



**WiTDM<sup>®</sup> Series**  
**KWA-O8800-I / KWA-O8850-I**  
**User Manual**



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## Preface

About this manual

The purpose to use this manual is for install the wireless Access Point. This manual is including disposing course and method and helping the customer to solve the unpredictable problem.

The following typographical conventions are used in this purpose:

\*\*\* Notice:

This indicates an important Note.

!!! Caution:

This indicates a warning or caution.



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## Chapter 1 Introduction

### Introduction

WiTDM™ is designed for outdoor environment application, the KWA-O8850-I work on 5.8GHz, and is a high-performance outdoor-deployable wireless bridge that provides wireless connectivity among multiple network location. It provides higher reliability and changeable channel bandwidth, for long distance point to point connectivity of up to 60km.

Based on powerful TDM technology, it is the best way to ensure higher quality between multi-media transitions, for example, video, voice and image as well. Also, it is a right solution for telecommunication.

### Appearance of Product

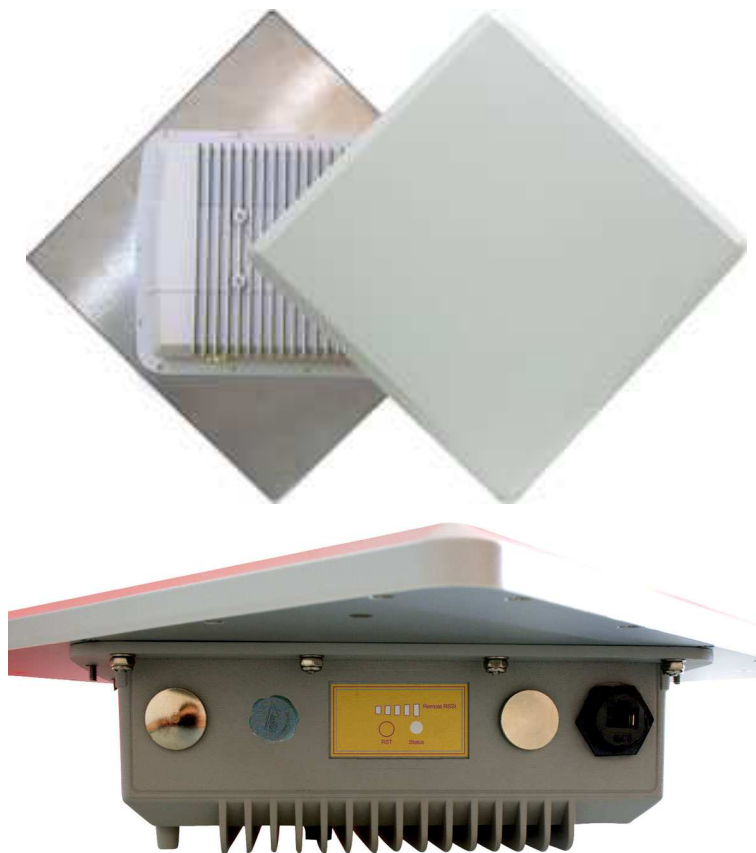


Figure 1 KWA-O8850-I

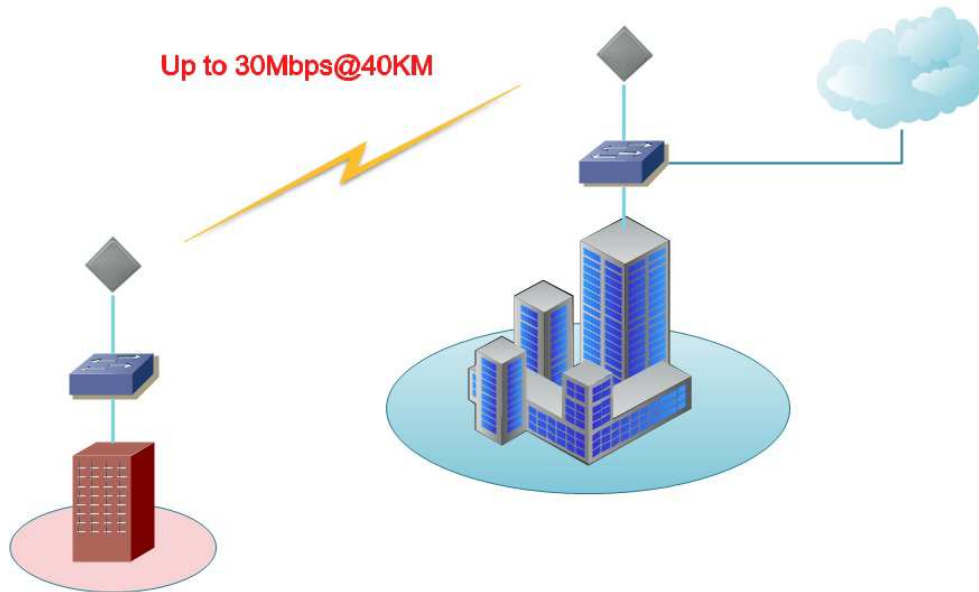
### Features and Benefits

- ◆ Support 802.3af PoE (Power over Ethernet)
- ◆ Support 5/10/20/40 MHz channel bandwidth
- ◆ Support TDM mechanism, to ensure quality for multi-media application
- ◆ Support friendly WEB-Based interface for management
- ◆ Support SNMP remote management



## Typical Application

Design for long distance point to point connection. Such as ISP, it is the best choice as low cost, short



construction time for broadband wireless access of enterprise.

Figure 2 **Point-to-Point**

## Chapter 2 Hardware Installation

### System Requirement

Installation of WiTDM<sup>®</sup> outdoor unit of KWA-O8850-I system requirement:

- ◆ Two PCs with RJ-45 connector NIC supporting the transfer rate of 10/100Mbps data
- ◆ The IP address of NIC should be the same subnet with the AP, the default IP address of AP is 192.168.1.1
- ◆ Microsoft Internet Explorer 6 or above.

### Product Kit

- ◆ WiTDM<sup>®</sup> KWA-O8850-I x 1
- ◆ PoE Injector x 1
- ◆ Power Code x 1
- ◆ Mounting Kit x 1



### Hardware Installation

The following steps will help you while installing WiTDM<sup>®</sup>.

### LED Descriptions

Definition of LED on the Motherboard:

LED	Status	Description
Power	Blue	Power ON
STATUS	Blue	Power on Flash 1 Sec then OFF
Remote RSSI	Blue	CPE : Go around while surveying (not connect yet), Represent strength of RSSI after connected. Low ( 1 LED) → High (5 LEDs)
RST		Push 5 seconds then release to reset device

Figure 3 LED Definition



## Chapter 3 Basic Settings

### Factory Default Settings

We'll elaborate the KWA-O8850-I factory default settings. You can re-acquire these parameters by default. If necessary, please refer to the "Restore Factory Default Settings".

Item	Factory Default
<b>Login Information</b>	
User Name	admin
Password	password
<b>Basic Settings</b>	
Device Name	DEVICExxxxxx (xxxxxx Represent the last 6 digitals of the MAC address)
Ethernet Data Rate	Automatic
Spanning Tree Protocol	Enable
VLAN (802.1Q)	Disable
IP Settings	IP Type: Manual
	IP Address: 192.168.1.1
	IP Subnet Mask: 255.255.255.0
	Default Gateway: 0.0.0.0
	Primary DNS Server: 0.0.0.0 Secondary DNS Server: 0.0.0.0
Time Settings	Time Server: [spare]
	Time Sever Port: 123
	Time Zone: (GMT-08:00)Pacific Time(US & Canada);Tijuana
<b>Wireless Setup</b>	
Remote	[Empty]
Cipher	None
Cipher Phrase	[Empty]
RF Bandwidth	40MHz
Channel/Frequency	5120 MHz
TX Rate	Best
TX Power	Full

Figure 4 Default Settings

### How to Login the WEB-Based Interface

The KWA-O8850-I provides you with user-friendly Web-based management tool.

Open IE and enter the default IP address (Default: 192.168.1.1) and Login as below:



The login interface for the P2P WiTDM Wireless Bridge. It features a dark blue background with the product name in yellow and white. There are two input fields: 'Name' with 'admin' entered and 'Password' with 'password' entered (masked with dots). Below the fields are 'Login' and 'Reset' buttons.

Figure 5 Login Interface

Enter the username (Default: **admin**) and password (Default: **password**) and click “Login”

!!! Caution

---

IP address of your PC must be the same subnet of device

---

After login, you can check basic information of device, such as MAC address off device, Firmware version, etc.

The 'About' page of the device management interface. It shows a sidebar menu on the left with options: About, Basic Setup, Statistics, Wireless Setup, Management, and Logout. The main content area displays device information and firmware details.

Device Information	
Device Name	DEVICE000002
MAC Address	00:1c:24:00:00:02

Firmware	
Version	1.18D
Checksum	085a6f88
Build Time	Fri Dec 3 07:55:00 2010

Figure 6 Device Information

## Basic System Setup

Into Base Setup, you can do basic settings of device:



Figure 7 Basic Settings

### Device Name

Specify the device name, which is composed of no more than 15 characters with (0-9), (A-Z), (a-z) or (-). Due to support WINS, You can use “Device Name” instead of IP address to access device via WEB interface. For instance, device named as DEVICE0000FF, you can enter “DEVICE0000FF” in the IE, then click “ENTER” and WEB page; or use “ping” command to check settings is active or not, such as ping DEVEICE0000FF.

### Ethernet Data Rate

Specify the transmission rate of data, default is Automatic.

Automatic / T-base10Mbps / T-Base100Mbps

### VLAN(802.1Q)

Adding a Tag VLAN ID to device interface port can cause lost of connection to device web manager if the PC Ethernet port or wireless connection do not have a Tag VLAN ID or do not have the same Tag VLAN ID setup in device.

### IP Address

If you select “Manual”, you have to specify a static IP address, subnet mask, or get IP address from DHCP.



### IP Subnet Mask

Use subnet mask to ensure two devices in the same network.

### Default Gateway

Default gateway and DNS server for your local area network which connects to the LAN port.

### Primary DNS Sever

First choice of domain name server

### Secondary DNS Sever

Second choice of domain name server

The image shows a 'Spanning Tree Protocol Settings' dialog box. It has a title bar with a minus, maximize, and close button. The main area is divided into two sections: 'Spanning Tree Protocol (STP)' and 'Advanced'. In the STP section, there is a radio button for 'Enable' (which is selected) and a radio button for 'Disable'. Below this are four input fields: 'Bridge Priority (0-65535)' with the value '32768', 'Hello Time (1-10)' with the value '2' and the unit 'seconds', 'Max Age (6-40)' with the value '20' and the unit 'seconds', and 'Forward Delay (2-30)' with the value '2' and the unit 'seconds'. The 'Advanced' section has one input field: 'Wireless Node Aging (15-600)' with the value '15' and the unit 'seconds'. At the bottom of the dialog are two buttons: 'Apply' and 'Cancel'.

Figure 8 STP Setup

### STP Setup:

The Spanning Tree Protocol allows redundant connections to be created between different LAN segments for purposes of fault tolerance.

- Spanning Tree Protocol (STP) : Default is enable
- Bridge Priority : 0 ~ 65535, default is 32768
- Hello Time : 1 ~10, default is 2 seconds
- Max Age : 6 ~40, default is 20 seconds
- Forward Delay : 2 ~30, default is 2 seconds
- Wireless Node Aging : 15 ~600, default is 15 seconds



## Chapter 4 Wireless Settings

### Basic Wireless Settings

Configure basic settings as following:

The screenshot shows a 'Wireless Settings' window with the following fields and options:

- Radio Frequency (RF):** Enable (selected) / Disable
- Remote MAC Address:** 00:00:00:00:00:00
- Security:**
  - Cipher: NONE
  - Cipher Phrase: (empty text box)
- Radio:**
  - RF Bandwidth: 40MHz
  - Channel / Frequency: 5120.000MHz (with an unchecked 'Auto' checkbox)
  - TX Rate Range: BPSK 1/2 - 64QAM 3/4
  - TX Power: full

Buttons for 'Apply' and 'Cancel' are located at the bottom.

Figure 9 parameters of wireless

#### Remote MAC Address:

To specify remote device MAC address. Two devices have to assign MAC address of each other. And make sure the same parameters of Security, Radio for connection.

#### Cipher:

There are three modes for encryption of security, NONE, WEP and AES.

#### Cipher Phrase:

When cipher is WEP、AES, system will generate 128bit dynamic key of WEP or AES.

#### RF Bandwidth

Decide bandwidth of Radio Frequency. Including 5 / 10 / 20 / 40 MHz (5 / 10MHz Coming soon)

#### Channel / Frequency

To select suitable channel and frequency from pull down menu, such as 5,120MHz and auto channel.



### TX Rate

Normally choice transmission rate as “Best”, system will adapt best rate for real environment.

Including 64QAM 3/4, 64QAM 2/3, 16QAM 3/4, 16QAM 1/2, QPSK 3/4, QPSK 1/2, BPSK 3/4, BPSK 1/2

### TX Power

Transmission power, 1/2 of transmission power equals to 3dB. Including Full / Half / Quarter / Eighth / Min

Half: -3 dB

Quarter: -6 dB

Eighth: -9 dB

Min: -12 dB

### WLAN Status

In this page, it can show remote bridge RSSI for local bridge and local bridge RSSI for remote bridge.

We can decide the best direction of antenna from following steps:

1. We check the RSSI only in one side. (We call it local side.)
2. Fix remote side antenna, and adjust local side antenna. In local side, check the “RSSI” first, to find a best RSSI and then fix the local antenna.
3. Adjust the Remote antenna, to find the Best Remote RSSI, and then fix the remote antenna.
4. If “RSSI” is changed, and worse than before, adjust local antenna again to get a best one and fix local antenna.
5. If “Remote RSSI” is changed and worse, adjust remote antenna again.
6. Follow the same ways to get a better RSSI and Remote RSSI value. And Fix both side antennas.

Status	
Time	Thu Sep 23 2010 11:13:50 GMT+0800 (China Standard Time)
MAC Address	
IP Address	
Channel Info	40MHz@5120.000MHz
Rx Rate	
Tx Rate	
RSSI	
Remote RSSI	
Best Remote RSSI	

Figure 10 Status



## Throughput

Throughput show graphs which continuously represents the current data traffic on the Wireless interface. The chart scale and throughput dimension (Bps, Kbps, Mbps) changes dynamically according to the throughput value. Throughput statistics is updated automatically.



Figure 11 Throughput

## Statistics

Display wired and wireless statistics of packets including transmitted and received packets, Uncast, Broadcast, Multicast and total Packets.

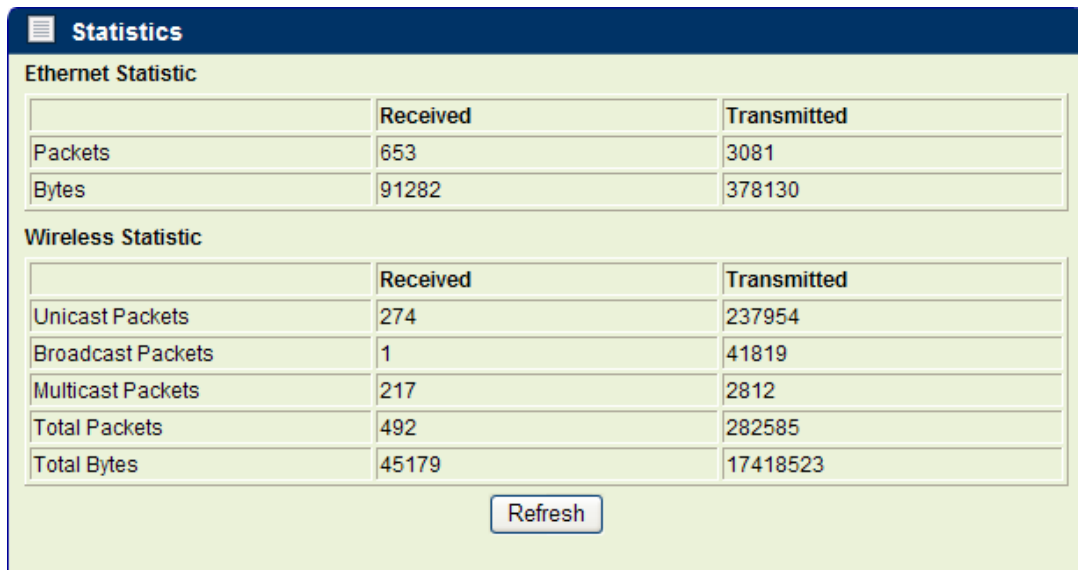


Figure 12 Statistics



## Chapter 5 Management

### Change Password

Via “Change Password”, you can modify password for WEB management.

Change Password	
Current Password	<input type="text"/>
New Password	<input type="text"/>
Repeat New Password	<input type="text"/>
Restore Default Password	<input type="radio"/> Yes <input checked="" type="radio"/> No
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 13 Password

You have to enter “Current Password” first (default is password), then can change new password, maximum length of password is 63 bytes. Choice “Restore Default Password”, it will restore password as default setting as “password”.

### Remote Management

Remote Management	
<b>Remote Console</b>	
Secure Shell (SSH)	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
<b>SNMP</b>	
SNMP	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Read Community	<input type="text" value="public"/>
Write Community	<input type="text" value="private"/>
System Contact	<input type="text"/>
System Location	<input type="text"/>
IP Address to Receive Traps	<input type="text" value="0.0.0.0"/>
Enterprise MIB	<input type="button" value="Download"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 14 Remote Management



## Remote Console

The KWA-O8850-I supports CLI management, which could be accessed by Secure Shell (SSH). It is recommended PuTTY be used to login. Download it from <http://www.putty.org/> for free. The minimum system requirement for using PuTTY is Windows 95, 98, ME, NT, 2000, XP and Vista on Intel x86.

Follow the steps below to implement:

Once the program is downloaded, open up by double-clicking. Note that before using PuTTY, be sure you are able to connect to the WiTDM bridge.

Enter IP Address of KWA-O8850-I (Default: 192.168.1.1), Port (22) and check SSH as connection type;

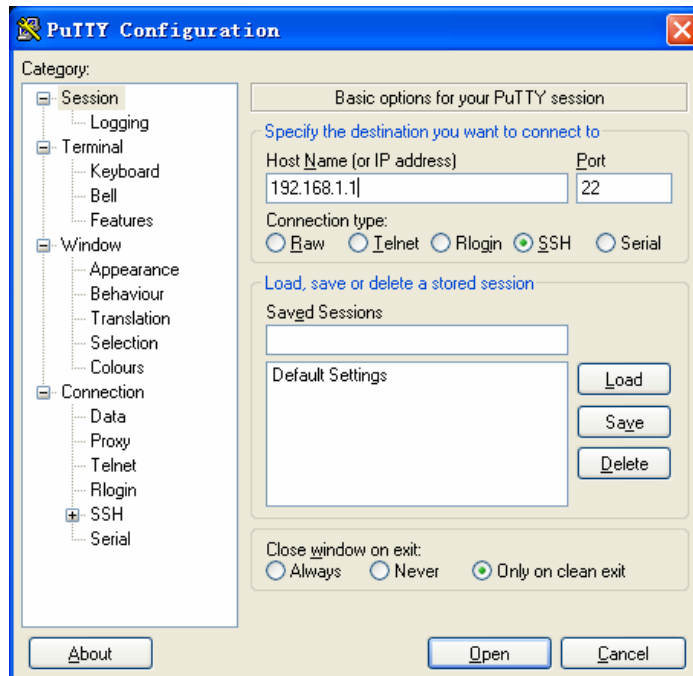


Figure 15 PuTTY Configuration 1

From “**Connection**” in the left menu bar, click “**SSH**”; select “**2**” as “**Preferred SSH protocol version**”; make “**3DES**” the top position in “**Encryption cipher selection policy**”;

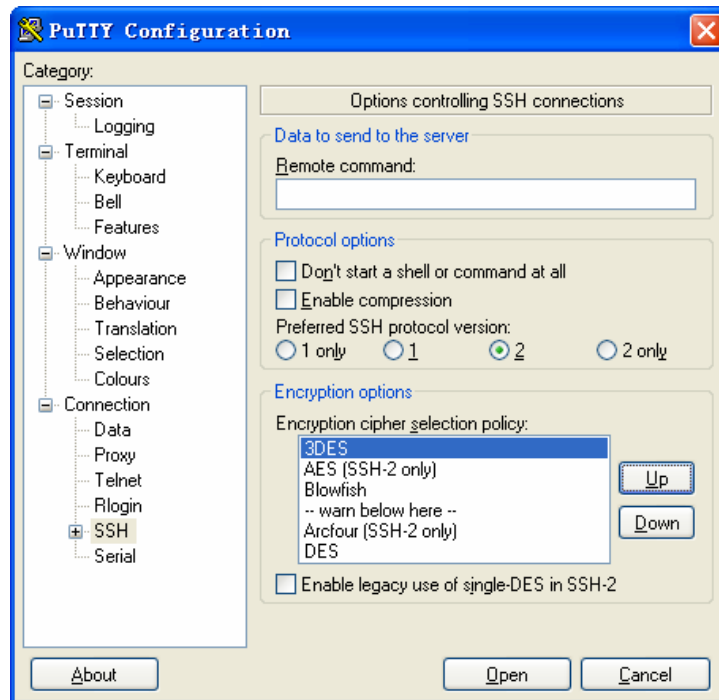


Figure 16 PuTTY Configuration 2

Click “Open”, a window as below will popup:

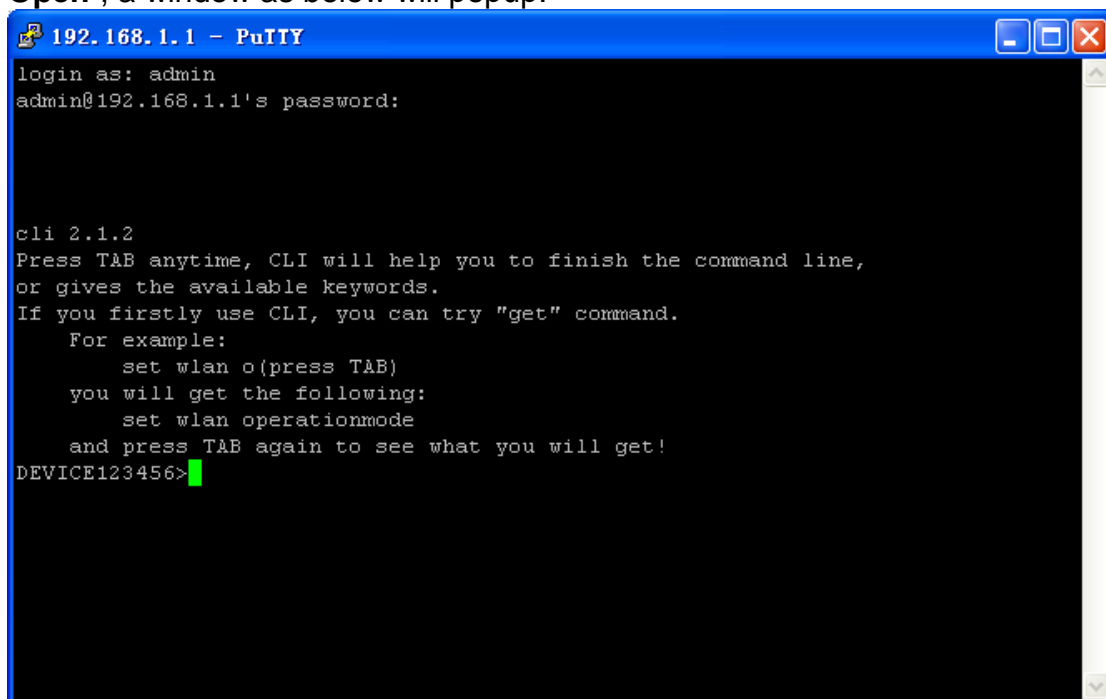


Figure 17 SSH

Enter the user name and password (Default user name/ password: admin/password) respectively, you will see “DEVICE123456>”, which is the name of KWA-O8850-I;



## Upgrade Firmware

Via WEB interface to upgrade firmware:



Figure 18 Upgrade Firmware

Open “Upgrade Firmware” page.

Click “browse” to select new “Firmware” (kw8800.hfm).

Click “Upload” send Firmware to device.

After checked Firmware by system, it starts to upgrade firmware, and will back to Login page after firmware upgrade successful, otherwise system will show you the reason why it failed.

!!! Caution

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Do NOT cut the power off during upgrade, otherwise the system may crash!

---

## Backup/Restore

It would be better to backup settings of device after it work fine, so that you can recover settings quickly when something go wrong.



Figure 19 Backup/Restore

Open “**Backup/Restore**” page, click “**Backup**”, it will pop up a dialog for input path and filename, such as **F:\device.cfg**, and it will save “**device.cfg**” in the local disk after that.



Open “**Backup/Restore**” page, click “**Browser**”, It will pop up a dialog to choice what file you want to restore, such as “**F:\device.cfg**”, then click “**Retrieve**”, the settings of the file will be restored back to device, and it will active for the device after auto reboot.

Open “**Backup/Restore**” page, click “**Restore**”, device will back to factory settings, or push “**Default**” button as device active, then it will back to factory settings after Alarm LED stop flash.

## Time Server

Time Setting

**Time**

Time Server

Time Server Port

Time Zone

Adjust for Daylight Saving Time

Current Time Fri Mar 19 06:57:51 2010

Apply Cancel

Figure 20 Time Setting

### Time Server

Follow NTP protocol, and synchronize with Time Server.

### Time Server Port

Time Server port, default is 123.

### Time Zone

Select your time zone, default is (GMT-08:00)Pacific Time(US & Canada); Tijuana.

### Adjust for Daylight Saving Time

Select adjust for daylight saving time or not, default is disabled.

## Event Log

Event log can show you the event of device, for example, connect, disconnect, reboot of Base station, or something change about settings.

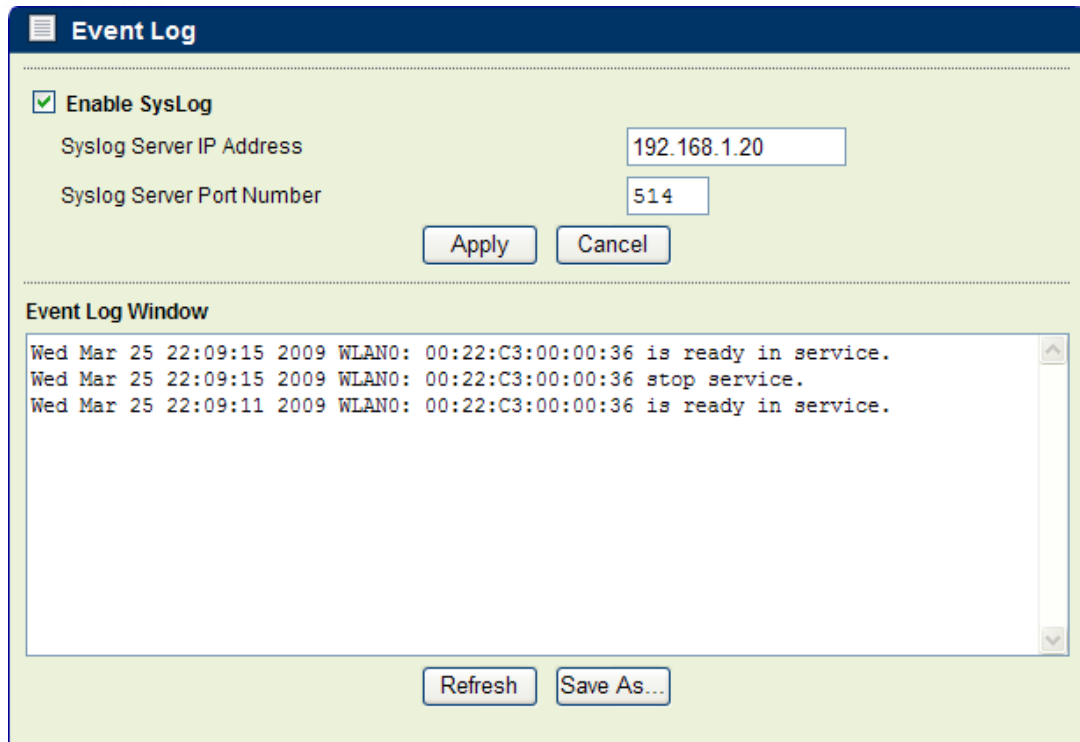


Figure 21 **Event Log**

### **Enable Syslog**

Select open Syslog or not.

### **Syslog Server IP Address**

Assign IP address of syslog server

### **Syslog Server Port Number**

Syslog server's Port.

### **Event Log Windows**

Check event log from the windows.

### **Save As**

Click the button will save even logs to the directory as you assigned.

### **Refresh**

Click the button can display logs from the “Event Log Windows”



## Reboot

When you need to reboot the device, you can click the “yes” button and the click “Apply” it will reboot.

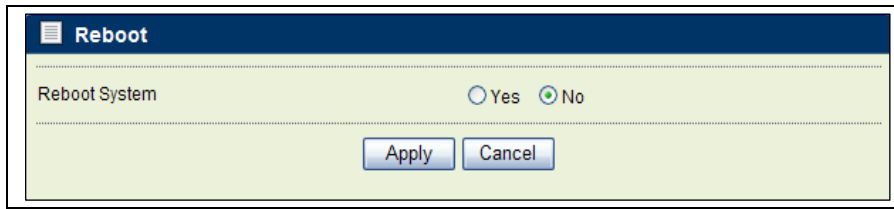


Figure 22 **Reboot**



## Chapter 6 Troubleshooting

### FAQ

How to know MAC address of device?

- ◆ The MAC address is written in a label which is in the bottom of device
- ◆ From the General page of WEB configuration, you also can get the MAC address of device.

Why two Access Points can not build connection after setting?

- ◆ Check "Operating Mode", one of bridges is Base Station, another one is CPE.
- ◆ Check "Only Base Station" which MAC address is the same as Base Station's MAC address.
- ◆ Check "RF Bandwidth" whether is same.
- ◆ Check the "Country/Region" whether is same.
- ◆ Check the "Channel/Frequency" whether is same.
- ◆ Check the "Data Encryption" and "Key" whether is same.

How to adjust output power?

- ◆ In the Wireless Settings page, you can do it.

What if forget IP address after setting?

- ◆ Press Rest button about 6~9 seconds (Status flash rapidly), release the button. Device will back to factory settings, default IP address is 192.168.1.1。

The wireless becomes unstable such as ping timed out and lose packet after a period of well work?

This situation may the wireless network is disturbed by something, what you can do is following steps:

- ◆ check whether every joint point of network is well (such as Ethernet port, antenna connection)
- ◆ Change the channel if the Link Test value is not high, excluding other wireless equipments disturb AP.
- ◆ Restart AP.
- ◆ Default AP and restore last settings.
- ◆ Check the wireless port and Ethernet port environment and virus exist or not.

Please call the sales if can not solve problem after all.

Why can not open WEB page of remote wireless device in local network?

- ◆ Because this kind of settings will slow the response of remote AP WEB Server, just waiting for several minutes or restarting remote wireless bridge is a way to solve problem. We suggest you set AP in local wired Ethernet network.

What is the channel list for 20MHz and 40MHz bandwidth?

- ◆ The channel list of 20MHz is 5120MHz, 5140MHz, 5160MHz, 5180MHz, 5200MHz, 5220MHz, 5240MHz, 5260MHz, 5280MHz, 5300MHz, 5320MHz, 5340MHz, 5360MHz, 5380MHz, 5400MHz, 5420MHz, 5440MHz, 5460MHz, 5480MHz, 5500MHz, 5520MHz, 5540MHz, 5560MHz, 5580MHz, 5600MHz, 5620MHz, 5640MHz, 5660MHz, 5680MHz, 5700MHz, 5720MHz, 5740MHz, 5760MHz, 5780MHz, 5800MHz, 5820MHz, 5840MHz, 5860MHz, 5880MHz, 5900MHz, 5920MHz, 5940MHz, 5960MHz, 5980MHz, 6000MHz, 6020MHz, 6040MHz and 6060MHz
- ◆ The channel list of 40MHz is 5120MHz, 5160MHz, 5200MHz, 5240MHz, 5280MHz, 5320MHz, 5360MHz, 5400MHz, 5440MHz, 5480MHz, 5520MHz, 5560MHz, 5600MHz, 5640MHz, 5680MHz, 5720MHz, 5760MHz, 5800MHz, 5840MHz, 5880MHz, 5920MHz, 5960MHz, 6000MHz, 6040MHz.



**Service Support**

If you have any questions, please contact us.