text"/><br><input checked="" type="checkbox"/> Hide Characters |
| Authentication Port    | 1812 <input type="button" value="Default"/>                                 | 1812 <input type="button" value="Default"/>                                 |
| Accounting Port        | 1813 <input type="button" value="Default"/>                                 | 1813 <input type="button" value="Default"/>                                 |
| NAS-Identifier         | Device Name ▼                                                               |                                                                             |

### RADIUS Server Settings

#### Host

Enter the IP address of the primary RADIUS server and, if applicable, the secondary RADIUS server.

|                            |                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Secret</b>              | Enter the RADIUS shared secret for the primary server and, if applicable, the secondary RADIUS server.                                 |
| <b>Authentication Port</b> | In field, enter the UDP authentication port(s) used by your RADIUS server(s) or click the <b>Default</b> button to enter <b>1812</b> . |
| <b>Accounting Port</b>     | In field, enter the UDP accounting port(s) used by your RADIUS server(s) or click the <b>Default</b> button to enter <b>1813</b> .     |
| <b>NAS-Identifier</b>      | Choose between <b>Device Name</b> , <b>LAN MAC address</b> , <b>Device Serial Number</b> and <b>Custom Value</b>                       |

## 25.2 Settings

On many Pepwave models, the AP settings screen (**AP>Settings**) looks similar to the example below:

| AP Settings                      |                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| SSID                             | <input checked="" type="checkbox"/> 2.4 GHz <input checked="" type="checkbox"/> 5 GHz Integrated AP supports 2.4 GHz only. Testing |
| Operating Country                | United States                                                                                                                      |
| Preferred Frequency              | <input checked="" type="radio"/> 2.4 GHz <input type="radio"/> 5 GHz<br>Integrated AP supports 2.4 GHz only.                       |
|                                  | <div>2.4 GHz</div> <div>5 GHz</div>                                                                                                |
| Protocol                         | <div>802.11n/g</div> <div>802.11n/ac</div>                                                                                         |
| Channel Width                    | <div>20 MHz</div> <div>Auto</div>                                                                                                  |
| Channel                          | <div>Auto</div> <b>Edit</b><br>Channels: 1 2 3 4 5 6 7 8 9 10 11                                                                   |
|                                  | <div>Auto</div> <b>Edit</b><br>Channels: 36 40 44 48 52 56 60 64 100 104 108 112 116 120 124 128 132 136 140 149 153 157 161 165   |
| Auto Channel Update              | Daily at 03:00<br><input checked="" type="checkbox"/> Wait until no active client associated                                       |
| Output Power                     | Fixed: Max <input type="checkbox"/> Boost                                                                                          |
| Client Signal Strength Threshold | 0 -95 dBm (0: Unlimited)                                                                                                           |
| Maximum number of clients        | 0 (0: Unlimited)                                                                                                                   |
| Management VLAN ID               | Untagged LAN (No VLAN)                                                                                                             |
| Operating Schedule               | Always on                                                                                                                          |
| Beacon Rate                      | 1 Mbps 6 Mbps will be used for 5 GHz radio                                                                                         |
| Beacon Interval                  | 100 ms                                                                                                                             |
| DTIM                             | 1 <b>Default</b>                                                                                                                   |
| RTS Threshold                    | 0 <b>Default</b>                                                                                                                   |
| Fragmentation Threshold          | 0 (0: Disable) <b>Default</b>                                                                                                      |
| Distance / Time Converter        | 4050 m<br>Note: Input distance for recommended values                                                                              |
| Slot Time                        | <input type="radio"/> Auto <input checked="" type="radio"/> Custom 9 <b>Default</b>                                                |
| ACK Timeout                      | 48 <b>Default</b>                                                                                                                  |
| Frame Aggregation                | <input type="checkbox"/>                                                                                                           |

### AP Settings

#### SSID

These buttons specify which wireless networks will use this AP profile. You can also select the frequencies at which each network will transmit. Please note that the Peplink Balance does not detect whether the AP is capable of transmitting at both frequencies. Instructions to transmit at unsupported frequencies will be ignored by the AP.

#### Operating Country

This drop-down menu specifies the national / regional regulations which the AP should follow.

- If a North American region is selected, RF channels 1 to 11 will be available and the maximum transmission power will be 26 dBm (400 mW).
- If European region is selected, RF channels 1 to 13 will be available.

|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                     | <p>The maximum transmission power will be 20 dBm (100 mW).</p> <p>NOTE: Users are required to choose an option suitable to local laws and regulations.</p> <p>Per FCC regulation, the country selection is not available on all models marketed in US. All US models are fixed to US channels only.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Preferred Frequency</b>                          | These buttons determine the frequency at which access points will attempt to broadcast. This feature will only work for APs that can transmit at both 5.4GHz and 5GHz frequencies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Protocol</b>                                     | This section displays the 2.4 GHz protocols your APs are using.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Channel Width</b>                                | There are three options: 20 MHz, 20/40 MHz, and 40 MHz. With this feature enabled, the Wi-Fi system can use two channels at once. Using two channels improves the performance of the Wi-Fi connection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Channel</b>                                      | This drop-down menu selects the 802.11 channel to be utilized. Available options are from 1 to 11 and from 1 to 13 for the North America region and Europe region, respectively. (Channel 14 is only available when the country is selected as Japan with protocol 802.11b.) If <b>Auto</b> is set, the system will perform channel scanning based on the scheduled time set and choose the most suitable channel automatically.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Auto Channel Update</b>                          | Indicate the time of day at which update automatic channel selection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Output Power<sup>A</sup></b>                     | <p>This drop-down menu determines the power at which the AP under this profile will broadcast. When fixed settings are selected, the AP will broadcast at the specified power level, regardless of context. When <b>Dynamic</b> settings are selected, the AP will adjust its power level based on its surrounding APs in order to maximize performance.</p> <p>The <b>Dynamic: Auto</b> setting will set the AP to do this automatically. Otherwise, the <b>Dynamic: Manual</b> setting will set the AP to dynamically adjust only of instructed to do so. If you have set <b>Dynamic: Manual</b>, you can go to <b>AP&gt;Toolbox&gt;Auto Power Adj.</b> to give your AP further instructions.</p> <p>If you click the <b>Boost</b> checkbox, the AP under this profile will transmit using additional power. Please note that using this option with several APs in close proximity will lead to increased interference.</p> |
| <b>Client Signal Strength Threshold<sup>A</sup></b> | This field determines that maximum signal strength each individual client will receive. The measurement unit is megawatts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Max number of Clients<sup>A</sup></b>            | This field determines the maximum clients that can be connected to APs under this profile.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Management VLAN ID</b>                           | This field specifies the VLAN ID to tag to management traffic, such as AP to AP controller communication traffic. The value is <b>0</b> by default, meaning that no VLAN tagging will be applied. NOTE: change this value with caution as alterations may result in loss of connection to the AP controller.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                            |                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operating Schedule</b>                  | Choose from the schedules that you have defined in <b>System&gt;Schedule</b> . Select the schedule for the integrated AP to follow from the drop-down menu.                                  |
| <b>Beacon Rate<sup>A</sup></b>             | This drop-down menu provides the option to send beacons in different transmit bit rates. The bit rates are <b>1Mbps</b> , <b>2Mbps</b> , <b>5.5Mbps</b> , <b>6Mbps</b> , and <b>11Mbps</b> . |
| <b>Beacon Interval<sup>A</sup></b>         | This drop-down menu provides the option to set the time between each beacon send. Available options are <b>100ms</b> , <b>250ms</b> , and <b>500ms</b> .                                     |
| <b>DTIM<sup>A</sup></b>                    | This field provides the option to set the frequency for beacon to include delivery traffic indication messages (DTIM). The interval unit is measured in milliseconds.                        |
| <b>RTS Threshold<sup>A</sup></b>           | This field provides the option to set the minimum packet size for the unit to send an RTS using the RTS/CTS handshake. Setting <b>0</b> disables this feature.                               |
| <b>Fragmentation Threshold<sup>A</sup></b> | Determines the maximum size (in bytes) that each packet fragment will be broken down into. Set 0 to disable fragmentation.                                                                   |
| <b>Distance/Time Converter<sup>A</sup></b> | Select the distance you want your Wi-Fi to cover in order to adjust the below parameters. Default values are recommended.                                                                    |
| <b>Slot Time<sup>A</sup></b>               | This field provides the option to modify the unit wait time before it transmits. The default value is <b>9μs</b> .                                                                           |
| <b>ACK Timeout<sup>A</sup></b>             | This field provides the option to set the wait time to receive acknowledgement packet before doing retransmission. The default value is <b>48μs</b> .                                        |
| <b>Frame Aggregation<sup>A</sup></b>       | With this feature enabled, throughput will be increased by sending two or more data frames in a single transmission.                                                                         |
| <b>Frame Length</b>                        | This field is only available when <b>Frame Aggregation</b> is enabled. It specifies the frame length for frame aggregation. By default, it is set to <b>50000</b> .                          |

<sup>A</sup> - Advanced feature. Click the  button on the top right-hand corner to activate.

| Web Administration Settings (on External AP) |                                                                   |
|----------------------------------------------|-------------------------------------------------------------------|
| Enable                                       | <input checked="" type="checkbox"/>                               |
| Web Access Protocol                          | <input type="radio"/> HTTP <input checked="" type="radio"/> HTTPS |
| Management Port                              | 443                                                               |
| HTTP to HTTPS Redirection                    | <input checked="" type="checkbox"/>                               |
| Admin Username                               | admin                                                             |
| Admin Password                               | 25db591396e0 <input type="button" value="Generate"/>              |

| Web Administration Settings |                                                                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------|
| <b>Enable</b>               | Check the box to allow the Pepwave router to manage the web admin access information of the AP. |
| <b>Web Access</b>           | These buttons specify the web access protocol used for accessing the web                        |

|                                  |                                                                                                                                                                                             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Protocol</b>                  | admin of the AP. The two available options are <b>HTTP</b> and <b>HTTPS</b> .                                                                                                               |
| <b>Management Port</b>           | This field specifies the management port used for accessing the device.                                                                                                                     |
| <b>HTTP to HTTPS Redirection</b> | This option will be available if you have chosen <b>HTTPS</b> as the <b>Web Access Protocol</b> . With this enabled, any HTTP access to the web admin will redirect to HTTPS automatically. |
| <b>Admin User Name</b>           | This field specifies the administrator username of the web admin. It is set as <i>admin</i> by default.                                                                                     |
| <b>Admin Password</b>            | This field allows you to specify a new administrator password. You may also click the <b>Generate</b> button and let the system generate a random password automatically.                   |

Navigating to **AP>Settings** on some Pepwave models displays a screen similar to the one shown below:

 InControl management enabled. Settings can now be configured on [InControl](#).

| Wi-Fi Radio Settings |                                                                          |
|----------------------|--------------------------------------------------------------------------|
| Operating Country    | United States ▼                                                          |
| Wi-Fi Antenna        | <input type="radio"/> Internal <input checked="" type="radio"/> External |

| Wi-Fi AP Settings |                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------|
| Protocol          | 802.11ng ▼                                                                                  |
| Channel           | 1 (2.412 GHz) ▼                                                                             |
| Channel Width     | Auto ▼                                                                                      |
| Output Power      | Max ▼ <input type="checkbox"/> Boost                                                        |
| Beacon Rate       |  1Mbps ▼ |
| Beacon Interval   |  100ms ▼ |
| DTIM              |  1       |
| Slot Time         |  9 μs    |
| ACK Timeout       |  48 μs   |
| Frame Aggregation | <input checked="" type="checkbox"/> Enable                                                  |
| Guard Interval    | <input type="radio"/> Short <input type="radio"/> Long                                      |

### Wi-Fi Radio Settings

|                          |                                                                                  |
|--------------------------|----------------------------------------------------------------------------------|
| <b>Operating Country</b> | This option sets the country whose regulations the Pepwave router follows.       |
| <b>Wi-Fi Antenna</b>     | Choose from the router's internal or optional external antennas, if so equipped. |

### Important Note

Per FCC regulations, the country selection is not available on all models marketed in the US. All US models are fixed to US channels only.

| Wi-Fi AP Settings                    |                                                                                                                                                                                                                                                                              |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Protocol</b>                      | This option allows you to specify whether 802.11b and/or 802.11g client association requests will be accepted. Available options are <b>802.11ng</b> and <b>802.11na</b> . By default, <b>802.11ng</b> is selected.                                                          |
| <b>Channel</b>                       | This option allows you to select which 802.11 RF channel will be used. <b>Channel 1 (2.412 GHz)</b> is selected by default.                                                                                                                                                  |
| <b>Channel Width</b>                 | <b>Auto (20/40 MHz)</b> and <b>20 MHz</b> are available. The default setting is <b>Auto (20/40 MHz)</b> , which allows both widths to be used simultaneously.                                                                                                                |
| <b>Output Power</b>                  | This option is for specifying the transmission output power for the Wi-Fi AP. There are 4 relative power levels available – <b>Max</b> , <b>High</b> , <b>Mid</b> , and <b>Low</b> . The actual output power will be bound by the regulatory limits of the selected country. |
| <b>Beacon Rate<sup>A</sup></b>       | This option is for setting the transmit bit rate for sending a beacon. By default, <b>1Mbps</b> is selected.                                                                                                                                                                 |
| <b>Beacon Interval<sup>A</sup></b>   | This option is for setting the time interval between each beacon. By default, <b>100ms</b> is selected.                                                                                                                                                                      |
| <b>DTIM<sup>A</sup></b>              | This field allows you to set the frequency for the beacon to include a delivery traffic indication message. The interval is measured in milliseconds. The default value is set to <b>1 ms</b> .                                                                              |
| <b>Slot Time<sup>A</sup></b>         | This field is for specifying the wait time before the Router transmits a packet. By default, this field is set to <b>9 µs</b> .                                                                                                                                              |
| <b>ACK Timeout<sup>A</sup></b>       | This field is for setting the wait time to receive an acknowledgement packet before performing a retransmission. By default, this field is set to <b>48 µs</b> .                                                                                                             |
| <b>Frame Aggregation<sup>A</sup></b> | This option allows you to enable frame aggregation to increase transmission throughput.                                                                                                                                                                                      |
| <b>Guard Interval<sup>A</sup></b>    | This setting allows choosing a short or long guard period interval for your transmissions.                                                                                                                                                                                   |

<sup>A</sup> - Advanced feature, please click the  button on the top right-hand corner to activate.

## 26 AP Controller Status

### 26.1 Info

A comprehensive overview of your AP can be accessed by navigating to **AP > Controller Status > Info**.



| AP Controller         |                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>License Limit</b>  | This field displays the maximum number of AP your Balance router can control. You can purchase licenses to increase the number of AP you can manage.                                                                                                                                                                                                  |
| <b>Frequency</b>      | Underneath, there are two check boxes labeled <b>2.4 Ghz</b> and <b>5 Ghz</b> . Clicking either box will toggle the display of information for that frequency. By default, the graphs display the number of clients and data usage for both 2.4GHz and 5 GHz frequencies.                                                                             |
| <b>SSID</b>           | The colored boxes indicate the SSID to display information for. Clicking any colored box will toggle the display of information for that SSID. By default, all the graphs show information for all SSIDs.                                                                                                                                             |
| <b>No. of APs</b>     | This pie chart and table indicates how many APs are online and how many are offline.                                                                                                                                                                                                                                                                  |
| <b>No. of Clients</b> | This graph displays the number of clients connected to each network at any given time. Mouse over any line on the graph to see how many clients connected to a specific SSID for that point in time.                                                                                                                                                  |
| <b>Data Usage</b>     | This graph enables you to see the data usage of any SSID for any given time period. Mouse over any line on the graph to see the data usage by each SSID for that point in time. Use the buttons next to <b>Zoom</b> to select the time scale you wish to view. In addition, you could use the sliders at the bottom to further refine your timescale. |

| Events         |                                                                        | <a href="#">View Alerts</a> |
|----------------|------------------------------------------------------------------------|-----------------------------|
| Jan 2 11:01:11 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 11:00:42 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 11:00:38 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 11:00:36 | AP One 300M: Client 00:21:6A:35:59:A4 associated with Balance_11a      |                             |
| Jan 2 11:00:20 | AP One 300M: Client 60:67:20:24:B6:4C disassociated from Marketing_11a |                             |
| Jan 2 11:00:09 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:59:09 | AP One 300M: Client 00:21:6A:35:59:A4 disassociated from Balance_11a   |                             |
| Jan 2 10:59:08 | Office Fiber AP: Client 18:00:2D:3D:4E:7F associated with Balance      |                             |
| Jan 2 10:58:53 | Michael's Desk: Client 18:00:2D:3D:4E:7F disassociated from Wireless   |                             |
| Jan 2 10:58:18 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:58:03 | Office InWall: Client 10:BF:48:E9:76:C7 associated with Wireless       |                             |
| Jan 2 10:57:47 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:57:19 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:57:09 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:56:48 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:56:39 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:56:19 | AP One 300M: Client 00:26:BB:05:84:A4 associated with Marketing_11a    |                             |
| Jan 2 10:56:09 | AP One 300M: Client 9C:04:EB:10:39:4C associated with Marketing_11a    |                             |
| Jan 2 10:55:42 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:55:29 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
|                |                                                                        | <a href="#">More...</a>     |

## Events

This event log displays all activity on your AP network, down to the client level. Click **View Alerts** to see only alerts, and click the **More...** link for additional records.

## 26.2 Access Point (Usage)

A detailed breakdown of data usage for each AP is available at **AP > Controller Status > Access Point**.

| Search Filter                  |                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------|
| AP Name / Serial Number / SSID | <input type="text" value="All"/><br><input type="checkbox"/> Include Offline APs |
| Search Result                  |                                                                                  |

| Managed APs          |            |                   |          |          |         |               | <a href="#">Expand</a> | <a href="#">Collapse</a> |
|----------------------|------------|-------------------|----------|----------|---------|---------------|------------------------|--------------------------|
| Name                 | IP Address | MAC               | Location | Firmware | Pack ID | Configuration |                        |                          |
| Default (8/9 online) |            |                   |          |          |         |               |                        |                          |
| 10.8.82.11           | 10.8.82.11 | 00:1A:DD:BD:73:E0 | -        | 3.5.2    | None    | ✓             | -                      |                          |

## Usage

**AP Name/Serial Number** This field enables you to quickly find your device if you know its name or serial number. Fill in the field to begin searching. Partial names and serial numbers are supported.

**Online Status** This button toggles whether your search will include offline devices.

**Managed Wireless** This table shows the detailed information on each AP, including channel,

## Devices

number of clients, upload traffic, and download traffic. Click the blue arrows at the left of the table to expand and collapse information on each device group.

You could also expand and collapse all groups by using the   buttons.

On the right of the table, you will see the following icons:   .

Click the  icon to see a usage table for each client:

| Client List       |             |          |                |           |           |           |
|-------------------|-------------|----------|----------------|-----------|-----------|-----------|
| MAC Address       | IP Address  | Type     | Signal         | SSID      | Upload    | Download  |
| 80:56:f2:98:75:ff | 10.9.2.7    | 802.11ng | Excellent (37) | Balance   | 66.26 MB  | 36.26 MB  |
| c4:6a:b7:bf:d7:15 | 10.9.2.123  | 802.11ng | Excellent (42) | Balance   | 6.65 MB   | 2.26 MB   |
| 70:56:81:1d:87:f3 | 10.9.2.102  | 802.11ng | Good (23)      | Balance   | 1.86 MB   | 606.63 KB |
| e0:63:e5:83:45:c8 | 10.9.2.101  | 802.11ng | Excellent (39) | Balance   | 3.42 MB   | 474.52 KB |
| 18:00:2d:3d:4e:7f | 10.9.2.66   | 802.11ng | Excellent (25) | Balance   | 640.29 KB | 443.57 KB |
| 14:5a:05:80:4f:40 | 10.9.2.76   | 802.11ng | Excellent (29) | Balance   | 2.24 KB   | 3.67 KB   |
| 00:1a:dd:c5:4e:24 | 10.8.9.84   | 802.11ng | Excellent (29) | Wireless  | 9.86 MB   | 9.76 MB   |
| 00:1a:dd:bb:29:ec | 10.8.9.73   | 802.11ng | Excellent (25) | Wireless  | 9.36 MB   | 11.14 MB  |
| 40:b0:fa:c3:26:2c | 10.8.9.18   | 802.11ng | Good (23)      | Wireless  | 118.05 MB | 7.92 MB   |
| e4:25:e7:8a:d3:12 | 10.10.11.23 | 802.11ng | Excellent (35) | Marketing | 74.78 MB  | 4.58 MB   |
| 04:f7:e4:ef:68:05 | 10.10.11.71 | 802.11ng | Poor (12)      | Marketing | 84.84 KB  | 119.32 KB |

Close

Click the  icon to configure each client

| AP Details                        |                                                                                 |
|-----------------------------------|---------------------------------------------------------------------------------|
| Serial Number                     | 1111-2222-3333                                                                  |
| MAC Address                       | 00:1A:DD:BD:73:E0                                                               |
| Product Name                      | Pepwave AP Pro Duo                                                              |
| Name                              | <input type="text"/>                                                            |
| Location                          | <input type="text"/>                                                            |
| Firmware Version                  | 3.5.2                                                                           |
| Firmware Pack                     | Default (None) ▼                                                                |
| AP Client Limit                   | <input checked="" type="radio"/> Follow AP Profile <input type="radio"/> Custom |
| 2.4 GHz SSID List                 | T4Open                                                                          |
| 5 GHz SSID List                   | T4Open                                                                          |
| Last config applied by controller | Mon Nov 23 11:25:03 HKT 2015                                                    |
| Uptime                            | Wed Nov 11 15:00:27 HKT 2015                                                    |
| Current Channel                   | 1 (2.4 GHz)<br>153 (5 GHz)                                                      |
| Channel                           | 2.4 GHz: Follow AP Profile ▼ 5 GHz: Follow AP Profile ▼                         |
| Output Power                      | 2.4 GHz: Follow AP Profile ▼ 5 GHz: Follow AP Profile ▼                         |

Close

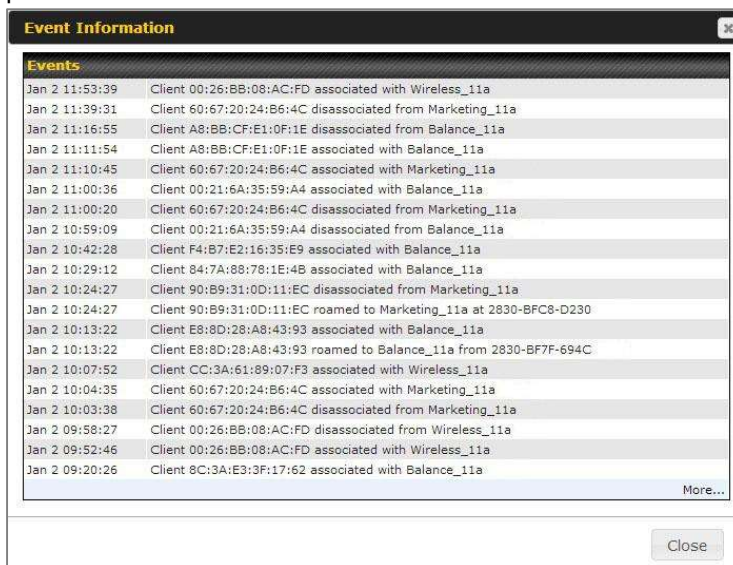
For easier network management, you can give each client a name and designate its location. You can also designate which firmware pack (if any) this client will follow, as well as the channels on which the client will broadcast.

Click the  icon to see a graph displaying usage:



Click any point in the graphs to display detailed usage and client information for that device, using that SSID, at that point in time. On the **Data Usage by** menu, you can display the information by SSID or by AP send/receive rate.

Click the **Event** tab next to **Wireless Usage** to view a detailed event log for that particular device:



**Event Information**

Events

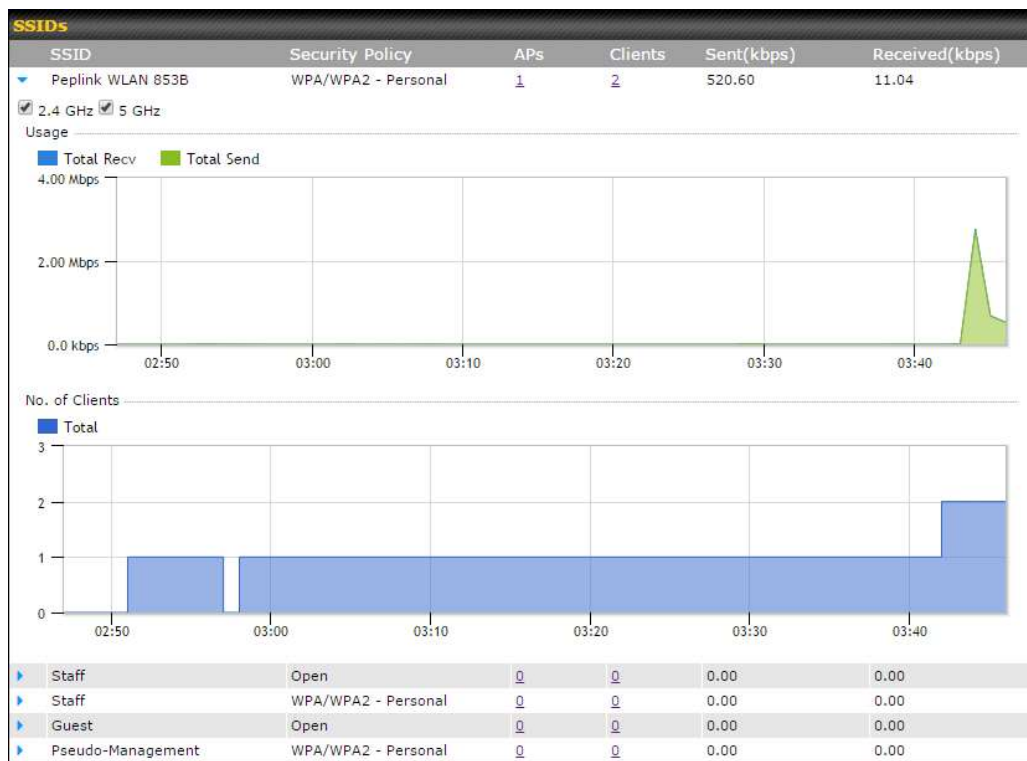
|                |                                                                    |
|----------------|--------------------------------------------------------------------|
| Jan 2 11:53:39 | Client 00:26:BB:08:AC:FD associated with Wireless_11a              |
| Jan 2 11:39:31 | Client 60:67:20:24:B6:4C disassociated from Marketing_11a          |
| Jan 2 11:16:55 | Client A8:BB:CF:E1:0F:1E disassociated from Balance_11a            |
| Jan 2 11:11:54 | Client A8:BB:CF:E1:0F:1E associated with Balance_11a               |
| Jan 2 11:10:45 | Client 60:67:20:24:B6:4C associated with Marketing_11a             |
| Jan 2 11:00:36 | Client 00:21:6A:35:59:A4 associated with Balance_11a               |
| Jan 2 11:00:20 | Client 60:67:20:24:B6:4C disassociated from Marketing_11a          |
| Jan 2 10:59:09 | Client 00:21:6A:35:59:A4 disassociated from Balance_11a            |
| Jan 2 10:42:28 | Client F4:B7:E2:16:35:E9 associated with Balance_11a               |
| Jan 2 10:29:12 | Client 84:7A:88:78:1E:4B associated with Balance_11a               |
| Jan 2 10:24:27 | Client 90:B9:31:0D:11:EC disassociated from Marketing_11a          |
| Jan 2 10:24:27 | Client 90:B9:31:0D:11:EC roamed to Marketing_11a at 2830-BFC8-D230 |
| Jan 2 10:13:22 | Client E8:8D:28:A8:43:93 associated with Balance_11a               |
| Jan 2 10:13:22 | Client E8:8D:28:A8:43:93 roamed to Balance_11a from 2830-BF7F-694C |
| Jan 2 10:07:52 | Client CC:3A:61:89:07:F3 associated with Wireless_11a              |
| Jan 2 10:04:35 | Client 60:67:20:24:B6:4C associated with Marketing_11a             |
| Jan 2 10:03:38 | Client 60:67:20:24:B6:4C disassociated from Marketing_11a          |
| Jan 2 09:58:27 | Client 00:26:BB:08:AC:FD disassociated from Wireless_11a           |
| Jan 2 09:52:46 | Client 00:26:BB:08:AC:FD associated with Wireless_11a              |
| Jan 2 09:20:26 | Client 8C:3A:E3:3F:17:62 associated with Balance_11a               |

More...

Close

## 26.3 Wireless SSID

In-depth SSID reports are available under **AP > Controller Status > Wireless SSID**.



Click the blue arrow on any SSID to obtain more detailed usage information on each SSID.

## 26.4 Wireless Client

You can search for specific Wi-Fi users by navigating to **AP > Controller Status > Wireless Client**.

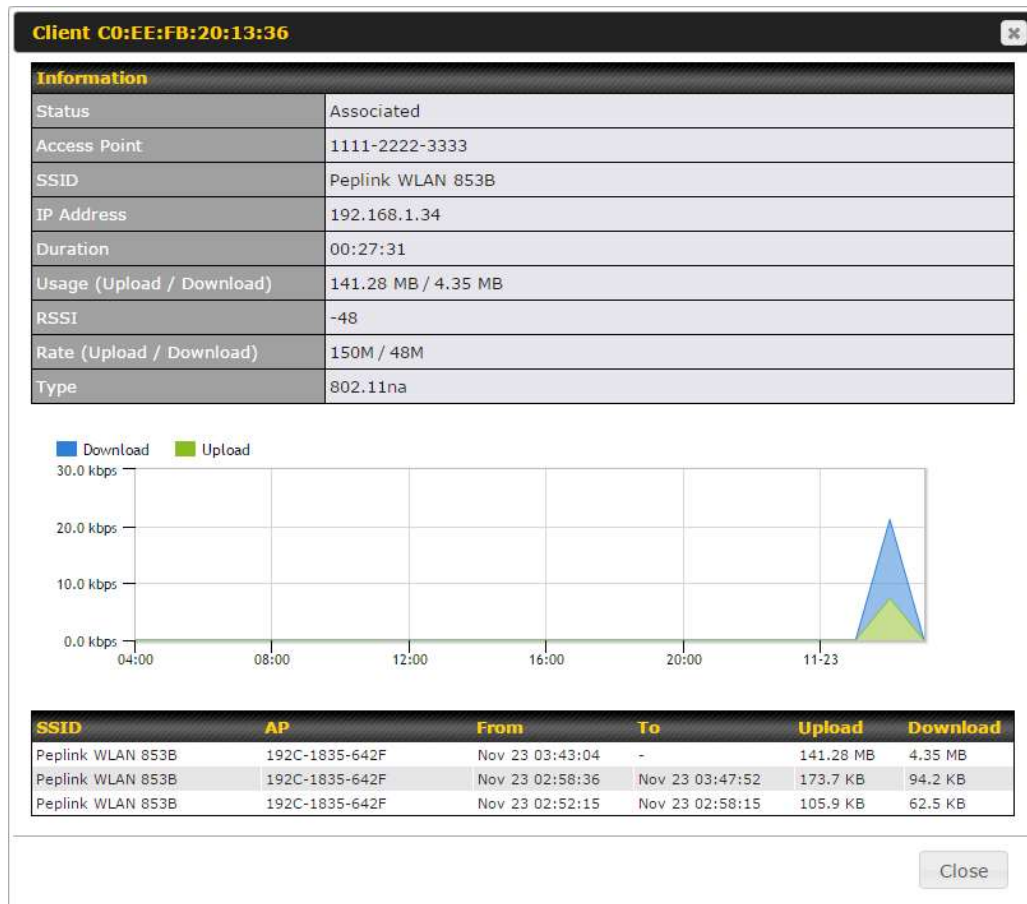
**Search Filter**

|                                      |                                 |
|--------------------------------------|---------------------------------|
| Client MAC / SSID / AP Serial Number | <input type="text"/>            |
| Maximum Result (1-256)               | <input type="text" value="50"/> |
| Search Result                        |                                 |

**Top 10 Clients of last hour (Updated at 03:00)**

| Client MAC Address | Upload  | Download |     |
|--------------------|---------|----------|-----|
| C0:EE:FB:20:13:36  | 53.5 KB | 101.4 KB | ☆ 📊 |

Here, you will be able to see your network's heaviest users as well as search for specific users. Click the ☆ icon to bookmark specific users, and click the 📊 icon for additional details about each user:



## 26.5 Nearby Device

A listing of near devices can be accessed by navigating to **AP > Controller Status > Nearby Device**.

| Suspected Rogue APs |                         |         |            |                |                                                                                                                                                                         |
|---------------------|-------------------------|---------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BSSID               | SSID                    | Channel | Encryption | Last Seen      | Mark as                                                                                                                                                                 |
| 00:1A:DD:EC:25:22   | Wireless                | 11      | WPA2       | 10 hours ago   |   |
| 00:1A:DD:EC:25:23   | Accounting              | 11      | WPA2       | 10 hours ago   |   |
| 00:1A:DD:EC:25:24   | Marketing               | 11      | WPA2       | 11 hours ago   |   |
| 00:03:7F:00:00:00   | MYB1PUSH                | 1       | WPA & WPA2 | 11 minutes ago |   |
| 00:03:7F:00:00:01   | MYB1                    | 1       | WPA2       | 15 minutes ago |   |
| 00:1A:DD:B9:60:88   | PEPWAVE_CB7E            | 1       | WPA & WPA2 | 5 minutes ago  |   |
| 00:1A:DD:BB:09:C1   | Micro_S1_1              | 6       | WPA & WPA2 | 1 hour ago     |   |
| 00:1A:DD:BB:52:A8   | MAX HD2 Gobi            | 11      | WPA & WPA2 | 2 minutes ago  |   |
| 00:1A:DD:BF:75:81   | PEPLINK_05B5            | 4       | WPA & WPA2 | 1 minute ago   |   |
| 00:1A:DD:BF:75:82   | LK_05B5                 | 4       | WPA2       | 1 minute ago   |   |
| 00:1A:DD:BF:75:83   | LK_05B5_VLAN22          | 4       | WPA2       | 1 minute ago   |   |
| 00:1A:DD:C1:ED:E4   | dev_captive_portal_test | 1       | WPA & WPA2 | 3 minutes ago  |   |
| 00:1A:DD:C2:E4:C5   | PEPWAVE_7052            | 11      | WPA & WPA2 | 2 hours ago    |   |
| 00:1A:DD:C3:F1:64   | dev_captive_portal_test | 6       | WPA & WPA2 | 6 minutes ago  |   |
| 00:1A:DD:C4:DC:24   | ssid_test               | 8       | WPA & WPA2 | 2 minutes ago  |   |
| 00:1A:DD:C4:DC:25   | SSID New                | 8       | WPA & WPA2 | 2 minutes ago  |   |
| 00:1A:DD:C5:46:04   | Guest SSID              | 9       | WPA2       | 2 minutes ago  |   |
| 00:1A:DD:C5:47:04   | PEPWAVE_67B8            | 1       | WPA & WPA2 | 5 minutes ago  |   |
| 00:1A:DD:C5:4E:24   | G BR1 Portal            | 2       | WPA2       | 2 minutes ago  |   |
| 00:1A:DD:C6:9A:48   | ssid_test               | 8       | WPA & WPA2 | 2 hours ago    |   |

### Suspected Rogue Devices

Hovering over the device MAC address will result in a popup with information on how this device was detected. Click the   icons and the device will be moved to the bottom table of identified devices.

## 26.6 Event Log

You can access the AP Controller Event log by navigating to **AP > Controller Status > Event Log**.

| Filter                                |                                                                         |
|---------------------------------------|-------------------------------------------------------------------------|
| Search key                            | Client MAC Address / Wireless SSID / AP Serial Number / AP Profile Name |
| Time                                  | From <input type="text"/> hh:mm to <input type="text"/> hh:mm           |
| Alerts only                           | <input type="checkbox"/>                                                |
| <input type="button" value="Search"/> |                                                                         |

| Events         |                                                                        | <a href="#">View Alerts</a> |
|----------------|------------------------------------------------------------------------|-----------------------------|
| Jan 2 11:01:11 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 11:00:42 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 11:00:38 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 11:00:36 | AP One 300M: Client 00:21:6A:35:59:A4 associated with Balance_11a      |                             |
| Jan 2 11:00:20 | AP One 300M: Client 60:67:20:24:B6:4C disassociated from Marketing_11a |                             |
| Jan 2 11:00:09 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:59:09 | AP One 300M: Client 00:21:6A:35:59:A4 disassociated from Balance_11a   |                             |
| Jan 2 10:59:08 | Office Fiber AP: Client 18:00:2D:3D:4E:7F associated with Balance      |                             |
| Jan 2 10:58:53 | Michael's Desk: Client 18:00:2D:3D:4E:7F disassociated from Wireless   |                             |
| Jan 2 10:58:18 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:58:03 | Office InWall: Client 10:BF:48:E9:76:C7 associated with Wireless       |                             |
| Jan 2 10:57:47 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:57:19 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:57:09 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:56:48 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:56:39 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
| Jan 2 10:56:19 | AP One 300M: Client 00:26:BB:05:84:A4 associated with Marketing_11a    |                             |
| Jan 2 10:56:09 | AP One 300M: Client 9C:04:EB:10:39:4C associated with Marketing_11a    |                             |
| Jan 2 10:55:42 | AP One 300M: Client 54:EA:A8:2D:A0:D5 disassociated from Marketing_11a |                             |
| Jan 2 10:55:29 | AP One 300M: Client 54:EA:A8:2D:A0:D5 associated with Marketing_11a    |                             |
|                |                                                                        | <a href="#">More...</a>     |

## Events

This event log displays all activity on your AP network, down to the client level. Use to filter box to search by MAC address, SSID, AP Serial Number, or AP Profile name. Click **View Alerts** to see only alerts, and click the **More...** link for additional records.

## 27 Toolbox

Tools for managing firmware packs can be found at **AP>Toolbox**.

| Firmware Packs                                                                                                                                              |              |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Pack ID                                                                                                                                                     | Release Date | Details                                                                               | Action                                                                                |
| 1126                                                                                                                                                        | 2013-08-26   |  |  |
| <input type="button" value="Check for Updates"/> <input type="button" value="Manual Upload"/> <input type="button" value="Default..."/> No default defined. |              |                                                                                       |                                                                                       |

## Firmware Packs

Here, you can manage the firmware of your AP. Clicking on  will result in information regarding each firmware pack. To receive new firmware packs, you can click **Check for Updates** to download new packs, or you can click **Manual Upload** to manually upload a firmware pack. Click **Default** to define which firmware pack is default.

## 28 System Settings

### 28.1 Admin Security

There are two types of user accounts available for accessing the web admin: *admin* and *user*. They represent two user levels: the admin level has full administrative access, while the user level is read-only. The user level can access only the device's status information; users cannot make any changes on the device.

A web login session will be logged out automatically when it has been idle longer than the **Web Session Timeout**. Before the session expires, you may click the **Logout** button in the web admin to exit the session.

**0 hours 0 minutes** signifies an unlimited session time. This setting should be used only in special situations, as it will lower the system security level if users do not log out before closing the browser. The **default** is 4 hours, 0 minutes.

For security reasons, after logging in to the web admin Interface for the first time, it is recommended to change the administrator password. Configuring the administration interface to be accessible only from the LAN can further improve system security. Administrative settings configuration is located at **System>Admin Security**.

| Admin Settings           |                                                                                  |
|--------------------------|----------------------------------------------------------------------------------|
| Router Name              | MBX-345A hostname: mbx-345a<br>This configuration is being managed by InControl. |
| Admin User Name          | admin                                                                            |
| Admin Password           | .....                                                                            |
| Confirm Admin Password   | .....                                                                            |
| Read-only User Name      | DemoPep                                                                          |
| User Password            | .....                                                                            |
| Confirm User Password    | .....                                                                            |
| Web Session Timeout      | 4 Hours 0 Minutes                                                                |
| Authentication by RADIUS | <input type="checkbox"/> Enable                                                  |
| CLI SSH & Console        | <input type="checkbox"/> Enable                                                  |
| Security                 | HTTP / HTTPS<br><input type="checkbox"/> Redirect HTTP to HTTPS                  |
| Web Admin Access         | HTTP: LAN Only HTTPS: LAN Only                                                   |
| Web Admin Port           | HTTP: 80 HTTPS: 443 Default                                                      |

| LAN Connection Access Settings |                                                                                    |
|--------------------------------|------------------------------------------------------------------------------------|
| Allowed LAN Networks           | <input checked="" type="radio"/> Any <input type="radio"/> Allow this network only |

Save

| Admin Settings                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Router Name</b>              | This field allows you to define a name for this Pepwave router. By default, <b>Router Name</b> is set as <b>MAX_XXXX</b> , where XXXX refers to the last 4 digits of the unit's serial number.                                                                                                                                                                                                                                                                                     |
| <b>Admin User Name</b>          | <b>Admin User Name</b> is set as <i>admin</i> by default, but can be changed, if desired.                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Admin Password</b>           | This field allows you to specify a new administrator password.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Confirm Admin Password</b>   | This field allows you to verify and confirm the new administrator password.                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Read-only User Name</b>      | <b>Read-only User Name</b> is set as <i>user</i> by default, but can be changed, if desired.                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>User Password</b>            | This field allows you to specify a new user password. Once the user password is set, the read-only user feature will be enabled.                                                                                                                                                                                                                                                                                                                                                   |
| <b>Confirm User Password</b>    | This field allows you to verify and confirm the new user password.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Web Session Timeout</b>      | This field specifies the number of hours and minutes that a web session can remain idle before the Pepwave router terminates its access to the web admin interface. By default, it is set to <b>4 hours</b> .                                                                                                                                                                                                                                                                      |
| <b>Authentication by RADIUS</b> | With this box is checked, the web admin will authenticate using an external RADIUS server. Authenticated users are treated as either "admin" with full read-write permission or "user" with read-only access. Local admin and user accounts will be disabled. When the device is not able to communicate with the external RADIUS server, local accounts will be enabled again for emergency access. Additional authentication options will be available once this box is checked. |
| <b>Auth Protocol</b>            | This specifies the authentication protocol used. Available options are <b>MS-CHAP v2</b> and <b>PAP</b> .                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Auth Server</b>              | This specifies the access address and port of the external RADIUS server.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Auth Server Secret</b>       | This field is for entering the secret key for accessing the RADIUS server.                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Auth Timeout</b>             | This option specifies the time value for authentication timeout.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Accounting Server</b>        | This specifies the access address and port of the external accounting server.                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Accounting Server Secret</b> | This field is for entering the secret key for accessing the accounting server.                                                                                                                                                                                                                                                                                                                                                                                                     |

|                           |                                                                                                                                                                                                                                                                                                   |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Network Connection</b> | This option is for specifying the network connection to be used for authentication. Users can choose from LAN, WAN, and VPN connections.                                                                                                                                                          |
| <b>CLI SSH</b>            | The CLI (command line interface) can be accessed via SSH. This field enables CLI support. For additional information regarding CLI, please refer to <b>Section 30.5</b> .                                                                                                                         |
| <b>CLI SSH Port</b>       | This field determines the port on which clients can access CLI SSH.                                                                                                                                                                                                                               |
| <b>CLI SSH Access</b>     | This menu allows you to choose between granting access to LAN and WAN clients, or to LAN clients only.                                                                                                                                                                                            |
| <b>Security</b>           | <p>This option is for specifying the protocol(s) through which the web admin interface can be accessed:</p> <ul style="list-style-type: none"> <li>• HTTP</li> <li>• HTTPS</li> <li>• HTTP/HTTPS</li> </ul>                                                                                       |
| <b>Web Admin Port</b>     | This field is for specifying the port number on which the web admin interface can be accessed.                                                                                                                                                                                                    |
| <b>Web Admin Access</b>   | <p>This option is for specifying the network interfaces through which the web admin interface can be accessed:</p> <ul style="list-style-type: none"> <li>• LAN only</li> <li>• LAN/WAN</li> </ul> <p>If LAN/WAN is chosen, the <b>WAN Connection Access Settings</b> form will be displayed.</p> |



**LAN Connection Access Settings**

Allowed LAN Networks ☐ Any ☒ Allow this network only Public (10) ▼

| LAN Connection Access Settings |                                                                                       |
|--------------------------------|---------------------------------------------------------------------------------------|
| <b>Allowed LAN Networks</b>    | This field allows you to permit only specific networks or VLANs to access the Web UI. |



### WAN Connection Access Settings

#### Allowed Source IP Subnets

This field allows you to restrict web admin access only from defined IP subnets.

- **Any** - Allow web admin accesses to be from anywhere, without IP address restriction.
- **Allow access from the following IP subnets only** - Restrict web admin access only from the defined IP subnets. When this is chosen, a text input area will be displayed beneath:

The allowed IP subnet addresses should be entered into this text area. Each IP subnet must be in form of *w.x.y.z/m*, where *w.x.y.z* is an IP address (e.g., 192.168.0.0), and *m* is the subnet mask in CIDR format, which is between 0 and 32 inclusively (For example, 192.168.0.0/24).

To define multiple subnets, separate each IP subnet one in a line. For example:

- 192.168.0.0/24
- 10.8.0.0/16

#### Allowed WAN IP Address(es)

This is to choose which WAN IP address(es) the web server should listen on.

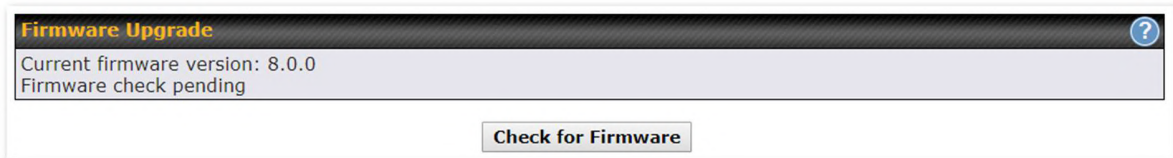
## 28.2 Firmware

### 28.2.1 Web admin interface : automatically check for updates

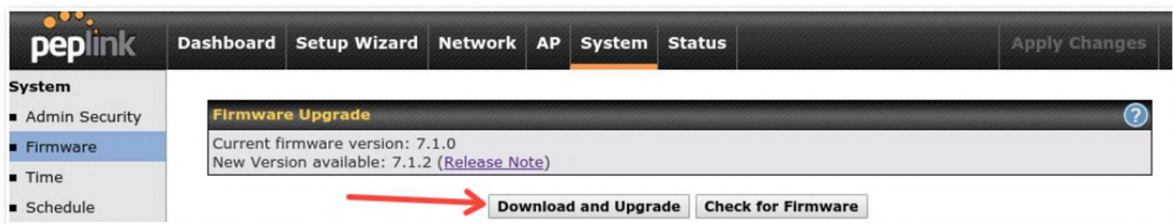
Upgrading firmware can be done in one of three ways.

Using the router's interface to automatically check for an update, using the router's interface to manually upgrade the firmware, or using InControl2 to push an upgrade to a router.

The automatic upgrade can be done from **System > Firmware**.



If an update is found the buttons will change to allow you to **Download and Update** the firmware.



Click on the **Download and Upgrade** button. A prompt will be displayed advising to download the Current Active Configuration. Please click on the underlined download text. After downloading the current config click the **Ok** button to start the upgrade process.

The router will download and then apply the firmware. The time that this process takes will depend on your internet connection's speed.



The firmware will now be applied to the router\*. The amount of time it takes for the firmware to upgrade will also depend on the router that's being upgraded.

#### Firmware Upgrade

It may take up to 8 minutes.



**\*Upgrading the firmware will cause the router to reboot.**

### 28.2.2 Web admin interface : install updates manually

In some cases, a special build may be provided via a ticket or it may be found in the forum. Upgrading to the special build can be done using this method, or using IC2 if you are using that to manage your firmware upgrades. A manual upgrade using the GA firmware posted on

the site may also be recommended or required for a couple of reasons.

All of the Peplink/Pepwave GA firmware can be found [here](#). Navigate to the relevant product line (ie. Balance, Max, FusionHub, SOHO, etc). Some product lines may have a dropdown that lists all of the products in that product line. Here is a screenshot from the Balance line.

Balance

Product ▼

Search:

| Product      | Hardware Revision | Firmware Version | Download Link            | Release Notes       | User Manual         |
|--------------|-------------------|------------------|--------------------------|---------------------|---------------------|
| Balance 1350 | HW2               | 7.1.2            | <a href="#">Download</a> | <a href="#">PDF</a> | <a href="#">PDF</a> |
| Balance 1350 | HW1               | 6.3.4            | <a href="#">Download</a> | <a href="#">PDF</a> | <a href="#">PDF</a> |
| Balance 20   | HW1-6             | 7.1.2            | <a href="#">Download</a> | <a href="#">PDF</a> | <a href="#">PDF</a> |
| Balance 210  | HW4               | 7.1.2            | <a href="#">Download</a> | <a href="#">PDF</a> | <a href="#">PDF</a> |

If the device has more than one firmware version the current hardware revision will be required to know what firmware to download.

Navigate to System > Firmware and click the Choose File button under the Manual Firmware Upgrade section. Navigate to the location that the firmware was downloaded to select the ".img" file and click the Open button.

Click on the Manual Upgrade button to start the upgrade process.

**Manual Firmware Upgrade** ?

Firmware Image  No file chosen

A prompt will be displayed advising to download the Current Active Configuration. Please click on the underlined download text. After downloading the current config click the Ok button to start the upgrade process. The firmware will now be applied to the router\*. The amount of time it takes for the firmware to upgrade will depend on the router that's being upgraded.

#### Firmware Upgrade

It may take up to 8 minutes.



**\*Upgrading the firmware will cause the router to reboot.**

### 28.2.3 The InControl method

[Described in this knowledgebase article on our forum.](#)

## 28.3 Time

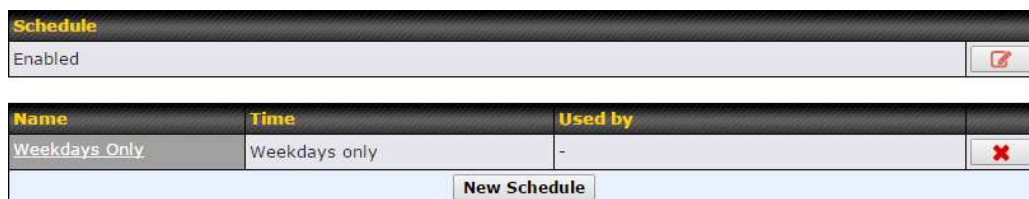
**Time Settings** enables the system clock of the Pepwave router to be synchronized with a specified time server. Time settings are located at **System>Time**.



| Time Settings      |                                                                                                                                                                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Time Zone</b>   | This specifies the time zone (along with the corresponding Daylight Savings Time scheme). The <b>Time Zone</b> value affects the time stamps in the Pepwave router's event log and e-mail notifications. Check <b>Show all</b> to show all time zone options. |
| <b>Time Server</b> | This setting specifies the NTP network time server to be utilized by the Pepwave router.                                                                                                                                                                      |

## 28.4 Schedule

Enable and disable different functions (such as WAN connections, outbound policy, and firewalls at different times, based on a user-scheduled configuration profile. The settings for this are located at **System > Schedule**



Enable scheduling, and then click on your schedule name or on the **New Schedule** button to begin.

Edit schedule profile

Schedule Settings

Enable

☒

The schedule function of those associated features will be lost if profile is disabled.

Name

Weekdays Only

Schedule

Weekdays only

Used by

You may go to supported feature settings page and set this profile as scheduler.

Schedule Map

|           | Midnight | 4am | 8am | Noon | 4pm | 8pm |
|-----------|----------|-----|-----|------|-----|-----|
| Sunday    | x        | x   | x   | x    | x   | x   |
| Monday    | ✓        | ✓   | ✓   | ✓    | ✓   | ✓   |
| Tuesday   | ✓        | ✓   | ✓   | ✓    | ✓   | ✓   |
| Wednesday | ✓        | ✓   | ✓   | ✓    | ✓   | ✓   |
| Thursday  | ✓        | ✓   | ✓   | ✓    | ✓   | ✓   |
| Friday    | ✓        | ✓   | ✓   | ✓    | ✓   | ✓   |
| Saturday  | x        | x   | x   | x    | x   | x   |

Save

Cancel

| Edit Schedule Profile |                                                                                                                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Enabling</b>       | Click this checkbox to enable this schedule profile. Note that if this is disabled, then any associated features will also have their scheduling disabled.              |
| <b>Name</b>           | Enter your desired name for this particular schedule profile.                                                                                                           |
| <b>Schedule</b>       | Click the drop-down menu to choose pre-defined schedules as your starting point. Please note that upon selection, previous changes on the schedule map will be deleted. |
| <b>Schedule Map</b>   | Click on the desired times to enable features at that time period. You can hold your mouse for faster entry.                                                            |

## 28.5 Email Notification

Email notification functionality provides a system administrator with up-to-date information on network status. The settings for configuring email notifications are found at **System>Email Notification**.

| Email Notification Setup  |                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------|
| Email Notification        | <input checked="" type="checkbox"/> Enable                                          |
| SMTP Server               | smtp.mycompany.com<br><input checked="" type="checkbox"/> Require authentication    |
| SSL Encryption            | <input checked="" type="checkbox"/> (Note: any server certificate will be accepted) |
| SMTP Port                 | 465 <span>Default</span>                                                            |
| SMTP User Name            | smtpuser                                                                            |
| SMTP Password             | •••••                                                                               |
| Confirm SMTP Password     | •••••                                                                               |
| Sender's Email Address    | admin@mycompany.com                                                                 |
| Recipient's Email Address | system@mycompany.com<br>staff@mycompany.com                                         |

Test Email Notification
Save

| Email Notification Settings      |                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Email Notification</b>        | This setting specifies whether or not to enable email notification. If <b>Enable</b> is checked, the Pepwave router will send email messages to system administrators when the WAN status changes or when new firmware is available. If <b>Enable</b> is not checked, email notification is disabled and the Pepwave router will not send email messages. |
| <b>SMTP Server</b>               | This setting specifies the SMTP server to be used for sending email. If the server requires authentication, check <b>Require authentication</b> .                                                                                                                                                                                                         |
| <b>SSL Encryption</b>            | Check the box to enable SMTPS. When the box is checked, <b>SMTP Port</b> will be changed to <b>465</b> automatically.                                                                                                                                                                                                                                     |
| <b>SMTP Port</b>                 | This field is for specifying the SMTP port number. By default, this is set to <b>25</b> ; when <b>SSL Encryption</b> is checked, the default port number will be set to <b>465</b> . You may customize the port number by editing this field. Click <b>Default</b> to restore the number to its default setting.                                          |
| <b>SMTP User Name / Password</b> | This setting specifies the SMTP username and password while sending email. These options are shown only if <b>Require authentication</b> is checked in the <b>SMTP Server</b> setting.                                                                                                                                                                    |
| <b>Confirm SMTP Password</b>     | This field allows you to verify and confirm the new administrator password.                                                                                                                                                                                                                                                                               |
| <b>Sender's Email Address</b>    | This setting specifies the email address the Pepwave router will use to send reports.                                                                                                                                                                                                                                                                     |
| <b>Recipient's Email Address</b> | This setting specifies the email address(es) to which the Pepwave router will send email notifications. For multiple recipients, separate each email addresses using                                                                                                                                                                                      |

the enter key.

After you have finished setting up email notifications, you can click the **Test Email Notification** button to test the settings before saving. After **Test Email Notification** is clicked, you will see this screen to confirm the settings:

| Test Email Notification   |                                             |
|---------------------------|---------------------------------------------|
| SMTP Server               | smtp.mycompany.com                          |
| SMTP Port                 | 465                                         |
| SMTP UserName             | smtpuser                                    |
| Sender's Email Address    | admin@mycompany.com                         |
| Recipient's Email Address | system@mycompany.com<br>staff@mycompany.com |

Click **Send Test Notification** to confirm. In a few seconds, you will see a message with detailed test results.

Test email sent. Email notification settings are not saved, it will be saved after clicked the 'Save' button.

### Test Result

```
[INFO] Try email through connection #3
[<-] 220 ESMTP
[->] EHLO balance
[<-] 250-smtp Hello balance [210.210.210.210]
250-SIZE 100000000
250-8BITMIME
250-PIPELINING
250-AUTH PLAIN LOGIN
250-STARTTLS
250-UNCL
```

## 28.6 Event Log

Event log functionality enables event logging at a specified remote syslog server. The settings for configuring the remote system log can be found at **System>Event Log**.

| Send Events to Remote Syslog Server |                                     |
|-------------------------------------|-------------------------------------|
| Remote Syslog                       | <input checked="" type="checkbox"/> |
| Remote Syslog Host                  | <input type="text"/>                |

| Push Events to Mobile Devices |                                     |
|-------------------------------|-------------------------------------|
| Push Events                   | <input checked="" type="checkbox"/> |

| Event Log Settings                                                                |                                                                                                                                                              |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Remote Syslog</b>                                                              | This setting specifies whether or not to log events at the specified remote syslog server.                                                                   |
| <b>Remote Syslog Host</b>                                                         | This setting specifies the IP address or hostname of the remote syslog server.                                                                               |
| <b>Push Events</b>                                                                | The Pepwave router can also send push notifications to mobile devices that have our Mobile Router Utility installed. Check the box to activate this feature. |
|  | For more information on the Router Utility, go to:<br><a href="http://www.peplink.com/products/router-utility">www.peplink.com/products/router-utility</a>   |

## 28.7 SNMP

SNMP or simple network management protocol is an open standard that can be used to collect information about the Pepwave router. SNMP configuration is located at **System>SNMP**.

| SNMP Settings     |                                 |
|-------------------|---------------------------------|
| SNMP Device Name  | MAX_HD2_8D1C                    |
| SNMP Port         | 161 <span>Default</span>        |
| SNMPv1            | <input type="checkbox"/> Enable |
| SNMPv2c           | <input type="checkbox"/> Enable |
| SNMPv3            | <input type="checkbox"/> Enable |
| <span>Save</span> |                                 |

| Community Name                          | Allowed Source Network | Access Mode |
|-----------------------------------------|------------------------|-------------|
| No SNMPv1 / SNMPv2c Communities Defined |                        |             |
| <span>Add SNMP Community</span>         |                        |             |

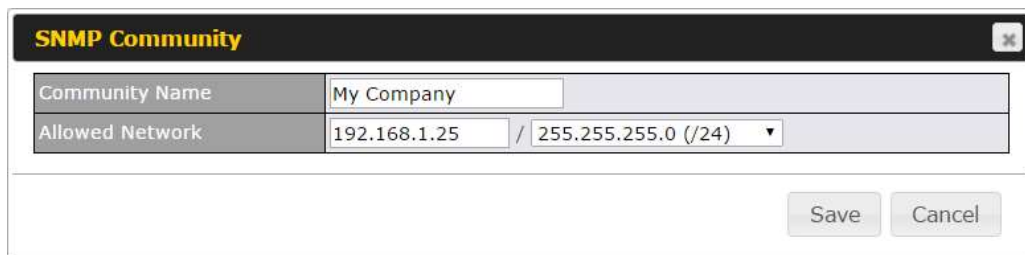
  

| SNMPv3 User Name           | Authentication / Privacy | Access Mode |
|----------------------------|--------------------------|-------------|
| No SNMPv3 Users Defined    |                          |             |
| <span>Add SNMP User</span> |                          |             |

| SNMP Settings           |                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------|
| <b>SNMP Device Name</b> | This field shows the router name defined at <b>System&gt;Admin Security</b> .        |
| <b>SNMP Port</b>        | This option specifies the port which SNMP will use. The default port is <b>161</b> . |
| <b>SNMPv1</b>           | This option allows you to enable SNMP version 1.                                     |

|               |                                                  |
|---------------|--------------------------------------------------|
| <b>SNMPv2</b> | This option allows you to enable SNMP version 2. |
| <b>SNMPv3</b> | This option allows you to enable SNMP version 3. |

To add a community for either SNMPv1 or SNMPv2, click the **Add SNMP Community** button in the **Community Name** table, upon which the following screen is displayed:



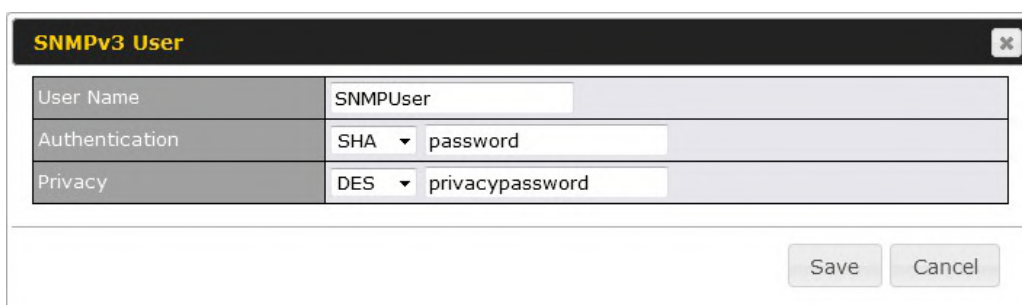
The image shows a dialog box titled "SNMP Community" with a close button in the top right corner. It contains two input fields: "Community Name" with the text "My Company" and "Allowed Network" with the text "192.168.1.25 / 255.255.255.0 (/24)". At the bottom right, there are "Save" and "Cancel" buttons.

| SNMP Community  |                                    |
|-----------------|------------------------------------|
| Community Name  | My Company                         |
| Allowed Network | 192.168.1.25 / 255.255.255.0 (/24) |

Save Cancel

| SNMP Community Settings              |                                                                                                                                                                        |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Community Name</b>                | This setting specifies the SNMP community name.                                                                                                                        |
| <b>Allowed Source Subnet Address</b> | This setting specifies a subnet from which access to the SNMP server is allowed. Enter subnet address here (e.g., 192.168.1.0) and select the appropriate subnet mask. |

To define a user name for SNMPv3, click **Add SNMP User** in the **SNMPv3 User Name** table, upon which the following screen is displayed:



The window titled "SNMPv3 User" contains the following fields:

|                |                     |
|----------------|---------------------|
| User Name      | SNMPUser            |
| Authentication | SHA password        |
| Privacy        | DES privacypassword |

At the bottom right are "Save" and "Cancel" buttons.

| SNMPv3 User Settings           |                                                                                                                                                                                                                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>User Name</b>               | This setting specifies a user name to be used in SNMPv3.                                                                                                                                                                                                                        |
| <b>Authentication Protocol</b> | <p>This setting specifies via a drop-down menu one of the following valid authentication protocols:</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• MD5</li> <li>• SHA</li> </ul> <p>When MD5 or SHA is selected, an entry field will appear for the password.</p> |
| <b>Privacy Protocol</b>        | <p>This setting specifies via a drop-down menu one of the following valid privacy protocols:</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• DES</li> </ul> <p>When DES is selected, an entry field will appear for the password.</p>                              |

## 28.8 InControl



The window titled "InControl Management" contains the following fields:

|                          |                                                                |
|--------------------------|----------------------------------------------------------------|
| InControl Management     | <input checked="" type="checkbox"/> Allow InControl Management |
| Privately Host InControl | <input checked="" type="checkbox"/>                            |
| InControl Host           | <input type="text"/>                                           |

InControl is a cloud-based service which allows you to manage all of your Peplink and Pepwave devices with one unified system. With it, you can generate reports, gather statistics, and configure your devices automatically. All of this is now possible with InControl.

When this check box is checked, the device's status information will be sent to the Peplink InControl system. This device's usage data and configuration will be sent to the system if you enable the features in the system.

Alternately, you could also privately host InControl. Simply check the box beside the "Privately Host InControl" open, and enter the IP Address of your InControl Host.

You can sign up for an InControl account at <https://incontrol2.peplink.com/>. You can register your devices under the account, monitor their status, see their usage reports, and receive offline notifications.

## 28.9 Configuration

Backing up Pepwave router settings immediately after successful completion of initial setup is strongly recommended. The functionality to download and upload Pepwave router settings is found at **System>Configuration**. Note that available options vary by model.



The screenshot shows the Configuration page with the following sections:

- Restore Configuration to Factory Settings**: A button labeled "Restore Factory Settings".
- Download Active Configurations**: A button labeled "Download".
- Upload Configurations**: A "Configuration File" input field with a "Browse..." button and the text "No file selected." Below it is an "Upload" button.
- Upload Configurations from High Availability Pair**: A "Configuration File" input field with a "Browse..." button and the text "No file selected." Below it is an "Upload" button.

| Configuration                                    |                                                                                                                                                                                                                                                 |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Restore Configuration to Factory Settings</b> | The <b>Restore Factory Settings</b> button is to reset the configuration to factory default settings. After clicking the button, you will need to click the <b>Apply Changes</b> button on the top right corner to make the settings effective. |
| <b>Download Active Configurations</b>            | Click <b>Download</b> to backup the current active settings.                                                                                                                                                                                    |
| <b>Upload Configurations</b>                     | To restore or change settings based on a configuration file, click <b>Choose File</b> to locate the configuration file on the local computer, and then click <b>Upload</b> . The new                                                            |

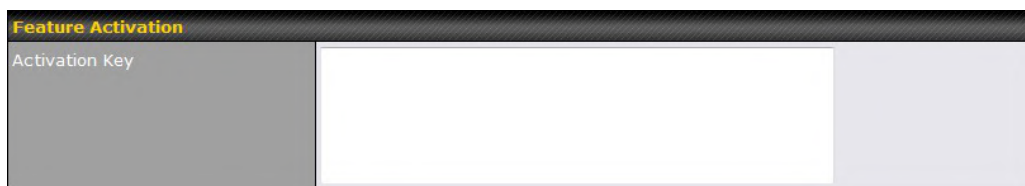
settings can then be applied by clicking the **Apply Changes** button on the page header, or you can cancel the procedure by pressing **discard** on the main page of the web admin interface.

#### **Upload Configurations from High Availability Pair**

In a high availability (HA) configuration, a Pepwave router can quickly load the configuration of its HA counterpart. To do so, click the **Upload** button. After loading the settings, configure the LAN IP address of the Pepwave router so that it is different from the HA counterpart.

## 28.10 Feature Add-ons

Some Pepwave routers have features that can be activated upon purchase. Once the purchase is complete, you will receive an activation key. Enter the key in the **Activation Key** field, click **Activate**, and then click **Apply Changes**.

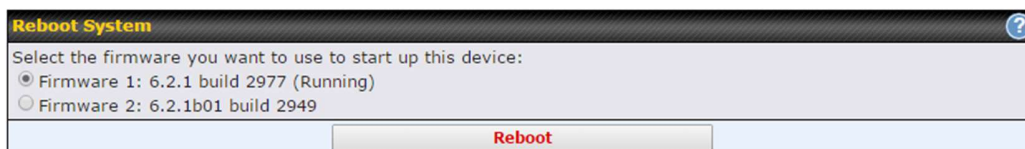


The screenshot shows a web interface titled "Feature Activation". It contains a label "Activation Key" followed by a large, empty text input field for entering the activation key.

## 28.11 Reboot

This page provides a reboot button for restarting the system. For maximum reliability, the Pepwave router can equip with two copies of firmware. Each copy can be a different version. You can select the firmware version you would like to reboot the device with. The firmware marked with **(Running)** is the current system boot up firmware.

**Please note that a firmware upgrade will always replace the inactive firmware partition.**



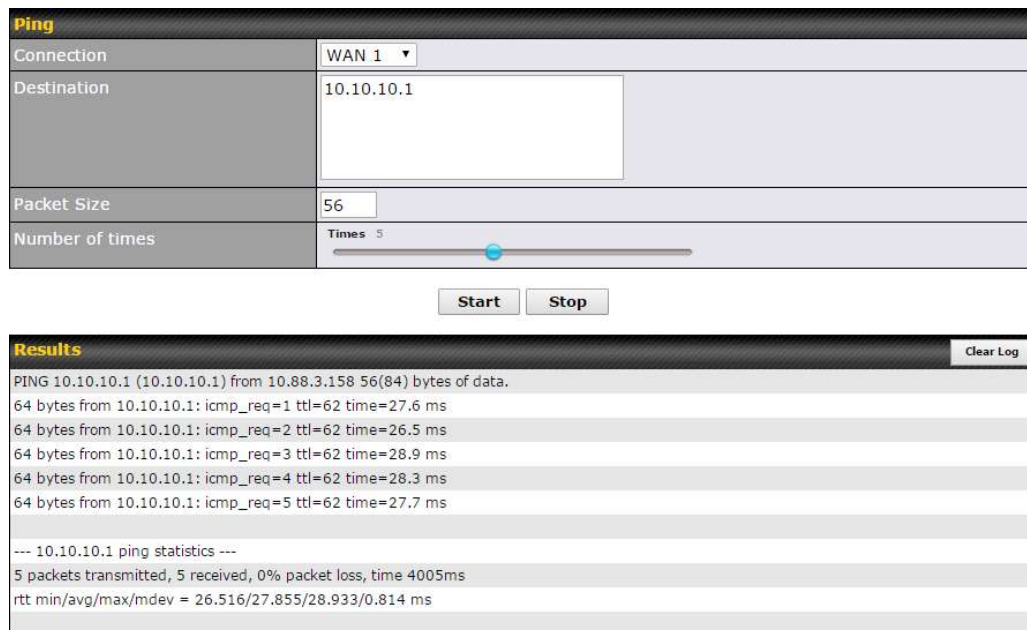
The screenshot shows a web interface titled "Reboot System". It contains the text "Select the firmware you want to use to start up this device:" followed by two radio button options: "Firmware 1: 6.2.1 build 2977 (Running)" and "Firmware 2: 6.2.1b01 build 2949". Below the options is a "Reboot" button.

# 29 Tools

## 29.1 Ping

The ping test tool sends pings through a specific Ethernet interface or a SpeedFusion™ VPN

connection. You can specify the number of pings in the field **Number of times**, to a maximum number of 10 times. **Packet Size** can be set to a maximum of 1472 bytes. The ping utility is located at **System>Tools>Ping**, illustrated below:



**Ping**

|                 |            |
|-----------------|------------|
| Connection      | WAN 1      |
| Destination     | 10.10.10.1 |
| Packet Size     | 56         |
| Number of times | Times 5    |

Start Stop

---

**Results** Clear Log

```

PING 10.10.10.1 (10.10.10.1) from 10.88.3.158 56(84) bytes of data.
64 bytes from 10.10.10.1: icmp_req=1 ttl=62 time=27.6 ms
64 bytes from 10.10.10.1: icmp_req=2 ttl=62 time=26.5 ms
64 bytes from 10.10.10.1: icmp_req=3 ttl=62 time=28.9 ms
64 bytes from 10.10.10.1: icmp_req=4 ttl=62 time=28.3 ms
64 bytes from 10.10.10.1: icmp_req=5 ttl=62 time=27.7 ms

--- 10.10.10.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 26.516/27.855/28.933/0.814 ms
  
```

### Tip

A system administrator can use the ping utility to manually check the connectivity of a particular LAN/WAN connection.

## 29.2 Traceroute Test

The traceroute test tool traces the routing path to the destination through a particular Ethernet interface or a SpeedFusion™ connection. The traceroute test utility is located at **System>Tools>Traceroute**.

| Traceroute            |               |
|-----------------------|---------------|
| Connection            | WAN 1         |
| Destination           | 64.233.189.99 |
| <div>Start Stop</div> |               |

| Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Clear Log |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <pre> Traceroute to 64.233.189.99 (64.233.189.99) over 30 hops (30 hops)  0 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  1 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  2 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  3 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  4 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  5 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  6 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  7 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  8 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  9 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  10 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  11 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  12 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  13 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  14 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  15 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  16 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  17 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  18 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  19 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  20 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  21 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  22 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  23 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  24 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  25 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  26 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  27 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  28 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  29 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms  30 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms 10.0.0.1 [10.0.0.1] 0.000 ms </pre> |           |

### Tip

A system administrator can use the traceroute utility to analyze the connection path of a LAN/WAN connection.

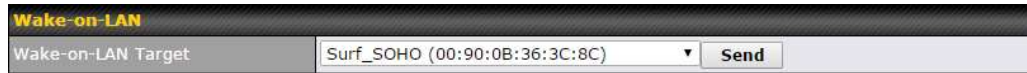
## 29.3 PepVPN Test

The **PepVPN Test** tool can help to test the throughput between different VPN peers. You can define the **Test Type**, **Direction**, and **Duration** of the test, and press **Go!** to perform the throughput test. The VPN test utility is located at **System>Tools>PepVPN Test**, illustrated as follows:

| PepVPN Throughput Test |                                                                        |
|------------------------|------------------------------------------------------------------------|
| Profile                | NY Office                                                              |
| Type                   | <input checked="" type="radio"/> TCP <input type="radio"/> UDP         |
| Direction              | <input checked="" type="radio"/> Upload <input type="radio"/> Download |
| Duration               | 10 seconds (5 - 600)                                                   |
| <div>Go!</div>         |                                                                        |
| Results                |                                                                        |
| (Empty)                |                                                                        |

## 29.4 Wake-on-LAN

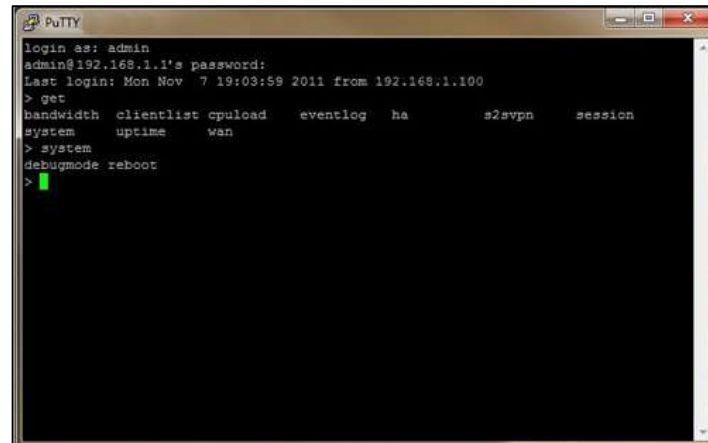
Peplink routers can send special “magic packets” to any client specified from the Web UI. To access this feature, navigate to **System > Tools > Wake-on-LAN**



Select a client from the drop-down list and click **Send** to send a “magic packet”

## 29.5 CLI (Command Line Interface Support)

The CLI (command line interface) can be accessed via SSH. This field enables CLI support. The below settings specify which TCP port and which interface(s) should accept remote SSH CLI access. The user name and password used for remote SSH CLI access are the same as those used for web admin access.



## 30 Status

### 30.1 Device

System information is located at **Status>Device**.

| System Information               |                                                                  |
|----------------------------------|------------------------------------------------------------------|
| Router Name                      | MBX-345A                                                         |
| Model                            | Pepwave MAX HD4 MBX                                              |
| Product Code                     | MAX-HD4-MBX-LTEA-R                                               |
| Hardware Revision                | 2                                                                |
| Serial Number                    | XXXXXXXXXXXX                                                     |
| Firmware                         | 8.0.0 build 1218                                                 |
| PepVPN Version                   | 8.0.0                                                            |
| Modem Support Version            | 1023 ( <a href="#">Modem Support List</a> )                      |
| InControl Managed Configurations | Firmware, LAN                                                    |
| Host Name                        | mbx-345a                                                         |
| Uptime                           | 3 days 3 minutes                                                 |
| System Time                      | Fri Mar 22 13:57:08 GMT 2019                                     |
| OpenVPN Client Profile           | <a href="#">Route all traffic</a>   <a href="#">Split tunnel</a> |
| Diagnostic Report                | <a href="#">Download</a>                                         |
| Remote Assistance                | <a href="#">Turn On</a>                                          |

| MAC Address |                   |
|-------------|-------------------|
| LAN         | 00:1A:8D:00:00:00 |
| WAN 1       | 00:1A:8D:00:00:11 |
| WAN 2       | 00:1A:8D:00:00:11 |
| WAN 3       | 00:1A:8D:00:00:11 |

[Legal](#)

| System Information  |                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------|
| <b>Router Name</b>  | This is the name specified in the <b>Router Name</b> field located at <b>System&gt;Admin Security</b> . |
| <b>Model</b>        | This shows the model name and number of this device.                                                    |
| <b>Product Code</b> | If your model uses a product code, it will appear here.                                                 |
| <b>Hardware</b>     | This shows the hardware version of this device.                                                         |

| Revision                               |                                                                                                         |
|----------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Serial Number</b>                   | This shows the serial number of this device.                                                            |
| <b>Firmware</b>                        | This shows the firmware version this device is currently running.                                       |
| <b>PepVPN Version</b>                  | This shows the current PepVPN version.                                                                  |
| <b>Modem Support Version</b>           | This shows the modem support version. For a list of supported modems, click <b>Modem Support List</b> . |
| <b>InControl Managed Configuration</b> | InControl Managed Configurations (firmware, VLAN, Captive Portal, etcetera)                             |
| <b>Host Name</b>                       | The host name assigned to the Pepwave router appears here.                                              |
| <b>Uptime</b>                          | This shows the length of time since the device has been rebooted.                                       |
| <b>System Time</b>                     | This shows the current system time.                                                                     |
| <b>OpenVPN Client Profile</b>          | Link to download OpenVpn Client profile when this is enabled in Remote User Access                      |
| <b>Diagnostic Report</b>               | The <b>Download</b> link is for exporting a diagnostic report file required for system investigation.   |
| <b>Remote Assistance</b>               | Click <b>Turn on</b> to enable remote assistance.                                                       |

The second table shows the MAC address of each LAN/WAN interface connected. To view your device's End User License Agreement (EULA), click  [Legal](#).

## 30.2 GPS Data

|                    |                                                                                     |                      |                 |
|--------------------|-------------------------------------------------------------------------------------|----------------------|-----------------|
| GPX File           |  | 2019-03-22 (Today) ▾ | <b>Download</b> |
| Diagnostic Report  |                                                                                     | 2019-03-22 (Today)   |                 |
| Remote Assistance  |                                                                                     | 2019-03-21           |                 |
|                    |                                                                                     | 2019-03-20           |                 |
|                    |                                                                                     | 2019-03-19           |                 |
|                    |                                                                                     | 2019-03-18           |                 |
|                    |                                                                                     | 2019-03-17           |                 |
|                    |                                                                                     | 2019-03-16           |                 |
| <b>MAC Address</b> |                                                                                     |                      |                 |
| LAN                |                                                                                     |                      |                 |

GPS enabled models automatically store up to seven days of GPS location data in GPS

eXchange format (GPX). To review this data using third-party applications, click **Status>Device** and then download your GPX file.

The Pepwave GPS enabled devices export real-time location data in NMEA format through the LAN IP address at TCP port 60660. It is accessible from the LAN or over a SpeedFusion connection. To access the data via a virtual serial port, install a virtual serial port driver. Visit <http://www.peplink.com/index.php?view=faq&id=294> to download the driver.

### 30.3 Active Sessions

Information on active sessions can be found at **Status>Active Sessions>Overview**.

|          |        |
|----------|--------|
| Overview | Search |
|----------|--------|

Session data captured within one minute. [Refresh](#)

| Service                        | Inbound Sessions | Outbound Sessions |
|--------------------------------|------------------|-------------------|
| <a href="#">AIM/ICQ</a>        | 0                | 1                 |
| <a href="#">Bittorrent</a>     | 0                | 32                |
| <a href="#">DNS</a>            | 0                | 51                |
| <a href="#">Flash</a>          | 0                | 1                 |
| <a href="#">HTTPS</a>          | 0                | 76                |
| <a href="#">Jabber</a>         | 0                | 5                 |
| <a href="#">MSN</a>            | 0                | 11                |
| <a href="#">NTP</a>            | 0                | 4                 |
| <a href="#">QQ</a>             | 0                | 1                 |
| <a href="#">Remote Desktop</a> | 0                | 3                 |
| <a href="#">SSH</a>            | 0                | 12                |
| <a href="#">SSL</a>            | 0                | 64                |
| <a href="#">XMPP</a>           | 0                | 4                 |
| <a href="#">Yahoo</a>          | 0                | 1                 |

| Interface                  | Inbound Sessions | Outbound Sessions |
|----------------------------|------------------|-------------------|
| <a href="#">WAN 1</a>      | 0                | 176               |
| <a href="#">WAN 2</a>      | 0                | 32                |
| <a href="#">Wi-Fi WAN</a>  | 0                | 51                |
| <a href="#">Cellular 1</a> | 0                | 64                |
| <a href="#">Cellular 2</a> | 0                | 0                 |
| <a href="#">USB</a>        | 0                | 0                 |

**Top Clients**

| Client IP Address | Total Sessions |
|-------------------|----------------|
| 10.9.66.66        | 1069           |
| 10.9.98.144       | 147            |
| 10.9.2.18         | 63             |
| 10.9.66.14        | 56             |
| 10.9.2.26         | 33             |

This screen displays the number of sessions initiated by each application. Click on each service listing for additional information. This screen also indicates the number of sessions initiated by each WAN port. In addition, you can see which clients are initiating the most sessions.

You can also perform a filtered search for specific sessions. You can filter by subnet, port, protocol, and interface. To perform a search, navigate to **Status>Active Sessions>Search**.

Overview
Search

Session data captured within one minute. [Refresh](#)

|                    |                                                                                                                                                                                                                                          |                         |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| IP / Subnet        | Source or Destination ▾                                                                                                                                                                                                                  | 255.255.255.255 (/32) ▾ |
| Port               | Source or Destination ▾                                                                                                                                                                                                                  |                         |
| Protocol / Service | TCP ▾                                                                                                                                                                                                                                    |                         |
| Interface          | <input type="checkbox"/> WAN 1 <input type="checkbox"/> WAN 2 <input type="checkbox"/> Wi-Fi WAN<br><input type="checkbox"/> Cellular 1 <input type="checkbox"/> Cellular 2 <input type="checkbox"/> USB<br><input type="checkbox"/> VPN |                         |
| Search             |                                                                                                                                                                                                                                          |                         |

**Outbound**

| Protocol    | Source IP | Destination IP | Service | Interface | Idle Time |
|-------------|-----------|----------------|---------|-----------|-----------|
| No sessions |           |                |         |           |           |

Total searched results: 0

**Inbound**

| Protocol    | Source IP | Destination IP | Service | Interface | Idle Time |
|-------------|-----------|----------------|---------|-----------|-----------|
| No sessions |           |                |         |           |           |

Total searched results: 0

**Transit**

| Protocol    | Source IP | Destination IP | Service | Interface | Idle Time |
|-------------|-----------|----------------|---------|-----------|-----------|
| No sessions |           |                |         |           |           |

Total searched results: 0

This **Active Sessions** section displays the active inbound/outbound sessions of each WAN connection on the Pepwave router. A filter is available to sort active session information. Enter a keyword in the field or check one of the WAN connection boxes for filtering.

## 30.4 Client List

The client list table is located at **Status>Client List**. It lists DHCP and online client IP addresses, names (retrieved from the DHCP reservation table or defined by users), current download and upload rate, and MAC address.

Clients can be imported into the DHCP reservation table by clicking the  button on the right. You can update the record after import by going to **Network>LAN**.

Filter
☐ Online Clients Only  
☐ DHCP Clients Only

**Client List**

| IP Address ▲  | Name | Download (kbps) | Upload (kbps) | MAC Address       | Import                                                                                |
|---------------|------|-----------------|---------------|-------------------|---------------------------------------------------------------------------------------|
| 192.168.1.100 |      | 0               | 0             | 00:50:56:99:E1:76 |  |

Scale: ☒ kbps ☐ Mbps

If the PPTP server (see **Section 19.2**), SpeedFusion™ (see **Section 12.1**), or AP controller (see **Section 20**) is enabled, you may see the corresponding connection name listed in the **Name** field.

## 30.5 WINS Client

The WINS client list table is located at **Status>WINS Client**.

| WINS Client List     |            |
|----------------------|------------|
| Name ▲               | IP Address |
| UserA                | 10.9.2.1   |
| UserB                | 10.9.30.1  |
| UserC                | 10.9.2.4   |
| <div>Flush All</div> |            |

The WINS client table lists the IP addresses and names of WINS clients. This option will only be available when you have enabled the WINS server (navigation: **Network>Interfaces>LAN**). The names of clients retrieved will be automatically matched into the Client List (see previous section). Click **Flush All** to flush all WINS client records.

| WINS Client List     |            |
|----------------------|------------|
| Name ▲               | IP Address |
| UserA                | 10.9.2.1   |
| UserB                | 10.9.30.1  |
| UserC                | 10.9.2.4   |
| <div>Flush All</div> |            |

## 30.6 UPnP / NAT-PMP

The table that shows the forwarded ports under UPnP and NAT-PMP protocols is located at **Status>UPnP/NAT-PMP**. This section appears only if you have enabled UPnP / NAT-PMP as mentioned in **Section 16.1.1**.

| Forwarded Ports       |          |                  |         |          |                 |                                                                                       |
|-----------------------|----------|------------------|---------|----------|-----------------|---------------------------------------------------------------------------------------|
| External ▲            | Internal | Internal Address | Type    | Protocol | Description     |                                                                                       |
| 47453                 | 3392     | 192.168.1.100    | UPnP    | UDP      | Application 031 |  |
| 35892                 | 11265    | 192.168.1.50     | NAT-PMP | TCP      | NAT-PMP 58      |  |
| 4500                  | 3560     | 192.168.1.20     | UPnP    | TCP      | Application 013 |  |
| 5921                  | 236      | 192.168.1.30     | UPnP    | TCP      | Application 047 |  |
| 22409                 | 8943     | 192.168.1.70     | NAT-PMP | UDP      | NAT-PMP 97      |  |
| 2388                  | 27549    | 192.168.1.40     | UPnP    | TCP      | Application 004 |  |
| <div>Delete All</div> |          |                  |         |          |                 |                                                                                       |

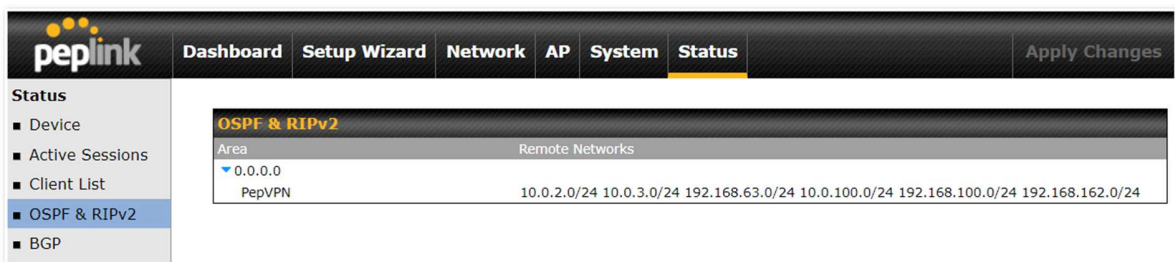
Click  to delete a single UPnP / NAT-PMP record in its corresponding row. To delete all records, click **Delete All** on the right-hand side below the table.

### Important Note

UPnP / NAT-PMP records will be deleted immediately after clicking the button  or **Delete All**, without the need to click **Save** or **Confirm**.

## 30.7 OSPF & RIPv2

Shows status of OSPF and RIPv2

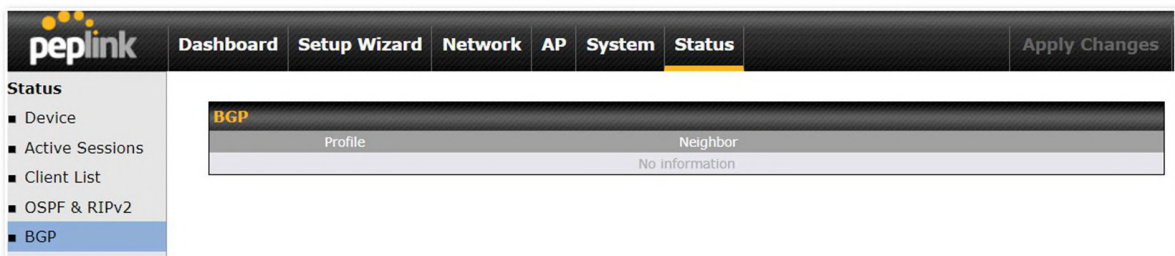


The screenshot shows the Peplink web interface with the 'Status' tab selected. The left sidebar lists 'Status' with sub-items: Device, Active Sessions, Client List, OSPF & RIPv2 (selected), and BGP. The main content area displays 'OSPF & RIPv2' with a table showing the 'Area' and 'Remote Networks'.

| Area    | Remote Networks                                                                         |
|---------|-----------------------------------------------------------------------------------------|
| 0.0.0.0 |                                                                                         |
| PepVPN  | 10.0.2.0/24 10.0.3.0/24 192.168.63.0/24 10.0.100.0/24 192.168.100.0/24 192.168.162.0/24 |

## 30.8 BGP

Shows status of BGP



The screenshot shows the Peplink web interface with the 'Status' tab selected. The left sidebar lists 'Status' with sub-items: Device, Active Sessions, Client List, OSPF & RIPv2, and BGP (selected). The main content area displays 'BGP' with a table showing 'Profile' and 'Neighbor'.

| Profile        | Neighbor |
|----------------|----------|
| No information |          |

## 30.9 SpeedFusion Status

Current SpeedFusion™ status information is located at **Status>SpeedFusion™**.

Details about SpeedFusion™ connection peers appears as below:



The screenshot shows the 'PepVPN with SpeedFusion - Remote Peer Details' page. It includes a search bar and a table listing remote peers.

| Remote Peer    | Profile        | Information     |
|----------------|----------------|-----------------|
| ADA0-FFFC-11F8 | FH             | 192.168.77.0/24 |
| 3ED2-8F63-1824 | 380-5 - NO NAT | 192.168.3.0/24  |

Click on the corresponding peer name to explore the WAN connection(s) status and subnet information of each VPN peer.

| Remote Peer    | Profile                   | Information                        |  |  |
|----------------|---------------------------|------------------------------------|--|--|
| ADA0-FFFC-11F8 | FH                        | 192.168.77.0/24                    |  |  |
| WAN 1          | Rx: < 1 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s Latency: 1 ms |  |  |
| WAN 2          | Rx: < 1 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s Latency: 1 ms |  |  |
| WAN 3          | Rx: < 1 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s Latency: 1 ms |  |  |
| Total          | Rx: < 1 kbps Tx: 1.1 kbps | Drop rate: 0.0 pkt/s               |  |  |
| 3ED2-8F63-1824 | 380-5 - NO NAT            | 192.168.3.0/24                     |  |  |
| WAN 1          | Rx: < 1 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s Latency: 4 ms |  |  |
| WAN 2          | Rx: < 1 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s Latency: 4 ms |  |  |
| WAN 3          | Rx: < 1 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s Latency: 4 ms |  |  |
| Total          | Rx: 1.6 kbps Tx: < 1 kbps | Drop rate: 0.0 pkt/s               |  |  |

Click the button for a chart displaying real-time throughput, latency, and drop-rate information for each WAN connection.



When pressing the button, the following menu will appear:

**PepVPN Details**

**Connection Information**
☐ More information

|               |            |  |  |
|---------------|------------|--|--|
| Profile       | [blurred]  |  |  |
| Remote ID     | LAB-NET-GW |  |  |
| Router Name   | LAB-NET-GW |  |  |
| Serial Number | [blurred]  |  |  |

**WAN Statistics**


Remote Connections ☐ Show remote connections

WAN Label ☒ WAN Name ☐ IP Address and Port

|                    |                                                |              |                      |                |
|--------------------|------------------------------------------------|--------------|----------------------|----------------|
| BT                 | Rx: < 1 kbps                                   | Tx: < 1 kbps | Loss rate: 0.0 pkt/s | Latency: 28 ms |
| Virgin Media       | Rx: < 1 kbps                                   | Tx: < 1 kbps | Loss rate: 0.0 pkt/s | Latency: 17 ms |
| WAN 3              | Not available - WAN disabled                   |              |                      |                |
| WAN 4              | Not available - link failure, no data received |              |                      |                |
| Peplink HK Network | Not available - link failure, no data received |              |                      |                |
| Mobile Internet    | Not available - WAN down                       |              |                      |                |
| Total              | Rx: < 1 kbps                                   | Tx: < 1 kbps | Loss rate: 0.0 pkt/s |                |

**PepVPN Test Configuration**


|           |                                                                        |                  |
|-----------|------------------------------------------------------------------------|------------------|
| Type      | <input checked="" type="radio"/> TCP <input type="radio"/> UDP         | <div>Start</div> |
| Streams   | 4 ▼                                                                    |                  |
| Direction | <input checked="" type="radio"/> Upload <input type="radio"/> Download |                  |
| Duration  | 20 seconds (5 - 600)                                                   |                  |

**PepVPN Test Results**

No information

The Speedfusion status page shows all related information about the PepVPN connection. This screen also allows you to run PepVPN Tests allowing throughput tests.

## 30.10 Event Log

Event log information is located at **Status>Event Log**.

Device Event Log

Device Event Log

☒ Auto Refresh

|                 |                                                                                    |
|-----------------|------------------------------------------------------------------------------------|
| Mar 22 14:29:44 | System: Changes applied                                                            |
| Mar 22 14:28:29 | System: Changes applied                                                            |
| Mar 22 14:00:26 | WAN: Wi-Fi WAN connected to PEPLINK_1 (10.22.1.152)                                |
| Mar 22 11:47:45 | Admin: DemoPep (10.22.1.160) login successful                                      |
| Mar 22 11:47:28 | Admin: admin (10.22.1.160) login failed                                            |
| Mar 22 11:46:59 | System: Changes applied                                                            |
| Mar 22 11:45:42 | System: Changes applied                                                            |
| Mar 20 15:43:27 | System: Changes applied                                                            |
| Mar 20 11:20:15 | System: Changes applied                                                            |
| Mar 19 15:23:26 | System: Changes applied                                                            |
| Mar 19 15:21:35 | System: Changes applied                                                            |
| Mar 19 15:21:31 | System: InControl has updated the configuration as InControl configuration updated |
| Mar 19 15:21:31 | System: LAN Configuration has been updated by InControl                            |
| Mar 19 15:07:38 | System: Changes applied                                                            |
| Mar 19 14:09:27 | System: WAN Analysis server stopped                                                |
| Mar 19 14:09:22 | System: WAN Analysis server started (control port: 6000, max. streams: 8)          |
| Mar 19 14:05:30 | WAN: WAN 2 connected (10.22.1.165)                                                 |
| Mar 19 14:05:30 | WAN: WAN 1 connected (10.22.1.151)                                                 |
| Mar 19 14:05:18 | WAN: WAN 2 disconnected                                                            |
| Mar 19 14:05:18 | WAN: WAN 1 disconnected                                                            |
| Mar 19 14:05:18 | System: Changes applied                                                            |
| Mar 19 13:56:31 | WAN: WAN 2 connected (10.22.1.165)                                                 |

Clear Log

The log section displays a list of events that has taken place on the Pepwave router. Check **Auto Refresh** to refresh log entries automatically. Click the **Clear Log** button to clear the log.

## 31 WAN Quality



The **Status > WAN Quality** allowsto show detailed information about each connected WAN connection.

For cellular connections it shows signal strength, quality, throughput and latency for the past hour.

## 32 Usage Reports

This section shows bandwidth usage statistics and is located at **Status > Usage Reports** Bandwidth usage at the LAN while the device is switched off (e.g., LAN bypass) is neither

recorded nor shown.

## 32.1 Real-Time

The **Data transferred since installation** table indicates how much network traffic has been processed by the device since the first bootup. The **Data transferred since last reboot** table indicates how much network traffic has been processed by the device since the last bootup.

Data transferred since installation (Sun Oct 10 05:56:02 PST 2010)

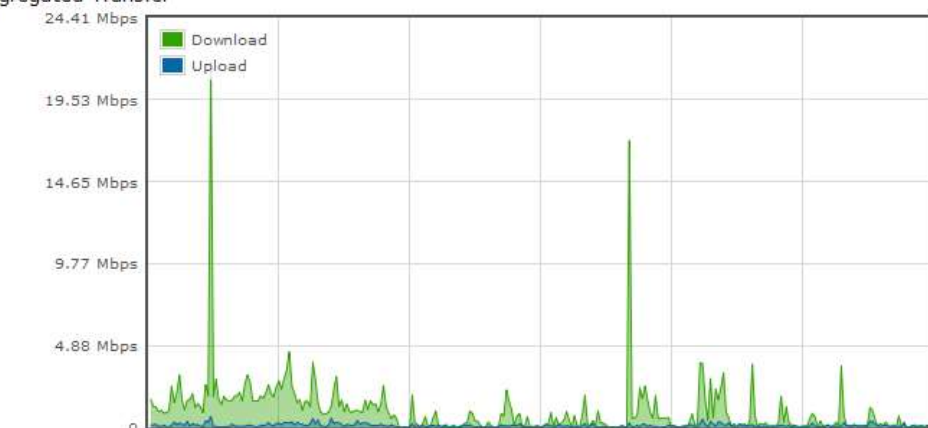
|                     | Download  | Upload   | Total     |
|---------------------|-----------|----------|-----------|
| All WAN Connections | 216.68 GB | 91.70 GB | 308.38 GB |

Data transferred since last reboot

[\[ Hide Details \]](#)

|                     | Download | Upload  | Total   |
|---------------------|----------|---------|---------|
| All WAN Connections | 0.74 GB  | 0.63 GB | 1.37 GB |
| WAN1                | 0.67 GB  | 0.61 GB | 1.28 GB |
| WAN2                | 0.07 GB  | 0.02 GB | 0.09 GB |

Aggregated Transfer



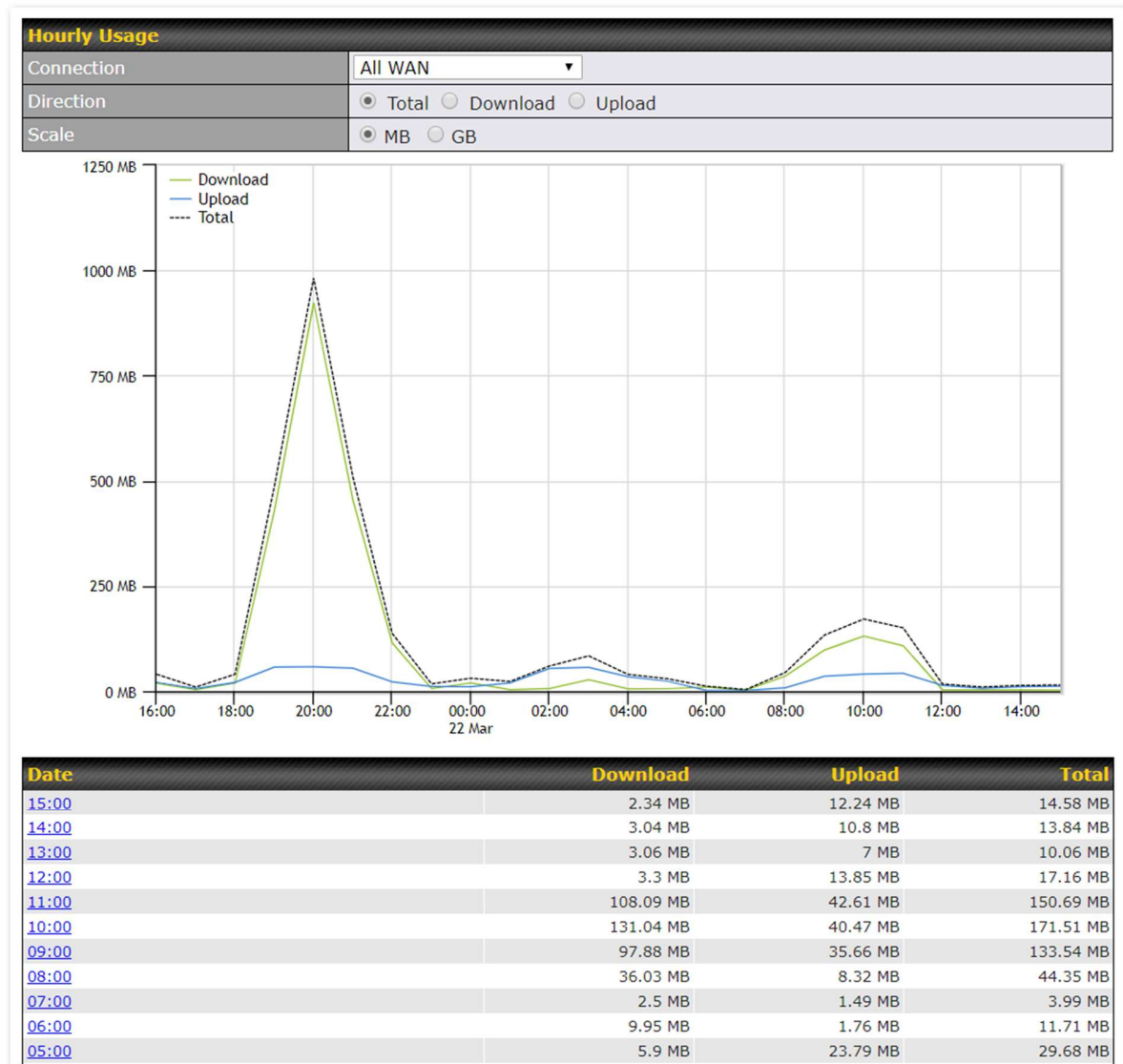
Avg: ↓ 0.99 Mbps ↑ 0.12 Mbps      Peak: ↓ 21.78 Mbps ↑ 0.67 Mbps

Stacked ☐

|         | Download | Upload  | Total    |
|---------|----------|---------|----------|
| Overall | 61 kbps  | 75 kbps | 136 kbps |

## 32.2 Hourly

This page shows the hourly bandwidth usage for all WAN connections, with the option of viewing each individual connection. Select the desired connection to check from the drop-down menu.

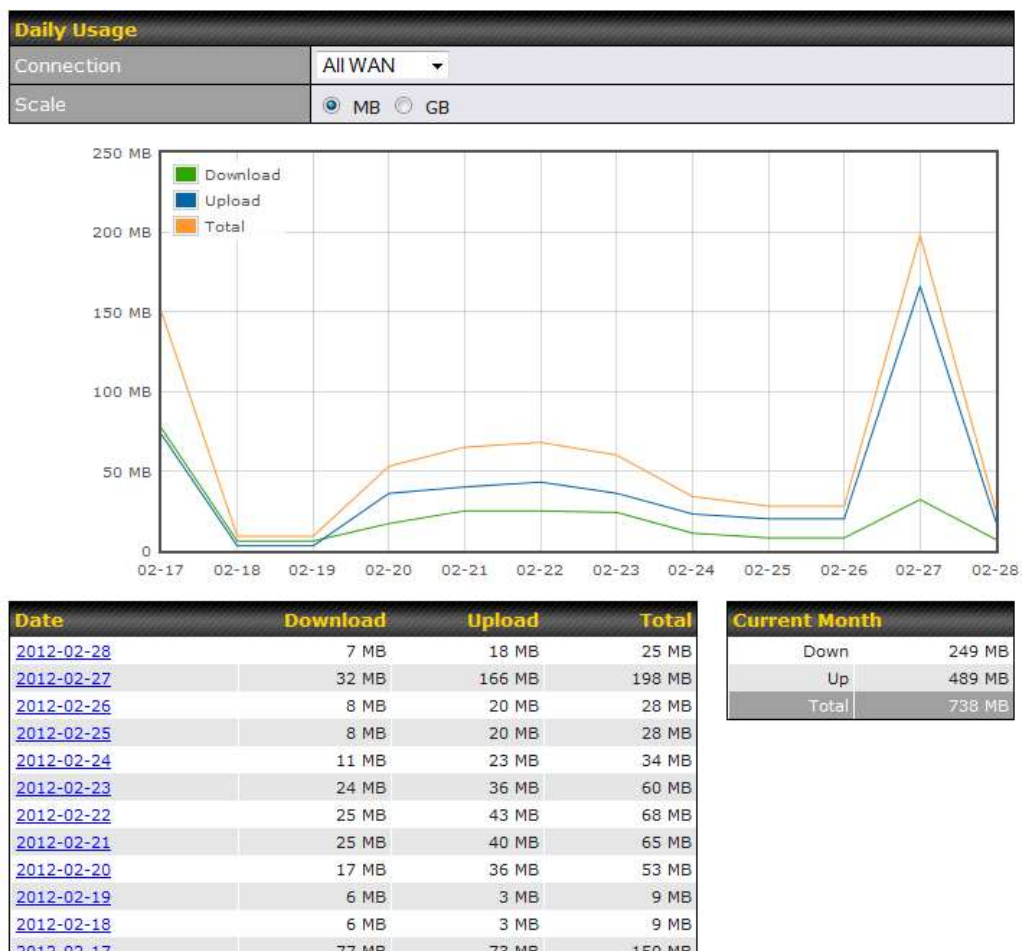


### 32.3 Daily

This page shows the daily bandwidth usage for all WAN connections, with the option of viewing each individual connection.

Select the connection to check from the drop-down menu. If you have enabled the **Bandwidth Monitoring** feature, the **Current Billing Cycle** table for that WAN connection will be displayed.

Click on a date to view the client bandwidth usage of that specific date. This feature is not available if you have selected to view the bandwidth usage of only a particular WAN connection. The scale of the graph can be set to display megabytes (**MB**) or gigabytes (**GB**).



All WAN Daily Bandwidth Usage

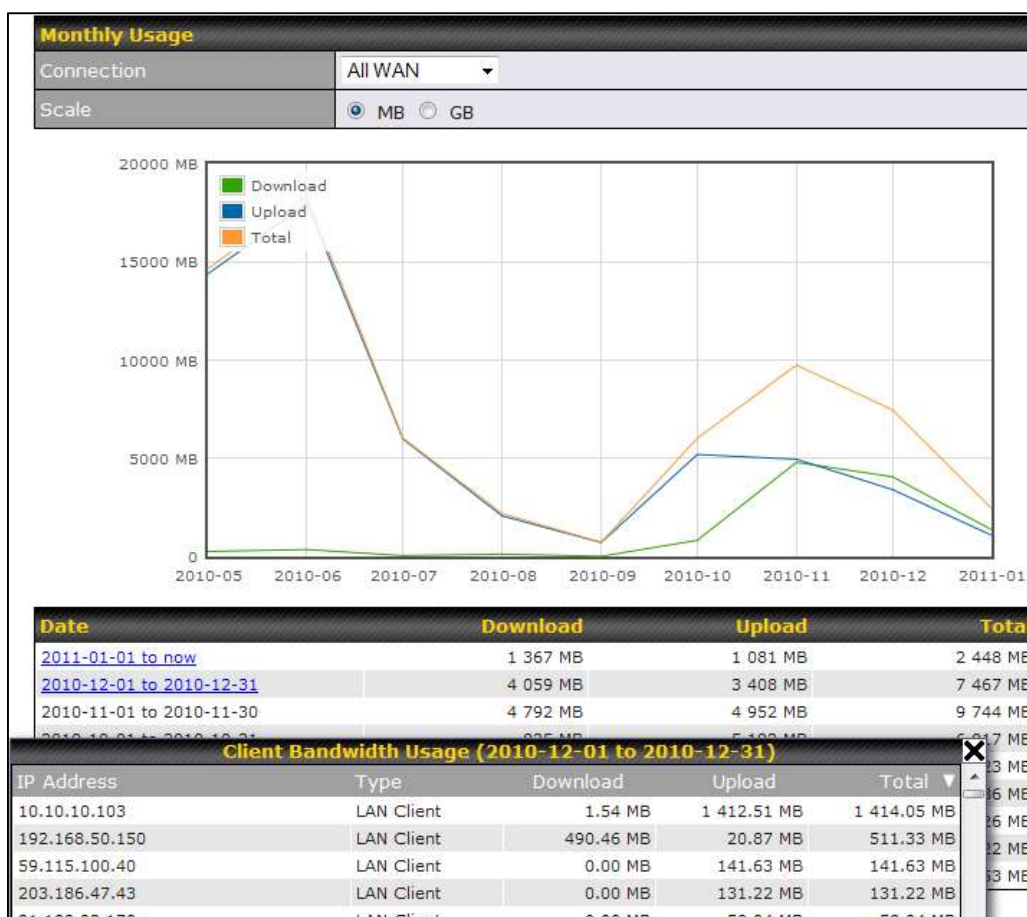
### 32.4 Monthly

This page shows the monthly bandwidth usage for each WAN connection. If you have enabled the **Bandwidth Monitoring** feature, you can check the usage of each particular connection

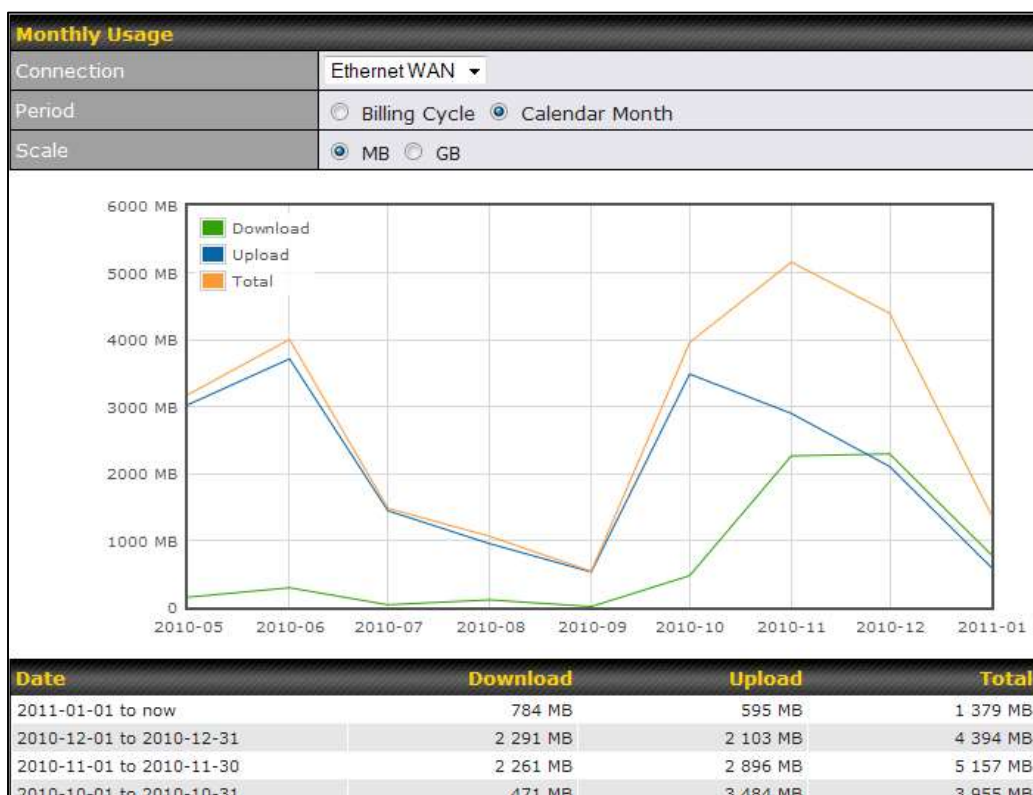
and view the information by **Billing Cycle** or by **Calendar Month**.

Click the first two rows to view the client bandwidth usage in the last two months. This feature is not available if you have chosen to view the bandwidth of an individual WAN connection.

The scale of the graph can be set to display megabytes (**MB**) or gigabytes (**GB**).



All WAN Monthly Bandwidth Usage



Ethernet WAN Monthly Bandwidth Usage

**Tip**

By default, the scale of data size is in **MB**. 1GB equals 1024MB.

## Appendix A. **Restoration of Factory Defaults**

To restore the factory default settings on a Pepwave router, follow the steps below:

1. Locate the reset button on the front or back panel of the Pepwave router.
2. With a paperclip, press the reset button and hold it for at least 10 seconds, until the unit reboots itself.

After the Pepwave router finishes rebooting, the factory default settings will be restored.

### **Important Note**

All previous configurations and bandwidth usage data will be lost after restoring factory default settings. Regular backup of configuration settings is strongly recommended.

## Appendix B: Declaration

1. The device supports time division technology
2. Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

### IMPORTANT NOTE

#### FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 23 cm between the radiator & your body.

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.**

### **3. Industry Canada statement:**

This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter 20682-P1941 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

WIFI Antenna type: Replacement Antenna

WIFI Antenna gain: 2.4GHz / 2.44 dBi , 5GHz / 4.73 dBi

LTE Antenna type: Replacement Antenna (04-410055-00)

LTE Antenna gain: 4 dBi

LTE Antenna type: Replacement Antenna (04-410093-01)

LTE Antenna gain: 4.38 dBi

### **Radiation Exposure Statement:**

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with greater than 23 cm between the radiator & your body.

**Déclaration d'exposition aux radiations:**

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 23 cm entre le radiateur et votre corps.

**Caution :**

- (i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
- (ii) for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; (detachable antenna only)
- (iii) where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated.

**Avertissement:**

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

- (i) les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
- (ii) pour les dispositifs munis d'antennes amovibles, le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5725 à 5850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée, selon le cas; (detachable antenna only)
- (iii) lorsqu'il y a lieu, les types d'antennes (s'il y en a plusieurs), les numéros de modèle de l'antenne et les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, énoncée à la section 6.2.2.3, doivent être clairement indiqués

**4. CE Statement for Pepwave****Europe – EU Declaration of Conformity**

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN 60950-1: 2006 + A11 : 2009+A1 : 2010+ A12: 2011  
Safety of Information Technology Equipment
- EN 50385 : 2002 / Article 3(1)(a)  
Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110MHz - 40 GHz) - General public  
  
EN 300 328 V1.7.1: 2006  
Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
- EN 301 908-1 V5.2.1: 2011  
Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 1: Harmonized EN for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive
- EN 301 511 V9.0.2: 2003  
Global System for Mobile communications (GSM); Harmonized standard for mobile stations in the GSM 900 and DCS 1800 bands covering essential requirements under article 3.2 of the R&TTE directive (1999/5/EC)
- EN 301 489-1 V1.9.2: 2008  
Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
- EN 301 489-7 V1.3.1: 2005  
ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment ad services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)
- EN 301 489-17 V2.2.1: 2012  
Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

- EN 301 489-24 V1.5.1: 2010

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 24: Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) for Mobile and portable (UE) radio and ancillary equipment



|                                                                                                              |                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Česky<br>[Czech]           | <i>[Jméno výrobce]</i> tímto prohlašuje, že tento <i>[typ zařízení]</i> je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.                                                                   |
|  Dansk<br>[Danish]          | Undertegnede <i>[fabrikantens navn]</i> erklærer herved, at følgende udstyr <i>[udstyrets typebetegnelse]</i> overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.                                           |
|  Deutsch<br>[German]        | Hiermit erklärt <i>[Name des Herstellers]</i> , dass sich das Gerät <i>[Gerätetyp]</i> in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.          |
|  Eesti<br>[Estonian]       | Käesolevaga kinnitab <i>[tootja nimi = name of manufacturer]</i> seadme <i>[seadme tüüp = type of equipment]</i> vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele. |
|  English                  | Hereby, <i>[name of manufacturer]</i> , declares that this <i>[type of equipment]</i> is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.                                         |
|  Español<br>[Spanish]     | Por medio de la presente <i>[nombre del fabricante]</i> declara que el <i>[clase de equipo]</i> cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.            |
|  Ελληνική<br>[Greek]      | ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>[name of manufacturer]</i> ΔΗΛΩΝΕΙ ΟΤΙ <i>[type of equipment]</i> ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.                                             |
|  Français<br>[French]     | Par la présente <i>[nom du fabricant]</i> déclare que l'appareil <i>[type d'appareil]</i> est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.                                  |
|  Italiano<br>[Italian]    | Con la presente <i>[nome del costruttore]</i> dichiara che questo <i>[tipo di apparecchio]</i> è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.                         |
|  Latvīski<br>[Latvian]    | Ar šo <i>[name of manufacturer / izgatavotāja nosaukums]</i> deklarē, ka <i>[type of equipment / iekārtas tips]</i> atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.                       |
|  Lietuvių<br>[Lithuanian] | Šiuo <i>[manufacturer name]</i> deklaruojama, kad šis <i>[equipment type]</i> atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.                                                                                |
|  Nederlands<br>[Dutch]    | Hierbij verklaart <i>[naam van de fabrikant]</i> dat het toestel <i>[type van toestel]</i> in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.                                  |

|                                                                                                             |                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Malti<br>[Maltese]        | Hawnhekk, <i>[isem tal-manifattur]</i> , jiddikjara li dan <i>[il-mudel tal-prodott]</i> jikkonforma mal-<br>ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.                                     |
|  Magyar<br>[Hungarian]     | Alulírott, <i>[gyártó neve]</i> nyilatkozom, hogy a <i>[... típus]</i> megfelel a vonatkozó alapvető<br>követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.                                                                       |
|  Polski<br>[Polish]        | Niniejszym <i>[nazwa producenta]</i> oświadczam, że <i>[nazwa wyrobu]</i> jest zgodny z<br>zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy<br>1999/5/EC.                                                        |
|  Português<br>[Portuguese] | <i>[Nome do fabricante]</i> declara que este <i>[tipo de equipamento]</i> está conforme com os<br>requisitos essenciais e outras disposições da Directiva 1999/5/CE.                                                                        |
|  Slovensko<br>[Slovenian]  | <i>[Ime proizvajalca]</i> izjavlja, da je ta <i>[tip opreme]</i> v skladu z bistvenimi zahtevami in ostalimi<br>relevantnimi določili direktive 1999/5/ES.                                                                                  |
|  Slovensky<br>[Slovak]     | <i>[Meno výrobcu]</i> týmto vyhlasuje, že <i>[typ zariadenia]</i> spĺňa základné požiadavky a všetky<br>príslušné ustanovenia Smernice 1999/5/ES.                                                                                           |
|  Suomi<br>[Finnish]        | <i>[Valmistaja = manufacturer]</i> vakuuttaa täten että <i>[type of equipment = laitteen<br/>tyyppimerkintä]</i> tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä<br>koskevien direktiivin muiden ehtojen mukainen. |
|  Svenska<br>[Swedish]    | Härmed intygar <i>[företag]</i> att denna <i>[utrustningstyp]</i> står i överensstämmelse med de<br>väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv<br>1999/5/EG.                                        |