

802.11n Wireless Series

Wireless Access Point

User Manual

Version: 2.0

Date: July 18, 2008

FCC Certifications



Federal Communication Commission 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.

IMPORTANT NOTE:

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.

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

CE Mark Warning



This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class B for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

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Unpacking Information

Thank you for purchasing the product. Before you start, please check all the contents of this package.

The product package should include the following:

1. One Wireless AP
2. One power adapter
3. One Quick Installation Guide
4. One User Manual (CD)
5. Two antennas

Introduction to Wireless AP

General Description

Easily constructing your LAN, this wireless access point offers a wireless interface and eliminates your effort busying cabling from one computer to another.

With being compliant to IEEE 802.11n draft 2.0 standard, this wireless access point supports data rate up to 150/300Mbps (TX/RX) and hence help to construct your high-speed home or office wireless network. 802.11n draft 2.0 is also backward compatible with IEEE 802.11b/g wireless devices at 11/54 Mbps.

This access point equips one LAN port and two antennas. With supporting DHCP server, the Access Point is easy to install and setup. The wireless security mechanism is provided over 64/128-bit WEP, WPA (TKIP with IEEE 802.1x), and WPA2.

This device supports WEB-based graphics user interface that helps users to configure this device easily.

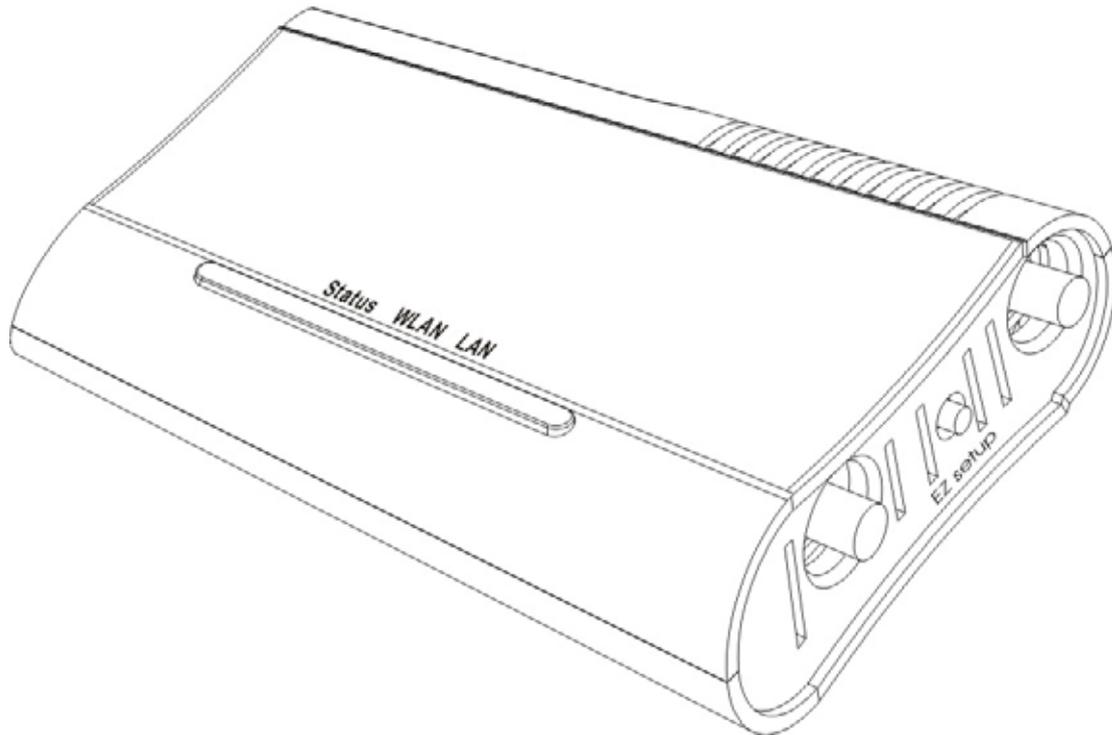
Key Features

The AP provides the following key features:

- Compatible with IEEE 802.11n draft 2.0, 802.11b/g wireless standards
- Provides two 802.11n/b/g/n wireless Reverse SMA antennas
- High speed transfer TX/RX rate up to 150/300Mbps
- Supports wireless data encryption with 64/128-bit WEP, WPA and WPA2
- Supports authentication for wireless connectivity based on ESSID
- Supports multiple BSSID.
- Provides hidden SSID function
- WDS supported with WEP, TKIP and AES encryption
- Channel: USA 11, Europe 13
- Provides DHCP server
- Supports QoS: WMM
- Supports firmware upgrade function via Web
- Supports system log
- Certifications: FCC Class B, CE Mark

The Front and Side Panel

The front panel of the Wireless AP:



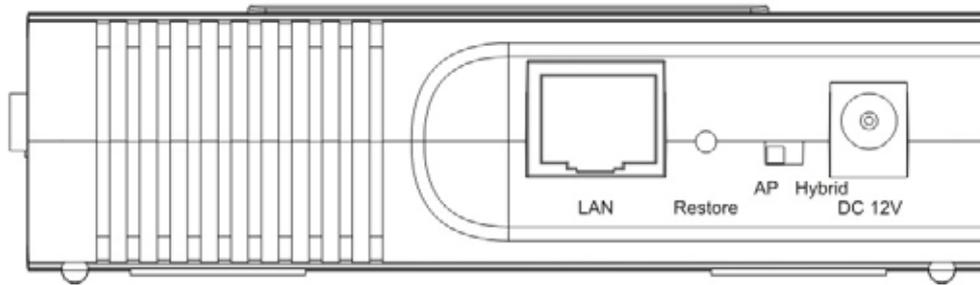
LEDs Definitions

- **Status LED**
The LED stays steady blue when system is on.
The LED stays blinking blue when system is ready.
- **WLAN LED**
When Wireless AP is ready for data transmitting and receiving, it is steady blue.
- **LAN LEDs**
Steady blue (link state) indicates that the port has good linkage to its associated devices. Flashing blue indicates that the port is receiving or transmitting data between its associated devices.
- **EZsetup Button¹**
EZsetup button helps out users to connect this AP to Internet quickly. It uses Push Button Communication (PBC) method, in which users can simply push this button to easy setup WPS connection. Please refer to [WPS settings](#) for more information.

¹ This button may not supplied depend on your model. Users can select the **PIN** mode in the WPS settings web page to reach the same function.

The Rear Panel

The rear panel of the Wireless AP is shown below.



Power Connection

Plug the circle end of the power adapter firmly into the rear panel of the Wireless AP, and the other end put into an electric service outlet then the system is ready.

AP / Hybrid switch

Move this switch to either side to function this AP in AP mode or Hybrid mode. In Hybrid mode (AP + Client mode), users can still access to this wireless AP while this wireless AP is accessing to other AP or router at the same time.

Restore Default Button

1. Push the button for more than 5 seconds and then release it, the system will return to factory default setting. In the meantime, system rewrites flash to default value and Status LED halts for a while. Approximately 60 seconds later, the Status LED blinks blue periodically, now the whole system parameters have returned to factory default value. If the process has been interrupted by any reason (power off...), the system will fail. Before performing the process, ensure a safe operating environment please!
2. To reboot the AP, press the button for 2-5 seconds and then release it, and all the setting won't be erased. Wait for the AP to complete the reboot, and then you can start to use it.

Warning : Incomplete factory setting recovery procedure will cause the Wireless AP malfunction ! If you are unfortunately in this situation, do not try to repair it by yourself. Consult your local distributor for help!

Placement (Optional)

You can place the AP vertically on a surface or attach it to a magnetic surface.

Installing and Using Wireless AP

This chapter provides a step-by-step guide to the installation and configuration of the Wireless AP. We suggest you go over the whole chapter and then do more advanced operation.

Connecting this AP to your network

Steps to build up the network:

- Connect the power adapter with the connector end to the power connector in the rear panel of the device and the plug end to an appropriate outlet.
- Connect the LAN port with RJ-45 cable to:
 1. a broad band router to allow wireless clients to connect to Internet.
 2. a switch to allow wireless clients to communicate with wired LAN.
 3. a computer directly to use the computer configuring this AP.

Configuring the IP address of your computer

In order to communicate with this Wireless AP, you have to configure the IP addresses of your computer to be compatible with the device. The AP supports DHCP server and it is enabled as default. Users that configure your IP address as “**Obtain an IP address automatically**” may skip the following IP configuration instruction.

Note:

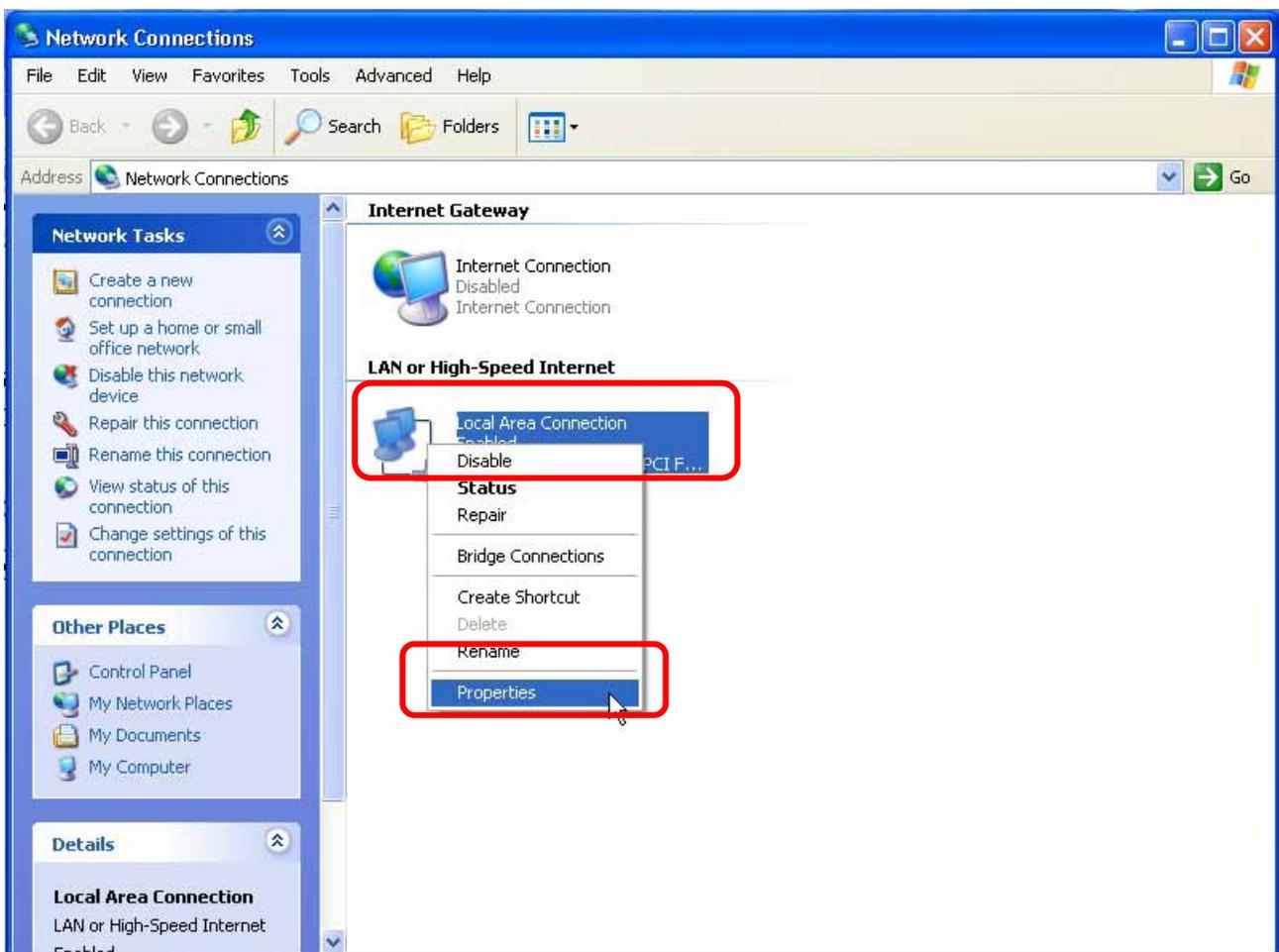
1. The default network setting of the device:
IP address: 192.168.1.1
Subnet Mask: 255.255.255.0
DHCP Server: enable
2. In the following TCP/IP configuration guide, the IP address “192.168.1.2” is assumed to be your IP address if you want to specify IP addresses manually. Please **DO NOT** choose “192.168.1.1” as the IP address. For the IP address “192.168.1.1” has been set as the default IP for this device.
3. The following TCP/IP configuration guide uses windows XP as the presumed operation system.

Procedures to configure IP addresses for your computer

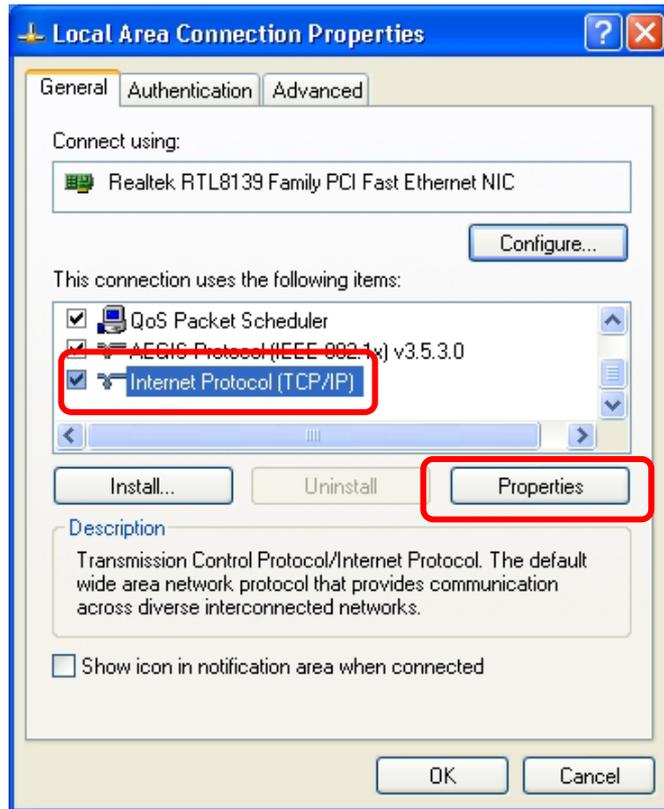
1. If you are in Classic Start menu view, click **Start > Settings > Control Panel > Network Connections**. If you are in Start menu view, click **Start > Control Panel > Network Connections**.



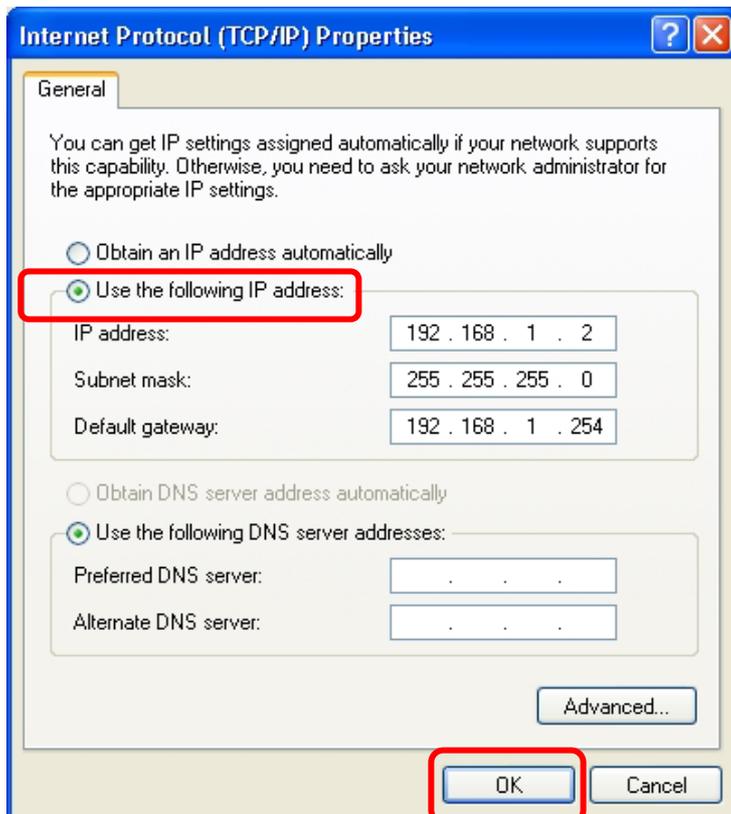
2. Right-click on **Local Area Connection** item and double-click on **Properties**.



3. Choose **Internet Protocol (TCP/IP)** and click **Properties**.



4. You may choose “Obtain an IP address automatically” (recommend) to get IP address automatically or choose “Use the following IP address” to specify IP addresses manually. Please click the **OK** button after your configuration.

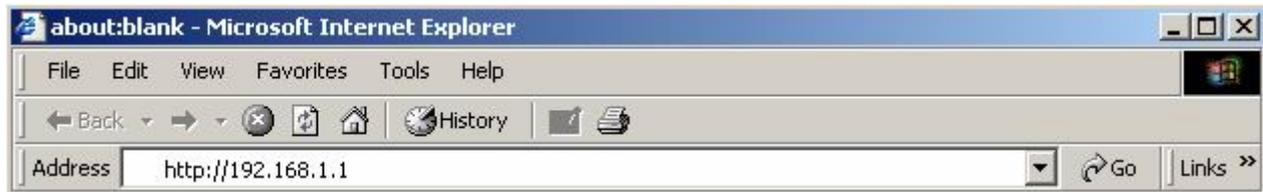


Management

Starting the WEB-Based Management Interface

The device uses WEB as the management interface. You can use a browser to access the management interface easily. Please follow the steps listed below.

1. Double click the Internet WEB browser icon on your desktop screen (Netscape Communicator 4.0 and Internet Explorer 3.0 or update version)
2. Type 192.168.1.1 into the URL WEB address location and press Enter.



3. The Login window appears.
 - Enter **admin** in the User Name location (default value).
 - Enter **admin** in the Password location (default value).
 - Click **OK** button.



Note: Don't forget to change the User Name and Password to ensure the security. Please go to the configuration page of [Management > Admin Account](#) to reset the login information.

The Graphic User Interface

After the password authorization, the information page shows up as the home page of the Graphic User interface. You may click on each folder on left column of each page to get access to each configuration page. You can select “open all” to open all the subcategories, or “close all” to close all the subcategories.

Note: Please note that you should click the **Save Settings** button to apply your configuration to this device. You can also restore the default settings by clicking the **Reset Settings** button.

The screenshot displays the web interface for a 1T2R 802.11n Wireless Access Point. The interface is titled "1T2R 802.11n Wireless Access Point" and "Best Wireless and Networking Solution". On the left, there is a navigation menu with options: "open all", "close all", "[INFORMATION]", "Network Settings", "Wireless Settings", "Services Settings", "Management", "Information", and "Logout". The main content area is divided into three sections:

- SYSTEM INFORMATION**
 - System Name : 002.11n Wireless AP
 - Firmware Version : AP 1.0 (Jul 16 2000)
 - System Uptime : 5 mins, 0 secs
 - Operation Mode : AP Mode
- LAN INTERFACE INFORMATION**
 - MAC Address : 00:08:54:00:00:15
 - IP Address : 192.168.1.1
 - Subnet Mask : 255.255.255.0
 - DHCP Server : Server
- WLAN INTERFACE INFORMATION**
 - Mode : 802.11b/g/n mixed
 - MAC Address : 00:08:54:00:00:14
 - SSID : Wireless_11n_AP
 - Channel : 6

At the bottom of the interface, the "goahead" logo and "WEBSERVER" text are visible.

Network Setting

LAN Interface Setup

To set up the configuration of LAN interface, private IP of your AP LAN port and subnet mask for your LAN segment.

LAN INTERFACE SETTINGS

Use this section to set the parameter for LAN. You can use build-in DHCP server for assigning IP to the computers on LAN, this function can reduce setting time.

AP SETTINGS

The IP Address field is the IP Address that you use to access the Web-based management center. If you change the IP Address here, you may need to reconnect current IP address again.

IP Address :

Subnet Mask :

Default Gateway :

Primary DNS :

Secondary DNS :

UPnP :

DHCP SERVER SETTINGS

Use this section to configure the built-in DHCP Server to assign IP addresses to the computers on LAN.

DHCP Type :

DHCP IP Range : to

DHCP Lease Time : seconds (60..86400)

DHCP CLIENTS LIST

IP Address	MAC Address	Expires in (seconds)
192.168.1.150	00:E0:4C:00:00:61	86397

AP Settings

Items	Information
IP Address	The IP of your AP LAN port (default 192.168.1.1).
Subnet Mask	Subnet Mask of your LAN (default 255.255.255.0). All devices on the network must have the same subnet mask to communicate on the network.
Default Gateway	Fill in the Default Gateway that provided by your Internet Service Provider (ISP).
Primary and 2nd DNS server	To specify the Domain Name Server (DNS). Enter the DNS provided by your ISP in 1 st and 2 nd server.
UPnP	Universal Plug and Play. Mark this checkbox to allow this AP to be recognized by UPnP.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

DHCP Server Settings

DHCP stands for Dynamic Host Configuration Protocol. It is a protocol for assigning dynamic IP addresses “automatically.” With a DHCP Server there is no need to manually assign an IP Address.

Items	Information
DHCP Type	To give your LAN Client an IP, you have to enable DHCP server. If not, manual setting up your client IP is necessary when you want to use the AP as your client’s default gateway.
DHCP IP Range	Specify the DHCP Client IP address range (default start from 150 and end to 200). Note: The number of the “End IP” must be greater than “Start IP”, and cannot be the same as the AP’s IP address.
DHCP Lease Time	Choose the length of the time for the device to recycle and give out the IP addresses to the devices in your network (default 86400).

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

DHCP Clients List

The information of MAC, IP address and expire time of the DHCP clients that have connected with this device.

Wireless Settings

Client Mode

Client mode allows this AP to become a wireless client. You can connect to other AP or Router by using this mode. Select one of the lists in **Wireless Site Survey List** and click on **Building Connection** to connect to other wireless network nearby. The **Rescan** button can be used to scan nearby Router and AP again.

WIRELESS CLIENT MODE

You can use this mode to connect to other Access Point. In this mode, AP becomes a wireless client. You can connect with other AP easily.

Note: Before connecting to other Access Point, please make sure they use the same channel.
[\[Change Current Channel\]](#)

WIRELESS CLIENT SETTINGS

SSID :

MAC Address (Optional) :

Security Mode : ▼

Encryption Type : ▼

WEP Default Key : ▼

WEP Key 1 : ▼

WEP Key 2 : ▼

WEP Key 3 : ▼

WEP Key 4 : ▼

WIRELESS SITE SURVEY LIST

Channel	SSID	BSSID	Encryption	Signal (%)	Mode
1	MIS-6F-AP	00:08:54:ad:d6:38	WEP	39	11b/g/n
6	Wireless_11n_Router	00:08:54:86:4d:6c	NONE	10	11b/g/n
9	dlink	00:1b:11:4d:8d:05	NONE	96	11b/g/n
11	NB2	02:1c:bf:00:00:e3	WEP	100	11b/g
6	Wireless_11n_Router	00:e0:7d:00:00:14	NONE	86	11b/g/n
6	Wireless_11n_Router	00:08:54:ad:ce:10	NONE	70	11b/g/n
6	David	00:08:54:86:4d:40	NONE	29	11b/g/n
6	David2	00:08:54:86:4d:41	NONE	24	11b/g/n
6	RT2880_AP	00:0c:43:28:80:d8	NONE	34	11b/g/n
6	W446_1	00:e0:7d:00:00:14	NONE	86	11b/g/n
6	Wireless_11n_AP	00:e0:7d:c0:cb:04	NONE	44	11b/g/n

Wireless Client Settings

Open / Shared Mode

WIRELESS CLIENT SETTINGS	
SSID :	<input type="text"/>
MAC Address (Optional) :	<input type="text"/>
Security Mode :	Open <input type="button" value="v"/>
Encryption Type :	NONE <input type="button" value="v"/>
WEP Default Key :	Key 1 <input type="button" value="v"/>
WEP Key 1 :	<input type="text"/> ASCII <input type="button" value="v"/>
WEP Key 2 :	<input type="text"/> ASCII <input type="button" value="v"/>
WEP Key 3 :	<input type="text"/> ASCII <input type="button" value="v"/>
WEP Key 4 :	<input type="text"/> ASCII <input type="button" value="v"/>

Items	Information
SSID	Service set identifier for the name of the wireless network.
MAC Address	Fill in the MAC address of this device.
Security Mode	Open: Wireless AP can associate with this wireless network without WEP encryption. Shared Key: Wireless AP can associate with this wireless network only with WEP encryption.
Encryption Type	Select the encryption type from the drop down list. If you select none, any data will be transmitted without encryption and any station can access the AP
WEP Default Key	Select to use the WEP key value of 1, 2, 3 or 4 as in the following settings.
WEP Key 1, 2, 3 and 4	Select ASCII ¹ or Hex ² to setup the key value (default 012345).

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

¹ ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127.

² Hexadecimal digits consist of the numbers 0-9 and the letters A-F.

WPAPSK / WPAPSK2 Mode

WIRELESS CLIENT SETTINGS	
SSID :	<input type="text"/>
MAC Address (Optional) :	<input type="text"/>
Security Mode :	WPAPSK <input type="button" value="v"/>
Encryption Type :	TKIP <input type="button" value="v"/>
Pass Phrase :	<input type="text"/>

Items	Information
SSID	Service set identifier for the name of the wireless network.
MAC Address	Fill in the MAC address of this device.
Security Mode	Select the option in the drop list to enable modes of WEP, WPA Personal, or WPA2 personal.
Encryption Type	Select TKIP or AES as WPA encryption.
Pass Phrase	Please input the pass phrase (8~32bytes) key format.

Wireless Site Survey List

List the nearby APs and Routers message about Channel, SSID, BSSID, Encryption, Signal, and Mode information.

Basic Settings

You can set up the configuration of your Wireless basic settings and monitor the Wireless Clients associate with your AP.

WIRELESS BASIC SETTINGS

Use this section to set up your wireless interface on your AP. You can change SSID, Channel and Wireless protocol of this device. Please note that setting changes on this section may also need to be duplicated on your Wireless Client.

WIRELESS SETTINGS

Radio On/Off :

Network Mode : 802.11b/g/n mixed ▼

Network Name(SSID) : Wireless_11n_AP

Multiple SSID1 :

Multiple SSID2 :

Multiple SSID3 :

Hide SSID : Disable Enable

BSSID : 00:E0:7D:C0:CB:04

Country Code : USA(FCC) ▼

Frequency (Channel) : 2437MHz (Channel 6) ▼

Items	Information
Radio On/Off	Click on the button to enable or disable wireless connection status. Click on Radio Off button to prevent this adapter from transmitting or receiving signals. Click on Radio On button to enable this adapter from communicating.
Network Mode	Select wireless mode. 802.11 b/g/n mixed, 802.11b/g mixed, 802.11b only, 802.11g only, and 802.11n only are supported.
Network Name	Service set identifier (SSID) for the name of the wireless network.
Multiple SSID 1~3	You can set up to four SSID for this wireless network.
Hide SSID	Prevent this AP from recognized in wireless network. This is disabled as default. Select "Disable" to show SSID, or "Enable" to hide SSID.
BSSID	Displays the Basic Service Set Identity (BSSID) of this AP. This parameter is the same as the MAC address of LAN port.
Country Code	Select the region you live. Six countries to choose.
Frequency (Channel)	Select a channel for the wireless network of this device.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

Advanced Settings

You can set advanced wireless LAN parameters of this AP. We recommend not changing these parameters unless you know what changes will be on this AP.

WIRELESS ADVANCE SETTINGS

Please ensure you are the system administrator and you understand every parameter. The parameters of this section effect the performance of wireless network. Be careful!

Note : WMM controls latency and jitters when transmitting multimedia content over a wireless connection.

GENERAL WIRELESS ADVANCE SETTINGS

BG Protection Mode :

Basic Data Rates :

Beacon Interval : ms (range 20 - 999, default 100)

Data Beacon Rate (DTIM) : ms (range 1 - 255, default 1)

Fragment Threshold : (range 256 - 2346, default 2346)

RTS Threshold : (range 1 - 2347, default 2347)

TX Power : (range 1 - 100, default 100)

Short Preamble : Enable Disable

Short Slot : Enable Disable

Tx Burst : Enable Disable

Packet Aggregate : Enable Disable

MULTIMEDIA

WMM Capable : Enable Disable

APSD Capable : Enable Disable

WMM Parameters :

PHYSICAL MODE

Operating Mode : Mixed Mode Green Field

Channel BandWidth : 20 20/40

Guard Interval : long Auto

Aggregation MSDU : Disable Enable

Auto Block ACK : Disable Enable

Decline BA Request : Disable Enable

General Wireless Advance Settings

Items	Information
BG Protection Mode	Some 802.11g wireless adapters support 802.11g protections, which allows the adapter search for 802.11b/g singles only. Select "Auto" to turns it on or off automatically, select "Always On" to support protection or select "Always Off" to disable this function.
Basic Data Rates	The transfer rate of data packets of this wireless AP. The wireless AP will use the highest possible selected transmission rate to transmit the data packets. Three selections: "1-2 Mbps", "Default (1-2-5.5-11 Mbps)", and "All (1-2-5.5-11-12-24 Mbps)."
Beacon Interval	Beacons are packets sent by an access point to synchronize a wireless network. Specify a beacon interval value. Default (100ms) is recommended.
Data Beacon Rate (DTIM)	Enter a value between 1 and 255 (default 1) for the Delivery Traffic Indication Message (DTIM). A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.
Fragment Threshold	This value should remain at its default setting of 2346. If you experience a high packet error rate, you may slightly increase your fragmentation threshold within the value range of 0 to 2346. Setting the fragmentation threshold too low may result in poor performance.
RTS Threshold	Request To Send threshold. This value should remain at its default setting of 2347. If you encounter inconsistent data flow, only minor modifications to the value range between 1 and 2347 are recommended.
Tx Power	Transmit power. You can set the output power of wireless radio. This value should remain at its default setting of 100. If you
Short Preamble	The length of CRC block in the frames during the wireless communication.
Short Slot	Indicates that the 802.11g network is using a short slot time because there are no legacy (802.11b) stations present
Tx Burst	Select to enable or disable connecting to a Tx Burst supported device.
Package Aggregate	To aggregate lots of packets into a big one before transmitting packets. This can reduce control packet overhead.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

Wi-Fi Multimedia (WMM)

Items	Information
WMM Capable	This will enhance the data transfer performance of multimedia contents when they're being transferred over wireless network.
APSD Capable	Automatic Power Save Delivery. Select to enable / disable data flow using power saving mode during transmitting.
WMM Parameters	You can configure WMM parameters by clicking on the  button. The configuration window pops up (as shown below). Manually configure the parameters and click on the "Apply" button to execute.

WMM Parameters of Access Point						
	Aifsn	CWMin	CWMax	Txop	ACM	AckPolicy
AC_BE	<input type="text" value="3"/>	<input type="text" value="15"/> ▾	<input type="text" value="63"/> ▾	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC_BK	<input type="text" value="7"/>	<input type="text" value="15"/> ▾	<input type="text" value="1023"/> ▾	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC_VI	<input type="text" value="1"/>	<input type="text" value="7"/> ▾	<input type="text" value="15"/> ▾	<input type="text" value="94"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC_VO	<input type="text" value="1"/>	<input type="text" value="3"/> ▾	<input type="text" value="7"/> ▾	<input type="text" value="47"/>	<input type="checkbox"/>	<input type="checkbox"/>

WMM Parameters of Station					
	Aifsn	CWMin	CWMax	Txop	ACM
AC_BE	<input type="text" value="3"/>	<input type="text" value="15"/> ▾	<input type="text" value="1023"/> ▾	<input type="text" value="0"/>	<input type="checkbox"/>
AC_BK	<input type="text" value="7"/>	<input type="text" value="15"/> ▾	<input type="text" value="1023"/> ▾	<input type="text" value="0"/>	<input type="checkbox"/>
AC_VI	<input type="text" value="2"/>	<input type="text" value="7"/> ▾	<input type="text" value="15"/> ▾	<input type="text" value="94"/>	<input type="checkbox"/>
AC_VO	<input type="text" value="2"/>	<input type="text" value="3"/> ▾	<input type="text" value="7"/> ▾	<input type="text" value="47"/>	<input type="checkbox"/>

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

HT (Hyper Throughput) Physical Mode

Items	Information
Operating Mode	Select the mixed or green field mode as the operation mode.
Channel Bandwidth	Select the 40Mhz or 20/40Mhz as the channel bandwidth.
Guard Interval	Select long or short as the interval time.
Aggregation MSDU	Select to enable or disable Hyper Throughput TX Aggregate MAC Service Data Unit.
Auto Block ACK	Select to block ACK (Acknowledge Number) or not during data transferring.
Decline BA Request	Select to reject peer BA-Request or not

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

Security Settings

The Security function protects your wireless network from invasion. We provide WEP and WPA encryption to secure your wireless network. As default, the authentication is configured as safe mode. Please select None/WEP/WPA (Personal) in the drop list. If you select none, any data will be transmitted without encryption and any station can access the AP.

WIRELESS SECURITY SETTINGS

Use this section to configure the wireless settings for your AP. Please note that changes made on this section may also need to be duplicated on your Wireless Client.

SECURITY MODE -- "Wireless_11n_AP"

SSID choice :

Security Mode :

Items	Information
SSID choice	Please choose a SSID you have set for this AP in the Wireless Settings > Basic Settings from the drop-down list. The SSID will be shown on the wireless network for recognizing.
Security Mode	There are 6 modes for you to select: Open, Shared, WEP Auto, WPA-PSK, WPA2-PSK, and WPA-PSK/WPA2-PSK. Please refer to the following description.

Security Mode -- Open / WEP Auto

SECURITY MODE -- "Wireless_11n_AP"	
SSID choice :	Wireless_11n_AP ▼
Security Mode :	Open ▼

WEP SETTINGS	
Default Key :	Key 1 ▼
WEP Key 1 :	<input type="text"/> Hex(10 or 26hex) ▼
WEP Key 2 :	<input type="text"/> Hex(10 or 26hex) ▼
WEP Key 3 :	<input type="text"/> Hex(10 or 26hex) ▼
WEP Key 4 :	<input type="text"/> Hex(10 or 26hex) ▼

Items	Information
Default Key	Select to use the WEP key value of 1, 2, 3 or 4 as in the following settings.
WEP Key 1, 2, 3 and 4	Select ASCII ¹ or Hex ² to setup the key value.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

¹ ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127.

² Hexadecimal digits consist of the numbers 0-9 and the letters A-F.

Security Mode -- Shared

SECURITY MODE -- "Wireless_11n_AP"	
SSID choice :	Wireless_11n_AP ▾
Security Mode :	Shared ▾
Encrypt Type :	WEP

WEP SETTINGS	
Default Key :	Key 1 ▾
WEP Key 1 :	<input type="text"/> Hex(10 or 26hex) ▾
WEP Key 2 :	<input type="text"/> Hex(10 or 26hex) ▾
WEP Key 3 :	<input type="text"/> Hex(10 or 26hex) ▾
WEP Key 4 :	<input type="text"/> Hex(10 or 26hex) ▾

Items	Information
Default Key	Select to use the WEP key value of 1, 2, 3 or 4 as in the following settings.
WEP Key 1, 2, 3 and 4	Select ASCII ¹ or Hex ² to setup the key value.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

¹ ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127.

² Hexadecimal digits consist of the numbers 0-9 and the letters A-F.

Security Mode – WPA-PSK / WPA2-PSK / WPA-PSK + WPA2-PSK

SECURITY MODE -- "Wireless_11n_AP"	
SSID choice :	Wireless_11n_AP ▼
Security Mode :	WPA-PSK ▼

WPA SETTINGS	
WPA Algorithms :	<input checked="" type="radio"/> TKIP <input type="radio"/> AES <input type="radio"/> TKIPAES
Pass Phrase :	●●●●●●●●
Key Renewal Interval :	3600 seconds

Items	Information
WPA Algorithms	Mark the option to enable modes of TKIP, AES, or TKIPAES (TKIPAES is only available in the security modes of WPA2-PSK and WPAPSK + WPA2-PSK)
Pass Phrase	Enter a pass phrase encryption key format (8~32 bytes).
Key Renewal Interval	Enter a value to setup the WPA key renewal interval. The device regenerates the key in every interval seconds that you have setup without disconnection.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

WDS Settings

Wireless Distribution System allows the AP to communicate with other APs wirelessly. To make it work, you must ensure that these APs and the Router are in the same channel. Please add these APs MAC address and comment values into the WDS list.

WIRELESS DISTRIBUTION SYSTEM (WDS)

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

Note: Before connecting to other Access Point, please make sure they use the same channel.
[\[Change Current Channel\]](#)

WDS SETTINGS

WDS Mode : (default:disabled)

Auto (AP Bridge)

WDS SETTINGS

WDS Mode : (default:disabled)

WDS Phy Mode :

WDS Encryption Type :

WDS (AP Bridge)

WDS SETTINGS	
WDS Mode :	WDS (AP Bridge) (default:disabled)
WDS Phy Mode :	OFDM
WDS Encryption Type :	TKIP
WDS Encryption Key :	<input type="text"/>
WDS Partner 1 MAC :	<input type="text"/>
WDS Partner 2 MAC :	<input type="text"/>
WDS Partner 3 MAC :	<input type="text"/>
WDS Partner 4 MAC :	<input type="text"/>

AP+WDS (AP Repeater)

WDS SETTINGS	
WDS Mode :	AP+WDS (AP Repeater) (default:disabled)
WDS Phy Mode :	GREENFIELD
WDS Encryption Type :	AES
WDS Encryption Key :	<input type="text"/>
WDS Partner 1 MAC :	<input type="text"/>
WDS Partner 2 MAC :	<input type="text"/>
WDS Partner 3 MAC :	<input type="text"/>
WDS Partner 4 MAC :	<input type="text"/>

Items	Information
WDS Mode	Select the option in the drop-down list to enable AP+WDS (AP Repeater), WDS (AP Bridge) or Auto (AP Bridge) as WDS mode.
Phy Mode	Select the option in the drop-down list to enable CCK, OFDM, HTMIX, or GREENFIELD mode for physical layer transceivers.
Encryption Type	Select the option in the drop-down list to enable WEP, TKIP, and AES encryption types. If you select None, any data will be transmitted without encryption and any station can access the AP.
Encryption Key	For encryption type of TKIP and AES, you have to fill in the WPA encryption key. Please use Pass Phrase (8~32bytes) key format.
WDS Partner 1~4 MAC	For encryption type of TKIP and AES, you have to fill in the WDS AP MAC. You can fill up to 4 sets of WDS AP MAC lists.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

WPS Settings

The primary goal of Wi-Fi Protected Setup (Wi-Fi Simple Configuration) is to simplify the security setup and management of Wi-Fi networks. This AP supports the configuration setup using PIN configuration method or PBC configuration method through an internal or external Registrar.

WPS (WiFi PROTECTED SETUP)

WiFi Protected Setup was designed to ease setup of security enabled WiFi networks in the home and small office environment. It supports methods that are familiar to most users to configure a network and enable security, like pushing a button or entering a PIN. The new system, which will be incorporated in Windows Vista, will work with computers, gateways peripherals, and consumer electronics.

WiFi Protected Setup : Enable (default:disabled)

WPS SUMMARY

WPS Current Status : Not used
WPS Configured : No
WPS SSID : Wireless_11n_AP
WPS Auth Mode : Open
WPS Encryp Type : None
WPS Default Key Index : 1
WPS Key(ASCII):
AP PIN Code: 208

WPS PROGRESS

WPS Config Method: PIN PBC
Add Enrollee PIN Code:

WPS STATUS:

WSC:Not used

WPS Summary

Shows the information of WPA current status, configured, SSID, authentication mode, and pre-shared key. Click on **Reset OOB** button to Reset WPS AP to the OOB (out of box) configuration.

WPS Progress

Items	Information
WPS mode	PIN method (Personal Identification Number): read the PIN from either a sticker on the new STA or a display. PBC method (Push Button Communication): in which the user simply has to push a button, either an actual or virtual one, on both the AP and the new STA. (Users can simply push the EZsetup button ¹ between the antennas of the device or the Save Settings button in this GUI page after selecting this mode.)
Add Enrollee PIN Code	Users have to fill in the PIN code to enrollee device if selecting PIN mode as the WPS Config method.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

WPS Status

Shows the current WPS status.

¹ This button may not supplied depend on your model. Users can click on the **Build WPS Connection** button in the WPS settings web page to reach the same function.

Access Control

To restrict the Number of Access authentication of Stations, set up the control list in this page. You may select "Allow Listed" to allow those allowed MAC addresses or select "Deny Listed" to ban those MAC addresses from accessing to AP.

WIRELESS MAC ACCESS CONTROL

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect to the router.

MAC Access Policy : (default: disabled)

MAC ACCESS CONTROL SETTINGS

Enable this Rule :

MAC Address :

Description :

Action :

MAC ACCESS CONTROL LIST			
Enable	Client MAC	Description	Action
	00:13:02:4C:DC:95		<input type="button" value="Delete"/>

WIRELESS NETWORK		
MAC Address	Aid	PSM
00:E0:4C:00:00:61	1	No

MAC Access Control Settings

Items	Information
Enable this Rule	Mark to enable the configuration, and clear to disable.
MAC Address	Fill in the MAC address that you wish to control.
Description	Give a definition to the MAC Address.
Action	After configuring the above settings, click Apply to add a new list in the following MAC Access Control List.

* Please click on the **Save Settings** button or the **Reset Settings** button on the above table to save/reset the configurations.

MAC Access Control List

Lists the MAC Access Control Settings you have added before. Click on the list to change configuration, or the **Delete** button to delete the list.

Current Associated Client List

Lists the current associated client connected to this device. Click on the list to add it into the MAC Access Control List, and to do more configurations on it.

Services Settings

Date/Time Settings

This page allows users to configure the date and time of this AP. To specify manually, select the date and time from the drop list and click the button. To synchronize time from a timeserver, please enter the update interval hour numbers, select an NTP server from the drop list or manually enter a private NTP server and then click the button to execute.

NTP CLIENT (NETWORK TIME PROTOCOL)

You can maintain the system time by synchronizing with a public time server over the Internet.

Manual Time Setting

NTP SETTINGS

SYNC TIME : Manual Time Setting NTP Time Server

Time Now : 2000 / 01 / 01 , 01 : 14 : 24

System Date : **Year** **Mon** **Day**

System Time : **Hour** **Min** **Sec**

NTP Time Server

NTP SETTINGS

SYNC TIME : Manual Time Setting NTP Time Server

Time Now : 2000 / 01 / 01 , 00 : 59 : 53

Time Zone: (GMT-11:00) Midway Island, Samoa

NTP Server Select:

NTP Server IP :

NTP synchronization :

Management

Admin Account

The admin account is the account for accessing this configuration interface. In this page, you can reset the password of the admin account and setup a designated IP to remote control this device.

SYSTEM MANAGEMENT

You may configure administrator account and password.

ADMINISTRATOR SETTINGS

Account :

Password :

Config

The Config page allows users to backup and download the configuration status of the device or restore the factory default configuration.

CONFIG SETTINGS

This page allows you to save current settings to a file or upload the settings from the file which was saved before. You can also reset the current configuration to factory default.

Save Settings to File :

Load Settings from File :

Reset Settings to Default :

Items	Information
Save Settings to File	Click on the <input type="button" value="Save"/> button to save the currently configure settings.
Load Settings from File	Click <input type="button" value="Browse..."/> to select the file and then click <input type="button" value="Upgrade"/> to start the process. Please wait for it to complete.
Reset Settings to Default	Click <input type="button" value="Reset to Default"/> to start the process and it will be completed till the status LED starts blinking.

Firmware Upgrade

Sometimes a new firmware may be issued to upgrade the system of this device. You could upgrade the firmware you got in this page. To upgrade the firmware, please click on the **Browse** button, locate the firmware in your computer and then click the **Upgrade** button to execute.

FIRMWARE UPGRADE

This page allows you to upgrade firmware to new version.

Firmware File :

Please note:
Do not power off the device during upgrading because it may crash the system.

Information

System Information

This information page shows the current settings of this device. You could check if the parameters match your configuration.

SYSTEM INFORMATION
System Name : 802.11n Wireless AP
Firmware Version : AP 1.0 (Jul 16 2008)
System Uptime : 3 mins, 56 secs
Operation Mode : AP Mode

LAN INTERFACE INFORMATION
MAC Address : 00:08:54:00:00:15
IP Address : 192.168.1.1
Subnet Mask : 255.255.255.0
DHCP Server : Server

WLAN INTERFACE INFORMATION
Mode : 802.11b/g/n mixed
MAC Address : 00:08:54:00:00:14
SSID : Wireless_11n_AP
Channel : 6

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Packet Statistics

This page allows users to get information of data transferring condition, and monitor the status and performance of this AP including interface, receiving/sending packets, and receiving/sending errors.

PACKET STATISTIC

Some information of netstat shows here. You are able to view the amount of receiving and sending packets that pass through the network interfaces. The traffic counter resets after rebooting the device.

Interface	Recv Pkts	Send Pkts	Recv Bytes	Send Bytes
lo	0	0	0	0
eth2	84861	36853	10472346	22577292
ra0	4215	38958	287915	13069312
wds0	0	0	0	0
wds1	0	0	0	0
wds2	0	0	0	0
wds3	0	0	0	0
apcli0	0	0	0	0
eth2.1	84839	36835	9282463	22576464
eth2.2	0	18	0	828
br0	85089	35965	8971701	22351510

System Log

This page shows the system log information.

Note: You have to enable System Log first or you cannot see any messages shown on this page. Please refer to [Services Settings > System Log](#) for more information.

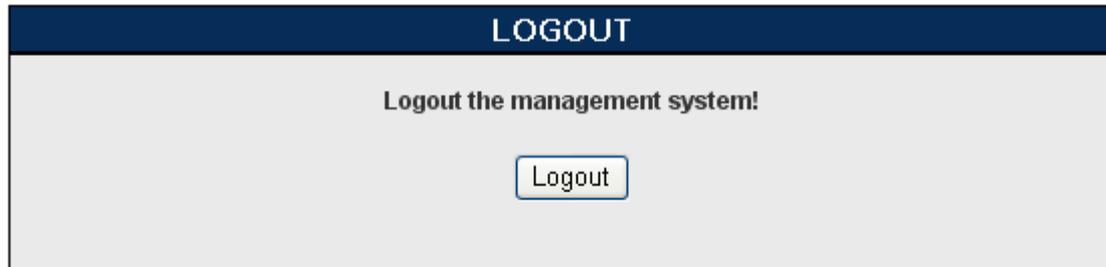
System Log

```
Jan 1 00:00:05 (none) syslog.info syslogd started: BusyBox v1.7
Jan 1 00:00:08 (none) syslog.info syslogd exiting
```

Logout

Logout

Click the **Logout** button to log out the admin account from this system.



Reboot

Click the **Reboot** button to restart this system. This may cost 1 minute to restart the system. Please wait upon restarting.



Product Specifications

Standard	IEEE 802.11n draft 2.0, IEEE 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u
Interface	LAN: 1 port 10/100Mbps Ethernet, RJ-45 2* wireless antennas 1* reset to default button 1* EZsetup button (WPS) 1* AP/Hybrid switch button
Antenna	Antenna gain: 2dB Antenna type: Dipole Antenna connector type: Reverse SMA
Cable Connections	RJ-45 (10BASE-T): Category 3,4,5 UTP RJ-45 (100BASE-TX): Category 5 UTP
Transmission Mode	Auto-Negotiation (Full-duplex, Half-duplex)
LED indications	1*Power/Status, 1*WLAN, 1*LAN,
Security	64/128-bit WEP, WPA, WPA2
Network Data Rate	802.11b: 1,2,5.5, and 11Mbps 802.11g: 6,9,12,18,24,36,48 and 54Mbps 802.11n: up to 300Mbps
Receiver Sensitivity	802.11b-86dBm, 802.11g-74dBm, 802.11n -65dBm
Transmit Power	802.11b 18dBm, 802.11g 14.5dBm, 802.11n 20MHz and 802.11n 40MHz 14dBm
Channel	USA 11, Europe 13
Range Coverage	Indoor 35~100 meters Outdoor 100~300 meters.
Emission	FCC CLASS B, CE FCC Part 15.247 for US (2.412~2.462MHz) ETS 300 328 for Europe (2.400~2483.5MHz) DGT LP0002 for Taiwan (2.412~2.462MHz)
Temperature	Operating: 0° ~ 40°C Storage: -10° ~ 70°C
Humidity	Operating: 10 ~ 90% RH, non-condensing Storage: 5~95% RH, non-condensing
Power Supply	External Power Adapter, 12VDC/ 1A