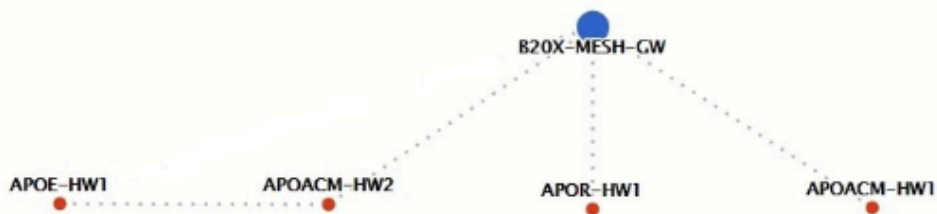


25.5 Mesh / WDS

Mesh / WDS allows you to monitor the status of your wireless distribution system (WDS) or Mesh, and track activity by MAC address by navigating to **AP > Controller Status > Mesh / WDS**. This table shows the detailed information of each AP, including protocol, transmit rate (sent / received), signal strength, and duration.

Mesh / WDS						
Type ^	Peer MAC	Protocol	Rate (Send)	Rate (Receive)	Signal (dBm)	Duration
▼ APOACM-HW1/ [redacted]						
Mesh ([redacted])	[redacted]	802.11ac	325M	650M	-56	19:13:35
▼ APOACM-HW2/ [redacted]						
Mesh ([redacted])	[redacted]	802.11ac	650M	351M	-63	00:49:20
	[redacted]	802.11ac	390M	325M	-67	01:35:09
▼ APOE-HW1/ [redacted]						
Mesh ([redacted])	[redacted]	802.11ac	58.5M	130M	-69	00:45:22
▼ APOR-HW1/ [redacted]						
Mesh ([redacted])	[redacted]	802.11ac	325M	866.7M	-53	19:14:44
▼ B20X-MESH-GW/ [redacted]						
Mesh ([redacted])	[redacted]	802.11ac	433M	650M	-69	19:14:44
	[redacted]	802.11ac	325M	390M	-66	01:35:42
	[redacted]	802.11ac	351M	650M	-70	19:13:45
	[redacted]	802.11ac	130M	117M	-88	00:45:52

Network Graph



25.6 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.

25.7 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 hh:mm to hh:mm
Alerts only	☐
Search	

Events		View Alerts
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	
		More...

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.

26 Toolbox

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

Firmware Packs			
Pack ID	Release Date	Details	Action
1126	2013-08-26		
Check for Updates Manual Upload 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.

27 System

27.1 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	
Device Name	MAX-BR1- hostname: max-br1- ⚙️ This configuration is being managed by InControl .
Admin User Name	admin
Admin Password	••••••••
Confirm Admin Password	••••••••
Read-only User Name	user
Read-only Password	
Confirm Read-only Password	
Web Session Timeout	4 Hours 0 Minutes
Authentication Method	☒ Local Account ☐ RADIUS ☐ TACACS+
CLI SSH & Console	☒ Enable
CLI SSH Access	LAN Only ▼
CLI SSH Port	8822
CLI SSH Access Public Key	Admin User: (Disabled) configure Read-only User: (Disabled) configure
Security	HTTP / HTTPS ▼ ☒ Redirect HTTP to HTTPS
Web Admin Access	HTTP: LAN / WAN HTTPS: LAN / WAN ▼
Web Admin Port	HTTP: 80 HTTPS: 443

LAN Connection Access Settings	
Allowed LAN Networks	☒ Any ☐ Allow this network only

WAN Connection Access Settings										
Allowed Source IP Subnets	☒ Any ☐ Allow access from the following IP subnets only									
Allowed WAN IP Address(es)	<table border="1"> <thead> <tr> <th>Connection / IP Address(es)</th> <th>All</th> <th>Clear</th> </tr> </thead> <tbody> <tr><td>☐ WAN</td></tr> <tr><td>☐ Cellular</td></tr> <tr><td>☐ Wi-Fi WAN on 2.4 GHz</td></tr> <tr><td>☐ Wi-Fi WAN on 5 GHz</td></tr> <tr><td>☐ VLAN WAN 1</td></tr> <tr><td>☐ OpenVPN WAN 1</td></tr> </tbody> </table>	Connection / IP Address(es)	All	Clear	☐ WAN	☐ Cellular	☐ Wi-Fi WAN on 2.4 GHz	☐ Wi-Fi WAN on 5 GHz	☐ VLAN WAN 1	☐ OpenVPN WAN 1
Connection / IP Address(es)	All	Clear								
☐ WAN										
☐ Cellular										
☐ Wi-Fi WAN on 2.4 GHz										
☐ Wi-Fi WAN on 5 GHz										
☐ VLAN WAN 1										
☐ OpenVPN WAN 1										

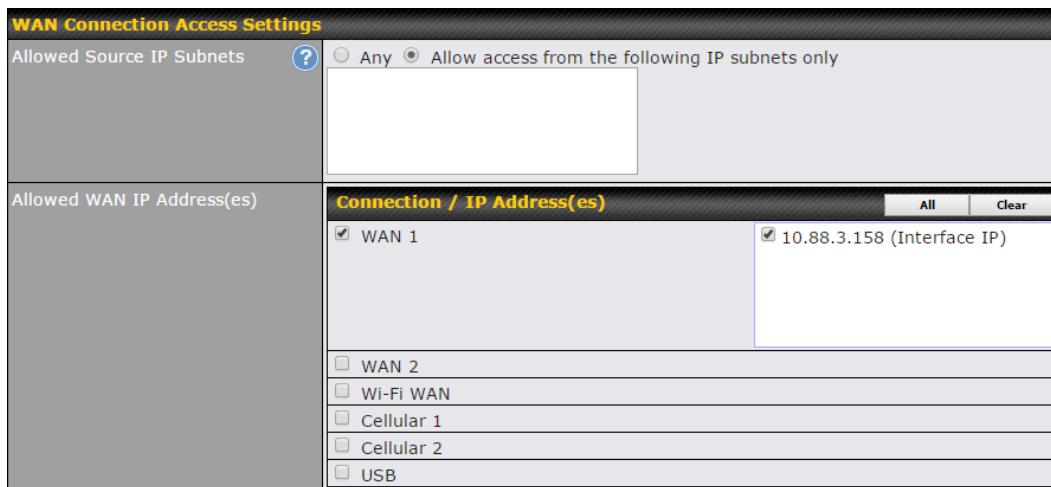
Save

Admin Settings	
Device Name	This field allows you to define a name for this Pepwave router. By default, Device Name is set as MAX_XXXX , where XXXX refers to the last 4 digits of

	the unit's serial number.																										
Admin User Name	Admin User Name is set as <i>admin</i> by default, but can be changed, if desired.																										
Admin Password	This field allows you to specify a new administrator password.																										
Confirm Admin Password	This field allows you to verify and confirm the new administrator password.																										
Read-only User Name	Read-only User Name is set as <i>user</i> by default, but can be changed, if desired.																										
Read-only Password	This field allows you to specify a new user password. Once the user password is set, the read-only user feature will be enabled.																										
Confirm Read-only Password	This field allows you to verify and confirm the new user password.																										
Web Session Timeout	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 4 hours .																										
Authentication Method	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. Available options: - Local Account - RADIUS <table border="1"> <tr> <td>Authentication Method</td> <td>☐ Local Account ☒ RADIUS ☐ TACACS+</td> </tr> <tr> <td>Authentication Protocol</td> <td>MS-CHAP v2 ▼</td> </tr> <tr> <td></td> <td>You may click here to define RADIUS Server Authentication profile, or you may go to RADIUS Server page to define multiple profiles</td> </tr> <tr> <td>Authentication Host</td> <td></td> </tr> <tr> <td>Authentication Port</td> <td>1812</td> </tr> <tr> <td>Authentication Secret</td> <td> </td> </tr> <tr> <td></td> <td>☒ Hide Characters</td> </tr> <tr> <td></td> <td>You may click here to define RADIUS Server Accounting profile, or you may go to RADIUS Server page to define multiple profiles</td> </tr> <tr> <td>Accounting Host</td> <td></td> </tr> <tr> <td>Accounting Port</td> <td>1813</td> </tr> <tr> <td>Accounting Secret</td> <td> </td> </tr> <tr> <td></td> <td>☒ Hide Characters</td> </tr> <tr> <td>Authentication Timeout</td> <td>3 seconds</td> </tr> </table>	Authentication Method	☐ Local Account ☒ RADIUS ☐ TACACS+	Authentication Protocol	MS-CHAP v2 ▼		You may click here to define RADIUS Server Authentication profile, or you may go to RADIUS Server page to define multiple profiles	Authentication Host		Authentication Port	1812	Authentication Secret			☒ Hide Characters		You may click here to define RADIUS Server Accounting profile, or you may go to RADIUS Server page to define multiple profiles	Accounting Host		Accounting Port	1813	Accounting Secret			☒ Hide Characters	Authentication Timeout	3 seconds
Authentication Method	☐ Local Account ☒ RADIUS ☐ TACACS+																										
Authentication Protocol	MS-CHAP v2 ▼																										
	You may click here to define RADIUS Server Authentication profile, or you may go to RADIUS Server page to define multiple profiles																										
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Accounting Host																											
Accounting Port	1813																										
Accounting Secret																											
	☒ Hide Characters																										
Authentication Timeout	3 seconds																										
Authentication	This specifies the authentication protocol used.																										

	<table> <tr> <td>Protocol</td><td>Available options are MS-CHAP v2 and PAP.</td></tr> <tr> <td>Authentication Host</td><td>This specifies the IP address or hostname of the RADIUS server host.</td></tr> <tr> <td>Authentication Port</td><td>This setting specifies the UDP destination port for authentication requests.</td></tr> <tr> <td>Authentication Secret</td><td>This field is for entering the secret key for accessing the RADIUS server.</td></tr> <tr> <td>Accounting Host</td><td>This specifies the IP address or hostname of the RADIUS server host.</td></tr> <tr> <td>Accounting Port</td><td>This setting specifies the UDP destination port for accounting requests.</td></tr> <tr> <td>Accounting Secret</td><td>This field is for entering the secret key for accessing the accounting server.</td></tr> <tr> <td>Authentication Timeout</td><td>This option specifies the time value for authentication timeout</td></tr> </table>	Protocol	Available options are MS-CHAP v2 and PAP .	Authentication Host	This specifies the IP address or hostname of the RADIUS server host.	Authentication Port	This setting specifies the UDP destination port for authentication requests.	Authentication Secret	This field is for entering the secret key for accessing the RADIUS server.	Accounting Host	This specifies the IP address or hostname of the RADIUS server host.	Accounting Port	This setting specifies the UDP destination port for accounting requests.	Accounting Secret	This field is for entering the secret key for accessing the accounting server.	Authentication Timeout	This option specifies the time value for authentication timeout
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Accounting Host	This specifies the IP address or hostname of the RADIUS server host.																
Accounting Port	This setting specifies the UDP destination port for accounting requests.																
Accounting Secret	This field is for entering the secret key for accessing the accounting server.																
Authentication Timeout	This option specifies the time value for authentication timeout																
	TACACS+ <table> <tr> <td>Authentication Method</td><td>☐ Local Account ☐ RADIUS ☒ TACACS+</td></tr> <tr> <td>TACACS+ Server</td><td> </td></tr> <tr> <td>TACACS+ Server Secret</td><td> ☒ Hide Characters</td></tr> <tr> <td>TACACS+ Server Timeout</td><td> 3 seconds</td></tr> </table> <table> <tr> <td>TACACS+ Server</td><td>This specifies the access address of the external TACACS+ server.</td></tr> <tr> <td>TACACS+ Server Secret</td><td>This field is for entering the secret key for accessing the RADIUS server.</td></tr> <tr> <td>TACACS+ Server Timeout</td><td>This option specifies the time value for TACACS+ timeout</td></tr> </table>	Authentication Method	☐ Local Account ☐ RADIUS ☒ TACACS+	TACACS+ Server		TACACS+ Server Secret	☒ Hide Characters	TACACS+ Server Timeout	3 seconds	TACACS+ Server	This specifies the access address of the external TACACS+ server.	TACACS+ Server Secret	This field is for entering the secret key for accessing the RADIUS server.	TACACS+ Server Timeout	This option specifies the time value for TACACS+ timeout		
Authentication Method	☐ Local Account ☐ RADIUS ☒ TACACS+																
TACACS+ Server																	
TACACS+ Server Secret	☒ Hide Characters																
TACACS+ Server Timeout	3 seconds																
TACACS+ Server	This specifies the access address of the external TACACS+ server.																
TACACS+ Server Secret	This field is for entering the secret key for accessing the RADIUS server.																
TACACS+ Server Timeout	This option specifies the time value for TACACS+ timeout																
CLI SSH & Console	The CLI (command line interface) can be accessed via SSH. This field enables CLI support. For additional information regarding CLI, please refer to Section 30.5 .																
CLI SSH Access	This menu allows you to choose between granting access to LAN and WAN clients, or to LAN clients only.																

CLI SSH Port	This field determines the port on which clients can access CLI SSH.
CLI SSH Access Public Key	This field is for entering the Public Key for Admin Users and Read-only Users to access CLI SSH.
Security	This option is for specifying the protocol(s) through which the web admin interface can be accessed: • HTTP • HTTPS • HTTP/HTTPS HTTP to HTTPS redirection is enabled by default to force HTTPS access to the web admin interface.
Web Admin Access	This option is for specifying the network interfaces through which the web admin interface can be accessed: • LAN only • LAN/WAN If LAN/WAN is chosen, the WAN Connection Access Settings form will be displayed.
Web Admin Port	This field is for specifying the port number on which the web admin interface can be accessed.



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.

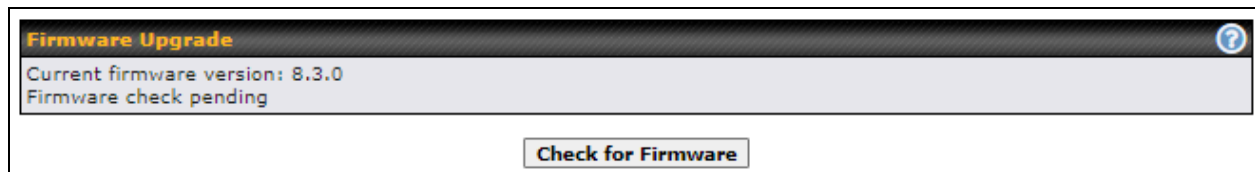
27.2 Firmware

Web admin interface : automatically check for updates

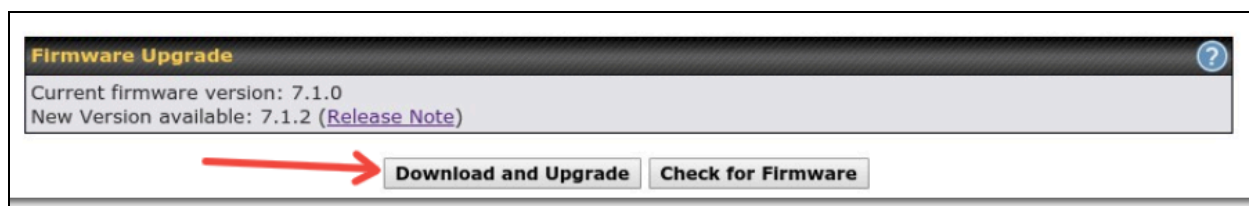
Upgrading firmware can be done in one of three ways.

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**.

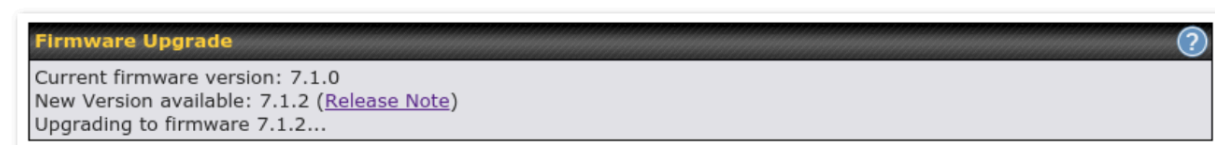


If an update is found the buttons will change to allow you to **Download and Update** the firmware.



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.*

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	Download	PDF	PDF	
Balance 1350	HW1	6.3.4	Download	PDF	PDF	
Balance 20	HW1-6	7.1.2	Download	PDF	PDF	
Balance 210	HW4	7.1.2	Download	PDF	PDF	

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

Choose File

No file chosen

Manual Upgrade

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.*

The InControl method

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

27.3 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

Time Zone

(GMT+08:00) Kuala Lumpur, Singapore

▼

☐ Show all

Time Sync

Time Server ▼

Time Server

0.pepwave.pool.ntp.org

Save

Time Settings	
Time Zone	This specifies the time zone (along with the corresponding Daylight Savings Time scheme). The Time Zone value affects the time stamps in the Pepwave router's event log and e-mail notifications. Check Show all to show all time zone options.

Edit Schedule Profile	
Enabling	Click this checkbox to enable this schedule profile. Note that if this is disabled, then any associated features will also have their scheduling disabled.
Name	Enter your desired name for this particular schedule profile.
Schedule	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.
Schedule Map	Click on the desired times to enable features at that time period. You can hold your mouse for faster entry.

27.5 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	☒ Enable
SMTP Server	smtp.mycompany.com ☒ Require authentication
Connection Security	SSL/TLS (Note: any server certificate will be accepted)
SMTP Port	465
SMTP User Name	smtpuser
SMTP Password	*****
Confirm SMTP Password	*****
Sender's Email Address	admin@mycompany.com
Recipient's Email Address	system@mycompany.com staff@mycompany.com

Email Notification Settings	
Email Notification	This setting specifies whether or not to enable email notification. If Enable is checked, the Pepwave router will send email messages to system administrators when the WAN status changes or when new firmware is available. If Enable is not checked, email notification is disabled and the Pepwave router will not send email messages.

SMTP Server	This setting specifies the SMTP server to be used for sending email. If the server requires authentication, check Require authentication .
Connection Security	This setting specifies via a drop-down menu one of the following valid Connection Security: • None • STARTTLS • SSL/TLS
SMTP Port	This field is for specifying the SMTP port number. By default, this is set to 25 . If Connection Security is selected " STARTTLS ", the default port number will be set to 587 . If Connection Security is selected " SSL/TLS ", the default port number will be set to 465 . You may customize the port number by editing this field.
SMTP User Name / Password	This setting specifies the SMTP username and password while sending email. These options are shown only if Require authentication is checked in the SMTP Server setting.
Confirm SMTP Password	This field allows you to verify and confirm the new administrator password.
Sender's Email Address	This setting specifies the email address the Pepwave router will use to send reports.
Recipient's Email Address	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 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.
(NOTE: Settings are not saved. To confirm the update, click 'Save' button.)

Email Notification Setup ?	
Email Notification	☒ Enable
SMTP Server	 ☒ Require authentication
Connection Security	SSL/TLS ▼ (Note: any server certificate will be accepted)
SMTP Port	465
SMTP User Name	
SMTP Password	
Confirm SMTP Password	
Sender's Email Address	
Recipient's Email Address	

Test Email Notification **Save**

Test Result

```
[INFO] Try email through auto detected connection
[INFO] SMTP through SSL connected
[<-] 220 smtp.gmail.com ESMTP h11sm3907691pjj.46 - gsmt
-> EHLO balance.peplink.com
[<-] 250-smtp.gmail.com at your service, [14.192.209.255]
[<-] 250-SIZE 35882577
[<-] 250-8BITMIME
[<-] 250-AUTH LOGIN PLAIN XOAUTH2 PLAIN-CLIENTTOKEN OAUTHBEARER XOAUTH
[<-] 250-ENHANCEDSTATUSCODES
[<-] 250-PIPELINING
[<-] 250-CHUNKING
[<-] 250 SMTPUTF8
-> AUTH PLAIN AGdwc2dhbjk0QGdtYVlsLmNvbQBwdnJ6bWF6cGhtYXJpanpp
[<-] 235 2.7.0 Authentication successful
```

27.6 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	☐
Remote Syslog Host	 Port: 514
Source Network Address	Untagged LAN ▼
Push Events to Mobile Devices ?	
Push Events	☐
URL Logging	
Enable	☐
Session Logging	
Enable	☐
Save	

Event Log Settings	
Remote Syslog	This setting specifies whether or not to log events at the specified remote syslog server.
Remote Syslog Host	This setting specifies the IP address or hostname of the remote syslog server.
Source Network Address	Via drop-down list, you may choose the LAN interface for Event Log, URL Logging, Sessions Logging and RADIUS.
Push Events	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.
URL Logging	This setting is to enable event logging at the specified log server.
URL Logging Host	This setting specifies the IP address or hostname of the URL log server.

Session Logging This setting is to enable event logging at the specified log server.

Session Logging Host This setting specifies the IP address or hostname of the Session log server.



For more information on the Router Utility, go to:
www.peplink.com/products/router-utility

27.7 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_TST_3D8B
Location	
SNMP Port	161 Default
SNMPv1	☐ Enable
SNMPv2c	☐ Enable
SNMPv3	☐ Enable
SNMP Trap	☒ Enable
SNMP Trap Community	
SNMP Trap Server	
SNMP Trap Port	162
SNMP Trap Server Heartbeat	☐
Save	

Community Name	Allowed Source Network	Access Mode
No SNMPv1 / SNMPv2c Communities Defined		
Add SNMP Community		

SNMPv3 User Name	Authentication / Privacy	Access Mode
No SNMPv3 Users Defined		
Add SNMP User		

SNMP Settings	
SNMP Device	This field shows the router name defined at System > Admin Security .

Name	
SNMP Port	This option specifies the port which SNMP will use. The default port is 161 .
SNMPv1	This option allows you to enable SNMP version 1.
SNMPv2	This option allows you to enable SNMP version 2.
SNMPv3	This option allows you to enable SNMP version 3.
SNMP Trap	This option allows you to enable SNMP Trap. If enabled, the following entry fields will appear.
SNMP Trap Community	This setting specifies the SNMP Trap community name.
SNMP Trap Server	Enter the IP address of the SNMP Trap server.
SNMP Trap Port	This option specifies the port which the SNMP Trap server will use. The default port is 162 .
SNMP Trap Server Heartbeat	This option allows you to enable and configure the heartbeat interval for the SNMP Trap server.

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:

SNMP Community

Community Name

My Company

Allowed Network

192.168.1.25 / 255.255.255.0 (/24)

Save

Cancel

SNMP Community Settings	
Community Name	This setting specifies the SNMP community name.
Allowed Source Subnet Address	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:

SNMPv3 User

User Name	SNMPUser	
Authentication	SHA	password
Privacy	DES	privacypassword

Save

Cancel

SNMPv3 User Settings	
User Name	This setting specifies a user name to be used in SNMPv3.
Authentication Protocol	This setting specifies via a drop-down menu one of the following valid authentication protocols: - NONE - MD5 - SHA When MD5 or SHA is selected, an entry field will appear for the password.
Privacy Protocol	This setting specifies via a drop-down menu one of the following valid privacy protocols: - NONE - DES When DES is selected, an entry field will appear for the password.

27.8 SMS Control

SMS Control allows the user to control the device using SMS even if the modem does not have a data connection. The settings for configuring the SMS Control can be found at **System > SMS Control**.

Supported Models

- Balance/MAX:** *-LTE-E, *-LTEA-W, *-LTEA-P, *-LTE-MX
- EPX:** *-LW*, *-LP*

SMS Control	
Enable	☐

When this box is checked, the device will be allowed to take actions according to received commands via SMS.

Make sure your mobile plan supports SMS, and note that some plans may incur additional charges for this.

SMS Control can reboot devices and configure cellular settings over signalling channels, even if the modem does not have a data connection.

For details of supported SMS command sets, please refer to our [knowledge base](#).

SMS Control					
Enable	☒				
Password	 ☒ Hide Characters				
White List	<table border="1"> <thead> <tr> <th>Phone Number</th> <th></th> </tr> </thead> <tbody> <tr> <td> </td> <td> + </td> </tr> </tbody> </table>	Phone Number			+
Phone Number					
	+				

SMS Control Settings	
Enable	Click the checkbox to enable the SMS Control.
Password	This setting sets the password for authentication - maximum of 32 characters, which cannot include semicolon (;).
White List	Optionally, you can add phone number(s) to the whitelist. Only matching phone numbers are allowed to issue SMS commands. Phone numbers must be in the E.164 International Phone Numbers format.

27.9 InControl

Controller Management Settings	
Controller	☒ InControl ☐ Restricted to Status Reporting Only
Privately Host InControl	☒
InControl Host	Primary: Backup: ☐ Fail over to InControl in the cloud.

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.

Alternatively, you can also privately host InControl. Simply check the “Privately Host InControl” box and enter the IP Address of your InControl Host. If you have multiple hosts, you may enter the primary and backup IP addresses for the InControl Host and tick the “Fail over to InControl in the cloud” box. The device will connect to either the primary InControl Host or the secondary/backup ICA/IC2.

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.

27.10 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.

Restore Configuration to Factory Settings

Restore Factory Settings

Download Active Configurations

Download

Upload Configurations

Configuration File
Browse_
No file selected.

Upload

Upload Configurations from High Availability Pair

Configuration File
Browse_
No file selected.

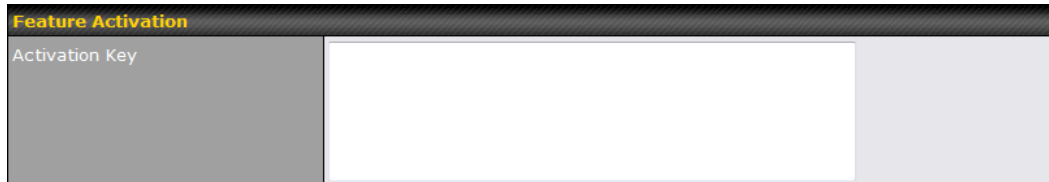
Upload

Configuration	
Restore Configuration to	The Restore Factory Settings button is to reset the configuration to factory default settings. After clicking the button, you will need to click the Apply

Factory Settings	Click Changes button on the top right corner to make the settings effective.
Download Active Configurations	Click Download to backup the current active settings.
Upload Configurations	To restore or change settings based on a configuration file, click Choose File to locate the configuration file on the local computer, and then click Upload . 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.

27.11 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**.

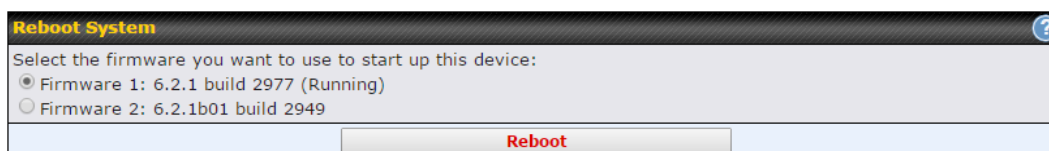


The image shows a web interface titled "Feature Activation". It contains a label "Activation Key" next to a large, empty text input field. The interface has a dark header bar with the title in yellow.

27.12 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 image shows a web interface titled "Reboot System" with a help icon (question mark) in the top right corner. Below the title, it says "Select the firmware you want to use to start up this device:". There are two radio button options: "Firmware 1: 6.2.1 build 2977 (Running)" which is selected, and "Firmware 2: 6.2.1b01 build 2949". At the bottom, there is a "Reboot" button with red text.

28 Tools

28.1 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.

28.2 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**.

[illegible]

Tip

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

28.3 Wake-on-LAN

Pepwane 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**

Wake-on-LAN	
Wake-on-LAN Target	Surf_SOHO (00:90:0B:36:3C:8C) ▼ Send

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

28.4 WAN Analysis

The WAN Analysis feature allows you to run a WAN to WAN speed test between 2 Peplink devices .

You can set a device up as a **Server** or a **Client**. One device must be set up as a server to run the speed tests and the server must have a public IP address.

WAN Performance Analysis

Check your point-to-point WAN performance with another peer



As a server
For the peer who has public IP addresses to accept connection.



As a client
For the peer to initiate connection.

The default port is 6000 and can be changed if required. The IP address of the WAN interface will be shown in the **WAN Connection Status** section.

WAN Performance Analysis

Check your point-to-point WAN performance with another peer

Server Settings

Status	☒ Listening (Control Port: 6000)
Control Port	6000
Apply Stop	

WAN Connection Status

1 WAN 1	☒ 10.22.1.182
2 WAN 2	☐ Disabled
3 WAN 3	☐ Disabled
4 WAN 4	☐ Disabled
5 WAN 5	☐ Disabled
Mobile Internet	☐ Disabled

The client side has a few more settings that can be changed. Make sure that the **Control Port** matches what's been entered on the server side. Select the WAN(s) that will be used for testing and enter the Servers WAN IP address. Once all of the options have been set, click the **Start Test** button.

WAN Performance Analysis

Check your point-to-point WAN performance with another peer

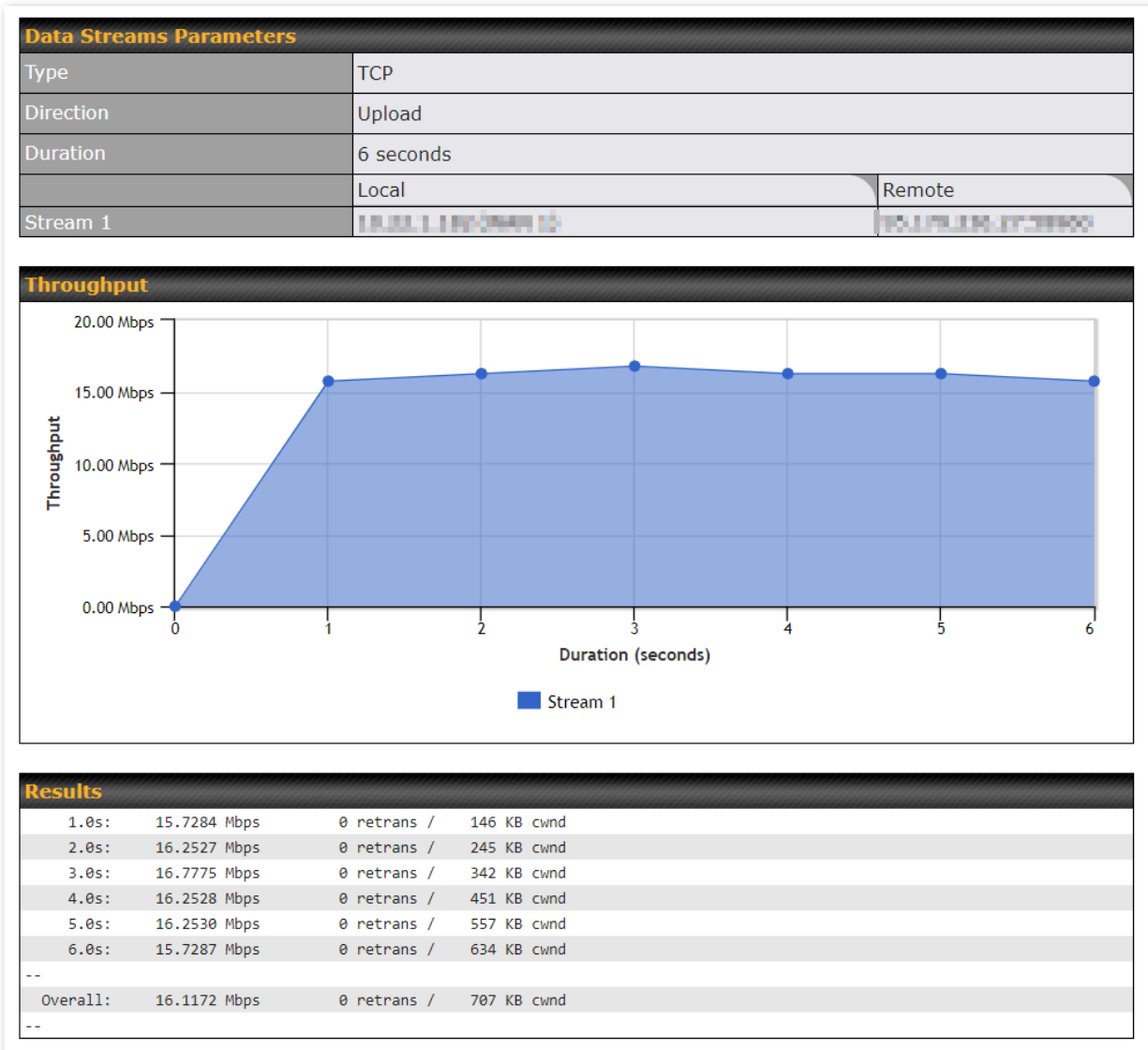
Client Settings

Control Port	6000
Data Port	57280 - 57287
Type	☒ TCP ☐ UDP
Direction	☒ Upload ☐ Download
Duration	20 seconds (5 - 600)

Data Streams

Local WAN Connection	Remote IP Address
1. -- Not Used --	
2. -- Not Used --	
3. -- Not Used --	
4. -- Not Used --	
5. -- Not Used --	
6. -- Not Used --	
7. -- Not Used --	
8. -- Not Used --	

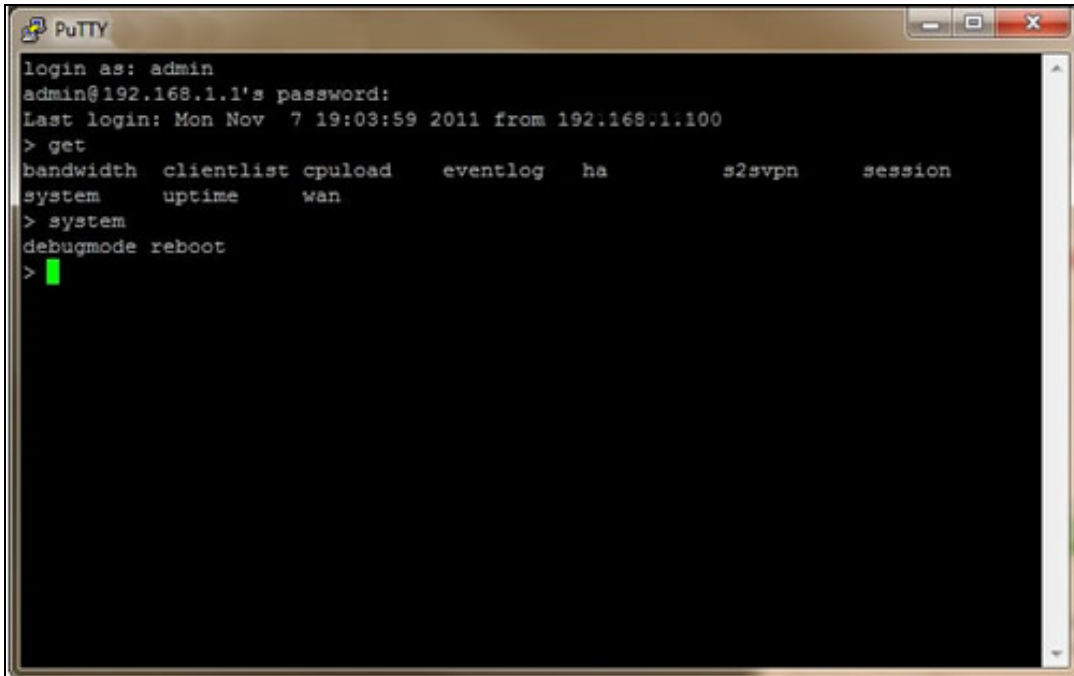
The test output will show the **Data Streams Parameters**, the **Throughput** as a graph, and the **Results**.



The test can be run again once it's complete by clicking the **Start** button or you can click **Close** and change the parameters for the test.

28.5 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.



```
login as: admin
admin@192.168.1.1's password:
Last login: Mon Nov 7 19:03:59 2011 from 192.168.1.100
> get
bandwidth  clientlist  cpuload    eventlog   ha          s2svpn     session
system      uptime      wan
> system
debugmode reboot
> 
```

29 Status

29.1 Device

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

System Information	
Device Name	
Model	Pepwave MAX BR1 Pro 5G
Product Code	
Hardware Revision	1
Serial Number	
Firmware	8.3.0 build 5229
SpeedFusion VPN Version	9.2.0
Host Name	
Uptime	2 minutes
System Time	Mon Feb 20 11:25:42 +08 2023
GPS File	 2023-02-03 ▼ Download
Diagnostic Report	Download
Remote Assistance	Turn On for 7 days

MAC Address	
LAN	
WAN	
Wi-Fi WAN on 5 GHz	
PepVPN NAT Mode	

[Legal](#)

System Information	
Device Name	This is the name specified in the Device Name field located at System > Admin Security .
Model	This shows the model name and number of this device.
Product Code	If your model uses a product code, it will appear here.
Hardware Revision	This shows the hardware version of this device.

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

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](#).

29.2 GPS Data

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

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.

29.3 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
AIM/ICQ	0	1
Bittorrent	0	32
DNS	0	51
Flash	0	1
HTTPS	0	76
Jabber	0	5
MSN	0	11
NTP	0	4
QQ	0	1
Remote Desktop	0	3
SSH	0	12
SSL	0	64
XMPP	0	4
Yahoo	0	1
Interface	Inbound Sessions	Outbound Sessions
WAN 1	0	176
WAN 2	0	32
Wi-Fi WAN	0	51
Cellular 1	0	64
Cellular 2	0	0
USB	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	☐ WAN 1 ☐ WAN 2 ☐ Wi-Fi WAN ☐ Cellular 1 ☐ Cellular 2 ☐ USB ☐ 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.

29.4 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 ▲	Type	Name	Download (kbps)	Upload (kbps)	MAC Address	Network Name (SSID)	Signal (dBm)	
 192.168.50.10		LAPTOP- 	32	85		PEPWAVE_ 	 -57	 
 192.168.50.12		max-hd2- 	0	3				

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.

In the client list table, there is a “Ban Client” feature which is used to disconnect the Wi-Fi and Remote User Access clients by clicking the  button on the right.

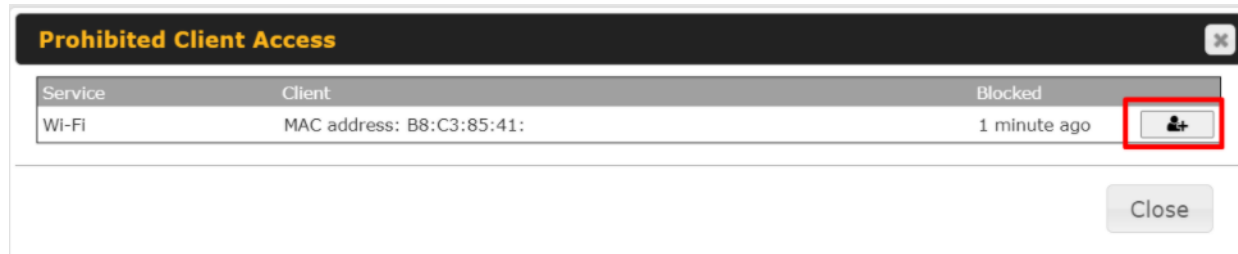
Filter		☐ Online Clients Only ☐ DHCP Clients Only						
Client List								
IP Address ▲	Type	Name	Download (kbps)	Upload (kbps)	MAC Address	Network Name (SSID)	Signal (dBm)	
 192.168.50.10		LAPTOP- 	279	14		PEPWAVE_ 	 -52	 
 192.168.50.12		max-hd2- 	0	0				

Scale: ☒ kbps ☐ Mbps

There is a blocklist on the same page after you banned the Wi-Fi or Remote User Access clients.

Filter		☐ Online Clients Only ☐ DHCP Clients Only						
Access restriction in action, some clients are currently banned.								
Client List								
IP Address ▲	Name	Download (kbps)	Upload (kbps)	MAC Address	Network Name (SSID)	Signal (dBm)		

You may also unblock the Wi-Fi or Remote User Access clients when the client devices need to reconnect the network by clicking  the button on the right.



29.5 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	
						

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**.

29.6 OSPF & RIPv2

The table shows status of OSPF and RIPv2.

peplink

Dashboard

Setup Wizard

Network

AP

System

Status

Apply Changes

Status

■ Device

■ Active Sessions

■ Client List

■ OSPF & RIPv2

■ BGP

OSPF & RIPv2

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

29.7 BGP

The table shows status of BGP

peplink

Dashboard

Setup Wizard

Network

AP

System

Status

Apply Changes

Status

■ Device

■ Active Sessions

■ Client List

■ OSPF & RIPv2

■ BGP

BGP

Profile	Neighbor
No information	

29.8 SpeedFusion VPN

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

Details about SpeedFusion VPN connection peers appears as below:

SpeedFusion VPN - Remote Peer			Show all profiles
Search			
Remote Peer	Profile	Information	
FSH-B987 (FusionHub_SG)	FusionHub_SG (1)	Client (192.168.100.10) connected	>
FSH-B987 (FusionHub_SG)	FusionHub_SG (2 - Tunn...	Client (192.168.100.10) connected	>
SFC-SIN-H018 (SFC-SIN-H018)	SFH-SHARE-SIN	Client (192.168.100.10) connected	>

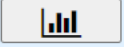
Click on the corresponding peer name to explore the WAN connection(s) status and subnet information of each VPN peer.

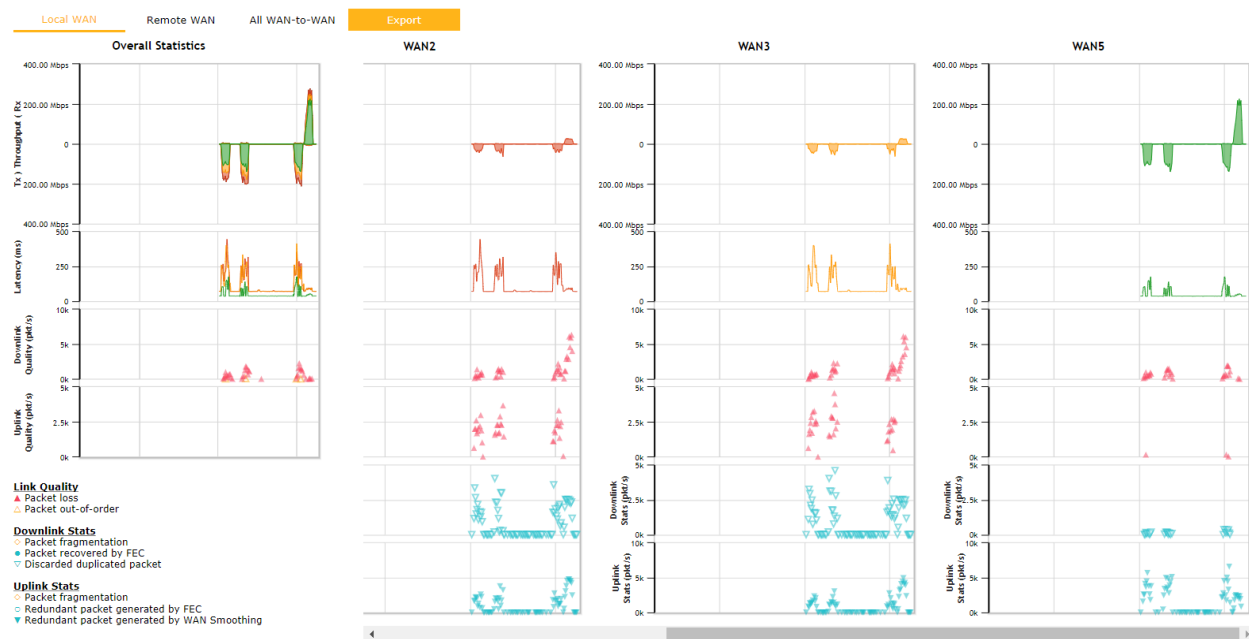
SpeedFusion VPN - Remote Peer

Show all profiles

Search

Remote Peer	Profile	Information
FSH-B987 (FusionHub_SG)	FusionHub_SG (1)	Label >
WAN	Rx: < 1 kbps Tx: < 1 kbps	Loss rate: 0.0 pkt/s Latency: 11 ms
Cellular	Not available - WAN down	
Wi-Fi WAN	Not available - WAN disabled	
Total	Rx: < 1 kbps Tx: < 1 kbps	Loss rate: 0.0 pkt/s
FSH-B987 (FusionHub_SG)	FusionHub_SG (2 - Tunn...	Label >
SFC-SIN-H018 (SFC-SIN-H018)	SFH-SHARE-SIN	Label >

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



When pressing the  button, the following menu will appear:

SpeedFusion VPN Details

Connection Information

Profile

FusionHub_SG (1)

Remote ID

FusionHub_SG

Device Name

Serial Number

More information

WAN Statistics

Remote Connections

☐ Show remote connections

WAN Label

☒ WAN Name
☐ IP Address and Port

 WAN	Rx: < 1 kbps	Tx: < 1 kbps	Loss rate: 0.0 pkt/s	Latency: 11 ms
 Cellular	Not available - WAN down			
 Wi-Fi WAN	Not available - WAN disabled			
Total	Rx: < 1 kbps	Tx: < 1 kbps	Loss rate: 0.0 pkt/s	

SpeedFusion VPN Test Configuration

Type

☒ TCP
☐ UDP

Streams

4

Direction

☒ Upload
☐ Download

Duration

20 seconds (5 - 600)

Start

SpeedFusion VPN Test Results

No information

The **connection information** shows the details of the selected SpeedFusion VPN profile, consisting of the Profile name, **Router ID**, **Router Name** and **Serial Number** of the remote router

Advanced features for the SpeedFusion VPN profile will also be shown when the **More Information** checkbox is selected.

The **WAN statistics** show information about the local and remote WAN connections (when **show Remote connections**) is selected.

The available details are **WAN Name**, **IP address** and **port** used for the Speedfusion connection. **Rx and Tx rates**, **Loss rate** and **Latency**.

Connections can be temporarily disabled by sliding the switch button next to a WAN connection to the left.

The wan-to-wan connection disabled by the switch is temporary and will be re-enabled after 15

minutes without any action.

This can be used when testing the SpeedFusion VPN's speed between two locations to see if there is interference or network congestion between certain WAN connections.

WAN Statistics 	
Remote Connections	☒ Show remote connections
WAN Label	☒ WAN Name ☐ IP Address and Port
 BT	
 WAN	Rx: < 1 kbps Tx: < 1 kbps Loss rate: 0.0 pkt/s Latency: 17 ms
 Virgin Media	Not available - WAN disabled

The SpeedFusion VPN test configuration allows us to configure and perform thorough tests. This is usually done after the initial installation of the routers and in case there are problems with aggregation.

SpeedFusion VPN Test Configuration 	
Type	☒ TCP ☐ UDP
Streams	4 ▼
Direction	☒ Upload ☐ Download
Duration	20 seconds (5 - 600)
Start	

Press the Start button to perform throughput test according to the configured options.

If TCP is selected, 4 parallel streams will be generated to get the optimal results by default. This can be customized by selecting a different value of streams.

Using more streams will typically get better results if the latency of the tunnel is high.

SpeedFusion VPN Test Results			
1.0s:	16.2527 Mbps	0 retrans /	306 KB cwnd
2.0s:	20.4445 Mbps	0 retrans /	306 KB cwnd
3.0s:	18.3526 Mbps	0 retrans /	306 KB cwnd
4.0s:	17.8258 Mbps	0 retrans /	306 KB cwnd
5.0s:	17.3014 Mbps	0 retrans /	306 KB cwnd
6.0s:	14.1558 Mbps	0 retrans /	306 KB cwnd
7.0s:	18.3500 Mbps	0 retrans /	306 KB cwnd
8.0s:	15.7252 Mbps	0 retrans /	306 KB cwnd
9.0s:	17.2932 Mbps	0 retrans /	306 KB cwnd
10.0s:	20.4591 Mbps	0 retrans /	306 KB cwnd
11.0s:	11.5347 Mbps	0 retrans /	306 KB cwnd
12.0s:	15.2043 Mbps	0 retrans /	306 KB cwnd
13.0s:	12.0584 Mbps	0 retrans /	306 KB cwnd
14.0s:	13.1074 Mbps	0 retrans /	306 KB cwnd
15.0s:	10.4849 Mbps	0 retrans /	306 KB cwnd
16.0s:	12.5838 Mbps	0 retrans /	306 KB cwnd
17.0s:	15.2043 Mbps	0 retrans /	306 KB cwnd
18.0s:	16.2486 Mbps	0 retrans /	306 KB cwnd
19.0s:	18.8789 Mbps	0 retrans /	306 KB cwnd
20.0s:	18.3491 Mbps	0 retrans /	306 KB cwnd
--			
Stream 1:	3.9913 Mbps	0 retrans /	78 KB cwnd
Stream 2:	3.9728 Mbps	0 retrans /	74 KB cwnd
Stream 3:	3.9879 Mbps	0 retrans /	75 KB cwnd
Stream 4:	4.0044 Mbps	0 retrans /	79 KB cwnd
--			
Overall:	15.9564 Mbps	0 retrans /	306 KB cwnd
--			
TEST DONE			

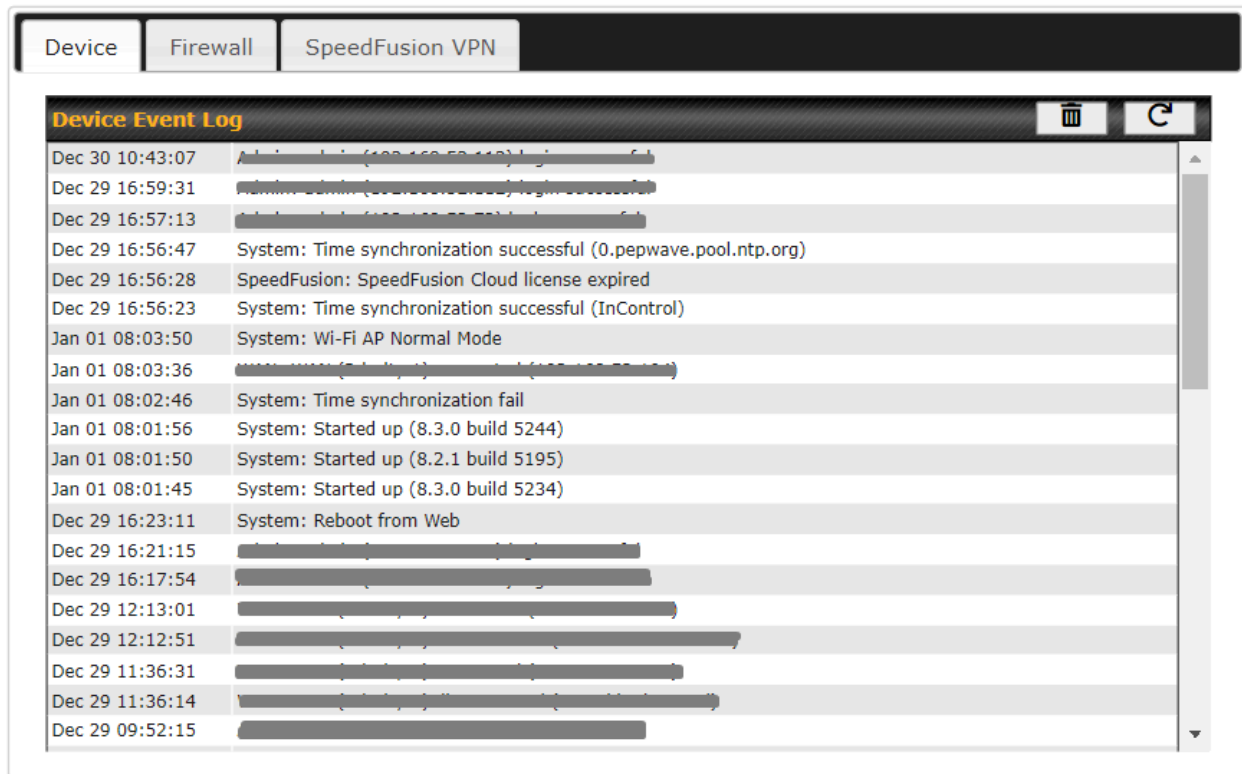
Peplink also published a whitepaper about Speedfusion which can be downloaded from the following url:

<http://download.peplink.com/resources/whitepaper-speedfusion-and-best-practices-2019.pdf>

29.9 Event Log

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

29.9.1 Device Event Log



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

29.9.2 Firewall Event log

Device	Firewall	SpeedFusion VPN
Firewall Event Log		
Nov 15 02:48:07	[82937.373922] Firewall: Denied [REDACTED] PROTO=TCP SPT=55887 DPT=32015 WINDOW=5840 RES=0x00 SYN URGP=0 MARK=0x1	
Nov 15 02:48:04	[82934.377179] Firewall: Denied [REDACTED] PROTO=TCP SPT=55887 DPT=32015 WINDOW=5840 RES=0x00 SYN URGP=0 MARK=0x1	
Nov 15 02:47:07	[82877.028738] Firewall: Denied [REDACTED] PROTO=TCP SPT=55873 DPT=32015 WINDOW=5840 RES=0x00 SYN URGP=0 MARK=0x1	
Nov 15 02:47:04	[82874.033025] Firewall: Denied [REDACTED] PROTO=TCP SPT=55873 DPT=32015 WINDOW=5840 RES=0x00 SYN URGP=0 MARK=0x1	
Nov 15 02:46:07	[82817.043526] Firewall: Denied [REDACTED] PROTO=TCP SPT=55843 DPT=32015 WINDOW=5840 RES=0x00 SYN URGP=0 MARK=0x1	
Nov 15 02:46:04	[82814.047141] Firewall: Denied [REDACTED] PROTO=TCP SPT=55843 DPT=32015 WINDOW=5840 RES=0x00 SYN URGP=0 MARK=0x1	

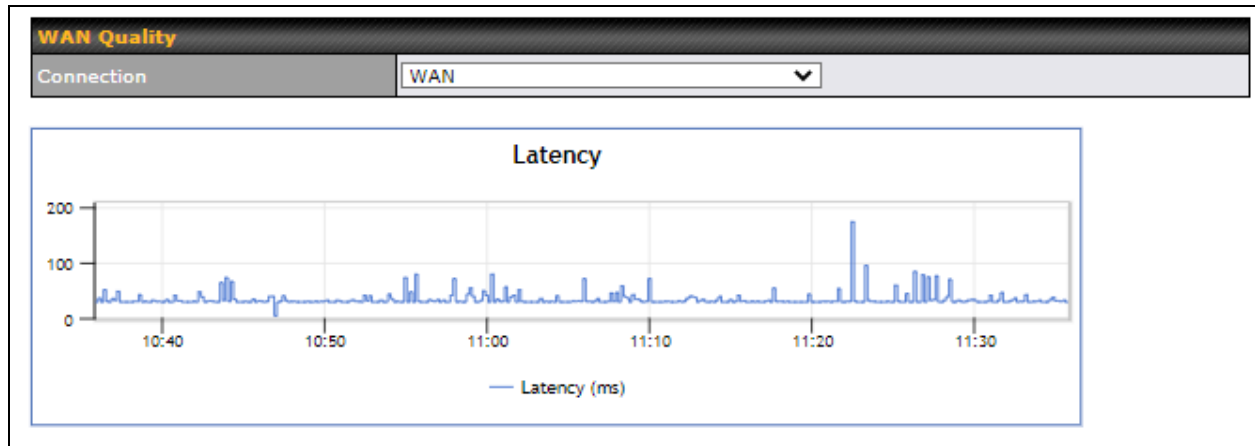
This section displays a list of events that have taken place within a firewall. Click the  button and the log will be refreshed.

29.9.3 SpeedFusion VPN Event log

Device	Firewall	SpeedFusion VPN
SpeedFusion VPN Event Log		
Dec 29 16:57:17	SpeedFusion: SFC-SIN-H018 [REDACTED]	
Dec 29 16:56:43	SpeedFusion: SFH-SHARE-SIN failed to establish connection	
Dec 29 16:56:42	SpeedFusion: [REDACTED]	
Dec 29 16:56:38	SpeedFusion: SFC-SIN-H018 [REDACTED] (link failure detected)	
Jan 01 08:04:00	SpeedFusion: FusionHub_SG [REDACTED]	
Jan 01 08:03:53	SpeedFusion: [REDACTED] suite TLS_AES_256_GCM_SHA384	
Jan 01 08:03:51	SpeedFusion: [REDACTED]	
Jan 01 08:03:48	SpeedFusion: SFC-SIN-H018 [REDACTED]	
Jan 01 08:03:43	SpeedFusion: [REDACTED] suite TLS_AES_256_GCM_SHA384	

This section displays a list of events that have taken place within a SpeedFusion VPN connection. Click the  button and the log will be refreshed.

30 WAN Quality



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

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

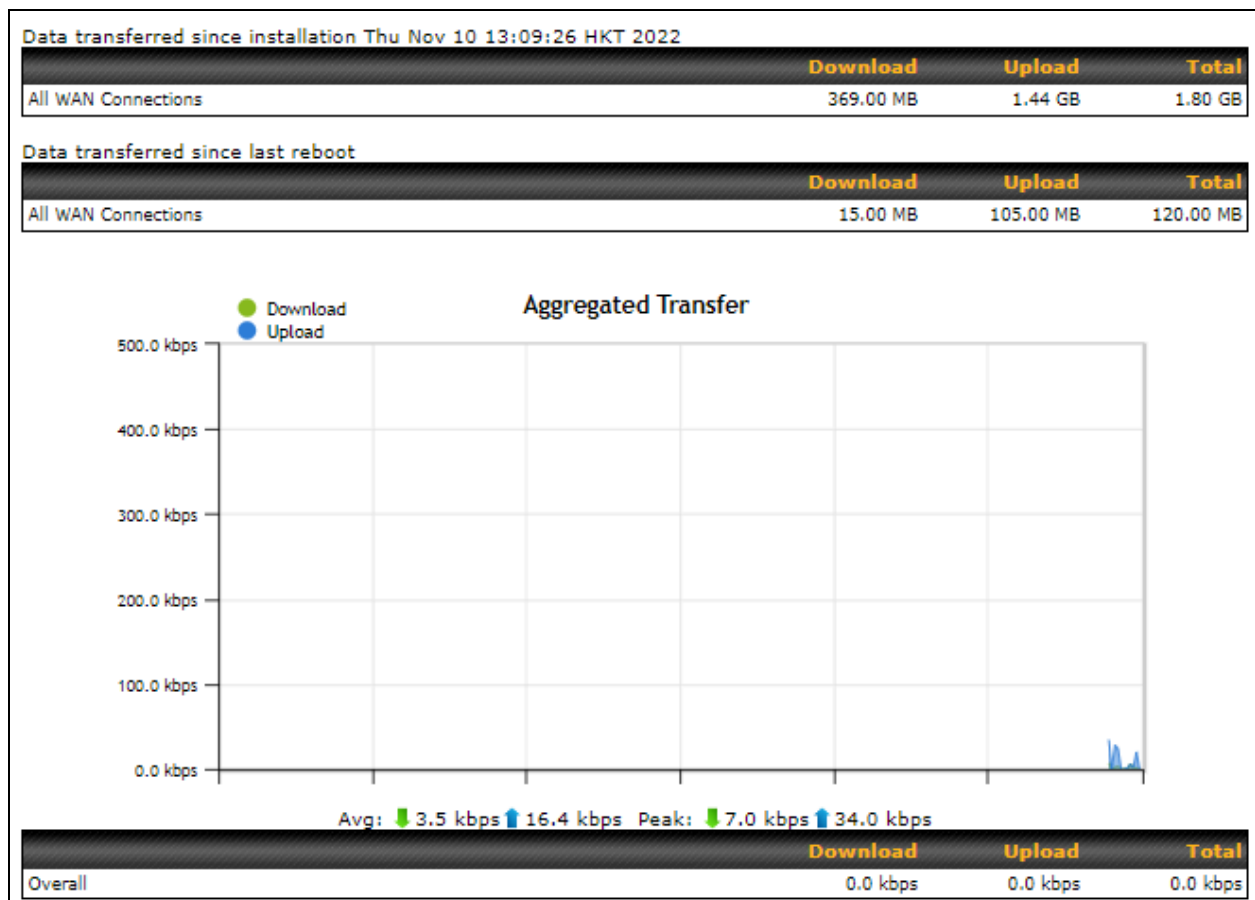
31 Usage Reports

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.

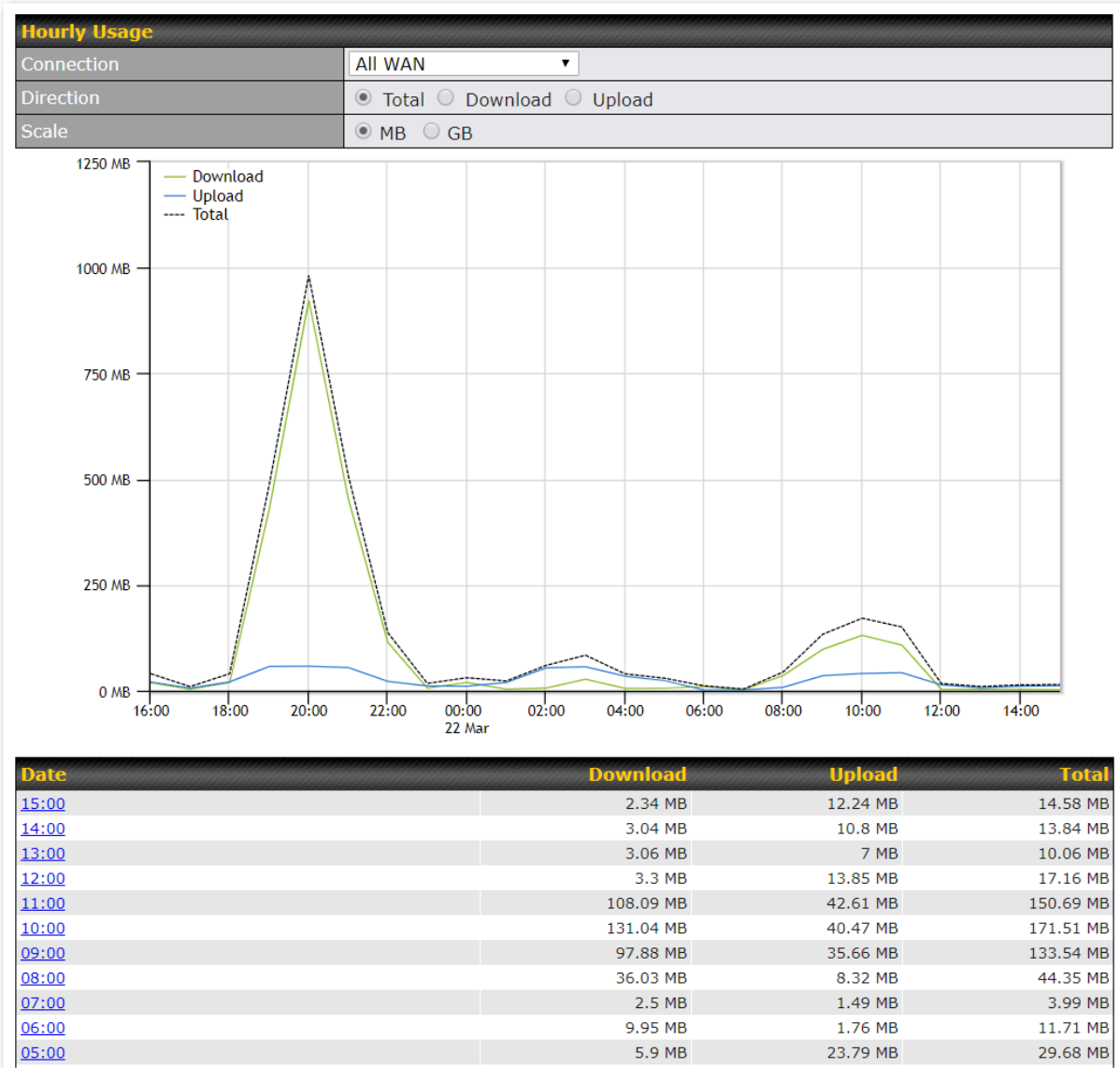
31.1 Real-Time

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.



31.2 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.



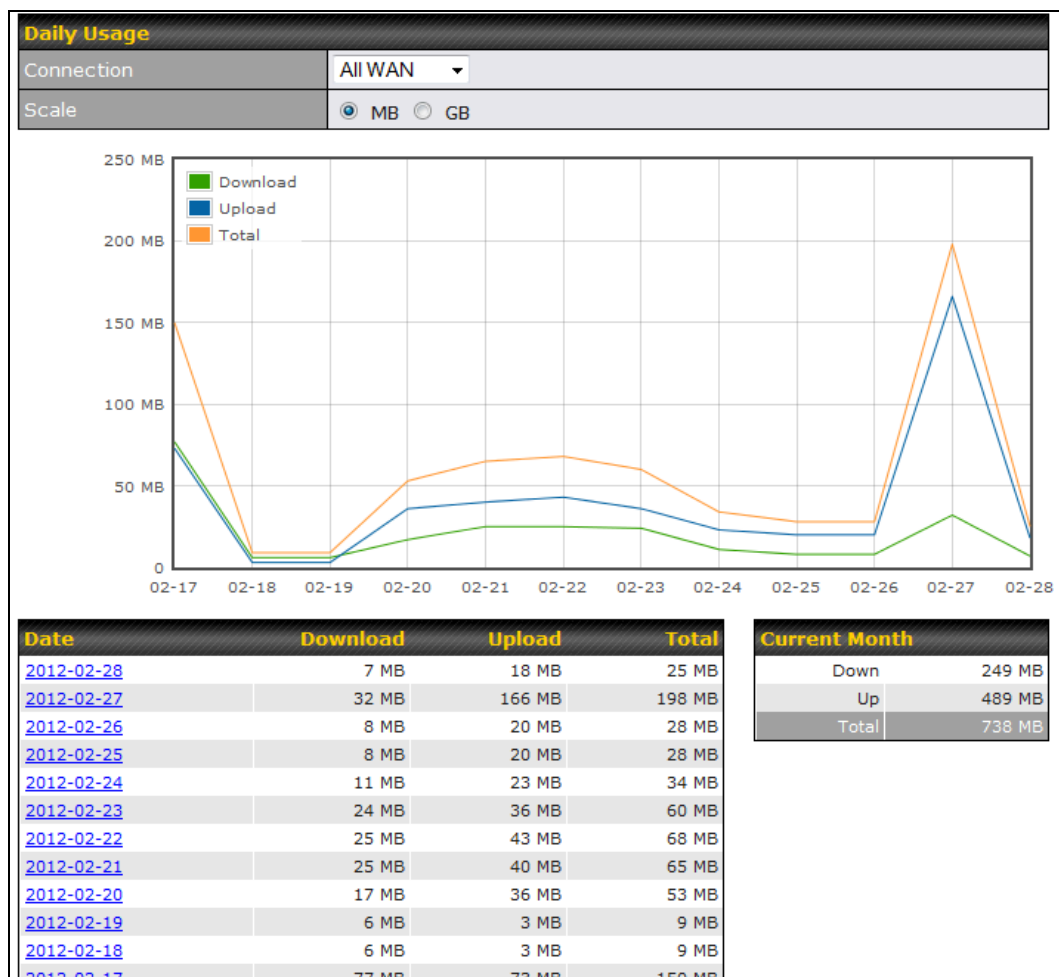
31.3 Daily

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).

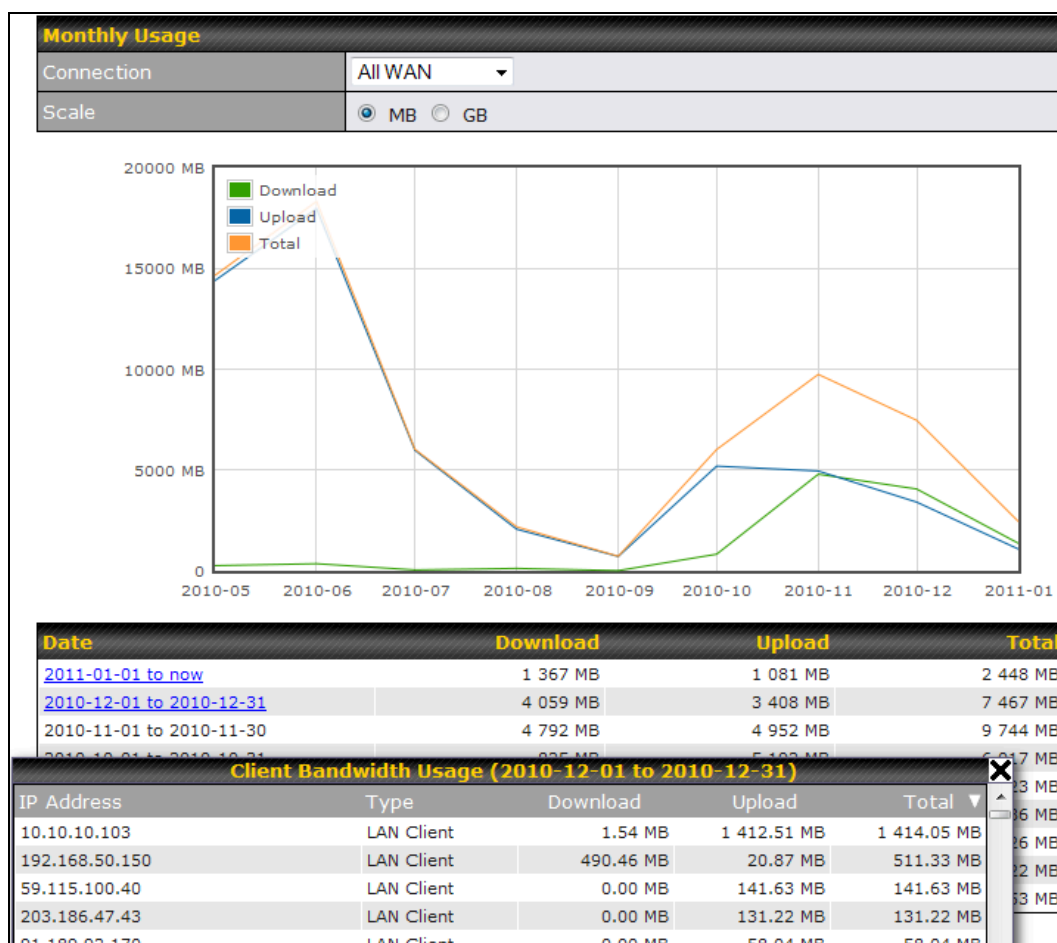


All WAN Daily Bandwidth Usage

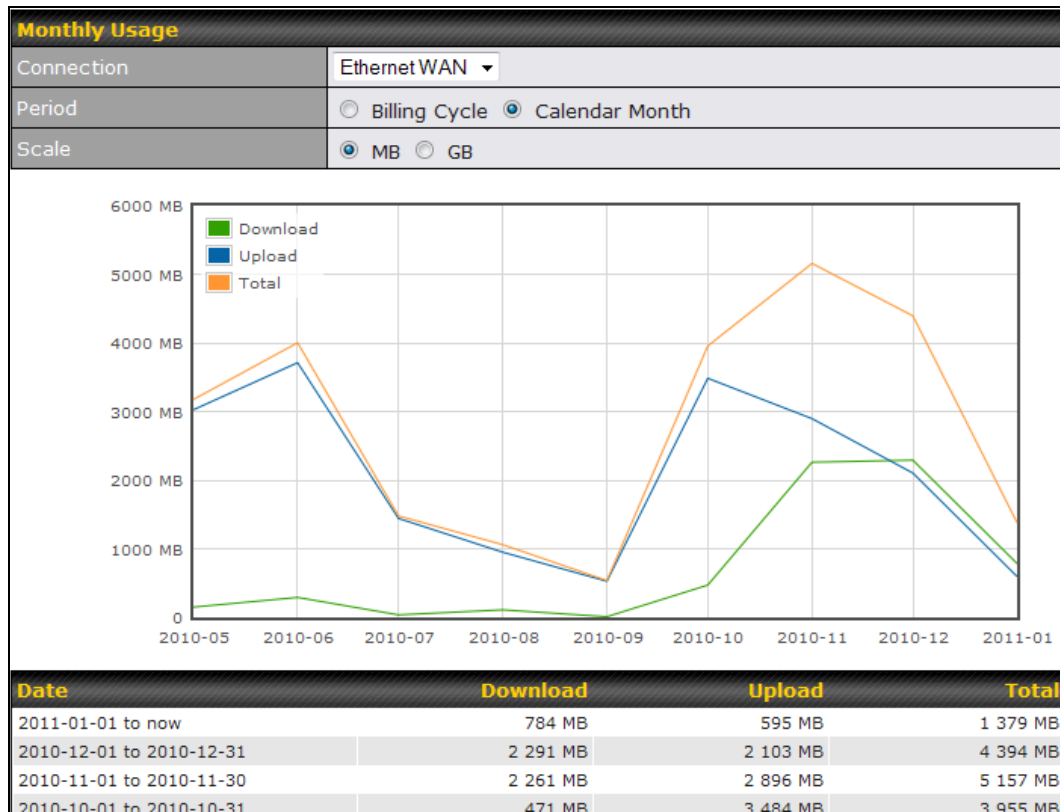
31.4 Monthly

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:

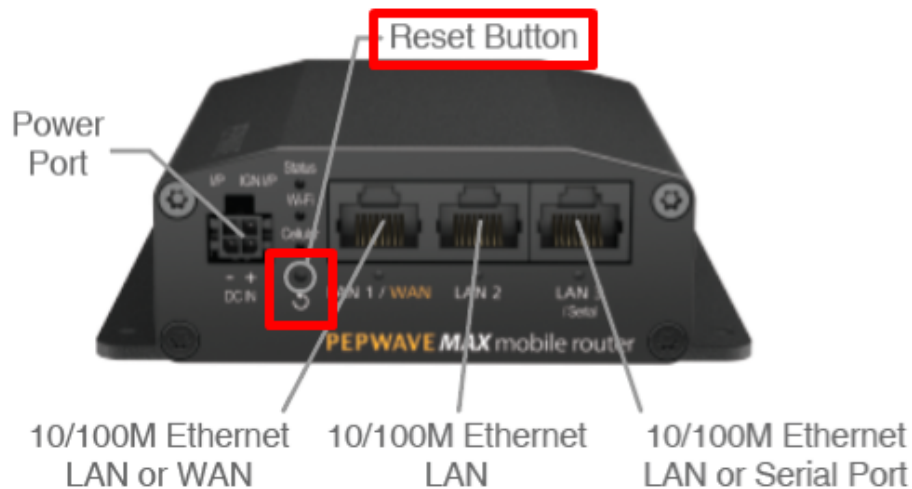
1. Locate the reset button on the front or back panel of the Pepwave router.
2. With a paperclip, press and keep the reset button pressed.

Hold for approximately 20 seconds for factory reset (Note: The LED status light shows in RED, all WAN/LAN port lights start blinking, and release the button)

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: FusionSIM Manual

Peplink has developed a unique technology called FusionSIM, which allows SIM cards to remotely link to a cellular router. This can be done via cloud or within the same physical network. There are a few key scenarios to fit certain applications.

The purpose of this manual is to provide an introduction on where to start and how to set up for the most common scenarios and uses.

Requirements

1. A Cellular router that supports FusionSIM technology
2. SIM Injector
3. SIM card

Notes:

- Always check for the latest [Firmware version](#) for both the cellular router and the SIM Injector. You can also check for the latest Firmware version on the device's WEB configuration page.
- A list of products that support FusionSIM can be found on the SIM Injector [WEB page](#). Please check under the section **Supported models**.

SIM Injector reset and login details

How to reset a SIM Injector:

- Hold the reset button for 5-10 seconds. Once the LED status light turns RED, the reset button can be released. SIM Injector will reboot and start with the factory default settings.

The default WEB login settings:

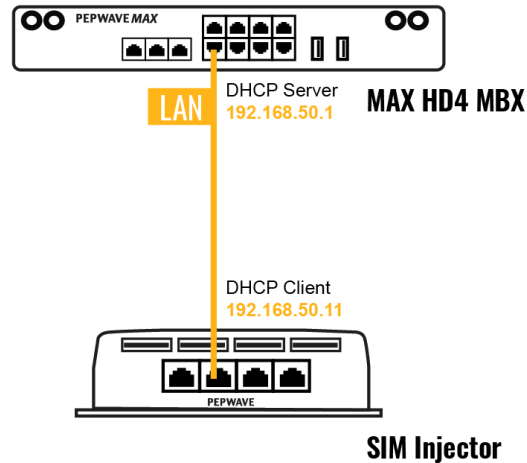
- **User:** admin
- **Password:** admin
- IP address: the device only has a DHCP client and no fallback IP address. Therefore, it is advised to check every time what IP address is assigned to the SIM Injector.

Notes:

- The SIM Injector can be monitored via InControl 2. Configuration is not supported.

Scenario 1: SIM Injector in LAN of Cellular Router

Setup topology



This is the most basic scenario in which the SIM Injector is connected directly to the cellular router's LAN port via an ethernet cable. This allows for the cellular router to be positioned for the best possible signal. Meanwhile, the SIM cards can be conveniently located in other locations such as the office, passenger area, or the bridge of a ship. The SIM Injector allows for easily swapping SIM cards without needing to access a cellular router.

IMPORTANT: Cellular WAN will not fallback to the local SIM if it is configured to use the SIM Injector.

Configuring the SIM Injector

1. Connect the SIM Injector to the LAN port of the cellular router.
2. Insert SIM cards into the SIM Injector. The SIM cards will be automatically detected.

IMPORTANT: SIM cards inserted into SIM Injector must not have a PIN code.

Note 1: The SIM Injector gets its IP address via DHCP and doesn't have a static IP address. To find it's address, please check the DHCP lease on the cellular router.

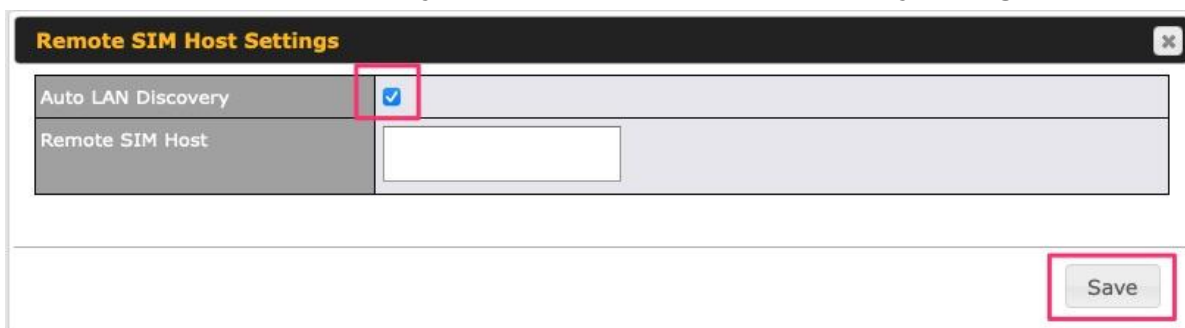
Configuring the Cellular Router

Step 1. Enable the SIM Injector communication protocol.

- 1a. If you are using a Balance cellular router, go to the **Network** tab (top navigation bar).
- 1b. If you are using a MAX cellular router, go to the **Advanced** tab (top navigation bar).
2. Under **Misc. settings** (left navigation bar) find **Remote SIM Management**.
3. In **Remote SIM Management**, click on the edit icon next to **Remote SIM is Disabled**.



4. Check the **Auto LAN discovery** checkbox and click **Save** and **Apply Changes**.



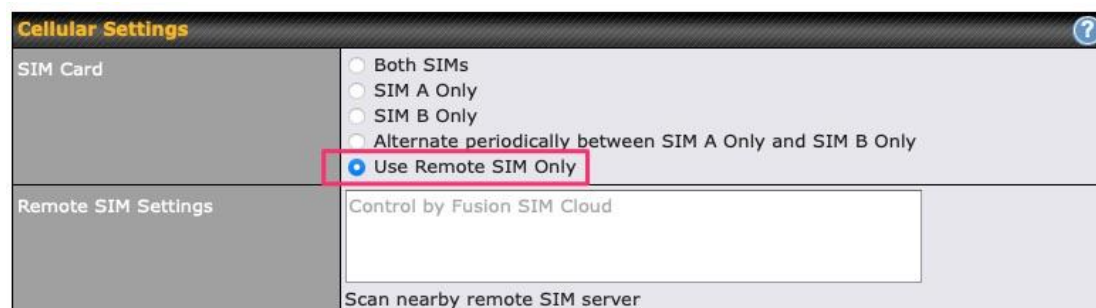
5. Click **Save** and then **Apply Changes**.

Step 2. Enable RemoteSIM for the selected Cellular interface.

1. Go to **Network** (top navigation bar), then **WAN** (left navigation bar) and click **Details** for a selected cellular WAN. This will open the WAN Connection Settings page.

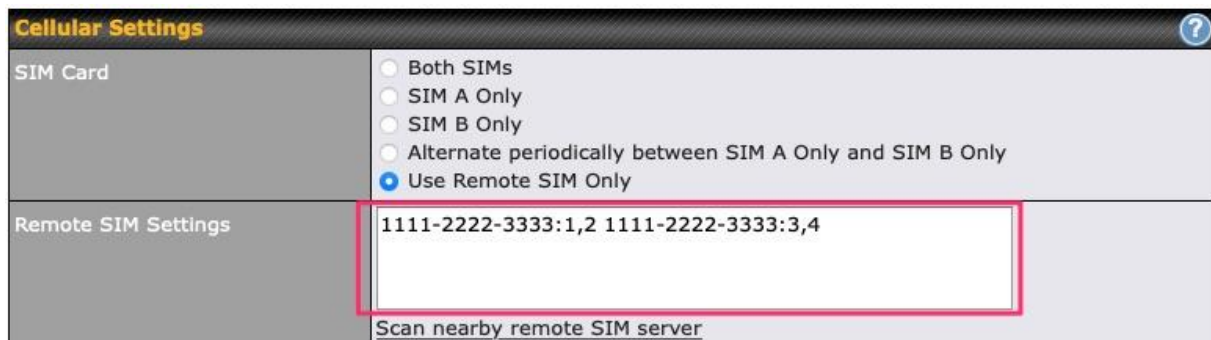


2. Scroll down to **Cellular settings**.
3. In the **SIM Card** section, select **Use Remote SIM Only**.



4. Enter configuration settings in **Remote SIM Settings** section. Click on **Scan nearby remote SIM server** to show the serial number(s) of the connected SIM Injector(s). Available configuration options for cellular interface are shown below:

- A. Defining SIM Injector(s)
 - Format: <S/N>
 - Example 1: 1111-2222-3333
 - Example 2: 1111-2222-3333 4444-5555-6666
- B. Defining SIM Injector(s) SIM slot(s):
 - Format: <S/N:slot number>
 - Example 1: 1111-2222-3333:7,5 (the Cellular Interface will use SIM in slot 7, then 5)
 - Example 2: 1111-2222-3333:1,2 1111-2222-3333:3,4 (the cellular Interface will use SIM in slot 1, then in 2 from the first SIM Injector, and then it will use 3 and 4 from the second SIM Injector).



Note: It is recommended to use different SIM slots for each cellular interface.

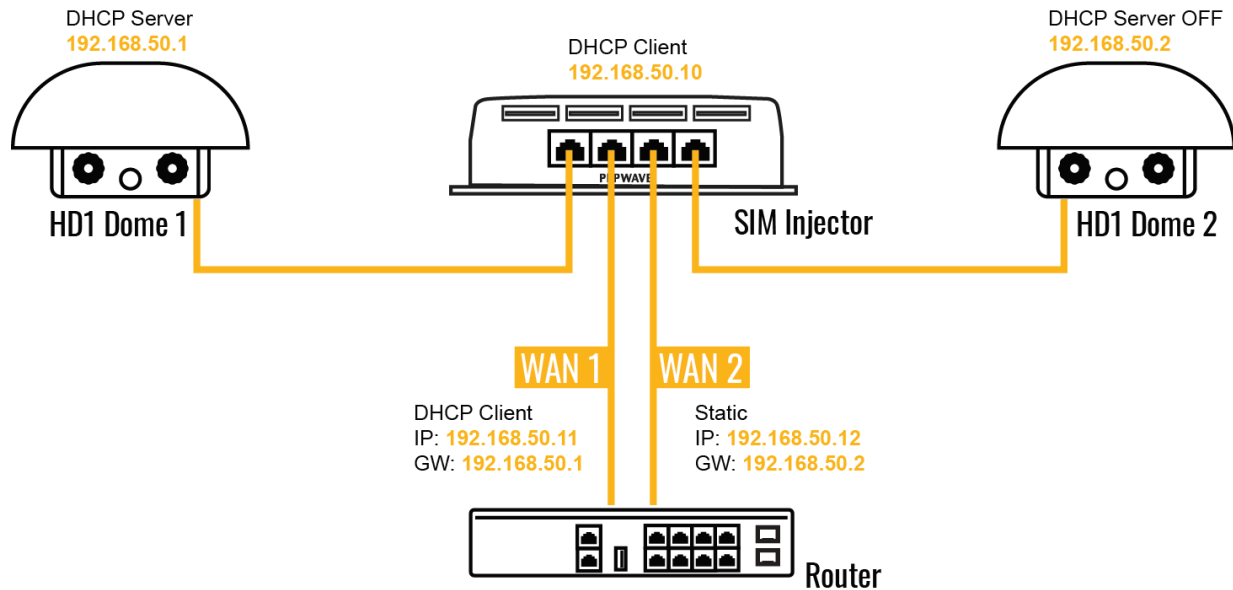
5. Click **Save** and **Apply Changes**.

Step 3. (Optional) Custom SIM cards settings.

- 1a. For a Balance router, go to the **Network** (Top tab).
- 1b. For a MAX router, go to the **Advanced** (Top tab).
2. Under **Misc. settings** (Left-side tab) find **Remote SIM Management**.
3. Click on the **Add Remote SIM** button, fill in all the required info and click **Save**. This section allows defining custom requirements for a SIM card located in a certain SIM slot:
 - Enable/Disable roaming (by default roaming is disabled).
 - Add Custom mobile operator settings (APN, user name, password).
4. Repeat configuration for all SIM cards which need custom settings.
5. Click **Apply Changes** to take effect.

Scenario 2: SIM Injector in WAN of main Router and multiple Cellular Routers

Setup topology



In this scenario, each HD Dome creates a WAN connection to the main router. A single SIM Injector is used to provide SIM cards for each HD Dome. The HD Dome can be replaced with any Peplink cellular router supporting RemoteSIM technology.

This scenario requires the completion of the configuration steps shown in Scenario 1 in addition to the configuration steps explained below.

Additional configurations for Cellular Routers

Step 1. Disable the DHCP server.

- HD Dome 1 should act as a DHCP server.
- HD Dome 2 should be configured to have a static IP address with DHCP disabled.
- Both routers should be in the same subnet (e.g. 192.168.50.1 and 192.168.50.2).

1. Go to **Network** (Top tab), then **Network Settings** (Left-side tab), and click on **Untagged LAN**. This will open up the LAN settings page.
2. Change the IP address to 192.168.50.2.
3. In the **DHCP Server** section, uncheck the checkbox to disable DHCP Server.
4. Click **Save** and **Apply Changes**.

Step 2. Ethernet port configuration

The Ethernet port must be set to **ACCESS** mode for each HD Dome. To do this, dummy VLANs need to be created first.

1. Go to **Network** (Top tab), then **Network Settings** (Left-side tab), and click on **New LAN**. This will open the settings page to create a dummy VLAN.
2. The image below shows the values that need to be changed to create a new VLAN:

LAN	
IP Settings	
IP Address	192.168.10.1 255.255.255.0 (/24)
Network Settings	
Name	VLAN10
VLAN ID	10
Inter-VLAN routing	☒
Captive Portal	☐
DHCP Server	
DHCP Server	☐ Enable
DHCP Server Logging	☐
IP Range	- 255.255.255.0 (/24)

Note: set different IP addresses for each HD dome (e.g. 192.168.10.1 and 192.168.10.2).

3. Click Save and **Apply Changes**.
4. Go to **Network** (Top tab), then **Port Settings** (Left-side tab).
5. Set the Port Type to **Access** and set VLAN to **Untagged LAN** (see picture below).

PEPWAVE Dashboard SpeedFusion Cloud **Network** Advanced AP System Status Apply Changes

LAN

- Network Settings
- Port Settings**
- Captive Portal

WAN

Logout

Port Settings

	Name	Enable	Speed	Advertise Speed	Port Type	VLAN
1	LAN Port	☒	Auto	☒	Access	Untagged L

Save

Untagged LAN

6. Click **Save** and **Apply Changes**.

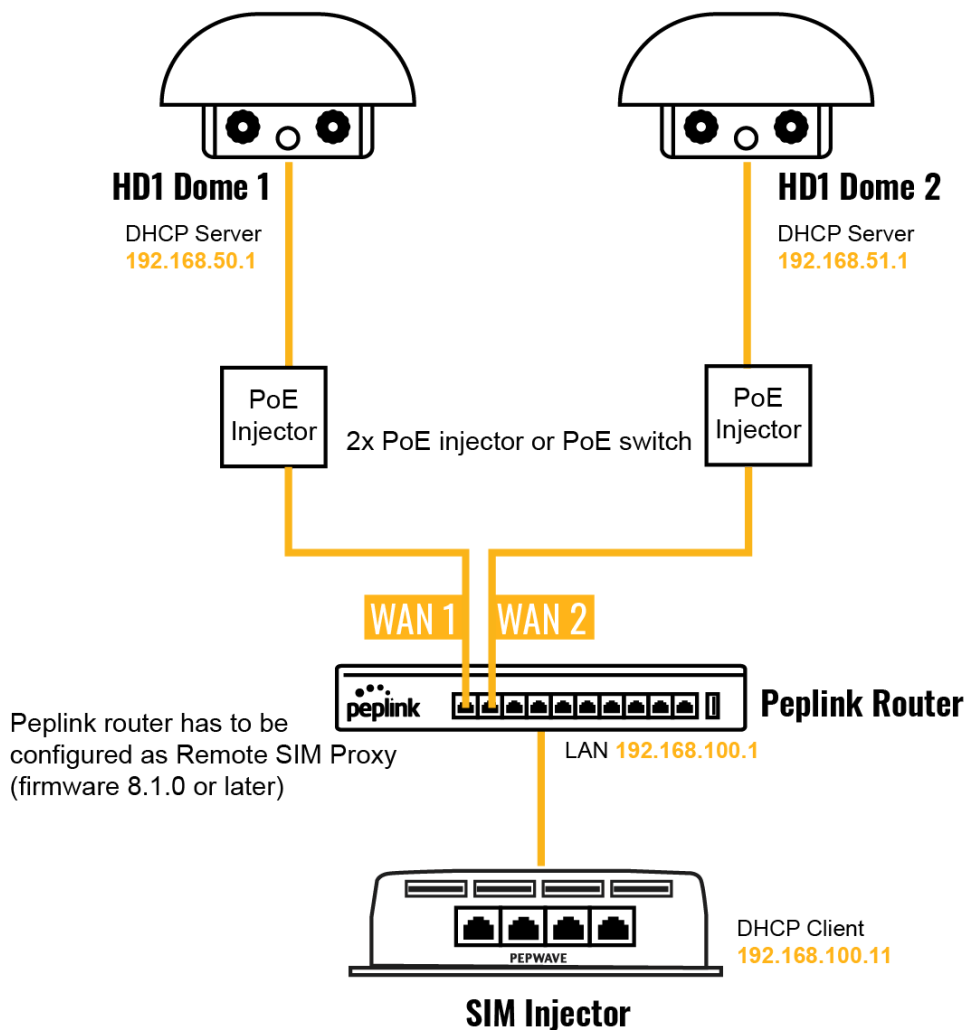
Configuration requirements for the main Router

Requirements for the main router are:

- Configure **WAN 1** as a DHCP client.
- **WAN 1** will automatically get the Gateway IP address from HD Dome 1.
- Configure **WAN 2** as a Static IP and set it to 192.168.50.12.
- Configure **WAN 2** Gateway to 192.168.50.2. Same as the HD Dome 2's IP address.

Scenario 3: SIM Injector in LAN of main Router and multiple Cellular Routers

Setup topology



In this scenario, SIMs are provided to the HD Domes via the main router. In this example, the **Remote SIM Proxy** functionality needs to be enabled on the main router.

Notes:

- HD Dome can be replaced with any other cellular router that supports RemoteSIM.
- It is recommended to use Peplink [Balance series](#) or [X series](#) routers as the main router.

This scenario requires the completion of the configuration steps for the cellular router and the SIM Injector as in Scenario 1. The configuration for the main router is explained below.

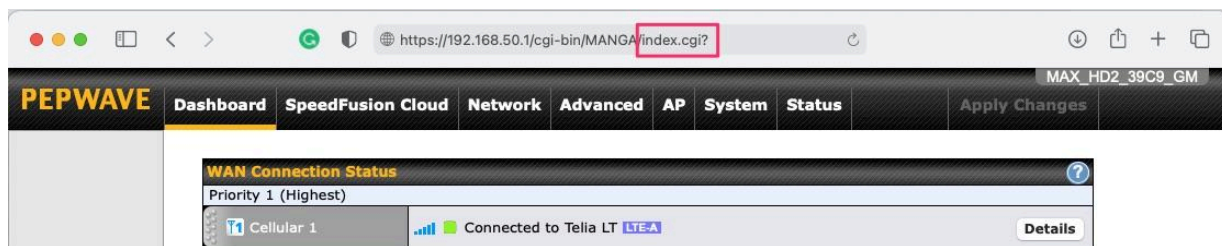
Main Router configuration

IMPORTANT: Main router LAN side and Cellular Routers must be configured using different subnets, e.g. 192.168.**50**.1/24 and 192.168.**100**.1/24.

Note: please make sure the Peplink router is running Firmware 8.1.0 or above.

1. Open the main router WEB interface and change:
From <IP address>/cgi-bin/MANGA/**index.cgi** to <IP address>/cgi-bin/MANGA/**support.cgi**.

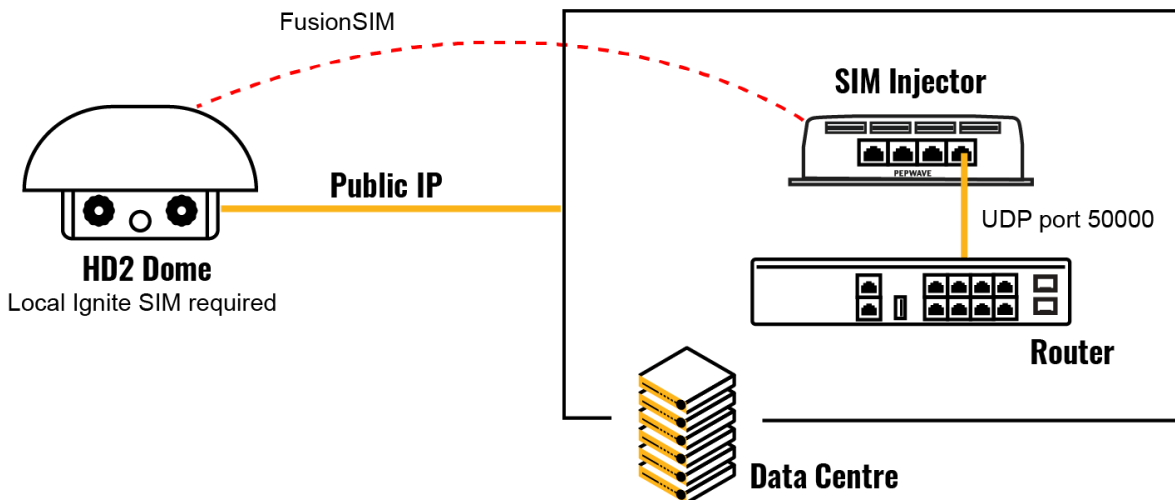
This will open the support.cgi page.



2. Scroll down to find **Remote SIM Proxy** and click on **[click to configure]** that is located next to it.
3. Check the **Enable** checkbox.
4. Click on **Save**.
5. Go back to the index.cgi page and click on **Apply Changes**.

Scenario 4: SIM Injector in a remote location

Setup topology



Requirements for installing a SIM Injector in a remote location:

- Cellular router communicates with the SIM Injector via UDP port 50000. Therefore this port must be reachable via public IP over the Internet.
- The one way latency between the cellular router and the SIM Injector should be **up to 250 ms**. A higher latency may lead to stability issues.
- The cellular router must have Internet connection to connect to the SIM Injector. It can be another Internet connection via Ethernet or Fiber if possible, or a secondary cellular interface with a local SIM (Ignite SIM).
- Due to its high latency, it is not recommended to use satellite WAN for connecting to a SIM Injector in remote locations.

SIM Injector configuration is the same as in Scenario 1.

Cellular Router configuration

Step 1. Enable the SIM Injector communication protocol.

- 1a. For a Balance cellular router, go to the **Network** (Top tab).
- 1b. For a MAX cellular router, go to the **Advanced** (Top tab).

2. Under **Misc. settings** (Left-side tab), find **Remote SIM Management**.
3. In **Remote SIM Management**, click on the edit icon next to **Remote SIM is Disabled**.
4. Enter the public IP of the SIM Injector and click **Save** and **Apply Changes**.

Remote SIM Host Settings	
Auto LAN Discovery	☐
Remote SIM Host	84.199.92.62

Notes:

- **Do NOT check Auto LAN Discovery.**
- **Do NOT add a SIM Injector serial number to the Remote SIM Host field.**

Step 2. RemoteSIM and custom SIM card settings configurations are the same as in Scenario 1.

How to check if a Pepwave Cellular Router supports Remote SIM

1. Go to **Network** (Top tab), then **WAN** (Left-side tab), and click **Details** on any cellular WAN. This will open the WAN Connection Settings page.
2. Scroll down to **Cellular settings**.

If you can see the **Remote SIM Settings** section, then the cellular router supports Remote SIMs.

Cellular Settings	
SIM Card	☐ Both SIMs ☐ SIM A Only ☐ SIM B Only ☐ Alternate periodically between SIM A Only and SIM B Only ☒ Use Remote SIM Only
Remote SIM Settings	Control by Fusion SIM Cloud Scan nearby remote SIM server

Monitor the status of the Remote SIM

1. Go to **Network** (Top tab), then **WAN** (Left-side tab), and click **Details** on the cellular WAN which was configured to use RemoteSIM.
2. Check the **WAN Connection Status** section. Within the cell WAN details, there is a section for **Remote SIM** (SIM card IMSI, SIM Injector serial number and SIM slot).

WAN Connection Settings		
WAN Connection Status		
	SIM Card A	SIM Card B
IMSI	(No SIM Card Detected)	(No SIM Card Detected)
ICCID	-	-
MTN	-	-
Remote SIM	IMSI: 246012102883787 Serial Number: 392C-03F2-915E Slot: 1	
MEID	HEX: 35907206546976 DEC: 089865882205532022	
IMEI	359072065469765	

Appendix C: Overview of ports used by Peplink SD-WAN routers and other Peplink services

Default Port Number	Usage	Service	Inbound/Outbound	Default Status
UDP 5246	Data flow	InControl	Outbound	Enabled
TCP 443	HTTPS service	InControl	Outbound	Enabled
TCP 5246	Optional, used when TCP 443 is not responding	InControl	Outbound	Enabled
TCP 5246	Remote Web Admin	InControl Virtual Appliance	Outbound	Enabled
TCP 4500	VPN Data (TCP Mode)	SpeedFusion VPN / SpeedFusion	Inbound / Outbound*	Disabled
TCP 32015	VPN handshake	SpeedFusion VPN / SpeedFusion	Inbound / Outbound*	Disabled
UDP 4500	VPN Data	SpeedFusion VPN / SpeedFusion	Inbound / Outbound*	Disabled
UDP 32015 ^o	VPN Data (alternative)	SpeedFusion VPN / SpeedFusion	Inbound / Outbound*	Disabled
TCP/UDP 4500+N-1 [^]	VPN Sub-Tunnels Data	SpeedFusion VPN / SpeedFusion	Inbound / Outbound*	Disabled
UDP 32015+N-1 [^]	VPN Sub-Tunnels Data (alternative)	SpeedFusion VPN / SpeedFusion	Inbound / Outbound*	Disabled
UDP 4500	VPN Data	IPsec	Inbound / Outbound*	Disabled
UDP 500	VPN initiation	IPsec	Inbound / Outbound*	Disabled
UDP 500	L2TP	Remote User Access	Inbound	Disabled
UDP 1701	L2TP	Remote User Access	Inbound	Disabled
UDP 4500	L2TP	Remote User Access	Inbound	Disabled
UDP 1194	OpenVPN	Remote User Access	Inbound	Disabled
IP 47	PPTP (GRE)	Remote User Access	Inbound	Disabled
TCP 2222	Remote Assistance Direct connection	Peplink Troubleshooting Assistance	Outbound	Enabled
TCP 80	HTTP traffic	Web Admin	Inbound	Enabled

		Interface access		
TCP 443	HTTPS traffic	Web Admin Interface access (secure)	Inbound	Enabled
TCP 8822	SSH	SSH	Inbound	Disabled
UDP 161	SNMP Get	SNMP monitoring	Inbound	Disabled
UDP 162	SNMP Trap	SNMP monitoring	Outbound	Disabled
TCP, UDP 1812	Radius Authentication	Radius	Outbound	Disabled
TCP, UDP 1813	Radius Accounting	Radius	Outbound	Disabled
UDP 123	Network Time Protocol	NTP	Inbound Outbound	Disabled Enabled
TCP 60660	Real-time location data in NMEA format	GPS	Outbound	Disabled

Disclaimer:

- By default, only TCP 32015 and UDP 4500 are needed for SpeedFusion VPN / SpeedFusion.
- Inbound / Outbound* - Inbound = For Server mode; Outbound = For Client mode
- UDP 32015° - If IPsec VPN or L2TP/IPsec RUA is enabled, the UDP 4500 is occupied, so SpeedFusion VPN / SpeedFusion will automatically switch to UPD 32015 as VPN data port .
- UDP 32015+N-1^ / TCP/UDP 4500+N-1^ - When using Sub-Tunnels, multiple ports are in use (1 for each Sub-Tunnel profile).
- The default UDP data ports used when using (N number of Sub-Tunnel profiles) are:
4500...4500+N-1, or (when port 4500 is in use by IPsec or L2TP/IPsec) 32015... 32015+N-1".

Appendix D: Declaration

FCC Requirements for Operation in the United States

Federal Communications Commission (FCC) Compliance Notice:

For MAX BR1 Mini

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. IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

FCC Radiation Exposure Statement (for MAX BR1 mini)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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

CE Statement for Pepwave Routers (MAX BR1 Mini for EC25-E)

DECLARATION OF CONFORMITY

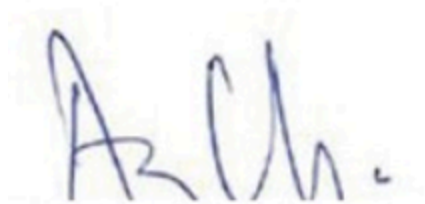
We affirm the electrical equipment manufactured by us fulfils the requirements of the Radio Equipment Directive 2014/53/EU.

Name of manufacturer	PISMO LABS TECHNOLOGY LIMITED
Contact information of the manufacturer	A8, 5/F, HK Spinners Industrial. Building., Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong tel. (852) 2990 7600, fax. (852) 3007 0588 e-mail: cs@peplink.com
Description of the appliance	PEPWAVE / PEPLINK Wireless Product
Model name of the appliance	MAX BR1 Mini MAX BR1 Mini LTE Pismo930 Lite
Trade name of the appliance	PEPWAVE / PEPLINK

The construction of the appliance is in accordance with the following standards:

EN 301 908-1 V13.1.1
 EN 300 328 V2.2.2
 EN 303 413 V1.1.1
 EN 50385 : 2017
 EN 301 489-1 V2.2.3
 EN 301 489-17 V3.1.1
 EN 301 489-19 V2.1.1
 Draft EN 301 489-52 V1.1.0
 EN 55032: 2015 + AC:2016
 EN 55035: 2017
 EN IEC 61000-3-2: 2019
 EN 61000-3-3:2013 + A1:2019
 EN 62368-1:2014 + A11:2017 (Second Edition)

Yours sincerely,



Antony Chong
 Director of Hardware Engineering
 Peplink International Limited



	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK(NI)

2.4GHz (2412 – 2472 MHz) : 16.38 dBm

WWAN : Refer 3GPP TS 36.521 -1 (UE Power class)

Output Power

Class 3 (23dBm $\pm$ 2dB) for LTE FDD
 Class 3 (23dBm $\pm$ 2dB) for LTE TDD
 Class 3 (24dBm +1/-3dB) for TD-SCDMA
 Class 3 (24dBm +1/-3dB) for UMTS
 Class E2 (27dBm $\pm$ 3dB) for EDGE 850/900MHz
 Class E2 (26dBm +3/-4dB) for EDGE
 1800/1900MHz
 Class 4 (33dBm $\pm$ 2dB) for GSM 850/900MHz
 Class 1 (30dBm $\pm$ 2dB) for GSM 1800/1900MHz

This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

contact as: <https://www.peplink.com/>

CE Statement for Pepwave Routers (MAX BR1 Mini for MC7455)

DECLARATION OF CONFORMITY

We affirm the electrical equipment manufactured by us fulfils the requirements of the Radio Equipment Directive 2014/53/EU.

Name of manufacturer	PISMO LABS TECHNOLOGY LIMITED
Contact information of the manufacturer	A8, 5/F, HK Spinners Industrial. Building., Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong tel. (852) 2990 7600, fax. (852) 3007 0588 e-mail: cs@peplink.com
Description of the appliance	PEPWAVE / PEPLINK Wireless Product
Model name of the appliance	MAX BR1 Mini MAX BR1 Mini LTEA Pepwave MAX BR1 Mini Pepwave MAX BR1 Mini LTEA Peplink MAX BR1 Mini Peplink MAX BR1 Mini LTEA MAX-BR1-MINI-LTEA-W-T Pismo930 Lite
Trade name of the appliance	PEPWAVE / PEPLINK

The construction of the appliance is in accordance with the following standards:

EN 301 908-1 V11.1.1
 EN 300 328 V2.2.2
 EN 303 413 V1.1.1
 EN 62311 : 2008
 EN 301 489-1 V2.2.3
 EN 301 489-17 V3.1.1
 EN 301 489-19 V2.1.1
 Draft EN 301 489-52 V1.1.0
 EN 55032: 2015 + AC:2016
 EN 55035: 2017
 EN 61000-3-2: 2014
 EN 61000-3-3: 2013
 EN 62368-1:2014 + A11:2017 (Second Edition)

Yours sincerely,




Antony Chong
 Director of Hardware Engineering
 Peplink International Limited

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK(NI)

2.4GHz (2412 – 2472 MHz) : 16.38 dBm

WWAN : Refer 3GPP TS 36.521 -1 (UE Power class)

Table 4-6: Conducted Tx (Transmit) Power Tolerances

Parameter	Conducted transmit power	Notes
LTE		
LTE Band 1,3,8,20	+23 dBm $\pm$ 1 dB	
LTE Band 7	+22 dBm $\pm$ 1 dB	
UMTS		
Band 1 (IMT 2100 12.2 kbps) Band 8 (UMTS 900 12.2 kbps)	+23 dBm $\pm$ 1 dB	Connectorized (Class 3)

This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

contact as: <https://www.peplink.com/>

Industry Canada Statement (for MAX BR1 Mini)

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This product meets the applicable Innovation, Science and Economic Development Canada technical specifications.

Le présent produit est conforme aux spécifications techniques applicables d'Innovation, Sciences et Développement économique Canada.

This device complies with the ISED radiation exposure limit set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme avec l'exposition aux radiations ISED définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimum de 20 cm entre le radiateur et votre corps.

FCC & IC Requirements for Operation in the United States and Canada (for MAX BR1 Mini)

FCC ID : U8G-P1930LITER6

FCC 15.21: The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF exposure warning: This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

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.

IC Warning:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes

1. l'appareil ne doit pas produire de brouillage, et
 2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
-

Informations concernant l'exposition aux fréquences radio (RF)

Cet équipement est conforme avec l'exposition aux radiations IC définies pour un environnement noncontrôle.

Cet équipement doit être installé et utilisé à une distance minimum de 20 cm entre le radiateur et votre corps.

Cet émetteur ne doit pas être co-localisé ou fonctionner en conjonction avec une autre antenne ou transmetteur.

Les utilisateurs finaux et les installateurs doivent être informés des instructions d'installation de l'antenne et des conditions de fonctionnement de l'émetteur afin de satisfaire à la conformité d'exposition RF.

This radio transmitter IC 20682-P1930LITER6 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.

Le présent émetteur radio 20682-P1930LITER6 a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

antenna type Omni-directional

antenna gain 5.33

FCC Requirements for Operation in the United States

Federal Communications Commission (FCC) Compliance Notice:

For MAX BR1 MK2

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.

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

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 24cm between the radiator & your body.

Industry Canada Statement (For MAX BR1 MK2)

This product meets the applicable Innovation, Science and Economic Development Canada technical specifications.

Le présent produit est conforme aux spécifications techniques applicables d'Innovation, Sciences et Développement économique Canada.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio

exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en

(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 specified for point-to-point and non-point-to-point operation as appropriate; and

The high-power radars are allocated as primary users (i.e. priority users) of the band 5725-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

(i) Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé 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) Le gain maximal d'antenne permis pour les dispositifs avec antenne(s) amovible(s) utilisant la bande 5725-5850 MHz doit se conformer à la limitation P.I.R.E spécifiée pour l'exploitation point à point et non point à point, selon le cas.

En outre, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bande 5725-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Radiation Exposure Statement

This device complies with the ISED radiation exposure limit set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme avec l'exposition aux radiations ISED définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimum de 20 cm entre le radiateur et votre corps.

CE Statement for Pepwave Routers (MAX BR1 MK2)

DECLARATION OF CONFORMITY

We affirm the electrical equipment manufactured by us fulfils the requirements of the Radio Equipment Directive 2014/53/EU.

Name of manufacturer	Pismo Labs Technology Limited
Contact information of the manufacturer	A8, 5/F, HK Spinners Ind. Bldg., Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong tel. (852) 2990 7600, fax. (852) 3007 0588 e-mail: cs@peplink.com
Description of the appliance	Pepwave / Peplink / Pismo Wireless Product
Model name of the appliance	MAX BR1 MK2
Trade name of the appliance	Pepwave / Peplink / Pismo

The construction of the appliance is in accordance with the following standards:

EN 300 328 V2.2.2
EN 301 893 V2.1.1
EN 303 413 V1.1.1
EN 301 908-1 V13.1.1
EN 301 489-1 V2.2.3
EN 301 489-17 V3.1.1
EN 301 489-19 V2.1.1
Draft EN 301 489-52 V1.1.0
EN 55032:2015 +A11:2020
EN 61000-3-2: 2019
EN 61000-3-3: 2019
EN 62311:2008
EN 62368-1:2014+A11:2017 (Second Edition)
EN 55035:2017

Yours sincerely,

A handwritten signature in blue ink, followed by a circular purple stamp. The stamp contains the text "PEPLINK INTERNATIONAL LIMITED" around the perimeter.

Keith Chau
General Manager
Peplink International Limited

	AT	BE	BG	HR	CY	CZ	DK	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK(NI)

2.4GHz (2412 – 2472 MHz) : 19.95 dBm

5GHz (5150 - 5250 MHz) : 22.73 dBm

WWAN : Refer 3GPP TS 36.521 -1 (UE Power class)

Table 4-6: Conducted Tx (Transmit) Power Tolerances

Parameter	Conducted transmit power	Notes
LTE		
LTE Band 1,3,8,20	+23 dBm $\pm$ 1 dB	
LTE Band 7	+22 dBm $\pm$ 1 dB	
UMTS		
Band 1 (IMT 2100 12.2 kbps) Band 3 (UMTS 1800 12.2 kbps) Band 8 (UMTS 900 12.2 kbps)	+23 dBm $\pm$ 1 dB	Connectorized (Class 3)

This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

This equipment is restricted to indoor use only when operating in the 5150 to 5250 MHz frequency range in above countries.

contact as: <https://www.peplink.com/>

FCC Requirements for Operation in the United States

Federal Communications Commission (FCC) Compliance Notice:

For MAX BR1 Classic

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.

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

FCC Radiation Exposure Statement (for MAX BR1 Classic)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Industry Canada Statement (for MAX BR1 Classic)

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device complies with the ISED radiation exposure limit set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme avec l'exposition aux radiations ISED définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimum de 20 cm entre le radiateur et votre corps.

This product meets the applicable Innovation, Science and Economic Development Canada technical specifications.

Le présent produit est conforme aux spécifications techniques applicables d'Innovation, Sciences et Développement économique Canada.

CE Statement for Pepwave Routers (MAX BR1 Classic for MC7455)

DECLARATION OF CONFORMITY

We affirm the electrical equipment manufactured by us fulfils the requirements of the Radio Equipment Directive 2014/53/EU.

Name of manufacturer	PISMO LABS TECHNOLOGY LIMITED
Contact information of the manufacturer	A8, 5/F, HK Spinners Industrial. Building., Phase 6, 481 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong tel. (852) 2990 7600, fax. (852) 3007 0588 e-mail: cs@peplink.com
Description of the appliance	PEPWAVE / PEPLINK Wireless Product
Model name of the appliance	MAX BR1 ESN MAX BR1 ESN LTEA Pepwave MAX BR1 ESN Pepwave MAX BR1 ESN LTEA Peplink MAX BR1 ESN Peplink MAX BR1 ESN LTEA Pismo930 Lite MAX-BR1-ESN-LTEA-W-T MAX BR1 Classic MAX BR1 Classic LTEA Pepwave MAX BR1 Classic Pepwave MAX BR1 Classic LTEA Peplink MAX BR1 Classic Peplink MAX BR1 Classic LTEA MAX-BR1-LTEA-W-T MAX BR1 MAX BR1 LTEA Pepwave MAX BR1 Pepwave MAX BR1 LTEA
Trade name of the appliance	PEPWAVE / PEPLINK