



BW1250

Dual Radio 2.4GHz/5GHz Access Point

www.browan.com

User's Guide V1.0

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Within the 5.15 to 5.25 GHz band (5GHz radio channels 34 to 48) the U-NII devices are restricted to indoor operations to reduce any potential harmful interference to MSS operations.

FCC Warning

FCC Interference 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, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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 of the following measures:

- Reorient or relocate the receiving antenna.
- 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.

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.

FCC 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.

If this device is going to be operated in 5.15 ~ 5.25GHz frequency range, then it is restricted in indoor environment only.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Contents

COPYRIGHT	1
NOTICE	1
TRADEMARKS	1
FCC Warning	2
CONTENTS	3
ABOUT THIS GUIDE	5
Purpose	5
Prerequisite Skills and Knowledge	5
Conventions Used in this Document	5
Help Us to Improve this Document!	5
BROWAN Technical Support	5
CHAPTER 1 – INTRODUCTION	6
Product Overview	6
Features Highlight	7
CHAPTER 2 - INSTALLATION	9
The Product Package	9
Hardware Introduction	9
General Overview	9
Bottom Cover	10
LEDs	10
Connectors	11
Connect to the Power Source and Local Network	12
Software Installation	13
Initialization	13
Software Introduction: KickStart	13
Access Your BW1250	13
CHAPTER 3 – APPLICATION MODE	17
AP + AP Mode	17
AP + Bridge Mode	17
CHAPTER 4 – REFERENCE MANUAL	19
Web Interface	19
Status	20
Status Device Status	20
Status Wireless Status	21
Status Interface Statistics	22
Network	23
Network Interface	23
Network RADIUS Server	25
Network DHCP Settings	27
Network NTP Settings	32
Network Time Settings	34
Wireless	35
Wireless Basic	35
Wireless Advance	44
Wireless WEP	52

Wireless | MAC ACL53

System.....56

System | Security56

System | SNMP.....57

System | Telnet.....58

System | Configuration58

System | Reset.....60

System | Upgrade61

APPENDIX 63

A) Specification 63

B) Factory Defaults for the BW1250 65

C) Regulatory Domain/Channels/Power 66

D) Location ID and ISO Country Codes 68

About this Guide

Purpose

This document provides information and procedures on hardware installation, setup, configuration, and management of the [BROWAN](#) high performance Dual Radio 2.4GHz/5GHz AP BW1250.

Prerequisite Skills and Knowledge

To use this document effectively, you should have a working knowledge of Local Area Networking (LAN) concepts and wireless Internet access infrastructures. In addition, you should be familiar with the following:

- Hardware installers should have a working knowledge of basic electronics and mechanical assembly, and should understand related local building codes.
- Network administrators should have a solid understanding of software installation procedures for network operating systems under Microsoft Windows 95, 98, Millennium, 2000, NT, and Windows XP and general networking operations and troubleshooting knowledge.

Conventions Used in this Document

The following typographic conventions and symbols are used throughout this document:

	Very important information. Failure to observe this may result in damage.
	Important information that should be observed.
	Additional information that may be helpful but which is not required.
bold	Menu commands, buttons and input fields are displayed in bold
<code>code</code>	File names, directory names, form names, and system-generated output such as error messages are displayed in constant-width type
<value>	Placeholder for certain values, e.g. user inputs
[value]	Input field format, limitations, and/or restrictions.

Help Us to Improve this Document!

If you should encounter mistakes in this document or want to provide comments to improve the manual please send e-mail directly to:

manuals@browan.com

[BROWAN](#) Technical Support

If you encounter problems when installing or using this product, please consult the [BROWAN](#) website at www.browan.com for:

- Direct contact to the [BROWAN](#) support centers.
- Frequently Asked Questions (FAQ).
- Download area for the latest software, user documentation and product updates.

Chapter 1 – Introduction

Thank you for choosing the [BROWAN](#) Dual Radio Access Point BW1250.

The [BROWAN](#) BW1250 operates simultaneously in [both](#) 5 GHz and 2.4 GHz frequency band and is fully compliant to 802.11b/g and 802.11a standard with its high performance and enhanced security.

The two Dual-Band radio (a/g + a/g) [feature](#) supplies the furthest in flexibility and makes sure low interference and large coverage. The a+g operation mode and Multiple BSSID that this product provides differentiates it from traditional indoor AP product.

* * Two radios are under firmware controlled not to use the same channel or a channel which are separated less than 4 channels and ☐ is not user changeable.

Product Overview

Flexibility and [High](#) performance

[BROWAN](#) BW1250 [is](#) built [as](#) a high-performance and feature-rich indoor Access Point. With two dual-band radios operating AP, Bridge and Repeater working modes [can](#) provide the furthest flexible wireless network deployment:

- Simultaneously supports 802.11a/b/g in one platform
- Dual AP configuration for high client density environment
- Dual AP configuration for supporting all kinds of client (11a/b/g) simultaneously
- Mix of AP and Bridge configuration for enhancing wireless coverage by wireless repeating and wireless bridging

Secure and [Reliable Wireless Networking](#)

[BROWAN's](#) BW1250 supports and meets all security requirement of wide area networking professionals for secured wireless network:

- Supports VLAN, up to 16 VLAN ID per Radio
- IEEE 802.1x/EAP with password, certificates and SIM card (EAP/TLS, EAP/PEAP, EAP/SIM and EAP/TTLS)
- 64bits/128bits static and dynamic WEP key
- Support Wi-Fi protected Access (WPA/WPA2) with AES and TKIP
- Layer 2 Isolation for preventing snooping on the same radio
- MAC ACL for preventing illegal attacking from Internet
- Hidden SSID broadcast to prevent illegal users connection

Strong Anti-interference

Dynamic Channel Allocation (DCA) solution automatically selects optimal operational frequency channel during power up and periodically monitors the environment and adjusts for best operational channel.

Multiple BSSID

Support up to 16 BSSID per radio and each can be configured independently to support [different](#) range of security policy, authentication methods, RADIUS servers and VLAN IDs. Each BSSID can be

set [by its priority on a basis of](#) 802.1p tag or 802.11e EDCA which enables WLAN client device to access wireless link QoS capabilities.

Simple Installation

Support IEEE 802.3af Power-over-Ethernet as well as external power supply by power adaptor. This reduces the cost and the effort of installation and maintenance dramatically.

Easy [Remote Management](#) and [Maintenance](#)

[BROWAN's](#) BW1250 supports remote management with HTTPS, CLISH and SNMP:

- Web-based user interface with HTTPS request and CLISH configuration with SSHv2 request supplies [a](#) secure remote management
- [BROWAN's Network Management System](#) supplies the system management solution
- DHCP Server/DHCP Relay/DHCP Client service supplies flexibility for different network setup
- Remote software upgrading via HTTPs

Management Option

You can use the Access Point management systems through the following interfaces:

- Web-browser interface with HTTPS
- Command Line interface (CLI) with optional SSH
- Simple Network Management Protocol

This user's guide provides detailed description of the management for the web-browser interface.

Features Highlight

Super AP

Multiple BSSID (up to 16)

- SSID per BSSID
- Enabled or Disabled Hidden SSID per BSSID
- VLAN ID per BSSID
- QoS priority per BSSID based on 802.1p or EDCA
- AAA way per BSSID, 802.1x and web login
- Co-existence of 802.1x and web login
- Security policy per BSSID
- WPA pass-through
- RADIUS server per BSSID
- Traffic priority per BSSID

AAA

- RADIUS client supporting
- 802.1x supporting(EAP/TLS,EAP/TTLS, EAP/PEAP and EAP/SIM)
- Accounting supporting (RFC 2866)

Security

- Static 64/128bits WEP, Dynamic 64/128bits WEP
- WPA/TKIP and WPA/AES support
- MAC ACL
- Access Control (accept rule and deny rule) based on MAC address
- Layer 2 Isolation
- Hidden SSID

Management

- Secure management via HTTPS, CLISH, SNMP
- Standard MIB and [BROWAN](#) Private MIB
- [BROWAN](#) NMS Support
- Detail Client Survey
- Network interface statistics
- Remote firmware update via WEB UI
- Backup/Restore configuration file
- DHCP Server
- Kickstart Tool
- Bridge/Client Diagnostic tool
- NTP support and setting time manually

Maintenance

- Software watchdog

Super Brige

- 802.11a/b/g compliant
- 108Mbps raw data rate supporting
- Up to 8 bridge links supporting
- Special radio for Bridge
- WPA/PSK over Bridge link

Chapter 2 - Installation

This chapter provides installation instructions for the hardware and software components of the Access Point BW1250. It also includes the procedures for the following tasks:

- Hardware Introduction (LEDs, Connectors)
- Connecting the Access Point
- Software Installation

The Product Package

The product [deliverables](#):

- BW1250 [Dual Radio 2.4GHz/5GHz Access Point](#)
- Ethernet cable, [1.5m](#)
- USA type Power Cord
- EU type Power Cord
- External power supply
- Installation CD containing:
 - BW1250 User's Guide in PDF format
 - KickStart Utility
 - Bridge/Client Diagnostic Utility
 - Product Firmware
 - Release Notes
 - Adobe Acrobat Readers
 - [Release Notes](#)
- Printed 3 Year Warranty Card



If any of these items are missing or damaged, please contact your reseller or [BROWAN](#) sales representative.

Hardware Introduction

General Overview

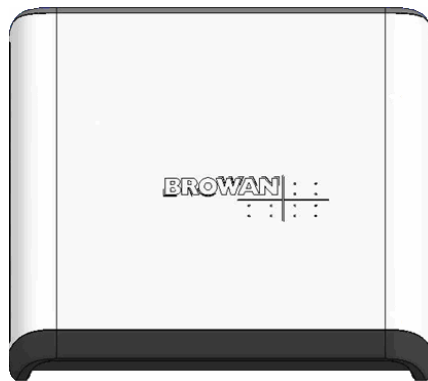


Figure 1 – BW1250 General View

The front panel of BW1250 contains:

- There are 4 indicator lights (**LEDs**) that help to describe the state of various networking and connection operations.

The Bottom cover of BW1250 contains:

- **Connectors** which enable you to make different network connections for the device
- **Reset** button enables you to reboot or reset the device configuration to the factory defaults



Press the **Reset** button for **less** than **5** seconds to **reboot** the device.

Press the **Reset** button for **more** than **5** seconds to **set** the device **to factory defaults**.

Bottom Cover

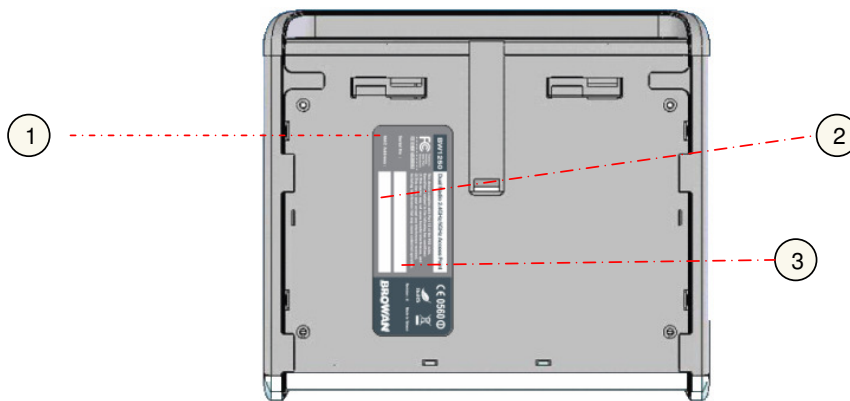


Figure 2 –Bottom Cover of the BW1250

The Bottom Cover of the BW1250 contains:

1. **Back Label** with Model and Device name. The official device name is **Dual Radio 2.4GHz/5GHz Access Point**, model **BW1250**.
2. **Serial Number label** of the device.
3. MAC address label of the device. The MAC label shows the WLAN1 interface MAC address of the device.

LEDs

The BW1250 Access Point has 4 LEDs located on the front panel:

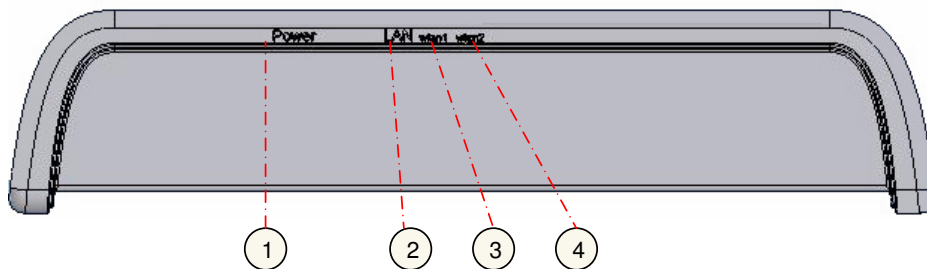


Figure 3 – LEDs of the BW1250

The various states of the LEDs indicate different networking and connection operations as follows:

Item	LED	Color	Status	Indication
1	Power	Green	On	BW1250 is active/working
			Blink	BW1250 is booting
2	LAN	Green	On	BW1250 Ethernet Port Link Active
			Blink	BW1250 Ethernet Port is Transmitting and Receiving data
3	Wireless1	Green (802.11g module is functional)	On	BW1250 WLAN1 RF card Active
			Blink	BW1250 WLAN1 RF card is Transmitting and Receiving data
		Amber (802.11a module is functional)	On	BW1250 WLAN1 RF card Active
			Blink	BW1250 WLAN1 RF card is Transmitting and Receiving data
4	Wireless2	Green (802.11g module is functional)	On	BW1250 WLAN2 RF card Active
			Blink	BW1250 WLAN2 RF card is Transmitting and Receiving data
		Amber (802.11a module is functional)	On	BW1250 WLAN2 RF card Active
			Blink	BW1250 WLAN2 RF card is Transmitting and Receiving data

Connectors

The BW1250 has several connectors on the rear panel:

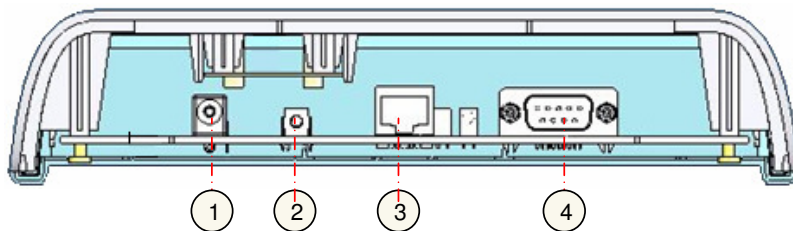


Figure 4 –RF Connectors

Descriptions of the connectors are given in the following table:

Item	Connector	Description
1	Power Jack	For power supply
2	Reset button	Reboot or reset to factory defaults. Press the reset bottom for less than 5 seconds to reboot the Access Point. Press the reset bottom for more than 5 seconds to reset the Access Point to factory defaults
3	LAN	Connect to the RJ45 port of your laptop for configuration or connect to the PoE device for power supply and network connection
4	Console	For console connection

Connect to the Power Source and Local Network

BW1250 [can be powered on by connecting to either one of the following two device:](#)

- ◆ Power-over-Ethernet
- ◆ External Power [Adapter](#)

Case 1 Use the Power-over-Ethernet:



Use the enclosed power cord [and](#) any IEEE802.3af Compliant POE Power Source Devices to supply your BW1250 Access Point.

Step 1 Place the Access Point on a flat work surface or hang on the wall.



Use the enclosed 4 screws to put the rear side of the Access Point hanging on the wall.

Step 2 Connect the Ethernet cable from the BW1250 route to an IEEE802.3af compliant Power source Equipment, Such as BE3011 POE HUB, E-820 POE Switch [products of BROWAN](#).

Step 3 If you use the BE3011 POE HUB, please connect the BW1250 LAN port to the **PWR-LAN OUT** port of BE3011 and connect the BE3011 **LAN-IN** port to the Switch or hub in the local network.

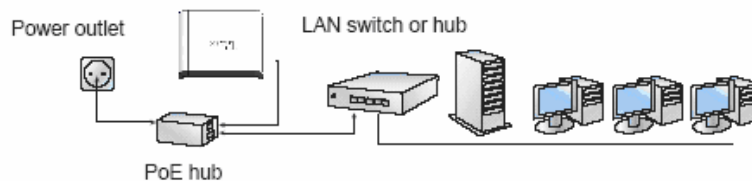


Figure 5 – Connect BW1250 to Power source and network by PoE HUB

Case 2 Use External Power Adapter

Step 1 Place the Access Point on a flat work surface or hang on the wall.

Step 2 Use the enclosed Ethernet cable to connect the LAN port of the Access Point to the Switch or hub in the local network.

Step 3 Connect the power supply to the Access Point.

Software Installation

Initialization

There are two choices for the first web browser connection to your BW1250: either enter the BW1250's IP address and subnet (default networks settings) into the browser or launch the **KickStart** utility that is provided with your product CD.

The default network settings for your new access point are:

LAN port: IP 192.168.2.2 subnet 255.255.255.0

Software Introduction: KickStart

The **BROWAN KickStart** is a software utility that is included on the Installation CD.

The utility automatically detects access points or access controllers installed on your network, regardless of its host IP address and lets you configure each unit's IP settings. The feature list for the **KickStart** utility is listed below:

- Scanning your subnet for all connected APs, ACs
- Quick access to your AP via HTTPS, telnet, SSH

To install the **KickStart** utility insert the Installation CD into your CD-ROM drive. Find and install the utility from the product CD into the computer.



If the Installation CD does not start automatically, please run "**autorun.exe**" manually from the root directory of the installation CD.

Access Your BW1250

There are two choices for the first Web browser connection to your BW1250:

- Use the **Web browser**.
- Launch the **KickStart** utility that [can be found in](#) your product CD.

If first method is preferred, [please](#) follow these instructions:

Step 1 Configure your PC with a static IP address on the 192.168.2.0 subnet with mask 255.255.255.0. Connect the BW1250 to the same physical network as your PC.
[Connect the BW1250 by typing the default IP of the BW1250 into the Web browser address bar:](#)

`https://192.168.2.2`

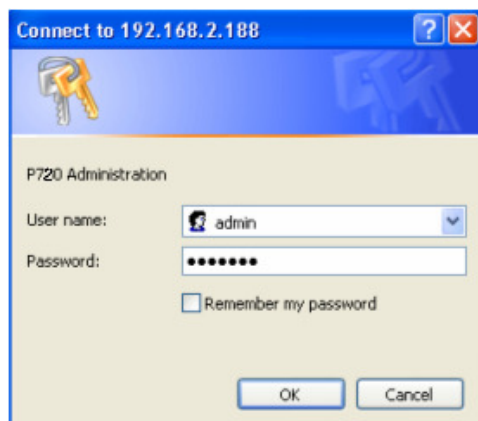
Step 2 Enter the BW1250 administrator login [credential](#) to access the Web management [page](#).



The default administrator log on settings for all access point interfaces are:

User Name: **admin**

Password: **admin01**

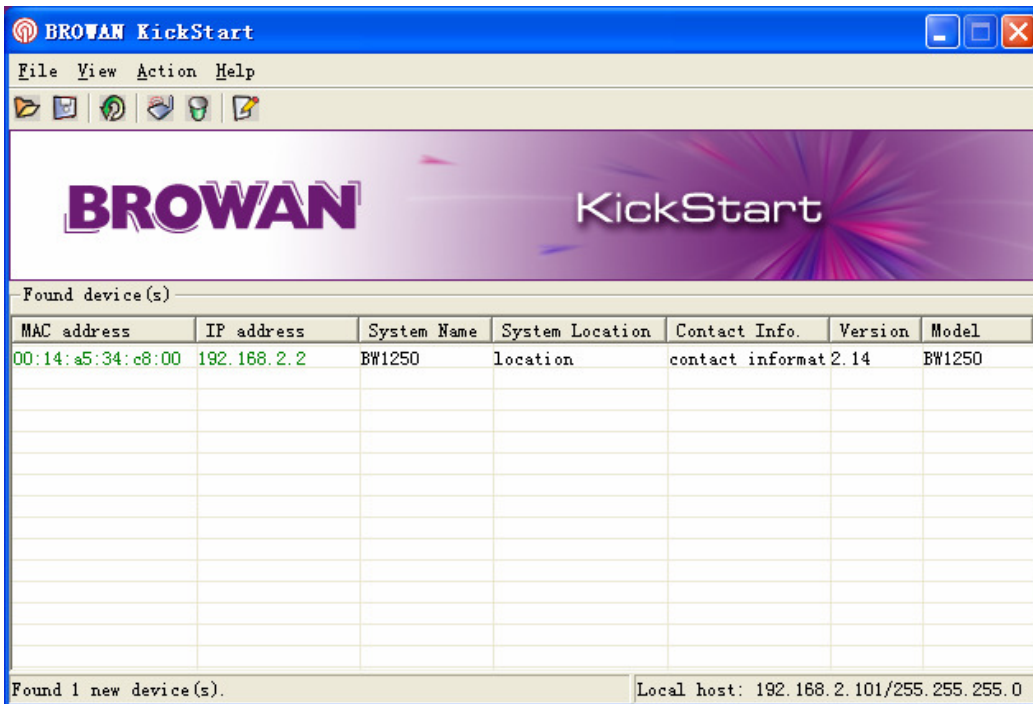


Step 3 After successfully log on, you will see the main page of the BW1250's **Web user interface**:

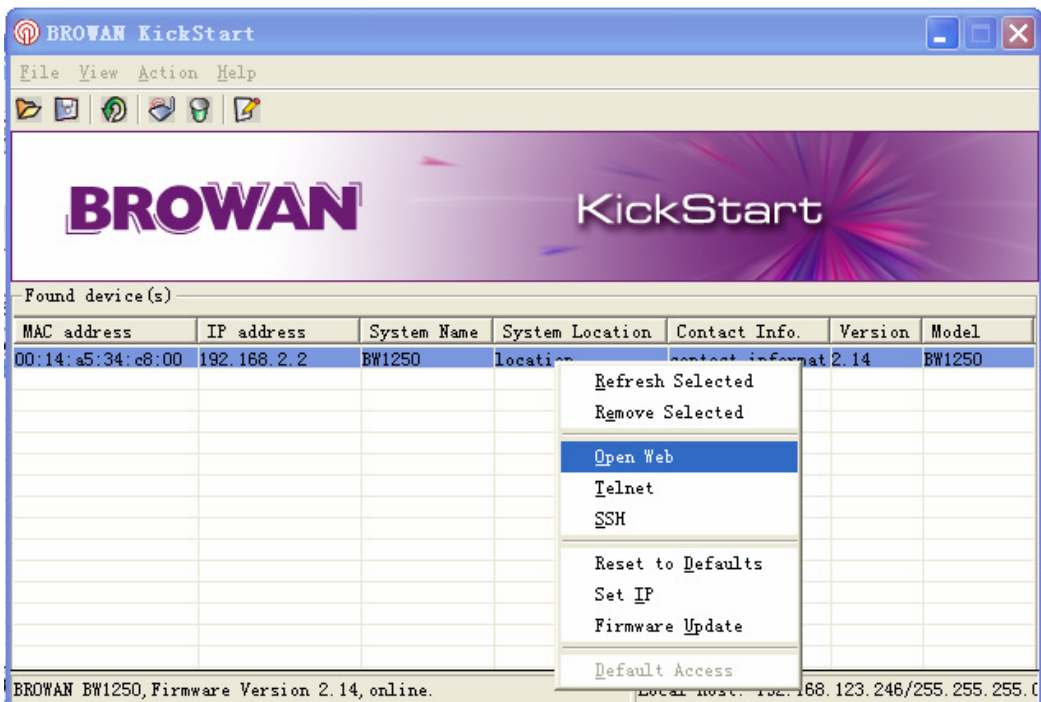


If second method is preferred, [please](#) follow the instructions:

Step 1 Install the **KickStart** utility [that can be found in](#) the [product CD](#). Click **Start > Programs > BROWAN > KickStart** to launch the application. If the BW1250 device is connected to your network, the utility will automatically find your BW1250:



Step 2 Select your controller and right click. Select **Open WEB** item to launch the web management interface through the secure https connection:



Step 3

Enter the BW1250 administrator login [credential](#) to access the **web management** interface.



The default administrator log on settings for all access point interfaces are:

User name: **admin**

Password: **admin01**

Step 4

After successfully log on, you will see the **web interface**.



Chapter 3 – Application Mode

The two Dual-Band [radios](#) (a/g + a/g) supply the furthest flexible application. Three application modes are supplied by BW1250:

- AP + AP mode
- AP + Bridge mode

AP + AP Mode

AP + AP configuration can be for client density environment.

The typical usage [that is recommended](#) is: 11g AP + 11a AP.

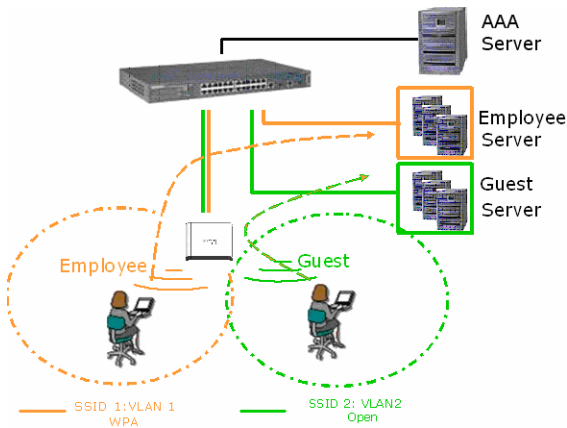


Figure 6 – AP + AP application mode

AP + Bridge Mode

AP + Bridge configuration is for environment with last mile issue.

The typical usage [that is recommended](#) is: 11g AP + 11a Bridge.

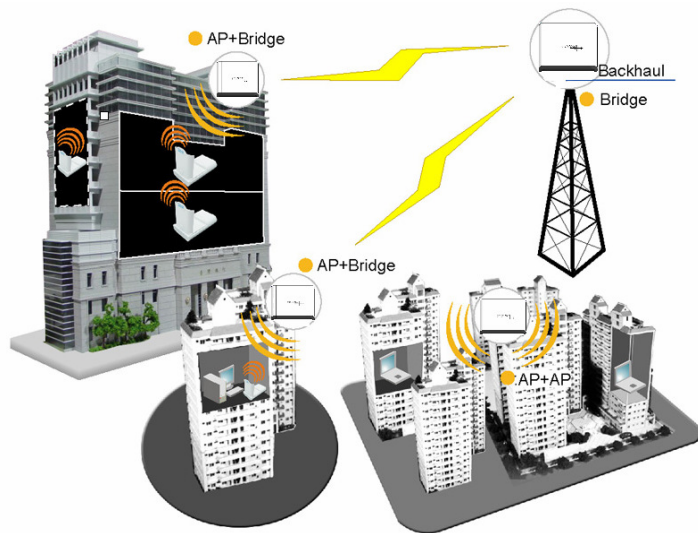


Figure 7 – AP +Bridge application mode



Because of the reason of the antenna interference, the performance will deteriorate dramatically if the same band (2.4GHz or 5GHz) is used both on the two RF modules. It is strongly recommended that one RF module uses 2.4GHz and the other uses 5GHz.

Chapter 4 – Reference Manual

This chapter contains web management reference information.

The **web management** main menu consists of the following sub menus:

- **Status** – device status showing
- **Network** – device settings affecting networking
- **Wireless** – device settings related to the wireless part of the BW1250
- **System** – device system settings directly applicable to the BW1250
- **Exit** – click exit and leave the web management then close your web-browser window.

Web Interface

The main **web management** menu is displayed at the top of the page after successfully logging into the system (see the figure below). From this menu all essential configuration pages are accessed.



Figure 8 – Main Configuration Management Menu

The **web management** menu has the following structure:

Status

- Device Status** – show the status related with the whole device
- Wireless Status** – show the status of the two radios
- Interface Statistics** – show the status of each network interface

Network

- Interface** – TCP/IP settings of BW1250 LAN (Bridge) port
- RADIUS Server** – specify the settings of RADIUS server which is used by 802.1x or WPA
- DHCP Settings** – specify the settings of DHCP server or DHCP relay service
- NTP Settings** – NTP settings of BW1250
- Time Settings** – Manually set time

Wireless

- Basic** – specify the basic settings related with wireless part
- Advance** – specify the settings of multiple BSSID or Bridge
- WEP** – specify the WEP settings related with static WEP encryption
- MAC ACL** – MAC ACL settings for BW1250

System

- Security** – set access permission to your BW1250
- SNMP** – SNMP service
- Telnet** – Telnet/SSH service
- Configuration** – system configuration utilities, including Backup/Upload configuration

Reset – reboot device and restore systems to factory default

Upgrade – Upgrade the firmware remotely

In the following sections, short references for all menu items are presented.

Status

Status | Device Status

The *device status* page shows important information for the BW1250, its system status and network configuration.

System	
System Version	BW1250.BRO.2.14.2014
Uptime	1 day(s) 07:03
System Time	1970/01/02/ 07:03
Wlan1 MAC	00:14:a5:34:c8:00
Wlan2 MAC	00:14:a5:34:c8:10
Free System Memory	38,096 K bytes
Total System Memory	63,388 K bytes
Network	
LAN Mode	static-IP
LAN IP	192.168.2.2
LAN Mask	255.255.255.0
Gateway	0.0.0.0
VLAN	Disabled
VLAN ID	
Note:	

Figure 9 – Device Status

System Version display the current [firmware](#) version of the [BW1250](#)



This is important information [when seeking](#) support [from BROWAN](#) and preparing firmware upgrading

Uptime – indicates the time, expressed in days, hours and minutes since the system was last rebooted.

System Time – shows the current time of the BW1250.

Wlan1 MAC / Wlan2 MAC – shows the MAC addresses of the two wireless interfaces of the BW1250

Free System Memory – indicates the memory currently available in the BW1250

Total System Memory – indicates the total memory in the BW1250

LAN Mode – indicate static IP or DHCP client is used for BW1250 LAN IP address

LAN IP – shows the LAN IP address of BW1250

LAN Mask – shows the LAN Network Mask of BW1250

Gateway – shows the default gateway of BW1250

VLAN –specify whether to manage this device via VLAN.

VLAN ID _ specify VLAN ID when managing this device via VLAN.

Status | Wireless Status

The *wireless status* shows the information related with BW1250 two wireless interfaces.

Radio1	
Channel	11
Domain	WORLD
Mode	AP
Band	2.4GHz(Mixed 11g)
Layer2 Isolation	disabled
Total Connected Clients	0
Antenna Gain	6dBi
Output Power	19 dBm
MAC ACL	disabled

Radio2	
Channel	60
Domain	WORLD
Mode	AP
Band	5GHz(11a)
Layer2 Isolation	disabled
Total Connected Clients	0
Antenna Gain	8dBi
Output Power	18 dBm
MAC ACL	disabled

Figure 10 – Wireless Status

Radio1 / Radio2 – relates with two wireless interfaces

Channel – indicates which channel is in use.

Domain – indicates regulatory domain set on the BW1250

Mode – AP or Bridge mode is be used for this wireless interface

Band – specify which band is in use for wireless interface

Layer2 Isolation – specify the status of Layer2 Isolation service on this wireless interface

Total Connected Clients – indicates number of the currently connected clients to your BW1250

Antenna Gain – indicates antenna Gain value.

Output Power - indicates output power of the RF card, not including antenna gain.

MAC ACL – indicates the status of MAC ACL feature on BW1250

Status | Interface Statistics

The *Interface Statistics* shows each network interface status, including Input / Output bytes, packets or error.

Interface Statistics						
Interface Name	Input Bytes(KB)	Input Packets	Input Errors	Output Bytes(KB)	Output Packets	Output Errors
ixp0	18	135	0	44	125	0
wlan1_0	0	0	0	4	39	0
wlan2_0	0	0	0	4	39	0
Refresh						

Note:

Figure 11 – Interface Statistics

Interface Name – shows the name of each network interface, where ixp0 is related to LAN interface, wlan1_x is related to WLAN1 sub-interface and wlan2_x is related to WLAN2 sub-interface.

Input Bytes (KB) – shows the total number of bytes received on the network interface. The bytes number is displayed in KB.

Input Packets – shows the packets number received on the network interface.

Input Errors – shows the packets number which contain errors preventing them from being received correctly.

Output Bytes (KB) – shows the total number of bytes transmitted out of the network interface. The bytes number is displayed in KB.

Output Packets – shows the packets number transmitted out of the network interface.

Output Errors – shows the packets number which contain errors preventing them from being transmitted out correctly.

Refresh – gets the updated network interface information.

Network

Network | Interface



The interface configured is bridge device therefore only one interface is displayed here for configuration.

Bridge interface and its settings are listed in the **Interface** page.

Network Interface Configuration						
IP Address	Netmask	Gateway Address	Protocol	VLAN	VLAN ID	Action
192.168.2.2	255.255.255.0	0.0.0.0	static	Disabled	2	Edit

Note:

Figure 12 – Interface Configuration Table

To change network interface (bridge) configuration properties click the **Edit** button in the **Action** column. The **status** can be changed now:

Network Interface Configuration						
IP Address	Netmask	Gateway Address	Protocol	VLAN	VLAN ID	Action
192.168.2.2	255.255.255.0	0.0.0.0	static	Disabled	2 (1 - 4094)	Save Cancel

Note:

Figure 13 – Edit Interface Configuration Settings

IP Address – specify new interface IP address [in digits and dots notation, e.g. 192.168.123.70].

Netmask – specify the subnet mask [[0-255].[0-255].[0-255].[0-255]]. These numbers are a binary mask of the IP address, which defines IP address order and the number of IP addresses in the subnet.

Gateway Address – interface gateway. For Bridge type interfaces, the gateway is always the gateway router.

Protocol – specify **static** for setting IP address manually and **dhcp** for getting IP address dynamically acting as DHCP client.



When **dhcp** is used for getting IP address, Kickstart is strongly recommended to find your device.

VLAN - specify whether to manage this device via VLAN.

VLAN ID _ specify VLAN ID when managing this device via VLAN.

Save – save the entered values.

Cancel – restore all previous values.

Change status or leave in the default state if no editing is necessary and click the **Save** button.

Network Interface Configuration						
IP Address	Netmask	Gateway Address	Protocol	VLAN	VLAN ID	Action
192.168.123.7	255.255.255.0	192.168.123.1	static	Disabled	2	Edit
Apply Changes			Discard Changes			

Note:

Figure 14 – Apply or Discard Interface Configuration Changes

Apply Changes – to save all changes in the **interface** table at once.

Discard Changes – restore all previous values.

For such each change of settings, the BW1250 needs to be restarted to apply all settings changes when clicking **Apply Changes**. Request for reboot server appears:

Network Interface Configuration						
IP Address	Netmask	Gateway Address	Protocol	VLAN	VLAN ID	Action
192.168.123.7	255.255.255.0	192.168.123.1	static	Disabled	2	Edit

Note:[Reboot](#)

Server needs to be restarted. Please reboot.

Figure 15 – Reboot Server

Reboot – click the button to restart the server and apply the changes.



If there is no other setting needed to be modified, click the **Reboot** button for applying all modifications.

And if there are still other setting modifications needed, go ahead to finish all changes and then click **Reboot** button to restart and apply all settings together.

To reboot at once, click **Reboot** button and then it is necessary to wait a moment. And the message of reboot appears just like bellows:

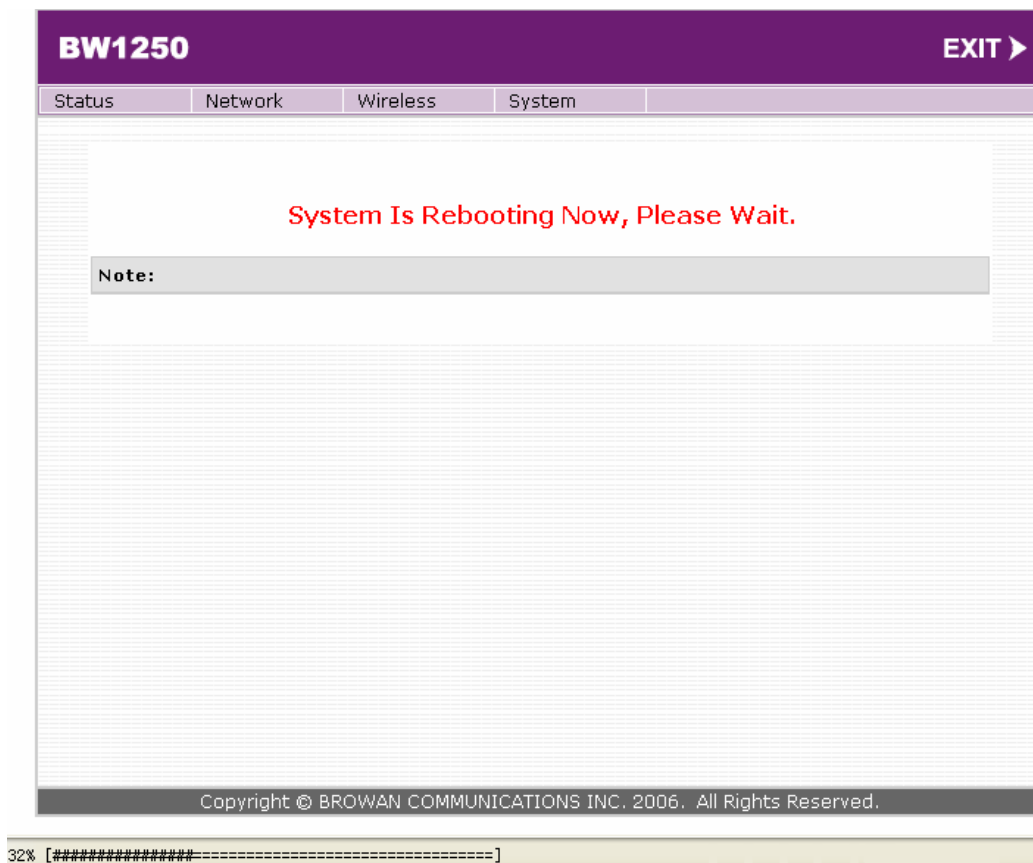


Figure 16 – Reboot Information

Network | RADIUS Server



Up to **32** different RADIUS servers can be configured under the **RADIUS servers** menu.

By default, one **RADIUS** server is specified for the system:

RADIUS Server				
Name	ServerIP	ServerPort	Secret	Action
				Add

Note:

Figure 17 – RADIUS Servers Settings

Add – add new RADIUS server.

Click **Add** to configure RADIUS server settings.

RADIUS Server			
Name	ServerIP	ServerPort	Secret
profile1	0.0.0.0	1812	test
Save Cancel			

Note:

Figure 18 – RADIUS Server's Details

Name – specify the new RADIUS server name which is used for selecting RADIUS server.

Server IP – authentication RADIUS server IP address [dots and digits].

Server Port – specify the network port used to communicate with RADIUS [1-65535].



The default port value for authentication is 1812.

The default port value for accounting is 1813.

The port specified here must be the same with the one on the RADIUS server.

Secret – shared secret string that is used to make sure the integrity of data frames used for authentication server.

Save – add new specified RADIUS server.

Cancel – restore all previous values.

After adding a new RADIUS server or editing an existing one, the following control appears:

RADIUS Server				
Name	ServerIP	ServerPort	Secret	Action
profile1	192.168.123.6	1812	test	Edit Delete
Add				
Apply Changes Discard Changes				

Note:

Figure 19 – Apply or Discard RADIUS Server Changes

Edit – edit an existing RADIUS server settings

Delete – delete an existing RADIUS server settings

Click **Apply Change** to apply all the changes. Then the follow similar page will appear:

RADIUS Server				
Name	ServerIP	ServerPort	Secret	Action
profile1	192.168.123.6	1812	test	Edit Delete
Add				

Note:

Server needs to be restarted. Please reboot.

Figure 20 – Reboot Server

Reboot – restart the access point to make applied changes work.



If there is no other setting needed to be modified, click the **Reboot** button for applying all modifications.

And if there are still other setting modifications needed, go ahead to finish all changes and then click **Reboot** button to restart and apply all settings together.

Network | DHCP Settings

BW1250 can act as DHCP server or DHCP relay. The DHCP (Dynamic Host Configuration Protocol) service is supported on layer 2 interfaces.

DHCP server and DHCP relay is disabled by default.

DHCP Settings	
Name	Value
Status	Disabled
Edit	

Note:

Figure 21 – DHCP Settings

Edit – edit the wireless basic settings

To change DHCP setting properties click the **Edit** button, the DHCP server or DHCP relay service should be configured:

DHCP Settings	
Name	Value
Status	Disabled
	Disabled DHCP Server DHCP Relay

Note:

Figure 22 – DHCP Settings

Status – select status from the drop-down menu.

Disabled – disable the DHCP server service.

DHCP Server – enable the DHCP server service.

DHCP Relay – enable the DHCP Relay service.

Choose DHCP Server to enable DHCP server service. Choose DHCP Relay to enable DHCP relay service.

DHCP Server

This DHCP server service enables clients on the LAN to request configuration information, such as IP address from a server. Settings of the DHCP service can be viewed just like the follow page.

DHCP Settings	
Name	Value
Status	DHCP Server
IP Address from	192.168.2.2
IP Address to	192.168.2.254
Netmask	255.255.255.0
Gateway	0.0.0.0
WINS Address	0.0.0.0
lease time(seconds)	864000
Domain	
DNS Address	0.0.0.0
DNS Secondary Address	0.0.0.0
Save Cancel	

Note:

Figure 23 – DHCP server Settings



By default, DHCP server is disabled for BW1250.

IP Address from / IP Address to – specify the IP address range to be dynamically allocated by the DHCP server.

Netmask – enter the netmask for IP pool range.

Gateway – enter the gateway IP for wireless clients.

WINS Address (Windows Internet Naming Service) – specify server IP address if it is available on the network [dots and digits].

Lease Time – specify the IP address lease interval in seconds [1-1000000].

Domain – specify the DHCP domain name [optional, 1-128 sting].

DNS address – specify the DNS server's IP address [in digits and dots notation].

DNS secondary address – specify the secondary DNS server's IP address [in digits and dots notation].

Change status or leave in the default state if no editing is necessary and click the **Save** button.

DHCP Settings	
Name	Value
Status	DHCP Server
IP Address from	192.168.2.2
IP Address to	192.168.2.254
Netmask	255.255.255.0
Gateway	0.0.0.0
WINS Address	0.0.0.0
lease time(seconds)	864000
Domain	
DNS Address	0.0.0.0
DNS Secondary Address	0.0.0.0
Edit	

Note:

Figure 24 – Apply or Discard DHCP server Settings



The DHCP server settings will be automatically adjusted to match the network interface settings.



The Gateway of DHCP server settings must be same with the Gateway of BW1250

For each change of settings, the BW1250 needs to be restarted to apply all settings changes when clicking **Apply Changes**. Request for reboot server appears:

DHCP Settings	
Name	Value
Status	DHCP Server
IP Address from	192.168.2.2
IP Address to	192.168.2.254
Netmask	255.255.255.0
Gateway	0.0.0.0
WINS Address	0.0.0.0
lease time(seconds)	864000
Domain	
DNS Address	0.0.0.0
DNS Secondary Address	0.0.0.0
Edit	

Note:

Server needs to be restarted. Please reboot.

Figure 25 – Reboot information

Reboot – click the button to restart the server and apply the changes.



If there is no other setting needed to be modified, click the **Reboot** button for applying all modifications.
And if there are still other setting modifications needed, go ahead to finish all changes and then click **Reboot** button to restart and apply all settings together.



When BW1250 network Interface uses DHCP to get IP address dynamically, DHCP server service cannot be enabled.

When BW1250 [serves as](#) DHCP [client](#) to get IP address, the similar WEB UI will appear [as below diagram](#):

DHCP Settings	
Name	Value
Status	Disabled
Edit	

Note:

Figure 26 – Warning information

DHCP Relay

To route DHCP through the external server, enable the **DHCP Relay** service.

DHCP Settings	
Name	Value
Status	DHCP Relay ▼
Server IP	192.168.2.1
Save Cancel	

Figure 27 – DHCP Relay settings

Server IP – enter the IP address of the external DHCP server.



Only one DHCP server can be supported for DHCP relay feature.

Change status or leave in the default state if no editing is necessary and click the **Save** button.

DHCP Settings	
Name	Value
Status	DHCP Relay
Server IP	192.168.2.1
Edit	
Apply Changes Discard Changes	

Figure 28 – Apply or Discard DHCP relay Settings

For each change of settings, the BW1250 needs to be restarted to apply all settings changes when clicking **Apply Changes**. Request for reboot server appears:

DHCP Settings	
Name	Value
Status	DHCP Relay
Server IP	192.168.2.1
Edit	

Note:

Server needs to be restarted. Please reboot.

Figure 29 – Reboot information

Reboot – click the button to restart the server and apply the changes.



If there is no other setting needed to be modified, click the **Reboot** button for applying all modifications.

And if there are still other setting modifications needed, go ahead to finish all changes and then click **Reboot** button to restart and apply all settings together.



When BW1250 network interface uses DHCP to get IP address dynamically, DHCP relay service cannot be enabled.

Network | NTP Settings

NTP (Network Time Protocol) is used to synchronize the system time with the selected network NTP server. Use the **Network | NTP Settings** menu to configure the NTP service:

NTP Server		
NTP Status: enable v		
Time Zone: CMT+08:00 v		
Name	ServerIP	Action
Ntpserver-1	107.46.103.100	Delete Edit
Add		

Note:

Figure 30 – NTP Settings

NTP Status – specify enable or disable this NTP service.

Time Zone – specify the time zone for NTP service.

Delete – delete the existed NTP server.

Edit – edit the settings of the existed NTP server.

Add – add a new NTP server setting for synchronizing time.

Clicking **Add** button to add a new NTP server:

NTP Server	
Name	ServerIP
Ntpserver	0.0.0.0
Save Cancel	

Note:

Figure 31 – Add new NTP server setting



Two NTP servers can be configured under **Network | NTP Settings** menu. And only IP address is accepted for NTP server.

It is required to add at least one NTP server before enable NTP service.



The **Name** of NTP server should be unique.

Change status or leave in the default state if no editing is necessary and click the **Save** button.

NTP Server

NTP Status: enable

Time Zone: GMT+12:00

Name	ServerIP	Action
Ntpserver	207.46.103.100	Delete Edit
		Add

Apply Changes Discard Changes

Note:

Figure 32 – Apply or Discard NTP server Changes

[Choose](#) the Time Zone for your local [area](#) time and [enable or disable](#) the NTP status.

NTP Server

NTP Status: enable

Time Zone: GMT+08:00

Name	ServerIP	Action
Ntpserver	207.46.103.100	Delete Edit
		Save Cancel

Note:

Figure 33 – Edit Time Zone setting/NTP status

Click **Save** button to save new Time Zone setting.

NTP Server

NTP Status:

enable

Time Zone:

GMT+08:00

Name	ServerIP	Action
Ntpserver	207.46.103.100	Delete Edit
		Add

Apply Changes

Discard Changes

Note:

Figure 34 – Apply or Discard Time Zone/NTP status Changes

BW1250 needs to be [rebooted](#) to [save](#) all [configuration](#). After clicking **Apply Changes**, reboot [the device is then requested as below diagram](#):

NTP Server

NTP Status:

enable

Time Zone:

GMT+08:00

Name	ServerIP	Action
Ntpserver	207.46.103.100	Delete Edit
		Add

Note:

Reboot

Server needs to be restarted. Please reboot.

Figure 35 – Reboot information

Reboot – click the button to restart the server and save the [configuration you edit](#).



If there is no other setting to be [edited](#), click the **Reboot** button [to save](#) all [configuration](#).

And if there are still other [settings to be edited](#), [you can ignore the reboot request until you](#) finish all [editing](#).

Network | Time Settings

Configure the system time manually under **Network | Time Settings** menu.

Date Configuration	
Date	1970/01/01
Time	01:02
Edit Refresh	

Note:

Figure 36 – Time Settings

Click **Edit** to change current system time.

Date Configuration	
Date	1970 / 01 / 01
Time	01 : 02
Apply Cancel	

Note:

Figure 37 – Edit Date and Time Settings

Change the Date and Time or leave in the default value if no editing is necessary and click the **Apply** button. Thus the modified time will be taken effect at once. No reboot is needed.



If NTP is enabled, the local time cannot be modified.



Since BW1250 hasn't RTC (real-time clock), the system time will [show](#) 1970/01/01 00:00 when [the device reboots each time](#).

Wireless

Wireless | Basic

Use the **wireless | Basic** menu to configure such wireless settings as regulatory domain, channel, band, layer2isolation. Click the edit button on the setting you need to change:

Basic Wireless Setting	
Radio :	wlan1 ▼
Name	Value
Domain	WORLD
Static Channel	11
Band	2.4GHz(Mixed 11g)
Output Power	19 dBm
Antenna Gain	6dBi
RTS Threshold	2347 bytes
Layer2 Isolation	disabled
Mode	AP
Action	Edit Site Survey

Note:

Figure 38 – Basic Wireless Settings with static channel selection

Basic Wireless Setting	
Radio :	wlan1 ▼
Name	Value
Domain	WORLD
Auto Channel	6
Band	2.4GHz(Mixed 11g)
Output Power	19dBm
Antenna Gain	6dBi
RTS Threshold	2347 bytes
DCA Threshold	10 mins
DCA optional channel	1,6,11 channel
Layer2 Isolation	disabled
Mode	AP
Action	Edit Site Survey

Note:

Figure 39 – Basic Wireless Settings with DCA enabled

Radio – specify which wireless interface of BW1250 is shown.

Domain – show the regulatory domain.

Static Channel / Auto Channel – show the channel that the access point will use to transmit and receive information.



If DCA (Dynamic Channel Allocation) is enabled, this will show Auto Channel and its channel number is chosen by auto channel selection.

If use static channel, this will show Static Channel and its channel number.



DCA (Dynamic Channel Allocation) is [a](#) very useful feature to help choose the best channel automatically and reduce interference among many Access Points.

Band – show the working band on which your radio [is](#) working.

Five bands are supplied: 5GHz (11a), 2.4GHz (Mixed 11g), 2.4GHz (11g only), 2.4GHz (Mixed 11g WiFi) and 2.4GHz (11g only WiFi).

2.4GHz (Mixed 11g) or 2.4GHz (11g only) – the radio will work on 2.4GHz for a better performance. 2.4GHz (11g only) mode only allows 11g client access. 2.4GHz (Mixed 11g) mode allows 11b/11g client access.

2.4GHz (Mixed 11g WiFi) or 2.4GHz (11g only WiFi) – make sure to [comply](#) with Wi-Fi.

5GHz (11a) – the radio will work on 5GHz [11a](#) mode.



Only under Bridge mode, Turbo Mode 11a can be set.

Output Power - indicates output power of the RF card in dBm, antenna gain [is not included](#).

Antenna Gain – show the antenna gain that this Access Point used.

RTS Threshold – show the value of RTS threshold. Default is 2347 which means that RTS is disabled.

DCA threshold – show the value (in minutes) of DCA threshold. This threshold is been used to judge if there is no wireless users connected during this time. And if yes, BW1250 will monitor the environment and adjust channel for the best operational one.

DCA optional channel – show the channels only in which auto channel selection (DCA) will be processed to reduce interference.



Only when DCA is enabled, **DCA threshold** and **DCA optional channel** will be shown.

Layer 2 Isolation – show the status of Layer 2 Isolation service (enabled or disabled)

Mode – show the mode that the Access Point is in. (AP mode or Bridge mode)

Site Survey – perform survey to show overview information for wireless networks in a local geography

The site survey shows overview information for wireless networks in a local geographic area. Using this survey, administrator can scan for working access points, check their operating channels, and see RSSI levels. To start the scan, simply click the **Site Survey** menu.

After clicking **Site Survey**, you will [see](#) the follow warning [message](#):

Basic Wireless Setting

Radio : wlan1

Name	Value
Domain	WORLD

Mode AP

Action

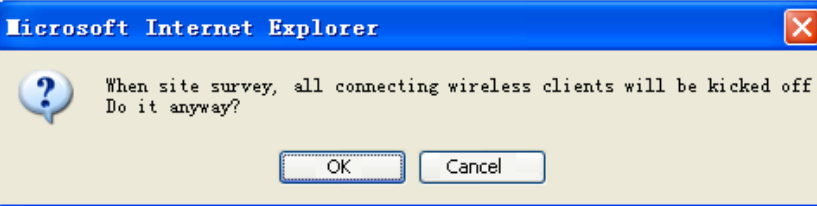
**Note:**

Figure 40 – Site Survey warning

Click OK to continue site survey and get the similar UI:

Radio: wlan1

Scan Result

TYPE	CHANNEL	BSSID	ESSID	MODE	RSSI
INFA	1	00:90:4b:dc:f2:c0		B/G	22
INFA	11	00:16:16:11:22:40	BW1330	B/G	22
INFA	11	00:90:4b:88:88:ac	GSI-Office01	B/G	26
INFA	11	00:90:4b:d5:65:e0	P-780	B/G	13
INFA	3	00:14:a5:32:c4:10	p560-bridge	B/G	22
INFA	3	00:14:a5:34:d5:80	jason-720	B/G	11
INFA	3	00:16:16:02:8d:d0	1250jason	B/G	8

Note: When Rescan, all connecting wireless clients will be kicked off

Figure 41 – Site Survey information

To refresh the statistics click the **Rescan** button.



During Site Survey, all wireless clients which are connecting with BW1250 would be kicked off.

Site Survey takes some minutes to perform. Please wait and don't power off AP during site survey.

Edit – edit the wireless basic settings

To change basic wireless setting properties click the **Edit** button in the **Action** column. The **status** can be changed now:

Basic Wireless Setting	
Name	Value
Radio Name	wlan1
Domain	WORLD
Channel	6
Band	2.4GHz (Mixed 11g)
Output Power	19 dBm
Antenna	Built-in
RTS Threshold	2347 bytes [0..2347]
DCA Threshold	10 mins ☐ Enable DCA
DCA optional channel	☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☒ 11 ☐ all
Layer2 Isolation	disabled
Mode	AP
Save Cancel	

Note:

Figure 42 – Edit Basic Wireless Settings with static channel selection

Basic Wireless Setting	
Name	Value
Radio Name	wlan1
Domain	WORLD
Channel	6
Band	2.4GHz (Mixed 11g)
Output Power	19 dBm
Antenna	Built-in
RTS Threshold	2347 bytes [0..2347]
DCA Threshold	10 mins ☒ Enable DCA
DCA optional channel	☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☒ 11 ☐ all
Layer2 Isolation	disabled
Mode	AP
Save Cancel	

Note:

Figure 43 – Edit Basic Wireless Settings with DCA enabled

Radio Name – specify which wireless interface of BW1250 is shown

Domain – select the regulatory domain according to your country

The full frequency range of the 2.4 GHz or 5 GHz is not permitted for use in all countries. Depending on your selection of regulatory domains, the available frequency channels will vary.



Before changing radio settings manually, [make sure](#) that your settings comply with government regulations. At all times, it [is](#) the responsibility of the end-user to ensure that the installation complies with local radio regulations. Refer to the Appendix:

C) Regulatory Domain/Channels.

Channels – select the channel that the access point will use to transmit and receive information. If one channel is defined, it acts as default channel. Channels list will vary depending on selected regulatory domain and selected band. Multiple frequency channels are used to avoid interference between two radios of this AP, and between nearby access points. If you wish to operate more than one access point in overlapping coverage areas, we recommend a distance of at least four channels between the chosen channels. For example, for three Access Points in close proximity choose channels 1, 6 and 11 for 11b/g or channels 36, 40 and 64 for 11a.

Band – working [band](#) on which your radio [is](#) working.

Five bands are supplied: 5GHz (11a), , 2.4GHz (Mixed 11g), 2.4GHz (11g only), 2.4GHz (Mixed 11g WiFi) and 2.4GHz (11g only WiFi).

If 2.4GHz (Mixed 11g) or 2.4GHz (11g only) is selected, the radio will work on 2.4GHz for a better performance. 2.4GHz (11g only) mode only allows 11g client access. 2.4GHz (Mixed 11g) mode allows 11b/11g client access.

2.4GHz (Mixed 11g WiFi) or 2.4GHz (11g only WiFi) can make sure to compatible with Wi-Fi.

If 5GHz (11a) is selected, the radio will work on 5GHz 11a mode.



Only under Bridge mode, Turbo Mode 11a can be set.

Output Power - indicates output power of the RF card in dBm, antenna gain [is not included](#).



Total Output Power (EIRP) = Antenna Gain + RF card output power



The range of the EIRP varies with channel and regulatory domain.

Antenna – show the type of Antenna.

RTS Threshold – when set, this settings specifies the maximum packet size beyond which RTS/CTS mechanism is be invokes. The value range of this is [0 ...2347]. Default is 2347 which means that RTS is disabled.

Enable DCA – Enable or Disable DCA service. DCA can help to choose the best working channel automatically. And static channel selection will be forbidden if DCA is enabled.

DCA(Dynamic Channel Allocation) solution automatically select the optimal operational frequency channel when power up and periodically monitors the environment and adjusts for the best operational frequency channel.



DCA service is available only under 2.4GHz band.

DCA threshold – specify the value (in minutes) of DCA threshold. This threshold is been used to judge if there is no wireless users connected during this time. And if yes, BW1250 will monitor the environment and adjust channel for the best operational one.



If wireless network environment is stable which means auto channel selection needn't do frequently, set a big value for DCA threshold to gain a stable wireless users' connection.

If wireless network environment changes continually, frequent auto channel selection is needed. So set a relative small value for DCA threshold to let channel change based on wireless environment.



Wireless users will be kicked off when DCA is processing (site survey and new operational frequency channel takes effect).

DCA optional channel – specify the channels only in which auto channel selection (DCA) will choose for reducing interference reference.



Only when DCA is enabled, **DCA threshold** and **DCA optional channel** will be shown.

Layer 2 Isolation – layer2 wireless client separation. Connected clients with user isolation function enabled cannot access each other directly. The clients are isolated from each other using their MAC addresses [enabled/disabled].

Mode – two modes are supplied: AP mode and Bridge mode.

Change status or leave in the default state if no editing is necessary and click the **Save** button.

Basic Wireless Setting	
Radio :	wlan1 ▼
Name	Value
Domain	WORLD
Static Channel	6
Band	2.4GHz(Mixed 11g)
Output Power	19 dBm
Antenna Gain	6dBi
RTS Threshold	2347 bytes
Layer2 Isolation	disabled
Mode	AP
Action	Edit Site Survey

Note:

Figure 44 – Apply or Discard Basic Wireless Settings with Static Channel selection

Basic Wireless Setting	
Radio :	wlan1
Name	Value
Domain	WORLD
Auto Channel	auto
Band	2.4GHz(Mixed 11g)
Output Power	19 dBm
Antenna Gain	6dBi
RTS Threshold	2347 bytes
DCA Threshold	10 mins
DCA optional channel	1 channel
Layer2 Isolation	disabled
Mode	AP
Action	Edit Site Survey

Note:

Figure 45 – Apply or Discard Basic Wireless Settings with DCA enabled

For such each change of settings, the BW1250 needs to be restarted to apply all settings changes when clicking **Apply Changes**. Request for reboot server appears:

Basic Wireless Setting	
Radio :	wlan1 ▼
Name	Value
Domain	WORLD
Auto Channel	6
Band	2.4GHz(Mixed 11g)
Output Power	19 dBm
Antenna Gain	6dBi
RTS Threshold	2347 bytes
DCA Threshold	10 mins
DCA optional channel	1 channel
Layer2 Isolation	disabled
Mode	AP
Action	Edit Site Survey

Note:

Server needs to be restarted. Please reboot.

Figure 46 – Reboot Server

Reboot – click the button to restart the server and apply the changes.



If there is no other setting to be edited, click the **Reboot** button to save all configuration.

And if there are still other settings to be edited, you can ignore the reboot request until you finish all editing.

Wireless | Advance

BW1250 supports **Multiple BSSID (MBSSID)** function. You can configure up to 16 BSSIDs per radio on BW1250 and assign different configuration settings to each BSSID. For wireless users, they can think BW1250 as single AP with multi service supporting, including different security policy, different VLAN ID, different authentication etc. All the BSSIDs are active at the same time that means client devices can associate to the access point for specific service. Use the **Wireless | Advance** menu to configure properties related to Multiple BSSID, including configure SSID, Hidden SSID, VLAN, and Security for each SSID.



Each BSSID can have its own SSID. In this case, Multiple BSSID is the same with Multiple ESSID. Wireless users can think BW1250 as multiple virtual APs, each supporting different service, and connects one SSID for the special services.

Also, BW1250 supports **Bridge** function, it can support up to 8 **Bridge links** per radio. Different bridge link can use different WEP key index.

AP Mode:

Advance Wireless Setting						
Radio: wlan1		AP Mode				
Interface	SSID	Hidden	Security	Current Connect #	Action	
wlan1_0	BW1250g	Disabled	Disabled	1	Detail	Edit
					New	Delete
Refresh						

Note:

Figure 47 – Advanced Wireless Setting (AP Mode)

Radio – specify which RF card (wlan1 or wlan2) is needed to be configured since BW1250 has two Dual-Band radios

Mode – specify the operation mode of BW1250 (AP or Bridge)

Interface – choose the specified **MBSSID** entry you want to configure. Each Interface maps to a BSSID

Hidden – show the status of Hidden SSID feature

Security – show which security policy is used for this **MBSSID** entry

Current Connect # – show the number of current wireless clients who are connecting with this MBSSID

New – create a new **MBSSID** entry

Detail – show the detail information of this **MBSSID** entry

Edit – edit the selected **MBSSID** entry you want to configure

Delete – delete the selected **MBSSID** entry. When in AP mode, you can not delete the last entry

Refresh – rescan the WEB page to get newer information

Clicking Detail, a similar page will be appears as below:

Advance Wireless Setting	
Radio:	wlan1
Interface:	wlan1_0
Mode:	AP
SSID:	BW1250g
Hidden SSID:	Disabled
Use VLAN:	Disabled
VLAN ID:	
802.1p Tag	
SSID priority	Disabled
Accounting:	Disabled
Security:	Disabled
Current Connected Number:	1 Detail
Refresh Return	

Note:

Figure 48 – Detail for MBSSID entry

Radio – show which radio (WLAN1 or WLAN2) is displayed

Interface – show the sub-interface of specified Radio

Mode – Show the operation mode of the sub-interface

SSID – Show the SSID value of the sub-interface

Hidden SSID – Show the enable/disable status of Hidden SSID service

Use VLAN – Show if VLAN is used for the sub-interface

VLAN ID – If used VLAN, show the VLAN ID which is specified

802.1p Tag – Show the 802.1p tag for the sub-interface if 802.1p is used

SSID priority – Show the traffic priority specified for this sub-interface(BSSID/SSID), 0 means the normal priority

Accounting – Show the enable/disable status of accounting service

Security – Show the security policy specified for this sub-interface

Current Connect Number – Show the number of current connected client with this sub-interface

Detail – show the MAC address of current connected clients

Refresh – rescan the WEB page to get newer information

Return – return to the wireless advance settings page

Click **Detail** to check the detail information of the connected client just like below:

Current Connected Clients MAC List						
index	Client MAC	IP Addr	Auth Type	Signal/Noise	Input Packets #	Output Packets #
1	00:0e:35:27:71:6c	N/A	NONE	29	17	0
Refresh Return						

Note:

Figure 49 – Detail information of connected client

Client MAC – show the connected client's MAC address

IP Addr – show the IP address of the connected client

Auth Type – show the security policy that the connected client is used

Signal/Noise – show the SNR value of the connected client

Input Packets – show the packet number transmitted by the connected client

Output Packets – show the packet number destined to the connected client

Clicking **New** or **Edit** on AP mode, the settings of MBSSID entry appears:

Advance Wireless Setting			
Radio:	wlan1		
Interface:	wlan1_1		
Mode:	AP		
SSID:	(Printable ASCII Characters)		
Hidden SSID:	☐ Need Hidden SSID		
VLAN and QoS	☒ SSID priority(Disable VLAN)		
	priority:	0	(0~7)
	☐ Enable VLAN		
	VLAN ID:		(1~4094)
	802.1p Tag		(0~7)
Accounting	☐ Enable Accounting		
	Accounting Server Profile:		
	Accounting Interim Interval:		Minutes

Figure 50 – Multiple BSSID Setting -1

Radio – showing which RF card (wlan1 or wlan2) is being configured.

Mode – showing the current operation mode of BW1250 (AP or Bridge).

Interface – showing the current **MBSSID | Bridge link** entry

SSID – a unique ID for your wireless network. It is case sensitive and must not exceed 32 characters. The default SSID is "BW1250" but you should change this to a personal wireless network name. The SSID is important for clients when connecting to the access point. All client stations must have their client SSID settings configured and must use the same SSID.



Each MBSSID entry (BSSID) can has its own SSID. And SSID can be same for different BSSID

Hidden SSID – when enabled, the SSID of this Interface is invisible in the networks list while scanning the available networks for wireless client (SSID is not broadcasted with its Beacons). When disabled, the AP's SSID is visible in the available network list [enabled/disabled]. By default the Hidden SSID is disabled.

VLAN and QoS – specify VLAN policy or QoS policy. Data priority is based on (B)SSID and is implemented by 802.11e EDCA or 802.1p tag.

SSID priority (Disable VLAN) – specify the data priority, which is implemented according to 802.11e EDCA and makes sure the wireless downlink QoS. This priority is based on (B)SSID, which means different BSSID can have different data priority and the data of the same BSSID has the same priority.



This data priority only makes sure the priority of downlink (from AP to wireless client).

8 levels priorities are supplied. 1, 2, 0, 3, 4, 5, 6, 7 is from lowest priority to highest priority.

And if no special QoS is needed, leave **priority** to default (0). 0 means normal priority.

Enable VLAN – when enabled, the outgoing packets from this SSID device will be tagged with VLAN ID and 802.1p tag (If have).

VLAN ID – configure VLAN ID for each Multiple SSID devices. Valid numbers are from 1 to 4094.

802.1p Tag – configure 802.1p Tag for remote APC's or Router's QoS uses. Valid numbers are from 0 to 7.



VLAN ID and 802.1p tag must cooperate with remote Router or APC.

Accounting – Control the status of accounting service

Enable Accounting – enable or disable the accounting service.



Accounting service only can be enabled when the security policy using RADIUS server is chosen. The security policies using RADIUS server include 802.1x, WPA, WPA2, WPA2 MIXED and MAC auth.

Accounting Server Profile – specify which RADIUS server is used for accounting service. If not have any RADIUS server, please configure **Network | RADIUS Servers** Web UI first.

Accounting Interim Interval – specify the value (in minutes) which is used for interim-accounting interval, which is helpful for statistics.

Security:			
☐ WEP(Wired Equivalent Privacy)		WEP KeyIndex:	1
☐ 802.1x		RADIUS Server Profile:	
			RADIUS Server is NULL. Click here to add profile
		Dynamic Key Length:	☒ 64 bits ☐ 128 bits
☐ WPA		RADIUS Server Profile:	
			RADIUS Server is NULL. Click here to add profile
		Algorithm:	TKIP
		Group Key Rekey Interval:	Minutes
☐ WPA2		RADIUS Server Profile:	
			RADIUS Server is NULL. Click here to add profile
		Algorithm:	TKIP
		Group Key Rekey Interval:	Minutes
☐ WPA2 MIXED		RADIUS Server Profile:	
			RADIUS Server is NULL. Click here to add profile
		Algorithm:	TKIP/AES
		Group Key Rekey Interval:	Minutes

Figure 51 – Multiple BSSID Setting – 2

Security – specify the security policy.

WEP – when selected, the privacy of MSSID entry will be set to WEP (Wired Equivalent Privacy).

WEP Key Index – select the default key Index to make it the Default key and encrypt the data before being transmitted. All stations, including this MSSID Entry, always transmit data encrypted using this Default Key. The key number (1, 2, 3, 4) is also transmitted. The receiving station will use the key number to determine which key to use for decryption. If the key value does not match with the transmitting station, the decryption will fail. The key value is set in **Wireless | WEP** web page.

802.1x – when selected, the MSSID entry will be configured as an 802.1x authenticator. It supports multiple authentication types based on EAP (Extensible Authentication Protocol) like EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-SIM. The privacy will be configured as dynamic WEP.

RADIUS Server Profile – select the default radius server name. If not, please configure Network | RADIUS Servers Web page first.

Dynamic Key Length – select the dynamic 64-bits / 128-bits encryption.

WPA – Wi-Fi Protected Access, When selected, the encrypt method will be WPA with RADIUS Sever.

WPA2 – when selected, the security policy will be WPA2 with RADIUS server. In this mode, WPA client is not permitted to connect.

WPA2 MIXED – when selected, WPA2 client and WPA client are all permitted to connect.

RADIUS Server Profile – select the default radius server name. If not, please configure Network | RADIUS Servers Web page first.

Algorithm – choose WPA algorithm (TKIP, AES).

Group Key Rekey Interval – specify amount of minutes and WPA automatically will generate a new Group Key.

☐ WPA-PSK		
	Use Pre-Shared Key:	
	Algorithm:	TKIP
	Group Key Rekey Interval:	Minutes
☐ WPA2-PSK		
	Use Pre-Shared Key:	
	Algorithm:	TKIP
	Group Key Rekey Interval:	Minutes
☐ WPA2-PSK MIXED		
	Use Pre-Shared Key:	
	Algorithm:	TKIP/AES
	Group Key Rekey Interval:	Minutes
☐ MAC Auth		
	RADIUS Server Profile:	
		RADIUS Server is NULL. Click here to add profile
☐ Disabled		
Save Cancel		

Note:

Figure 52 – Multiple BSSID Setting – 3

WPA-PSK – when selected, the encrypt method will be WPA without RADIUS server.

WPA2-PSK – when selected, the security policy will be WPA2 PSK without RADIUS server. In this mode, only WPA2 PSK client can connect with AP and WPA PSK client is not permitted to connect.

WPA2-PSK MIXED – when selected, WPA2 PSK and WPA PSK are all permitted to connect with AP.

Use Pre-Shared Key – specify more than 8 characters and less than 64 characters for WPA with pre-shared key encryption.

Algorithm – the same as **WPA**.

Group Key Rekey Interval – the same as **WPA**.

MAC Auth – when selected, the MAC address of wireless client will be passed to RADIUS server for PAP authentication when it connects with BW1250. The MAC address of wireless client acts as username and password.

RADIUS Server Profile – select the default radius server name. If not, please configure Network | RADIUS Servers web page first

Disabled – when selected, you don't select any security policy.

Bridge Mode

Advance Wireless Setting			
Radio:	wlan2	Bridge Mode	
Interface	Remote MAC	Security	Action
bridge2_0	00:90:4B:DD:07:A0	Disabled	Detail Edit Delete
			New
Refresh			

Note:

Figure 53 – Advanced Wireless Setting (Bridge Mode)

Radio – specify which RF card (wlan1 or wlan2) is needed to be configured since BW1250 has two Dual-Band radios

Mode – specify the operation mode of BW1250 (AP or Bridge)

Interface – choose the specified **Bridge link** entry you want to configure.

Remote MAC – specify the remote peer's MAC address of this Bridge

Security – specify which security policy is used

New – create a new **Bridge link** entry

Detail – show the detail information of this **Bridge link** entry

Edit – edit the selected **Bridge link** entry you want to configure

Delete – delete the selected **Bridge link** entry.

Clicking **Detail**, the similar page will be appears:

Advance Wireless Setting	
Radio:	wlan2
Interface:	bridge2_0
Mode:	Bridge
Remote MAC:	00:90:4B:DD:07:A0
Security:	Disabled
Return	

Note:

Figure 54 – Detail of one bridge entry

Clicking **Edit** for editing an existed bridge link or **New** for adding a new bridge link, you can see the figure like this.

Advance Wireless Setting			
Radio:	wlan2		
Interface:	bridge2_0		
Mode:	Bridge		
Remote MAC:	00:90:4B:DD:07:A0		
Security:			
	☐ WEP(Wired Equivalent Privacy)		
		WEP KeyIndex:	1
	☐ WPA-PSK		
		Use Pre-Shared Key:	
		Algorithm:	TKIP
		Rekey Interval:	Minutes
	☒ Disabled		
Save Cancel			

Note:*Figure 55 – Bridge Link Setting*

Remote MAC – add the remote peer's MAC address you want to configure as a bridge link

Security – specify WEP or WPA-PSK (TKIP or AES) is used for security policy. WPA-PSK or static WEP can be used for encrypt each bridge link



Each Bridge link can have its own WEP key/key Index for encryption.

By default, four WEP keys are all set to "6161616161". They can be modified in

Wireless | WEP.

Wireless | WEP

Use the **Wireless | WEP** menu to configure static WEP settings.



This menu only set static WEP key value related with 4 key indexes for each RF card (wlan1 or wlan2). Enable or Disable static WEP is in the **Wireless | Advance** menu.

Radio Setting		
Radio:	wlan1 ▼	

WEP Configuration		
Index	Key	Action
Key 1	*****	Edit
Key 2	*****	Edit
Key 3	*****	Edit
Key 4	*****	Edit

The network password needs to be 64bits or 128bits depending on your network configuration. This can be entered as 5 or 13 ascii characters or 10 or 26 hexadecimal characters.

Note:

Figure 56 – WEP Settings

Radio – specify which RF card (wlan1 or wlan2) is needed to be set.

Click **Edit** to edit the existing **wepkey1** to **wepkey4**.



By default, four WEP keys are all set to “6161616161”. They can be modified according to real need.

Radio Setting		
Radio:	wlan1 ▼	

WEP Configuration		
Index	Key	Action
Key 1		Save Cancel
Key 2	*****	Edit
Key 3	*****	Edit
Key 4	*****	Edit

The network password needs to be 64bits or 128bits depending on your network configuration. This can be entered as 5 or 13 ascii characters or 10 or 26 hexadecimal characters.

Note:

Figure 57 – Edit WEP Key

Wireless | MAC ACL

Use the **MAC ACL** service to control the default access to the wireless interface of the BW1250 or define special access rules for mobile clients. Configure the ACL using the Wireless | MAC ACL menu:

Radio Setting

Radio: wlan2

Policy Setting

Policy disabled **Edit**

MAC ACL Configuration

MAC List	Action
Add	

Note:

Figure 58 – MAC ACL Service

Radio – two wireless interfaces wlan1 and wlan2 can be selected for each radio's MAC ACL rules.



Only AP mode has the MAC ACL service. [MAC ACL service is not available for Bridge mode.](#)

Policy Setting – click the **edit** button to choose Allow, Deny or disable the access control service on device. By default the ACL service is disabled and all wireless clients connecting to the BW1250 are allowed (no ACL rules are applied to the wireless clients).

Select **Allow** means only the wireless clients whose MAC are listed in the **MAC List** would be permitted to access this AP. Other wireless client cannot access this AP.

Select **Deny** means only the wireless clients whose MAC are listed in the **MAC List** would be prevented from accessing. Other wireless clients can access this AP.

Select **Disabled** means no ACL service.

Radio Setting

Radio: wlan2

Policy Setting

Policy Disabled **Save** **Cancel**

MAC ACL Configuration

MAC List	Action
Add	

Note:

Figure 59 – MAC ACL settings

You must create **MAC List** to work with **Policy** setting. The access control list is based on the network device's MAC address. In the MAC ACL Configuration table, you only need to specify the MAC address of wireless client. Click the Add button to create a new MAC entry:

Radio Setting	
Radio:	wlan2 ▼
Policy Setting	
Policy	disabled Edit
MAC ACL Configuration	
MAC List	Action
	MAC XX:XX:XX:XX:XX:XX is accepted Save Cancel

Figure 60 – Add MAC entry

MAC Address – enter the physical address of the network device you need to (MAC address) The format is a list of colon separated hexadecimal numbers (for example: 00:AA:A2:5C:89:56).

Save – click the button to save the new MAC entry.

Radio Setting	
Radio:	wlan2 ▼
Policy Setting	
Policy	disabled Edit
MAC ACL Configuration	
MAC List	Action
00:90:4B:00:02:19	Delete
Add	
Apply Changes Discard Changes	
Note:	

Figure 61 – Apply or Discard MAC ACL Configuration Changes

Apply Changes – to save all changes made in the **interface** table at once.

Discard Changes – restore all previous values.

For such each change of settings, the BW1250 needs to be restarted to apply all settings changes when clicking **Apply Changes**. Request for reboot server appears:

Radio Setting	
Radio:	wlan2 ▼
Policy Setting	
Policy	disabled Edit
MAC ACL Configuration	
MAC List	Action
00:90:4B:00:02:19	Delete
Add	
Note:	
Reboot	
Server needs to be restarted. Please reboot.	

Figure 62 – Reboot Server

Reboot – click the button to restart the server and apply the changes.



[If there is no other setting to be edited, click the **Reboot** button to save all configuration.](#)
[And if there are still other settings to be edited, you can ignore the reboot request until you finish all editing.](#)

System

System | Security

Use the **System | Security** service to configure the name and password administrator:

 administrator	
UserName	admin
Old Password	
New Password	
Confirm Password	
Save Cancel	

Note: Administrator Password Setting

Figure 63 – system security settings

User Name – administrator username for access to BW1250 (e.g. web interface, CLI mode) [1-32 symbols, spaces not allowed].

Old Password – old password value.

New Password – new password value used for user authentication in the system [4-8 characters, spaces not allowed].

Confirm Password – re-enter the new password to verify its accuracy.

Save – click to save new administrator settings.



Default administrator logon settings are:

User Name: **admin**

Password: **admin01**



Password length is from 4 to 8 characters.

After filling in the right Old password and the New Password, clicking the **Save** button for taking effect immediately.

After clicking **Save** button, the below UI will be shown to notify that the new password setting has been taken place:

Set password successfully.

administrator	
UserName	admin
Old Password	
New Password	
Confirm Password	
Save Cancel	

Note: Administrator Password Setting

Figure 64 – system security settings save and take effect successfully

System | SNMP

SNMP is the standard protocol that regulates network management over the Internet. To communicate with SNMP manager you must set up the same **SNMP** communities and identifiers on both ends: manager and agent.

Use the **System | SNMP** menu to change current SNMP configuration.

General Configuration		
Name	Value	Action
Readonly community	public	Edit
Readwrite community	private	Edit
DefaultTrap community	public	Edit

Trap Configuration					
Index	Host Ip	Host Port	Trap Type	Community	Action
Add					

Note: SNMP Configuration

Figure 65 – SNMP settings

Readonly community – community name is used in SNMP version 1 and version 2c. Read-only (public) community allows reading values, but denies any attempt to change values [1-32 all ASCII printable characters, no spaces].

Readwrite community – community name is used in SNMP version 1 and version 2c. Read-write (private) community allows to read and (where possible) change values [1-32 all ASCII printable characters, no spaces].

Default Trap community – the default SNMP community name used for traps without specified communities. The default community by most systems is "public". The community string must match the community string used by the SNMP network management system (NMS) [1-32 all ASCII printable characters, no spaces].

Trap Configuration Table:

You can configure your SNMP agent to send **SNMP Traps** (and/or inform notifications) under the defined host (SNMP manager) and community name (optional).

Trap Configuration					
Index	Host Ip	Host Port	Trap Type	Community	Action
1	192.168.123.1	162	trapsink	test	Delete
Add					

Figure 66 – SNMP Trap table settings

Click **Add** to add a new SNMP manager or **Delete** to delete a specific SNMP manager. Clicking **Add**:

Trap Configuration					
Index	Host Ip	Host Port	Trap Type	Community	Action
			trapsink v		Save Cancel

Note: SNMP Configuration

Figure 67 – Add SNMP Trap

Host IP – enter SNMP manager IP address [dots and digits].

Host Port – enter the port number the trap messages should be send through [number].

Trap Type – select trap message type [v1/v2/inform].

Community – specify the community name at a SNMP trap message. This community will be used in trap messages to authenticate the SNMP manager. If not defined, the default trap community name will be used (specified in the SNMP table) [1-32 all ASCII printable characters, no spaces].

Save – save all current settings

Cancel – restore the last settings

System | Telnet

Use **System | Telnet** menu to manage the telnet/SSH service of your BW1250.

Telnet		
Name	Status	Action
Telnet Service	Enabled	Edit
SSH Service	Enabled	Edit

Note:

Figure 68 – System Configuration settings

Telnet Service – Enable or disable telnet service of BW1250

SSH Service – Enable or disable SSH service of BW1250.

The default of these two services are all **Enabled**. The current IETF SSH (SSHv2) is supported for security of accessing BW1250 via telnet/CLISH.

System | Configuration

Use the **System | Configuration** menu to configure such system utilities:

- **Backup** – download current working system configuration for backup
- **Upload/Restore** – upload system configuration for restore

Configuration Backup	
Description Message	Action
BW1250. BRD. 2. 14. 2014	Preparation

Configuration Upload	
Description Message	Action
Configuration file to upload	Browse...
Upload Cancel	

Note: System Configuration

Figure 69 – System Configuration settings

You can save your current device configuration file locally using the **Backup** menu under the **System | Configuration | Backup** menu:

Configuration Backup	
Description Message	Action
BW1250. BRD. 2. 14. 2014	Preparation

Figure 70 – Backup settings

Such device configuration is saved in the specific format file (.cfg).

Description Message shows the current version of firmware.

Click the **Preparation** button to start saving the configuration file.

Click the **Download** button to download current working configuration into your local PC.

Configuration Backup	
Description Message	Action
Download and store Configuration backup file in safe place. Warning: Configuration file name should only include English characters or numbers.	Download

Note: System Configuration

Figure 71 – Download system configuration



A configuration file name will be required when you download/save the configuration file. And please remember the configuration file name should only include characters or numbers. Otherwise, this configuration file cannot be uploaded to BW1250.

You can upload saved configuration file any time you want to restore this configuration to the device by using the **Browse** button. Select the configuration file and upload it on the device:

Configuration Upload	
Description Message	Action
Configuration file to upload	Browse...
Upload Cancel	

Note: System Configuration

Figure 72 – Configuration Upload/Restore

Click **Upload** to upload the specified configuration [file](#) and then the similar UI appears

Configuration Upload	
Configuration File Information	
HOST IP	192.168.2.2
HOST VERSION	BW1250.BRO.2.14.2014
Create Time	Thu Jan 1 00:10:14 1970
Decription	BW1250.BRO.2.14.2014
Check it and Press OK , then device will reboot and the new configuration will take effect	
OK Cancel	

Note: System Configuration

Figure 73 – configuration information

HOST IP – show the IP address in the configuration file that needs to upload.



Please remember this IP address for accessing BW1250 after the configuration file is uploaded.

HOST VERSION – show the firmware version in the configuration file that needs to upload.

OK – click the button to apply configuration setting to the device.

If everything is right, click **OK** button for upload/restore.

System | Reset

System Reset	
Description	Action
Current software version: BW1250.BRO.2.14.2014	
Reboot device	Reboot
Restore the original configuration from factory.	Reset

Note: System Reboot. System Reset.

Figure 74 – System Reset setting

Reboot – reboot the device

Reset – reset System to Factory Defaults

To reboot the device, click **Reboot** and then the below appears to make sure:

System Reset	
Description	Action
Are you sure you want to REBOOT the device? It will take some time to boot up.	
Reboot Cancel	

Note: System Reboot. System Reset.

Figure 75 – Reboot the device

To reset device to factory defaults, click **Reset** on Figure 74 – System Reset setting and then the below appears to make sure:

System Reset	
Description	Action
Are you sure you want to RESET the device? It will take some time to boot up.	
Reset Cancel	

Note: System Reboot. System Reset.

Figure 76 – Reset the device



Please note that all settings including the administrator settings will be set back to the factory default when **Reset** is selected.

System | Upgrade



Check for new product updates at the [BROWAN](http://www.browan.com) website: <http://www.browan.com>

Upload – Update your device firmware.

Firmware Upgrade	
Description	Action
Current software version: BW1250.BRO.2.14.2014	
Upgrade the firmware	Upload

Note: Firmware Upgrade

Figure 77 – Firmware Upgrade

Click the **Upload** and then the follow appears. Specify the full path to the new firmware image and click the **Upload** button:

Firmware Upgrade	
Description	Action
Firmware image	Browse...
Upload Cancel	
Note: Firmware Upgrade	

Figure 78 – Firmware Upgrade

To flash the uploaded firmware image to upgrade the firmware is done by click the **Upgrade** button.



Please make sure the firmware is correct for BW1250. Otherwise the upgrade will be failed.

Firmware Upgrade	
Description	Action
Firmware image successfully uploaded to server. Press Upgrade button to Upgrade image now and reboot server.	Upgrade Cancel
Note: Firmware Upgrade	

Figure 79 – Device Statistics



Do not switch off and do not disconnect the BW1250 from the power supply during the firmware update process or the device might crash. It is recommended to use the Ethernet connection (not wireless) for the firmware update process.

Appendix

A) Specification

Wireless

Standard	IEEE 802.11b(DSSS), IEEE 802.11g(OFDM) and IEEE 802.11a(OFDM)
Data Rate	802.11a: 54,48,36,24,18,12,9,6Mbps;802.11g: 54,48,36,24,12,9,6,11,5,5,2,1Mbps (auto fall back)
Transmit Power (RF power)	Max. 19 dBm $\pm$ 1.5dBm @ 2.4GHz Max. 18 dBm $\pm$ 1.5dBm @ 5 GHz (Maximum power will vary by channel, rate and regulatory domain)
Antenna	For 2.4 GHz band: 6dBi; For 5 GHz band: 8dBi
Encryption	WPA/WPA2 (TKIP and CCMP-AES), Dynamic/static 64bits and 128bits WEP
Bridge	Up to 8 bridge links

Interface

LAN	10/100Mb Ethernet, auto sensing, RJ-45
Console	1 $\times$ DB-9 Male (RS232) for serial configuration

Management

Interfaces	HTTPs, Secure Telnet(SSHv2), SNMP
Software Update	Remote software update via HTTPs
Reset	H/W and S/W remote restore factory default

Physical Specification

Dimension	205 mm x 160 mm x 45 mm
Weight	600g

Environment Specification

	Temperature	Humidity
Operating	0 to +50 $^{\circ}$ C	20% to 90%, non-condensing

Power Supply

POE	48V, IEEE802.3af, Power adapter Jack
Power adaptor	External power supply, input: 100-240 VAC, 50-60Hz and output: 12VDC

LEDs

4 LEDs	Power, LAN, WLAN1, WLAN2
--------	--------------------------

Warranty

3 years

Package Contents

▪ BW1250 Dual Radio 2.4GHz/5GHz Access Point	▪ CD-ROM with KickStart utility, User Manuals (*.pdf)
▪ Warranty Card	▪ Ethernet cable 1.5m

▪ International power supply	▪ USA type Power Cord
▪ EU type Power Cord	▪
Related Products	
Controllers:	BE9040 SMB Access Controller
Access Points:	BW2250 54Mb Dual-bang outdoor Access Point

B) Factory Defaults for the BW1250

General Configuration Settings	
Administrator Username	admin
Administrator Password	admin01
Get Community	Public
Set Community	Private
Network Configuration Settings	
IP address	(static IP) 192.168.2.2
Subnet mask	255.255.255.0
Gateway	0.0.0.0
Service Configuration Settings	
DHCP server	Disable
DHCP relay	Disable
NTP service	Disable
Telnet service	Enable
SSH service	Enable
Wireless Configuration Settings	
RF Card 1(WLAN1)	
Default Mode	11g Access Point
Regulatory Domain	World
SSID	BW1250g
Default channel	11
RTS Threshold	2347 bytes
RF Output Power	19dBm
Authentication Type	Open System
MAC ACL	Disable
Encryption	Off
Security Policy	Disable
RF Card 2(WLAN2)	
Default Mode	11a Access Point
Regulatory Domain	World
SSID	BW1250a
Default channel	64
RTS Threshold	2347 bytes
RF Output Power	18dBm
Authentication Type	Open System
MAC ACL	Disable
Encryption	Off
Security Policy	Disable

C) Regulatory Domain/Channels/Power

Channels and Maximum output power for the BW1250 11g radio:

Channels Identifiers	Frequency in MHz	USA, Canada (FCC)	European Union (CE/ETSI)	WORLD (CE&FCC)	Japan (TELEC)
1	2412	•	•	•	•
2	2417	•	•	•	•
3	2422	•	•	•	•
4	2427	•	•	•	•
5	2432	•	•	•	•
6	2437	•	•	•	•
7	2442	•	•	•	•
8	2447	•	•	•	•
9	2452	•	•	•	•
10	2457	•	•	•	•
11	2462	•	•	•	•
12	2467	—	•	—	•
13	2472	—	•	—	•
14	2484	—	—	—	—
Maximum output Power		19dBm	14dBm	14dBm	14dBm



For channel 1 and channel 11, the maximum output power will be 19dBm in the case of the setting of domain is FCC.

Channels and Maximum power for the BW1250 11a radio:

Channels Identifiers	Frequency in MHz	USA, Canada (FCC)	European Union (CE/ETSI)	WORLD (CE/FCC)	Japan (TELEC)
U-NII lower band (5150 – 5250 MHz)					
34	5170	—	—	—	•
36	5180	•	•	•	—
38	5190	—	—	—	•
40	5200	•	•	•	—
42	5210	—	—	—	•
44	5220	•	•	•	—
46	5230	—	—	—	•
48	5240	•	•	•	—
Maximum Output Power		14 dBm	17 dBm	15 dBm	15 dBm
U-NII middle band (5250 – 5350 MHz)					

52	5260	--	•	•	—
56	5280	--	•	•	—
60	5300	--	•	•	—
64	5320	--	•	•	—
Maximum Output Power		--	17 dBm	17 dBm	—
U-NII upper band (5725 – 5875 MHz)					
149	5745	•	—	—	—
153	5765	•	—	—	—
157	5785	•	—	—	—
161	5805	•	—	—	—
165	5825	—	—	—	—
Maximum Output Power		18dBm	17 dBm	17 dBm	—

D) Location ID and ISO Country Codes

This list states the **country names** (official short names in English) in alphabetical order as given in ISO 3166-1 **and** the corresponding **ISO 3166-1-alpha-2 code elements**.

It lists 239 official short names and code elements.

Location ID	Country	Location ID	Country
AF	Afghanistan	LI	Liechtenstein
AL	Albania	LT	Lithuania
DZ	Algeria	LU	Luxembourg
AS	American Samoa	MO	Macao
AD	Andorra	MK	Macedonia, the former Yugoslav republic of
AO	Angola	MG	Madagascar
AI	Anguilla	MW	Malawi
AQ	Antarctica	MY	Malaysia
AG	Antigua and Barbuda	MV	Maldives
AR	Argentina	ML	Mali
AM	Armenia	MT	Malta
AW	Aruba	MH	Marshall islands
AU	Australia	MQ	Martinique
AT	Austria	MR	Mauritania
AZ	Azerbaijan	MU	Mauritius
BS	Bahamas	YT	Mayotte
BH	Bahrain	MX	Mexico
BD	Bangladesh	FM	Micronesia, federated states of
BB	Barbados	MD	Moldova, republic of
BY	Belarus	MC	Monaco
BE	Belgium	MN	Mongolia
BZ	Belize	MS	Montserrat
BJ	Benin	MA	Morocco
BM	Bermuda	MZ	Mozambique
BT	Bhutan	MM	Myanmar
BO	Bolivia	NA	Namibia
BA	Bosnia and Herzegovina	NR	Nauru
BW	Botswana	NP	Nepal
BV	Bouvet island	NL	Netherlands
BR	Brazil	AN	Netherlands Antilles
IO	British Indian ocean territory	NC	New Caledonia
BN	Brunei Darussalam	NZ	New Zealand
BG	Bulgaria	NI	Nicaragua

BF	Burkina Faso	NE	Niger
BI	Burundi	NG	Nigeria
KH	Cambodia	NU	Niue
CM	Cameroon	NF	Norfolk island
CA	Canada	MP	Northern Mariana islands
CV	Cape Verde	NO	Norway
KY	Cayman islands	OM	Oman
CF	Central African republic	PK	Pakistan
TD	Chad	PW	Palau
CL	Chile	PS	Palestinian territory, occupied
CN	China	PA	Panama
CX	Christmas island	PG	Papua new guinea
CC	Cocos (keeling) islands	PY	Paraguay
CO	Colombia	PE	Peru
KM	Comoros	PH	Philippines
CG	Congo	PN	Pitcairn
CD	Congo, the democratic republic of the	PL	Poland
CK	Cook islands	PT	Portugal
CR	Costa Rica	PR	Puerto Rico
CI	Côte d'ivoire	QA	Qatar
HR	Croatia	RE	Réunion
CU	Cuba	RO	Romania
CY	Cyprus	RU	Russian federation
CZ	Czech republic	RW	Rwanda
DK	Denmark	SH	Saint Helena
DJ	Djibouti	KN	Saint Kitts and Nevis
DM	Dominica	LC	Saint Lucia
DO	Dominican republic	PM	Saint Pierre and Miquelon
EC	Ecuador	VC	Saint Vincent and the grenadines
EG	Egypt	WS	Samoa
SV	El Salvador	SM	San Marino
GQ	Equatorial guinea	ST	Sao tome and Principe
ER	Eritrea	SA	Saudi Arabia
EE	Estonia	SN	Senegal
ET	Ethiopia	SC	Seychelles
FK	Falkland islands (malvinas)	SL	Sierra Leone
FO	Faroe islands	SG	Singapore
FJ	Fiji	SK	Slovakia
FI	Finland	SI	Slovenia
FR	France	SB	Solomon islands
GF	French Guiana	SO	Somalia

PF	French Polynesia	ZA	South Africa
TF	French southern territories	GS	South Georgia and the south sandwich islands
GA	Gabon	ES	Spain
GM	Gambia	LK	Sri Lanka
GE	Georgia	SD	Sudan
DE	Germany	SR	Suriname
GH	Ghana	SJ	Svalbard and Jan Mayan
GI	Gibraltar	SZ	Swaziland
GR	Greece	SE	Sweden
GL	Greenland	CH	Switzerland
GD	Grenada	SY	Syrian Arab republic
GP	Guadeloupe	TW	Taiwan, province of china
GU	Guam	TJ	Tajikistan
GT	Guatemala	TZ	Tanzania, united republic of
GN	Guinea	TH	Thailand
GW	Guinea-Bissau	TL	Timor-leste
GY	Guyana	TG	Togo
HT	Haiti	TK	Tokelau
HM	Heard island and McDonald islands	TO	Tonga
VA	Holy see (Vatican city state)	TT	Trinidad and Tobago
HN	Honduras	TN	Tunisia
HK	Hong Kong	TR	Turkey
HU	Hungary	TM	Turkmenistan
IS	Iceland	TC	Turks and Caicos islands
IN	India	TV	Tuvalu
ID	Indonesia	UG	Uganda
IR	Iran, Islamic republic of	UA	Ukraine
IQ	Iraq	AE	United Arab emirates
IE	Ireland	GB	United kingdom
IL	Israel	US	United states
IT	Italy	UM	United states minor outlying islands
JM	Jamaica	UY	Uruguay
JP	Japan	UZ	Uzbekistan
JO	Jordan	VU	Vanuatu
KZ	Kazakhstan		Vatican city state see holy see
KE	Kenya	VE	Venezuela
KI	Kiribati	VN	Viet nam
KP	Korea, democratic people's republic of	VG	Virgin islands, British
KR	Korea, republic of	VI	Virgin islands, u.s.
KW	Kuwait	WF	Wallis and Futuna

KG	Kyrgyzstan	EH	Western Sahara
LA	Lao people's democratic republic	YE	Yemen
LV	Latvia	YU	Yugoslavia
LB	Lebanon		Zaire see Congo, the democratic republic of the
LS	Lesotho	ZM	Zambia
LR	Liberia	ZW	Zimbabwe
LY	Libyan Arab Jamahiriya		