# LevelOne

## WHG-1000

300Mbps Wireless PoE Hotspot Gateway

# Quick Installation Guide

V1.00

## Preface

**The WHG-1000** is the most economical and feature rich **Wireless Hotspot Gateway**, targeting mini-size stores that want to provide small, single-point wireless Internet access service. WHG-1000 is a perfect choice for beginners to run hotspot businesses. It does not cost much compared to buying a pile of equipments, nor does it take the skills of an expert to glue multiple applications out of multiple freeware. Feature-packed for hotspot operation, WHG-1000 comes with **built-in 802.11 n/b/g MIMO access point, web server and web pages for clients to login, easy logo-loading for branding a hotspot store, simple user/visitor account management tool, payment plans, multiple credit card payment gateways, traffic logs, IP sharing** and etc. WHG-1000 also brings in an extra advantage - the wall-mountable, dust-proof (IP50) metal housing.

This Quick Installation Guide provides instructions and reference materials for getting started with WHG-1000.

## Package Contents

1. WHG-1000 x 1
2. Quick Installation Guide x 1
3. CD User Manual x 1
4. Console Cable x 1
5. Ethernet Cable x 1
6. Power Adapter (DC 12V1A) x 1
7. Rubber Antenna x 2
8. Wall mounting Kit x 1
9. Ground Cable x 1

*Caution:*

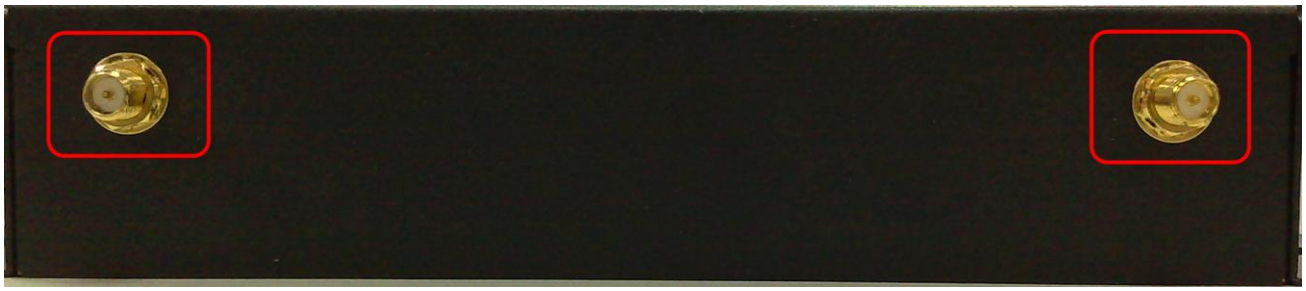
*It is recommended to keep the original packing material for possible future shipment when repair or maintenance is required. Any returned product should be packed in its original packaging to prevent damage during delivery.*

# System Overview

## Front Panel

| | | |
|---|---|---|
| **1** | **USB** | For future usage only. |
| **2** | **WES** | Press to start running WES (WDS Easy Setup) process. |
| **3** | **Console** | Attach the RS-232 console cable here, for management use only. |
| **4** | **LAN1/LAN2** | Attach Ethernet cables here for connecting to the wired local network. LAN1 maps to Private Zone and requires no user authentication, LAN2 maps to Public Zone and by default requires user authentication. |
| **5** | **WAN (PoE)** | Attach the wired external network here. This port supports Power over Ethernet (PoE) for flexible installation. |
| **6** | **Reset** | This is hardware reset button. Press once to restart the system. |
| **7** | **Power Socket (12VDC/1A)** | For connecting to external power supply via the power adapter. |

## Rear Panel



| | |
|---|---|
| **Antenna Connector** | Attach antennas here. WHG-1000 supports 1 RF interface with 2 SMA connectors. |

## Top LED Panel

| | | |
|---|---|---|
| **1** | | LED ON indicates power on; OFF indicates power off. |
| **2** | WAN | LED ON indicates WAN connection; OFF indicates no connection; BLINKING indicates transmitting data. |
| **3** | LAN1 LAN2 | LED ON indicates LAN1/LAN2 connection; OFF indicates no connection; BLINKING indicates transmitting data. |
| **4** | WLAN | LED ON indicates wireless ready. |
| **5** | | LED ON indicates WAN port is connected to the internet. |
| **6** | | For indicating WES status during WES setup: |
| **7** | | For future usage only. |

| | Master | Slave |
|---|---|---|
| WES Start | LED BLINKING SLOWLY | LED BLINKING QUICKLY |
| WES Negotiate | LED BLINKING SLOWLY | LED BLINKING QUICKLY |
| WES Fail (Negotiate Timeout) | LED OFF | LED OFF |
| WES Success | LED ON for over 5 seconds | LED ON for over 5 seconds (after Master displays WES Success) |

# *Hardware Installation*

Please follow the steps mentioned below to install the hardware of WHG-1000:

1. **Place the WHG-1000 at a best location.**

   The best location for WHG-1000 is usually at the center of your wireless network.

2. **Connect WHG-1000 to your outbound network device.**

   Connect one end of the **Ethernet cable** to the WAN port of WHG-1000 on the front panel. Depending on the type of internet service provided by your ISP, connect the other end of the cable to the ATU-Router of an ADSL, a cable modem, a switch or a hub. The WAN LED indicator should be ON to indicate a proper connection.

3. **Connect WHG-1000 to your network device.**

   Connect one end of the **Ethernet cable** to the LAN1 port of WHG-1000 on the front panel. Connect the other end of the cable to a PC for configuring the system. The LAN1 LED indicator should be ON to indicate a proper connection.

   **Note:**

   WHG-1000 has two virtual zones **Private** and **Public** which are mapped to LAN1(192.168.1.254) and LAN2(192.168.11.254) respectively.

4. **There are two ways to supply power over to WHG-1000.**

   **(a)** Connect the **DC power adapter** to the WHG-1000 power socket on the front panel.

   *Caution:*

   *Please only use the power adapter supplied with the WHG-1000 package.*

   *Using a different power adapter may damage this system.*

   **(b)** WHG-1000 is capable of transmitting DC current via its WAN PoE port. Connect an IEEE 802.3af-compliant PSE device, e.g. a PoE-switch, to the WAN port of WHG-1000 with the Ethernet cable.

Now, the hardware installation is completed.

*Caution:*

*To double verify the wired connection between WHG-1000 and your switch/router/hub, please check the LED status indication of these network devices.*

# *Getting Started*

WHG-1000 supports web-based configuration. Upon the completion of hardware installation, WHG-1000 can be configured through a PC by using its web browser with JavaScript enabled such as Internet Explorer version 6.0.

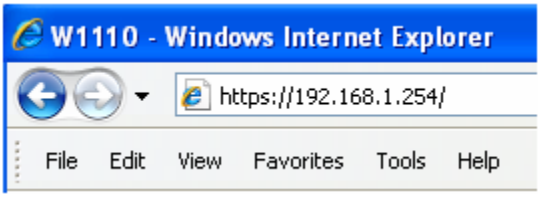
Default LAN interface IP address:
LAN1 (**192.168.1.254**) mapped to Private Zone, no authentication for users.
LAN2 (**192.168.11.254**) mapped to Public Zone, authentication required for users.

**Note:**
The instructions below are illustrated with the administrator PC connected to LAN1.

**Steps:**

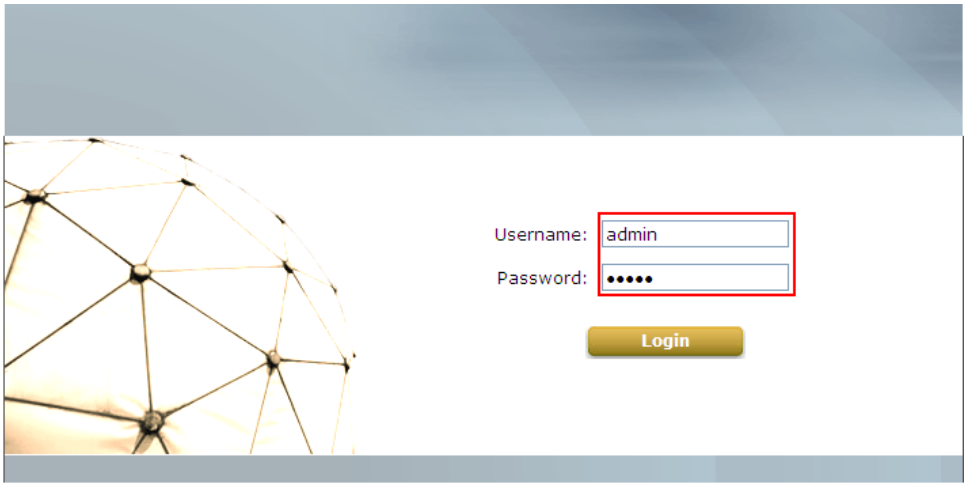
***1.*** Once the hardware installation is complete, set DHCP in TCP/IP settings of the administrator PC to get an IP address dynamically. Connect the PC to the LAN1 Port of WHG-1000. An IP address will be assigned to the PC automatically via the WHG-1000 built-in DHCP server.

***2.*** Launch a web browser to access the web management interface of WHG-1000 by entering **"https://192.168.1.254"** or **"http://192.168.1.254"** in the address field.

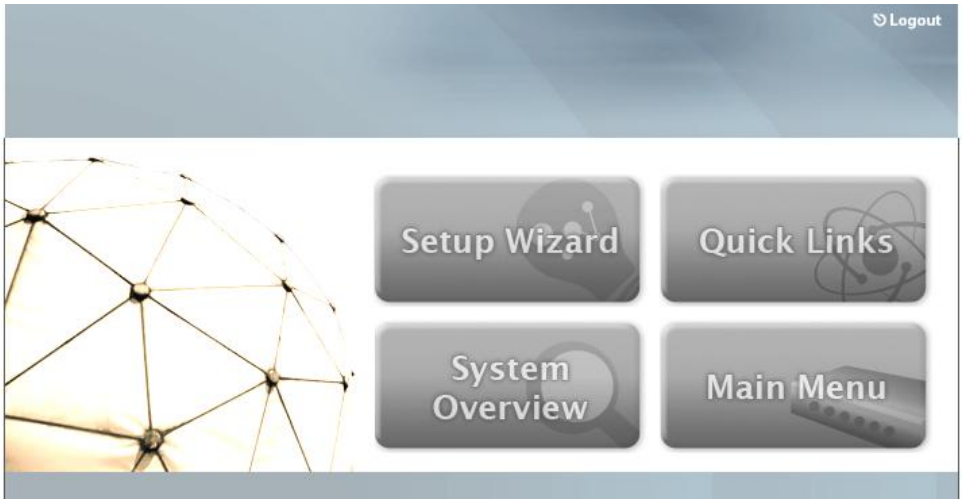



**Note:**
**"https"** is used for a secured connection.

***3.*** The following Administrator Login Page will then appear. Enter **"admin"** (the default value) in the *Username* and *Password* fields, and then click ***Login*** to log in.




***4.*** The **Home Page** will appear after a successful login.




**Note:**

To logout, simply click ***Logout*** at the upper right hand corner of the interface to return to the Administrator Login Page.

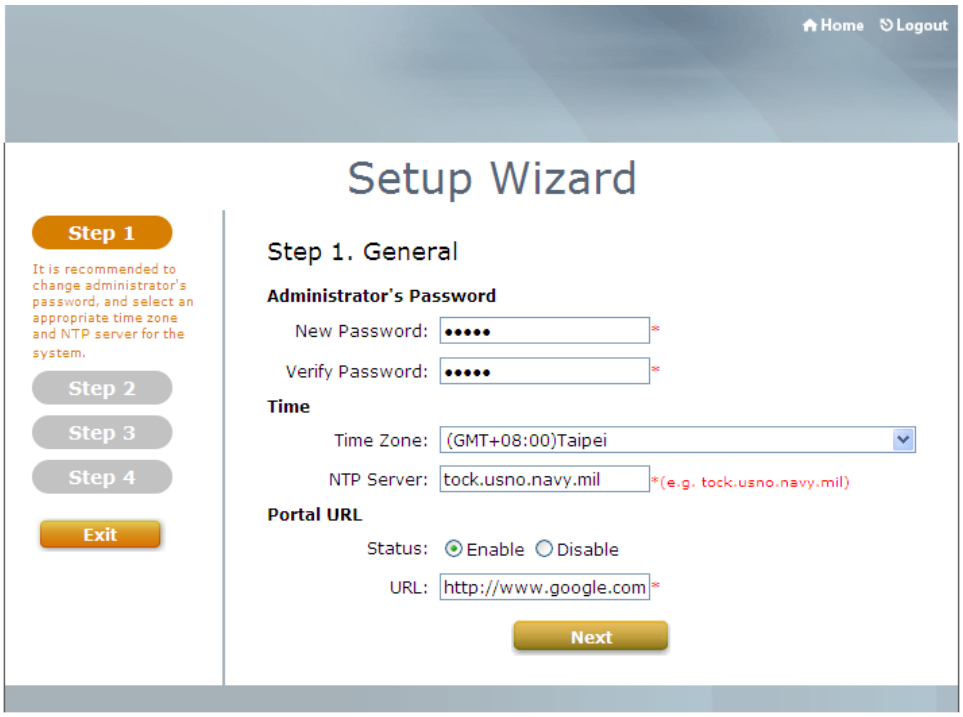
# *Common Settings*

## < Setup Wizard >

WHG-1000 provides a **Setup Wizard** for quick configuration. To quickly configure WHG-1000 by using the **Setup Wizard**, click on the **Setup Wizard** button to start the configuration process.

**Step 1. General**

- Enter a new administrator's password in the ***New Password*** field, and re-enter it again in the ***Verify Password*** field (a maximum of 20 characters and no spaces allowed in between).
- Select an appropriate time zone from the ***Time Zone*** drop-down list box and enter the URL of a valid NTP server to set up the system time.
- Client's browser will be redirected after logging into the system successfully. The redirected page can be assigned instead of the default setting of client's browser by enabling ***Portal URL*** and configuring a desired one.
- Click ***Next*** to continue.




*Caution:*

*For security concern, it is strongly recommended to change the administrator's password.*

*Caution:*

*WHG-1000 supports NTP time synchronization. If NTP is the option selected, it is strongly recommended to make sure the NTP server is reachable and alive.*

### Step 2. WAN and Wireless Interfaces

For setting up both wired WAN and Wireless LAN interfaces:

- Select a proper type of Internet connection for WAN interface from the following three available connections: ***Static***, ***Dynamic***, or ***PPPoE***. Your ISP or network administrator can advise on the connection type available to you. Below depicts an example for ***Dynamic***.

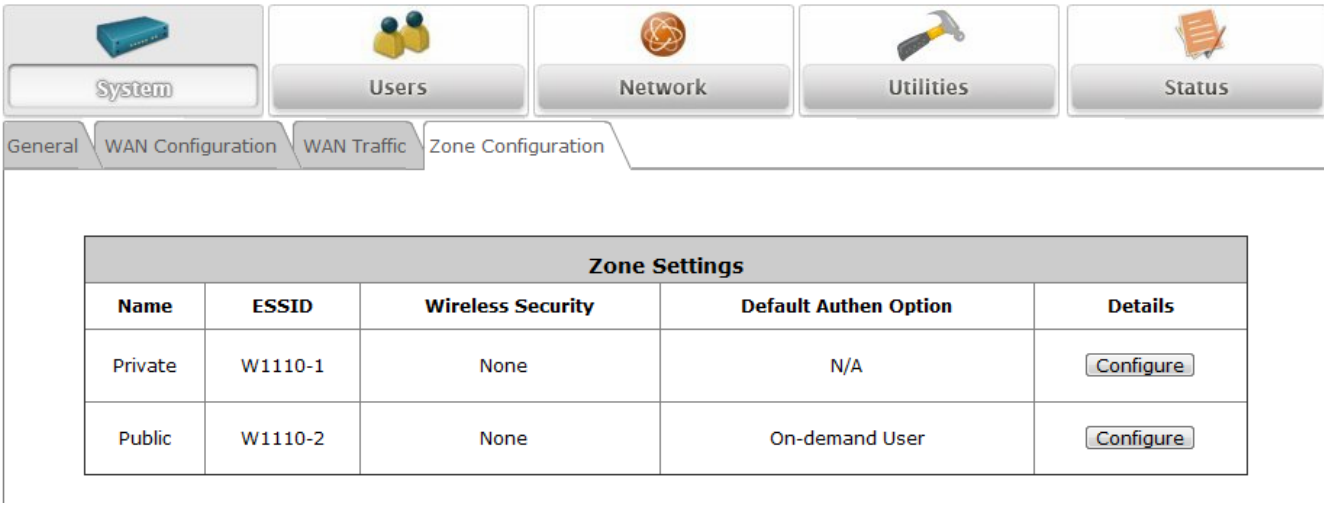
- Click ***Wireless*** radio button.
- Select desired wireless ***Band***, ***Channel***, and ***ESSID*** for public zone.

- Click ***Next*** to continue.

**Note:**

WHG-1000 supports two Virtual Access Points, one under **Private** zone and one under **Public** zone, with ESSID “W1110-1” and “W1110-2” respectively by default. The ESSID for VAP under Private will not be broadcasted.

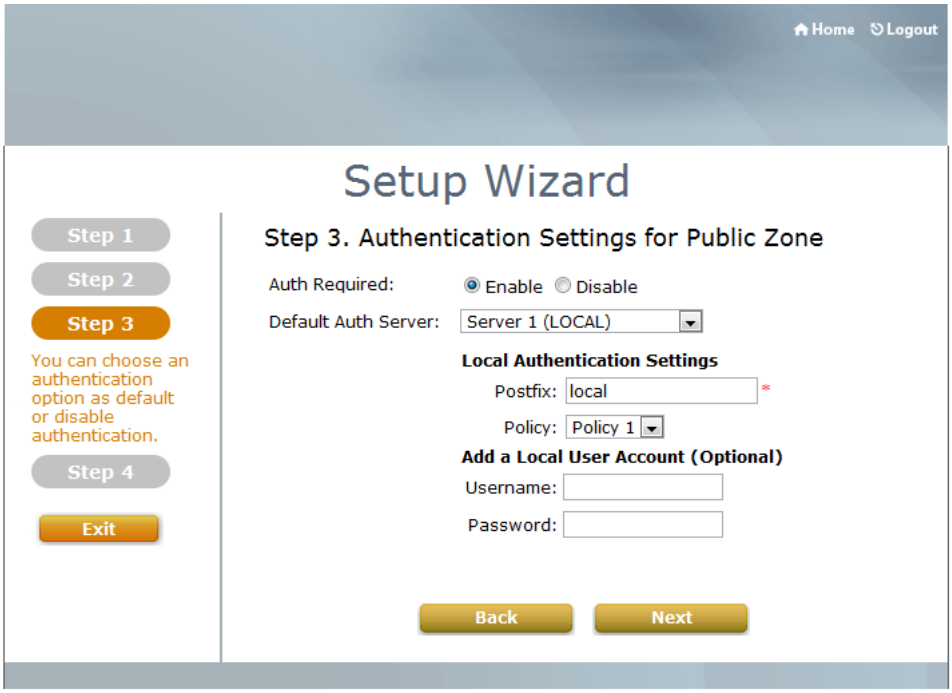
Detailed configurations for these two VAP can be performed under **Main Menu >> System >> Zone Configuration**.




| Zone Settings | | | | |
|---|---|---|---|---|
| **Name** | **ESSID** | **Wireless Security** | **Default Authen Option** | **Details** |
| Private | W1110-1 | None | N/A | Configure |
| Public | W1110-2 | None | On-demand User | Configure |

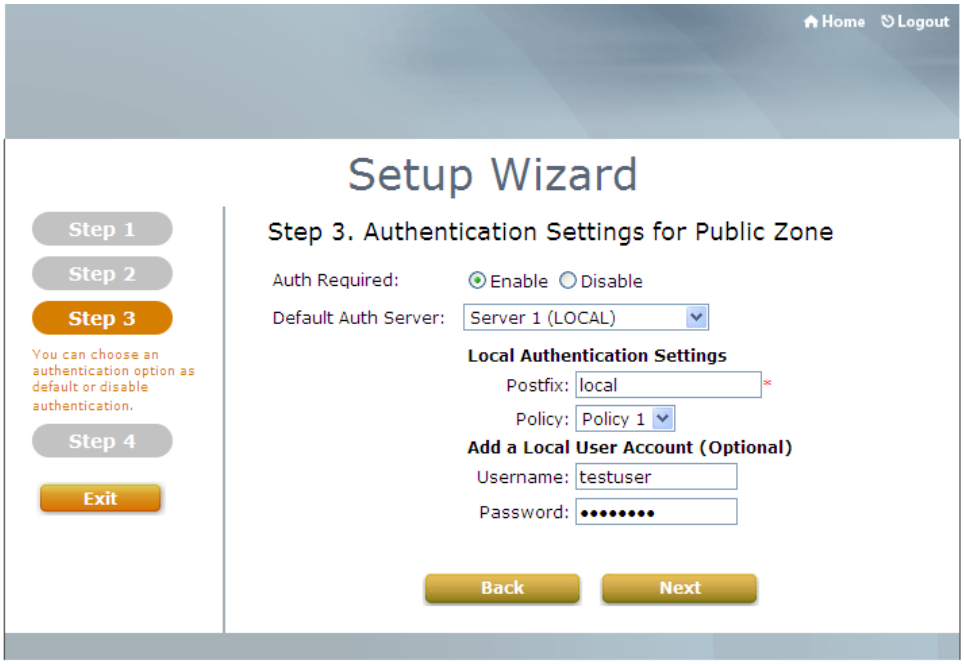
### Step 3. Authentication Settings for Public Zone

- For public zone (by default, authentication is enabled), authentication can be enabled or disabled. Clients shall log in the system before using network service if ***Auth Required*** is enabled.



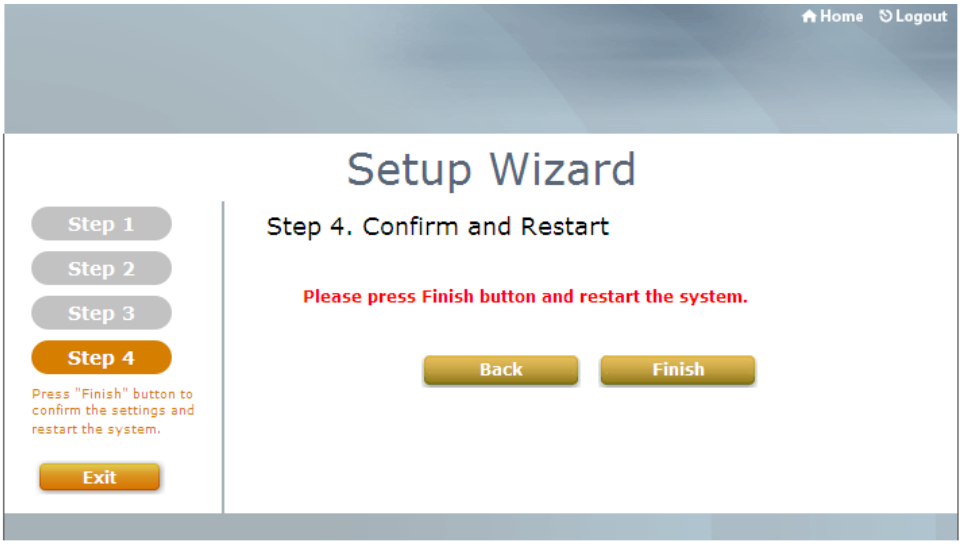

When authentication is enabled, a default authentication server shall be configured. WHG-1000 supports 4 kinds of authentication servers including Server 1 (LOCAL), Server 2 (RADIUS), Server 3 (RADIUS), and On-demand (ONDEMAND). Below depicts an example for **LOCAL**.

- Select *Server 1 (LOCAL)* in ***Default Auth Server***.
- Configure related settings for the selected auth server such as ***Postfix*** and applied ***Policy*** if needed.
- A new local account can be created and added into the database via this optional function. If local user accounts are not required, click ***Next*** to go directly to **Step 4**. However, it is recommended to create a local user account in order to verify the system‘s readiness upon completion of this ***Setup Wizard***.
- Enter the ***Username*** (e.g. **“testuser”**) and ***Password*** (e.g. **“testuser”**) to create a new local account.
- Click ***Next*** to continue.


Home
Logout
Setup Wizard
Step 1
Step 2
Step 3
You can choose an authentication option as default or disable authentication.
Step 4
Exit
Step 3. Authentication Settings for Public Zone
Auth Required:
Enable
Disable
Default Auth Server:
Server 1 (LOCAL)
Local Authentication Settings
Postfix:
local
Policy:
Policy 1
Add a Local User Account (Optional)
Username:
testuser
Password:
Back
Next

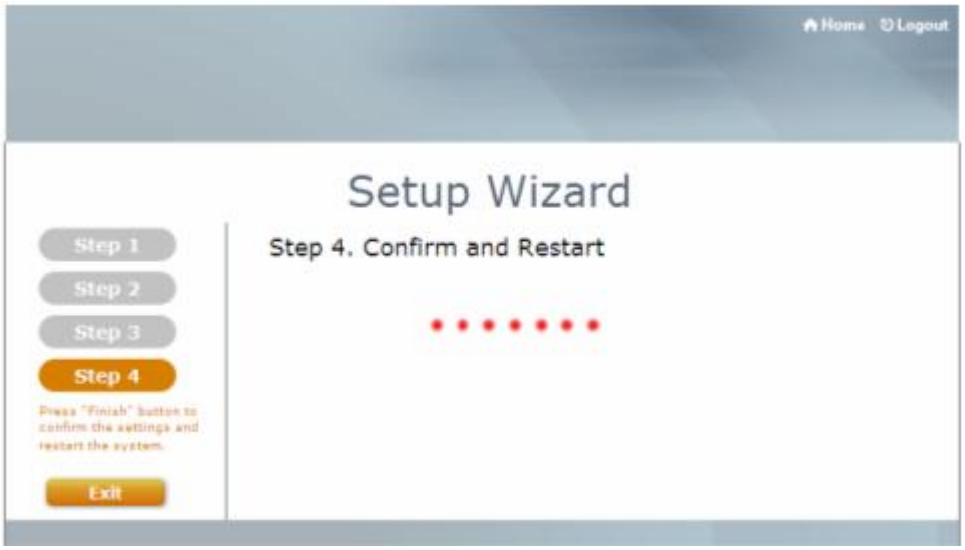
### Step 4. Confirm and Restart

- Click ***Finish*** to save current settings and restart the system.




- A confirmation dialog box will then appear. Click ***OK*** to continue.

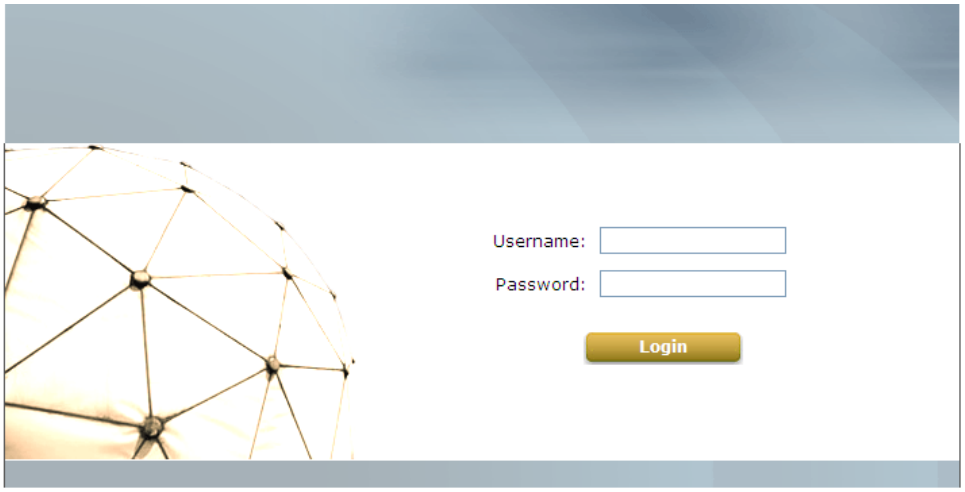
- A **Confirm and Restart** message will appear on the screen during the restarting process. Please do not interrupt the system until the Administrator Login Page appears.




**Note:**

The system is trying to locate a DNS server at this stage. Therefore, a longer startup time is required if the configured DNS cannot be found.

- When the following Administrator Login Page appears, it means the restart process is now completed.



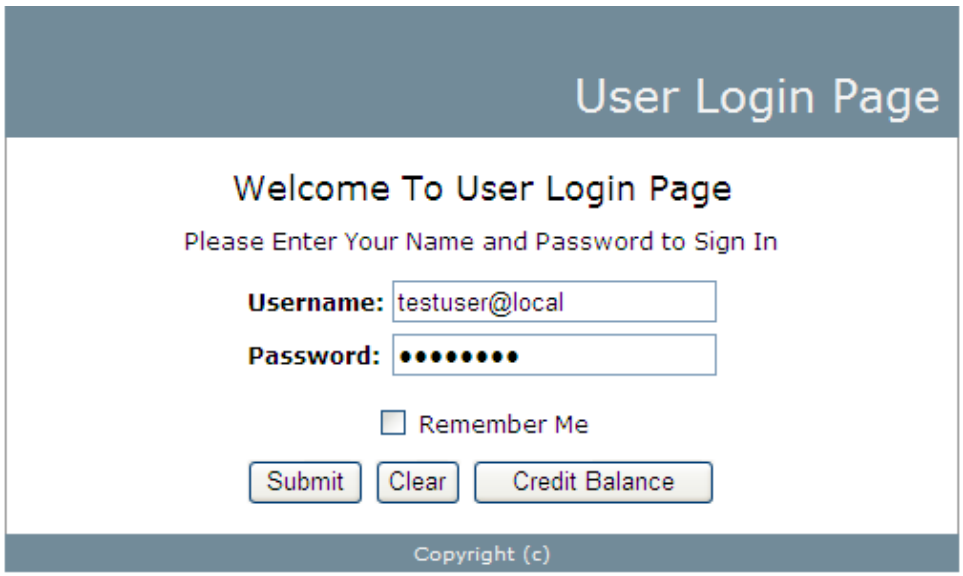
## < User Login >

To verify whether the configuration of the new local user account(s) created via the ***Setup Wizard*** has been completed successfully:

1. Connect a client device (e.g. laptop, PC) with wireless interface to scan the configured ESSID of WHG-1000 (e.g. **"WHG-1000-2"**) and get associated with this ESSID.

2. The client device will obtain an IP address automatically via DHCP from WHG-1000. Open a web browser on a client device, access any URL, and then the default **User Login Page** will appear.

3. Enter the *Username* and *Password* of a local user account previously generated via Setup Wizard (e.g. **"testuser@local"** as the *Username* and **"testuser"** as the *Password*); then Click ***Submit***.



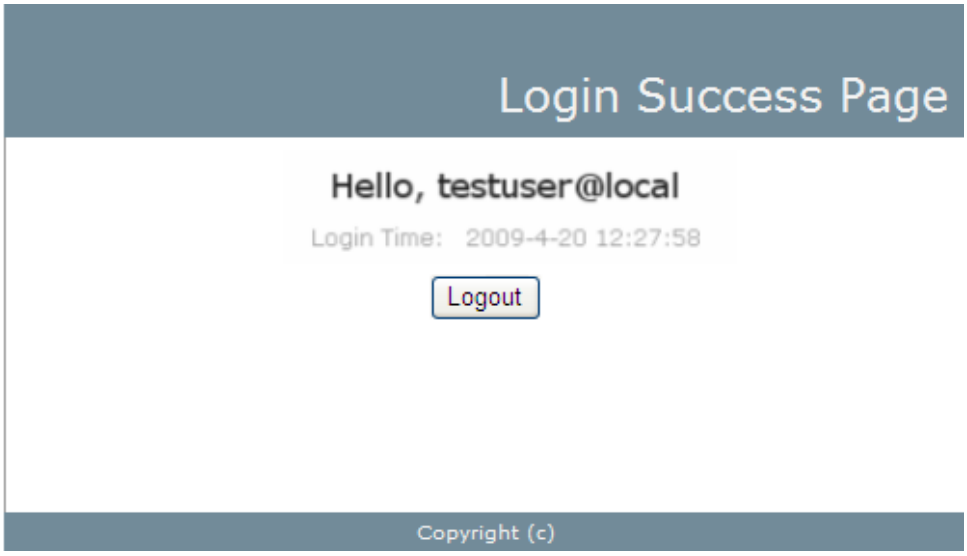
**Note:**

1. WHG-1000 supports multiple authentication options including built-in local user database and external authentication database (e.g. RADIUS). The system will automatically identify which authentication option is used from the full username entered.
2. The format of a full (valid) username is **userid@postfix**, where **"userid"** is the user ID and **"postfix"** is the name of the selected authentication option.
3. **Exception:** The postfix can be omitted only when the default authentication option is used. For example, **"LOCAL"** is the default authentication option at this system; therefore, you may enter either **"testuser"** or **"testuser@local"** in the *Username* field.

***Congratulations!***

The Login Success Page will appear after a client has successfully logged into WHG-1000 and has been authenticated by the system.

The appearance of Login Success Page means that WHG-1000 has been installed and configured properly.



# *Deployment Example*

## < Small Hotspot Network Environment >

Nowadays, wireless network service is common and popular in a hotspot network environment. WHG-1000 provides wireless network service with authentication required for clients in Public Zone. Wireless clients in the Public Zone and Private Zone are isolated from other wireless clients within the same zone when **Station Isolation** feature is enabled. Using wireless instead of wired service helps hotspot owners to build network service quickly.

WHG-1000 supports two zones, **Private** and **Public**. In the **Private Zone**, authentication is not required to access the network via wired and wireless. Administrator can access the Web Management Interface (WMI) of WHG-1000 through the wired LAN port. Waiters or waitresses can send orders back to the electrical menu system via wireless hand set devices. In **Public Zone**, by default, ***Authentication Required*** is enabled, so wired and wireless clients in Public Zone are required to get authenticated successfully before surfing the Internet.

*Caution:*

*The switches deployed under WHG-1000 must be **Layer 2 switches** only.*

**Configuration Steps:**

**Step 1: Configure Wireless Band for the Wireless interface**

- Click **Main Menu** in the homepage. Click the **System** menu, then **Zone Configuration** tab.
- Select a desired wireless band from ***Band*** drop-down list.

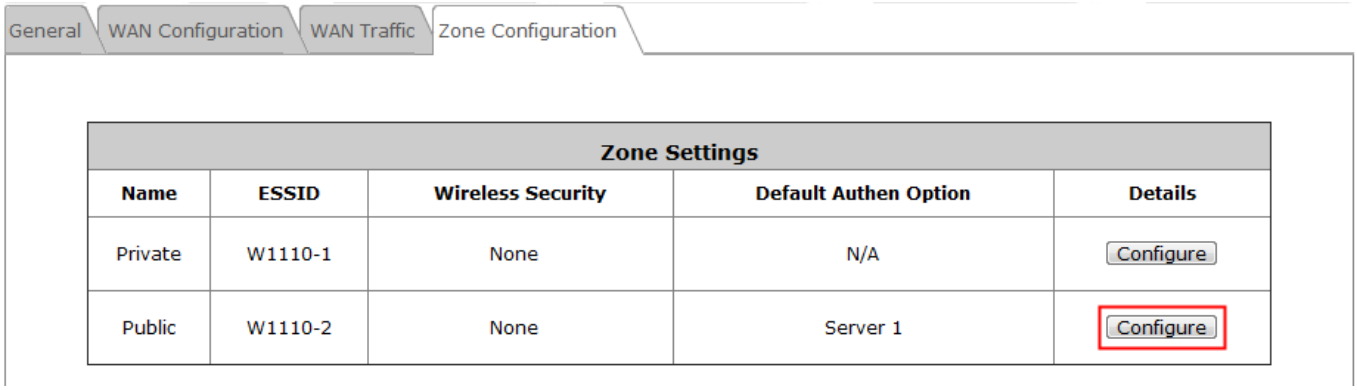
General | WAN Configuration | WAN Traffic | Zone Configuration

| Zone Settings | | | | |
|---|---|---|---|---|
| **Name** | **ESSID** | **Wireless Security** | **Default Authen Option** | **Details** |
| Private | W1110-1 | None | N/A | Configure |
| Public | W1110-2 | None | Server 1 | Configure |

| Wireless General Settings | |
|---|---|
| **Band** | 802.11g+802.11n |
| **Short Preamble** | Enable Disable |
| **Short Guard Interval** | Enable Disable |
| **Channel Width** | 20 MHz |
| **Channel** | 1 |
| **Max Transmit Rate** | Auto |
| **Transmit Power** | Auto |
| **DTIM Period** | 1 (1-255ms) |

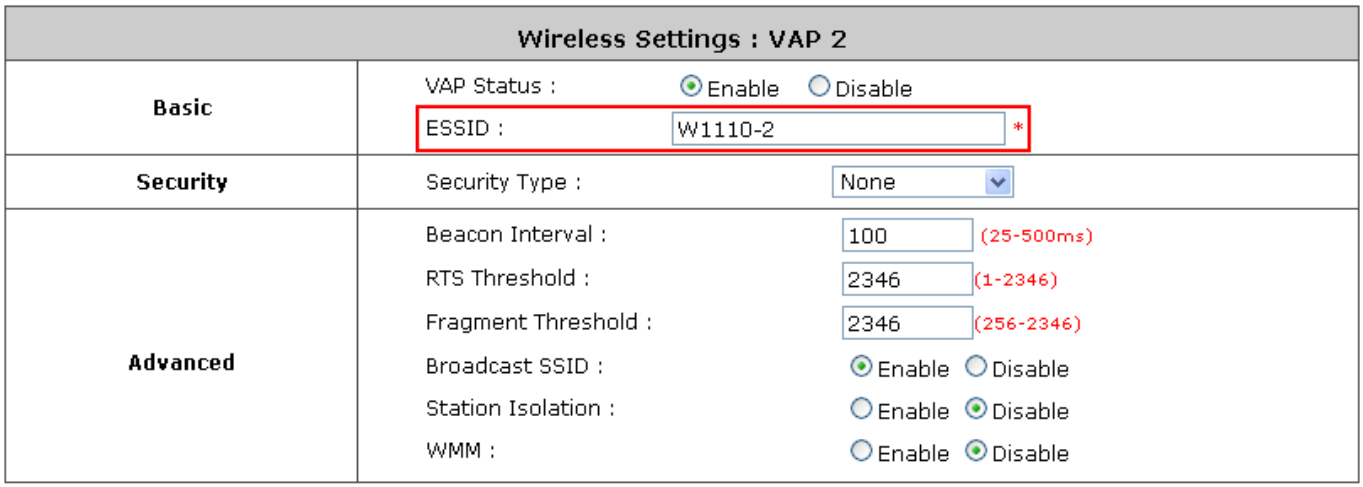
## Step 2: Configure Public Zone Settings

- Click the **System** menu.
- Click the **Zone Configuration** tab.
- Click ***Configure*** button of Public.



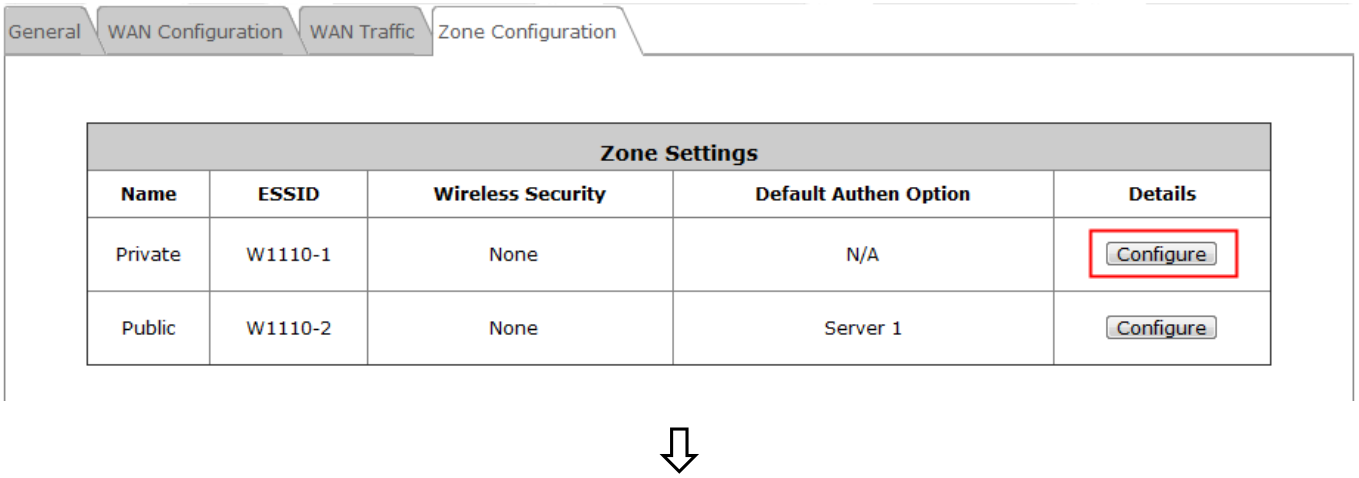

## Step 3: Configure ESSID for Public Zone

- Enter a desired **ESSID** for Public Zone in Wireless Settings: **W1110-2**.
- Click ***Apply*** at the bottom of this page.

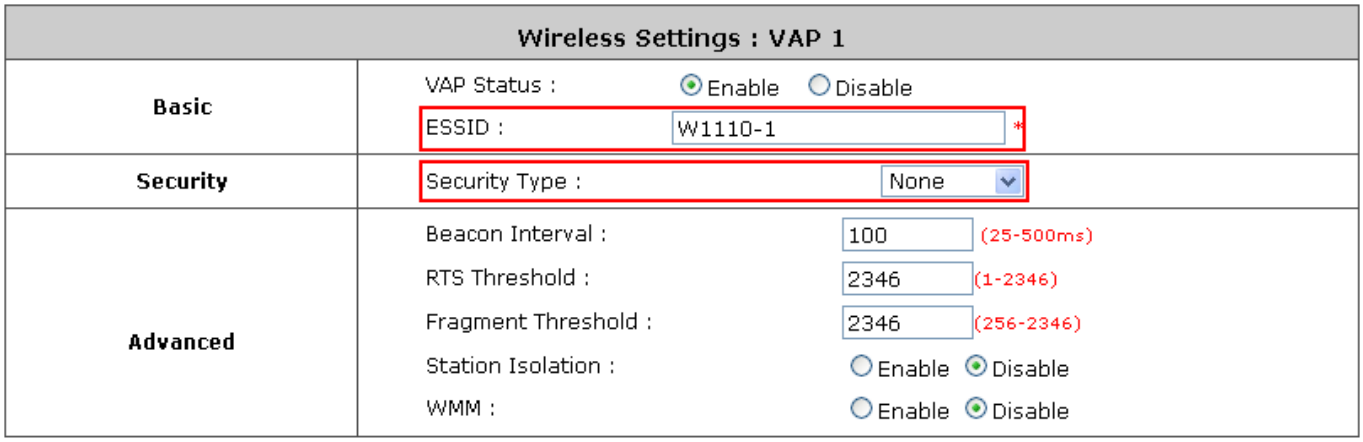


### Step 4: Configure ESSID for Private Zone

- Enter a desired **ESSID** for Private Zone in Wireless Settings: **W1110-1**. *Note: Private Zone ESSID will not be broadcasted.*
- Select a desired **Security Type** for Private Zone for security enhancement if needed.
- Click ***Apply*** at the bottom of this page.

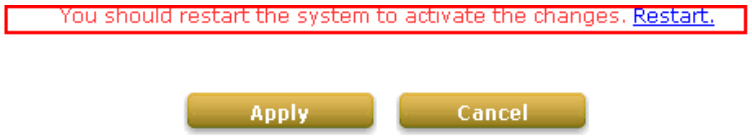




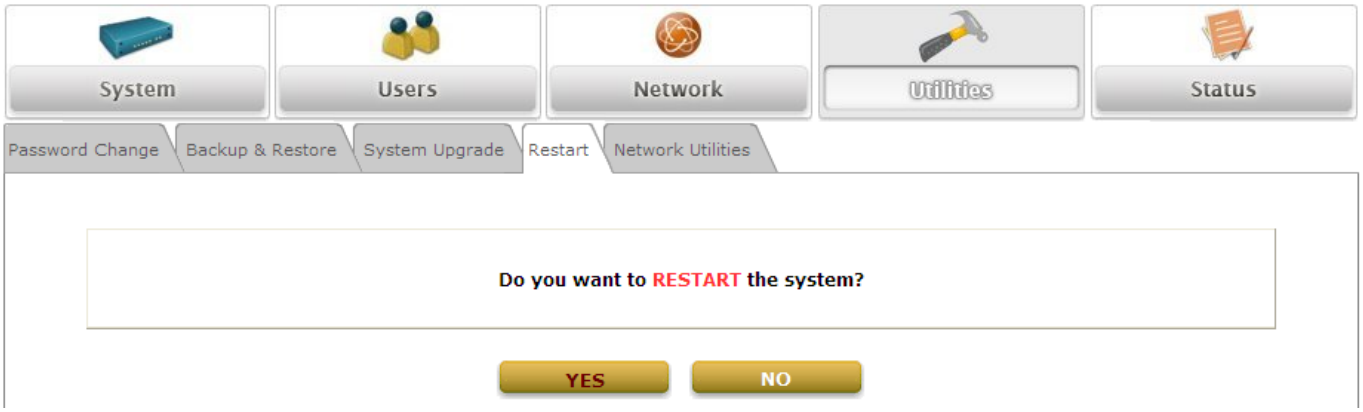
### Step 5: Confirm Configuration and Restart

➢ Click ***Restart*** once all configurations are done.




### Step 6: Restart the System

A confirmation message of **"Do you want to restart the system?"** will appear. Click ***YES*** to start the restarting process. A confirmation dialog box will then pop out. Click ***OK*** to continue.




*Caution:*

*Please do not interrupt the system during the restarting process.*

***For further configuration and information, please refer to the User's Manual.***

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