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# WIRELESS ACCESS POINT

## 1. Product General Information

### 1.1. Product Description

The Access Point GL2422AP-0T0 is fully compatible with the IEEE 802.11b wireless standard and based on the Direct Sequence Spread Spectrum Technology. In addition, the Modulation Method Packet Binary Convolutional Code (PBCC) provides advanced data rate up to 22Mbps. GL2422AP-0T supports IEEE 802.3 10BaseT and 100 BaseTX port for easy interfacing to Ethernet backbone. Web page based configuration utility combined with excellent level of security to provide robustness and roaming features required for personal, SOHO and enterprise solution. It is a key component for building up a wireless network that connects the wired networks.

### 1.2 Special Features Highlights:

- High-Speed wireless connection up to 22 Mbps
- WEP Encryption function ,up to 256 Bits
- Power Saving operation mode
- DHCP Server (Option)
- DHCP Client
- Three types of operating mode available: Access Point, AP Client and Bridge (Point-to-Point, Point-to-Multi-point)

### 1.3 Product Feature

- IEEE 802.11b Direct Sequence high data rate compatible
- Additional modulation type, Packet Binary Convolutional Code (PBCC)
- High-Speed wireless connection, up to 22Mbps Data rate
- Advanced Power Management supports power saving mode for workstations
- Auto fallback data rate in the environment of interference
- WEP Encryption function (64/128/256 Bits hardware supported)
- External two fixed dipole antennas for diversity function
- Plug-and-Play installation

### 1.4 Product Application

- Home networking for device sharing, Wireless Multimedia
- Wireless office for Ethernet range extension
- Wireless building to building data communication
- Build system in Infrastructure mode for multi-client access

## 2. PRODUCT GENERAL

## 2.1. General Specifications

Standards:	IEEE802.11b Compliant
Data Rate:	1/2/5.5/11/22 Mbps
Security:	Wired Equivalent Privacy (WEP) 64/128/256 Bits
Dimension	198 x 150 x 61.5 mm

## 2.2. LED Indicators

Symbol	Functions
Power/Status	Red for power on
Wireless	Green
Ethernet	Yellow

## 2.3. Interface

RJ-45	10-100 Base-T
Power Jack	2.5 mm

## 3. PRODUCT HARDWARE SPECIFICATIONS

### 3.1. RF Specification

#### 3.1.1 General

Emission Type	Direct Sequence Spread Spectrum (DSSS)
RF Frequency	2400MHz – 2497 MHz – Japan Band 2400MHz – 2483.5MHz – North America, Europe, Spain 2446.5MHz – 2483.5MHz – France
Operating Channel	11 Channels (US, Canada) 13 Channels (Europe, Spain) 14 Channels (Japan)
Radio Chipset:	RFMD
MAC with BBP	TI ACX100

#### 3.1.2 Transmitter

RF Output Power	16 ~ 18 dBm
Frequency Stability	Within $\pm 25$ ppm
Data modulation type	BPSK (1Mbps) / QPSK (2Mbps) / CCK (5.5/11Mbps) / PBCC (5.5/11/22 Mbps)

#### 3.1.3 Receiver

Sensitivity	22MHz PBCC	- 80 dBm (Typically @25 $\pm 5$ )
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11MHz	PBCC	- 85 dBm (Typically @25 ±5 )
11MHz	CCK	- 82 dBm (Typically @25 ±5 )

### 3.1.4 Antenna Type

Antenna Type	Dual Dipole Antenna with Diversity
Antenna Gain	2 dBi (Typically).

### 3.1.5. Power Consumption

Operation	max. 1.2 A
Standby	600mA ± 50mA

## 3.2. Hardware Specification

### 3.2.1. CPU

Processor	SAMSUNG ARM7 CPU
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### 3.2.2. Memory

SDRAM	8 MBytes
Flash	1 MBytes

### 3.2.2 Power Adapter

Power Voltage	DC 5 Volt ± 5%, AC Adapter AC 100V-240V
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## 4. PRODUCT SOFTWARE SPECIFICATION

### 4.1. General Function

- a) Standard : IEEE 802.11b, IEEE 802.3
- b) RTS/CTS Handshake
- c) Duplicate detection and recovery
- d) Wired Equivalent Privacy Algorithm (WEP) 64/128/256 Bits
- e) Distributed Coordination Function: CSMA/CA, Back of Procedure, ACK Procedure, Retransmission of unacknowledged frames
- f) Authentication Algorithm
- g) Fragment / De-fragment
- h) Preamble Long / Short
- i) Roaming Function
- j) Power Saving Management
- k) Beacon Generation
- l) Access Control
- m) HTTPD/DHCP Client
- n) Filtering function

- o) Bridge Mode for Building to Building Transmission
- p) AP Client Mode
- q) DHCP Server (Option)
- r) DHCP Client
- s) Finger print security feature (Option)

## **4.2. Configuration Function**

### **4.2.1. Interface**

- a) Web Configuration
- b) Windows Configuration Utility

## **5. REGULATION COMPLIANCE**

Compliant with

- FCC Part 15 Class B, Sec. 15.247 and 15.109
- ETS 300 328, ETS 300 826, EN60950 and CE-Mark
- Telec (Japan), VCCI (Option)

## **6. ENVIRONMENTAL REQUIREMENT**

### **6.1. Drop and Vibration**

#### **6.1.1. Anti-Static Voltage**

Static voltage tests by 4kV that should not cause system fail.

#### **6.1.2. Vibration Test**

The vibration test is under the Frequency and amplitude 10~25 1mm in vertical and horizontal direction by 30 minutes that should not cause any damage on product.

#### **6.1.3. Package Drop Test**

Dropping the package from the height of 50cm for each of the six(6) faces onto the hard-wood floor will not cause any product damage.

### **6.2. Usage Condition**

#### **6.2.1. Temperature Range**

- Operating:            -0    - +55    (Except RF output power and sensitivity)
- Storage:             -20    - +70

#### **6.2.2. Temperature Shock**

The one cycle of reliability test is keeping -30    for 2 hours, switching temperature up to +60

within one hour, and testing at +60 by 2 hours, and switching temperature to -30 within one hour. Three cycle should be tested and without any product fail.

### 6.2.3. Humidity

Operating:	0% to 70%
Storage	0% to 95% Non-condensing

## 7. INSTALLATION AND CONFIGURATION

### 7.1 Access Point Utility Installation and Configuration

#### 7.1.1 Utility Installation

1. Start the computer
2. Insert the CD into CD-ROM
3. Windows will automatically start Installshield Wizard or run “E:\22M.exe” and show the following UI.



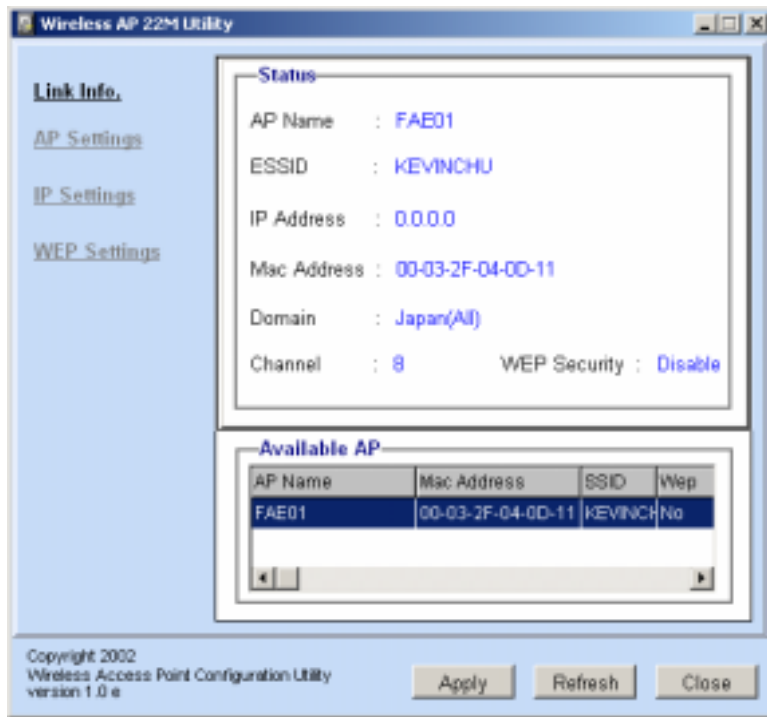
4. Select “Access Point”
5. Click “Install “ button.
6. Click “Next” button.
7. Click “Finish” button to restart computer.

#### 7.1.2 Utility Configuration

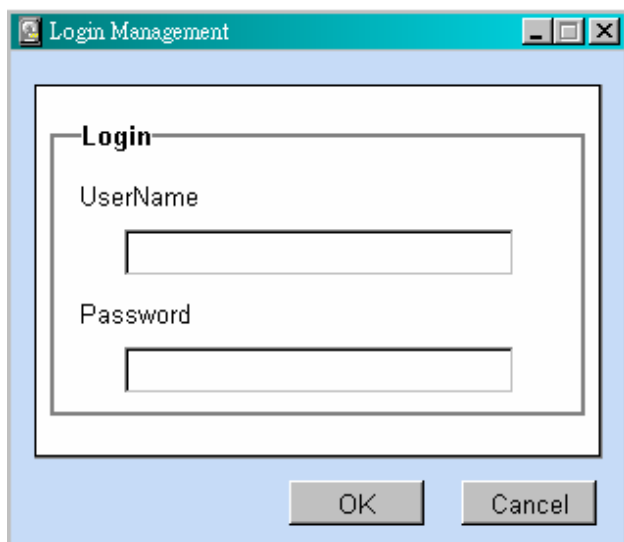
Please execute the 22M AP Utility.



**Link Information:** The user interface of “Link Information” would show the available AP (s). Please choose one AP and click “Apply”.



The user interface of “Login management” would be posted for user name and password setting. Please set by “admin” as default on both.



## AP Settings

The UI of “AP setting” would be shown and set ESSID, Channel and AP Name. And set the AP mode as requirement.

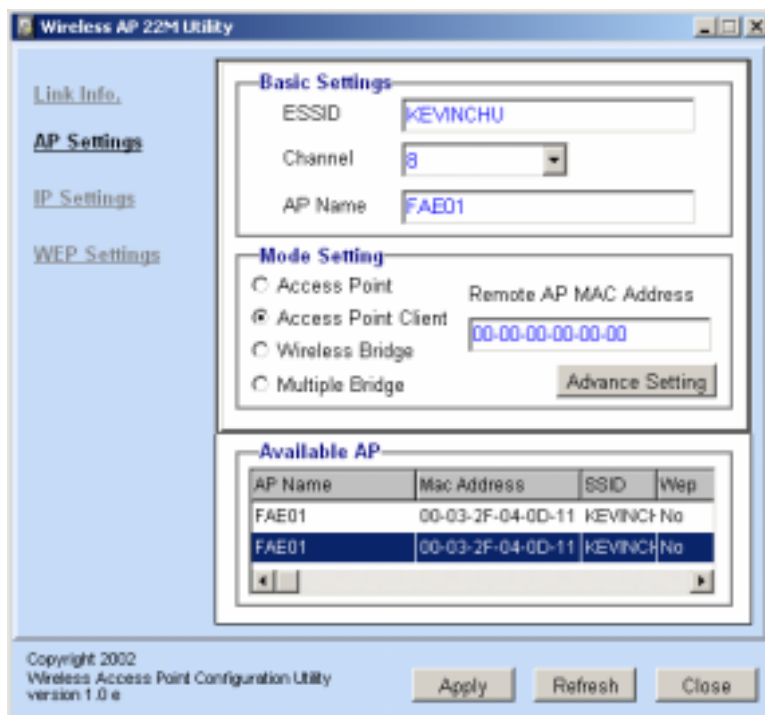
Access Point:

Access Point Client:

Wireless Bridge:

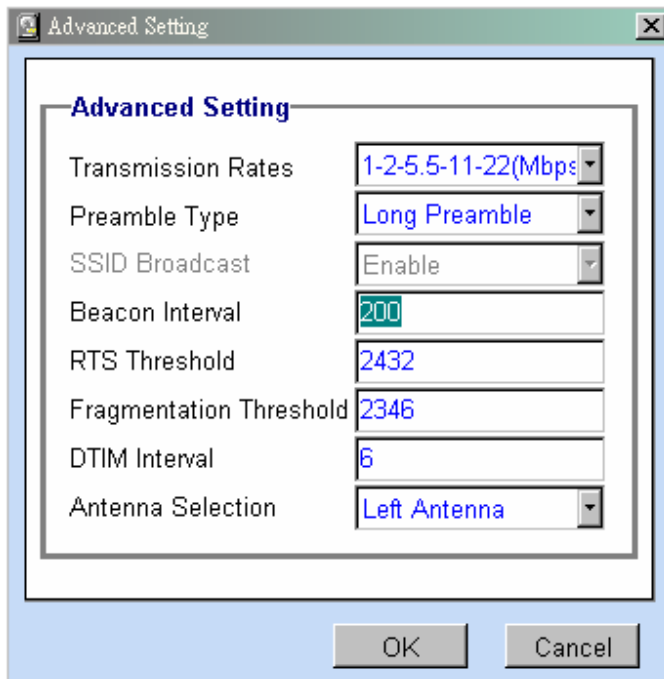
Multiple Bridges:

Furthermore, please click Advanced Setting for detail setting.



## Advanced Setting

Please refer the following items for setting.



**Transmission Rates** – You may select 1. 1-2Mbps. 2. 1-2-5.5-11Mbps. 3. 1-2-5.5-11-22Mbps.

**Preamble Type** -- There is the “Long” or “Short” selection to ensure that systems receiving the information correctly interpret when the data transmission starts. To select “Short” Preamble may be used to minimize overhead and “Long” to maximize the network data throughput. The default value will be set for “Long”.

**Beacon Interval** – By default, it is set to 100ms.

**RTS Threshold** – By default, it is set to 2432. The value should remain on its default setting 2432 bytes. If you encounter any data flow, only minor modifications are recommended.

**Fragmentation Threshold** – By default, it is set to 2346. The value indicates how much of the network resources devoted to recovering packet errors. The value should remain at its default setting of 2432 bytes. If you have decreased this value and experience high packet error rates, you can increase it again, but will likely decrease overall network performance.

**DTIM Interval** – shows the client how often the beacon contains a delivery traffic indication message. Input range is from 1 to 65535. By default, it is set to 3.

**Antenna Selection** – Choices are 1.Left Antenna 2. Right Antenna 3. Diversity Antenna. By default, it is set to Auto Select.

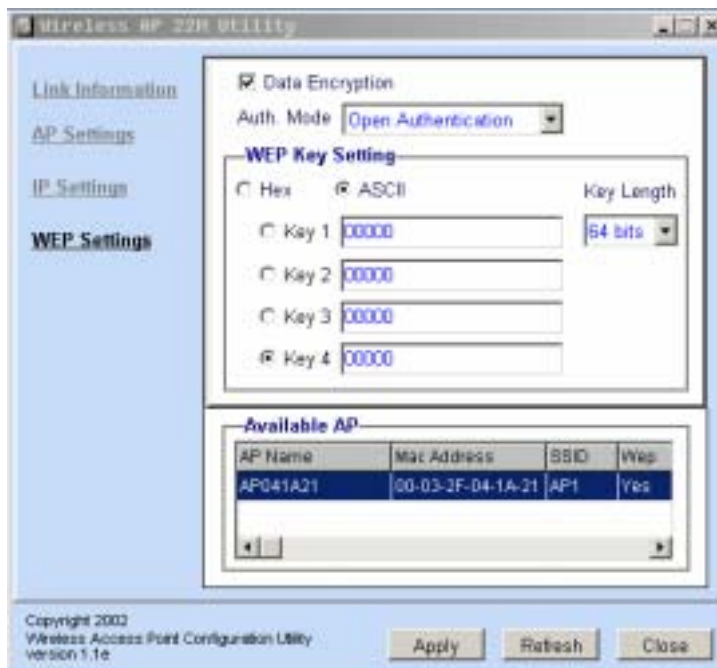
## IP Setting

You can choose the DHCP Client or Fix IP Address depend on the server configuration. And apply for setting change.



## WEP Settings

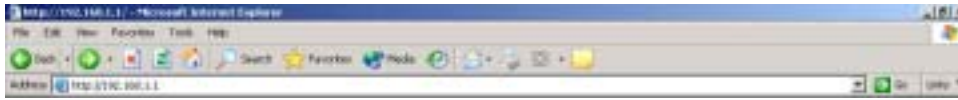
This provides you to set up Wired Equivalent Privacy (WEP) encryption for your wired network. And Apply for setting change.



## 7.2. Access Point Web Configuration

### 7.2.1 Web Configuration

1.The GL2422AP-0T can be configured by web browser. Execute the web browser and type <http://192.168.1.1> on the address bar.



2.It would require “User name” and “ Password” for connection. Please type “admin” on both for authorization.



## Status

The Status would show current setting.

**22 Mbps >>** Access Point

Status | Basic Setting | IP Setting | Advanced Setting | Security | 802.1x | Tools

**Status**

Firmware Version 02.00.07

**LAN** MAC:00-09-2F-04-00-11

IP Address: 192.168.98.149

Subnet Mask: 255.255.255.0

Gateway: 192.168.98.1

Send: 568

Receive: 2782

**Wireless** MAC:00-06-25-53-00-03

EBSSID: FAE

Encryption Function : Disable

Channel: 1

Send: 2374

Receive: 62

[View Log](#)

Connection Time	Wireless Station
Thu, 01 May 2002 16:35:55	00:03:2F:03:D7:A0
Thu, 01 May 2002 17:02:00	00:03:2F:03:07:BB

Click **View Log**, the log status can be viewed on the list.

**22 Mbps >>** Access Point

First Page | Last Page | Previous Page | Next Page | [Clear Log](#) | Refresh

**View Log**

Time	Message
1 sec	DHCP Discover
1 sec	System state 4
1 sec	DHCP Request 192.168.98.149
1 sec	DHCP Request success 192.168.98.149

## Basic Setting

Click **Basic Setting**, the AP Name, SSID, Channel, WEP Key can be set on the page. And click “Apply” to store setting.



The screenshot shows the 'Basic Setting' page of a 22 Mbps Access Point configuration utility. The page has a blue header with the text '22 Mbps >' and 'Access Point'. Below the header is a navigation bar with tabs: 'Status', 'Basic Setting' (highlighted), 'IP Setting', 'Advanced Setting', 'Security', and 'Tools'. The main content area is titled 'Basic Setting' and contains the following fields and options:

- AP Name:
- SSID:
- Channel:  (Domain: )
- WEP Key:  Disable  64bits  128bits  256bits
- Mode:  HEX
- Four radio buttons labeled 1, 2, 3, and 4, each followed by an  field.
- Buttons: Apply, Cancel, Help

## IP Setting

Click **IP Setting**, the “Obtain IP Automatically” or “Fixed IP” can be set that depends on the server configuration. DHCP Server can be issued “on” while LAN IP is set by “Fixed IP”. Then click “Apply” to store setting.



The screenshot shows the 'IP Setting' page of the 22 Mbps Access Point configuration utility. The page has a blue header with the text '22 Mbps >' and 'Access Point'. Below the header is a navigation bar with tabs: 'Status', 'Basic Setting', 'IP Setting' (highlighted), 'Advanced Setting', 'Security', and 'Tools'. The main content area is titled 'IP Setting' and contains the following fields and options:

- LAN IP:  Obtain IP Automatically
- Fixed IP
- Address:  .  .  .
- Subnet Mask:  .  .  .
- Gateway:  .  .  .
- DHCP Server:  On
- Off
- IP Range:  .  .  .  to  .  .  .
- DNS Server:  .  .  .
- Buttons: Apply, Cancel, Help

## Advanced Setting

Advanced Setting as following items:-

The screenshot displays the 'Advanced Setting' interface for an 'Access Point'. The page title is '22 Mbps >> Access Point'. The navigation menu includes 'Status', 'Basic Setting', 'IP Setting', 'Advanced Setting' (highlighted), 'Security', '802.1x', and 'Tools'. The 'AP Mode' is set to 'AP'. There are three radio button options: 'AP Client' (with a 'Remote AP BSS ID' field containing '000000000000'), 'Wireless Bridge' (with a 'Remote Bridge MAC' field), and 'Multiple Bridge'. Below these are four input fields: 'Beacon Interval' (100, range: 1~1000, default: 100), 'RTS Threshold' (2432, range: 256~2432, default: 2432), 'Fragmentation Threshold' (2346, range: 256~2346, default: 2346, even number only), and 'DTIM Interval' (3, range: 1~65535, default: 3). The 'Authentication Type' is set to 'Both' (radio buttons for 'Open System', 'Shared Key', and 'Both'). The 'Preamble' is set to 'Long Preamble' (radio buttons for 'Short Preamble' and 'Long Preamble'). The 'Basic Rate' is set to '1-2-5.5-11-22(Mbps)' (radio buttons for '1-2(Mbps)', '1-2-5.5-11(Mbps)', and '1-2-5.11-22(Mbps)'). The 'Supported Rate' is also set to '1-2-5.5-11-22(Mbps)'. The 'Antenna Selection' is set to 'Left Antenna' (radio buttons for 'Left Antenna', 'Right Antenna', and 'Diversity Antenna'). At the bottom are 'Apply', 'Cancel', and 'Help' buttons.

**Transmission Rates** – You may select 1. 1-2mbps. 2. 1-2-5.5-11mbps. 3. 1-2-5.5-11-22mbps.

**Preamble Type** -- There is the “Long” or “Short” selection to ensure that systems receiving the information correctly interpret when the data transmission starts. To select “Short” Preamble may be used to minimize overhead and “Long” to maximize the network data throughput. The default value will be set for “Long”.

**Beacon Interval** – By default, it is set to 100mps.

**RTS Threshold** – By default, it is set to 2432. The value should remain on its default setting 2432 bytes. If you encounter any data flow, only minor modifications are recommended.

**Fragmentation Threshold** – By default, it is set to 2346. The value indicates how much of the network resources devoted to recovering packet errors. The value should remain at its default setting of 2432 bytes. If you have decreased this value and experience high packet error rates, you can increase it again, but will likely decrease overall network performance.

**DTIM Interval** – shows the client how often the beacon contains a delivery traffic indication message. Input range is from 1 to 65535. By default, it is set to 3.

**Antenna Selection** – Choices are 1.Left Antenna 2. Right Antenna 3. Diversity Antenna. By default, it is set to Auto Select.

## Security

Click **Security**, in order to do security management.



The screenshot shows the 'Security' configuration page of an 'Access Point' web interface. The page has a blue header with '22 Mbps' and 'Access Point' text. A navigation bar includes 'Status', 'Basic Setting', 'IP Setting', 'Advanced Setting', 'Security' (highlighted), '802.1x', and 'Tools'. A left sidebar contains the word 'Security'. The main content area is divided into sections: 'Password' with 'AP Password New' and 'Confirm' fields (both masked with asterisks) and 'Apply', 'Cancel', and 'Help' buttons; 'MAC Filter' with radio buttons for 'Enabled' and 'Disabled' (the latter is selected), and two options: 'Only deny PCs with MAC listed below to access device' and 'Only allow PCs with MAC listed below to access device'; a dropdown menu showing '1-10'; and ten rows of MAC address input fields labeled 'MAC1' through 'MAC10', each with six input boxes separated by dashes. At the bottom are 'Apply', 'Cancel', and 'Help' buttons.

**Note:** 802.1x has not been released for setting.

## Tools

The Tools, provide the backup function of personal setting onto “config.bin” file. And browse the stored configuration to do “Restore”.

Restore to default settings: Reset to Default.

Firmware Upgrade: Update new firmware.



This concludes the user guide for GL2422AP-0T.

