

PEP WAVE

Broadband Possibilities

User Manual

Pepwave AP One Series:

AP One Enterprise / AP One AC mini / AP One In-Wall / AP One Rugged /
AP One Flex 300M

Pepwave AP Pro Series:

AP Pro / AP Pro 300M / AP Pro Duo

May 2016

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1 Introduction and Scope

Our AP Series of enterprise-grade 802.11b/g/n Wi-Fi access points is engineered to provide fast, dependable, and flexible operation in a variety of environments, all controlled by an easy-to-use centralized management system. From the small but powerful AP One AC mini to the top-of-the-line AP One 300M our AP Series offers wireless networking solutions to suit any business need, and every access point is loaded with essential features such as multiple SSIDs, VLAN, WDS, and Guest Protect.

A single access point provides as many as 32 virtual access points (16 on single-radio models), each with its own security policy (WPA, WPA2, etc.) and authentication mechanism (802.1x, open, captive portal, etc.), allowing faster, easier, and more cost-effective network builds. Each member of the AP Series family also features a high-powered Wi-Fi transmitter that greatly enhances coverage and performance while reducing equipment costs and maintenance.

2 Product Features and Benefits

Key features and benefits of AP Series access points:

- High-powered Wi-Fi transmitter enhances coverage and lowers cost of ownership.
- Independent security policies and encryption mechanisms for each virtual access point allow fast, flexible, cost-effective network builds.
- Centralized management via InControl reduces maintenance expense and time.
- WDS support allows secure and fast network expansion.
- Guest Protect support guards sensitive business data and subnetworks.
- WMM (Wi-Fi Multimedia) and QoS (Quality of Service) support keeps video and other bandwidth-intensive data flowing fast and lag-free.

3 Package Contents

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PEPWAVE AP Series

3.1 AP One Enterprise

1x AP One Enterprise
1 x Instruction sheet

3.2 AP One AC mini

1 x AP One mini
1 x Omni-directional antenna
1 x Power supply
1 x Instruction sheet

3.3 AP One In-Wall

1 x AP One In-Wall
1 x Mounting kit
1 x Instruction sheet

3.4 AP One Rugged

1 x AP One Rugged
3 x Omni-directional antennas
1 x Power supply
1 x Instruction sheet

3.5 AP One Flex 300M

1 x AP One Flex 300M
1 x Instruction sheet

3.6 AP Pro / AP Pro 300M / AP Pro Duo

1 x AP Pro / AP Pro 300M / AP Pro Duo
1 x Instruction sheet
1 x Installation guide

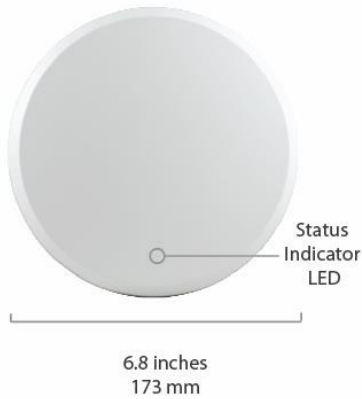
4 Hardware Overview

User Manual

PEPWAVE AP Series

4.1 AP One Enterprise

Bottom View



Top View



Front View

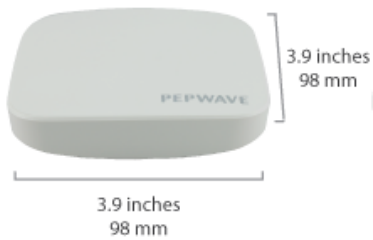


LED Indicators

Status	RED – Access point initializing
	GREEN – Access point ready
LAN 1	OFF – No device connected to Ethernet port
	BLINKING – Ethernet port sending/receiving data
	ON – Powered-on device connected to Ethernet port
	Note that LAN 5 displays the status of the uplink connection

4.2 AP One AC mini

Front View



Rear Panel View



LED Indicators

Status	RED – Access point initializing
	GREEN – Access point ready
Wi-Fi	OFF – 2.4/5GHz Wi-Fi radio off
	BLINKING – AP sending/receiving data
	GREEN – 2.4/5GHz Wi-Fi radio on

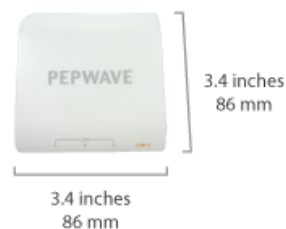
Note that this model includes a 2.4GHz Wi-Fi radio and a 5GHz Wi-Fi radio that can operate simultaneously to increase speed and reduce interference.

4.3 AP One In-Wall

Front View (US)



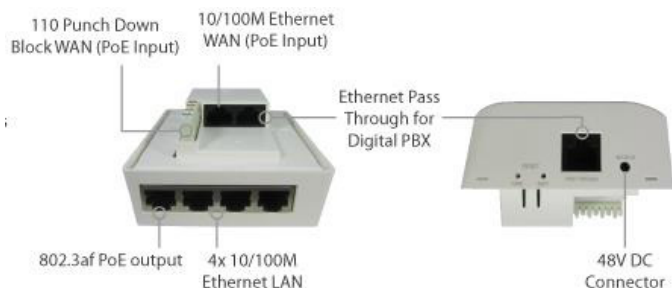
Front View (International)



Rear Panel View



Top View

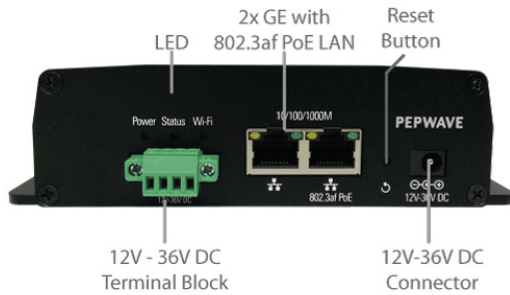


LED Indicators

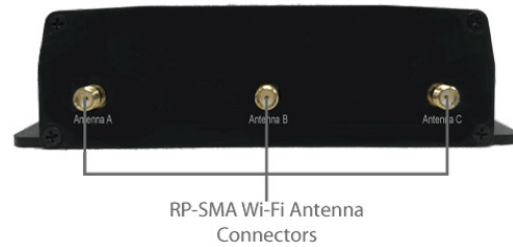
LED Indicators	
Status	RED – Access point initializing
	GREEN – Access point ready
WLAN 1/2	OFF – 2.4/5GHz Wi-Fi radio off
	BLINKING – AP sending/receiving data
	GREEN – 2.4/5GHz Wi-Fi radio on
	Note that this model includes a 2.4GHz Wi-Fi radio and a 5GHz Wi-Fi radio that can operate simultaneously to increase speed and reduce interference. WLAN1 displays the status of the 2.4GHz Wi-Fi radio, while WLAN2 displays the status of the 5GHz Wi-Fi radio.
LAN 1-5	OFF – No device connected to Ethernet port
	BLINKING – Ethernet port sending/receiving data
	ON – Powered-on device connected to Ethernet port
	Note that LAN 5 displays the status of the uplink connection

4.4 AP One Rugged

Front View



Rear Panel View



LED Indicators

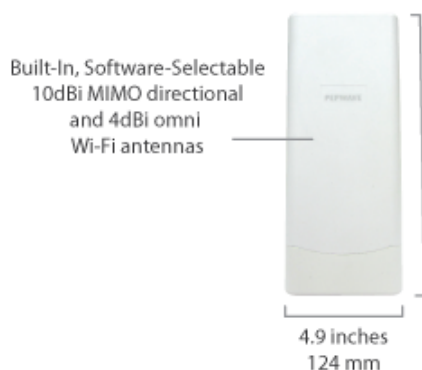
Power	On – Power On OFF – Power Off
Status	RED – Access point initializing GREEN – Access point ready
Wireless	OFF – 2.4/5GHz Wi-Fi radio off BLINKING – AP sending/receiving data GREEN – 2.4/5GHz Wi-Fi radio on Note that this model includes a 2.4GHz Wi-Fi radio and a 5GHz Wi-Fi radio that can operate simultaneously to increase speed and reduce interference.

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PEPWAVE AP Series

4.5 AP One Flex 300M

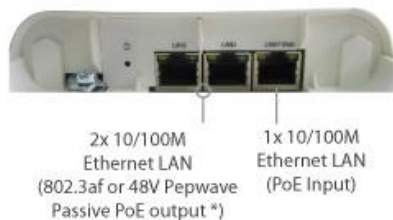
Front View



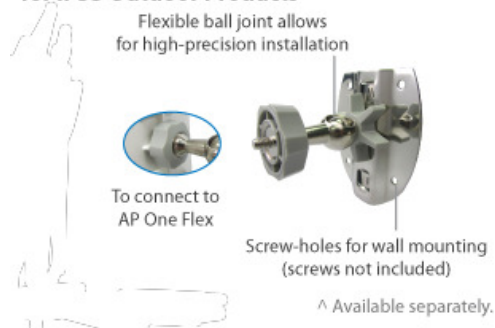
Rear Panel View




Connector Panel (Inside the Lid)



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



LED Indicators

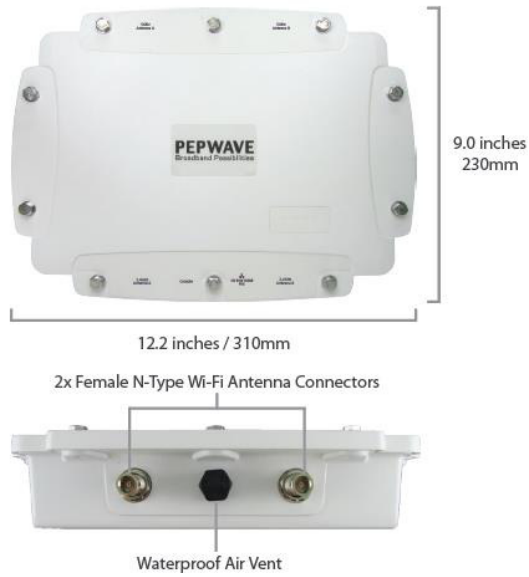
Status	RED – Access point initializing
	GREEN – Access point ready
LAN	OFF – No device connected to Ethernet port
	BLINKING – Ethernet port sending/receiving data
	ON – Powered-on device connected to Ethernet port
	Number of connected clients (1-10, 11-20, 21-30, 31-40)

User Manual

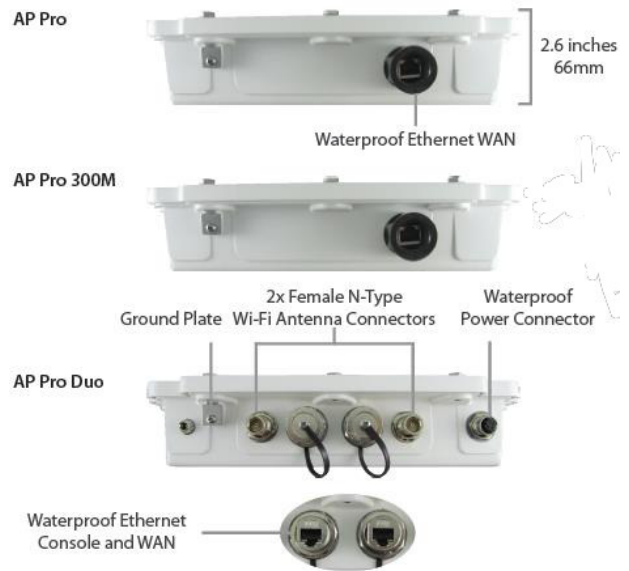
PEPWAVE AP Series

4.6 AP Pro / AP Pro 300M / AP Pro Duo

Front/Top View

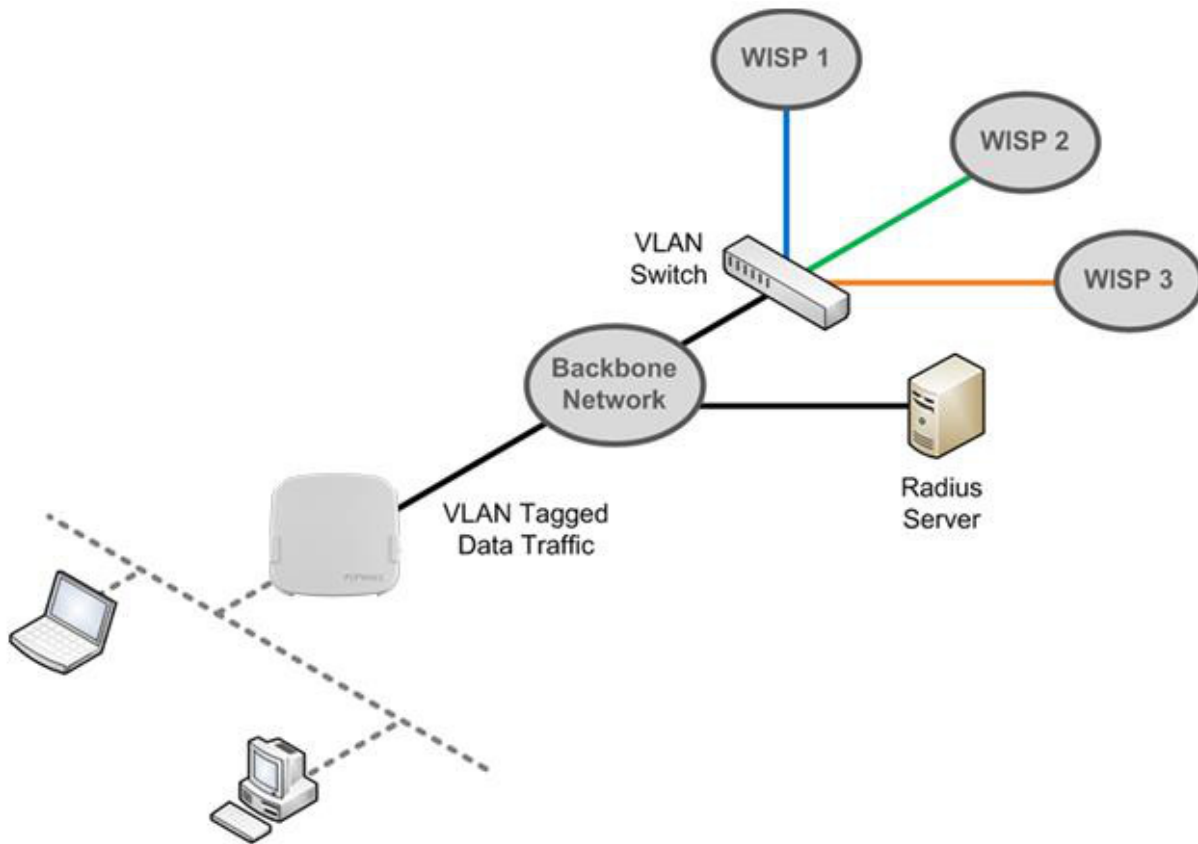


Rear Panel View



5 Installation

Your access point acts as a bridge between wireless and wired Ethernet interfaces. A typical setup follows:



5.1 Installation Procedures

1. Connect the Ethernet port on the unit to the backbone network using an Ethernet cable. The port should auto sense whether the cable is straight-through or crossover.
2. Connect the power adapter to the power connector of the unit. Plug the power adapter into a power source.
3. Wait for the status LED to turn green.
4. Connect a PC to the backbone network. Configure the IP address of the PC to be any IP address between 192.168.0.4 and 192.168.0.254, with a subnet mask of 255.255.255.0.
5. Using Microsoft Internet Explorer 6 or above, Mozilla Firefox 2.0 or above, or Google Chrome 2.0 or above, connect to <https://192.168.0.3>.
6. Enter the default admin login ID and password, **admin** and **public** respectively.

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Web Admin

Login

Username:

Password:

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7. After logging in, the Dashboard appears. Click the **System** tab to begin setting up your access point.

PEPWAVE Dashboard Network AP **System** Status Apply Changes

General

AP

WAN

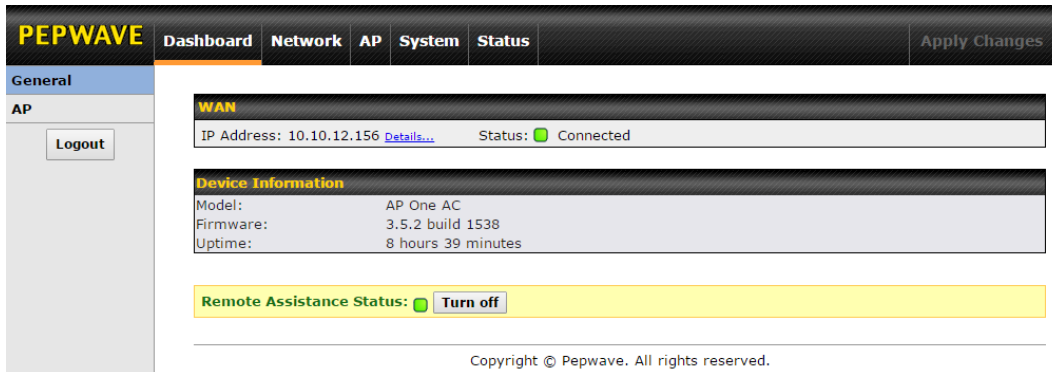
IP Address: [Details...](#) Status: ● Disconnected

Device Information

Model:	AP One
Firmware:	3.5.0 build 1449
Uptime:	1 day 12 hours 52 minutes

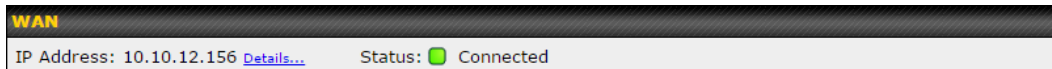
6 Using the Dashboard

The **Dashboard** section contains a number of displays to keep you up-to-date on your access point's status and operation. Remote assistance can also be enabled here.



6.1 General

This section contains WAN status and general device information.



WAN													
IP Address	When your access point is connected to a WAN, this field displays the WAN IP address. For more information, click the Details... link, which displays the following: <table border="1"><thead><tr><th colspan="2">Details of WAN Close</th></tr></thead><tbody><tr><td>Connection Type</td><td>DHCP</td></tr><tr><td>IP Address</td><td>10.10.12.156</td></tr><tr><td>Subnet Mask</td><td>255.255.0.0</td></tr><tr><td>Default Gateway</td><td>10.10.10.1</td></tr><tr><td>DNS Servers</td><td>10.10.10.1</td></tr></tbody></table>	Details of WAN Close		Connection Type	DHCP	IP Address	10.10.12.156	Subnet Mask	255.255.0.0	Default Gateway	10.10.10.1	DNS Servers	10.10.10.1
Details of WAN Close													
Connection Type	DHCP												
IP Address	10.10.12.156												
Subnet Mask	255.255.0.0												
Default Gateway	10.10.10.1												
DNS Servers	10.10.10.1												
Status	This field displays the current WAN connection status.												

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Device Information	
Model:	AP One AC
Firmware:	3.5.2 build 1538
Uptime:	8 hours 49 minutes

Device Information	
Model	This field displays your access point's model number.
Firmware	The firmware version currently running on your access point appears here.
Uptime	This field displays your access point's uptime since the last reboot or shutdown.

6.2 AP

This section displays a variety of information about your wireless network.

PEPWAVE
Dashboard **Network** AP System Status
Apply Changes

General

AP

Logout

Wireless Network SSID	Radio	Security Policy	Channel	VLAN	MAC Address (BSSID)	
Guest_1	2.4GHz	WPA and WPA2 (PSK)	11	25	00:1A:DD:EC:25:21	Info Stat
Guest_2	5GHz	WPA2 (PSK)	108	25	00:1A:DD:EC:25:31	Info Stat
Wireless_1	2.4GHz	WPA2 (PSK)	11	2	00:1A:DD:EC:25:22	Info Stat
Wireless_2	5GHz	WPA2 (PSK)	108	2	00:1A:DD:EC:25:32	Info Stat
Balance_1	2.4GHz	WPA2 (PSK)	11	5	00:1A:DD:EC:25:23	Info Stat
Balance_2	5GHz	WPA2 (PSK)	108	5	00:1A:DD:EC:25:33	Info Stat
Marketing_1	2.4GHz	WPA2 (PSK)	11	3	00:1A:DD:EC:25:24	Info Stat
Marketing_2	5GHz	WPA2 (PSK)	108	3	00:1A:DD:EC:25:34	Info Stat

Usage Data Type: Per SSID Hourly Radio: 2.4GHz 5GHz

Wireless Network Usage

Number of Wireless Clients

Wireless Network Usage

AP Status	
Wireless Network SSID	This field displays your access point's SSID.
Radio	The radio frequency currently used by your access point appears here. If you're using the AP One AC mini or the AP One In-Wall and have configured both radios, this displays both radios in use.
Security Policy	This field displays the security policy your access point is currently using. If you're using the AP One AC mini and have configured both radios, this displays channels in use for the 2.4GHz and 5GHz bands.
Channel	The channel currently used by your access point is displayed in this field.
VLAN	If your access point is using a VLAN ID for management traffic, it will appear here. A value of 0 indicates that a VLAN ID is not being used.

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MAC Address (BSSID)

Your access point's MAC address appears here. If you're using the AP One AC mini and have configured both radios, this displays a MAC address for both the 2.4GHz and 5GHz radio.

Click this link to display the following information panel:

Info

INFO		Close
Broadcast SSID	Enable	
Web Portal Login	Disable	
MAC Filter	None	
Bandwidth Control	Disable	
Layer 2 Isolation	Disable	

Click this link to display the following statistics panel:

Stat

STAT		Close
Packets Sent	0	
Bytes Sent	0	
Packets Received	0	
Bytes Received	0	

Usage Data Type

Select **Per SSID** or **AP Send / Recv** to determine the data displayed in the graphs below.

Hourly

Check this box to graph wireless network usage on an hourly basis.

Wireless Network Usage/Number of Wireless Clients

These graphs detail recent wireless network usage.

7 Configuration

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7.1 System

The options on the **System** tab control login and security settings, firmware upgrades, SNMP settings, and other settings.

PEPWAVE		Dashboard	Network	AP	System	Status	Apply Changes
System							
■ Admin Security							
■ Firmware							
■ Time							
■ Event Log							
■ SNMP							
■ Controller							
■ Configuration							
■ Reboot							
Tools							
■ Ping							
■ Traceroute							
■ Nslookup							
Logout		Save					

Admin Settings	
AP Name	AP One <small>hostname: ap-one</small>
Location	site1
Admin User Name	admin
Admin Password
Confirm Admin Password
Web Admin Interface	<input checked="" type="checkbox"/>
Security	HTTPS <input checked="" type="checkbox"/> HTTP to HTTPS Redirection
Web Admin Port	443
Allowed Source IP Subnets	<input checked="" type="radio"/> Any <input type="radio"/> Allow access from the following IP subnets only
Language	English

7.1.1 Admin Security

The **Admin Security** section allows you to set up your access point's name, password, security settings, and other options.

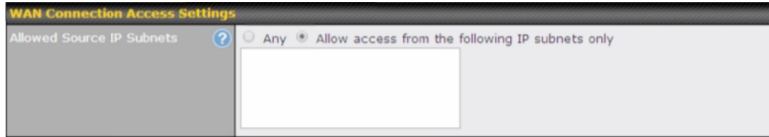
PEPWAVE		Dashboard	Network	AP	System	Status	Apply Changes
System							
■ Admin Security							
■ Firmware							
■ Time							
■ Event Log							
■ SNMP							
■ Controller							
■ Configuration							
■ Reboot							
Tools							
■ Ping							
■ Traceroute							
■ Nslookup							
Logout		Save					

Admin Settings	
AP Name	AP One <small>hostname: ap-one</small>
Location	site1
Admin User Name	admin
Admin Password
Confirm Admin Password
Web Admin Interface	<input checked="" type="checkbox"/>
Security	HTTPS <input checked="" type="checkbox"/> HTTP to HTTPS Redirection
Web Admin Port	443
Allowed Source IP Subnets	<input checked="" type="radio"/> Any <input type="radio"/> Allow access from the following IP subnets only
Language	English

Admin Security	
AP Name	Enter a name to identify your access point. This name can be retrieved via SNMP.
Location	Enter a name to identify the location of your access point. This name can be retrieved via SNMP.
Admin User Name	This field specifies the administrator username of the web admin. It is set as <i>admin</i> by default.
Admin Password	This field allows you to specify a new administrator password. The default password is <i>public</i> .

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PEPWAVE AP Series

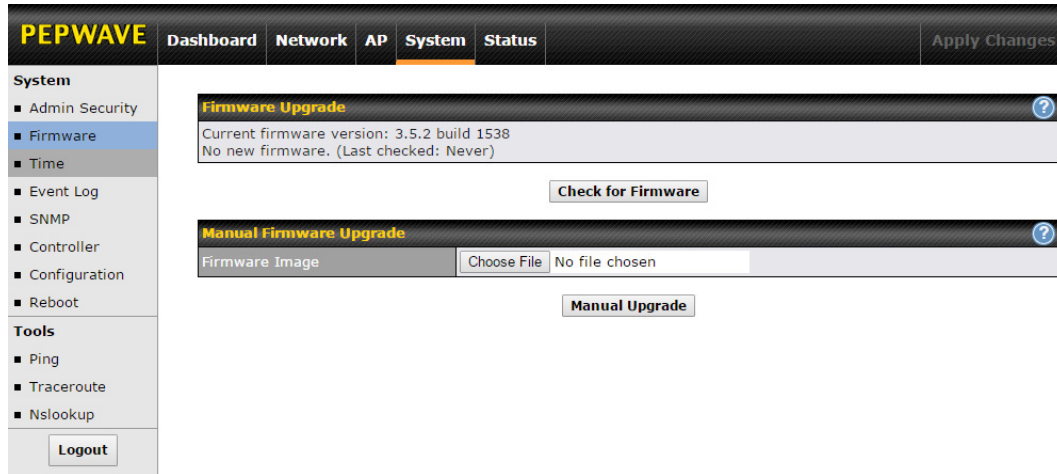
Confirm Admin Password	Re-enter the admin password.
Web Admin Interface	Check this box to turn on the web administration interface, which allows remote AP management.
Security	Choose HTTP or HTTPS as the protocol to use when accessing the web admin interface. To automatically redirect HTTP access to HTTPS, check HTTP to HTTPS Redirection .
Web Admin Port	Specify the port number on which the web admin interface can be accessed.
Allowed Source IP Subnets	<p>This field allows you to restrict access to the web admin to only defined IP subnets.</p> <ul style="list-style-type: none">• Any - Allow web admin accesses from anywhere, without IP address restrictions.• Allow access from the following IP subnets only – Restricts the ability to access web admin to only defined IP subnets. When this option is chosen, a text input area will appear:  <p>Enter your allowed IP subnet addresses into this text area. Each IP subnet must be in the form of <i>w.x.y.z/m</i>. <i>w.x.y.z</i> represents an IP address (e.g., <i>192.168.0.0</i>), and <i>m</i> represents the subnet mask in CIDR format, which is between 0 and 32 inclusively. For example: <i>192.168.0.0/24</i>. To define multiple subnets, separate each IP subnet, one per line. For example:</p> <pre>192.168.0.0/24 10.8.0.0/16</pre>
Language	Choose a language for the administration interface.

7.1.2 Firmware

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The **Firmware** section lets you check the firmware version currently used by your access point, as well as check for and install new firmware via online download. You can also upgrade your firmware using a firmware file stored locally.



To check for new firmware, click the **Check for Firmware** button. If new firmware is available, your access point will automatically download and install it.

To upgrade your access point using a firmware file on your network, click **Choose File** to select the firmware file. Then click **Manual Upgrade** to initiate the firmware upgrade process using the selected file.

Note that your access point can store two different firmware versions in two different partitions. A firmware upgrade will always replace the inactive partition. If you want to keep the inactive firmware, simply reboot your device with the inactive firmware and then perform the firmware upgrade.

7.1.3 Time

The settings in this section govern the access point's system time zone and allow you to specify a custom timeserver.

Time	
Time Zone	Time region used by the system. All choices are based on UTC.
Time Server	To choose a time server other than the default, enter the URL here. To restore the default time server, click the Default button.

7.1.4 Event Log

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The section allows you to turn on event logging at a specified remote syslog server.

The screenshot shows the PEPWAVE web interface. The top navigation bar includes 'PEPWAVE', 'Dashboard', 'Network', 'AP', 'System', and 'Status'. The 'System' menu is expanded, showing options like 'Admin Security', 'Firmware', 'Time', 'Event Log', 'SNMP', 'Controller', 'Configuration', and 'Reboot'. The 'Event Log' option is selected. The main content area is titled 'Send Events to Remote Syslog Server' and contains a form with the following fields:

Remote Syslog	<input type="checkbox"/>
Remote Syslog Host	<input type="text"/>
Port:	<input type="text" value="514"/>

A 'Save' button is located below the form. A 'Logout' button is located in the bottom left corner of the interface.

Event Log	
Remote Syslog	Check this box to turn on remote system logging.
Remote Syslog Host	Enter the IP address or hostname of the remote syslog server, as well as the port number.

7.1.5 SNMP

SNMP, or simple network management protocol, is an open standard that can be used

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to collect information about your access point. The **SNMP** section offers a range of settings to control simple network management protocol access.

PEPWAVE Dashboard Network AP System Status Apply Changes

System

- Admin Security
- Firmware
- Time
- Event Log
- SNMP**
- Controller
- Configuration
- Reboot

Tools

- Ping
- Traceroute
- Nslookup

Logout

SNMP Settings

SNMP Device Name	AP One		
SNMP Port	161	Default	
SNMPv1	<input checked="" type="checkbox"/>		
SNMPv2c	<input checked="" type="checkbox"/>		
SNMPv3	<input type="checkbox"/>		

Save

Community Name Allowed Source Network Access Mode

public	0.0.0.0	Read Only	<input checked="" type="checkbox"/>
--------	---------	-----------	-------------------------------------

Add SNMP Community

SNMPv3 User Name Authentication / Privacy Access Mode

No SNMPv3 Users Defined

Add SNMP User

SNMP Settings	
SNMP Device Name	This field shows the AP name defined at System>Admin Security .
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.
SNMPv2c	This option allows you to enable SNMP version 2c.
SNMPv3	This option allows you to enable SNMP version 3.

To add a community for either SNMPv1 or SNMPv2c, click the **Add SNMP Community**

Settings

Community Name	<input type="text"/>
IP Address	0.0.0.0
IP Mask	0.0.0.0 (/0)
Access Mode	Read Only
Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

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button in the **Community Name** table, which displays the following screen:

SNMP Community Settings	
Community Name	Enter a name for the SNMP community.
IP Address/IP Mask	These settings specify a subnet from which access to the SNMP server is allowed. Enter the subnet address here (e.g., <i>192.168.1.0</i>) and select the appropriate subnet mask.
Access Mode	Select Read Only or Read and Write as the SNMP community access mode.
Status	Use these controls to enable or disable SNMP community access.

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

Settings	
SNMPv3 User Name	<input type="text"/>
Authentication Protocol	HMAC-MD5 ▾
Authentication Password	<input type="text"/>
Confirm Authentication Password	<input type="text"/>
Privacy Protocol	None ▾
Access Mode	Read Only ▾
Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

SNMPv3 User Settings	
SNMPv3 User Name	Enter a user name to be used in SNMPv3.
Authentication Protocol	Select one of the following valid authentication protocols: <ul style="list-style-type: none">• NONE• HMAC-MD5• HMAC-SHA When HMAC-MD5 or HMAC-SHA is selected, an entry field will appear for the password.
Authentication Password	Enter a password to use with the selected authentication protocol.
Confirm Authentication Password	Re-enter the authentication password.
Privacy Protocol	Select None or CBC-DES as the SNMPv3 privacy protocol. When CBC-DES is selected, an entry field will appear for the password.
Access Mode	Select Read Only or Read and Write as the SNMPv3 access mode.

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Status Use these controls to enable or disable SNMPv3 access.

7.1.6 Controller

In the **Controller** section, you can set up Peplink InControl or AP Controller remote management.

The screenshot shows the PEPWAVE web interface. The top navigation bar includes 'Dashboard', 'Network', 'AP', 'System', and 'Status'. The 'System' menu is expanded, showing options like 'Admin Security', 'Firmware', 'Time', 'Event Log', 'SNMP', 'Controller', 'Configuration', and 'Reboot'. The 'Controller' option is selected. The main content area is titled 'Controller Management Settings' and contains two rows: 'Controller Management' with a checked checkbox, and 'Controller Type' with a dropdown menu set to 'Auto'. A 'Save' button is located below the settings.

Controller Management Settings

Controller Management

Check this box to enable remote management.

Controller Type

Select **Auto**, **InControl**, or **AP Controller** as your remote AP management method. When **Auto** is selected, your access point will automatically choose the appropriate mode.

7.1.7 Configuration

In section, you can manage and backup access point configurations, as well as reset your access point to its factory configuration. Backing up your access point's settings immediately after successful initial setup is strongly recommended.

The screenshot shows the PEPWAVE web interface. The top navigation bar includes 'Dashboard', 'Network', 'AP', 'System', and 'Status'. The 'System' menu is expanded, showing options like 'Admin Security', 'Firmware', 'Time', 'Event Log', 'SNMP', 'Controller', 'Configuration', and 'Reboot'. The 'Configuration' option is selected. The main content area is titled 'Restore Configuration to Factory Settings' and contains a checkbox for 'Preserve Settings' (unchecked) and a 'Restore Factory Settings' button. Below this is another section titled 'Download Active Configurations' with a 'Download' button.

Configuration	
Restore Configuration to Factory Settings	The Restore Factory Settings button resets the configuration to factory default settings. After clicking the button, click the Apply Changes button on the top right corner to make the settings effective. To save existing network settings when restoring factory settings, check the Network Settings box before clicking Restore Factory Settings .
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.

7.1.8 Reboot

This section provides a reboot button for restarting the system. For maximum reliability, your access point can equip with two copies of firmware, and 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.

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The screenshot shows the PEPWAVE web interface with the 'System' tab selected. The left sidebar contains a menu with 'System' (Admin Security, Firmware, Time, Event Log, SNMP, Controller, Configuration, Reboot) and 'Tools' (Ping, Traceroute, Nslookup). The main content area is titled 'Reboot System' and contains the text 'Select the firmware you want to use to start up this device:'. There are two radio button options: 'Firmware 1: 3.5.2-1527' and 'Firmware 2: 3.5.2-1538 (Running)'. A 'Reboot' button is located below the options.

7.2 AP

Use the controls on the **AP** tab to set the wireless SSID and AP settings, as well as wireless distribution system (WDS) settings.

7.2.1 Wireless SSID

Wireless network settings, including the name of the network (SSID) and security policy, can be defined and managed in this section.

The screenshot shows the PEPWAVE web interface with the 'AP' tab selected. The left sidebar contains a menu with 'AP' (Wireless SSID, Settings, WDS) and a 'Logout' button. The main content area is titled 'Wireless Network SSID' and contains a table with the following data:

Wireless Network SSID	Security Policy	MAC Address (BSSID)	
PEPWAVE_BCC0	Open	00:1A:DD:B9:BC:C1	✘

Below the table is a 'New SSID' button.

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Click **New SSID** to create a new network profile, or click the existing network profile to modify its settings.

SSID Settings	
Enable	<input checked="" type="checkbox"/>
SSID	PEPWAVE_BCC0
Broadcast SSID	<input checked="" type="checkbox"/>
Data Rate	<input checked="" type="radio"/> Auto <input type="radio"/> Fixed MCS0/6M MCS Index
Multicast Filter	<input type="checkbox"/>
Multicast Rate	MCS0/6M MCS Index
IGMP Snooping (Multicast Enhancement)	<input type="checkbox"/>
DHCP Setting	None
DHCP Option 82	<input type="checkbox"/>
Default VLAN ID	0
VLAN Pooling	<input type="checkbox"/>
VLAN Pool	(CSV: e.g. 1,3,9-11,15)
Network Priority (QoS)	Gold
Layer 2 Isolation	<input type="checkbox"/>
Maximum Number of Clients	0 (0: Unlimited)

SSID Settings			
Enable	Check this box to enable wireless SSID.		
Radio Selection	Available only on the AP One AC mini, this setting, shown below, allows you to enable or disable either of the two on-board radios. <table border="1"><tr><td>Radio Selection</td><td><input checked="" type="checkbox"/> 2.4GHz <input checked="" type="checkbox"/> 5GHz</td></tr></table>	Radio Selection	<input checked="" type="checkbox"/> 2.4GHz <input checked="" type="checkbox"/> 5GHz
Radio Selection	<input checked="" type="checkbox"/> 2.4GHz <input checked="" type="checkbox"/> 5GHz		
SSID	This setting specifies the AP SSID that Wi-Fi clients will see when scanning.		
Broadcast SSID	This setting specifies whether or not Wi-Fi clients can scan the SSID of this wireless network. Broadcast SSID is enabled by default.		
Data Rate	Select Auto to allow your access point to set the data rate automatically, or select Fixed and choose a rate from the drop-down menu. Click the MCS Index link to display a reference table containing MCS and matching HT20 and HT40 values.		
Multicast Filter	This setting enables the filtering of multicast network traffic to the wireless SSID.		
Multicast Rate	This setting specifies the transmit rate to be used for sending multicast network traffic.		
IGMP Snooping	To allow your access point to convert multicast traffic to unicast traffic for associated clients, select this option.		
DHCP Setting	To set your access point as a DHCP server or relay, select Server or Relay . Otherwise, select None .		
DHCP Option 82	If you use a distributed DHCP server/relay environment, you can enable this option to provide additional information on the manner in which clients are physically connected to the network.		

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Default VLAN ID	This setting specifies the VLAN ID to be tagged on all outgoing packets generated from this wireless network (i.e., packets that travel from the Wi-Fi segment through your access point to the Ethernet segment via the LAN port). If 802.1x is enabled and a per-user VLAN ID is specified in authentication reply from the RADIUS server , then the value specified by Default VLAN ID will be overridden. The default value of this setting is 0 , which means VLAN tagging is disabled (instead of tagged with zero).
VLAN Pooling	Check this box to enable VLAN pooling using the values specified in VLAN Pool .
VLAN Pool	If VLAN pooling is enabled, enter VLAN pool values separated by commas.
Network Priority (QoS)	Select from Gold , Silver , and Bronze to control the QoS priority of this wireless network's traffic.
Layer 2 Isolation	Layer 2 refers to the second layer in the ISO Open System Interconnect model. When this option is enabled, clients on the same VLAN, SSID, or subnet are isolated to that VLAN, SSID, or subnet, which can enhance security. Traffic is passed to upper communication layer(s). By default, the setting is disabled.
Maximum Number of Clients	Enter the maximum number of clients that can simultaneously connect to your access point, or enter 0 to allow unlimited Wi-Fi clients.

Security Settings	
Security Policy	WPA/WPA2 - Personal ▾
Passphrase	<input type="text"/> Hide / Show Passphrase

Security Settings

Security Policy	This setting configures the wireless authentication and encryption methods. Available options are Open (No Encryption) , WEP , 802.1X , WPA2 - Personal , WPA2 - Enterprise , WPA/WPA2 - Personal , and WPA/WPA2 - Enterprise . To allow any Wi-Fi client to access your AP without authentication, select Open (No Encryption) . Details on each of the available authentication methods follow.
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Security Settings	
Security Policy	WEP
Key Size	40 bits (64-bit WEP)
Key Format	ASCII
Passphrase	<input type="text"/> <input type="button" value="Generate Key"/>
Encryption Key	<input type="text"/> Hide / Show Passphrase
Shared Key Authentication	<input type="checkbox"/>

WEP	
Key Size	Select 40 bits (64-bit WEP) or 104 bits (128-bit WEP) .
Key Format	Choose ASCII or Hex format for the WEP key. ASCII can be applied only to encryption keys that are manually entered. Hex can be applied to encryption keys that are manually entered or automatically generated.
Passphrase	Enter a series of alphanumeric characters, and then click Generate Key to create a WEP key using the passphrase.
Encryption Key	The generated WEP key appears here. Click Hide / Show Passphrase to toggle visibility.
Shared Key Authentication	Check to enable shared key authentication. The default is disabled, meaning open authentication is used.

Security Settings	
Security Policy	802.1X
802.1X Version	<input type="radio"/> V1 <input checked="" type="radio"/> V2
WEP Key Size	40 bits (64-bit WEP)
Re-keying Period	14400 seconds (0: Disable)

802.1X	
802.1X Version	Choose v1 or v2 of the 802.1x EAPOL. When v1 is selected, both v1 and v2 clients can associate with the access point. When v2 is selected, only v2 clients can associate with the access point. Most modern wireless clients support v2. For stations that do not support v2, select v1 . The default is v2 .
WEP Key Size	Select 40 bits (64-bit WEP) or 104 bits (128-bit WEP) .
Re-keying Period	This option specifies the length of time throughout which the broadcast key remains valid. When the re-keying period expires, the broadcast key is no longer valid and broadcast key renewal is required. The default is 14400 seconds (four hours). 0 disables re-keying.

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Security Settings	
Security Policy	WPA/WPA2 – Personal ▾
Passphrase	<input type="text"/> Hide / Show Passphrase

WPA/WPA2 – Personal

Passphrase

Enter a passphrase of between 8 and 63 alphanumeric characters to create a passphrase used for data encryption and authentication. Click **Hide / Show Passphrase** to toggle visibility.

Security Settings	
Security Policy	WPA/WPA2 – Enterprise ▾
802.1X Version	<input type="radio"/> V1 <input checked="" type="radio"/> V2

WPA/WPA2 – Enterprise

802.1X Version

Choose **v1** or **v2** of the 802.1x EAPOL. When **v1** is selected, both v1 and v2 clients can associate with the access point. When **v2** is selected, only v2 clients can associate with the access point. Most modern wireless clients support v2. For stations that do not support v2, select **v1**. The default is **v2**.

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Web Portal Login	
Web Portal	Enable ▾
Authentication Method	RADIUS ▾
RADIUS Security	PAP ▾
Splash Page	http:// ▾
Landing Page	<input type="checkbox"/>
Landing Page URL	
Concurrent Login	<input checked="" type="checkbox"/>
Access Quota	0 minutes (0: Unlimited) 0 MB (0: Unlimited)
Inactive Timeout	0 minutes
Quota Reset Time	<input checked="" type="radio"/> Disable <input type="radio"/> Daily at: 00 ▾ : 00 ▾ <input type="radio"/> 0 minutes after quota reached
Allowed Domains / IPs	Domains / IPs <input type="text"/> <input type="button" value="+"/>
Allowed Client IPs	Client IPs <input type="text"/> <input type="button" value="+"/>

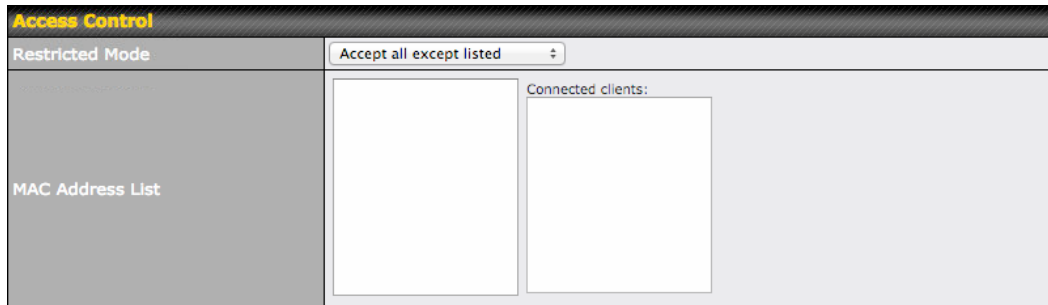
Web Portal Login	
Web Portal	Select Enable to turn on your access point's built-in web portal functionality.
Authentication Method	Choose Open Access to allow users to connect without authentication or RADIUS to require authentication. If RADIUS is selected, you'll be given the opportunity to select a RADIUS security method in the next field.
RADIUS Security	Select PAP , EAP-TTLS PAP , EAP-TTLS MSCHAPv2 , or PEAPv0 EAP-MSCHAPv2 .
Splash Page	If your web portal will use a splash page, choose HTTP or HTTPS and enter the splash page's URL.
Landing Page	If your web portal will use a landing page, check this box.
Landing Page URL	If you have checked Landing Page , enter your landing page's URL here.
Concurrent Login	Check this box to allow users to have more than one logged in session active at a time.
Access Quota	Enter a value in minutes to limit access time on a given login or enter 0 to allow unlimited use time on a single login. Likewise, enter a value in MB for the total bandwidth allowed or enter 0 to allow unlimited bandwidth on a single login.
Inactive Timeout	Enter a value in minutes to logout following the specified period of inactivity or enter 0 to disable inactivity logouts.
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 establishes a timer for each user that begins after the quota has been reached.

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Allowed Domains / IPs To whitelist a domain or IP address, enter the domain name / IP address here and click . To delete an existing entry, click the  button next to it.

Allowed Client IPs To whitelist a client IP address, enter the IP address here and click . To delete an existing entry, click the  button next to it.



The screenshot shows the 'Access Control' configuration interface. At the top, there is a title bar 'Access Control'. Below it, a 'Restricted Mode' dropdown menu is set to 'Accept all except listed'. The main area contains two empty list boxes: 'MAC Address List' on the left and 'Connected clients:' on the right.

Access Control

Restricted Mode

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

MAC Address List

Connections coming from the MAC addresses in this list will be either denied or accepted based on the option selected in the previous field.

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RADIUS Server Settings	Primary Server	Secondary Server
Host	<input type="text"/>	<input type="text"/>
Secret	<input type="text"/>	<input type="text"/>
Authentication Port	<input type="text"/> <input type="button" value="Default"/>	<input type="text"/> <input type="button" value="Default"/>
Accounting Port	<input type="text"/> <input type="button" value="Default"/>	<input type="text"/> <input type="button" value="Default"/>
Maximum Retransmission	<input type="text" value="3"/>	
Radius Request Interval	<input type="text" value="3"/> s (initial value, double upon every retransmission)	

RADIUS Server Settings	
Host	Enter the IP address of the primary RADIUS server and, if applicable, the secondary RADIUS server.
Secret	Enter the RADIUS shared secret for the primary server and, if applicable, the secondary RADIUS server.
Authentication Port	Enter the UDP authentication port(s) used by your RADIUS server(s) or click the Default button to enter 1812 .
Accounting Port	Enter the UDP accounting port(s) used by your RADIUS server(s) or click the Default button to enter 1813 .
Maximum Retransmission	Enter the maximum number of allowed retransmissions.
RADIUS Request Interval	Enter a value in seconds to limit RADIUS request frequency. Note the initial value will double on each retransmission.

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Guest Protect			
Block LAN Access	<input type="checkbox"/>		
Custom Subnet	<input type="checkbox"/>		
	Network	Subnet Mask	
	<input type="text"/>	255.255.255.0 (/24) ▾	<input type="button" value="+"/>
Block Exception	<input type="checkbox"/>		
	Network	Subnet Mask	
	<input type="text"/>	255.255.255.0 (/24) ▾	<input type="button" value="+"/>
Block PepVPN	<input type="checkbox"/>		

Guest Protect	
Block LAN Access	Check this box to block access from the LAN.
Custom Subnet	To specify a subnet to block, enter the IP address and choose a subnet mask from the drop-down menu. To add the blocked subnet, click <input type="button" value="+"/> . To delete a blocked subnet, click <input type="button" value="x"/> .
Block Exception	To create an exception to a blocked subnet (above), enter the IP address and choose a subnet mask from the drop-down menu. To add the exception, click <input type="button" value="+"/> . To delete an exception, click <input type="button" value="x"/> .
Block PepVPN	To block PepVPN access, check this box.

Bandwidth Management	
Bandwidth Management	<input checked="" type="checkbox"/>
Upstream Limit	<input type="text" value="0"/> kbps (0: Unlimited)
Downstream Limit	<input type="text" value="0"/> kbps (0: Unlimited)
Client Upstream Limit	<input type="text" value="0"/> kbps (0: Unlimited)
Client Downstream Limit	<input type="text" value="0"/> kbps (0: Unlimited)

Bandwidth Management	
Bandwidth Management	Check this box to enable bandwidth management.
Upstream Limit	Enter a value in kbps to limit the wireless network's upstream bandwidth. Enter 0 to allow unlimited upstream bandwidth.
Downstream Limit	Enter a value in kbps to limit the wireless network's downstream bandwidth. Enter 0 to allow unlimited downstream bandwidth.
Client Upstream Limit	Enter a value in kbps to limit connected clients' upstream bandwidth. Enter 0 to allow unlimited upstream bandwidth.
Client	Enter a value in kbps to limit connected clients' downstream bandwidth. Enter 0 to allow