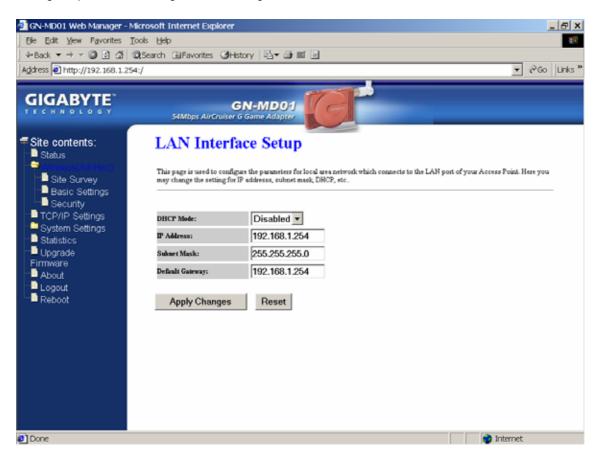
## **TCP/IP Settings**

Manage IP parameters through TCP/IP setting screen.



#### **DHCP Mode**

Two (2) options are available: "Disabled", "Client Enabled". The default value is "Disabled".

#### IP Address

Assign an IP address to the Game Adapter with this option. The default IP address is 192.168.1.254. Please make sure the assigned IP address is exclusive for the Game Adapter.

## Subnet Mask

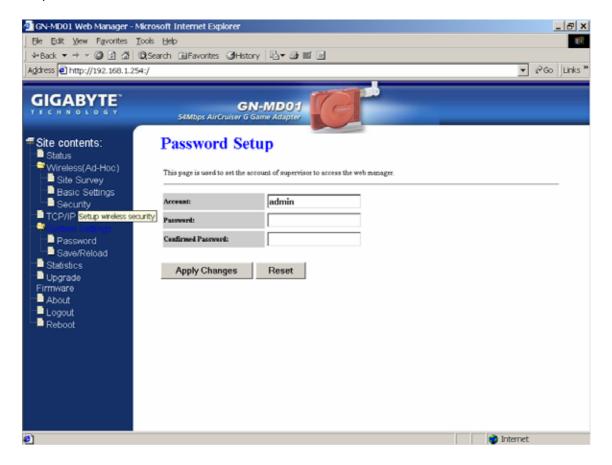
Assign a Subnet Mask for a Game Adapter. The default Subnet Mask is 255.255.255.0.

#### **Default Gateway**

Enter the IP address for the default router. The default gateway is 192.168.1.254.

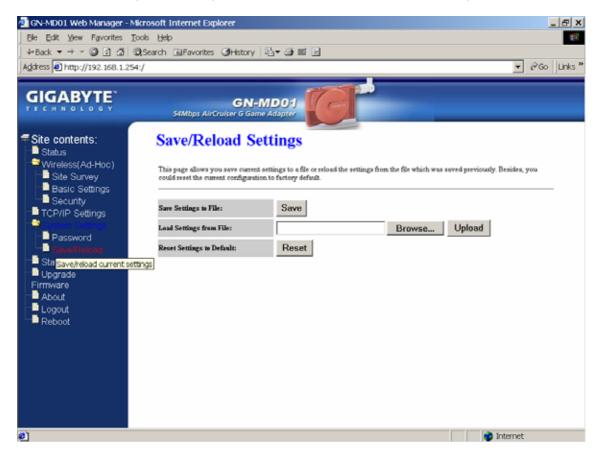
## **System Settings-Password Setup**

Here you can set up administrator's user name and password to restrict administrative Game Adapter. Key in a password and confirm, then press Apply Changes. NOTE: If you leave the password field blank, the password feature is disabled.



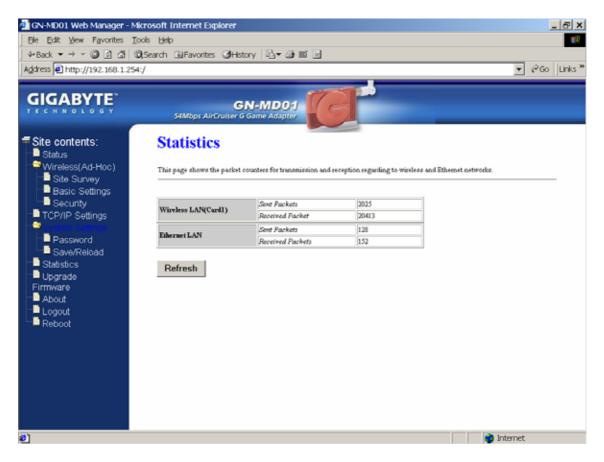
## **System Settings-Save/Reload Settings**

Save the current configuration settings as a file. Press "Reset" to restore unit settings to factory defaults.



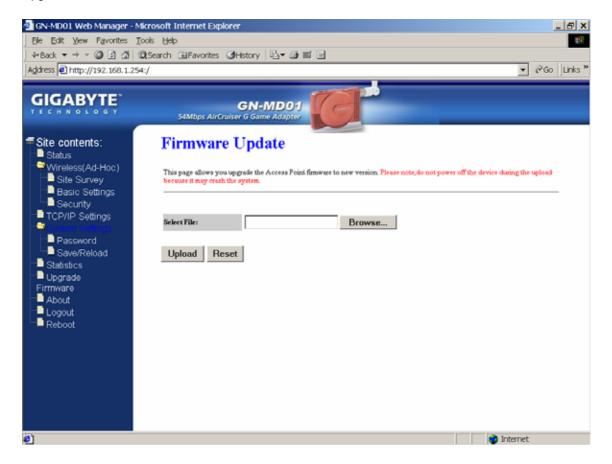
## **Statistics**

Displays data packets flow status on the wireless and wired LAN.



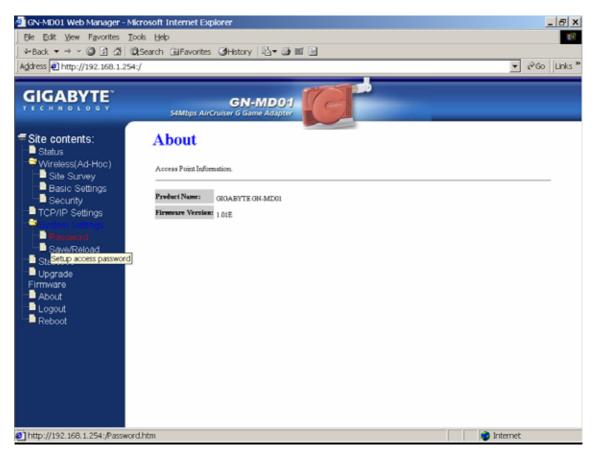
## **Upgrade Firmware**

Upgrade the firmware with the latest firmware version available for download from the GIGABYTE website.



## **About**

View firmware information.



## Logout

Logout from the configuration webpage when setup complete.

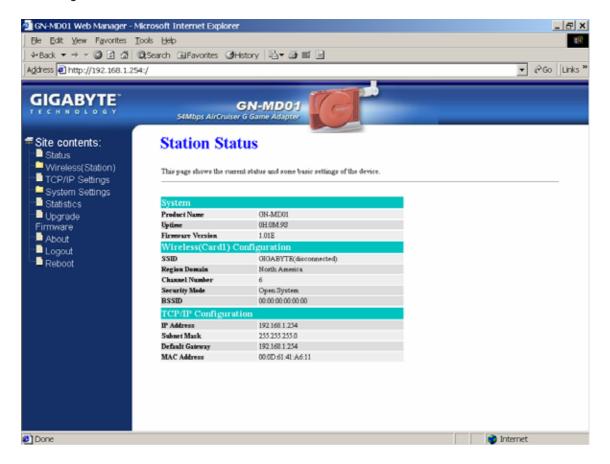
## Reboot

Reboots the device. The system may need up to a minute to save your settings, please allow the system to reboot itself.

## Configuring the Adapter for Ethernet Adapter Mode Access

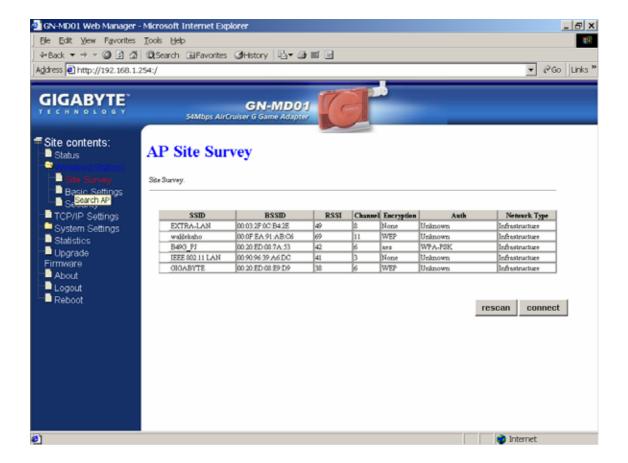
## **Status**

You can use this status screen to view the Game Adapter's system information, current connection status and configuration.



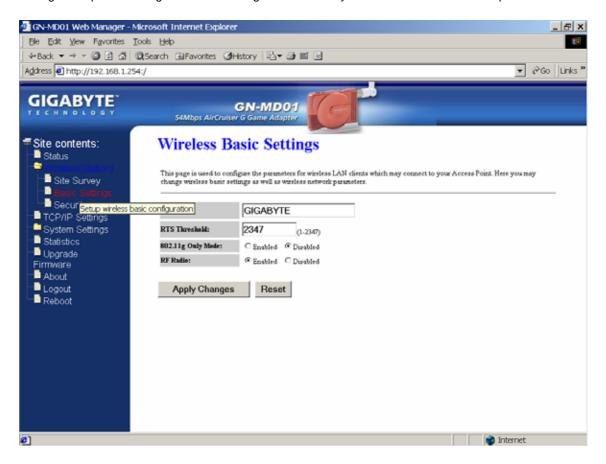
## **AP Site Survey**

This AP Site Survey screen shows the wireless networks that the AirCruiser G Game Adapter detects. The SSID, BSSID, RSSI, Channel, Encryption, Auth, Network Type for each network are displayed.



## **Wireless Basic Settings**

The Game Adapter will automatically detect your wireless settings. Typically, modification to the default settings is required. Changes of these settings will influence your wireless connection and performance.



#### SSID

ESSID (or SSID as it is usually referred to) is the network name of the Game Adapter in the wireless network. You should set the same SSID name for all your wireless-equipped devices to allow dynamic clients to easily roam among them. The SSID name can be up to 32 characters in length and is case sensitive (i.e. upper case letters "A~Z" and lower case "a~z" are unique).

#### RTS Threshold

The default value of "2347" should not be changed. However, in case of inconsistent data flow, adjustment the value to a lower number and retry. Enter a value within the range 0~2347 for the port. RTS (Request To Send) is a function, requesting permission to transmit signals. RTS is a collision avoidance method used by all 802.11b wireless networking devices. In most cases you will not need to activate or administer RTS. Generally, RTS only needs to be configured if you find yourself in an Infrastructure environment where all nodes are in range of the Access Point but may be out of range of each other.

### 802.11g Only Mode

Enabled -- No Wireless-B clients will be allowed on the network.

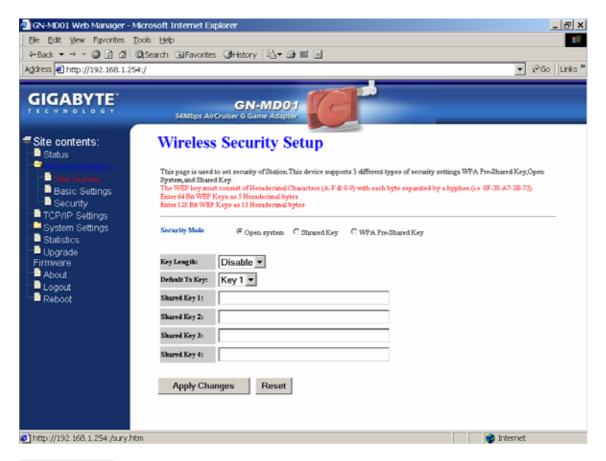
Disabled - Both Wireless-G and Wireless-B clients will be allowed on the network. (Default setting)

#### RF Radio

Enable or disable the RF Radio function.

## **Wireless Security Setting**

Use this feature to set up the security types for the Game Adapter. Three security settings are available: Open System, Shared Key and WPA Pre-Shared Key.



#### \* Open System

No security is invoked, allowing any device to join the network, as long as the SSID is correct.

#### \* Shared Key

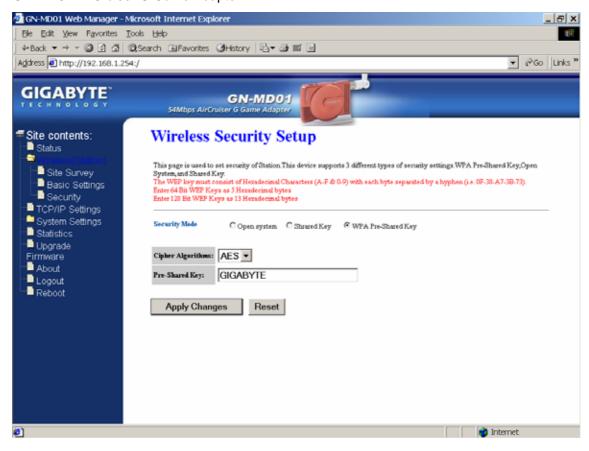
Only those computers that have the correct authentication key can join the network.

### Key Length choice

Disable - No encryption will be applied.

64-bit - enter 5 hexadecimal digits.

128-bit - enter 13 hexadecimal digits.



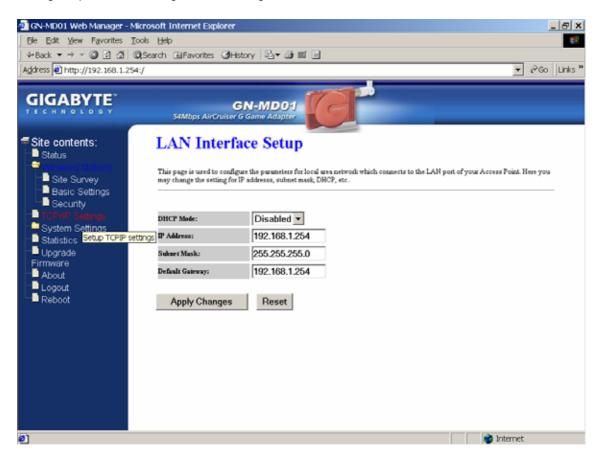
#### \* WPA Pre-Shared Key

A mechanism in Wi-Fi Protected Access (WPA)—Personal that allows the use of manually entered keys or passwords to initiate WPA security. The PSK is entered on the access point or home wireless gateway and each PC that is on the Wi-Fi network. After entering the password, Wi-Fi Protected Access automatically takes over. It keeps out eavesdroppers and other unauthorized users by requiring all devices to have the matching password.

**Pre-Shared key** - Enter a password up to 63 ASCII characters (uppercase "A~Z", lowercase "a~z", or numeric "0~9") in length.

## **TCP/IP Settings**

Manage IP parameters through TCP/IP setting screen.



#### **DHCP Mode**

Two (2) options are available: "Disabled", "Client Enabled". The default value is "Disabled".

#### IP Address

Assign an IP address to the Game Adapter with this option. The default IP address is 192.168.1.1. Please make sure the assigned IP address is exclusive for the Game Adapter.

#### Subnet Mask

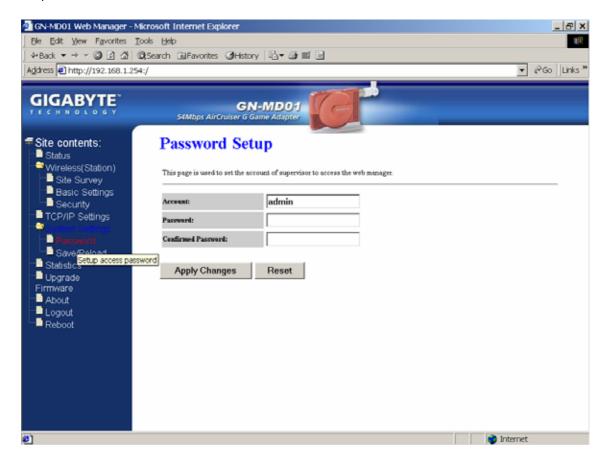
Assign a Subnet Mask for a Game Adapter. The default Subnet Mask is 255.255.255.0.

#### **Default Gateway**

Enter the IP address for the default router. The default gateway is 192.168.1.254.

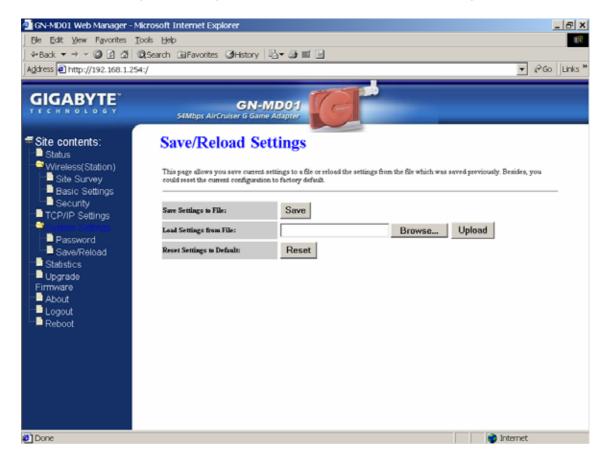
## **System Settings-Password Setup**

Here you can set up administrator's user name and password to restrict administrative Game Adapter. Key in a password and confirm, then press Apply Changes. NOTE: If you leave the password field blank, the password feature is disabled.



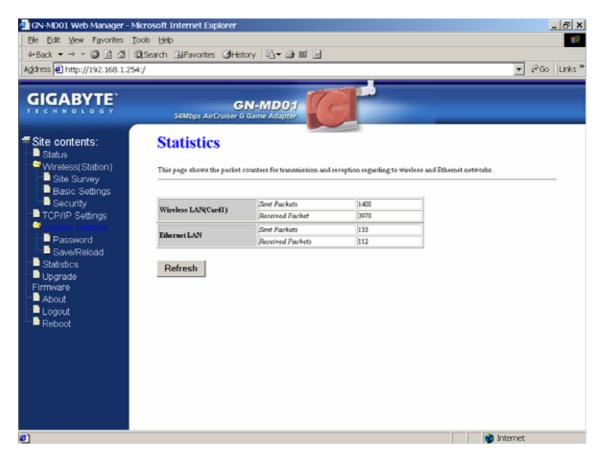
## **System Settings-Save/Reload Settings**

Save the current configuration settings as a file. Press "Reset" to restore unit settings to factory defaults.



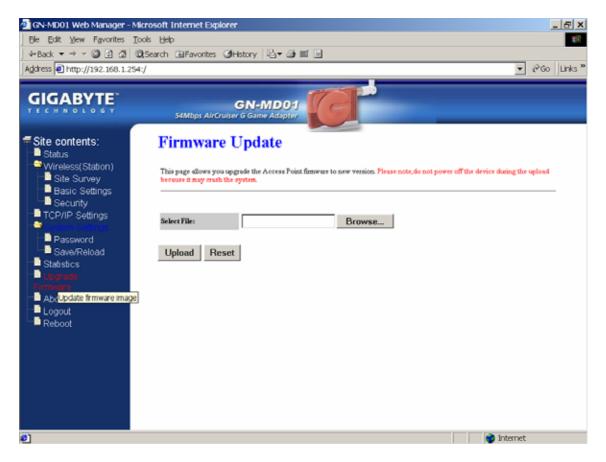
## **Statistics**

Displays data packet flow status on both wireless and wired LAN.



## **Upgrade Firmware**

Upgrade the firmware with the latest firmware version available for download from the GIGABYTE website.



## <u>About</u>

View firmware information. GN-MD01 Web Manager - Microsoft Internet Explorer \_ & x Elle Edit View Favorites Tools Help 4-Back ▼ → ▼ ② ② ③ ③ ②,Search ③Favorites ③History | □ ▼ ④ ■ ☐
Address ② http://192.168.1.254:/ ▼ @Go Links \*\* GIGABYTE GN-MD01 54Mbps AirCruiser G Game Adap **₹Site contents**: About Status Wireless(Station) Access Point Information Basic Settings Security Product Name: GIGABYTE GN-MD01 TCP/IP Settings Firmware Version: 1.01E Password Save/Reload
Statistics Upgrade Logout Reboot

internet

## **Logout**

Logout from the configuration webpage when setup complete.

## Reboot

Reboot the GN-MD01. The system may need up to a minute to save your settings, please allow the system to reboot itself.

# **Chapter 4 Troubleshooting**

This chapter gives information about troubleshooting your AirCruiser G Game Adapter. Read the descriptions below for assistance is diagnosing and solving the problem.

#### Q: What to do if you forget your password or forget the IP address of the Access Point?

A: Please press and hold for 5 seconds the "init" button at the bottom of the Access Point. The Access Point will be reset to the factory default values, and the password will be restored to factory default.

#### Q: I am unable to connect to the Internet.

- **A:** 1. Confirm that the power cord is connected properly and the Game Adapter's power LED is correctly lit.
  - 2. Check whether all of the settings described in this manual are correctly set.
  - Verify that your ADSL/Cable Modem is operating normally, and/or you have ISP service available.
  - 4. Check that your network cable is connected correctly, and the LED status is normal.

#### Q: I am unable to access the Game Adapter's Web Configuration Interface.

- **A:** 1. Please check the Ethernet connection (RJ-45 LAN cable) between the PC and the Access Point is properly connected.
  - 2. Make sure your computer's IP address is on the same subnet as the Access Point. (Check this by typing ipconfig /all from a DOS command prompt)
  - 3. Make sure you are carefully typing the correct IP address of the router in the address bar of your web browser. The IP address of your router is the "Gateway" address you see when you run the ipconfig /all command.
  - 4. Try initializing your router to factory settings.

#### Q: What is the IEEE 802.11b standard?

A: It is also referred to as 802.11 High Rate or Wi-Fi. It is an expansion to 802.11 that applies to wireless LAN and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band. The 802.11b uses only Direct Sequence Spread Spectrum (DSSS). The 802.11b was a 1999 ratification to the original 802.11 standard, allowing wireless functionality comparable to Ethernet.

#### Q: What is WEP?

**A:** Wired Equivalent Privacy (WEP). A security mechanism defined within the 802.11 standard and designed to make the link integrity of the wireless medium equal to wired cable.

#### Q: What is the IEEE 802.11g standard?

A: IEEE 802.11g standard specifies data rates of up to 54 Mbps in the 2.45-GHz band. It uses Orthogonal Frequency Division Multiplexing (OFDM), which is the mandatory provisions have been made within the standard to make it inherently compatible with the well-established 802.11b standard at 11 Mbps, which uses Complementary Code Keying (CCK) modulation. Both .11g and .11b can operate at ranges of up to 300 feet.

# Appendix A: Glossary

#### 10BaseT

The most common cabling method for Ethernet. 10BaseT conforms to IEEE standard 802.3. It was developed to enable data communications over unshielded twisted pair (telephone) wiring at speeds of up to 10 megabits per second up to distances of approximately 330 feet on a network segment.

#### 802.11

A group of wireless networking standards, also known as Wi-Fi, set by the Institute of Electrical and Electronics Engineers (IEEE).

#### 802.1X

A standard for port-based authentication, first used in wired networks, that was adapted for use in enterprise WLANs to address security flaws in WEP, the original security specification for 802.11 networks. 802.1X provides a framework for authenticating users and controlling their access to a protected network and dynamic encryption keys to protect data privacy.

#### **Access Point**

An Access Point is a wired controller that sends data to the wireless NIC's installed in your network computers, and received data back from them. An Access Point is often connected to the network computer that has Internet access, or is directly connected to an ADSL or cable modem.

#### Ad-Hoc mode

An old term used to describe a device-to-device network. (See device-to-device network, peer-to-peer network).

#### **ADSL**

Asymmetric digital subscriber line (ADSL) is a new modem technology that converts existing twisted-pair telephone lines into access paths for high-speed communication of various sorts.

#### **AES**

Advanced Encryption Standard. The preferred standard for the encryption of commercial and government data using a symmetric block data encryption technique. It is used in the implementation of WPA2.

#### Auto-MDI/MDIX

On a network hub or switch, an auto-MDI/MDIX port automatically senses if it needs to act as a MDI or MDIX port. The auto- MDI/MDIX capability eliminates the need for crossover cables.

#### Auto-negotiate

To automatically determine the correct setting. The term is often used with communications and networking.

#### Bridae

A wireless device that connects multiple networks together.

#### **BSSID**

Basic Service Set Identifier. A unique address that identifies the access point/router that creates the wireless network.

#### Channel

One portion of the available radio spectrum that all devices on a wireless network use to communicate. Changing the channel on the access point/router can help reduce interference.

#### Client

Any computer connected to a network that requests files and services (files, print capability) from the server or other devices on the network. The term also refers to end users.

#### Client devices

Wi-Fi client devices include PC Cards that slide into laptop computers, mini-PCI modules embedded in laptop computers and mobile computing devices, as well as USB radios and PCI/ISA bus Wi-Fi radios. Client devices usually communicate with hub devices like access points and gateways.

#### **DHCP**

The Dynamic Host Configuration Protocol (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP. DHCP can be used to automatically assign IP addresses, to deliver TCP/IP stack configuration parameters such as the subnet mask and default router, and to provide other configuration information such as the addresses for printer, time and news servers.

#### **DSSS**

Also known as "Direct Sequence Spread Spectrum," this is a variety of radio transmission methods that continuously change frequencies or signal patterns. Direct Sequence Spread Spectrum (DSSS), which is used in CDMA technology, multiplied the data bits by a very fast, pseudo-random bet pattern (PN sequence) that "spreads" the data into a large coded stream that takes the full bandwidth of the channel.

#### **DNS**

The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate between domain names and IP addresses, and to control Internet email delivery. Most Internet services rely on DNS to work, and if DNS fails, web sites cannot be located and email delivery stalls.

#### **Dynamic IP Address**

An IP address is automatically assigned to a user's AP in a TCP/IP network typically by a DHCP server.

#### EAP

Extensible Authentication Protocol. A protocol that provides an authentication framework for both wireless and wired Ethernet enterprise networks. It is typically used with a RADIUS server to authenticate users on large networks. EAP protocol types are used in the 802.1X-based authentication in WPA-Enterprise and WPA2-Enterprise.

#### Encryption

A mechanism for providing data confidentiality.

#### Ethernet

The most popular international standard technology for wired Local Area Networks (LANs). It provides from 10 Mbps transmission speeds on basic 10BastT Ethernet networks to 100 Mbps transmission speeds on Fast Ethernet networks, 1000 Mbps on Gigabit Ethernet, and 10,000 Mbps on 10 Gigabit Ethernet.

## Firewall

A system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

#### **Firmware**

Software routines that are embedded as read-only memory (ROM) in a computer chip or hardware device to prevent modification of the routines. Unlike random access memory (RAM), read-only memory stays intact in the absence of electrical power. Startup routines and low-level input/output instructions are stored in firmware.

#### Gateway

A device, usually a Router, that connects hosts on a local network to other networks.

#### Infrastructure mode

An old term used to describe a wireless network consisting of devices connected to a network using a centralized wireless access point. One of two types of wireless network modes; the other is a device-to-device network (also known as peer-to-peer or ad hoc mode).

#### **IP Address**

Every PC on the Internet has a fixed identifying number, called a IP Address. A typical IP address looks like this: 216.27.61.137

#### LAN

A system of connecting PCs and other devices within the same physical proximity for sharing resources such as an Internet connections, printers, files and drives. When Wi-Fi is used to connect the devices, the system is known as a wireless LAN or WLAN.

#### **MAC Address**

On a local area network (LAN) or other network, the MAC (Media Access Control) address is your computer's fixed hardware number. Usually written as: 01:23:45:67:89:ab

#### Ping (Packet Internet Groper)

A utility to determine whether a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply. PING is used primarily to troubleshoot Internet connections.

#### **RADIUS**

Remote Access Dial-Up User Service. A standard technology used by many major corporations to protect access to wireless networks. RADIUS is a user name and password scheme that enables only approved users to access the network; it does not affect or encrypt data. The first time a user wants access to the network, secure files or net locations, he or she must input his or her name and password and submit it over the network to the RADIUS server. The server then verifies that the individual has an account and, if so, ensures that the person uses the correct password before she or he can get on the network. RADIUS can be set up to provide different access levels or classes of access. For example, one level can provide blanket access to the Internet; another can provide access to the Internet as well as to e-mail communications; yet another account class can provide access to the Net, email and the secure business file server. Like other sophisticated security technologies, RADIUS comes in a variety of types and levels.

#### **RJ-45**

Standard connectors used in Ethernet networks. They appear similar to standard RJ-11 telephone connectors. However, RJ-45 connectors can have up to eight wires, whereas telephone connectors have only four.

#### Roaming

The ability to move seamlessly from one area of Wi-Fi or cellular phone coverage to another with no loss in connectivity. Roaming also refers to the ability of road warriors to wirelessly connect to the Internet from different hotspots without confronting the array of schemes used by different providers to authorize use and track billing. Roaming agreements among providers allow mobile professionals to a single authentication and authorization scheme to have all charges resolved to a single bill.

#### Router

A device that forwards data packets along networks. A router is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISP network. Routers are located at gateways, the places where two or more networks connect.

#### Server

A computer that provides resources or services to other computers and devices on a network. Types of servers can include print servers, Internet servers, mail servers, and DHCP servers. A server can also be combined with a hub or router.

#### Site survey

A comprehensive facility study performed by network managers to insure that planned service levels will be met when a new wireless LAN, or additional WLAN segments to an existing network, are deployed. Site survey's are usually performed by a radio frequency engineer and used by systems integrators to identify the optimum placements of access points to insure that planned levels of service are met. Site surveys are sometimes conducted following the deployment to insure that the WLAN is achieving the necessary level of coverage. Site surveys can also be used to detect rogue access points.

#### SSID

The SSID is the name represents the routers and Access Point in wireless network.

#### **Subnet Mask**

A mask used to determine which subnet a IP address belongs to. An IP address has two components, the network address and the host address. Subnetting enables the network administrator to further divide the host part of the address into two or more subnets.

#### Switch

A type of hub that controls device usage to prevent data collisions and insures optimal network performance. A switch acts as a network traffic cop: Rather than transmitting all the packets it receives to all ports, as a hub does, a switch transmits packets to only the receiving port.

#### TCP/IP

TCP/IP (Transmission Control Protocol/Internet Protocol), the suite of communications protocols used to connect hosts on the Internet.

#### TKIP

Temporal Key Integrity Protocol. The wireless security encryption mechanism in Wi-Fi Protected Access. TKIP uses a key hierarchy and key management methodology that removes the predictability that intruders relied upon to exploit the WEP key. It increases the size of the key from 40 to 128 bits and replaces WEP's single static key with keys that are dynamically generated and distributed by an authentication server, providing some 500 trillion possible keys that can be used on a given data packet. It also includes a Message Integrity Check (MIC), designed to prevent an attacker from capturing data packets, altering them and resending them. By greatly expanding the size of keys, the number of keys in use, and by creating an integrity checking mechanism, TKIP magnifies the complexity and difficulty involved in decoding data on a Wi-Fi network. TKIP greatly increases the strength and complexity of wireless encryption, making it far more difficult—if not impossible—for a would-be intruder to break into a Wi-Fi network.

#### USB

A high-speed bidirectional serial connection between a PC used to transfer data between the computer and peripherals such as digital cameras and memory cards. The USB 2.0 specification, announced in 2000, provides a data rate of up to 480 Mbps, 40 times faster than the original specification which provided only 12 Mbps.

#### WAN

Wide Area Network, a communication network that covers a relatively broad geographic area, consisting of two or more LANs. Broadband communication over the WAN is often through public networks such as the ADSL or Cable systems, or through leased lines or satellites. To simplify it, please image network as a WAN.

#### WEP

WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 64/128-bit shared key algorithm, as described in the IEEE 802.11 standard.

# **Appendix B: Specifications**

# **Physical Interface**

The Wireless Access Point includes one Ethernet LAN port, one Initialize button and one antenna.

Item	Contents	Description
1.	Ethernet port	10/100Mbps Ethernet RJ-45 with auto-sensing and auto MDI/MDIX
2.	Q-Link button (Auto Link)	Auto secure channel configuration between two game adapters  Ad-hoc mode  AP to station in infrastructure mode
3.	Init button	Device reset (Init to factory default)
4.	Wireless antenna	External, 3dBi
5.	Mode switcher	Hardware switch among AP, Adapter(station infrastructure), station Ad-hoc modes
6.	Power adaptor	7.5V, 800mA

# **Specifications**

System	
CPU, Flash and SDRAM Size	RDC R2600, 1MB Flash, 8MB SDRAM
Standards	IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX), IEEE 802.11b/g
	(Wireless)
Operating Range	Wireless - Open space: 100 – 300m; Indoor: 30 - 100m
Power Consumption	7.5V, 470mA max.
RF - 802.11g (backwards com	patible to 802.11b)
Frequency Band	2412 ~ 2484 MHz (subject to local regulation)
Modulation Technology	OFDM and DSSS
Modulation Techniques	64QAM, 16QAM, QPSK, BPSK, DBPSK, DQPSK, CCK
Data Rates	54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps, auto fallback
Output power	20dBm Peak Power@ 54Mbps, Nominal Temp Range
	20dBm Peak Power@ 11Mbps, Nominal Temp Range
Receive Sensitivity	Better than -68dBm; typical -71dBm @54Mbps, Nominal Temp Range
	Better than -83dBm; typical -85dBm @11Mbps, Nominal Temp Range
Antenna	External Antenna 3dBi
Regulatory and Environmental	Compliance
EMC certification	FCC part 15 (USA)
	CE (Europe)
Temperature Range	Operating: 0 ~ 40 degree C, Storage: -20 ~ 65 degree C
Humidity	10% ~ 85% Non-condensing
Mechanical	
Packaging	Generic, GIGABYTE, private labeling optional
LED indicator	Power/Status LED (Dual Color, Green/Red)
	Wireless LED (Green)
	Ethernet Port LED (Green)
	Auto Link LED (Dual Color, Green/Red)
Weight	80g (include Antenna)
Dimensions	88.34mm x 63.46mm x 21mm

# Appendix C: PC Configuration

To connect to the AP, your computer needs to be located in the same Subnet as the AP. Please follow the instructions given to setup in a TCP/IP network environment. By default, Windows 98, *Me*, 2000 and XP already have TCP/IP installed. If you have not installed the TCP/IP communication Protocol, please install it now, and then select your operating system for the setup.

## TCP/IP Settings Under Windows 2000

Step 1. Click the **Start** button, select **Settings** and then click the **Control Panel** icon.



Step 2. Double-click the **Network and Dial-up Connection** icon.



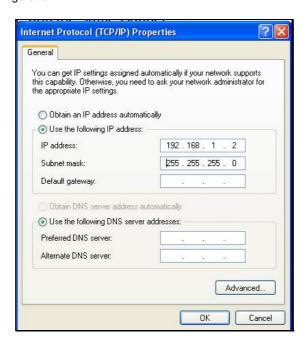
Step 3. Double-click the "LAN CONNECTION" and click the "Properties" button.



Step 4. The "Local Area Connection Properties" dialog box will appear. Verify that the Internet Protocol (TCP/IP) item is checked. Then double-click on Internet Protocol (TCP/IP).



Step 5. Assign the static IP address used by the AP and the same Subnet Mask to the computer (For example, IP address is 192.168.1.2 and Subnet Mask is 255.255.255.0), click the "OK" button to return to Local Area Connection Properties. Click the "OK" button again to complete the PC configuration.



# TCP/IP Settings under Windows XP

Step 1. Click the "Start" in the desktop of the Windows to select "Settings", and then select the "Control Panel".



Step 2. Double-click the "Network Connections" icon.



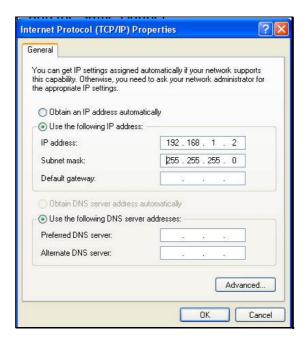
Step 3. Double-click the "LAN CONNECTION" and click the "Properties" button.



Step 4. The "Local Area Connection Properties" dialog box will appear. Verify that the Internet Protocol (TCP/IP) item is checked. And then double-click on "Internet Protocol (TCP/IP)" item.



Step 5. Assign the static IP address used by the AP and the same Subnet Mask to the computer (For example, IP address is192.168.1.2 and Subnet Mask is 255.255.255.0), click the "OK" button to return to "Local Area Connection Properties". Click the "OK" button again to complete the PC configuration.



## **Limited Warranty Statement**

## 1-Year Warranty

GIGABYTE makes warranty to the original consumer/purchaser that the product is free from defects in materials and workmanship from the time of purchase and for a limited time of one year thereafter. This warranty is null and void if the product is damaged in the process of being installed or improperly used.

GIGABYTE may replace or repair the product with either new or reconditioned parts. Repaired or replaced products will be returned to you at the same revision level as received or higher at GIGABYTE's option. GIGABYTE reserves the right to replace discounted products with an equivalent generation product.

## KEEP THIS STUB FOR YOUR PURCHASING RECORD

Customer:	
Phone No:	
Address:	
Email:	
Model:	
Serial:	
Date of Purchase:	
Place of Purchase:	
Reseller:	
Distributor:	

## **Customer Satisfaction**

## **GIGA-BYTE TECHNOLOGY CO., LTD.**

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