PEPWAVE Broadband Possibilities

User Manual

AP One Enterprise AX / AP One ENT AX / APO-ENT-AX / PRB-11AX

Pepwave AP One Enterprise AX / Peplink AP One Enterprise AX AP One AX / APO-AX / Pepwave AP One AX / Peplink AP One AX

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1 Introduction and Scope

Our AP Series of enterprise-grade 802.11ax/ac/a/b/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 Pro Duo 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.

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3 Package Contents

AP One Enterprise AX

1x AP One Enterprise 1 x Mounting Bracket

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4 **Hardware Overview**

4.1 **AP One Enterprise AX**



8.1 inches / 205 mm



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	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

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5 Installation

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



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.

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- 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 your favourite browser, connect to https://192.168.0.3.
- 6. Enter the default admin login ID and password, **admin** and **public** respectively.
- 7. After logging in, the Dashboard appears. Click the **System** tab to begin setting up your access point.

PEPWAVE	Dashboard Netwo	ork AP System	Status	Apply Changes
General				
АР	WAN			
Logout	IP Address: 10.2	2.1.179 <u>Details</u>	Status: 📒 Connected	
	Device Informat	ion		
	Model:	AP One Ent	terprise	
	Firmware:	3.6.0 build	1805	
	Uptime:	0 day 2 ho	urs 51 minutes	
			Convright © Penwave. All rights reser	ved.

6 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 turned off here, if it has been enabled.

PEPWAVE	Dashboard Netwo	rk AP System	n Status	Apply Changes	
General					
AP Logout	WAN IP Address: 10.22	1.179 <u>Details</u>	Status: Connected		
	Model: Firmware: Uptime:	AP One En 3.6.0 build 0 day 2 ho	nterprise d 1805 ours 54 minutes		
Remote Assistance Status: E Turn off					
			Copyright © Pepwave. All rights reserve	ed.	



6.1 General

	WAN	I
	IP Address: 10.22.1.179 Details Status: Connected	l
Tł	nis section contains WAN status and general device information.	1

	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 shows connection type details
Status	This field displays the current WAN connection status.

Device Informati	on	
Model:	AP One Enterprise	
Firmware:	3.6.0 build 1805	
Uptime:	0 day 2 hours 58 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.

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6.2 AP

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



	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.

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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.			
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 in	formation panel:		
	INFO	Close		
	Broadcast SSID	Enable		
lafe	Web Portal Login	Disable		
Info	MAC Filter	None		
	Bandwidth Control	Disable		
	Layer 2 Isolation	Disable		
	Click this link to display the following sta	atistics panel:		
	STAT	Close		
	Packets Sent	0		
Stat	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 Network

The settings on the **Network** tab control WAN and LAN settings, as well as allow you to set up PepVPN profiles.

7.1 WAN

PEPWAVE	Dashboard	Network	АР	System	Status Apply Cha	inges
Network Settings						
WAN	Basic					
LAN	Keep Def	ault IP				
Interfaces	IP Address Mode			١	anual 🔻	
Ethernet Port	Static IP Address					
PepVPN	Subnet Mask				T	
Lagaut	Default G	Gateway				
Logout	DNS Serv	ver 1				
	DNS Ser	ver 2				

This section provides basic and advanced WAN settings.

	Basic
Keep Default IP	When enabled, this option maintains 192.168.0.3 as your access point's IP address.
IP Address Mode	IP Address Mode options are Automatic and Manual . In Automatic mode, the IP address of your access point is acquired from a DHCP server on the Ethernet segment. In Manual mode, a user-specified IP address is used for your access point, as described below.
Static IP Address / Subnet Mask	You can use these fields to specify a unique IP address that your access point will use to communicate on the Ethernet segment. This IP address is distinct from the admin IP address (192.168.0.3) on the Ethernet segment.
Default Gateway	Enter the IP address of the default gateway to the internet.
DNS Server	Enter the DNS server address that your access point will use to resolve host names.

7.2 LAN

This section offers a variety of settings that affect your access point's operation on the LAN, such as settings for DHCP, DMZ, and port forwarding. Note that the following settings will be available only when your access point is operating in router mode.

PEPWAVE	Dashboard Network AP Syst	em Status Apply Changes
Network Settings		
WAN	IP Settings	
LAN	IP Address	192.168.1.1 🗄 255.255.0 (/24) 🔻
Interfaces		
Ethernet Port	DHCP Server Settings	
PepVPN	DHCP Server	
Logout	IP Range	192.168.1.100 - 192.168.1.200 Z55.255.0 (/24)
	Broadcast Address	192.168.1.255
	Gateway	192.168.1.1
	DNS 1	192.168.1.1
	DNS 2	(optional)
	DNS 3	(optional)
	Lease Time	1 Days 0 Hours 0 Mins
	DHCP Reservation	MAC Address Static IP +
	DMZ	
	DMZ	
	DMZ IP	
	Port Forwarding Se	rver Protocol
		No Services Defined
		Add Service
		Save

IP Settings						
IP Address	Enter the LAN IP address and subnet mask to assign to your access point on the LAN.					
	DHCP Server Settings					
DHCP Server	Check to enable the DHCP server feature of your access point. Enabling DHCP is the best option for most users. The following options will be enabled once you have checked and enabled the DHCP server.					
IP Range	Enter the first and last IP addresses of the range of addresses that your access point will make available to DHCP clients. The default range is from 192.168.1.100 to 192.168.1.200 , with 24-bit subnet mask.					

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×.

Broadcast Address	Enter the broadcast address that DHCP clients will use when communicating with the entire LAN segment. The default value is 192.168.1.255 .
Gateway	Enter the default gateway address that DHCP clients will use to access the internet. By default, this address will be the same as your access point's IP address on the LAN.
DNS 1/2/3	In DNS 1 , enter the IP address of the primary DNS server offered to DNS clients or accept the default of 192.168.1.1 , which is your access point's address on the LAN. You can also specify up to two additional DNS servers to use when the primary server is busy or down.
Lease Time	Specify the length of time that an IP address of a DHCP client remains valid. When an address lease time has expired, the assigned IP address is no longer valid, and renewal of the IP address assignment is required. By default, this value is set to one day.
DHCP Reservation	To reserve certain addresses for specific clients, such as network printers, enter the device's MAC Address and a static IP to be assigned to the device. Click to add the DHCP reservation. To delete a DHCP reservation, click .

DMZ					
DMZ					
DMZ IP					

	DMZ
DMZ	Check this box to forward traffic sent to the WAN IP address to the DMZ IP address.
DMZ IP	Enter an IP address clients will use to connect to the DMZ.

Port Forwarding	Server	Protocol	
		No Services Defined	
		Add Service	

To create a port forwarding rule, first click the **Add Service** button, located in the **Port Forwarding** section.

Port Forwarding						
Service Name	Enter a name for the new port forwarding rule. Valid values for this setting consist of alphanumeric and underscore "_" characters only.					
IP Protocol	The IP Protocol setting, along with the Port setting, specifies the protocol of the service					

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	as TCP, UDP, ICMP, or I protocol at the specified p setting. Please see below	P. Traffic that is rece port(s) is forwarded to r for details on the Po	ived by your access poin o the LAN hosts specified ort and Servers settings	t via the specified d by the Servers
	Alternatively, the Protoco automatically fill in the pro (e.g., HTTP, HTTPS, etc. drop-down menu, the pro	DI Selection Tool dro ptocol and a single po). After selecting an i tocol and port number	op-down menu can be us ort number of common Ir item from the Protocol S er remain manually modi	sed to aternet services selection Tool fiable.
	The Port setting specifies configured to behave in o	s the port(s) that corr ne of the following m	espond to the service, an nanners:	nd can be
	Single Port, Port Range	, Port Mapping		
	Port 🕐	Single Port 🔹	Service Port: 80	
	Single Port: Traffic that i specified port is forwarde Address setting. For exa and Service Port 80, TC servers via port 80.	s received by your ac d via the same port t mple, with IP Protoc P traffic received on	ccess point via the specif o the servers specified b col set to TCP, and Port port 80 is forwarded to th	fied protocol at the y the Server IP set to Single Port ne configured
	Port 🕐	Port Range	Service Ports: 80 - 88	
Port	Port Range : Traffic that i specified port range is for specified by the Server II and Port set to Port Ran through 88 is forwarded to	s received by your ac warded via the same P Address setting. F ge and Service Port o the configured serv	ccess point via the speci e respective ports to the l or example, with IP Prot ts 80-88, TCP traffic rece vers via the respective po	fied protocol at the _AN hosts ocol set to TCP, eived on ports 80 orts.
	Port 🕐	Port Mapping	Service Port: 80 Map to Port: 88	
	Port Mapping : Traffic that the specified port is forware IP Address setting.	at is received by your arded via a different p	access point via the spe port to the servers specifi	ecified protocol at ed by the Server
	For example, with IP Pro 80, and Map to Port 88, Port 88.	tocol set to TCP, and TCP traffic on Port 8	d Port set to Port Mappi 0 is forwarded to the con	ng, Service Port figured server via
Server IP Address	Enter the LAN IP address	s of the server that ha	andles requests for the fo	prwarded service.

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7.3 Interfaces > Ethernet Port

$\leftarrow \ \rightarrow \ C \ \ C$	https://mars.ic.peplink.com/ra/remote/2934-E60D-1335/cgi-bin/setup.cgi?option=config_system_port&mode=config						
PEPWAVE	Dashboard Netv	work AP S	ystem	Status			Apply Changes
Network Settings							
WAN		Link Status	Enable	Port Type	VLAN ID	Speed/Duplex	
LAN	LAN1 (802.3af PoE)	100FD		Trunk 🔻	(AII)	Auto	•
Interfaces	LAN2	Down		Trunk •	(All)	Auto	•
 Ethernet Port 							
PepVPN					Save		
Logout							

Assign one (or more) specific VLAN(s) to one of the LAN ports. Configure the port as Access- or Trunk-port .

For Trunk port, enter multiple VLAN IDs for VLAN filtering (e.g. 1,5-8,10) or keep the field empty for accepting all VLANs.

For Access port, only a single VLAN ID is supported.

7.4 PepVPN

PepVPN securely connects one or more remote sites to the site running your access point.



To set up PepVPN, first give your site a local PepVPN ID. To modify an existing local ID, click

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PEPWAVE	Dashboard	Network	АР	System	Status					Apply Changes
Network Settings										
WAN										
LAN	Pep	VPN								25551
Interfaces										AES
Ethernet Port	DopVDN									
PepVPN	TEPUTIT						20110			
Logout	Local ID			Ple	ease define this "Loca	a local ID bef I ID", in additio	fore using t on to the s	he PepVPN erial numb	l . Remote uni er.	ts can identify this unit

Once you've specified a local ID, click the **New Profile** button to configure PepVPN.

Settings	
Enable	● Yes ○ No
Name	±
Encryption	● 256-bit AES ○ Off
Remote ID	
Authentication	● By Remote ID only ○ Preshared Key
Pre-shared Key	(optional) Hide / Show Passphrase
Remote IP Addresses / Host Names	(optional)
Layer 2 Bridging	○ Yes ● No
Management VLAN ID	0
IP Address Mode	None 🔻
IP Address	
Subnet Mask	255.255.255.0 (/24)
Data Port	Default Custom

PepVPN Profile Settings	
Enable	Check this box to enable PepVPN.
Name	Enter a name to represent this profile. The name can be any combination of alphanumeric characters (0-9, A-Z, a-z), underscores (_), dashes (-), and/or non-leading/trailing spaces ().
Encryption	By default, VPN traffic is encrypted with 256-bit AES . If Off is selected on both sides of a VPN connection, no encryption will be applied.
Remote ID	To allow your access point to establish a VPN connection with a specific remote peer using a unique identifying number, enter the peer's ID or serial number here.
Authentication	Select By Remote ID Only or Preshared Key to specify the method your access point will use to authenticate peers. When selecting By Remote ID Only , be sure to enter a

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	unique peer ID number in the Remote ID field.
Pre-shared Key	This optional field becomes available when Pre-shared Key is selected as the VPN Authentication method, as explained above. Pre-shared Key defines the pre-shared key used for this particular VPN connection. The VPN connection's session key will be further protected by the pre-shared key. The connection will be up only if the pre-shared keys on each side match. Click Hide / Show Passphrase to toggle passphrase visibility.
Remote IP Address / Host Names (Optional)	Optionally, you can enter a remote peer's WAN IP address or hostname(s) here. If the remote client uses more than one address, enter only one of them here. Multiple hostnames are allowed and can be separated by a space character or carriage return. Dynamic-DNS host names are also accepted.
	With this field filled, your access point will initiate connection to each of the remote IP addresses until it succeeds in making a connection. If the field is empty, your access point will wait for connection from the remote peer. Therefore, at least one of the two VPN peers must specify this value. Otherwise, VPN connections cannot be established.
Layer 2 Bridging	When this check box is unchecked, traffic between local and remote networks will be IP forwarded. To bridge the Ethernet network of an Ethernet port on a local and remote network, select Layer 2 Bridging . When this check box is selected, the two networks will become a single LAN, and any broadcast (e.g., ARP requests) or multicast traffic (e.g., Bonjour) will be sent over the VPN.
Management VLAN ID	This field specifies the VLAN ID that will be tagged to management traffic, such as AP- to-AP controller communication traffic. A value of 0 indicates that no VLAN tagging will be applied.
IP Address Mode	Choose Automatic or Manual . In automatic mode, your access point acquires an IP from a DHCP server on the Ethernet segment. In manual mode, your access point uses a user-specified IP address.
IP Address/Subnet Mask	When using manual IP addressing (above), enter an IP address and subnet mask in these fields.
Data Port	This field specifies the outgoing UDP port number for transporting VPN data. If Default is selected, port 4500 will be used by default. Port 32015 will be used if port 4500 is unavailable. If Custom is selected, you can input a custom outgoing port number between 1 and 65535.

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