PEPWAVE
Broadband Possibilities

Pepwave MAX and Surf User Manual

Pepwave Products:
MAX 700/HD2/HD2 IP67/HD2 mini/HD4/Transit/Hotspot/BR1/BR1 Mini/BR1 Slim/BR1 ENT/BR1 Pro LTE/BR1 IP55/BR2 IP55/On-The-Go/MAX HD2/HD4 with MediaFast/Device Connector/ Surf SOHO

Pepwave Firmware 6.3
September 2016

COPYRIGHT & TRADEMARKS
Specifications are subject to change without notice. Copyright © 2016 Pepwave Ltd. All Rights Reserved. Pepwave and the Pepwave logo are trademarks of Pepwave Ltd. Other brands or products mentioned may be trademarks or registered trademarks of their respective owners.

Table of Contents

1 INTRODUCTION AND SCOPE 6

2 GLOSSARY 7

3 PRODUCT FEATURES 8

3.1 SUPPORTED NETWORK FEATURES 8
3.2 OTHER SUPPORTED FEATURES 10

4 PEPWAVE MAX MOBILE ROUTER OVERVIEW 11

4.1 MAX 700 11
4.2 MAX HD2 13
4.3 MAX HD2 IP67 15
4.4 MAX HD2 MINI 16
4.5 MAX TRANSIT 18
4.6 MAX HOTSPOT 19
4.7 MAX HD4 20
4.8 MAX BR1 22
4.9 MAX BR1 MINI 24
4.10 MAX BR1 SLIM 25
4.11 MAX BR1 ENT 27
4.12 MAX BR1 PRO LTE 28
4.13 MAX BR1/2 IP55 29
4.14 MAX ON-THE-GO 31
4.15 SURF SOHO 32

5 ADVANCED FEATURE SUMMARY 33

5.1 DROP-IN MODE AND LAN BYPASS: TRANSPARENT DEPLOYMENT 33
5.2 QOS: CLEARER VOIP 33
5.3 PER-USER BANDWIDTH CONTROL 34
5.4 HIGH AVAILABILITY VIA VRRP 34
5.5 USB MODEM AND ANDROID TETHERING 35
5.6 BUILT-IN REMOTE USER VPN SUPPORT 35
5.7 SIM-CARD USSD SUPPORT 36

6 INSTALLATION 37

6.1 PREPARATION 37
6.2 CONSTRUCTING THE NETWORK 38
6.3 CONFIGURING THE NETWORK ENVIRONMENT 39

7 MOUNTING THE UNIT 40

7.1 WALL MOUNT 40
7.2 CAR MOUNT 40

 Copyright @ 2016 Pepwave

7.3 IP67 Installation Guide 40

8 CONNECTING TO THE WEB ADMIN INTERFACE 41

9 CONFIGURING THE LAN INTERFACE(S) 43

9.1 Basic Settings 43
9.2 Captive Portal 53

10 CONFIGURING THE WAN INTERFACE(S) 55

10.1 Ethernet WAN 56
10.2 Cellular WAN 64
10.3 Wi-Fi WAN 69
10.4 WAN Health Check 75
10.5 Dynamic DNS Settings 77

11 ADVANCED WI-FI SETTINGS 80

12 MEDIAFAST CONFIGURATION 83

12.1 Setting Up MediaFast Content Caching 83
12.2 Scheduling Content Prefetching 84
12.3 Viewing MediaFast Statistics 85

13 BANDWIDTH BONDING SPEEDFUSION™ / PEPVPN 87

13.1 PepVPN 88
13.2 The Pepwave Router Behind a NAT Router 94
13.3 SpeedFusion™ Status 95

14 IPSEC VPN 96

14.1 IPsec VPN Settings 96

15 OUTBOUND POLICY MANAGEMENT 100

15.1 Outbound Policy 100
15.2 Custom Rules for Outbound Policy 101

16 INBOUND ACCESS 110

16.1 Port Forwarding Service 110

17 NAT MAPPINGS 113

18 QOS 115

18.1 User Groups 115
18.2 Bandwidth Control 116
18.3 Application 116

19 FIREWALL 118

19.1 Outbound and Inbound Firewall Rules 118
19.2 Content Blocking 123

 Copyright @ 2016 Pepwave

19.3 OSPF & RIPv2 124
19.4 REMOTE USER ACCESS 126

MISCELLANEOUS SETTINGS 128

19.5 HIGH AVAILABILITY 128
19.6 PPTP SERVER 131
19.7 CERTIFICATE MANAGER 132
19.8 SERVICE FORWARDING 132
19.9 SERVICE PASSTHROUGH 135
19.10 GPS FORWARDING 136

20 AP CONTROLLER 137

20.1 WIRELESS SSID 137
20.2 SETTINGS 141
20.3 TOOLBOX 145

21 SYSTEM SETTINGS 146

21.1 ADMIN SECURITY 146
21.2 FIRMWARE 151
21.3 TIME 152
21.4 SCHEDULE 152
21.5 EMAIL NOTIFICATION 153
21.6 EVENT LOG 155
21.7 SNMP 157
21.8 INCONTROL 159
21.9 CONFIGURATION 159
21.10 FEATURE ADD-ONS 161
21.11 REBOOT 161
21.12 PING 162
21.13 TRACEROUTE TEST 163
21.14 PEPVPN TEST 163
21.15 WAKE-ON-LAN 164
21.16 CLI (COMMAND LINE INTERFACE SUPPORT) 164

22 STATUS 165

22.1 DEVICE 165
22.2 ACTIVE SESSIONS 167
22.3 CLIENT LIST 169
22.4 WINS CLIENT 169
22.5 UPNP / NAT-PMP 170
22.6 SPEEDFUSION STATUS 170
22.7 EVENT LOG 174
22.8 BANDWIDTH 174

APPENDIX A. RESTORATION OF FACTORY DEFAULTS 180

 Copyright @ 2016 Pepwave

APPENDIX B: DECLARATION.....181

1 Introduction and Scope

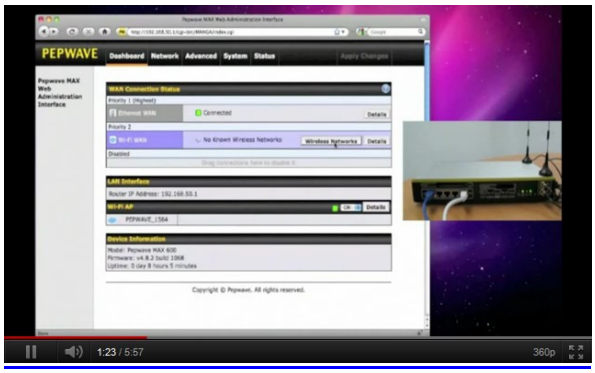
Pepwave routers provide link aggregation and load balancing across multiple WAN connections, allowing a combination of technologies like 3G HSDPA, EVDO, 4G LTE, Wi-Fi, external WiMAX dongle, and satellite to be utilized to connect to the Internet.

The MAX wireless SD-WAN router series has a wide range of products suitable for many different deployments and markets. Entry level SD-WAN models such as the MAX BR1 are suitable for SMEs or branch offices. High-capacity SD-WAN routers such as the MAX HD2 are suitable for larger organizations and head offices.

This manual covers setting up Pepwave routers and provides an introduction to their features and usage.

Tips

Want to know more about Pepwave routers? Visit our YouTube Channel for a video introduction!



http://youtu.be/UCkVQThLKO4

2 Glossary

The following terms, acronyms, and abbreviations are frequently used in this manual:

Term	Definition
3G	3rd Generation standards for wireless communications
4G	4th Generation standards for wireless communications
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
EVDO	Evolution-Data Optimized
HSDPA	High-Speed Downlink Packet Access
HTTP	Hyper-Text Transfer Protocol
ICMP	Internet Control Message Protocol
IP	Internet Protocol
LAN	Local Area Network
MAC Address	Media Access Control Address
MTU	Maximum Transmission Unit
MSS	Maximum Segment Size
NAT	Network Address Translation
PPPoE	Point to Point Protocol over Ethernet
QoS	Quality of Service
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
VPN	Virtual Private Network
VRRP	Virtual Router Redundancy Protocol
WAN	Wide Area Network
WINS	Windows Internet Name Service
WLAN	Wireless Local Area Network

 Copyright @ 2016 Pepwave

3 Product Features

Pepwave routers enable all LAN users to share broadband Internet connections, and they provide advanced features to enhance Internet access. Our Max BR wireless routers support multiple SIM cards. They can be configured to switch from using one SIM card to another SIM card according to different criteria, including wireless network reliability and data usage.

Our MAX HD series wireless routers are embedded with multiple 4G LTE modems, and allow simultaneous wireless Internet connections through multiple wireless networks. The wireless Internet connections can be bonded together using our SpeedFusion technology. This allows better reliability, larger bandwidth, and increased wireless coverage are comparing to use only one 4G LTE modem.

Below is a list of supported features on Pepwave routers. Features vary by model. For more information, please see peplink.com/products.

3.1 Supported Network Features

3.1.1 WAN

- Ethernet WAN connection in full/half duplex
- Static IP support for PPPoE
- Built-in HSPA and EVDO cellular modems
- USB mobile connection(s)
- Wi-Fi WAN connection
- Network address translation (NAT)/port address translation (PAT)
- Inbound and outbound NAT mapping
- IPsec NAT-T and PPTP packet passthrough
- MAC address clone and passthrough
- Customizable MTU and MSS values
- WAN connection health check
- Dynamic DNS (supported service providers: changeip.com, dyndns.org, no-ip.org, tzo.com and DNS-O-Matic)
- Ping, DNS lookup, and HTTP-based health check

3.1.2 LAN

- Wi-Fi AP
- Ethernet LAN ports
- DHCP server on LAN
- Extended DHCP option support
- Static routing rules
- VLAN on LAN support

 Copyright @ 2016 Pepwave

3.1.3 VPN

- PepVPN with SpeedFusion™
- PepVPN performance analyzer
- X.509 certificate support
- VPN load balancing and failover among selected WAN connections
- Bandwidth bonding and failover among selected WAN connections
- IPsec VPN for network-to-network connections (works with Cisco and Juniper only)
- Ability to route Internet traffic to a remote VPN peer
- Optional pre-shared key setting
- SpeedFusion™ throughput, ping, and traceroute tests
- PPTP server
- PPTP and IPsec passthrough

3.1.4 Firewall

- Outbound (LAN to WAN) firewall rules
- Inbound (WAN to LAN) firewall rules per WAN connection
- Intrusion detection and prevention
- Specification of NAT mappings
- Outbound firewall rules can be defined by destination domain name

3.1.5 Captive Portal

- Splash screen of open networks, login page for secure networks
- Customizable built-in captive portal
- Supports linking to outside page for captive portal

3.1.6 Outbound Policy

- Link load distribution per TCP/UDP service
- Persistent routing for specified source and/or destination IP addresses per TCP/UDP service
- Traffic prioritization and DSL optimization
- Prioritize and route traffic to VPN tunnels with Priority and Enforced algorithms

3.1.7 AP Controller

- Configure and manage Pepwave AP devices

 Copyright @ 2016 Pepwave

- Review the status of connected APs

3.1.8 QoS

- Quality of service for different applications and custom protocols
- User group classification for different service levels
- Bandwidth usage control and monitoring on group- and user-level
- Application prioritization for custom protocols and DSL/cable optimization

3.2 Other Supported Features

- User-friendly web-based administration interface
- HTTP and HTTPS support for web admin interface
- Configurable web administration port and administrator password
- Firmware upgrades, configuration backups, ping, and traceroute via web admin interface
- Remote web-based configuration (via WAN and LAN interfaces)
- Time server synchronization
- SNMP
- Email notification
- Read-only user for web admin
- Shared IP drop-in mode
- Authentication and accounting by RADIUS server for web admin
- Built-in WINS servers*
- Syslog
- SIP passthrough
- PPTP packet passthrough
- Event log
- Active sessions
- Client list
- WINS client list *
- UPnP / NAT-PMP
- Real-time, hourly, daily, and monthly bandwidth usage reports and charts
- IPv6 support
- Support USB tethering on Android 2.2+ phones

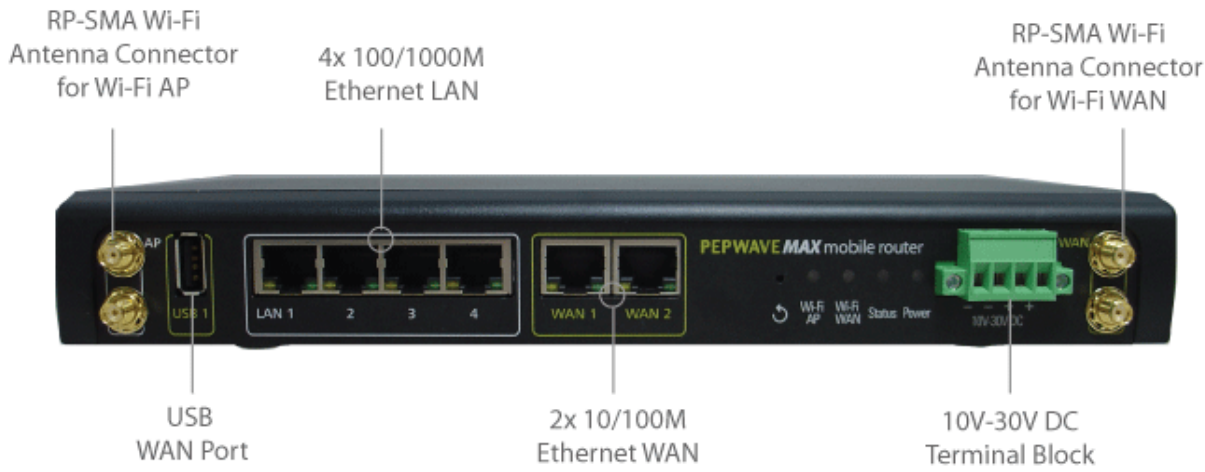
* Not supported on MAX Surf-On-The-Go, Surf SOHO, and BR1 variants

 Copyright @ 2016 Pepwave

4 Pepwave MAX Mobile Router Overview

4.1 MAX 700

4.1.1 Panel Appearance



4.1.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

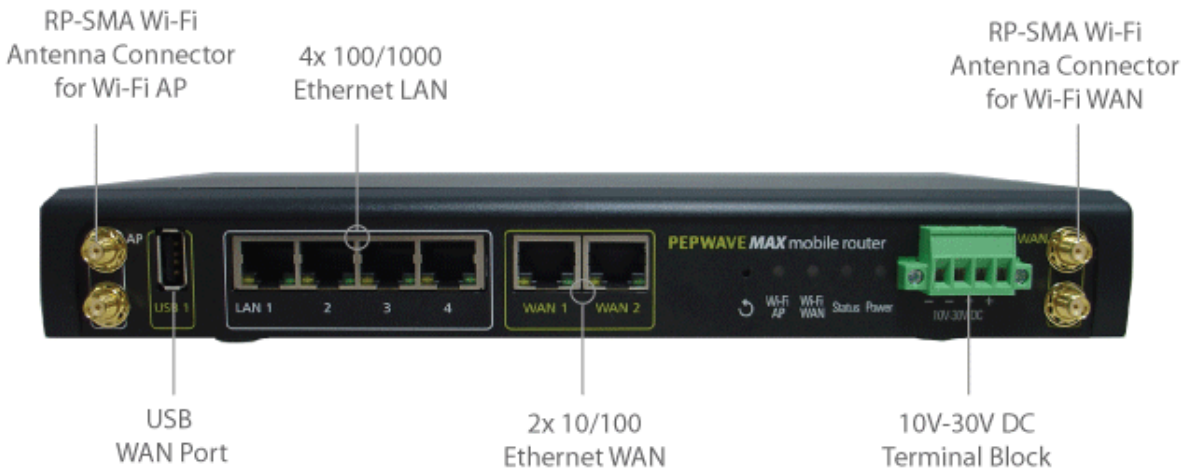
Wi-Fi AP and Wi-Fi WAN Indicators		
Wi-Fi WAN	OFF	Disconnected
	Blinking slowly	Connecting to network
	Blinking	Connected to network with traffic
	ON	Connected to network without traffic
Wi-Fi AP	OFF	Disabled
	Blinking slowly	Enabled but no client connected
	Blinking	Connected to network with traffic
	ON	Client(s) connected to wireless network

LAN and Ethernet WAN Ports		
Green LED	ON	10 / 100/ 1000 Mbps
Orange LED	Blinking	Data is transferring
	OFF	No data is being transferred or port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.2 MAX HD2

4.2.1 Panel Appearance



4.2.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

Wi-Fi AP and Wi-Fi WAN Indicators		
Wi-Fi WAN / Cellular 1 / Cellular 2	OFF	Disabled Intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

LAN and Ethernet WAN Ports		
Green LED	ON	10 / 100 / 1000 Mbps
Orange LED	Blinking	Data is transferring
	OFF	No data is being transferred or port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.3 MAX HD2 IP67

4.3.1 Panel Appearance

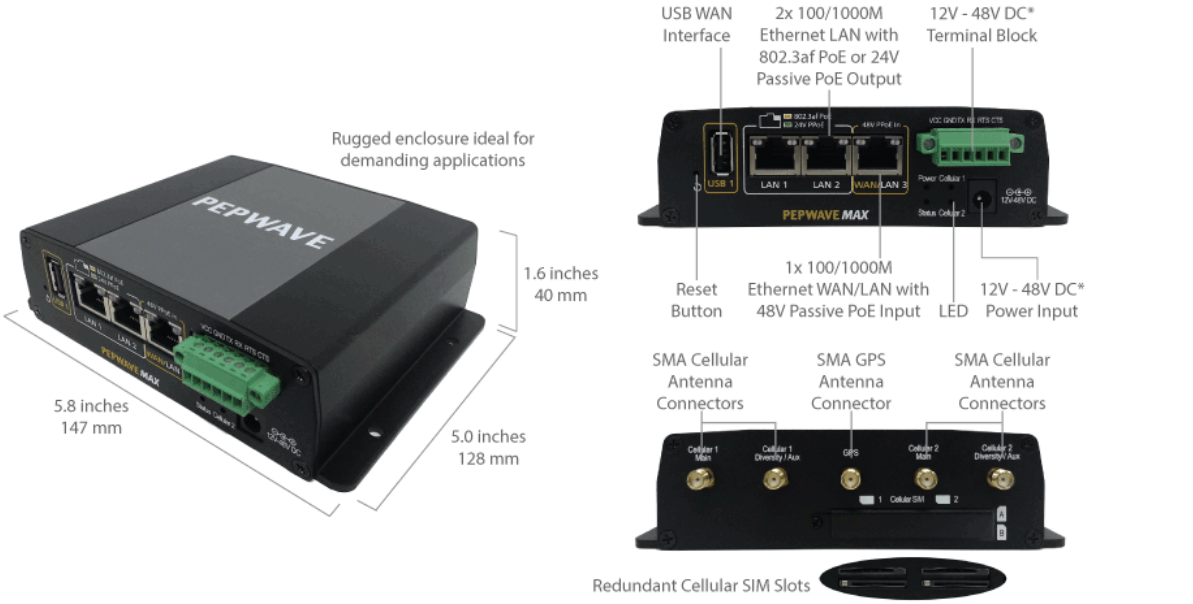
The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

 Copyright @ 2016 Pepwave

4.4 MAX HD2 mini

4.4.1 Panel Appearance



* With 48V DC power, all 3 Ethernet ports can act as 802.3af PoeE or 24V Passive PoE outputs

4.4.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

Cellular WAN Indicators		
Cellular 1 / Cellular 2	OFF	Disabled intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

LAN and Ethernet WAN Ports		
Green LED	ON	10 / 100 / 1000 Mbps
Orange LED	Blinking	Data is transferring
	OFF	No data is being transferred or port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.5 MAX Transit

4.5.1 Panel Appearance

4.5.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

Cellular WAN Indicators		
Cellular 1 / Cellular 2*	OFF	Disabled intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

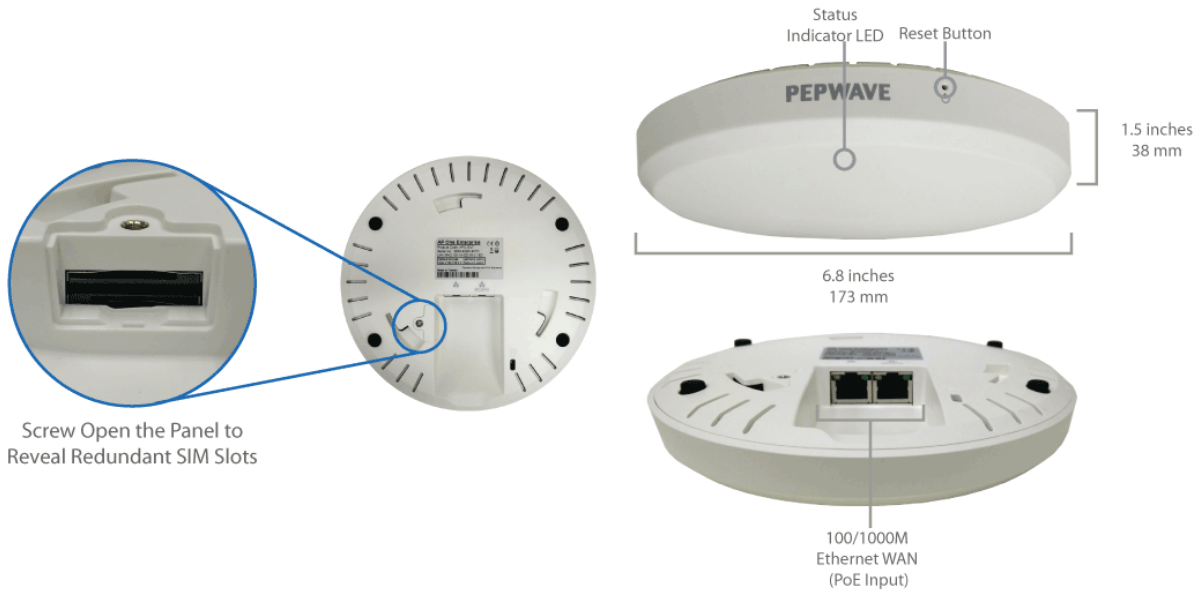
* For MAX-TST_DUO

LAN and Ethernet WAN Ports		
Green LED	ON	10 / 100 / 1000 Mbps
Orange LED	Blinking	Data is transferring
	OFF	No data is being transferred or port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.6 MAX Hotspot

4.6.1 Panel Appearance



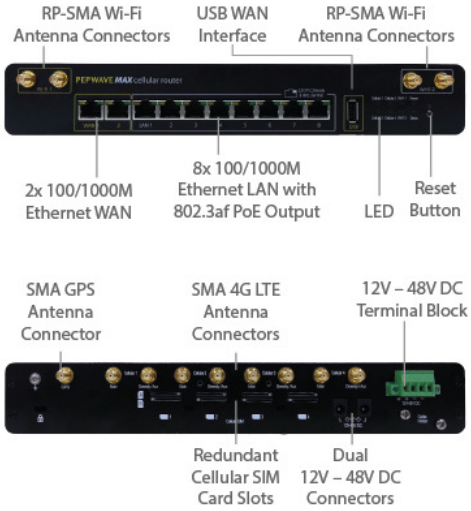
4.6.2 LED Indications

LED Indicators		
Status	RED – Access point initializing GREEN – Access point ready	
LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.7 MAX HD4

4.7.1 Panel Appearance



4.7.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

Wi-Fi AP and Wi-Fi WAN Indicators		
Wi-Fi WAN / Cellular 1 / Cellular 2	OFF	Disabled Intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

LAN and Ethernet WAN Ports		
Green LED	ON	10 / 100 / 1000 Mbps
Orange LED	Blinking	Data is transferring
	OFF	No data is being transferred or port is not connected

 Copyright @ 2016 Pepwave

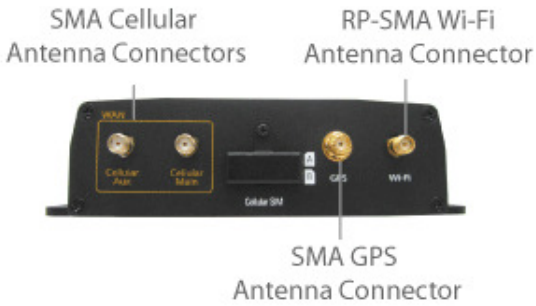
Port Type	Auto MDI/MDI-X ports

 Copyright @ 2016 Pepwave

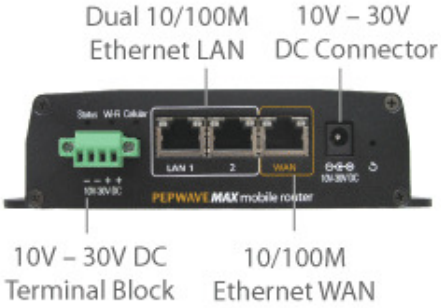
4.8 MAX BR1

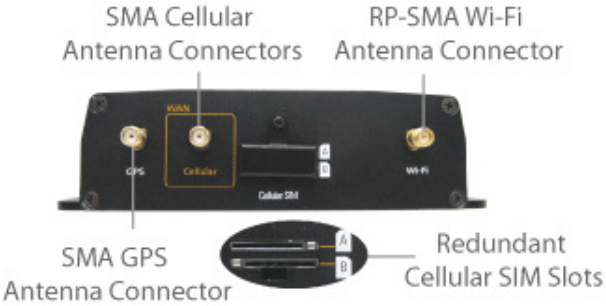
4.8.1 Panel Appearance

MAX-BR1-LTE Version



MAX-BR1 Version





4.8.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

Wi-Fi Indicators		
Wi-Fi	OFF	Disabled intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

 Copyright @ 2016 Pepwave

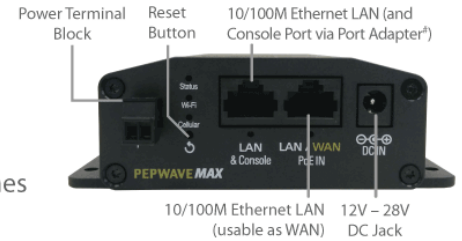
Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	ON	Connecting or connected to network(s)

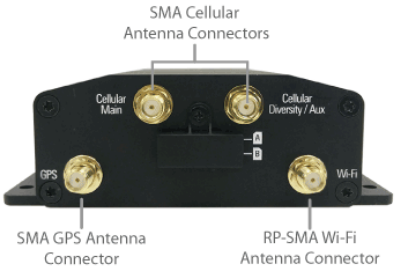
LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.9 MAX BR1 Mini

4.9.1 Panel Appearance





4.9.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

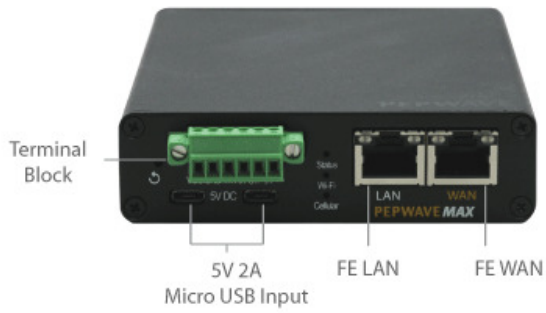
Wi-Fi Indicators		
Wi-Fi	OFF	Disabled intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

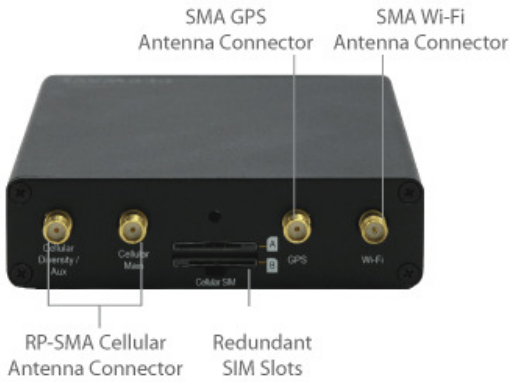
Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	ON	Connecting or connected to network(s)

 Copyright @ 2016 Pepwave

4.10 MAX BR1 Slim

4.10.1 Panel Appearance





4.10.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

Wi-Fi Indicators		
Wi-Fi	OFF	Disabled intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	ON	Connecting or connected to network(s)

 Copyright @ 2016 Pepwave

-

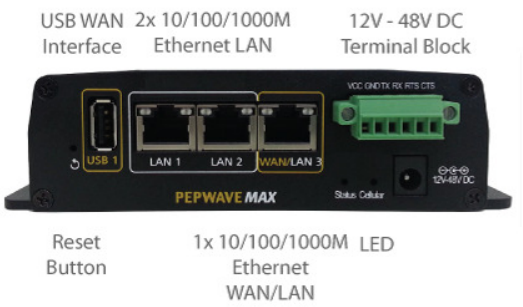
LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

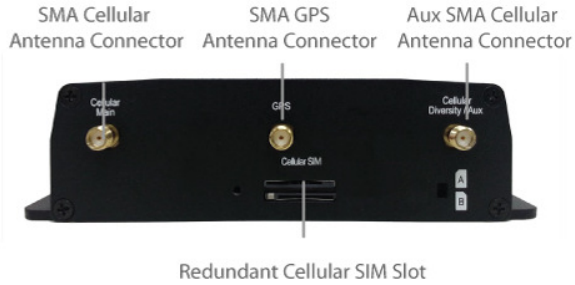
-

 Copyright @ 2016 Pepwave

4.11 MAX BR1 ENT

4.11.1 Panel Appearance





4.11.2 LED Indicators

- The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

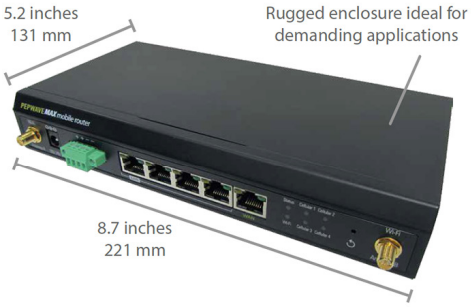
Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	ON	Connecting or connected to network(s)

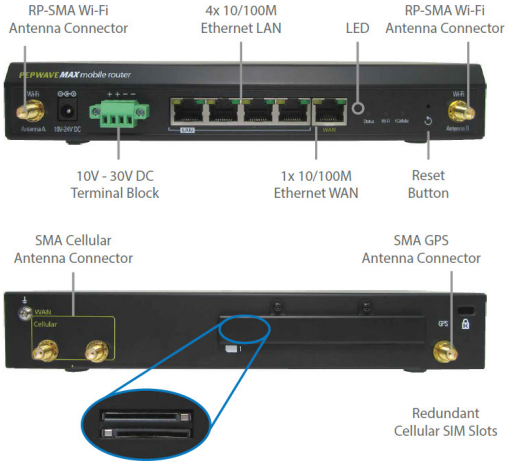
LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.12 MAX BR1 Pro LTE

4.12.1 Panel Appearence





4.12.2 LED Indicators

- The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

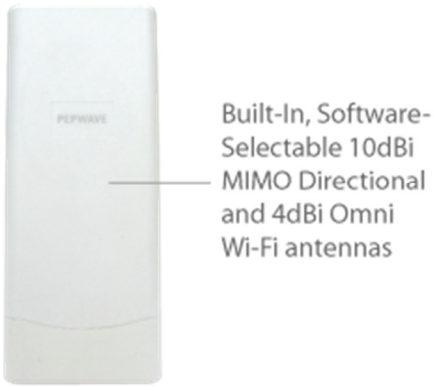
Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	ON	Connecting or connected to network(s)

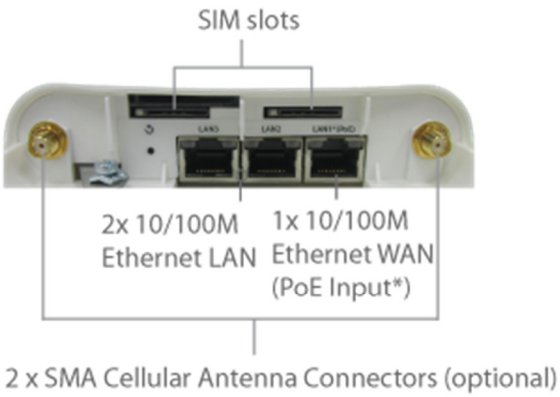
LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

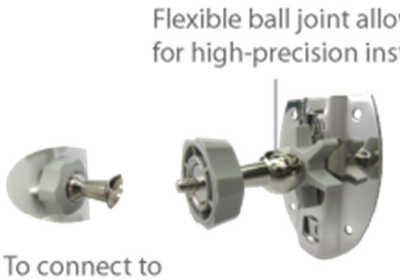
4.13 MAX BR1/2 IP55

4.13.1 Panel Appearance





Accessory – Wall/Pole Mount with Ball Joint for IP55 Outdoor Products ^



* Requires 48V Pepwave Passive PoE input. Available separately.

^ Available separately.

4.13.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

 Copyright @ 2016 Pepwave

Wi-Fi Indicators		
Wi-Fi	OFF	Disabled Intermittent
	Blinking slowly	Connecting to wireless network(s)
	Blinking	Connected to wireless network(s) with traffic
	ON	Connected to wireless network(s) without traffic

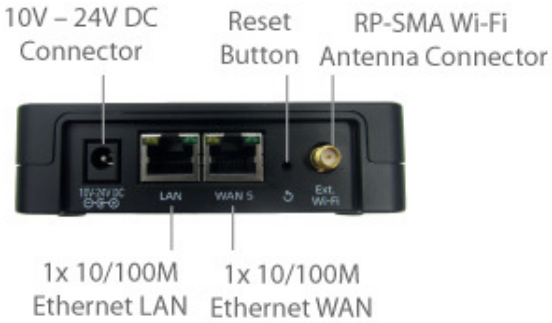
Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	ON	Connecting or connected to network(s)

LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.14 MAX On-The-Go

4.14.1 Panel Appearance



4.14.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Cellular Indicators		
WAN	OFF	Modem is not attached to the port
	Green	Modem is attached to the port

Wi-Fi Indicators		
Wi-Fi	OFF	Disconnected from AP
	Green	Connected to AP

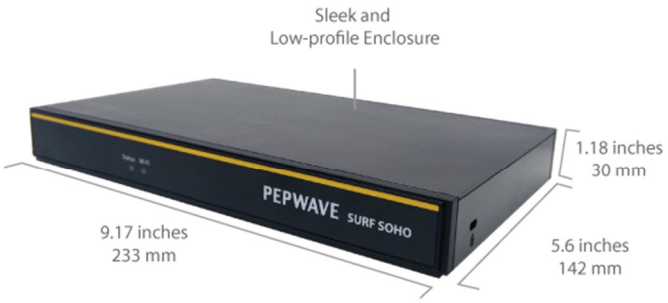
Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Green	Ready

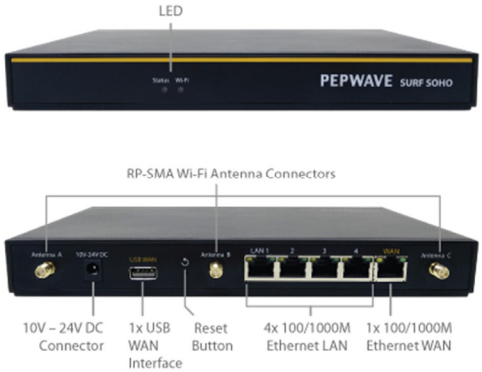
LAN and Ethernet WAN Ports		
Green LED	ON	100 Mbps
	OFF	10 Mbps
Orange LED	ON	Port is connected without traffic
	Blinking	Data is transferring
Port Type	Auto MDI/MDI-X ports	

 Copyright @ 2016 Pepwave

4.15 Surf SOHO

4.15.1 Panel Appearance





4.15.2 LED Indicators

The statuses indicated by the front panel LEDs are as follows:

Wi-Fi and Status Indicators		
Wi-Fi	OFF	Disabled Intermittent
	Blinking	Enabled but no client connected
	ON	Client(s) connected to wireless network
	Continuous blinking	Transferring data to wireless network
Status	OFF	System initializing
	Red	Booting up or busy
	Green	Ready state

LAN and Ethernet WAN Ports		
Green LED	ON	100/1000 Mbps
Orange LED	Blinking	Data is transferring
	OFF	No data is being transferred or port is not connected
Port type	Auto MDI/MDI-X ports	

Wi-Fi Signal	
Off	No connection
Signal strength	Wi-Fi signal strength (low, medium, and high)

 Copyright @ 2016 Pepwave

5 Advanced Feature Summary

5.1 Drop-in Mode and LAN Bypass: Transparent Deployment

As your organization grows, it needs more bandwidth. But modifying your network would require effort better spent elsewhere. In **Drop-in Mode**, you can conveniently install your Peplink router without making any changes to your network. And if the Peplink router loses power for any reason, **LAN Bypass** will safely and automatically bypass the Peplink router to resume your original network connection.

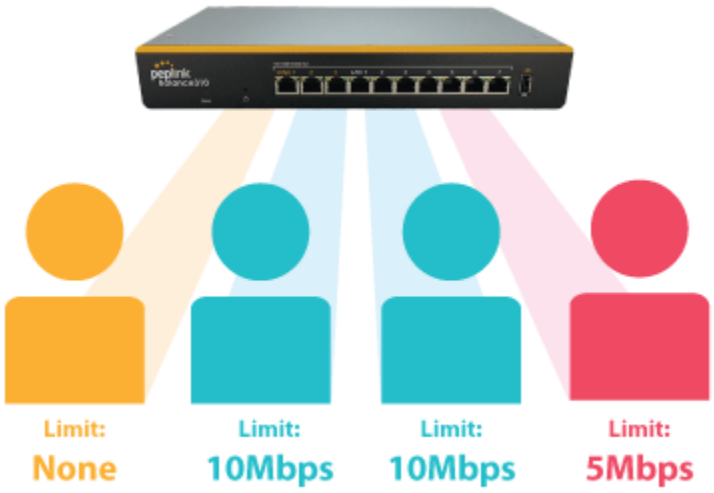
Compatible with: MAX 700, MAX HD2 (All variants), HD4 (All Variants)

5.2 QoS: Clearer VoIP

VoIP and videoconferencing are highly sensitive to latency. With QoS, Peplink routers can detect VoIP traffic and assign it the highest priority, giving you crystal-clear calls.

 Copyright @ 2016 Pepwave

5.3 Per-User Bandwidth Control



With per-user bandwidth control, you can define bandwidth control policies for up to 3 groups of users to prevent network congestion. Define groups by IP address and subnet, and set bandwidth limits for every user in the group.

5.4 High Availability via VRRP

When your organization has a corporate requirement demanding the highest availability with no single point of failure, you can deploy two Peplink routers in **High Availability mode**. With High Availability mode, the second device will take over when needed.

Compatible with: MAX 700, MAX HD2 (All variants), HD4 (All Variants)

 Copyright @ 2016 Pepwave

5.5 USB Modem and Android Tethering

For increased WAN diversity, plug in a USB LTE modem as backup. Peplink routers are compatible with over 200 modem types. You can also tether to smartphones running Android 4.1.X and above.

Compatible with: MAX 700, HD2 (all variants except IP67), HD4 (All variants)

5.6 Built-In Remote User VPN Support

Use L2TP with IPsec to safely and conveniently connect remote clients to your private network. L2TP with IPsec is supported by most devices, but legacy devices can also connect using PPTP.

Click here for full instructions on setting up L2TP with IPsec.

 Copyright @ 2016 Pepwave

5.7 SIM-card USSD support

Cellular-enabled routers can now use USSD to check their SIM card's balance, process pre-paid cards, and configure carrier-specific services.Click here for full instructions on using USSD.

 Copyright @ 2016 Pepwave

6 Installation

The following section details connecting Pepwave routers to your network.

6.1 Preparation

Before installing your Pepwave router, please prepare the following as appropriate for your installation:

- At least one Internet/WAN access account and/or Wi-Fi access information
- Depending on network connection type(s), one or more of the following:
  - **Ethernet WAN**: A 10/100/1000BaseT UTP cable with RJ45 connector
  - **USB**: A USB modem
  - **Embedded modem**: A SIM card for GSM/HSPA service
  - **Wi-Fi WAN**: Wi-Fi antennas
  - **PC Card/Express Card WAN:** A PC Card/ExpressCard for the corresponding card slot
- A computer installed with the TCP/IP network protocol and a supported web browser. Supported browsers include Microsoft Internet Explorer 8.0 or above, Mozilla Firefox 10.0 or above, Apple Safari 5.1 or above, and Google Chrome 18 or above.

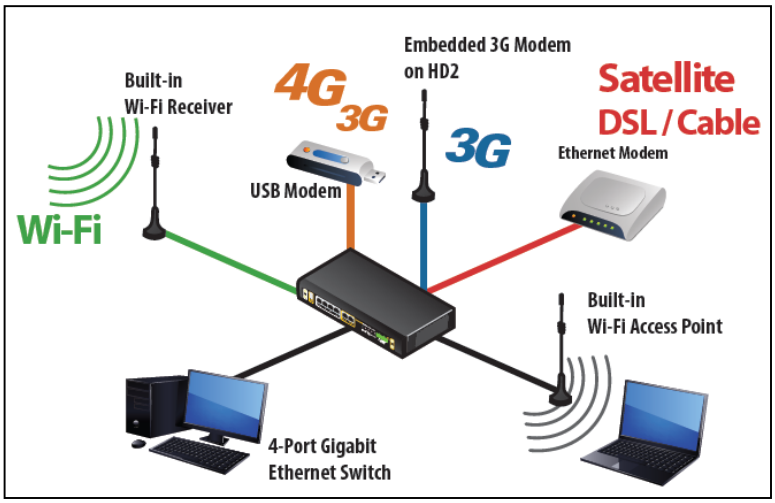
 Copyright @ 2016 Pepwave

6.2 Constructing the Network

At a high level, construct the network according to the following steps:

1. With an Ethernet cable, connect a computer to one of the LAN ports on the Pepwave router. Repeat with different cables for up to 4 computers to be connected.
2. With another Ethernet cable or a USB modem/Wi-Fi antenna/PC Card/Express Card, connect to one of the WAN ports on the Pepwave router. Repeat the same procedure for other WAN ports.
3. Connect the power adapter to the power connector on the rear panel of the Pepwave router, and then plug it into a power outlet.

The following figure schematically illustrates the resulting configuration:



6.3 Configuring the Network Environment

To ensure that the Pepwave router works properly in the LAN environment and can access the Internet via WAN connections, please refer to the following setup procedures:

- LAN configuration

  For basic configuration, refer to **Section 8, Connecting to the Web Admin Interface**.

  For advanced configuration, go to **Section 9, Configuring the LAN Interface(s)**.

- WAN configuration

  For basic configuration, refer to **Section 8, Connecting to the Web Admin Interface**.

  For advanced configuration, go to **Section 9.2, Captive Portal**.

 Copyright @ 2016 Pepwave

7 Mounting the Unit

7.1 Wall Mount

The Pepwave MAX 700/HD2/On-The-Go can be wall mounted using screws. After adding the screw on the wall, slide the MAX in the screw hole socket as indicated below. Recommeneded screw specification: M3.5 x 20mm, head diameter 6mm, head thickness 2.4mm.

The Pepwave MAX BR1 requires four screws for wall mounting.

7.2 Car Mount

The Pepwave MAX700/HD2 can be mounted in a vehicle using the included mounting brackets. Place the mounting brackets by the two sides and screw them onto the device.

7.3 IP67 Installation Guide

Installation instructions for IP67 devices can be found here:
http://download.peplink.com/manual/IP67_Installation_Guide.pdf

 Copyright @ 2016 Pepwave

8 Connecting to the Web Admin Interface

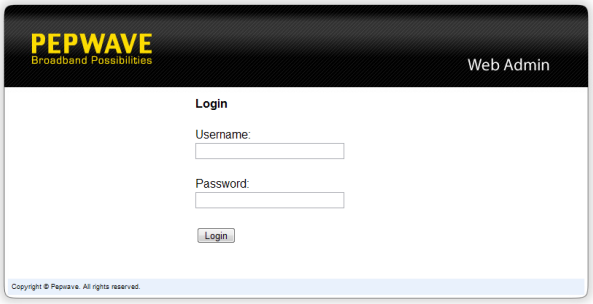
1. Start a web browser on a computer that is connected with the Pepwave router through the LAN.
2. To connect to the router's web admin interface, enter the following LAN IP address in the address field of the web browser:

   http://192.168.50.1

   (This is the default LAN IP address for Pepwave routers.)
3. Enter the following to access the web admin interface.

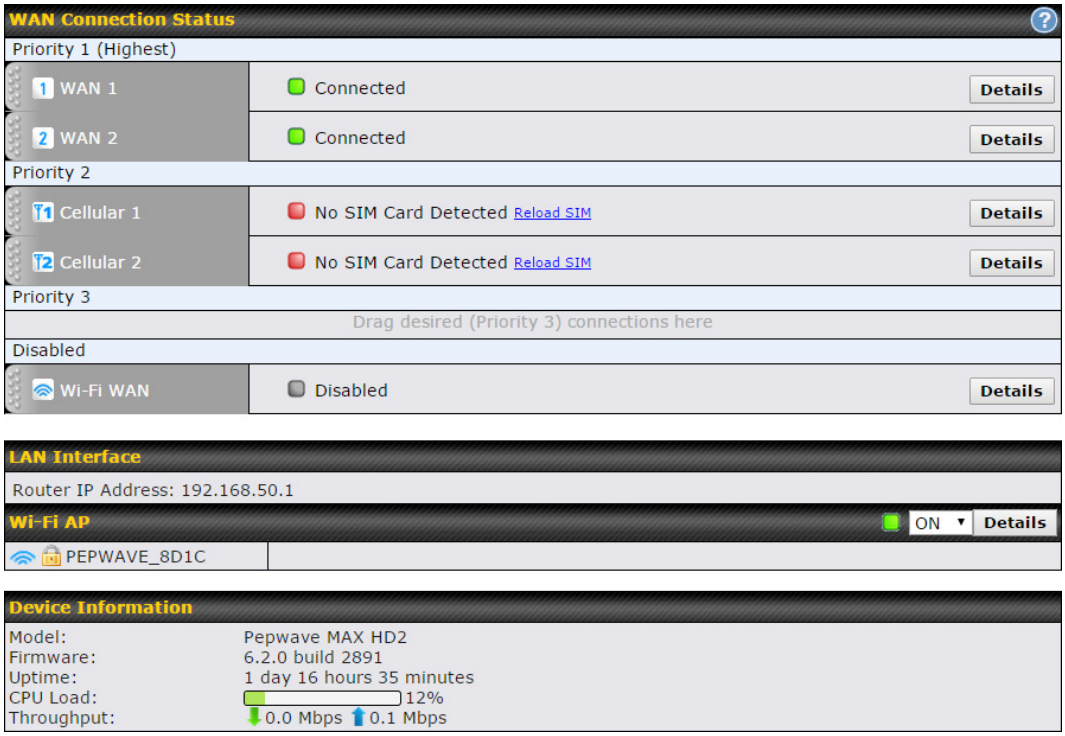
   Username: admin

   Password: admin



(This is the default username and password for Pepwave routers. The admin and read-only user passwords can be changed at **System>Admin Security**.)

4. After successful login, the **Dashboard** will be displayed.



The **Dashboard** shows current WAN, LAN, and Wi-Fi AP statuses. Here, you can change WAN connection priority and switch on/off the Wi-Fi AP. For further information on setting up these connections, please refer to **Sections 8** and **9.**

Device Information displays details about the device, including model name, firmware version, and uptime. For further information, please refer to **Section 22.**

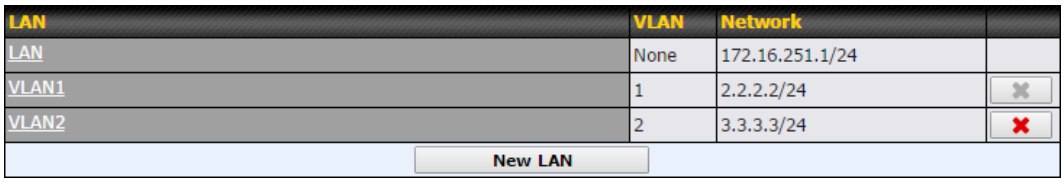
Important Note
Configuration changes (e.g. WAN, LAN, admin settings, etc.) will take effect only after clicking the **Save** button at the bottom of each page. The **Apply Changes** button causes the changes to be saved and applied.

 Copyright @ 2016 Pepwave

9 Configuring the LAN Interface(s)

9.1 Basic Settings

LAN interface settings are located at **Network>LAN>Basic Settings**. Navigating to that page will result in the following dashboard:

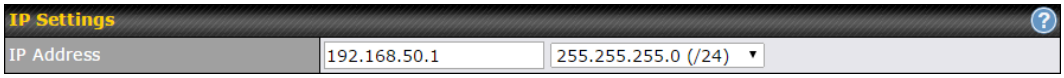


LAN	VLAN	Network	
LAN	None	172.16.251.1/24	
VLAN1	1	2.2.2.2/24	✖
VLAN2	2	3.3.3.3/24	✖
New LAN			

This represents the LAN interfaces that are active on your router (including VLAN). A grey “X” means that the VLAN is used in other settings and cannot be deleted. You can find which settings are using the VLAN by hovering over the grey “X”.

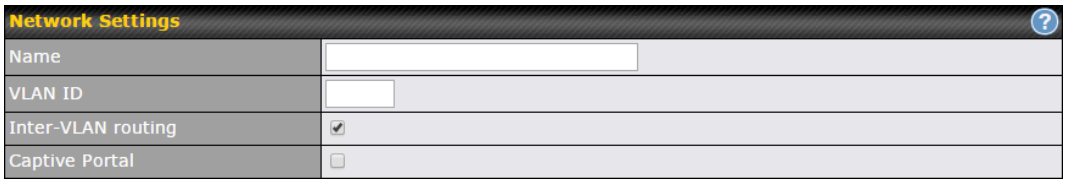
Alternatively, a red “X” means that there are no settings using the VLAN. You can delete that VLAN by clicking the red “X”

Clicking any of the existing LAN interfaces (or creating a new one) will result in the following



IP Settings		
IP Address	192.168.50.1	255.255.255.0 (/24)

IP Settings	
IP Address	The IP address and subnet mask of the Pepwave router on the LAN.

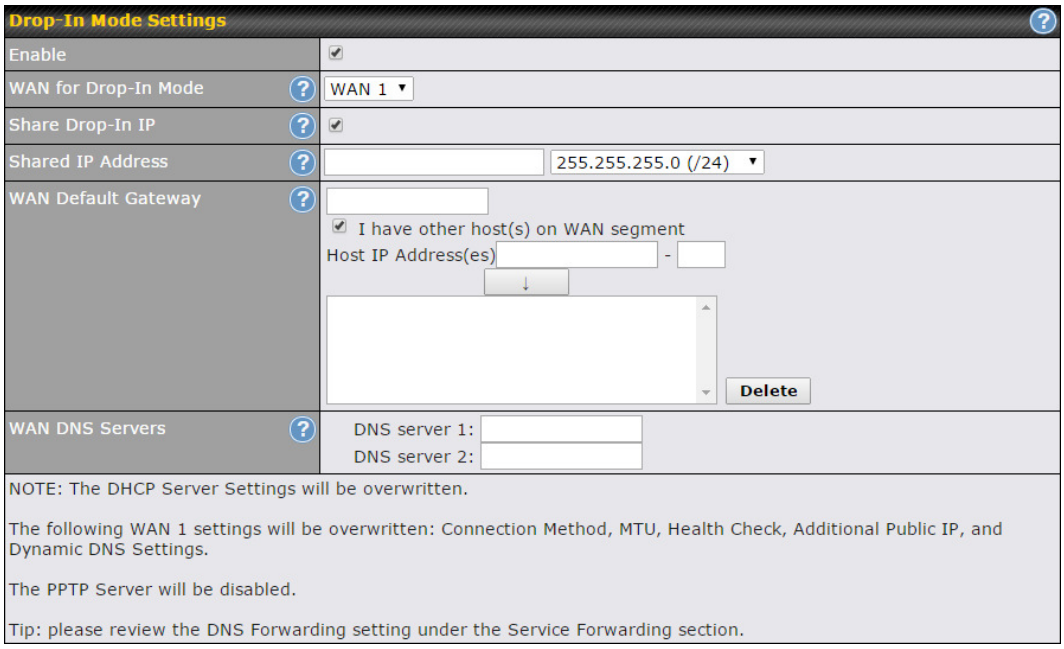


Network Settings	
Name	
VLAN ID	
Inter-VLAN routing	☑
Captive Portal	☐

Network Settings	
Name	Enter a name for the LAN.
VLAN ID	Enter a number for your VLAN.
Inter-VLAN routing	Check this box to enable routing between virtual LANs.

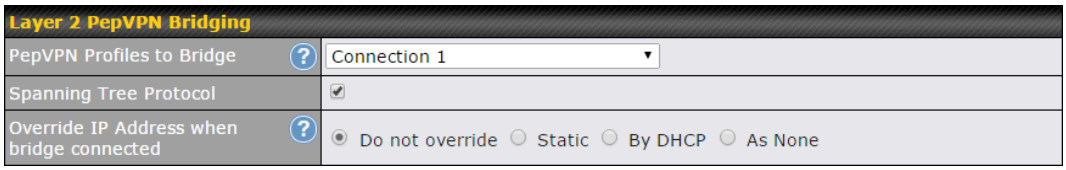
 Copyright @ 2016 Pepwave

Captive Portal	Check this box to turn on captive portals.



Drop-in Mode Settings	
Enable	Drop-in mode eases the installation of Peplink routers on a live network between the existing firewall and router, such that no configuration changes are required on existing equipment. Check the box to enable the drop-in mode feature, if available on your model.
WAN for Drop-In Mode	Select the WAN port to be used for drop-in mode. If **WAN 1 with LAN Bypass** is selected, the high availability feature will be disabled automatically.
Share Drop-In IP[A]	When this option is enabled, the passthrough IP address will be used to connect to WAN hosts (email notification, remote syslog, etc.). The Pepwave router will listen for this IP address when WAN hosts access services provided by the Pepwave router (web admin access from the WAN, DNS server requests, etc.). To connect to hosts on the LAN (email notification, remote syslog, etc.), the default gateway address will be used. The Pepwave router will listen for this IP address when LAN hosts access services provided by the Pepwave router (web admin access from the WAN, DNS proxy, etc.).
Shared IP Address[A]	Access to this IP address will be passed through to the LAN port if this device is not serving the service being accessed. The shared IP address will be used in connecting to hosts on the WAN (email notification, remote syslog, etc.) The device will also listen on the IP address when hosts on the WAN access services served on this device (web admin access from the WAN, DNS server, etc.)
WAN Default Gateway	Enter the WAN router's IP address in this field. If there are more hosts in addition to the router on the WAN segment, check the I **have other host(s) on WAN segment** box and enter the IP address of the hosts that need to access LAN devices or be accessed by others.
WAN DNS Servers	Enter the selected WAN's corresponding DNS server IP addresses.

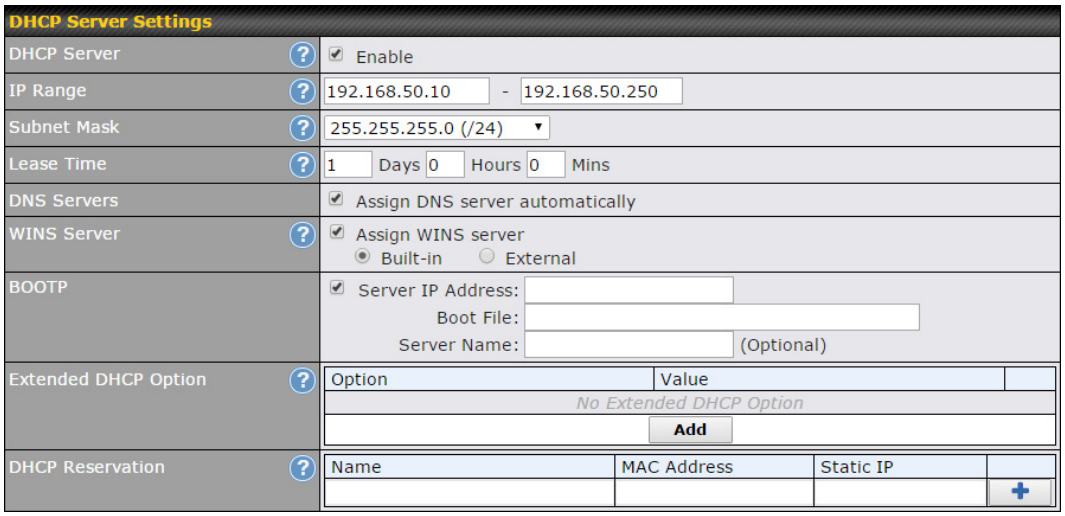
[A] - Advanced feature, please click the button on the top right-hand corner to activate.



Layer 2 PepVPN Bridging	
PepVPN Profiles to Bridge	The remote network of the selected PepVPN profiles will be bridged with this local LAN, creating a Layer 2 PepVPN, they will be connected and operate like a single LAN, and any broadcast or multicast packets will be sent over the VPN.
Spanning Tree Protocol	Click the box will enable STP for this layer 2 profile bridge.
Override IP	Select "Do not override" if the LAN IP address and local DHCP server should remain unchanged after the Layer 2 PepVPN is up.

 Copyright @ 2016 Pepwave

Address when bridge connected	If you choose to override IP address when the VPN is connected, the device will not act as a router, and most Layer 3 routing functions will cease to work.

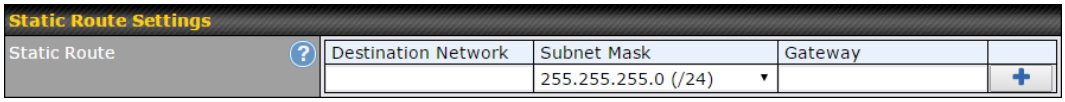


DHCP Server Settings

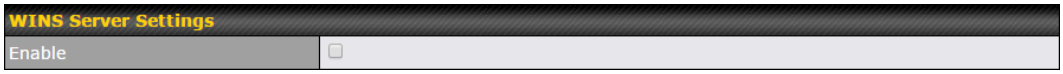
DHCP Server	When this setting is enabled, the DHCP server automatically assigns an IP address to each computer that is connected via LAN and configured to obtain an IP address via DHCP. The Pepwave router's DHCP server can prevent IP address collision on the LAN.
IP Range & Subnet Mask	These settings allocate a range of IP addresses that will be assigned to LAN computers by the Pepwave router's DHCP server.
Lease Time	This setting specifies the length of time throughout which an IP address of a DHCP client remains valid. Upon expiration of the lease time, the assigned IP address will no longer be valid and renewal of the IP address assignment will be required.
DNS Servers	This option allows you to input the DNS server addresses to be offered to DHCP clients. If **Assign DNS server automatically** is selected, the Pepwave router's built-in DNS server address (i.e., LAN IP address) will be offered.
WINS Server	This option allows you to optionally specify a Windows Internet Name Service (WINS) server. You may choose to use the **built-in WINS server** or **external WINS servers**. When this unit is connected using SpeedFusion™, other VPN peers can share this unit's built-in WINS server by entering this unit's LAN IP address in their DHCP **WINS Server** setting. Afterward, all PC clients in the VPN can resolve the NetBIOS names of other clients in remote peers. If you have enabled this option, a list of WINS clients will be displayed at **Status>WINS Clients**.
BOOTP	Check this box to enable BOOTP on older networks that still require it.
Extended DHCP Option	In addition to standard DHCP options (e.g., DNS server address, gateway address, subnet mask), you can specify the value of additional extended DHCP options, as defined in RFC 2132. With these extended options enabled, you can pass additional configuration information to LAN hosts. To define an extended DHCP option, click the **Add** button, choose the option to define and

	enter its value. For values that are in IP address list format, you can enter one IP address per line in the provided text area input control. Each option can be defined once only.
DHCP Reservation	This setting reserves the assignment of fixed IP addresses for a list of computers on the LAN. The computers to be assigned fixed IP addresses on the LAN are identified by their MAC addresses. The fixed IP address assignment is displayed as a cross-reference list between the computers' names, MAC addresses, and fixed IP addresses. **Name** (an optional field) allows you to specify a name to represent the device. MAC addresses should be in the format of **00:AA:BB:CC:DD:EE**. Press + to create a new record. Press ✖ to remove a record. Reserved client information can be imported from the **Client List**, located at **Status>Client List**. For more details, please refer to **Section 22.3.**

LAN Physical Settings	
Speed	This is the port speed of the LAN interface. It should be set to the same speed as the connected device to avoid port negotiation problems. When a static speed is set, you may choose whether to advertise its speed to the peer device. **Auto** is selected by default. You can choose not to advertise the port speed if the port has difficulty negotiating with the peer device.

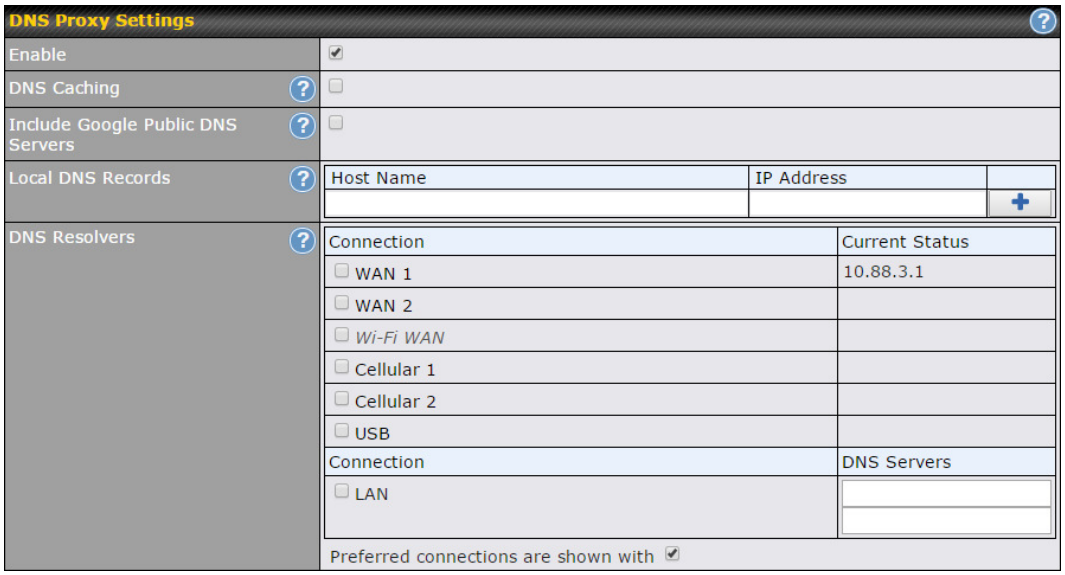


Static Route Settings	
Static Route	This table is for defining static routing rules for the LAN segment. A static route consists of the network address, subnet mask, and gateway address. The address and subnet mask values are in *w.x.y.z* format. The local LAN subnet and subnets behind the LAN will be advertised to the VPN. Remote routes sent over the VPN will also be accepted. Any VPN member will be able to route to the local subnets. Press + to create a new route. Press ✖ to remove a route.



WINS Server Settings	
Enable	Check the box to enable the WINS server. A list of WINS clients will be displayed at **Status>WINS Clients**.

 Copyright @ 2016 Pepwave

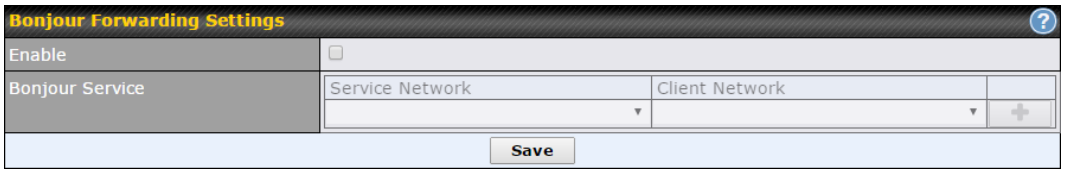


DNS Proxy Settings	
Enable	To enable the DNS proxy feature, check this box, and then set up the feature at **Network>LAN>DNS Proxy Settings**. A DNS proxy server can be enabled to serve DNS requests originating from LAN/PPTP/SpeedFusion™ peers. Requests are forwarded to the **DNS servers/resolvers** defined for each WAN connection.
DNS Caching	This field is to enable DNS caching on the built-in DNS proxy server. When the option is enabled, queried DNS replies will be cached until the records' TTL has been reached. This feature can help improve DNS lookup time. However, it cannot return the most up-to-date result for those frequently updated DNS records. By default, **DNS Caching** is disabled.
Include Google Public DNS Servers	When this option is **enabled**, the DNS proxy server will also forward DNS requests to Google's Public DNS Servers, in addition to the DNS servers defined in each WAN. This could increase the DNS service's availability. This setting is disabled by default.
Local DNS Records	This table is for defining custom local DNS records. A static local DNS record consists of a host name and IP address. When looking up the host name from the LAN to LAN IP of the Pepwave router, the corresponding IP address will be returned. Press + to create a new record. Press ✖ to remove a record.
DNS Resolvers [A]	Check the box to enable the WINS server. A list of WINS clients will be displayed at **Network>LAN>DNS Proxy Settings>DNS Resolvers**. This field specifies which DNS resolvers will receive forwarded DNS requests. If no WAN/VPN/LAN DNS resolver is selected, all of the WAN's DNS resolvers will be selected. If a SpeedFusion™ peer is selected, you may enter the VPN peer's DNS resolver IP address(es). Queries will be forwarded to the selected connections' resolvers. If all of the selected connections are down, queries will be forwarded to all resolvers on healthy WAN connections.

[A] - Advanced feature, please click the button on the top right hand corner to activate.

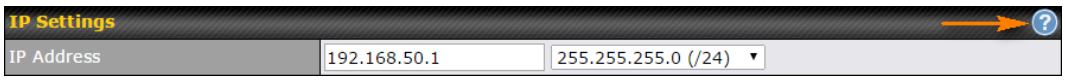
Finally, if needed, configure Bonjour forwarding, Apple's zero configuration networking

protocol. Once VLAN configuration is complete, click **Save** to store your changes.



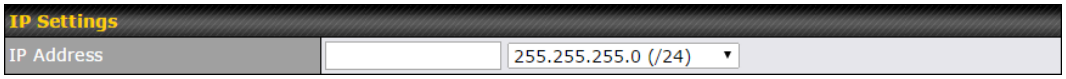
Bonjour Forwarding Settings	
Enable	Check this box to turn on Bonjour forwarding.
Bonjour Service	Choose **Service** and **Client** networks from the drop-down menus, and then click + to add the networks. To delete an existing Bonjour listing, click ✖.

To enable VLAN configuration, click the button in the **IP Settings** section.



To add a new LAN, click the **New LAN** button. To change LAN settings, click the name of the LAN to change under the **LAN** heading.

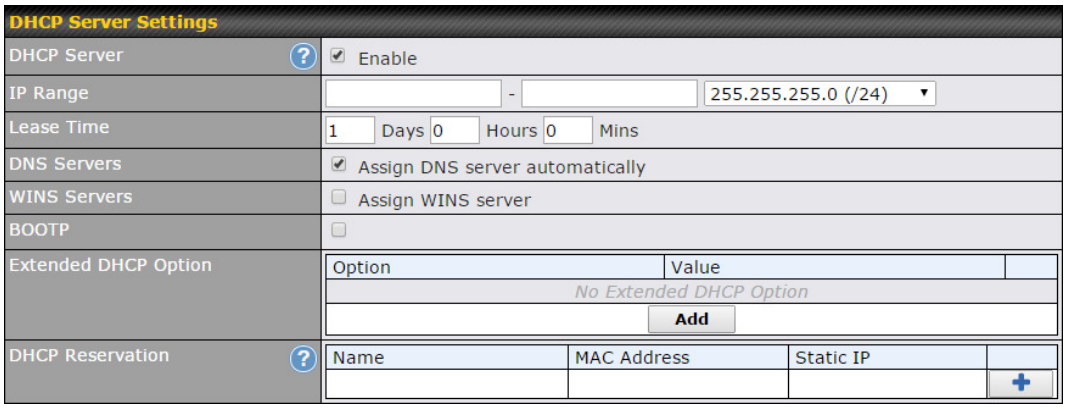
The following settings are displayed when creating a new LAN or editing an existing LAN.



IP Settings	
IP Address & Subnet Mask	Enter the Pepwave router's IP address and subnet mask values to be used on the LAN.

Network Settings	
Name	Enter a name for the LAN.
VLAN ID	Enter a number for your VLAN.
Inter-VLAN routing	Check this box to enable routing between virtual LANs.
Captive Portal	Check this box to turn on captive portals.

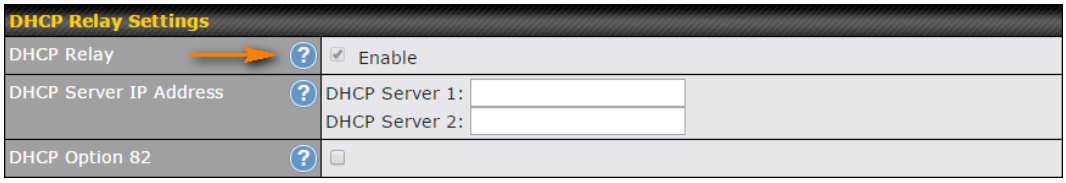
 Copyright @ 2016 Pepwave



DHCP Server Settings	
DHCP Server	When this setting is enabled, the Pepwave router's DHCP server automatically assigns an IP address to each computer that is connected via LAN and configured to obtain an IP address via DHCP. The Pepwave router's DHCP server can prevent IP address collisions on the LAN. To enable DHCP bridge relay, please click the icon on this menu item.
IP Range & Subnet Mask	These settings allocate a range of IP address that will be assigned to LAN computers by the Pepwave router's DHCP server.
Lease Time	This setting specifies the length of time throughout which an IP address of a DHCP client remains valid. Upon expiration of **Lease Time**, the assigned IP address will no longer be valid and the IP address assignment must be renewed.
DNS Servers	This option allows you to input the DNS server addresses to be offered to DHCP clients. If **Assign DNS server automatically** is selected, the Pepwave router's built-in DNS server address (i.e., LAN IP address) will be offered.
WINS Servers	This option allows you to specify the Windows Internet Name Service (WINS) server. You may choose to use the built-in WINS server or external WINS servers. When this unit is connected using SpeedFusion™, other VPN peers can share this unit's built-in WINS server by entering this unit's LAN IP address in their **DHCP WINS Servers** setting. Therefore, all PC clients in the VPN can resolve the NetBIOS names of other clients in remote peers. If you have enabled this option, a list of WINS clients will be displayed at **Status>WINS Clients**.
BOOTP	Check this box to enable BOOTP on older networks that still require it.
Extended DHCP Option	In addition to standard DHCP options (e.g. DNS server address, gateway address, subnet mask), you can specify the value of additional extended DHCP options, as defined in RFC 2132. With these extended options enabled, you can pass additional configuration information to LAN hosts. To define an extended DHCP option, click the **Add** button, choose the option to define, and then enter its value. For values that are in IP address list format, you can enter one IP address per line in the provided text area input control. Each option can be defined once only.
DHCP Reservation	This setting reserves the assignment of fixed IP addresses for a list of computers on the LAN. The computers to be assigned fixed IP addresses on the LAN are identified by their MAC addresses. The fixed IP address assignment is displayed as a cross-reference list between the computers' names, MAC addresses, and fixed IP addresses. **Name** (an optional field) allows you to specify a name to represent the device. MAC addresses should be in the format of **00:AA:BB:CC:DD:EE**. Press to create a new record. Press to remove a record. Reserved clients information can be imported from the **Client List**, located at **Status>Client List**. For more details, please refer to **Section**

22.3.

To configure DHCP relay, first click the button found next to the **DHCP Server** option to display the settings.

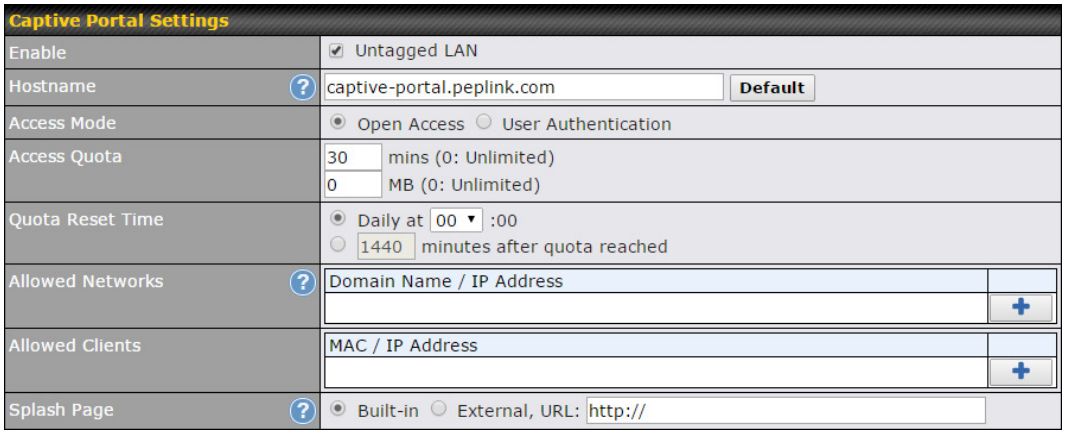


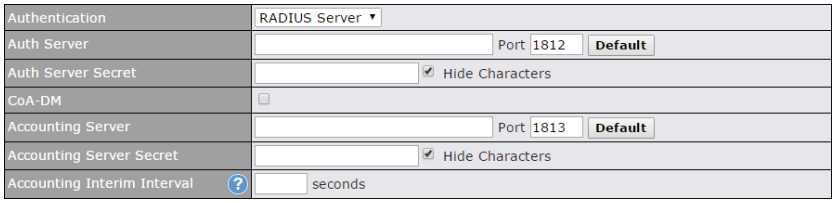
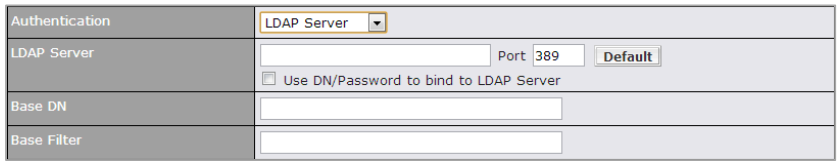
DHCP Relay Settings	
Enable	Check this box to turn on DHCP relay. Click the icon to disable DHCP relay.
DHCP Server IP Address	Enter the IP addresses of one or two DHCP servers in the provided fields. The DHCP servers entered here will receive relayed DHCP requests from the LAN. For active-passive DHCP server configurations, enter active and passive DHCP server relay IP addresses in **DHCP Server 1** and **DHCP Server 2.**
DHCP Option 82	DCHP Option 82 includes device information as relay agent for the attached client when forwarding DHCP requests from client to server. This option also embeds the device's MAC address and network name in circuit and remote IDs. Check this box to enable DHCP Option 82.

Once DHCP is set up, configure **LAN Physical Settings**, **Static Route Settings**, **WINS Server Settings**, and **DNS Proxy Settings** as noted above.

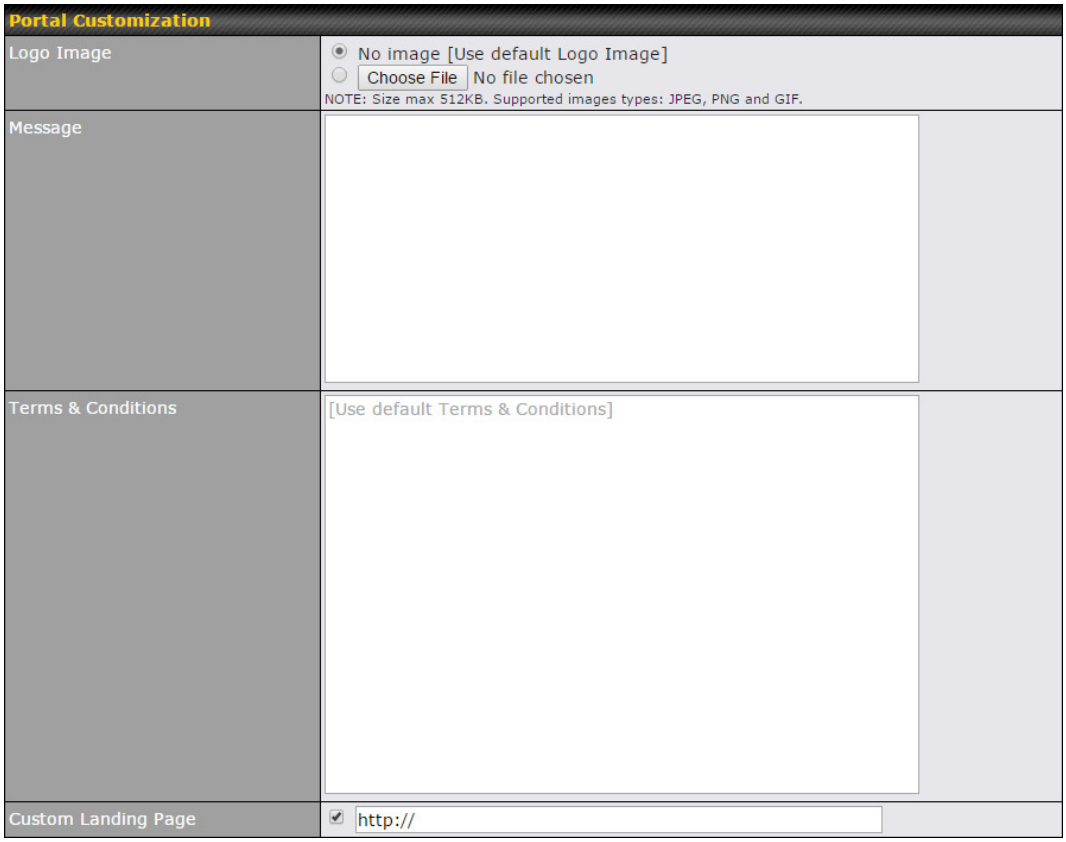
9.2 Captive Portal

The captive portal serves as gateway that clients have to pass if they wish to access the internet using your router. To configure, navigate to **Network>LAN>Captive Portal**.



Captive Portal Settings	
Enable	Check **Enable** and then, optionally, select the LANs/VLANs that will use the captive portal.
Hostname	To customize the portal's form submission and redirection URL, enter a new URL in this field. To reset the URL to factory settings, click **Default**.
Access Mode	Click **Open Access** to allow clients to freely access your router. Click **User Authentication** to force your clients to authenticate before accessing your router.
RADIUS Server	This authenticates your clients through a RADIUS server. After selecting this option, you will see the following fields:  Fill in the necessary information to complete your connection to the server and enable authentication.
LDAP Server	This authenticates your clients through a LDAP server. Upon selecting this option, you will see the following fields:  Fill in the necessary information to complete your connection to the server and enable authentication.

 Copyright @ 2016 Pepwave

Access Quota	Set a time and data cap to each user's Internet usage.
Quota Reset Time	This menu determines how your usage quota resets. Setting it to **Daily** will reset it at a specified time every day. Setting a number of **minutes after quota reached** establish a timer for each user that begins after the quota has been reached.
Allowed Networks	To whitelist a network, enter the domain name / IP address here and click [+]. To delete an existing network from the list of allowed networks, click the [✖] button next to the listing.
Splash Page	Here, you can choose between using the Pepwave router's built-in captive portal and redirecting clients to a URL you define.

The **Portal Customization** menu has two options: [Preview] and [✎]. Clicking [Preview] displays a pop-up previewing the captive portal that your clients will see. Clicking [✎] displays the following menu: