



WAB-3003
108M 11g Outdoor PoE
CPE/AP/Bridge

User's Manual v1.3



Regulatory Information

Safety Information

WAB-3003 has been evaluated to, and conforms to the product safety specifications.

Caution:

- This product was qualified under test conditions that included the use of the power supplying equipment. To ensure regulatory and safety compliance, use only the provided power supplying equipment and install them properly.
- To prevent electrical shock, this device may require a grounding conductor in the line cord. Connect the unit to a grounding type ac wall outlet using the power supplying equipment supplied with the unit.
- To avoid the risk of electric shock and for a safety outdoor installation, you may need other items, such as surge arrestors.
- To avoid the risk of electric shock from lightening, do not install or use this product during an electrical storm.
- Operate and install this product as described in this manual. This device must be installed and used in strict accordance with the manufacturer's instructions.
- Do not open the device casing. Do not perform any servicing other than that contained in the installation and troubleshooting instructions. Refer all servicing to qualified service personnel.



FCC Certification

A560 and A561 use the same circuitry and housing except the antenna type. They both are evaluated and certified according to FCC Rules Part 15 subpart C under one granted FCC-ID.

FCC Caution

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

Caution:

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

FCC Radiation Exposure Statement:

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

FCC Class B Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and uses radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna or cable input device.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Declaration of Conformity with Regard to the 1999/5/EC (R&TTE Directive) for

European Community, Switzerland, Norway, Iceland, and Liechtenstein

Model: WAB-3003

For 2.4 GHz radios, the devices have been tested and passed the requirements of the following standards, and hence fulfills the EMC and safety requirements of R&TTE Directive within the CE marking requirement.

- Radio: EN 300.328_{:2006}
- Radio: EN 50392_{:2004}
- EMC: EN 301.489-1_{:2005}, EN 301.489-17_{:2002},
- EMC: EN 55022_{:2006} Class B, EN 55024_{:1998} + A1_{:2001} + A2_{:2003} including the followings:
 - EN 61000-3-2, EN 61000-3-3.
 - EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,
 - EN 61000-4-5, EN 61000-4-6, EN 61000-4-11
- Safety: EN 60950-1_{:2001} + A11_{:2004},

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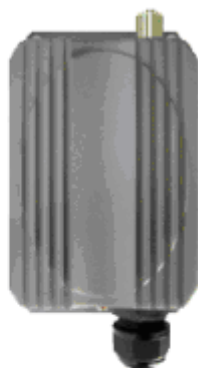
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1. Introduction

1.1 Overview

This manual is intended for **system integrators**, **field engineers** and **network administrators** to set up **WAB-3003 108M Outdoor PoE AP/ CPE/ Bridge** in their network environments. It contains step-by-step procedures and graphic examples to guide users with networking knowledge to complete the installation.

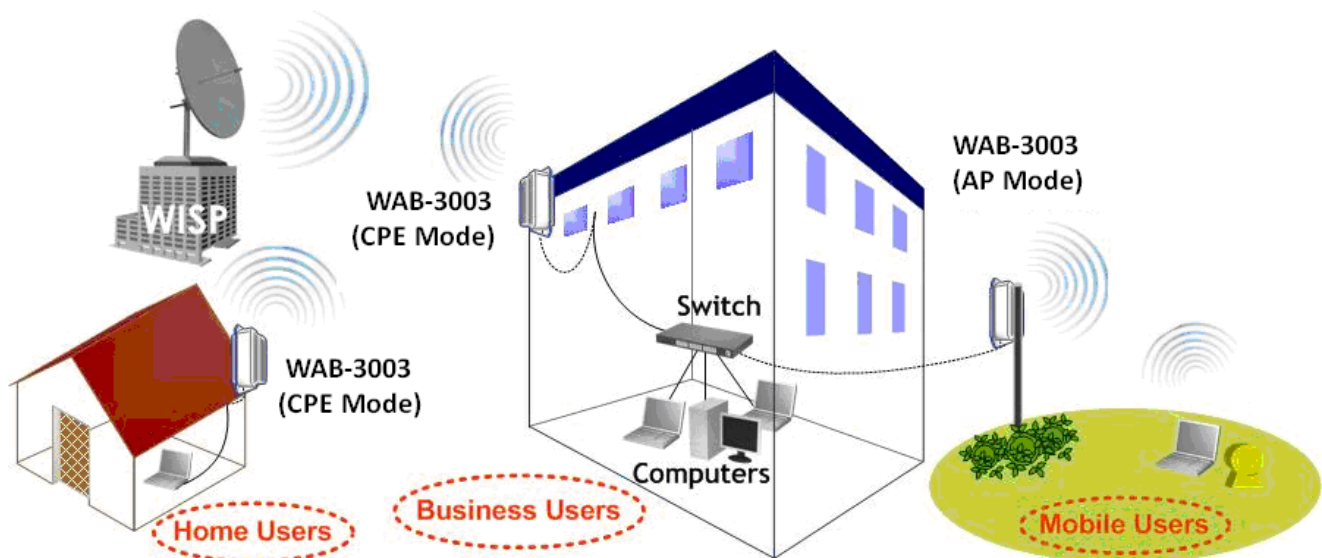


WAB-3003 (with N type antenna)

The 802.11 b/g compliant **WAB-3003** is a multi-mode Last-Mile Broadband solution for Wireless Internet Service Provider (WISP). It can be used as an outdoor Customer Premises Equipment (CPE mode) to receive wireless signal over the last mile, helping WISPs deliver wireless broadband Internet service to new residential and business customers, where wired broadband Internet service, such as cable and DSL, cannot serve. In addition, it can be deployed as a traditional fixed wireless Access Point (AP mode), either indoors or outdoors.

The **WAB-3003** is compact in size and weatherproof. Coming with a mounting kit, it can be mounted on a pole or wall. Specifically developed for outdoor use, the fully-hardened, IP68-rated **WAB-3003** can withstand wind, rain, lightning, power surges, and extreme temperatures.

The following is a network diagram for a typical WISP application.



WAB-3003 Long range wireless transmission

The **WAB-3003** can be deployed in various environments, for example:



- Hot zones such as business districts, office complexes, airports, hotels, conference centers, recreation areas, and shopping malls.
- Wireless CPE for Multi Dwelling Unit (MDU) /Multi Tenant Unit (MTU), such as apartments, dormitories, and office complexes.
- Outdoor access point for school campuses, enterprise campuses, or manufacture plants.
- Indoor access point for hotels, factories, or warehouses where metal industrial grade devices are preferred.
- Public hotspot operation for café, parks, convention centers, shopping malls, or airports.
- Wireless coverage for indoor and outdoor ground for private resorts, acre estate/home's yards, or gulf course communities.



1.2 Functionalities

- Acts as a **"Wireless Modem"** to bring wireless bandwidth to home and office buildings.
- **Wireless Bandwidth Allocation** (uplink/downlink) delivered to each building depending on different subscription plans.
- Full range of **wireless security** mechanisms such as WEP, WPA and WPA2 (802.11i) that are important for enterprise wireless deployments.
- Acts as a **Home Router** for **IP Sharing** and firewall, all-in-one installation solution - no need for extra router.
- Purposely built rugged access point for harsh **outdoor / industrial** conditions.
- **Weatherproof** and watertight from its rugged aluminum housing (IP68 Approved).
- **Power over Ethernet (PoE)** built-in for single cable installation.
- On board **Ethernet surge protection**.
- **Multiple operation modes** :
 - AP Base Station Mode
 - WISP CPE Mode
 - WDS Bridge Mode
 - Universal Repeater Mode

1.3 Document Conventions

Caution:	Represents essential steps, actions, or messages that should not be ignored.
Note:	Contains related information that corresponds to a topic.
	Indicates that clicking this button will save the changes you made, but you must reboot the system upon the completion of all configuration settings for the changes to take effect.
	Indicates that clicking this button will clear what you have set before the settings are applied.

2. System Overview

2.1 Package Contents

The standard package of **WAB-3003** includes:

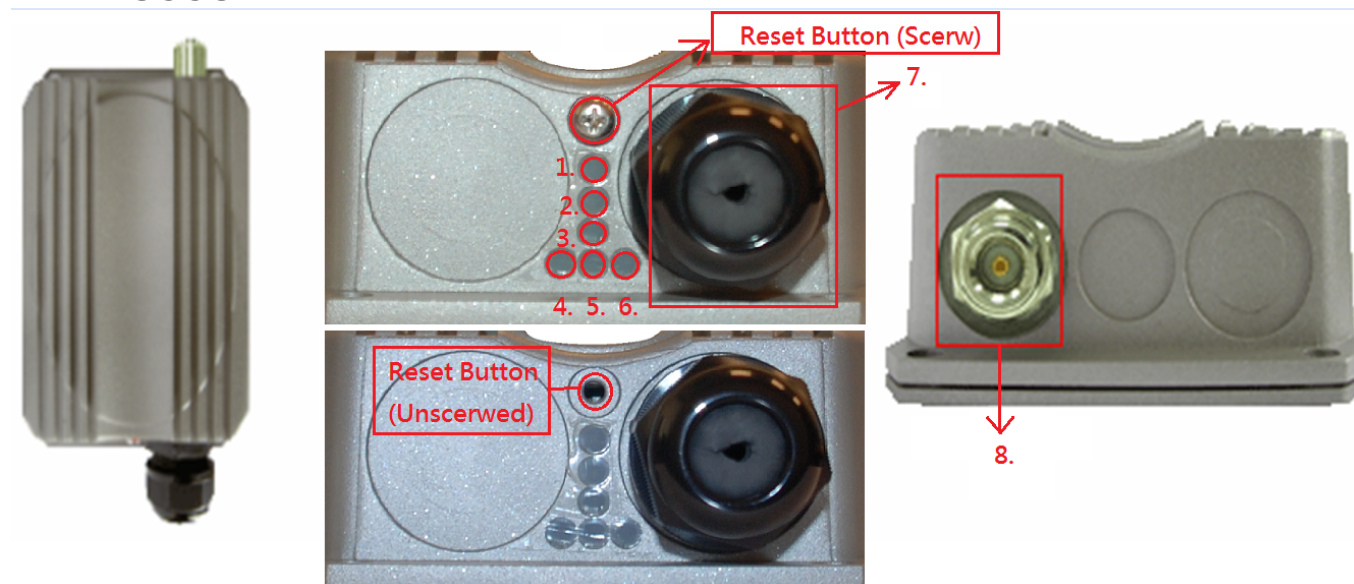
- **WAB-3003** x 1
- Quick Installation Guide (QIG) x 1
- CD-ROM (with User's Manual and QIG) x 1
- PSE with AC cable x 1
- Mounting Kit x 1
- Water Proof Connector (installed) x 1

Caution:

It is highly recommended to use all the components supplied to ensure best performance of the system.

2.2 Panel Function Description

WAB-3003



1	Power	Red LED ON indicated Power on, and OFF indicates power off
2~3	Wireless Signal Strength	For showing the signal strength situation (2:Yellow; 3:Green)
4	WLAN	Green LED ON indicates system ready
5	Wireless Signal Strength	For Showing the signal strength situation
6	Ethernet	Green LED ON indicates connection, OFF indicates no connection, and BLINKING indicates transmitting data
7	RJ-45 PoE Connector	For connecting to the Power Sourcing Equipment(PSE)
8	N-type Connector	For connecting to an antenna
9	Reset Button * (Screw)	For testing the system of AP

Reset Procedure

Make sure the WAB-3003 completes booting and is already running

(The booting process of system usually takes 2 minutes)

Unscrew the screw then you will see the reset button (inside the hole)

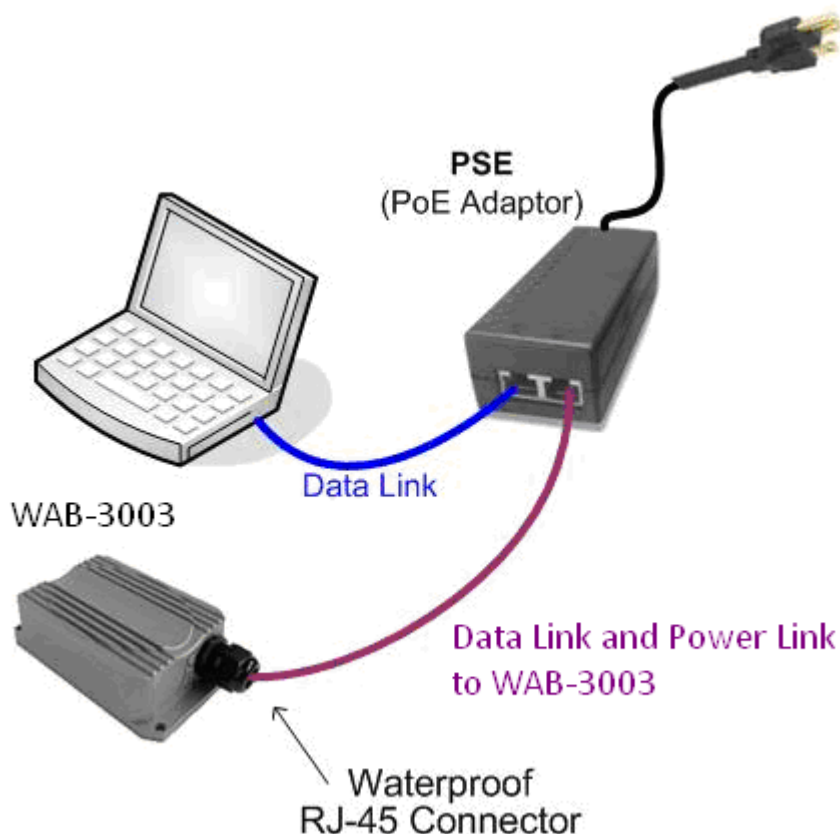
Use the provided reset pin to press and hold the reset button for 15 seconds

Release the reset button and leave the system re-booting for 2minutes

3. Installation

3.1 Hardware Installation

The following diagram is a **basic network topology** which can be used for testing and configuring the **WAB-3003**.



Installation Steps:

- Step 1.** Connect an antenna to the connector.
- Step 2.** Connect the PSE (POWER & DATA OUT) to the PSE 1 connector on the lower panel.
- Step 3.** Connect one end of an Ethernet cable to the PSE 2 connector on the lower panel and connect the other end to a computer.
- Step 4.** Connect the power cord to the PSE.
- Step 5.** Power on the PSE in order to supply power to the **WAB-3003**.

3.2 Basic Configuration

3.2.1 Introduction to Web Management Interface

WAB-3003 provides a user friendly web management interface for configuration. As **WAB-3003** is a dual-mode system which can be configured as either an access point (AP Mode) or a gateway (CPE Mode) based on your needs, it is required to follow the respective installation procedures provided to properly set up the desired mode for this system.

- Default IP Address of Web Management Interface:**

The default IP address and Subnet Mask for the CPE mode and AP mode are as follows:

Mode	AP Mode	CPE Mode
IP Address	192.168.0.1	192.168.0.1
Subnet Mask	255.255.255.0	255.255.255.0

- Default User Name and Password:**

The default **User name** and **Password** for the **root** and **admin** accounts are as follows:

Mode	AP Mode	CPE Mode	
Management Account	Root Account	Root Account	Admin Account
User Name	root	root	admin
Password	admin	admin	admin

There are two system management accounts for AP & CPE modes to maintain the system, **root** and **admin**, and each has different levels of management capabilities. The **root** account is empowered with full privileges while the **admin** account is with partial ones; there is only one management account for AP mode, **root**. For more information on the privileges of these two accounts, please refer to **Appendix A. System Management Account Privileges**.

< AP Mode – Default Mode >

Step 1: IP Segment Set-up for Administrator PC

Set a static IP address on the same subnet mask as **WAB-3003** in TCP/IP of the administrator PC, such as the following example. Do not duplicate the IP address used here with the IP address of **WAB-3003** or any other devices within the same network.

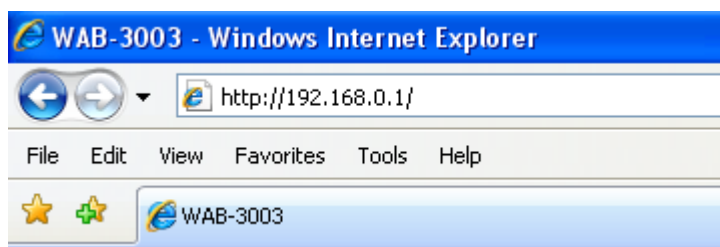
>> Example of IP Segment:

The valid range of IP address is 1 ~ 254. However, **1** must be avoided as it is already used by **WAB-3003**. Below depicts an example of using **100** (the underlined value can be changed as desired).

- IP Address: 192.168.0.100
- Subnet Mask: 255.255.255.0

Step 2: Launch Web Browser

Launch a web browser to access the web management interface of AP mode by entering the default IP address, **http://192.168.0.1/**, in the URL field, and then press **Enter**.

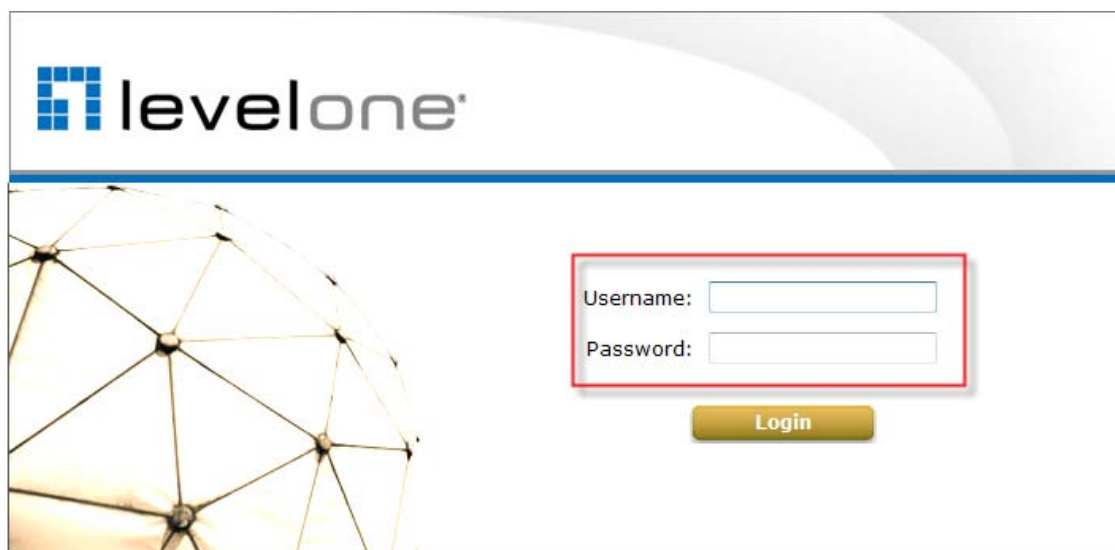
*Caution:*

*Using an incorrect default IP address will result in no Login page shown on the web browser. Please make sure a correct IP address is used for the desired mode; refer to **Section 3.2.1 Instruction to Web Management Interface** for detailed default IP addresses.*

Step 3: System Login

The system manager Login Page will then appear.

Enter **"root"** in the *User name* field and **"admin"** in the *Password* field, and then click **OK** to log in.



Step 4: Login Success

The **System Overview** page will appear after a successful login.

To logout, simply click on the Logout button on the top right hand corner of the management interface.

The screenshot displays the LevelOne WAB-3003 Wireless Outdoor AP management interface. At the top, there is a navigation bar with the LevelOne logo, the device name 'WAB-3003 Wireless Outdoor AP', and links for Home, Logout, and Help. Below this is a main menu with icons for System, Wireless, Firewall, Utilities, and Status. The 'Status' menu item is selected, leading to the 'System Overview' page. The page has a breadcrumb trail: Home > Status > System Overview. The 'System Overview' section contains four main panels: 'System' (showing details like System Name, Firmware Version, Build Number, Location, Site, Device Time, System Up Time, and Operating Mode), 'Radio Status' (showing MAC Address, Band, Channel, and TX Power), 'AP Status' (showing a table of AP profiles with columns for Profile Name, BSSID, ESSID, Security Type, and Online Clients), and 'LAN Interface' (showing MAC Address, IP Address, Subnet Mask, and Gateway).

Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:1F:D4:00:20:F1	LevelOne	None	0

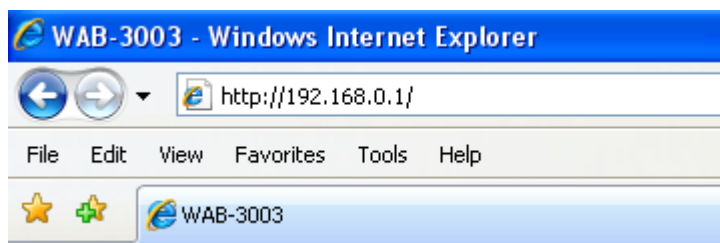
Note:

By default, AP mode is enabled. Therefore, the administrator must login to the system via the AP mode login page at the first time. The administrator is then able to switch between modes afterwards. For information on switching between modes, please refer to **Section 4.1.2 Operating Mode**.

< CPE Mode >

Step 1: Launch Web Browser

Launch a web browser to access the web management interface of CPE mode by entering the default IP address, **http://192.168.0.1/**, in the URL field, and then press **Enter**.

**Step 2: System Login**

The system manager Login Page will then appear.

Enter "**root**" in the *User name* field and "**admin**" in the *Password* field, and then click **OK** to log in. Below depicts an example of using the **root** manager account.



Step 3: Login Success

After a successful login into **WAB-3003**, a **System Overview** page of web management interface will appear.

To logout, simply click on the **Logout** button at the upper right hand corner of the interface.

The screenshot displays the web management interface for the WAB-3003 Wireless Outdoor CPE/AP/Repeater. At the top, there is a navigation bar with the LevelOne logo, the device name, and links for Home, Logout, and Help. Below this is a main menu with icons for System, Wireless, Firewall, Utilities, and Status. The Status menu is currently selected, leading to the System Overview page. The page has a breadcrumb trail: Home > Status > System Overview. The main content area is titled 'System Overview' and contains four panels: System, Radio Status, LAN Interface, and WAN Interface, each displaying various configuration and status details.

System	
System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:00:55
System Up Time	0 days, 0:00:55
Operating Mode	CPE

Radio Status	
Status	Connected
SSID	WBR-6002
MAC Address	00:C0:02:FF:C7:8E
Channel	11
Signal Strength	8
Security	None

LAN Interface	
MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

WAN Interface	
Mode	Static
MAC Address	00:1F:D4:00:20:F1
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
Gateway	192.168.10.254
Bandwidth	Down: Unlimited / UP: Unlimited

3.2.2 Quick Configuration

WAB-3003 is a dual-mode system which can be configured as either an access point (**AP Mode**) or a gateway (**CPE Mode**) based on deployment needs. This section provides a step-by-step configuration procedure for installing CPE mode and AP mode respectively.

< AP Mode – Default Mode >

Step 1: Mode Confirmation

The screenshot displays the LevelOne WAB-3003 Web Management Interface. The top navigation bar includes links for Home, Logout, and Help. Below the navigation bar, there are five main menu items: System, Wireless, Firewall, Utilities, and Status. The Status menu item is highlighted with a red box. Below the main menu, there are four sub-menu items: Overview, Clients, Repeater, and Event Log. The Overview sub-menu item is also highlighted with a red box. The main content area shows the breadcrumb path: Home > Status > System Overview. The title of the page is "System Overview". There are four main sections: System, Radio Status, LAN Interface, and AP Status. The System section contains a table with the following data:

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:01:07
System Up Time	0 days, 0:01:07
Operating Mode	AP

The Radio Status section contains a table with the following data:

MAC Address	00:1F:D4:00:20:F1
Band	802.11b+g
Channel	1
TX Power	Highest

The LAN Interface section contains a table with the following data:

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
Gateway	192.168.0.254

The AP Status section contains a table with the following data:

Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:1F:D4:00:20:F1	LevelOne	None	0

- Ensure that the *Operating Mode* is currently at **AP** mode.
- Click on the **Status** button and then select the **System Overview** tab. The *Operating Mode* is at the **System** section on the **System Overview** page.

Note:

For more information on switching to AP mode, if it is not currently active, please refer to **AP Mode Section 4.1.2 Operating Mode**.

Step 2: Change Password

The screenshot displays the LevelOne WAB-3003 web interface. At the top, the LevelOne logo and product name "WAB-3003 Wireless Outdoor CPE/AP/Repeater" are visible. Navigation links for Home, Logout, and Help are in the top right. Below the header is a menu bar with buttons for System, Wireless, Firewall, Utilities (highlighted with a red box), and Status. Under the Utilities button, a sub-menu shows "Change Password" as the selected option. The main content area is titled "Change Password" and contains the following fields:

- Name : root
- Old Password : [password field]
- New Password : [password field] *up to 32 characters
- Re-enter New Password : [password field]

At the bottom of the form are two buttons: "SAVE" (highlighted with a red box) and "CLEAR".

- Click on the **Utilities** button and then select the **Password** tab.
- Enter a new password in the *New Password* field and retype it in the *Re-enter New Password* field.
- Click **SAVE** to save the changes.

Step 3: Network Settings

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

System Information Operating Mode Network Management QoS Classification

Home > System > Network Interface

Network Settings

Mode : ☒ Static ☐ DHCP

IP Address : 192.168.0.1 *

Netmask : 255.255.255.0 *

Default Gateway : 192.168.0.254 *

Primary DNS Server : 168.95.1.1 *

Alternate DNS Server :

Layer2 STP : ☒ Disable ☐ Enable

【Settings here are for example only. 】

- Click on the **System** button and then select the **Network** tab.
- Enable *Static*, and then enter the related information in the fields marked with red asterisks.
- Click **SAVE** to save the settings.

Step 4: SSID Settings

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > General

General Settings

Band : 802.11b+802.11g

Super G : ☐ Bursting ☐ Fast Frames ☐ Dynamic Turbo

Short Preamble : ☐ Disable ☒ Enable

Channel : 1

Max Transmit Rate : Auto

Transmit Power : Auto

Beacon Interval : 100 *(100 - 500ms)

SAVE CLEAR

- Click on the **Wireless** button and then select the **General** tab.
- **Band:** Select an appropriate band from the drop-down list box.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > VAP Config

VAP Configuration

Profile Name : VAP-1

VAP : ☐ Disable ☒ Enable

Profile Name : VAP-1

ESSID : LevelOne

VLAN ID : ☒ Disable ☐ Enable

VLAN ID : *(1 - 4094)

SAVE CLEAR

- Click on the **Wireless** button and then select the **VAP Config** tab.
- **ESSID:** Enter respective ESSID for each VAP in the *ESSID* field or use the default. **ESSID** (Extended Service Set Identifier) is a unique identifier used for networking devices to get associated with WAB-3003

Note:

For QoS classification, please enable VLAN ID and specify a VLAN ID with respective ESSID. Click **SAVE** to save the settings.

Step 5: Security Settings

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > Security

Security Settings

Profile Name : VAP-1

Security Type : WEP

Note! The WEP keys are global setting for all virtual APs. The key value will apply to all VAPs.

802.11 Authentication: ☒ Open System ☐ Shared Key ☐ Auto

WEP Key Length : ☒ 64 bits ☐ 128 bits ☐ 152 bits

WEP Key Format : ☒ ASCII ☐ Hex

WEP Key Index : 1

WEP Keys :

1

2

3

4

SAVE CLEAR

- Click on the **Wireless** button and then select the **Security** tab.
- Select the desired *VAP Profile and Security Type* from the drop-down list boxes. The above figure depicts an example of selecting VAP-1 and **WEP**.
- Enter the information required in the blank fields.

Caution:

You must use the same information provided here to configure the network devices that are to be associated with **WAB-3003**.

- Click **SAVE** to save all settings configured so far; all updated settings will take effect upon reboot.

Congratulations!

The AP mode is now successfully configured.

< CPE Mode >

Step 1: Mode Confirmation

The screenshot displays the WAB-3003 Web Management Interface. At the top, the header includes the 'levelone' logo and the title 'WAB-3003 Wireless Outdoor CPE/AP/Repeater'. Navigation links for Home, Logout, and Help are present. Below the header, there are five main menu buttons: System, Wireless, Firewall, Utilities, and Status. The Status button is highlighted with a red box. Below these buttons, a sub-menu bar contains 'System Overview', 'Event Log', 'DHCP Lease', and 'UPnP'. The 'System Overview' tab is selected and highlighted with a red box. The main content area shows the breadcrumb 'Home > Status > System Overview' and the title 'System Overview'. There are four sections: 'System', 'Radio Status', 'LAN Interface', and 'WAN Interface'. The 'System' section contains a table with system details, where the 'Operating Mode' is 'CPE' and is highlighted with a red box. The 'Radio Status' section shows connection details. The 'LAN Interface' and 'WAN Interface' sections show network configuration details.

System	
System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:04:52
System Up Time	0 days, 0:04:52
Operating Mode	CPE

Radio Status	
Status	Connected
SSID	WBR-6002
MAC Address	00:C0:02:FF:C7:8E
Channel	11
Signal Strength	5
Security	None

LAN Interface	
MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

WAN Interface	
Mode	Static
MAC Address	00:1F:D4:00:20:F1
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
Gateway	192.168.10.254
Bandwidth	Down: Unlimited / UP: Unlimited

- Ensure that the *Operating Mode* is currently at **CPE** mode.
- Click on the **Status** button and then select the **System Overview** tab. The *Operating Mode* is at the **System** section on the **System Overview** page.

Note:

For more information on switching to CPE mode, if it is not currently active, please refer to **Section 5.1.2 Operating Mode**.

Step 2: Change Password

The screenshot displays the LevelOne WAB-3003 web interface. At the top, there is a navigation bar with links for Home, Logout, and Help. Below this is a main menu with buttons for System, Wireless, Firewall, Utilities, and Status. The Utilities button is highlighted with a red box. Under the Utilities button, there is a sub-menu with buttons for Change Password, Network Utilities, Config Save & Restore, System Upgrade, and Reboot. The Change Password button is also highlighted with a red box. The main content area shows the 'Change Password' page. It has a breadcrumb trail: Home > Utilities > Change Password. The page title is 'Change Password'. There are two sections for changing passwords. The first section is for the 'root' user. It has fields for 'Name' (root), 'Old Password' (masked with dots), 'New Password' (masked with dots), and 'Re-enter New Password' (masked with dots). A red asterisk note next to the New Password field indicates '*up to 32 characters'. The second section is for the 'admin' user. It has fields for 'Name' (admin), 'New Password' (masked with dots), and 'Re-enter New Password' (masked with dots). A red asterisk note next to the New Password field indicates '*up to 32 characters'. At the bottom of the page, there are two buttons: 'SAVE' and 'CLEAR'.

- Click on the **Utilities** button and then select the **Change Password** tab.
- **Change Root Account Password**
 - Enter the old password in the *Old Password* field, which default password is "**admin**".
 - Enter a new password in the *New Password* field and retype it in the *Re-enter New Password* field.
- **Change Admin Account Password**
 - Enter a new password in the *New Password* field and retype it in the *Re-enter New Password* field.
- Click **SAVE** to save the changes.

Step 3: Site Survey

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

General Advanced Security Site Survey

Home > Wireless > Site Survey

Scan Result

Scan Again!

SSID	MAC Address	Channel	Rate	Signal	Security	Setup / Connect
Accton_AP	00:22:2D:90:74:86	1	54	57	WPA2-PSK	Setup
WAP-0003	00:11:6B:60:6A:C5	6	54	29	WEP	Setup
WBR-6002	00:C0:02:FF:C7:8E	11	54	10	None	Connect

【The scan result displayed here is an example only.】

- Click on the **Wireless** button and then select the **Site Survey** tab.
- The system will automatically scan and display all available APs in the same **WAB-3003's** coverage area.
- Click **Scan Again** if the APs to be associated with are not listed on the **Scan Result** list.

Step 4: Select AP to be Associated

- Select an AP to be associated with from the **Scan Result** list provided in **Step 3**.

Step 5: Security Settings

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

General Advanced Security Site Survey

Home > Wireless > Site Survey

Scan Result

Scan Again!

SSID	MAC Address	Channel	Rate	Signal	Security	Setup / Connect
Accton_AP	00:22:2D:90:74:86	1	54	57	WPA2-PSK	Setup
WAP-0003	00:11:6B:60:6A:C5	6	54	29	WEP	Setup
WBR-6002	00:C0:02:FF:C7:8E	11	54	10	None	Connect

Pre-shared Cipher : TKIP

Pre-shared Key Type : ☐ PSK(Hex) *(64 chars) ☒ Passphrase *(8 - 63 chars)

Pre-shared Key :

Connect

- The above figure depicts an example of selecting **Accton_AP** (encrypted via WPA2-PSK security type).
- Click **Setup**, and then a related encryption configuration box will appear.
- Enter the information required in the configuration box. Information to be entered must be exactly the same as configured in this **AP**.
- Click **Connect** to start the connection.

Step 6: Network Interface Configuration

- Click on the **System** button and then select the **Network** tab.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

System Information Operating Mode Network Management

Home > System > Network Interface

WAN Configuration

Mode : ☒ Static ☐ DHCP

IP Address : 192.168.10.1 *

Netmask : 255.255.255.0 *

Default Gateway : 192.168.10.254 *

Primary DNS Server : 168.95.1.1 *

Alternate DNS Server :

Bandwidth Limit :

Download : Unlimited

Upload : Unlimited

【Settings here are for example only.】

WAN Configuration

- Enable *Static*, and then enter the related information in the fields marked with red asterisks.
- Click **SAVE** to save the settings.

Dynamic DNS Configuration

- The **Dynamic DNS** section is on the same page as **WAN Configuration** section.
- When enabled, choose the service *Provider* with provided *Host Name*, *User Name/E-mail*, and *Password/Key*.
- Click **SAVE** to activate all settings configured so far.

LAN Configuration

- The **LAN Configuration** section is on the same page as **WAN Configuration** section.
- Enter the *IP Address* and *Netmask* of the LAN port.
- Click **SAVE** to save all settings configured so far; all updated settings will take effect upon reboot.

Congratulations!

The CPE mode is now successfully configured.


4.AP Mode Configuration

When AP mode is activated, the system can be configured as an Access Point, or a Repeater, or an Access Point with Repeater depending on deployment needs. This chapter will guide you through setting up the AP mode with graphical illustrations. The following table shows all the functions of WAB-3003 in its AP mode.


OPTION	System	Wireless	Firewall	Utilities	Status	
FUNCTION	System Information	VAP Overview	Firewall List	Change Password	System Overview	
	Operating Mode	General Settings	Service	Network Utilities	Associate Client Status	
	Network Settings	VAP Configuration	Advanced	Configuration Save & Restore	Repeater Information	
	Management Services	Security Settings		System Upgrade	Event Log	
	QoS Classification	Repeater Settings		Reboot		
		Advanced Wireless Settings				
		Access Control Settings				
		Site Survey				


Table 4-1: AP Mode Functions


[Home](#) [Logout](#) [? Help](#)





WAB-3003 Wireless Outdoor CPE/AP/Repeater


System


Wireless


Firewall


Utilities


Status

Overview


Clients

Repeater

Event Log


[Home](#) > [Status](#) > System Overview

System Overview




System

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:01:07
System Up Time	0 days, 0:01:07
Operating Mode	AP




Radio Status

MAC Address	00:1F:D4:00:20:F1
Band	802.11b+g
Channel	1
TX Power	Highest



LAN Interface

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
Gateway	192.168.0.254




AP Status






Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:1F:D4:00:20:F1	LevelOne	None	0

Figure 4-1: AP Mode Main Page

4.1 System

This section provides information for configuring the following functions: **System Information**, **Operating Mode**, **Network Settings**, **Management Services**, and **QoS Classification**.

 **levelone** WAB-3003 Wireless Outdoor CPE/AP/Repeater

 System  Wireless  Firewall  Utilities  Status

System Information Operating Mode Network Management QoS Classification

Home > System > General

System Information

Name : WAB-3003 *

Description :

Location :

Time

Device Time : 1999/12/31 16:11:05

Time Zone : (GMT-08:00)Pacific Time(US&Canada),Tijuana ▼

Time : ☐ Enable NTP ☒ Manually set up

Set Date : ---- ▼ Year -- ▼ Month -- ▼ Day

Set Time : -- ▼ Hour -- ▼ Min -- ▼ Sec

SAVE **CLEAR**

Note:

A system restart is required when a reminding message appears after clicking the **SAVE** button; all settings entered and saved will take effect only after the system restart.

4.1.1 System Information

For maintenance purpose, it is required to specify the system name, its location and corresponding basic parameters. Fields such as *Name*, *Description* and *Location* are used for mnemonic purpose. It is recommended to have different values in each AP.

The screenshot displays the web interface for the LevelOne WAB-3003. At the top, there is a navigation bar with the LevelOne logo and the product name. Below this is a menu with icons for System, Wireless, Firewall, Utilities, and Status. The 'System' menu is selected, and the 'System Information' sub-tab is active. The breadcrumb trail shows 'Home > System > General'. The main content area is titled 'System Information' and contains three input fields: 'Name' (pre-filled with 'WAB-3003'), 'Description', and 'Location'. Below these fields is a section titled 'Time' which includes a 'Device Time' display showing '1999/12/31 16:11:05', a 'Time Zone' dropdown menu set to '(GMT-08:00)Pacific Time(US&Canada),Tijuana', and radio buttons for 'Enable NTP' and 'Manually set up'. The 'Manually set up' option is selected. Below the radio buttons are input fields for 'Set Date' (Year, Month, Day) and 'Set Time' (Hour, Min, Sec). At the bottom of the form are two buttons: 'SAVE' and 'CLEAR'.

• System Information

For maintenance purpose, it is recommended to have the following information stated as clearly as possible. Fields Name, Description, and Location are used for mnemonic purpose. It is recommended to have different values in each wireless device.

- *Name*: The system name used to identify this system
- *Description*: Further information of the system.
- *Location*: The information on geographical location of the system for the administrator to locate the system easily.

• Time

Time settings allow the system time synchronized with NTP server or manually set.

- *Device Time*: Display the current time of the system.
- *Time Zone*: Select an appropriate time zone from the drop-down list box.
- *Synchronization*: Synchronize the system time either by NTP server or manual setup.

(1) **Enable****NTP:**

By selecting **Enable NTP**, WAB-3003 can synchronize its system time with the NTP server automatically. While this method is chosen, at least one NTP server's IP address or domain name must be provided. If FQDN (full qualified domain name) is used as the IP address of NTP server, the DNS server must also be activated (please refer to **4.1.3 Network Settings**).

Time

Device Time : 1999/12/31 16:11:05

Time Zone : (GMT-08:00)Pacific Time(US&Canada),Tijuana ▼

Time : ☒ Enable NTP ☐ Manually set up

NTP Server 1 : tock.stdtime.gov.tw *

NTP Server 2 :

(2) **Manually****set****up:**

By selecting *Manually set up*, the administrator can manually set the system date and time.

Time

Device Time : 1999/12/31 16:11:05

Time Zone : (GMT-08:00)Pacific Time(US&Canada),Tijuana ▼

Time : ☐ Enable NTP ☒ Manually set up

Set Date : ---- ▼ Year -- ▼ Month -- ▼ Day

Set Time : -- ▼ Hour -- ▼ Min -- ▼ Sec

- *Set Date*: Select the appropriate *Year*, *Month*, and *Day* from the drop-down list box.
- *Set Time*: Select the appropriate *Hour*, *Min*, and *Sec* from the drop-down list box.

4.1.2 Operating Mode

WAB-3003 supports two operation modes: CPE mode and AP mode. The administrator can set the desired mode on this page, and then configure the system according to deployment needs.

The screenshot displays the WAB-3003 Web Management Interface. At the top, the LevelOne logo is on the left, and navigation links for Home, Logout, and Help are on the right. Below the header is a row of five main menu buttons: System, Wireless, Firewall, Utilities, and Status. The 'System' button is highlighted. Under the 'System' button, there are five sub-menu tabs: System Information, Operating Mode, Network, Management, and QoS Classification. The 'Operating Mode' tab is selected. The main content area shows the title 'Operating Mode' and a configuration section labeled 'Operating Mode :'. This section contains two radio buttons: 'CPE Mode' and 'AP Mode'. The 'AP Mode' radio button is selected. Below the radio buttons are two buttons: 'SAVE' and 'CLEAR'.

- **Operating Mode:** Select the desired mode and then click **SAVE** to save the setting.

Note:

After clicking **SAVE**, the system will immediately ask for a reboot to activate the selected mode.

4.1.3 Network Settings

LAN settings can be configured on this page.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout Help

System Wireless Firewall Utilities Status

System Information Operating Mode Network Management QoS Classification

Home > System > Network Interface

Network Settings

Mode : ☒ Static ☐ DHCP

IP Address : 192.168.0.1 *

Netmask : 255.255.255.0 *

Default Gateway : 192.168.0.254 *

Primary DNS Server : 168.95.1.1 *


Alternate DNS Server :

Layer2 STP : ☒ Disable ☐ Enable

- **Mode:** Determine the way to obtain the IP address, by *DHCP* or *Static* manually set.
 - **Static:** Static setting is set these parameters manually. The basic parameters need to provide such as IP address, subnet mask and Gateway.
 - **IP Address:** The IP address of the LAN port.
 - **Netmask:** The Subnet mask of the LAN port.
 - **Gateway:** The Gateway IP address of the LAN port.
 - **Primary/Secondary DNS Server:** Please provide at least on DNS server's IP address.
 - **DHCP:** The option is provided when a DHCP server is provided in the network. The following IP address/Netmask/Gateway setting will be disabled.
- **Layer 2 STP:** Depends on the configuration of the system including wired and wireless settings, when it is configured to bring several networks, we need enable STP.


4.1.4 Management Services


The system supports **VLAN**, **SNMP**, **Remote Syslog**, and **Auto Reboot** functions for easy management. These functions can be configured on this page.


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WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#) [Logout](#) [? Help](#)

 System

 Wireless

 Firewall

 Utilities

 Status

System Information

Operating Mode

Network

Management

QoS Classification

Home > System > Management Services

Management Services

VLAN for Management:

☒ Disable ☐ Enable

VLAN ID : *(1 - 4094)

SNMP Configuration :

☒ Disable ☐ Enable

Community String :

Read :

Write :

Trap : ☐ Disable ☒ Enable

Server IP :

System Log :

☒ Disable ☐ Enable

SYSLOG Server IP :

Server Port :

SYSLOG Level :

Auto Reboot :

☐ Disable ☒ Enable

Reboot Time :

SAVE

CLEAR

- **VLAN for Management:** The Ethernet traffic from the system can be tagged with VLAN tag with specific ID.
- **SNMP Configuration:** By enabling SNMP service, the remote SNMP manager could obtain the system status.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Community String:** The community string is required when accessing the Management Information Base (MIB) of the system.
 - **Read:** Enter the community string to access the MIB with Read privilege.
 - **Write:** Enter the community string to access the MIB with Write privilege.
 - **Trap:** When enabled, events on Cold Start, Interface UP & Down, and Association & Disassociation can be reported to an assigned server.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Server IP Address:** Enter the IP address of the assigned server for receiving the trap report.
- **Syslog Configuration:** By enabling this function, specify a remote syslog server which could accept system log messages from the system remotely. Therefore, by reading the syslog message in the remote server, review activities of all installed the system in the network.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Server IP:** The IP address of the Syslog server for receiving the reported events.
 - **Server Port:** The port number of the Syslog server.
 - **Log Level:** Select the desired level of received events from the drop-down list box.
- **Auto Reboot:** The option can be enabled to reboot system automatically with preferred Reboot Time from drop-down list.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to deactivate it.
 - **Reboot Time:** Select an appropriate time from the drop-down list box. Since all users on the network will be disconnected during reboot, it is suggested to set the reboot time during an off-peak period to reduce impacts on online users.

4.1.5 QoS Classification

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

System Information Operating Mode Network Management QoS Classification

Home > System > QoS Classification

QoS Classification

Status : ☐ Enable ☒ Disable

SAVE CLEAR

The system supports function of QoS classification where specified **VLAN ID** can be assigned to a specific **QoS access category** for priority handling of traffics.

Enable QoS

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

System Information Operating Mode Network Management QoS Classification

Home > System > QoS Classification

QoS Classification

No.	VLAN ID	QoS Access Category	Remark
1	0	Best Effort ▼	
2		Best Effort ▼	
3		Best Effort ▼	
4		Best Effort ▼	
5		Best Effort ▼	
6		Best Effort ▼	
7		Best Effort ▼	
8		Best Effort ▼	
9		Best Effort ▼	

SAVE CLEAR

4.2 Wireless

The administrator can configure the following wireless settings on this page: **VAP Overview**, **General Settings**, **VAP Configuration**, **Security Settings**, **Repeater Settings**, **Advanced Wireless Settings**, **Access Control Settings**, and **Site Survey**. The system supports up to eight Virtual Access Points (VAPs). Each VAP can have its own settings including ESSID, VLAN ID, security settings, etc. Such VAP capability enables different levels of service to meet actual requirements.

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > VAP Overview

VAP Overview

VAP No.	ESSID	State	Security Type	MAC ACL	Advanced Settings
1	LevelOne	Enabled	None	Disabled	Edit
2	LevelOne	Disabled	None	Disabled	Edit
3	LevelOne	Disabled	None	Disabled	Edit
4	LevelOne	Disabled	None	Disabled	Edit
5	LevelOne	Disabled	None	Disabled	Edit
6	LevelOne	Disabled	None	Disabled	Edit
7	LevelOne	Disabled	None	Disabled	Edit
8	LevelOne	Disabled	None	Disabled	Edit

4.2.1 Virtual AP Overview

An overall status is collected in this page, including *Enable/Disable State*, *Security Type*, *MAC ACL* state, and *Advanced Settings*. The system has 8 VAPs; each has its own settings. In this table, please click on the hyperlink for further configuration of each VAP respectively.

The screenshot shows the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater web interface. The top navigation bar includes links for Home, Logout, and Help. Below this is a main menu with tabs for System, Wireless (selected), Firewall, Utilities, and Status. Under the Wireless tab, there are sub-tabs for VAP Overview, General, VAP Config, Security, Repeater, Advanced, Access Control, and Site Survey. The VAP Overview page displays a table with 8 VAPs, each with a unique number, ESSID, State, Security Type, MAC ACL, and Advanced Settings link.

VAP No.	ESSID	State	Security Type	MAC ACL	Advanced Settings
1	LevelOne	Enabled	None	Disabled	Edit
2	LevelOne	Disabled	None	Disabled	Edit
3	LevelOne	Disabled	None	Disabled	Edit
4	LevelOne	Disabled	None	Disabled	Edit
5	LevelOne	Disabled	None	Disabled	Edit
6	LevelOne	Disabled	None	Disabled	Edit
7	LevelOne	Disabled	None	Disabled	Edit
8	LevelOne	Disabled	None	Disabled	Edit

- **State:** The hyperlink showing *Enable* or *Disable* connects to the screen of **VAP Configuration**.
- **Security Type:** The hyperlink showing security type connects to the screen of **Security Settings**.
- **MAC ACL:** The hyperlink showing *Allow* or *Disable* connects to the screen of **Access Control Settings**.
- **Advanced Settings:** The hyperlink of advanced settings connects to the screen of **Advanced Wireless Settings**.

4.2.2 General Settings

This section is for configuring the system RF settings.

The screenshot shows the LevelOne WAB-3003 web interface. At the top, there's a navigation bar with 'Home', 'Logout', and 'Help' links. Below this is a main menu with icons for System, Wireless (selected), Firewall, Utilities, and Status. A secondary menu shows 'VAP Overview', 'General' (selected), 'VAP Config', 'Security', 'Repeater', 'Advanced', 'Access Control', and 'Site Survey'. The breadcrumb trail is 'Home > Wireless > General'. The 'General Settings' section contains the following fields:

- Band :** A dropdown menu set to '802.11b+802.11g'.
- Super G :** Three checkboxes: 'Bursting' (unchecked), 'Fast Frames' (unchecked), and 'Dynamic Turbo' (unchecked).
- Short Preamble :** Two radio buttons: 'Disable' (unchecked) and 'Enable' (checked).
- Channel :** A dropdown menu set to '1'.
- Max Transmit Rate :** A dropdown menu set to 'Auto'.
- Transmit Power :** A dropdown menu set to 'Auto'.
- Beacon Interval :** A text input field containing '100', followed by the text '*(100 - 500ms)'.

At the bottom of the settings area are two yellow buttons: 'SAVE' and 'CLEAR'.

- **Band:** Select an appropriate wireless frequency band of this system. Select one frequency band from *Disable*, *802.11b*, *802.11g* or mixed mode *802.11b+802.11g*.
- **Super G:** Options of Bursting, Fast Frames, and Atheros' featured Dynamic Turbo can be selected to boost wireless throughput.
- **Short Preamble:** The option can be turned on the enable Short-Preamble frames.
- **Channel:** Select the appropriate channel from the drop-down list box to correspond with your network settings, for example, Channel 1-11 is available in North America and Channel 1-13 in Europe, or choose the default *Auto*.
- **Max Transmit Rate:** Select transmit rate from *1M* to *54M* or *Auto*.
- **Transmit Power:** Select from the lowest to highest power level or choose *Auto*.
- **Beacon Interval:** Enter a value between 100 and 500 ms. The default is 100 milliseconds. The specified value represents the amount of time between beacon signal transmissions.

WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge

The RF settings in this page will be applied to all VAPs.

Under normal circumstances, the available RF configurations are illustrated as below:

Band	Super G	Short Preamble	Channel	Max Transmit Rate	Transmit Power
Disable	N/A	N/A	N/A	N/A	N/A
802.11b	N/A	Disable/Enable	Auto, 1~11, 13, or 14	1M, 2M, 5.5M, 11M	Auto, Lowest, Low, Medium, High, Highest
802.11g	Bursting, Compression, Fast Frames, Dynamic Turbo	Disable/Enable	Auto, 1~11 or 13	6M, 9M, 12M, 18M, 24M, 36M, 48M, 54M	
802.11b+802.11g	Bursting, Compression, Fast Frames, Dynamic Turbo	Disable/Enable	Auto, 1~11, 13, or 14	1M, 2M, 5.5M, 6M, 9M, 11M, 12M, 18M, 24M, 36M, 48M, 54M	

4.2.3 VAP Configuration

The screenshot shows the LevelOne WAB-3003 configuration web interface. At the top, there's a header with the LevelOne logo and the device name 'WAB-3003 Wireless Outdoor CPE/AP/Repeater'. Navigation links for Home, Logout, and Help are in the top right. Below the header is a main menu with icons and labels for System, Wireless (selected), Firewall, Utilities, and Status. A secondary menu shows tabs for VAP Overview, General, VAP Config (selected), Security, Repeater, Advanced, Access Control, and Site Survey. The breadcrumb trail reads 'Home > Wireless > VAP Config'.

VAP Configuration

Profile Name : VAP-1

VAP : ☐ Disable ☒ Enable

Profile Name :

ESSID :

VLAN ID : ☒ Disable ☐ Enable

VLAN ID : *(1 - 4094)

To enable each VAP, the administrator must configure each VAP manually. The settings of each VAP are collected as its profile.

- **VAP:** Enable or disable VAP function.
- **Profile Name:** The profile name of each VAP for identity/management purpose.
- **ESSID:** ESSID (Extended Service Set ID) indicates a unique SSID used by a client device to associate with a specified VAP. ESSID determines the service level assigned to a client.
- **VLAN ID:** The system supports tagged VLANs (virtual LANs). To enable VLAN function, each VAP must have a unique VLAN ID; valid values are ranged from 1 to 4094.

4.2.4 Security Settings

The system supports various user authentication and data encryption methods in each VAP profile. Thus the administrator can depend on the need to provide different service levels to clients. The **security type** includes **None**, **WEP**, **802.1X**, **WPA-PSK**, and **WPA-RADIUS**.

- **None:** No authentication is required.

The screenshot displays the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater web interface. At the top, the header includes the LevelOne logo, the product name "WAB-3003 Wireless Outdoor CPE/AP/Repeater", and navigation links for Home, Logout, and Help. Below the header is a main menu with icons and labels for System, Wireless (selected), Firewall, Utilities, and Status. A secondary menu shows various configuration tabs: VAP Overview, General, VAP Config, Security (selected), Repeater, Advanced, Access Control, and Site Survey. The breadcrumb trail indicates the path: Home > Wireless > Security. The main content area is titled "Security Settings" and features a "Profile Name" dropdown menu set to "VAP-1". Below this, the "Security Type" is set to "None" in a dropdown menu. At the bottom of the form are two yellow buttons labeled "SAVE" and "CLEAR".

- **WEP:** WEP (Wired Equivalent Privacy) supports key length of 64/128/152 bits.

The screenshot shows the LevelOne WAB-3003 web interface. The top navigation bar includes links for Home, Logout, and Help. Below this is a main menu with icons for System, Wireless (selected), Firewall, Utilities, and Status. A secondary menu shows various configuration tabs: VAP Overview, General, VAP Config, Security (selected), Repeater, Advanced, Access Control, and Site Survey. The breadcrumb trail indicates the path: Home > Wireless > Security.

Security Settings

Profile Name : VAP-1

Security Type : WEP

Note! The WEP keys are global setting for all virtual APs. The key value will apply to all VAPs.

802.11 Authentication: ☒ Open System ☐ Shared Key ☐ Auto

WEP Key Length : ☒ 64 bits ☐ 128 bits ☐ 152 bits

WEP Key Format : ☒ ASCII ☐ Hex

WEP Key Index : 1

WEP Keys :

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>
4	<input type="text"/>

- **802.11 Authentication:** Select from *Open System*, *Shared Key*, or *Auto*.
- **WEP Key Length:** Select from *64-bit*, *128-bit*, or *152-bit* key length.
- **WEP Key Format:** Select from *ASCII* or *Hex* format for the WEP key.
- **WEP Key Index:** Select a key index from 1 through 4. The WEP key index is a number that specifies which WEP key to use for the encryption of wireless frames during data transmission.
- **WEP Keys:** Provide WEP key value; the system supports up to 4 sets of WEP keys.

- **802.1X:** Provide RADIUS authentication and enhanced WEP.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > Security

Security Settings

Profile Name : VAP-1

Security Type : 802.1X

Dynamic WEP : ☐ Disable ☒ Enable

WEK Key Length : ☒ 64 bits ☐ 128 bits

Rekeying Period : 300 second(s)

Primary RADIUS Server :

Host : *(Domain Name / IP Address)

Authentication Port : 1812 *

Secret Key :

Accounting Service : ☒ Disable ☐ Enable

Accounting Port : 1813 *

Accounting Interim Update Interval : 60 second(s) *

Secondary RADIUS Server :

Host : (Domain Name / IP Address)

Authentication Port : 1812

Secret Key :

Accounting Service : ☒ Disable ☐ Enable

Accounting Port : 1813

Accounting Interim Update Interval : 60 second(s)

SAVE CLEAR

➤ **Dynamic WEP Settings:**

- **Dynamic WEP:** By enabling this function, the system will automatically generate WEP keys for encryption.
- **WEK Key Length:** Select from 64-bit or 128-bit key length.
- **Rekeying Period:** The time interval for the WEP key to be updated; the time unit is in second.

➤ **Primary RADIUS Server Settings:**

- **Host:** Enter the IP address or domain name of the RADIUS server.
- **Authentication Port:** The port number used by the RADIUS server. Specify a port number or use the default, 1812.
- **Secret Key:** The secret key for the system to communicate with the RADIUS server.
- **Accounting Service:** Enable or disable the accounting service.
- **Accountin Port:** The port number used by the RADIUS server. Specify a port number or use the default, 1813.
- **Accounting Interim Update Interval:** The time interval for the accounting to be updated; the time unit is in second.

- **WPA-PSK:** Provide shared key authenticaiton in WPA data encryption.

The screenshot shows the web interface of the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater. The top navigation bar includes links for Home, Logout, and Help. Below the navigation bar are icons for System, Wireless, Firewall, Utilities, and Status. The main menu includes VAP Overview, General, VAP Config, Security, Repeater, Advanced, Access Control, and Site Survey. The current page is Security Settings, which is accessed via Home > Wireless > Security. The Security Settings page displays the following configuration options:

- Profile Name:** VAP-1 (dropdown menu)
- Security Type:** WPA-PSK (dropdown menu)
- Cipher Suite:** TKIP (WPA) (dropdown menu)
- Pre-shared Key Type:** ☐ PSK(Hex)*(64 chars) ☒ Passphrase*(8 - 63 chars)
- Pre-shared Key:** (text input field)
- Group Key Update Period:** 600 second(s)

At the bottom of the page are two buttons: SAVE and CLEAR.

- **Cipher Suite:** Select an encryption method from *TKIP (WPA)*, *AES (WPA)*, *TKIP(WAP2)*, *AES (WAP2)*, or *Mixed*.
- **Pre-shared Key Type:** Select a pre-shared key type: *PSK (Hex)* or *Passphrase*.
- **Pre-shared Key:** Enter the key value for the pre-shared key; the format of the key value depends on the key type selected.
- **Group Key Update Period:** The time interval for the Group Key to be renewed; the time unit is in second.

- **WPA-RADIUS:** Authenticate users by RADIUS and provide WPA data encryption.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout Help

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > Security

Security Settings

Profile Name : VAP-1

Security Type : WPA-RADIUS

Cipher Suite : TKIP (WPA)

Group Key Update Period: 600 second(s)

Primary RADIUS Server :

Host : *(Domain Name / IP Address)

Authentication Port : 1812 *

Secret Key :

Accounting Service : ☒ Disable ☐ Enable

Accounting Port : 1813 *

Accounting Interim Update Interval : 60 second(s)*

Secondary RADIUS Server :

Host: (Domain Name / IP Address)

Authentication Port: 1812

Secret Key:

Accounting Service: ☒ Disable ☐ Enable

Accounting Port: 1813

Accounting Interim Update Interval: 60 second(s)

SAVE CLEAR

➤ **WPA Settings:**

- **Cipher Suite:** Select an encryption method from *TKIP (WPA)*, *AES (WPA)*, *TKIP(WAP2)*, *AES (WAP2)*, or *Mixed*.
- **Group Key Update Period:** The time interval for the Group Key to be renewed; the time unit is in second.

➤ **Primary RADIUS Server Settings:**

- **Host:** Enter the IP address or domain name of the RADIUS server.
- **Authentication Port:** The port number used by the RADIUS server. Specify a port number or use the default, 1812.
- **Secret Key:** The secret key for the system to communicate with the RADIUS server.
- **Accounting Service:** Enable or disable the accounting service.
- **Accounting Port:** The port number used by the RADIUS server. Specify a port number or use the default, 1813.
- **Accounting Interim Update Interval:** The time interval for the accounting to be updated; the time unit is in second.

4.2.5 Repeater Settings

The system can serve as an Access Point, a Repeater, or an Access Point with Repeater depending on deployment needs. Select a *Repeater Type* from the drop-down list box and proceed with the related settings.

- **None:** When None is selected, the system is acting as an Access Point only; therefore, no further configuration is required here

The screenshot displays the LevelOne WAB-3003 configuration web interface. At the top, the header includes the LevelOne logo, the product name 'WAB-3003 Wireless Outdoor CPE/AP/Repeater', and navigation links for Home, Logout, and Help. Below the header is a main menu with five large buttons: System, Wireless, Firewall, Utilities, and Status. The 'Wireless' button is highlighted. Underneath the main menu is a sub-menu with seven tabs: VAP Overview, General, VAP Config, Security, Repeater, Advanced, Access Control, and Site Survey. The 'Repeater' tab is selected. The main content area shows the breadcrumb 'Home > Wireless > Repeater Config' and the title 'Repeater Settings'. A 'Repeater Type' dropdown menu is set to 'None'. At the bottom of the form are two yellow buttons labeled 'SAVE' and 'CLEAR'.

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > Repeater Config

Repeater Settings

Repeater Type : None

SAVE CLEAR

WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge

- **WDS:** The device supports up to 8 WDS peers. After providing WDS peer's MAC address, click on **Add** to add this link to the table shown on User Interface.

The screenshot shows the LevelOne WAB-3003 web interface. At the top, there's a navigation bar with 'System', 'Wireless', 'Firewall', 'Utilities', and 'Status' tabs. Below this is a sub-navigation bar with 'VAP Overview', 'General', 'VAP Config', 'Security', 'Repeater', 'Advanced', 'Access Control', and 'Site Survey'. The main content area is titled 'Repeater Settings'. It contains several configuration fields: 'Repeater Type' set to 'WDS', 'WDS Profile' set to 'RF Card A : WDS Link 1', 'WDS' set to 'Disable', 'MAC Address' (empty), 'Security type' set to 'None', 'Site Distance' set to '1000' meter(s) with a note '(With optional smart Slot Time, ACK Timeout and CTS Timeout generation)', 'Slot Time' set to '13' micro second(s), 'ACK Timeout' set to '29' micro second(s), and 'CTS Timeout' set to '29' micro second(s). At the bottom are 'SAVE' and 'CLEAR' buttons.

- **Enable:** Select **Enable** to activate the specified WDS link.
- **MAC Address:** Enter the MAC address of the WDS peer. Click **Add** to add it into the list.
- **Security Type:** Select an appropriate security type for the WDS link, either **None**, **WEP** or **TKIP/AES**; the type selected needs to be the same as the one configured at the WDS peer.
- **Site Distance:** Fill in the distance from the farthest WDS peer to derive the suggested values for Slot Time, ACK Timeout, and CTS Timeout.
- **Slot Time:** With the concern of common medium access, Slot Time will allow the station to learn possible access from other station at the beginning of previous slot. This value should be equal or less than half of ACK/CTS Timeout.
- **ACK Timeout:** A valid 802.11 data transmission will be acknowledged with such "ACK" from the receiving radio or the retransmission will start if such ACK is not received within Timeout period. This value should be set equal or larger than RTT to the farthest WDS peer.
- **CTS Timeout:** This CTS acknowledges the previous sent RTS request in 802.11 common medium access. Its Timeout value can be treated the same as that for ACK Timeout and should be set equal or larger than RTT to the farthest WDS peer.

WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge

- **Universal Repeater:** If Universal Repeater is chosen, please provide the SSID of upper-bound AP for uplink connection; Security Type (None, WEP, or WPA-PSK) can be configured for this Repeater connection. Please note the security type configured here needs to be the same as upper-bound AP to be connected.

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > Repeater Config

Repeater Settings

Repeater Type : Universal Repeater ▼

The SSID of Upper-Bound AP : *

Current wireless channel of the system is set at 1. Repeater connection may fail if the system is set to connect to upper AP with different channels

Security Type : None ▼
None
WEP
WPA-PSK

SAVE CLEAR

- **The SSID of Upper-Bound AP:** Specify the SSID of the upper-bound AP that the system is used to extend that AP's wireless service coverage.
- **Security Type:** Select the security type used by the upper-bound AP, **None**, **WEP** or **WPA-PSK**. Security settings configured here must be the same as the upper-bound AP.

4.2.6 Advanced Wireless Settings

The advanced wireless settings for the system's VAP profiles allow customization of data transmission settings. The administrator can tune the following parameters to improve network communication performance if a poor connection occurs.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout Help

System Wireless Firewall Utilities Status

VAP Overview General VAP Config Security Repeater Advanced Access Control Site Survey

Home > Wireless > Advanced

Advanced Wireless Settings

Profile Name : VAP-1

RTS Threshold : 2346 *(1 - 2346)

Fragment Threshold : 2346 *(256 - 2346)

Broadcast SSID : ☐ Disable ☒ Enable

Wireless Station Isolation : ☒ Disable ☐ Enable

WMM : ☒ Disable ☐ Enable

IAPP : ☒ Disable ☐ Enable

802.11g Protection : ☒ Disable ☐ Enable

SAVE CLEAR

- **RTS Threshold:** To control station access to the medium and to alleviate this effect of the hidden terminal problem, the administrator can tune this RTS threshold value. A lower RTS Threshold setting can be useful in areas where many client devices are associating with WAB-3003 or in areas where the clients are far apart and can detect only WAB-3003 and not each other.
- **Fragmentation Threshold:** A unicast frame larger than this threshold will be fragmented before transmission. If a significant number of collisions are occurring, the administrator can try to set a smaller value of the threshold to see whether it helps. A smaller value results in smaller packets but allows a larger number of packets in transmission. A lower Fragment Threshold setting can be useful in areas where communication is poor or disturbed by a serious amount of radio interference.

- **Broadcast SSID:** Disabling this function will prevent the system from broadcasting its SSID. If you disable broadcast of the SSID, only devices that have the correct SSID can connect to the system.
- **Wireless Station Isolation:** By enabling this function, all stations associated with the system can only communicate with the system.
- **WMM:** The default is *Disable*. Wi-Fi Multimedia (WMM) is a Quality of Service (QoS) feature that prioritizes wireless data packets based on four access categories: voice, video, best effort, and background. Applications without WMM and applications that do not require QoS are assigned to the best-effort category, which receives a lower priority than voice and video. In short, WMM decides which data streams are the most important and assign them a higher traffic priority.
 - < To receive the benefits of WMM QoS >
 - The application must support WMM.
 - You must enable WMM in this system.
 - You must enable WMM in the wireless adapter in your computer.
- **IAPP:** IAPP (Inter Access Point Protocol) is a protocol by which access points share information about the stations that are connected to them. By enabling this function, the system will automatically broadcast information of associated wireless stations to its peer access points. This will help wireless stations roam smoothly among IAPP-enabled access points in the same wireless LAN.
- **802.11g Protection:** When enabled, the associated 802.11g stations will benefit from this function since their transmission speed will not be affected by the surrounding 802.11b stations.

4.2.7 Access Control Settings

The administrator can restrict the wireless access of client devices based on their MAC addresses.

The screenshot shows the web interface for the LevelOne WAB-3003. At the top, there is a navigation bar with the LevelOne logo and the product name. Below this is a main menu with icons for System, Wireless, Firewall, Utilities, and Status. The Wireless menu is selected, and a sub-menu is displayed with options: VAP Overview, General, VAP Config, Security, Repeater, Advanced, Access Control, and Site Survey. The Access Control option is selected, leading to the 'Access Control Settings' page. The page has a breadcrumb trail: Home > Wireless > Access Control. The settings include a 'Profile Name' dropdown set to 'VAP-1', a 'Maximum Number of Clients' input field set to '32' with a note '* (Range: 1 ~ 32)', and an 'Access Control Type' dropdown set to 'Disable Access Control'. At the bottom, there are 'SAVE' and 'CLEAR' buttons.

- **Maximum Number of Clients**

The system supports various methods of authenticating clients for using wireless LAN. The default policy is unlimited access without any authentication required. To restrict the station number of wireless connections, simply change the **Maximum Number of Stations** to a desired number. For example, while the number of stations is set to 20, only 20 stations are allowed to connect to the specified VAP.

- **Access Control Type**

The selected **Access Control Type** will be the activated policy while the rest will be omitted. The following is a list of the supported methods for MAC ACL control:

- (1) **Disable Access Control**

No MAC address check required.

(2) **MAC ACL Allow List**

Deny all except those in the Allow List. When selecting *MAC ACL Allow List*, all wireless connections to the specified VAP will be denied except the MAC addresses listed in the Allow List ("allowed MAC addresses"). The administrator can disable any allowed MAC address to connect to the VAP temporarily by checking *Disable*. For example, 11:22:33:44:55:66 is in the Allow List; to temporarily deny its access, check *Disable* in the **State** section.

The screenshot shows the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater web interface. The top navigation bar includes links for Home, Logout, and Help. Below the navigation bar are icons for System, Wireless, Firewall, Utilities, and Status. The main menu includes VAP Overview, General, VAP Config, Security, Repeater, Advanced, Access Control, and Site Survey. The breadcrumb trail is Home > Wireless > Access Control.

Access Control Settings

Profile Name : VAP-1

Maximum Number of Clients : 32 *(Range: 1 ~ 32)

Access Control Type : MAC ACL Allow List

No.	MAC Address	State
1	11:22:33:44:55:66	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
2		<input checked="" type="radio"/> Disable <input type="radio"/> Enable
3		<input checked="" type="radio"/> Disable <input type="radio"/> Enable

(3) **MAC ACL Deny List**

Allow all except those in the Deny List. When selecting *MAC ACL Deny List*, all wireless connections to the specified VAP will be allowed except the MAC addresses listed in the Deny List ("denied MAC addresses"). The administrator can allow any denied MAC address to connect to the VAP temporarily by checking *Enable*.

The screenshot shows the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater web interface. The top navigation bar includes links for Home, Logout, and Help. Below the navigation bar are icons for System, Wireless, Firewall, Utilities, and Status. The main menu includes VAP Overview, General, VAP Config, Security, Repeater, Advanced, Access Control, and Site Survey. The breadcrumb trail is Home > Wireless > Access Control.

Access Control Settings

Profile Name : VAP-1


Maximum Number of Clients : 32 *(Range: 1 ~ 32)

Access Control Type : MAC ACL Deny List


No.	MAC Address	State
1	1a:2b:3c:4d:5e:6f	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
2		<input checked="" type="radio"/> Disable <input type="radio"/> Enable
3		<input checked="" type="radio"/> Disable <input type="radio"/> Enable


(4) **RADIUS ACL**


Authenticate incoming MAC addresses by RADIUS. When selecting *RADIUS ACL*, all incoming MAC addresses will be authenticated by RADIUS. Please note that each VAP's MAC ACL and its security type (showing on the **Security Settings** page) share the same RADIUS configuration.


 **levelone**[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#) [Logout](#) [? Help](#)

 System

 Wireless

 Firewall

 Utilities

 Status

VAP OverviewGeneralVAP ConfigSecurityRepeaterAdvancedAccess ControlSite Survey

Home > Wireless > Access Control

Access Control Settings

Profile Name : VAP-1

Maximum Number of Clients : 32 *(Range: 1 ~ 32)

Access Control Type : RADIUS ACL

Primary RADIUS Server :

Note!!! These settings will also apply to security settings which use RADIUS Server for this VAP.

Host: *(Domain Name / IP Address)

Authentication Port: 1812 *(1 - 65535)

Secret Key: *

Secondary RADIUS Server :

Host:

Authentication Port: 1812

Secret Key:

SAVE

CLEAR

4.2.8 Site Survey

The system can scan and display all surrounding available access points (APs) when Universal Repeater is enabled. Site Survey is a useful tool to provide information about the surrounding wireless environment; available APs are shown with their respective SSID, MAC Address, Channel, Rate setting, Signal reading and Security type. The administrator can click Setup or Connect to configure the wireless connection for Universal Repeater according to the mentioned readings.



Figure 4-2-8-1: Site Survey- when repeater function is disabled.

Scan Result						
Scan Again!						
SSID	MAC Address	Channel	Rate	Signal	Security	Setup / Connect
Accton_AP	00:22:2D:90:74:86	1	54	57	WPA2-PSK	Setup
WAP-0003	00:11:6B:60:6A:C5	6	54	29	WEP	Setup
WBR-6002	00:C0:02:FF:C7:8E	11	54	10	None	Connect

Figure 4-2-8-2: Site Survey- when repeater function is enabled (example only)

- **SSID:** The SSID (Service Set ID) of the AP found in the system's coverage area.
- **MAC Address:** The MAC address of the respective AP.
- **Channel:** The channel number currently used by the respective AP or repeater.
- **Rate:** The transmitting rate of the respective AP.
- **Signal:** The signal strength of the respective AP.
- **Security:** The encryption type used by the respective AP

- **Setup/ Connect:**

- **Connect:** Click **Connect** to associate with the respective AP directly; no further configuration is required.

AP	00:1F:D4:39:10:74	11	54	54	None	Connected
----	-------------------	----	----	----	------	-----------

- **Setup:** Click **Setup** to configure security settings for associating with the respective AP.
 - **WEP:** Click **Setup** to configure the WEP setting for associating with the target AP.

WAP-0003	00:11:6B:60:6A:C5	6	54	40	WEP	Setup
----------	-------------------	---	----	----	-----	-------

The following configuration box will then appear at the bottom of the screen. For more information on the WEP security settings, please refer to **Section 4.2.4. Security Settings**.

WEP Key Type :	<input checked="" type="radio"/> Open <input type="radio"/> Shared
WEP Key Length :	<input checked="" type="radio"/> 64 bits <input type="radio"/> 128 bits <input type="radio"/> 152 bits
WEP Key Format :	<input checked="" type="radio"/> ASCII <input type="radio"/> Hex
WEP Key Index :	1 ▾
WEP Keys :	1 <input type="text"/> 2 <input type="text"/> 3 <input type="text"/> 4 <input type="text"/>
Connect	

- **WPA-PSK:** Click **Setup** to configure the WPA-PSK setting for associating with the target AP.

Accton_AP	00:22:2D:90:74:86	1	54	59	WPA2-PSK	Setup
-----------	-------------------	---	----	----	----------	-------

The following configuration box will then appear at the bottom of the screen. For more information on the WPA-PSK security settings, please refer to **Section 4.2.4. Security Settings**.


Pre-shared Cipher :	TKIP ▾
Pre-shared Key Type :	<input type="radio"/> PSK(Hex) *(64 chars) <input checked="" type="radio"/> Passphrase *(8 - 63 chars)
Pre-shared Key :	<input type="text"/>
Connect	

4.3 Firewall

The system provides an added security feature, L2 firewall, in addition to typical AP security. Layer-2 firewall offers a firewall function that is tailored specifically for layer 2 traffics, providing another choice of shield against possible security threats coming from/going to WLAN (AP interfaces); hence, besides firewall policies configured on gateways, this extra security feature will assist to mitigate possible security breach.

4.3.1 Layer 2 Firewall Settings

It provides an overview of firewall rules in the system; 6 default rules with up to total 20 firewall rules are available for configuration.


WAB-3003 Wireless Outdoor CPE/AP/Repeater
Home Logout Help

System
Wireless
Firewall
Utilities
Status

Firewall List
Service
Advanced

Home > Firewall > Firewall List

Layer 2 Firewall Settings

Enable Layer 2 Firewall
☐ Disable
☒ Enable

No.	State	Action	Name	EtherType	Remark	Setting
1	<input checked="" type="checkbox"/>	DROP	CDP and VTP	IEEE_8023		Del Ed In Mv
2	<input checked="" type="checkbox"/>	DROP	STP	IEEE_8023		Del Ed In Mv
3	<input checked="" type="checkbox"/>	DROP	GARP	IEEE_8023		Del Ed In Mv
4	<input checked="" type="checkbox"/>	DROP	RIP	IPv4		Del Ed In Mv
5	<input checked="" type="checkbox"/>	DROP	HSRP	IPv4		Del Ed In Mv
6	<input checked="" type="checkbox"/>	DROP	OSPF	IPv4		Del Ed In Mv
7	<input type="checkbox"/>					Del Ed In Mv
8	<input type="checkbox"/>					Del Ed In Mv
9	<input type="checkbox"/>					Del Ed In Mv
10	<input type="checkbox"/>					Del Ed In Mv

First Prev Next Last (total: 20)

SAVE
CLEAR

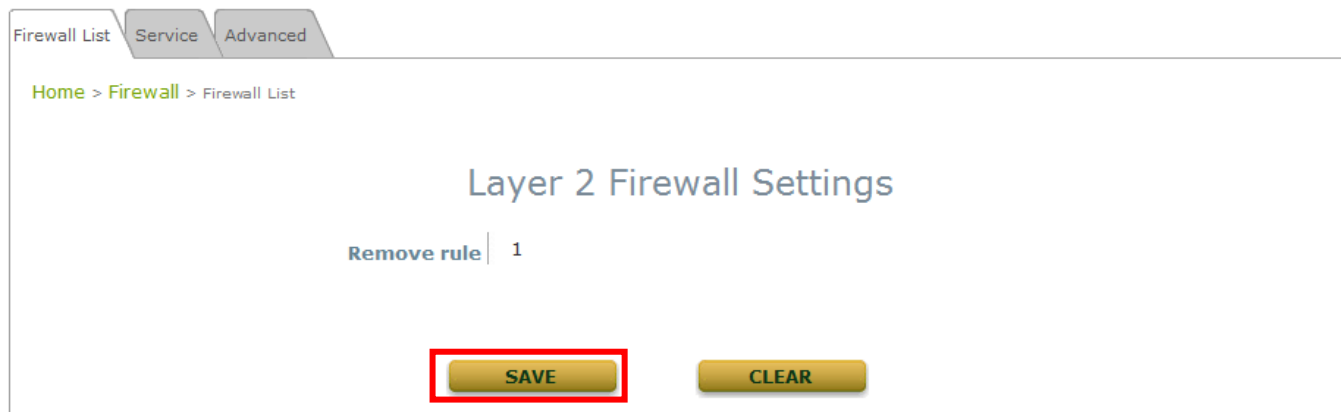
From the overview table, each rule is designated with the following fields:

- ◆ **No.:** The numbering will decide the priority to let system carry out the available firewall rules in the table.
- ◆ **State:** The check marks will enable the respective rules.
- ◆ **Action:** "DROP" denotes a block rule; "ACCEPT" denotes a pass rule.
- ◆ **Name:** It shows the name of rule.
- ◆ **Ether Type:** It denotes the type of traffics subject to this rule.
- ◆ **Remark:** It shows the note of this rule.
- ◆ **Setting:** 4 actions are available; "**Del**" denotes to delete the rule, "**Ed**" denotes to edit the rule, "**In**" denotes to insert a rule, and "**Mv**" denotes to move the rule.

>> *To delete a specific rule,*

"Del" in "Setting" column of firewall list will lead to the following page for removal confirmation.


After "SAVE" button is clicked and system reboot, the rule will be removed.




>> *To edit a specific rule,*


"Ed" in "Setting" column of firewall list will lead to the following page for detail configuration.


From this page, the rule can be edited form scratch or from an existing rule for revision.


 WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#) [Logout](#) [? Help](#)

 System

 Wireless

 Firewall

 Utilities

 Status

Firewall List Service Advanced

[Home](#) > [Firewall List](#) > Rule Config

Layer 2 Firewall Configuration

Rule ID : 1

Rule name : CDP and VTP *

EtherType : IEEE802.3

Interface : ☒ From ☐ To
VAP1

DSAP/SSAP : aa

Type : 2000 (ie IPv4: 0800)

Source : MAC Address: Mask:

Destination : MAC Address: 01:00:0C:CC:CC:CC Mask:

Action : ☒ Block ☐ Pass

Remark :

SAVE CLEAR

WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge


- ◆ **Rule ID:** The numbering of this specific rule will decide its priority among available firewall rules in the table.
- ◆ **Rule name:** The rule name can be specified here.
- ◆ **Ether Type:** The drop-down list will provide the available types of traffics (ALL, IPv4, IEEE802.3, 802.1Q, ARP, and RARP) subject to this rule.
- ◆ **Interface:** It can indicate inbound/outbound direction with desired interfaces (VAP1~VAP8)
- ◆ **Service (when Ether Type is IPv4):** Select the available upper layer protocols/services from the drop-down list.
- ◆ **DSAP/SSAP (when Ether Type is IEEE802.3):** The value can be further specified for the fields in 802.2 LLC frame header.
- ◆ **Type (when Ether Type is IEEE802.3):** The field can be used to indicate the type of encapsulated traffics.
- ◆ **Vlan ID (when Ether Type is 802.1Q):** The Vlan ID is provided to associate with certain VLAN-tagging traffics.
- ◆ **Priority (when Ether Type is 802.1Q):** It denotes the priority level with associated VLAN traffics.
- ◆ **Encapsulated Type (when EtherType is 802.1Q):** It can be used to indicate the type of encapsulated traffics.
- ◆ **Opcode (when EtherType is ARP/RARP):** This list can be used to specify the ARP Opcode in ARP header.
- ◆ **Source:** MAC Address/Mask indicates the source MAC; IP Address/Mask indicates the source IP address (when EtherType is IPv4); ARP IP/MAC & MASK indicate the ARP payload fields.
- ◆ **Destination:** MAC Address/Mask indicates the destination MAC; IP Address/Mask indicates the destination IP address (when EtherType is IPv4); ARP IP/MAC & MASK indicate the ARP payload fields.
- ◆ **Action:** The rule can be chosen to be "Block" or "Pass".
- ◆ **Remark:** The note of this rule can be specified here.

When the configuration for firewall rules is provided, please click "**SAVE**" and reboot system to let the firewall rules take effect.


>> *To insert a specific rule,*


"In" in "Setting" column of firewall list will lead to the following page for detail configuration with rule ID for the current inserted rule.


From this page, the rule can be edited from scratch or from an existing rule for revision.


 WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#) [Logout](#) [? Help](#)

 System

 Wireless

 Firewall

 Utilities

 Status

Firewall List Service Advanced

Home > Firewall List > Rule Config

Layer 2 Firewall Configuration

Rule ID : 1

Rule name : CDP and VTP

EtherType : IEEE802.3

Interface : ☒ From ☐ To
VAP1

DSAP/SSAP : aa

Type : 2000 (ie IPv4: 0800)

Source : MAC Address: Mask:

Destination : MAC Address: Mask:

Action : ☒ Block ☐ Pass

Remark :

SAVE

CLEAR


>> *To move a specific rule,*


"Mv" in "Setting" column of firewall list will lead to the following page for re-ordering confirmation. After **"SAVE"** button is clicked and system reboot, the order of rules will be updated.


The screenshot displays the web interface of the levelone WAB-3003 Wireless Outdoor CPE/AP/Repeater. The top navigation bar includes links for Home, Logout, and Help. Below this is a main menu with icons and labels for System, Wireless, Firewall (selected), Utilities, and Status. The Firewall section is further divided into Firewall List, Service, and Advanced tabs. The breadcrumb trail shows the path: Home > Firewall > Move rule. The main heading is 'Move Rule'. The form contains the following fields and controls:


- ID :** 1
- Move to :** ☒ Before ☐ After
- ID :** *(1 - 20)
- SAVE** button
- CLEAR** button


Please make sure all desired rules (state of rule) are **checked** and **saved** in overview page; the rule will be enforced upon system reboot.



WAB-3003 Wireless Outdoor CPE/AP/Repeater
Home Logout ? Help


System


Wireless


Firewall


Utilities


Status

Firewall List Service Advanced

[Home](#) > [Firewall](#) > Firewall List

Layer 2 Firewall Settings

Enable Layer 2 Firewall
☐ Disable
 ☒ Enable

No.	State	Action	Name	EtherType	Remark	Setting
1	<input checked="" type="checkbox"/>	DROP	CDP and VTP	IEEE_8023		Del Ed In Mv
2	<input type="checkbox"/>	DROP	STP	IEEE_8023		Del Ed In Mv
3	<input type="checkbox"/>	DROP	GARP	IEEE_8023		Del Ed In Mv
4	<input type="checkbox"/>	DROP	RIP	IPv4		Del Ed In Mv
5	<input type="checkbox"/>	DROP	HSRP	IPv4		Del Ed In Mv
6	<input type="checkbox"/>	DROP	OSPF	IPv4		Del Ed In Mv
7	<input type="checkbox"/>					Del Ed In Mv
8	<input type="checkbox"/>					Del Ed In Mv
9	<input type="checkbox"/>					Del Ed In Mv
10	<input type="checkbox"/>					Del Ed In Mv

[First](#) [Prev](#) [Next](#) [Last](#) (total: 20)


SAVE

CLEAR

Layer 2 Firewall Settings (Check State)


4.3.2 Firewall Service


The administrator can add or delete firewall services here; the services in this list will become options to choose in firewall rule (when Ether Type is IPv4).





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WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#)
[Logout](#)
[? Help](#)


 System


 Wireless


Firewall


 Utilities


 Status

Firewall List

Service

Advanced

[Home](#) > [Firewall](#) > Service Config

Firewall Service

No.	Name	Description	Delete
1	ALL	ALL	<input type="checkbox"/>
2	ALL TCP	TCP, Source Port: 0~65535, Destination Port: 0~65535	<input type="checkbox"/>
3	ALL UDP	UDP, Source Port: 0~65535, Destination Port: 0~65535	<input type="checkbox"/>
4	ALL ICMP	ICMP	<input type="checkbox"/>
5	FTP	TCP/UDP, Destination Port: 20~21	<input type="checkbox"/>
6	HTTP	TCP/UDP, Destination Port: 80	<input type="checkbox"/>
7	HTTPS	TCP/UDP, Destination Port: 443	<input type="checkbox"/>
8	POP3	TCP, Destination Port: 110	<input type="checkbox"/>
9	SMTP	TCP, Destination Port: 25	<input type="checkbox"/>
10	DHCP	UDP, Destination Port: 67~68	<input type="checkbox"/>

[First](#)
[Prev](#)
[Next](#)
[Last](#)
(total: 28)

Overview of Firewall Services

There are 28 firewall services available in default settings; these default services cannot be deleted but can be disabled. If changes are made, please click SAVE to save the settings before leaving this page.

4.3.3 Advanced Firewall Settings

Advanced firewall settings are used to supplement the firewall rules, providing extra security enhancement against DHCP and ARP traffics traversing the available interfaces of system.

The screenshot displays the web interface of the LevelOne WAB-3003. At the top, there is a navigation bar with the LevelOne logo, the device name 'WAB-3003 Wireless Outdoor CPE/AP/Repeater', and links for Home, Logout, and Help. Below this is a main menu with icons and labels for System, Wireless, Firewall (which is highlighted), Utilities, and Status. Under the Firewall menu, there are sub-tabs for Firewall List, Service, and Advanced (which is selected). The breadcrumb trail shows 'Home > Firewall > Advanced'. The main content area is titled 'Advanced Firewall Settings'. It contains several configuration sections: 'Trust Interface' with checkboxes for VAP1-VAP8 (all unchecked) and WDS1-WDS8 (all checked); a 'LAN' checkbox (checked); 'DHCP Snooping' with radio buttons for Disable (selected) and Enable; 'ARP Inspection' with radio buttons for Disable (selected) and Enable; 'Trust List Broadcast' with radio buttons for Disable (selected) and Enable; and 'Static Trust List' with radio buttons for Disable (selected) and Enable. At the bottom of the form are two large yellow buttons labeled 'SAVE' and 'CLEAR'.

- ◆ **Trust Interface:** Each interface can be checked individually to mark as trusted interfaces; security enforcements on DHCP/ARP like DHCP snooping and ARP inspection will be carried out on non-trusted interfaces.
- ◆ **DHCP Snooping:** When enabled, DHCP packets will be validated against possible threats like DHCP starvation attack; in addition, the trusted DHCP server (IP/MAC) can be specified to prevent rogue DHCP server.
- ◆ **ARP Inspection:** When enabled, ARP packets will be validated against ARP spoofing. **Trust List Broadcast** can be enabled to let other WAB-3003 (with L2 firewall feature) learn the trusted MAC/IP pairs to issue ARP requests. **Static Trust List** can be used to add MAC or MAC/IP pairs to issue ARP request. Other network nodes can still send their ARP requests; however, if their IP appears in the static list (with different MAC), their ARP requests will be dropped to prevent eavesdropping.

If any settings are made, please click **SAVE** to save the configuration before leaving this page.

4.4 Utilities

The administrator can maintain the system on this page: **Change Password**, **Network Utilities**, **Configuration Save & Restore**, **System Upgrade**, and **Reboot**.



levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall **Utilities** Status

Change Password Network Utilities Config Save & Restore System Upgrade Reboot

Home > Utilities > Change Password

Change Password

Name : root

Old Password :

New Password : *up to 32 characters

Re-enter New Password :

SAVE CLEAR

4.4.1 Change Password

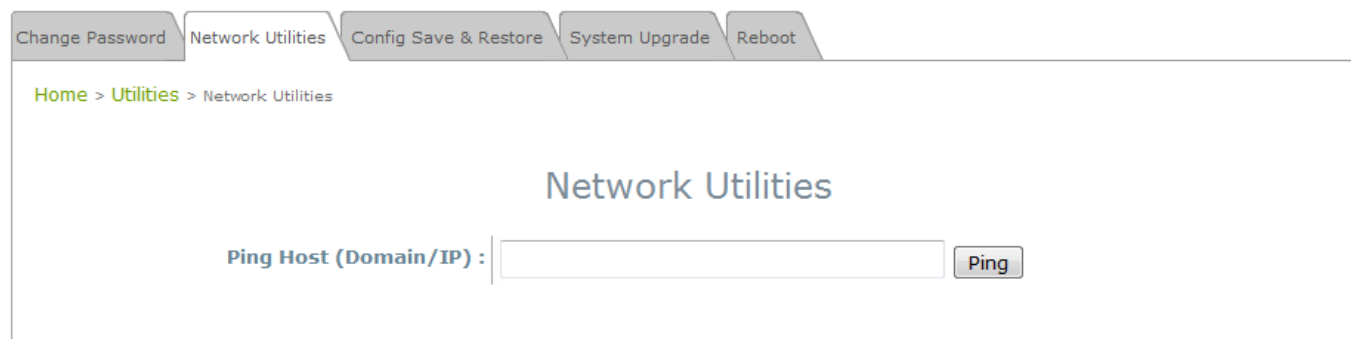
The administrator can update or change password. The system provides one management account for AP mode, **root** account. The administrator can change password on this page.

The screenshot displays the web interface for the LevelOne WAB-3003. At the top, the header includes the LevelOne logo, the device model 'WAB-3003 Wireless Outdoor CPE/AP/Repeater', and navigation links for Home, Logout, and Help. Below the header is a main menu with five tabs: System, Wireless, Firewall, Utilities, and Status. The 'Utilities' tab is highlighted with a red border. Underneath the main menu is a sub-menu with five options: Change Password, Network Utilities, Config Save & Restore, System Upgrade, and Reboot. The 'Change Password' option is selected. The main content area shows the 'Change Password' page. It features a form with the following fields: 'Name' (pre-filled with 'root'), 'Old Password' (masked with dots), 'New Password' (masked with dots, with a red note '*up to 32 characters'), and 'Re-enter New Password' (masked with dots). At the bottom of the form are two buttons: 'SAVE' (highlighted with a red border) and 'CLEAR'.


- **"root" account:** Enter the original password ("**admin**") and a new password, and then re-enter the new password in the *Re-enter New Password* field. Click **SAVE** to save the new password.

4.4.2 Network Utilities

The administrator can check the network connectivity via this function. The current provided network utility is Ping and the target host FQDN-compliant name or IP address can be provided to test network connection.



- **Ping Host (Domain/ IP):** Enter the domain name or IP address of a target device for diagnosis purpose, for example, www.google.com, and click **Ping** to proceed. The ping result will be shown in the **Result** field.



4.4.3 Configuration Save & Restore

This function is used to backup or restore the current settings. The system can be restored to the default setting by clicking on Reset. The setting of the device can be back up to a file. It can be used to duplicate setting to the other WAB-3003 device.



- **Reset to Default:**

- Click **Reset** to load the factory default settings of WAB-3003. A pop-up screen will appear to reconfirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.



- A warning message as displayed below will appear during the reboot period. The system power must be turned on before the completion of the reboot process.
- The **System Overview** page will appear upon the completion of reboot.

- **Backup System Settings:** Click **Save** to save the current system settings to a local disk such as the hard disk drive (HDD) of a local computer or a compact disc (CD).
- **Restore System Settings:** Click **Browse** to search for a previously saved backup file, and then click **Upload** to restore the settings. The backup file will replace the active configuration file currently running on the system.

4.4.4 System Upgrade

To upgrade the system firmware, click **Browse** to search for the new firmware file, and then click **Apply** to execute the upgrade process. The first step is to acquire the correct firmware file and supply it in the User Interface field. During firmware update, please don't turn off the power to prevent from damaging the device permanently.

The screenshot shows the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater web interface. The top navigation bar includes links for Home, Logout, and Help. Below this is a main menu with icons and labels for System, Wireless, Firewall, Utilities, and Status. A secondary menu below the main menu includes Change Password, Network Utilities, Config Save & Restore, System Upgrade (which is highlighted), and Reboot. The main content area displays the 'System Upgrade' page. It shows the current version as 1.00.01 and the current build number as 1.12-1.2928. There is a 'File Name:' label followed by a text input field and a '浏览...' (Browse) button. An 'Upload' button is also present.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

Change Password Network Utilities Config Save & Restore System Upgrade Reboot

Home > Utilities > System Upgrade

System Upgrade

Current Version: 1.00.01
Current Build Number: 1.12-1.2928

File Name: 浏览... Upload

Note:

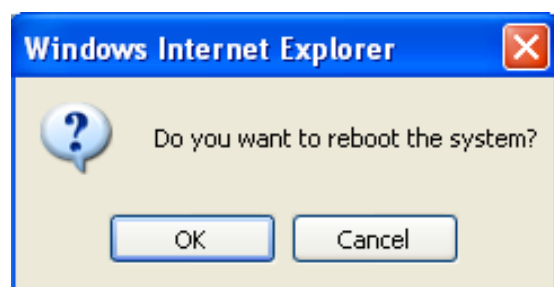
- To prevent data loss during firmware upgrade, please back up the current settings before proceeding further.
- Please restart the system after the upgrade. Do not interrupt the system, i.e. power on/off, during the upgrade or restart process since it may cause damage to the system.

4.4.5 Reboot

The administrator can reboot the device remotely. Click **Reboot** to restart the system immediately.



A pop-up screen will appear to confirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.




A warning message as displayed below will appear during the reboot period. The system power must be turned on before the completion of the reboot process.




The **System Overview** page will appear upon the completion of reboot.


4.5 Status


This section displays the status of **System Overview**, **Clients**, **Repeater**, and **Event Log**.



levelone
WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#)
[Logout](#)
[? Help](#)


System


Wireless


Firewall



Utilities


Status

Overview
Clients
Repeater
Event Log


[Home](#) > [Status](#) > System Overview

System Overview




System

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:02:00
System Up Time	0 days, 0:02:00
Operating Mode	AP




Radio Status

MAC Address	00:1F:D4:00:20:F1
Band	802.11b+g
Channel	1
TX Power	Highest



LAN Interface

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
Gateway	192.168.0.254



AP Status

Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:1F:D4:00:20:F1	LevelOne	None	0

4.5.1. System Overview

The **System Overview** page provides an overview of the system status for the administrator.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout Help

System Wireless Firewall Utilities Status

Overview Clients Repeater Event Log

Home > Status > System Overview

System Overview

System

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:02:00
System Up Time	0 days, 0:02:00
Operating Mode	AP

Radio Status

MAC Address	00:1F:D4:00:20:F1
Band	802.11b+g
Channel	1
TX Power	Highest

LAN Interface

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
Gateway	192.168.0.254

AP Status

Profile Name	BSSID	ESSID	Security Type	Online Clients
VAP-1	00:1F:D4:00:20:F1	LevelOne	None	0

The description of the table is shown below:

ITEM		DESCRIPTION
System	System Name	The name provided in System Information.
	Firmware Version	The present firmware version of the system.
	Build Number	The Build Number of the firmware.
	Location	The location provided in System Information.
	Site	The firmware version for specific region.
	Device Time	The current time on the device.
	System Up Time	The system elapsing time since last reboot.
	Operating Mode	Either CPE or AP.
LAN Interface	MAC Address	The MAC address of LAN Interface.
	IP Address	The IP address of the LAN Interface.
	Subnet Mask	The Subnet Mask of the LAN Interface.
	Gateway	The gateway of LAN interface.
Radio Status	MAC Address	The MAC address of RF interface.
	Band	The operating band.
	Channel	The operating channel.
	Tx Power	The level of transmitted power.
AP Status	BSSID	The BSSID (MAC) of AP.
	ESSID	The assigned ESSID of AP.
	Security Type	The security type of AP.
	Online Client	The number of online clients associated with AP.

4.5.2. Associated Client Status

The administrator can remotely oversee the status of all associated clients on this page. Associated client's MAC, SNR and Idle Time are listed in the table.

Home > Status > Wireless Clients

Associated Client Status

Client List

Associated VAP	ESSID	MAC Address	SNR (dB)	Idle Time (secs)	Disconnect
VAP-1	LevelOne	00:18:de:de:0a:45	11	23	<button>Kick</button>

- **Associated VAP:** The specific VAP which the client is associated with.
- **ESSID:** The Extended Service Set ID which the client is associated with.
- **MAC Address:** The MAC address of associated clients.
- **SNR:** The Signal to Noise Ratio of respective client's association.
- **Idle Time:** Time period that the associated client is inactive; the time unit is in second.
- **Disconnect:** Click "Kick" to disconnect the client from this AP.

4.5.3. Repeater Information

The administrator can review detailed information of the repeater function on this page. Information of repeater's status, mode and encryption is provided.

- **WDS Link Status:** The table will be displayed when WDS mode is selected. For more information on the repeater type, please refer to **Section 4.2.5 Repeater Settings**.
 - **Status:** The status of the repeater function either *Enabled* or *Disabled*.
 - **MAC Address:** The MAC Address of the WDS peer.
 - **RSSI:** Received Signal Strength Indication, a measurement of received radio signal over WDS link.
 - **Tx Rate:** The transmit rate of the Repeater.
 - **Tx Count:** The accumulative number of transmission counts.
 - **Tx Error:** The accumulative number of transmission errors.
 - **Encryption:** The encryption type used: *None*, *WEP*, or *WPA-PSK*.

Overview Clients Repeater Event Log

Home > Status > Repeater Information

Repeater Information

WDS Link Status

Item	Status	MAC Address	RSSI	TX Rate	TX Count	TX Error	Encryption
1	Enabled	0A:11:A3:08:09:56	0	54 M	46	46	None
2	Disabled		N/A	N/A	N/A	N/A	N/A
3	Disabled		N/A	N/A	N/A	N/A	N/A
4	Disabled		N/A	N/A	N/A	N/A	N/A

Fig. 4.5.3-1 WDS

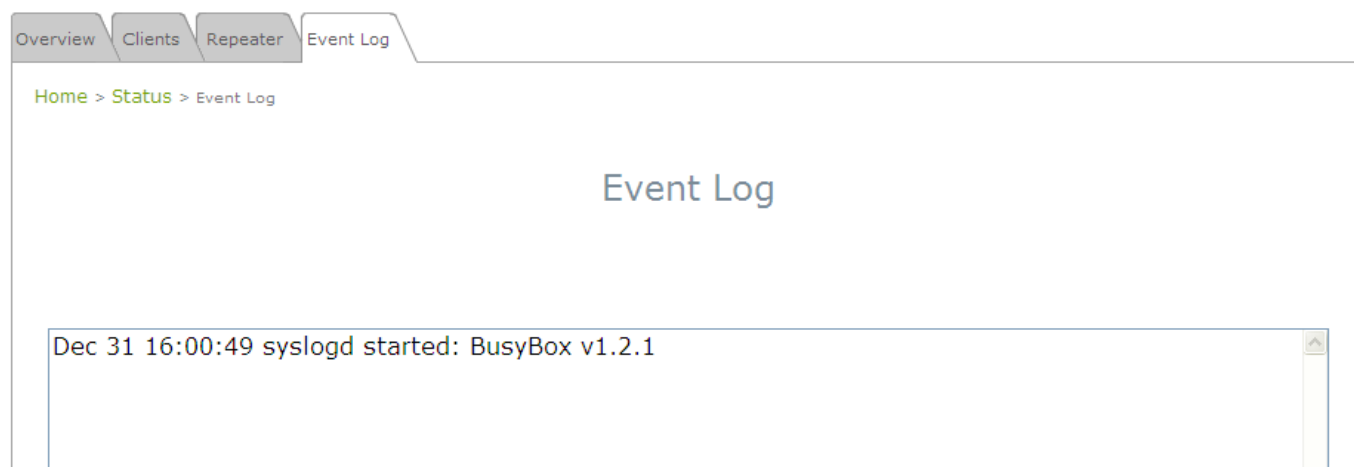
- **Universal Repeater:** The table will be displayed when Universal Repeater mode is selected. For more information on the repeater type, please refer to **Section 4.2.5 Repeater Settings**.
 - **SSID:** SSID of the upper-bound AP to be associated with.
 - **Tx Rate:** The transmit rate of the Repeater.
 - **SNR:** The SNR (Signal to Noise Ratio) indicates the relative signal strength between the upper-bound AP and the system.
 - **Tx Count:** The accumulative number of transmission counts.
 - **Tx Error:** The accumulative number of transmission errors.
 - **Encryption:** The encryption type used: *None*, *WEP*, or *WPA-PSK*.



Fig 4.5.3-2 Universal Repeater

4.5.4. Event Log

Event log provides the records of the system activities. All the system events are shown here.

**Note:**

As the Event Log is stored in RAM, it will be refreshed after the system is restarted. The system also supports a Syslog reporting function of reporting the events to an external Syslog server.

- **Date/ Time:** The date and time when the event happened.
- **Hostname:** Indicate which Host records this event. Note that all events in this page are local events and this field of all events is the same. However, in remote Syslog service, this field will help the network administrator identify which event is from this system. For more information, please refer to **Section 4.1.4 Management Services**.
- **Process name (with square brackets):** Indicate which process with the specific event is associated.
- **Description:** Description of the event.

4.6 Online Help

The **Help** button is at the upper right hand corner of the display screen.

Click **Help** for the **Online Help** window, and then click the hyperlink of the desired topic for further information.

Online Help (AP Mode)

Organization of the Configuration Web:


System	Wireless	Firewall	Utilities	Status
System Information	VAP Overview	Firewall List	Password	System Overview
Operating Mode	General	Service	Network Utilities	Clients
Network	VAP Config	Advanced	Config Save Restore	Repeater
Management Services	Security		System Upgrade	Event Log
	Repeater		Reboot	
	Advanced			
	Access Control			
	Site Survey			

5.CPE Mode Configuration


When CPE mode is activated, the system acts as a gateway where it connects to the WAN wirelessly and provides Ethernet connection to users via wired LAN. This chapter will guide you through setting up the CPE mode with graphical illustrations. The following table shows all the functions of **WAB-3003** in its CPE mode.


OPTION	System	Wireless	Firewall	Utilities	Status
FUNCTION	System Information	General Setting	IP/ Port Forwarding	Change Password	System Overview
	Operating Mode	Advanced Wireless Settings	Demilitarized Zone	Network Utilities	Event Log
	Network Settings	Security Settings		Configuration Save & Restore	DHCP Lease
	Management Services	Site Survey		System Upgrade	UPnP Status
				Reboot	


Table 5-1: CPE Mode Functions



levelone
WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#)
[Logout](#)
[? Help](#)


System


Wireless


Firewall



Utilities


Status

[System Overview](#)
[Event Log](#)
[DHCP Lease](#)
[UPnP](#)


[Home](#) > [Status](#) > System Overview

System Overview




System

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:00:55
System Up Time	0 days, 0:00:55
Operating Mode	CPE




Radio Status

Status	Connected
SSID	Bzeek Free WiFi
MAC Address	00:1C:BF:25:F4:B8
Channel	7
Signal Strength	48
Security	None



LAN Interface

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled




WAN Interface

Mode	Static
MAC Address	00:1F:D4:00:20:F1
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
Gateway	192.168.10.254
Bandwidth	Down: Unlimited / UP: Unlimited


Figure 5-1: CPE Mode Main Page


5.1 System


This section provides information in configuring the following functions: **System Information**, **Operating Mode**, **Network Settings**, and **Management Services**.


 **levelone**® WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#) [Logout](#) [? Help](#)


System


Wireless


Firewall


Utilities


Status

System Information | Operating Mode | Network | Management

[Home](#) > [System](#) > General

System Information

Name : *

Description :

Location :

Time

Device Time : 1999/12/31 16:21:55

Time Zone :

Time : ☐ Enable NTP ☒ Manually set up

Set Date : Year Month Day

Set Time : Hour Min Sec

Note:

A system restart is required when a reminding message appears after clicking the **SAVE** button; all settings entered and saved will take effect only after a system restart.

5.1.1 System Information

For maintenance purpose, it is required to specify the system name, its location and corresponding basic parameters. Fields such as *Name*, *Description* and *Location* are used for mnemonic purpose. It is recommended to have different values in each AP.

The screenshot shows the web interface for the LevelOne WAB-3003. At the top, there is a navigation bar with links for Home, Logout, and Help. Below this is a main menu with icons and labels for System, Wireless, Firewall, Utilities, and Status. The 'System' tab is selected, and the 'System Information' sub-tab is active. The breadcrumb trail shows 'Home > System > General'. The 'System Information' section contains three input fields: 'Name' (pre-filled with 'WAB-3003'), 'Description', and 'Location'. Below this is the 'Time' section, which includes a 'Device Time' display showing '1999/12/31 16:21:55', a 'Time Zone' dropdown menu set to '(GMT-08:00)Pacific Time(US&Canada),Tijuana', and radio buttons for 'Enable NTP' and 'Manually set up'. The 'Manually set up' option is selected. Below these are 'Set Date' and 'Set Time' fields, each with dropdown menus for Year, Month, Day, Hour, Min, and Sec. At the bottom of the form are 'SAVE' and 'CLEAR' buttons.

• System Information

For maintenance purpose, it is recommended to have the following information stated as clearly as possible. Fields Name, Description, and Location are used for mnemonic purpose. It is recommended to have different values in each wireless device.

- *Name*: The system name used to identify this system
- *Description*: Further information of the system.
- *Location*: Information about the geographical location of the system, which can help the administrator locate it easily.

• Time

Time settings allow the system time synchronized with NTP server or manually set.

- *Device Time*: Display the current time of the system.
- *Time Zone*: Select an appropriate time zone from the drop-down list box.

- **Synchronization:** Synchronize the system time either by NTP server or manual setup.

(1) **Enable**

NTP:

By selecting **Enable NTP**, WAB-3003 can synchronize its system time with the NTP server automatically. While this method is chosen, at least one NTP server's IP address or domain name must be provided. If FQDN (Full Qualified Domain Name) is used as the IP address of NTP server, the DNS server must also be activated (please refer to **5.1.3 Network Settings**).

Time

Device Time :	1999/12/31 16:04:08		
Time Zone :	<div style="border: 1px solid #ccc; padding: 2px;">(GMT-08:00)Pacific Time(US&Canada),Tijuana</div>		
Time :	<input checked="" type="radio"/> Enable NTP <input type="radio"/> Manually set up		
NTP Server 1 :	<div style="border: 1px solid #ccc; padding: 2px;">tock.stdtime.gov.tw</div>	*	
NTP Server 2 :	<div style="border: 1px solid #ccc; height: 20px;"></div>		

(2) **Manually**

set

up:

By selecting **Set manually set up**, the administrator can manually set the system date and time.

Time

Device Time :	1999/12/31 16:04:08		
Time Zone :	<div style="border: 1px solid #ccc; padding: 2px;">(GMT-08:00)Pacific Time(US&Canada),Tijuana</div>		
Time :	<input type="radio"/> Enable NTP <input checked="" type="radio"/> Manually set up		
Set Date :	<div style="border: 1px solid #ccc; padding: 2px;">----</div> <div style="font-size: 10px;">Year</div>	<div style="border: 1px solid #ccc; padding: 2px;">--</div> <div style="font-size: 10px;">Month</div>	<div style="border: 1px solid #ccc; padding: 2px;">--</div> <div style="font-size: 10px;">Day</div>
Set Time :	<div style="border: 1px solid #ccc; padding: 2px;">--</div> <div style="font-size: 10px;">Hour</div>	<div style="border: 1px solid #ccc; padding: 2px;">--</div> <div style="font-size: 10px;">Min</div>	<div style="border: 1px solid #ccc; padding: 2px;">--</div> <div style="font-size: 10px;">Sec</div>

- **Set Date:** Select the appropriate *Year*, *Month*, and *Day* from the drop-down list box.
- **Set Time:** Select the appropriate *Hour*, *Min*, and *Sec* from the drop-down list box.

5.1.2 Operating Mode

WAB-3003 supports two operation modes: CPE mode and AP mode. The administrator can set the desired mode on this page, and then configure the system according to deployment needs.

The screenshot displays the web management interface for the WAB-3003. At the top, the 'levelone' logo is on the left, and navigation links for 'Home', 'Logout', and 'Help' are on the right. Below the header is a main menu with five icons: 'System' (router), 'Wireless' (signal tower), 'Firewall' (brick wall), 'Utilities' (hammer), and 'Status' (notepad). A secondary menu below this shows 'System Information', 'Operating Mode' (selected), 'Network', and 'Management'. The breadcrumb trail reads 'Home > System > Operating Mode'. The main content area is titled 'Operating Mode' and contains a section labeled 'Operating Mode :'. Inside this section, there are two radio buttons: 'CPE Mode' (which is selected) and 'AP Mode'. Below these options are two yellow buttons: 'SAVE' and 'CLEAR'. Red boxes are drawn around the 'Operating Mode :', the radio buttons, and the 'SAVE' button in the original image.


- **Operating Mode:** Select *CPE Mode* and then click **SAVE** to save the setting.






Note:

After clicking **SAVE**, the system will immediately ask for a reboot to activate the selected mode.

5.1.3 Network Settings

WAN and LAN settings can be configured on this page.


levelone
WAB-3003 Wireless Outdoor CPE/AP/Repeater
Home Logout ? Help

 System
  Wireless
  Firewall
  Utilities
  Status

System Information
 Operating Mode
 Network
 Management

Home > System > Network Interface

WAN Configuration

Mode :
☒ Static
 ☐ DHCP

IP Address : *

Netmask : *

Default Gateway : *

Primary DNS Server : *

Alternate DNS Server :

Bandwidth Limit :

Download :

Upload :

Dynamic DNS (DDNS)

DDNS :
☒ Disable
 ☐ Enable

Provider :

Host Name :

User Name / E-mail :

Password / Key :

LAN Configuration

IP Address : *

Netmask : *

DHCP Server :
☐ Disable
 ☒ Enable

Start IP : *

End IP : *

Preferred DNS Server : *

Alternated DNS Server :

WINS Server IP :

Domain Name :

Lease Time :

- **WAN Configuration:** Determine the way to obtain the IP address, by Static or DHCP.
 - **Mode:** Determine the way to obtain the IP address, by *DHCP* or *Static*.
 - **Static:** The administrator can manually set up the static WAN IP address.
 - **IP Address:** The IP address of the WAN port.
 - **Netmask:** The subnet mask of the WAN port.
 - **Gateway:** The gateway IP address of the WAN port.
 - **Primary DNS Server:** The IP address of the primary DNS (Domain Name System) server.
 - **Secondary DNS Server:** The IP address of the substitute DNS server.
 - **DHCP:** This connection type is applicable when the system is connected to a network with the presence of a DHCP server; all related IP information required will be provided by the DHCP server automatically.
 - **Bandwidth Limit:**
 - **Download:** The maximum download bandwidth of WAN interface to be shared by clients.
 - **Upload:** The maximum upload bandwidth of the WAN interface to be shared by clients.
- **Dynamic DNS:** The option can be enabled to bind FQDN-compliant Host Name with this device. If enabled, the service Provider must be chosen from the drop-down list with provided Host Name, User Name, User Email and Password.
 - **DDNS:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Provider:** The name of the DDNS provider that the system is registered with. Select a DDNS provider from the drop-down list box.
 - **Host Name:** The FQDN registered with the selected DDNS provider.
 - **User name/ E-mail:** The account ID, user name or e-mail, registered with the DDNS provider.
 - **Password/ Key:** The password of the account registered with the DDNS provider.

- **LAN Configuration:** Configure LAN and DHCP settings on this page. IP Address and Netmask are required fields to set up LAN interface.
 - **IP Address:** The IP address of the LAN port.
 - **Netmask:** The Subnet mask of the LAN port.
 - **DHCP Server:** If enabled, devices connected to this system can obtain an IP address automatically.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Start IP / End IP:** Specify the range of IP addresses to be distributed by the DHCP server to clients.
 - **Preferred DNS Server:** Enter the IP address of a preferred DNS server; this field is required.
 - **Alternate DNS Server:** Enter the IP address of a secondary DNS server; this is optional.
 - **WINS Server IP:** Enter the IP address of a WINS (Windows Internet Name Service) server; this is optional.
 - **Domain Name:** Enter the domain name for this network.
 - **Lease Time:** It can be chosen from the drop-down list to renew Leased LAN IP.

5.1.4 Management Services

The system supports **SNMP**, **Syslog**, **UPnP**, and **Auto Reboot** functions for easy management. These functions can be configured on this page.

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

System Information Operating Mode Network Management

Home > System > Management Services

Management Services

SNMP Configuration : ☒ Disable ☐ Enable

Community String :

Read :

Write :

Trap : ☐ Disable ☐ Enable

Server IP :

System Log : ☒ Disable ☐ Enable

SYSLOG Server IP :

Server Port :

SYSLOG Level :

UPnP Configuration : ☒ Disable ☐ Enable

Auto Reboot : ☐ Disable ☐ Enable

Reboot Time :

SAVE CLEAR


- **SNMP Configuration:** By enabling SNMP function, the administrator can obtain the system information remotely.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Community String:** The community string is required when accessing the Management Information Base (MIB) of the system.
 - **Read:** Enter the community string for accessing the MIB with Read privilege.
 - **Write:** Enter the community string for accessing the MIB with Write privilege.


WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge


- **Trap:** When enabled, events on Cold Start, Interface UP & Down, and Association & Disassociation can be reported to an assigned server.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Server IP Address:** Enter the IP address of the assigned server for receiving the trap report.
- **System Log:** By enabling this function, specify a remote Syslog server to accept system log messages from the system remotely.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **SYSLOG Server IP:** The IP address of the Syslog server for receiving the reported events.
 - **Server Port:** The port number of the Syslog server.
 - **SYSLOG Level:** Select the desired level of received events from the drop-down list box.
- **UPnP Configuration:** This option can be enabled if UPnP service is required by LAN device.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
- **Auto Reboot:** The system can be functioning in a healthier state when this service is enabled.
 - **Enable/ Disable:** Select *Enable* to activate this function or *Disable* to inactivate it.
 - **Reboot Time:** Select an appropriate time from the drop-down list box. Since all users on the network will be disconnected during reboot, it is suggested to set the reboot time during an off-peak period to reduce impacts on the online users.


5.2 Wireless


This section is for configuring wireless settings for this system to associate with its uplink access point.


 *WAB-3003 Wireless Outdoor CPE/AP/Repeater*Home Logout Help


System


Wireless


Firewall


Utilities


Status

General Advanced Security Site Survey

Home > Wireless > General

General Settings

Band :	802.11b+802.11g
ESSID :	
Super G :	<input type="checkbox"/> Bursting <input type="checkbox"/> Fast Frames <input type="checkbox"/> Dynamic Turbo
Short Preamble :	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Max Transmit Rate :	Auto
Transmit Power :	Auto
ACK Timeout :	0 <small>*(0 - 255, 0:Auto, Unit:4 micro seconds)</small>

SAVECLEAR

5.2.1 General Settings

This section is for configuring the system RF settings.

levelone® WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout Help

System Wireless Firewall Utilities Status

General Advanced Security Site Survey

Home > Wireless > General

General Settings

Band : 802.11b+802.11g

ESSID :

Super G : ☐ Bursting ☐ Fast Frames ☐ Dynamic Turbo

Short Preamble : ☐ Disable ☒ Enable

Max Transmit Rate : Auto

Transmit Power : Auto

ACK Timeout : 0 *(0 - 255, 0:Auto, Unit:4 micro seconds)

SAVE CLEAR

- **Band:** Select an appropriate wireless band: *802.11b*, *802.11g* or mixed mode *802.11b+802.11g*, or select *Disable* if the function is not required.
- **ESSID:** The ESSID (Service Set ID) of the client device that the system is to be associated with.
- **Super G:** Options of Bursting, Fast Frames, and Atheros' featured Dynamic Turbo can be selected to boost wireless throughput.
- **Short Preamble:** The short preamble with a 56-bit synchronization field can improve WLAN transmission efficiency. Select *Enable* to use Short Preamble or *Disable* to use Long Preamble with a 128-bit synchronization field.
- **Max Transmit Rate:** The maximum wireless transmitting rate. Select the desired rate from the drop-down list box. The system uses the highest possible rate when *Auto* is selected.
- **Transmit Power:** The signal strength transmitted from the system. Select among *Auto*, *Lowest*, *Low*, *Medium*, *High*, and *Highest* from the drop-down list box.
- **ACK Timeout:** When packet loss is increasing over longer distance, ACK Timeout can be used to alleviate this issue.

5.2.2 Advanced Wireless Settings

The administrator can set the RTS threshold and fragmentation threshold on this page. In most circumstance, the default settings can meet general requirements. If occasionally wireless network needs to be tuned, the following parameters will assist with that purpose.

The screenshot shows the web interface of the LevelOne WAB-3003. At the top, there is a navigation bar with the LevelOne logo, the device name 'WAB-3003 Wireless Outdoor CPE/AP/Repeater', and links for Home, Logout, and Help. Below this is a main menu with five tabs: System, Wireless (selected), Firewall, Utilities, and Status. Under the Wireless tab, there are four sub-tabs: General, Advanced (selected), Security, and Site Survey. The breadcrumb trail reads 'Home > Wireless > Advanced'. The main content area is titled 'Advanced Wireless Settings'. It contains two input fields: 'RTS Threshold' with a value of 2346 and a range of *(1 - 2346), and 'Fragment Threshold' with a value of 2346 and a range of *(256 - 2346). At the bottom of the form are two buttons: 'SAVE' and 'CLEAR'.

- **RTS Threshold:** To control station access to the medium and to alleviate this effect of the hidden terminal problem, the administrator can tune this RTS threshold value. A lower RTS Threshold setting can be useful in areas where many client devices are associating with WAB-3003 or in areas where the clients are far apart and can detect only WAB-3003 and not each other.
- **Fragmentation Threshold:** An uncast frame larger than this threshold will be fragmented before transmission. If a significant number of collisions are occurring, the administrator can try to set a smaller value of the threshold to see whether it helps. A smaller value results in smaller packets but allows a larger number of packets in transmission. A lower Fragment Threshold setting can be useful in areas where communication is poor or disturbed by a serious amount of radio interference.

5.2.3 Security Settings

The system supports various authentication and data encryption methods. The security type includes: None, WEP and WPA-PSK.

The screenshot displays the web interface for the LevelOne WAB-3003. At the top, the header includes the LevelOne logo, the device model name, and navigation links for Home, Logout, and Help. Below the header is a main menu with icons and labels for System, Wireless, Firewall, Utilities, and Status. The 'Wireless' section is active, and a sub-menu shows General, Advanced, Security, and Site Survey. The 'Security' sub-menu is selected, leading to the 'Security Settings' page. The page title is 'Security Settings'. Below the title, there is a 'Security Type' label followed by a dropdown menu currently set to 'None'. At the bottom of the page, there are two yellow buttons labeled 'SAVE' and 'CLEAR'.

- **None:** No authentication is required.

- **WEP:** WEP (Wired Equivalent Privacy) supports key length of 64/128/152 bits.

The screenshot shows the web interface for the LevelOne WAB-3003. The top navigation bar includes links for Home, Logout, and Help. Below this is a main menu with icons for System, Wireless (selected), Firewall, Utilities, and Status. A secondary menu shows General, Advanced, Security (selected), and Site Survey. The breadcrumb trail indicates the path: Home > Wireless > Security.

Security Settings

Security Type : WEP ▾

802.11 Authentication: ☒ Open System ☐ Shared Key

WEP Key Length : ☒ 64 bits ☐ 128 bits ☐ 152 bits

WEP Key Format : ☒ ASCII ☐ Hex

WEP Key Index : 1 ▾

WEP Keys :

1	<input type="text"/>
2	<input type="text"/>
3	<input type="text"/>
4	<input type="text"/>

SAVE
CLEAR

- **802.11 Authentication:** Select from *Open System*, *Shared Key*, or *Auto*.
- **WEP Key Length:** Select from *64-bit* or *128-bit* key length.
- **WEP Key Format:** Select from *ASCII* or *Hex* format for the WEP key.
- **WEP Key Index:** Select a key index from 1 through 4. The WEP key index is a number that specifies which WEP key to use for the encryption of wireless frames during data transmission.
- **WEP Keys:** Provide WEP key value; the system supports up to 4 sets of WEP keys.

WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge

- **WPA-PSK:** WPA-PSK (WI-Fi Protected Access Pre-shared Key) supports pre-shared key authentication and WPA data encryption (TKIP/AES).

The screenshot shows the web interface for the LevelOne WAB-3003. At the top, there's a navigation bar with 'Home', 'Logout', and 'Help' links. Below this is a main menu with icons for 'System', 'Wireless', 'Firewall', 'Utilities', and 'Status'. The 'Wireless' section is active, and within it, the 'Security' tab is selected. The breadcrumb trail reads 'Home > Wireless > Security'. The main content area is titled 'Security Settings' and contains the following fields:

- Security Type :** A dropdown menu set to 'WPA-PSK'.
- Cipher Suite :** A dropdown menu set to 'TKIP (WPA)'.
- Pre-shared Key Type :** Two radio buttons: 'PSK(Hex)*(64 chars)' (unselected) and 'Passphrase*(8 - 63 chars)' (selected).
- Pre-shared Key :** A text input field.
- Group Key Update Period:** A text input field containing '600' followed by the unit 'second(s)'.

At the bottom of the form are two yellow buttons: 'SAVE' and 'CLEAR'.

- **Cipher Suite:** Select an encryption method from *TKIP(WPA/WPA2)* and *AES (WPA/WPA2)*.
- **Pre-shared Key Type:** Select a pre-shared key type: *PSK (Hex)* or *Passphrase*.
- **Pre-shared Key:** Enter the key value for the pre-shared key; the format of the key value depends on the key type selected.
- **Group Key Update Period:** The time interval for the Group Key to be renewed. Enter the time length required; the time unit is in second.

5.2.4 Site Survey

The system can scan and display all surrounding available access points (APs). The administrator can then select an AP to be associated with the system on this page.

Site Survey is a useful tool to provide information about the surrounding wireless environment; available APs are shown with their respective SSID, MAC Address, Channel, Rate setting, Signal reading and Security type. The administrator can click Setup or Connect to configure the wireless connection according to the mentioned readings.

The screenshot shows the web interface of the levelone WAB-3003. The top navigation bar includes links for Home, Logout, and Help. Below this is a menu with icons for System, Wireless (selected), Firewall, Utilities, and Status. The main content area has tabs for General, Advanced, Security, and Site Survey (selected). The breadcrumb trail reads: Home > Wireless > Site Survey.

Scan Result

[Scan Again!](#)

SSID	MAC Address	Channel	Rate	Signal	Security	Setup / Connect
Accton_AP	00:22:2D:90:74:86	1	54	59	WPA2-PSK	Setup
WAP-0003	00:11:6B:60:6A:C5	6	54	40	WEP	Setup
vivi	00:19:70:2B:F2:6D	11	54	9	WPA2-PSK	Setup

Pre-shared Cipher : TKIP ▼

Pre-shared Key Type :
☐ PSK(Hex) *(64 chars)
☒ Passphrase *(8 - 63 chars)

Pre-shared Key :

[Connect](#)

Figure 5-2-4-1: AP Scan Result (example only)

- **SSID:** The SSID (Service Set ID) of the AP found in the system's coverage area.
- **MAC Address:** The MAC address of the respective AP.
- **Channel:** The channel number currently used by the respective AP.
- **Rate:** The transmitting rate of the respective AP.
- **Signal:** The signal strength of the respective AP.
- **Security:** The encryption type used by the respective AP.

- **Setup / Connect:**

- **Connect:** Click **Connect** to associate with the respective AP directly; no further configuration is required.

AP	00:1F:D4:39:10:74	11	54	49	None	Connected
----	-------------------	----	----	----	------	-----------

- **Setup:** Click **Setup** to configure security settings for associating with the respective AP or repeater.
 - **WEP:** Click **Setup** to configure the WEP setting for associating with the target AP.

WAP-0003	00:11:6B:60:6A:C5	6	54	40	WEP	Setup
----------	-------------------	---	----	----	-----	-------

The following configuration box will then appear at the bottom of the screen. For more information on the WEP security settings, please refer to **Section 5.2.3 Security Settings**.

WEP Key Type :	<input checked="" type="radio"/> Open <input type="radio"/> Shared
WEP Key Length :	<input checked="" type="radio"/> 64 bits <input type="radio"/> 128 bits <input type="radio"/> 152 bits
WEP Key Format :	<input checked="" type="radio"/> ASCII <input type="radio"/> Hex
WEP Key Index :	1 ▾
WEP Keys :	1 <input type="text"/> 2 <input type="text"/> 3 <input type="text"/> 4 <input type="text"/>
Connect	

WAB-3003 108M 11g Outdoor PoE CPE/ AP/ Bridge

- **WPA-PSK:** Click **Setup** to configure the WPA-PSK setting for associating with the target AP.

Accton_AP	00:22:2D:90:74:86	1	54	59	WPA2-PSK	Setup
-----------	-------------------	---	----	----	----------	-------

The following configuration box will then appear at the bottom of the screen. For more information on the WPA-PSK security settings, please refer to **Section 5.2.3- Security Settings**.

Pre-shared Cipher :	TKIP ▼
Pre-shared Key Type :	<input type="radio"/> PSK(Hex) *(64 chars)
	<input checked="" type="radio"/> Passphrase *(8 - 63 chars)
Pre-shared Key :	<input type="text"/>
	<input type="button" value="Connect"/>

5.3 Firewall

The system supports the following firewall functions: IP/ Port forwarding and DMZ (Demilitarized Zone). The administrator can allow a certain part of the network to be exposed to the Internet in limited and controlled ways for special purposes such as game and voice applications.

 **levelone** WAB-3003 Wireless Outdoor CPE/AP/Repeater

[Home](#) [Logout](#) [? Help](#)

 System

 Wireless

 Firewall

 Utilities

 Status

IP/Port Forwarding

DMZ

Home > Firewall > IP/Port Forwarding

IP/Port Forwarding

Service Name

External Port Range

Internal IP Address

Protocol

Add

IP/Port Forwarding

Item	Service Name	External Port Range	Internal IP Address	Protocol	State	Delete	Edit
------	--------------	---------------------	---------------------	----------	-------	--------	------

SAVE

CLEAR

5.3.1 IP/ Port Forwarding

A certain part of the network can be exposed to the Internet in a limited and controlled way for special-purpose Internet services such as on-line game or video conferencing on this page. Please ensure that the internal port to be used is not occupied by other applications.

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Home Logout ? Help

System Wireless **Firewall** Utilities Status

IP/Port Forwarding DMZ

Home > Firewall > IP/Port Forwarding

IP/Port Forwarding

Service Name External Port Range Internal IP Address Protocol TCP/UDP Add

IP/Port Forwarding

Item	Service Name	External Port Range	Internal IP Address	Protocol	State	Delete	Edit

SAVE CLEAR

- **Service Name:** The administrator can provide an easy remembered alias for the specific forwarding.
- **External Port Range:** The external port for forwarding traffic can be selected from the drop-down list or specified by choosing *User Define* to set the range manually.
- **Internal IP Address:** Enter the LAN IP address to receive the forwarding traffic.
- **Protocol:** Forwarding traffic protocol can be selected from drop-down list to be *TCP/ UCP*, *TCP* or *UDP*.
- **Add:** Click **Add** to activate the new service.
- **IP/ Port Forwarding:** Details of current services available. Click **Delete** to remove the specified service. Click **Edit** to configure the current setting.

IP/Port Forwarding

Item	Service Name	External Port Range	Internal IP Address	Protocol	State	Delete	Edit
1	GAME	6112	10.30.5.112	TCP/UDP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	Delete	Edit
2	Phone	6670	10.30.5.250	TCP/UDP	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	Delete	Edit

5.3.2 Demilitarized Zone

The DMZ (Demilitarized Zone) allows one local computer or server (used as a DMZ host) to be exposed to the Internet for special-purpose Internet services such as functioning as a web server. External users can access the DMZ host without authentication.

The screenshot shows the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater web interface. At the top, there is a navigation bar with the LevelOne logo, the device name, and links for Home, Logout, and Help. Below this is a main menu with five tabs: System, Wireless, Firewall, Utilities, and Status. The Firewall tab is selected, and a sub-menu shows IP/Port Forwarding and DMZ. The DMZ tab is active, displaying the 'Demilitarized Zone' configuration page. The page has a breadcrumb trail: Home > Firewall > Demilitarized Zone. The main heading is 'Demilitarized Zone'. Below it, the 'State' is set to 'Enable' (radio button selected). The 'Internal IP Address' is set to '192.168.10.0'. At the bottom, there are 'SAVE' and 'CLEAR' buttons.

levelone[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater

Home Logout ? Help

System Wireless Firewall Utilities Status

IP/Port Forwarding DMZ

Home > Firewall > Demilitarized Zone

Demilitarized Zone

State : ☐ Disable ☒ Enable


Internal IP Address : *

SAVE CLEAR


- **Enable:** Select *Enable* to activate this function or *Disable* to deactivate it.
- **Internal IP Address:** Fill in the internal IP address to allow system forwarding traffic other than those specifically listed in IP/Port Forwarding.


5.4 Utilities


The system provides **Change Password**, **Network Utilities**, **Configuration Save & Restore**, **System Upgrade**, and **Reboot** functions for maintenance.


 **levelone**[®] WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#) [Logout](#) [? Help](#)


System


Wireless


Firewall


Utilities


Status

[Change Password](#) [Network Utilities](#) [Config Save & Restore](#) [System Upgrade](#) [Reboot](#)

[Home](#) > [Utilities](#) > Change Password

Change Password

Name :	root	
Old Password :	<input type="password"/>	
New Password :	<input type="password"/>	*up to 32 characters
Re-enter New Password :	<input type="password"/>	
Name :	admin	
New Password :	<input type="password"/>	*up to 32 characters
Re-enter New Password :	<input type="password"/>	

SAVE

CLEAR

5.4.1 Change Password

The administrator can update or change password. The system provides two management accounts for CPE mode, **root** and **admin**. The **root** account is empowered with full privileges while the **admin** account is with partial. For more information on the respective privileges of these two management accounts, please refer to **Appendix A. System Management Privileges**.

- **"root" account management:** The **root** administrator is entitled to changing passwords for both the **root** and **admin** account.

Change Password

Home > Utilities > Change Password

Change Password

Name : root

Old Password : [masked]

New Password : [masked] *up to 32 characters

Re-enter New Password : [masked]

Name : admin

New Password : [masked] *up to 32 characters

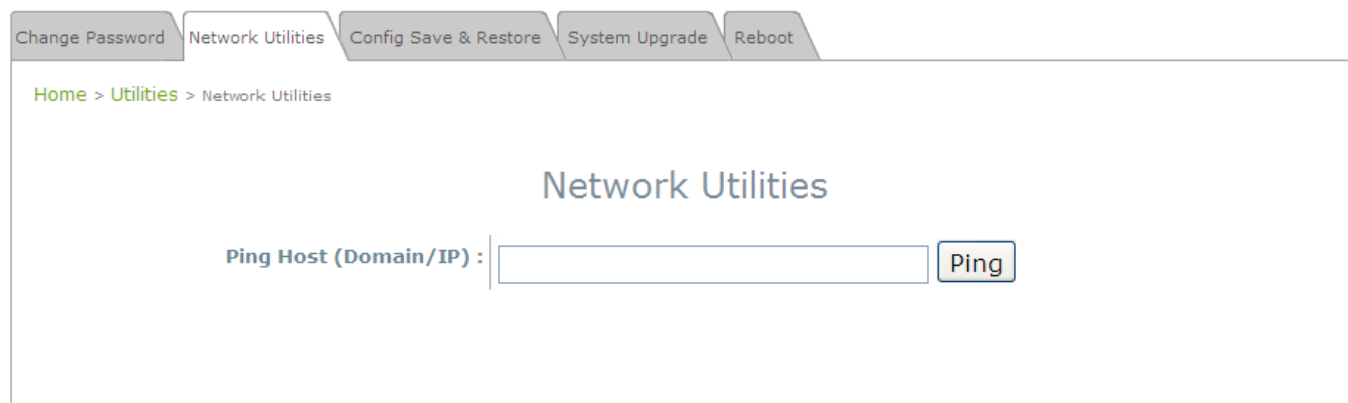
Re-enter New Password : [masked]

SAVE **CLEAR**

- **"root" account:** Enter the original password ("**admin**") and a new password, and then re-enter the new password in the *Re-enter New Password* field. Click **SAVE** to activate the new password.
- **"admin" account:** Enter a new password, and then re-enter it in the *Re-enter New Password* field. The **root** administrator is acting as a superintendent here; thus, entering the old password is not required. Click **SAVE** to activate the new password.

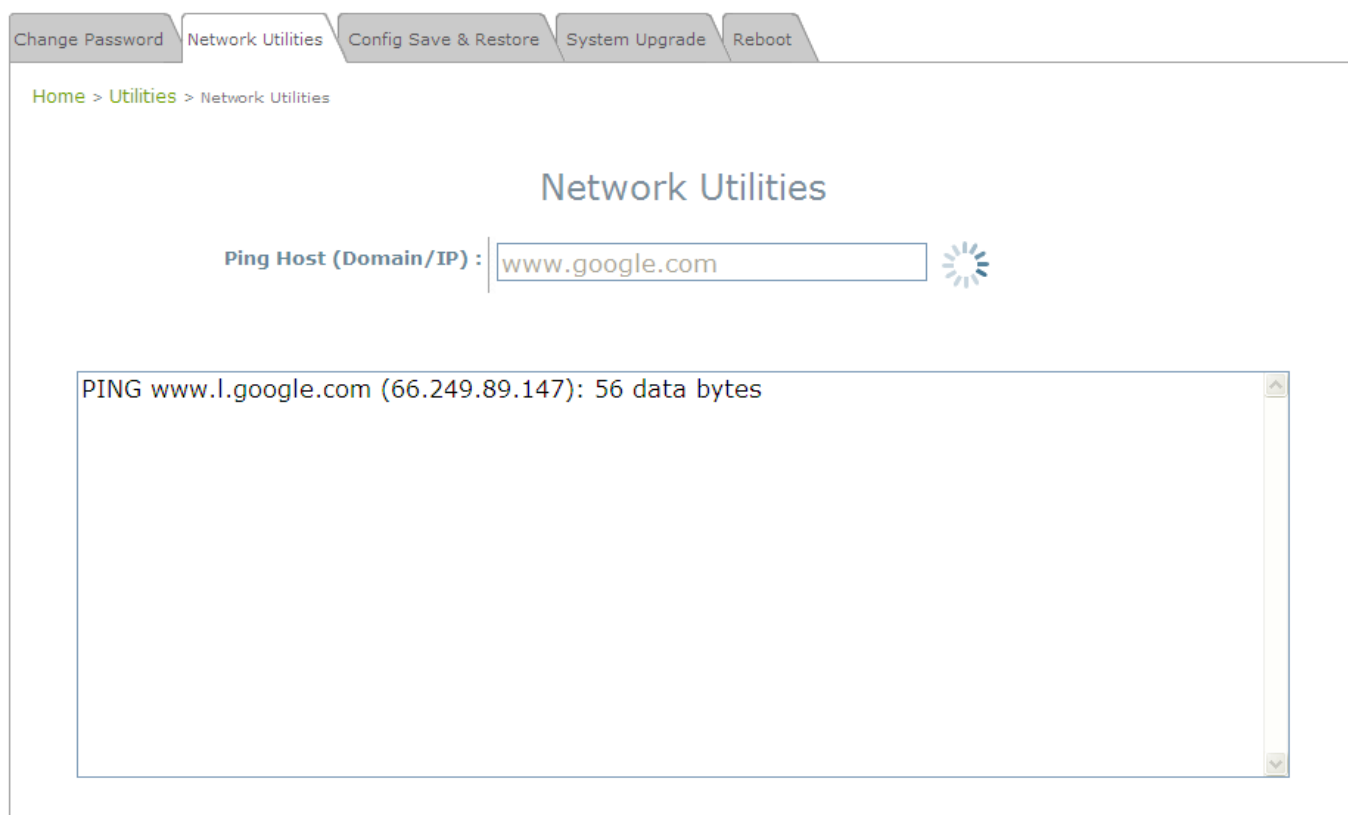
5.4.2 Network Utilities

The administrator can check the WAN and LAN connectivity via this function. The current provided network utility is Ping and the target host FQDN-compliant name or IP address can be provided to test network connection.



The screenshot shows the 'Network Utilities' section of a web interface. At the top, there are tabs: 'Change Password', 'Network Utilities' (selected), 'Config Save & Restore', 'System Upgrade', and 'Reboot'. Below the tabs, a breadcrumb trail reads 'Home > Utilities > Network Utilities'. The main heading is 'Network Utilities'. Below this, there is a label 'Ping Host (Domain/IP) :' followed by an empty text input field and a 'Ping' button.

- **Ping Host (Domain/ IP):** Enter the domain name or IP address of a target device for diagnosis purpose, for example, www.google.com , and click **PING** to proceed. The ping result will be shown in the **Result** field.



This screenshot shows the 'Network Utilities' page after a ping operation. The 'Ping Host (Domain/IP) :' label is followed by a text input field containing 'www.google.com' and a loading spinner icon. Below this, there is a large rectangular box for the results. The first line of the results reads 'PING www.l.google.com (66.249.89.147): 56 data bytes'. The rest of the box is empty, suggesting the full results are not visible in this view.

5.4.3 Configuration Save & Restore

This function is used to backup or restore the current settings. The system can be restored to the default setting by clicking on Reset. The setting of the device can be backup to a file. It can be used to duplicate setting to the other WAB-3003 device.

The screenshot shows a web interface with a navigation bar at the top containing tabs: Change Password, Network Utilities, Config Save & Restore (selected), System Upgrade, and Reboot. Below the navigation bar is a breadcrumb trail: Home > Utilities > Config Save & Restore. The main content area is titled "Configuration Save & Restore" and contains three sections: "Reset to Default:" with a "Reset" button, "Backup Settings:" with a "Save" button, and "Restore Settings:" with a text input field, a "Browse..." button, and an "Upload" button.

- **Reset to Default:**

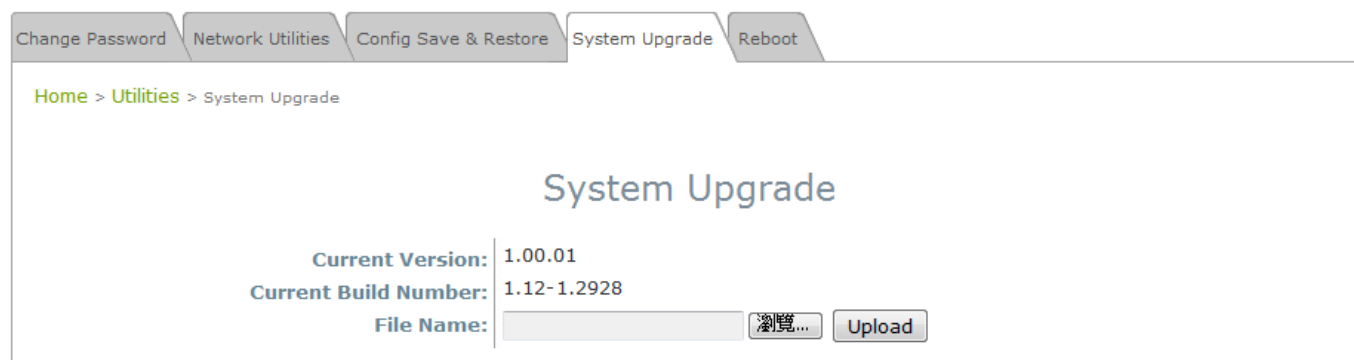
- Click **Reset** to load the factory default settings of WAB-3003. A pop-up screen will appear to reconfirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.



- A warning message as displayed below will appear during the reboot period. The system power must be turned on before the completion of the reboot process.
- The **System Overview** page will appear upon the completion of reboot.
- **Backup Settings:** Click **Save** to save the current system settings to a local disk such as the hard disk drive (HDD) of a local computer or a compact disc (CD).
- **Restore Settings:** Click **Browse** to search for a previously saved backup file, and then click **Upload** to restore the settings. The backup file will replace the active configuration file currently running on the system.

5.4.4 System Upgrade

To upgrade the system firmware, click **Browse** to search for the new firmware file, and then click **APPLY** to execute the upgrade process. The first step is to acquire the correct firmware file and supply it in the User Interface field. During firmware update, please don't turn off the power to prevent from damaging the device permanently.



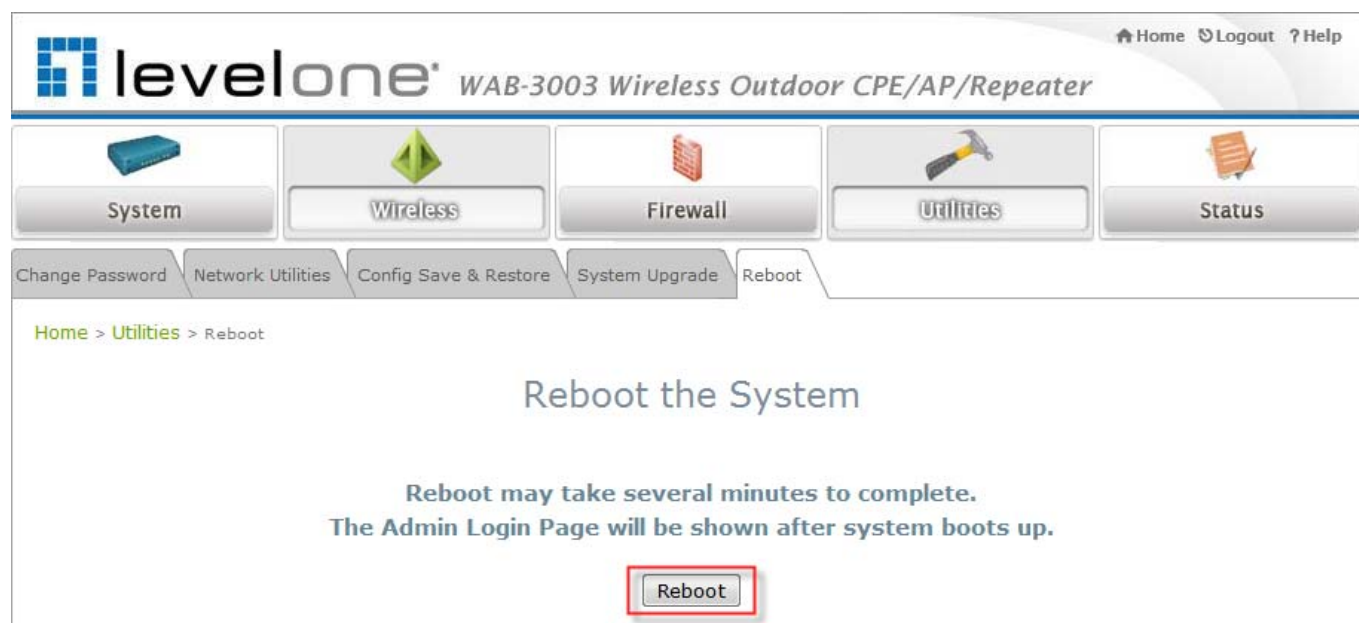
The screenshot shows a web interface for system upgrade. At the top, there is a navigation bar with tabs: Change Password, Network Utilities, Config Save & Restore, System Upgrade (selected), and Reboot. Below the navigation bar, a breadcrumb trail reads "Home > Utilities > System Upgrade". The main heading is "System Upgrade". Below this, the current version and build number are displayed: "Current Version: 1.00.01" and "Current Build Number: 1.12-1.2928". There is a "File Name:" label followed by a text input field, a "浏览..." (Browse...) button, and an "Upload" button.

Note:

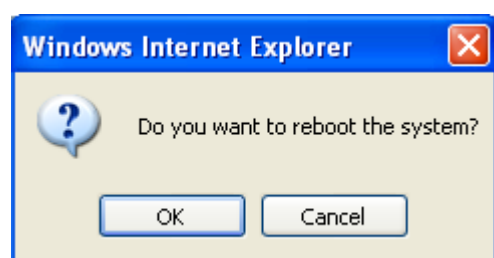
- To prevent data loss during firmware upgrade, please back up the current settings before proceeding further.
- Please restart the system after the upgrade. Do not interrupt the system, i.e. power on/off, during the upgrade or restart process as this may damage the system.

5.4.5 Reboot

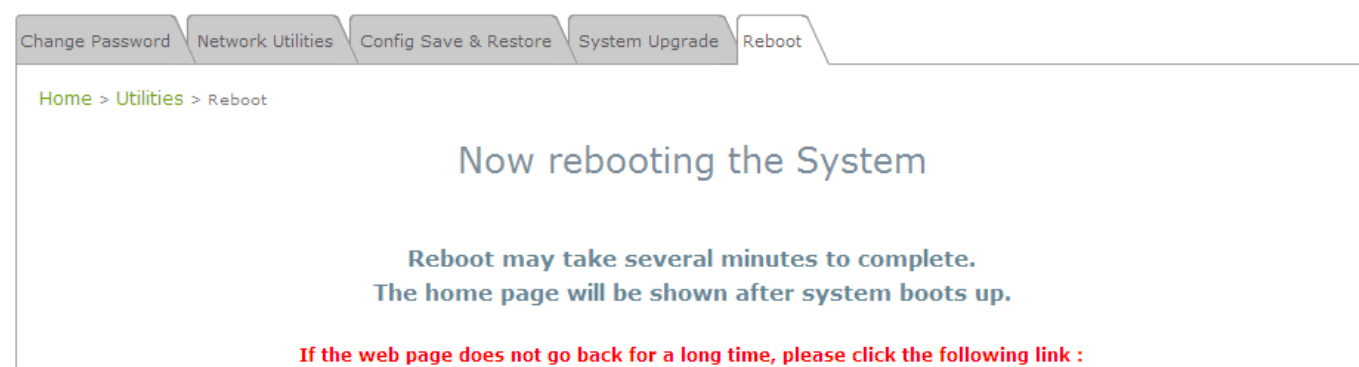
The administrator can reboot the device remotely. Click **Restart** to restart the system immediately.



A pop-up screen will appear to confirm the request to restart the system. Click **OK** to proceed, or click **Cancel** to cancel the restart request.




A warning message as displayed below will appear during the reboot period. The system power must be turned on before the completion of the reboot process.




The **System Overview** page will appear upon the completion of reboot.


5.5 Status


This section displays the status of **System Overview**, **Event Log**, **DHCP Lease** and **UPnP**.



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WAB-3003 Wireless Outdoor CPE/AP/Repeater


[Home](#)
[Logout](#)
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System


Wireless


Firewall



Utilities


Status

System Overview
Event Log
DHCP Lease
UPnP


[Home](#) > [Status](#) > System Overview

System Overview




System

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 17:28:04
System Up Time	0 days, 1:28:04
Operating Mode	CPE




Radio Status

Status	Connected
SSID	WLAN14
MAC Address	00:00:00:00:00:00
Channel	6
Signal Strength	0
Security	None



LAN Interface

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled



WAN Interface


Mode	Static
MAC Address	00:1F:D4:00:20:F1
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
Gateway	192.168.10.254
Bandwidth	Down: Unlimited / UP: Unlimited


5.5.1 System Overview

The **System Overview** page provides an overview of the system status for the administrator.



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System Overview




System

System Name	WAB-3003
Firmware Version	1.00.01
Build Number	1.12-1.2928
Location	Greenwich
Site	EN-E
Device Time	1999/12/31 16:04:52
System Up Time	0 days, 0:04:52
Operating Mode	CPE




Radio Status

Status	Connected
SSID	WBR-6002
MAC Address	00:C0:02:FF:C7:8E
Channel	11
Signal Strength	5
Security	None



LAN Interface

MAC Address	00:1F:D4:00:20:F0
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled



WAN Interface

Mode	Static
MAC Address	00:1F:D4:00:20:F1
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
Gateway	192.168.10.254
Bandwidth	Down: Unlimited / UP: Unlimited

The description of the table is shown below:

ITEM		DESCRIPTION
System	System Name	The name provided in System Information.
	Firmware Version	The present firmware version of the system.
	Build Number	The Build Number of the firmware.
	Location	The location provided in System Information.
	Site	The firmware version for specific region.
	Device Time	The current time on the device.
	System Up Time	The system elapsing time since last reboot.
	Operating Mode	Either CPE or AP.
LAN Interface	MAC Address	The MAC address of LAN Interface.
	IP Address	The IP address of the LAN Interface.
	Subnet Mask	The Subnet Mask of the LAN Interface.
	DHCP Server	DHCP server status.
Radio Status	Status	The RF status.
	SSID	The SSID of the associated AP.
	MAC Address	The MAC address of the associated AP.
	Channel	The operating channel.
	Signal Strength	The signal strength reading of the wireless connection.
	Security	The security type used for wireless connection.
WAN Status	Mode	The method to obtain IP for the WAN interface.
	MAC Address	The MAC address of the WAN (RF) Interface.
	IP Address	The IP address of the WAN interface.
	Subnet Mask	The Subnet Mask of the WAN interface.
	Gateway	The gateway IP address.
	Bandwidth	The bandwidth setting of the WAN interface.

5.5.2 Event Log

Event log provides the records of the system activities. All the system events are shown here.

The screenshot displays the web interface of the LevelOne WAB-3003 Wireless Outdoor CPE/AP/Repeater. At the top, the LevelOne logo and product name are visible, along with navigation links for Home, Logout, and Help. Below the header, there are five main menu buttons: System, Wireless, Firewall, Utilities, and Status. The Status button is highlighted. Under the Status button, there are four sub-menu buttons: System Overview, Event Log, DHCP Lease, and UPnP. The Event Log button is selected. The main content area shows the breadcrumb path 'Home > Status > Event Log' and the title 'Event Log'. A text box displays a log entry: 'Dec 31 16:00:49 syslogd started: BusyBox v1.2.1'. At the bottom of the page, there are two buttons: 'SAVE LOG' and 'CLEAR'.

Note:

As the Event Log is stored in RAM, it will be refreshed after the system is restarted. The system also supports a Syslog reporting function of reporting the events to an external Syslog server.

- **Date/ Time:** The date and time of the record when the event happened.
- **Hostname:** Indicate which Host records this event. Note that all events in this page are local events and this field of all events is the same. However, in remote syslog service, this field will help the network administrator identify which event is from this system. For more information, please refer to **Section 5.1.4 Management Services**.
- **Process name (with square brackets):** Indicate which process with the specific event is associated.
- **Description:** Description of the event.

5.5.3 DHCP Leases

The table provides information about the leased LAN IP address with binding MAC address and expiration time.

System Overview	Event Log	DHCP Lease	UPnP
Home > Status > DHCP Leases			
DHCP Leases			
DHCP Leases			
No	IP	MAC Address	Expires in
1	192.168.1.2	00:0d:60:cb:76:82	22hours,15minutes,20seconds

- **No:** The item number of the LAN IP leased.
- **IP:** The IP address assigned by DHCP server to a specific LAN device.
- **MAC Address:** The MAC address of the LAN device.
- **Expires in:** The expiration time of the leased IP address.

5.5.4 UPnP Status

The table provides information about the UPnP overview such as Protocol, Internal Port, External Port, and IP Address.

The screenshot shows the web interface of the LevelOne WAB-3003. At the top, there is a navigation bar with the LevelOne logo, the device name 'WAB-3003 Wireless Outdoor CPE/AP/Repeater', and links for Home, Logout, and Help. Below this is a main menu with icons for System, Wireless, Firewall, Utilities, and Status. The 'Status' menu item is selected. Under the 'Status' menu, there are sub-tabs for System Overview, Event Log, DHCP Lease, and UPnP. The 'UPnP' sub-tab is active. The main content area displays the 'UPnP Status' page. It features a breadcrumb trail 'Home > Status > UPnP Status'. Below the title, there is a section titled 'IGD Portmap'. This section contains a table with the following columns: No, Protocol, Internal Port, External Port, and IP Address.

No	Protocol	Internal Port	External Port	IP Address
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- **IGD Portmap:**

- **No:** The item number of an UPnP device.
- **Protocol:** The Protocol used by the UPnP device.
- **Internal Port:** The internal port number of the UPnP device.
- **External Port:** The mapped external port number of the system.
- **IP Address:** The IP address of the UPnP device.

5.6 Online Help

The **Help** button is at the upper right hand corner of the display screen.

Click **Help** for the **Online Help** window, and then click the hyperlink of the desired topic for further information.



Online Help (CPE Mode)

Organization of the Configuration Web:

<u>System</u>	<u>Wireless</u>	<u>Firewall</u>	<u>Utilities</u>	<u>Status</u>
<u>System Information</u>	<u>General</u>	<u>IP/Port Forwarding</u>	<u>Password</u>	<u>System Overview</u>
<u>Operating Mode</u>	<u>Advanced</u>	<u>DMZ</u>	<u>Network Utilities</u>	<u>Event Log</u>
<u>Network</u>	<u>Security</u>		<u>Config Save & Restore</u>	<u>DHCP Lease</u>
<u>Management Services</u>	<u>Site Survey</u>		<u>System Upgrade</u>	<u>UPnP</u>
			<u>Reboot</u>	

Appendix A.

System Management Account Privileges

The system provides two system management accounts for CPE mode, **root** and **admin**. The **root** account is empowered with full privileges while the **admin** account is with partial.

The management privileges of the admin account are shown in the following table.

Main Menu	Sub Menu	Group	Admin Privilege
System	System Information	System Information	Read
		Time	Read
	Operating Mode	Operating Mode	Read
	Network	WAN Configuration	Read
		Dynamic DNS	Read & Write
		LAN Configuration	Read & Write
	Management Services	SNMP Configuration	Read
		Syslog Configuration	Read
		UPnP Configuration	Read & Write
		Auto Reboot	Read
Wireless	General	General Settings	Read
	Advanced	Advanced Wireless Settings	Read
	Security	Security Settings	Read
	Site Survey		Read
Firewall	IP/Port Forwarding		Read & Write
	DMZ		Read & Write
Utilities	Password	Admin Password	Read & Write
	Network Utilities		Read & Write
	Config Save & Restore	Reset to Default	Read
		Backup Settings	Read & Write
		Restore Settings	Read
	System Upgrade		Read
	Reboot		Read & Write