



# **LevelOne**

## **WAP-0007**

### **11g Wireless AP Storage**

# **User`s Manual**

Ver1.00-0512

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## FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against radio interference in a commercial environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

## CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022/A1 Class B.



**Note. The content of user manual is subject to change without notice.**

# Table of Contents

Chapter 1: Introduction.....	5
1.1 Overview.....	5
1.2 Features .....	6
1.3 System Requirements .....	7
1.4 Package List.....	8
1.5 Hardware Ports and Buttons .....	9
1.6 LED Indicators .....	10
Chapter 2: Getting Started .....	11
2.1 Hard Disk installation.....	11
2.2 Making Connections.....	14
2.2.1 Check TCP/IP Settings .....	14
2.2.2 Wireless Connection:.....	23
2.3 File sharing.....	25
2.3.1 Accessing the network hard drive via my network places ..	25
2.3.2 Searching the computers.....	26
2.3.3 Search the “Entire Network” Manually .....	26
2.3.4 Accessing files via FTP.....	27
Chapter 3: Making Configuration .....	28
3.1 Wizard .....	30
3.2 Network Settings .....	39
3.2.1 DHCP Setting.....	39
3.2.2 Wireless Setting.....	41
Chapter 4: Disk Management .....	57
4.1 Disk Utility.....	57

Chapter 5: ADVANCED FUNCTIONS ..... 60

    5.1 Config Backup ..... 60

    5.2 Reset to Default..... 60

    5.3 Reboot ..... 60

    5.4 F/W Upgrade ..... 60

Chapter 6: MISC ..... 61

    6.1 Administrator Timeout..... 61

    6.2 Change Password ..... 62

    6.3 System Time..... 63

Chapter 7: Trouble Shootings ..... 64

    What can I do when I have some trouble in the first time? ..... 64

    How to setup wireless function?..... 65

    Problems of security level ..... 77

GNU GENERAL PUBLIC LICENSE ..... 82

# Chapter 1: Introduction

Congratulations on your purchase of this outstanding LevelOne WAP-0007, 11g AP Storage device. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing, and is easy to configure and operate even for non-technical users. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for fully exploring the functions of this product.

## 1.1 Overview

The WAP-0007 is an ultra slim design and compact size of Portable Wireless AP Storage. It is an ideal device for travelers and home users who need to back up and share files more efficiently and easily anytime and anywhere. Additionally, Network storage and fully compliant IEEE 802.11g WLAN device functions let you share files easily.

The WAP-0007 offers WLAN mobility for home user and business people to maintain continuous network connectivity. Home users can stay connected to the network anywhere through a building without being limited by LAN cables via WAP-0007's AP functionality. This device also has the additional advantage of providing network storage with its 2.5-inch hard disk drive which allows you to share information and storage capacity via wireless or wired

network. The WAP-0007 supports the UPnP content directories and users can share the music and video files easily. Besides, the click-and-copying of files from a flash drive to the WAP-0007 hard disk make the user backup files efficiently.

## **1.2 Features**

### **Basic functions**

- Ultra DMA 133 IDE controller to adapt for 2.5-inch hard disk drive.
- Network File Storage and File Sharing via the Network Neighborhood (or My Network Places) in Windows or Samba in Linux.
- Support FAT, FAT32, Ext2 files system and can read NTFS file system. (Only can copy files from NTFS folder to another FAT, FAT32, or Ext2 folder.)
- Built-in FTP server.
- Support Security level as guest or Authorization user for file sharing.
- UPnP (Universal Plug and Play) feature for Windows XP and Windows Me.
- Real time clock to synchronize the computer time setting.
- Easy to upgrade: using Web or Windows Application to upgrade new version of firmware.
- Browser-based interface configuration and management: OS independent, easy-to-use for consumer installation.

## **USB device**

- Built-in USB2.0 host to connect to USB mass storage device, like USB flash drive, USB Hard Drive, etc...
- Easy to button: Offer the Button to Copy folders and files form USB device to HDD.

## **Wireless functions**

- Up to 54Mbps data rate by incorporating Orthogonal Frequency Division Multiplexing (OFDM).
- IEEE 802.11b compatible (11Mbps): Allowing inter-operation among multiple vendors.
- IEEE 802.11g compatible (54Mbps): Allowing inter-operation among multiple vendors.
- Wireless data rate supported: 6/12/18/24/36/48/54 Mbps in 802.11g mode; 1/2/5.5/11Mbps in 802.11b mode.
- 64/128-bit WEP encryption.
- Support 802.1X authentication.
- Support WPA with TKIP and AES encryption.
- Support AP and WDS wireless modes.

## **1.3 System Requirements**

To start to use the WAP-0007, your system must have the following minimum requirements:

- Windows 95 / 98 / ME / 2000 / XP.

- An Ethernet (10BaseT or 10/100 BaseT) adapter for wired client.
- At least one WLAN client adapter of 802.11g(54Mbps) or 802.11b(11Mbps) for wireless connection.
- TCP/IP and NetBIOS network protocol installed.
- Internet Browser installed.

The WAP-0007 requires an external power supply which is included in the WAP-0007 package. For safe operation, please use **only** the power adapter provided by WAP-0007.

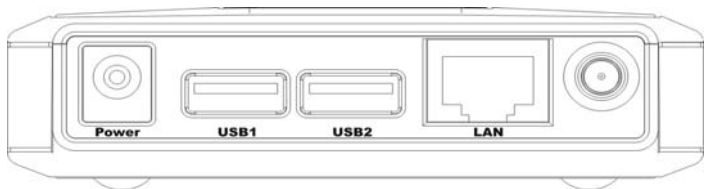
## **1.4 Package List**

The WAP-0007 package contains the following items:

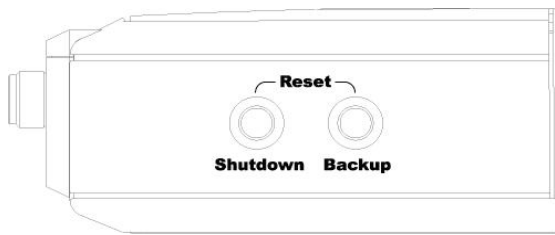
- WAP-0007 x 1
- 2.4GHz dipole antenna x 1
- Power Adapter (5 Volts DC, 3A) x 1
- RJ-45 Ethernet cable
- Quick guide
- CD(utilities and user manual) x 1



# 1.5 Hardware Ports and Buttons

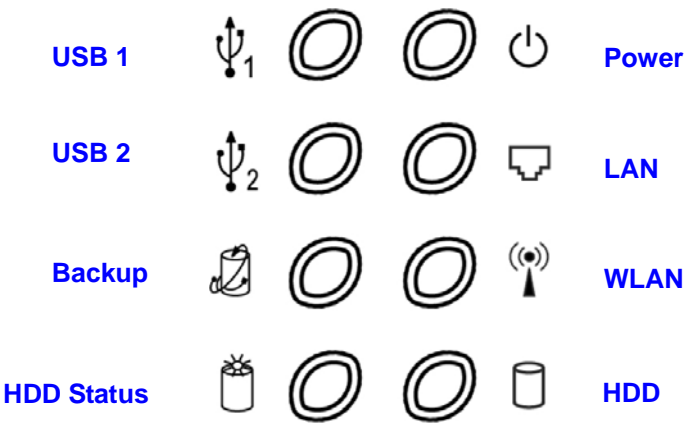


Ports	Description
Power	5V/3A Power inlet
USB1 / USB2	The ports where you can connect to any USB storage.
LAN	Automatically MDI/MDIX LAN port can sense the cable type when connecting to Ethernet-enabled computer, network of hub, switch or router



Buttons	Description
Shutdown	Press the button for 4 seconds to shut down the whole system before power-off.
Backup	Press the button over 4 seconds to copy data from USB device to HDD.
Reset	Press the buttons of “Shutdown” and “Backup” simultaneously over 6 seconds to reset the system to the factory default setting.

# 1.6 LED Indicators



LED	Off	On	Blinking
PWR	Power off	Power on	
LAN	No device	Linked	In use
WLAN	No packet	On Transmitting	
HDD	Not in use	HDD read/write	
USB1 / USB2	No device	USB drive ready	
Backup			Backup files from USB to HDD
HDD Status	No HDD	HDD full or error	More blinking quickly, fewer available HDD capacity.

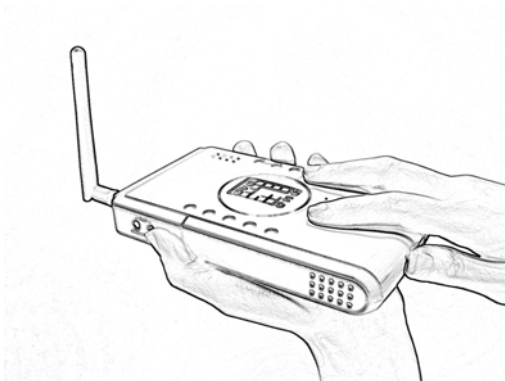
# Chapter 2: Getting Started

## 2.1 Hard Disk installation

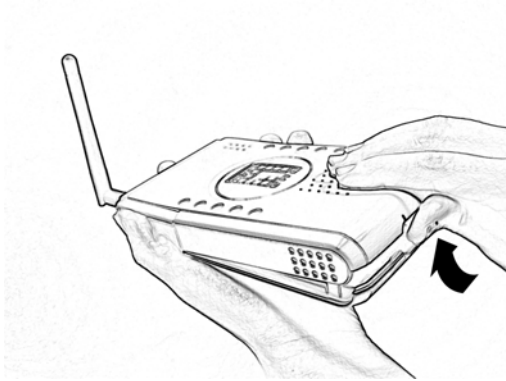
Follow the steps below to insert the 2.5-inch hard disk and assemble the device before using the WAP-0007.

**Warning:** The WAP-0007 is not hot-swappable. Please make sure that it is turned off and not connected to the power outlet when performing the following assembly procedure.

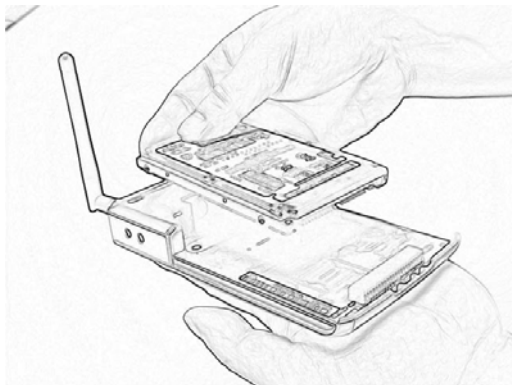
**Step 1:** Use one hand to hold on the WAP-0007, and the other hand to open the upper cover carefully.



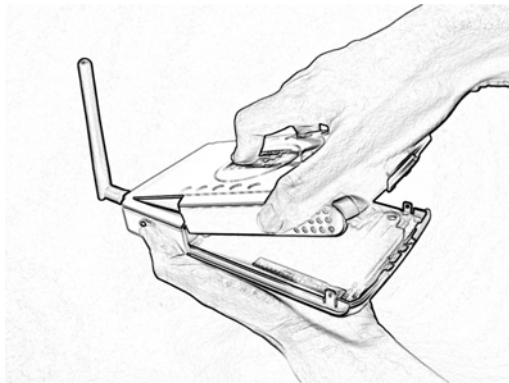
**Step 2:** Remove the upper cover



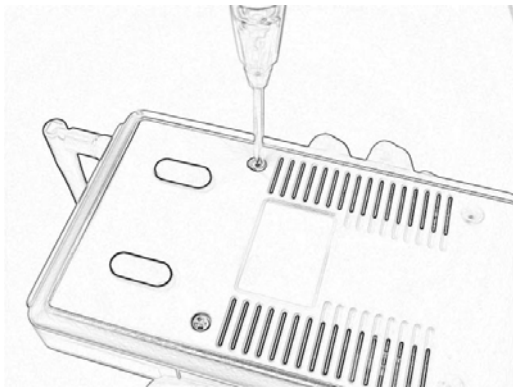
**Step 3:** Insert the 2.5-inch hard drive into the slot. **Make sure the hard drive connecting pins and the connectors are properly aligned.**



**Step 4:** Put the upper cover back and assemble the cover tightly.



**Step 5:** Fasten the screw to make sure the hard drive would not loosen.



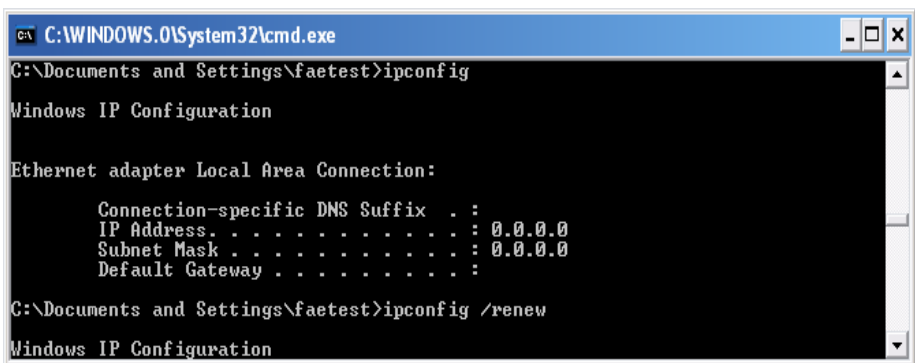
## 2.2 Making Connections

In order to access the WAP-0007 as the network storage drive or as an AP, you may need to configure the TCP/IP settings correctly. Either the “Wired Ethernet settings” or “Wireless Connection” can be used to connect the WAP-0007 easily.

### 2.2.1 Check TCP/IP Settings

WAP-0007 will detect automatically if the DHCP server is existed, it will get a IP address form DHCP server. If there is no DHCP server, WAP-0007 will assign a random IP to client and you can get some information as below shown.

First, go to the command mode and key “ipconfig”. If the IP address and subnet is 0.0.0.0, please key “ipconfig /renew” as follows:



```
C:\WINDOWS.0\System32\cmd.exe
C:\Documents and Settings\faetest>ipconfig

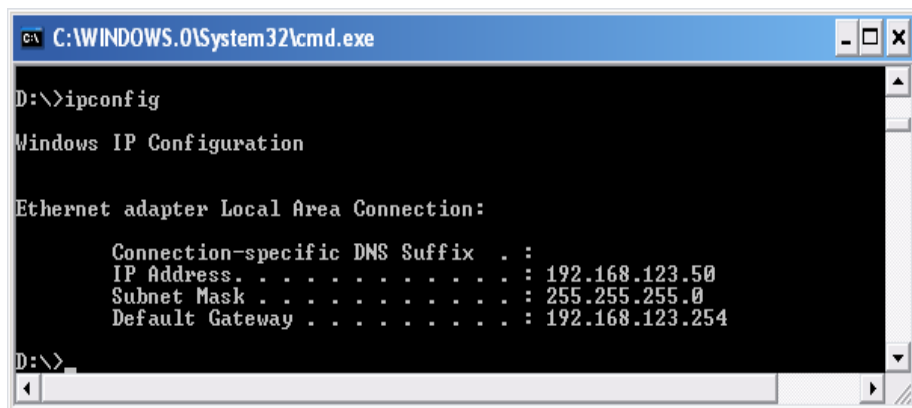
Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 0.0.0.0
    Subnet Mask . . . . .             : 0.0.0.0
    Default Gateway . . . . .         : 

C:\Documents and Settings\faetest>ipconfig /renew

Windows IP Configuration
```



```
C:\WINDOWS.0\System32\cmd.exe

D:\>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 192.168.123.50
    Subnet Mask . . . . .             : 255.255.255.0
    Default Gateway . . . . .          : 192.168.123.254

D:\>
```

### Method 1: Use Configure.exe to Setup

Then, please use the configure.exe to “Query” and you will see the status page and input “admin” to start.

**Configure**

192.168.123.254

### Status

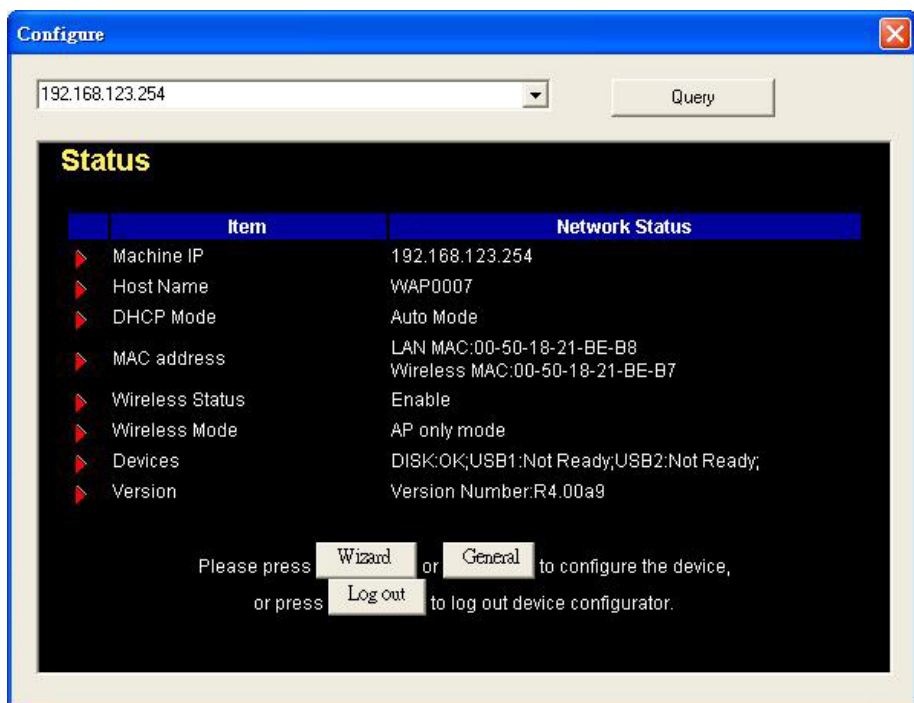
Item	Network Status
Machine IP	192.168.123.254
Host Name	WAP0007
DHCP Mode	Auto Mode
MAC address	LAN MAC:00-50-18-21-BE-B8 Wireless MAC:00-50-18-21-BE-B7
Wireless Status	Enable
Wireless Mode	AP only mode
Devices	DISK:OK;USB1:Not Ready;USB2:Not Ready;
Version	Version Number:R4.00a9

You don't have administrative rights or you have been idle too long, so you are not allowed to browse this page, or activate this function. Please log in as administrator and try again!

System Password  (default: **admin**)

If there is a DHCP server in the network, WAP-0007 will be as the client and get one IP address form DHCP server. Please use utility “configure” to Query to start. For example, the network subnet is 192.168.122.x and WAP-0007 will get a 192.168.122.171 form the DHCP server.



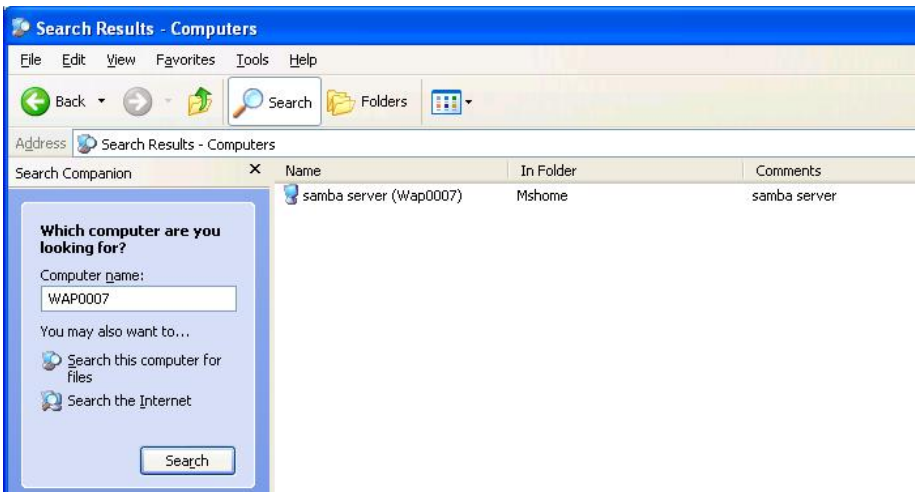


## Method 2: Use “My Network Places” to Search and Setup

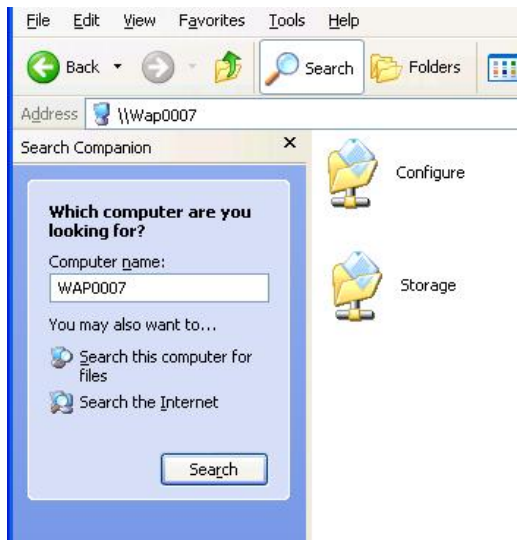
First, go to **My Network Places** and search “Computer name”.



Input “WAP0007” and start to search and you will find one device.



Click “samba server” and you will see two folders. Then click the folder “Configure”.

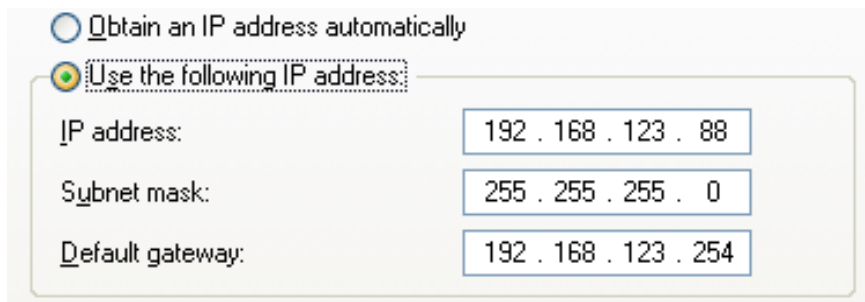


Please click “Configure.html” directly to see configuration page.



In addition, the user can allocate the IP by himself as below:

**Step 1:** Find the **Internet Protocol (TCP/IP) Properties** from the **My Network Places** and check the **Properties of Local Area Network Connection**. And click the **“General”** icon and assign one **IP address** which can be from 192.168.123.1 to 192.168.123.253. Here we use the 192.168.123.88 as the IP address. The **Subnet mask** must be 255.255.255.0, and the **Default gateway** must be 192.168.123.254. Then click **“OK”** button to complete TCP/IP setup.

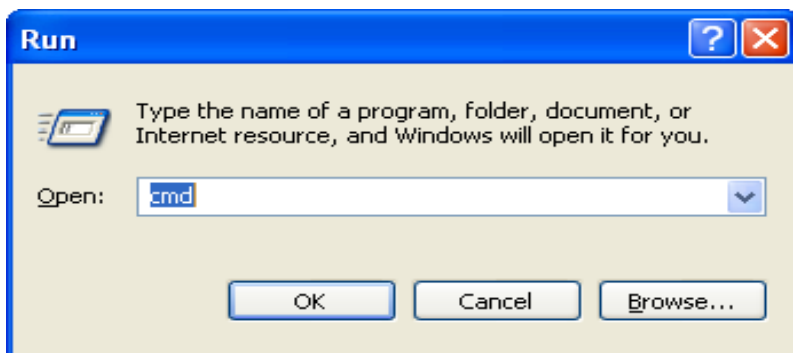


☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address:	192 . 168 . 123 . 88
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 123 . 254

**Step2:** Open the DOS command from the **Start Menu->Run**, and type **“cmd”** then click **OK**.



**Step 3:** Type the “ipconfig” and press the “Enter”. Then the following message should be found. Check the IP address, Subnet Mask, and Default Gateway addresses are same as previous setting. If same, you are successful to set up the network configuration.

```
C:\Documents and Settings\plm>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

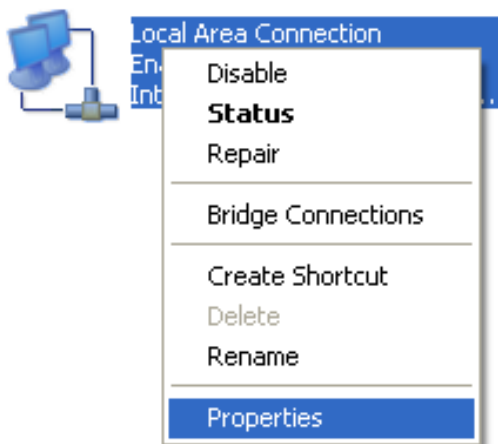
    Connection-specific DNS Suffix . : 
    IP Address. . . . . : 192.168.123.88
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.123.254
```

**To install the “Client for Microsoft Networks”, “File and Printer Sharing for Microsoft Networks”, and “Internet Protocol (TCP/IP)” as follows:**

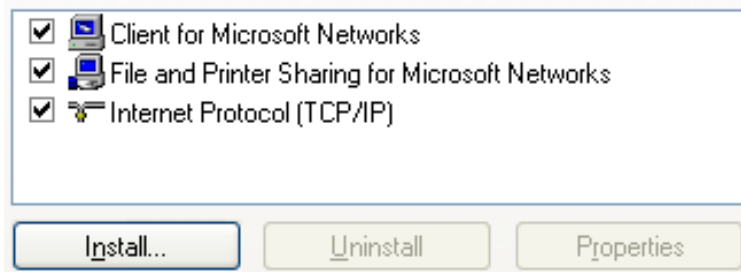
**Step 1:** Select the “My Network Places” on the Desktop Menu, and click the right button of mouse to choose the “Properties”



**Step 2:** Choose the “**Properties**” of **Local Area Connection**.



**Step 3:** Check the “**Client for Microsoft Networks**”, “**File and Printer Sharing for Microsoft Networks**”, and “**Internet Protocol (TCP/IP)**” are installed or not. If not, please install those communication protocols.



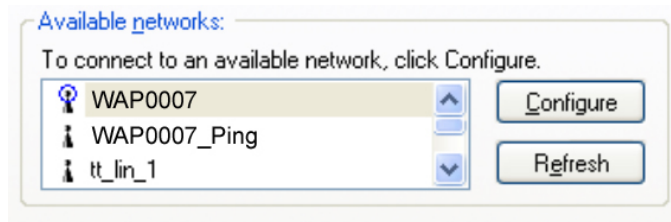
About other operating systems, such as Linux X-window or Mac OS. Please use Browser to configure.

### 2.2.2 Wireless Connection:

Follow the steps below to connect the WAP-0007 in a wireless environment.

**Step 1:** Enabling the WLAN card first, and check the **Wireless Network Connection** properties from **My Network Places**.

**Step 2:** Select the **Wireless Networks** icon after entering the “**Wireless Network Connection Properties**”. You will find the **WAP-0007** in the **Available networks**, then select the WAP-0007, and click **Configure** to connect.



After clicking the “Configure” icon, the **Network name (SSID)** is supposed to be **WAP0007**.

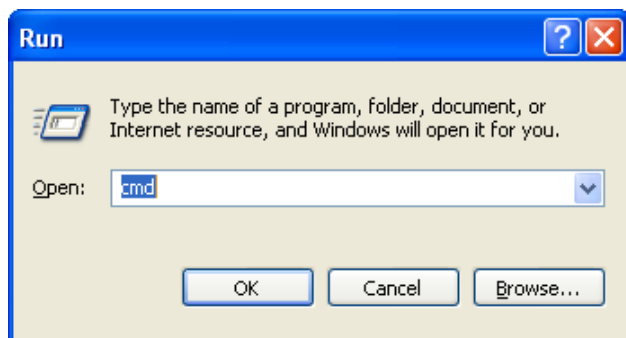
Network name (SSID): WAP-0007

Wireless network key (WEP)

This network requires a key for the following:

- ☐ Data encryption (WEP enabled)
- ☐ Network Authentication (Shared mode)

**Step 3:** Open the DOS command from the **Start Menu->Run**. Type “cmd” in the **Open** folder, then click **OK** to enter the DOS environment.



**Step 4:** type the “**ipconfig**” and press the “**Enter**” in the DOS environment. Then the following message should be found.

```
Ethernet adapter Wireless Network Connection:

    Connection-specific DNS Suffix . : 
    IP Address. . . . . : 192.168.123.50
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.123.254
```

Check the **IP address**, **Subnet Mask**, and **Default Gateway** address are



same as previous settings. If same, you are successful to set up the network configuration.

**WARNING:**

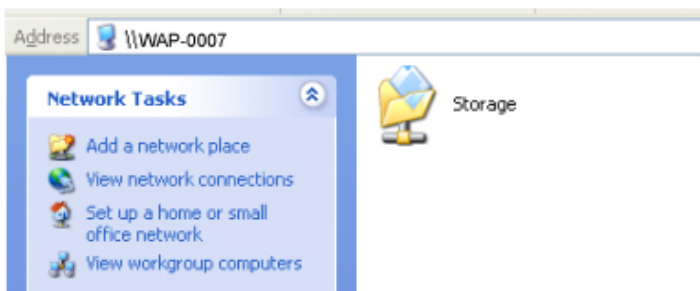
*We strongly recommended that you enable wireless encryption feature or add ACL rules on WAP-0007. Otherwise, everyone can connect to it wirelessly and access data in your hard drive.*

## **2.3 File sharing**

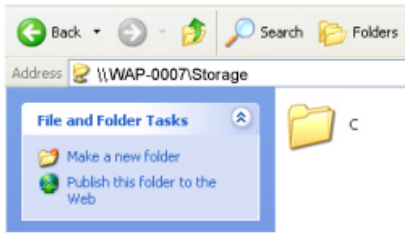
The WAP-0007 can be a shared network hard drive in an existing wireless or wired network environment. The users in the same network area can read or write data from the device as required. The following various steps are for users to start using the network hard drive.

### **2.3.1 Accessing the network hard drive via my network places**

Select the “**My Network Places**” and type the address of “**\\WAP-0007**” and press “**Enter**”, then you will find the **Storage** icon.

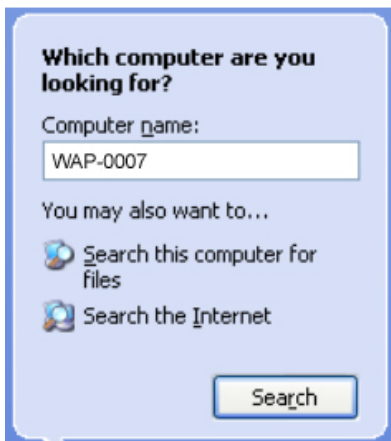


Click the “**Storage**” icon, and will find the **C folder** as below. This means you are successfully connected to the WAP-0007 storage function.



### 2.3.2 Searching the computers

Open “**My Computer**” on the desktop menu, and use the “**Search**” function to search the computer of “**WAP-0007**” as below:



### 2.3.3 Search the “Entire Network” Manually

Open **Windows Explorer**, and then click the **My Network Places** icon.

Double click the **Entire Network** to view the components of the network.

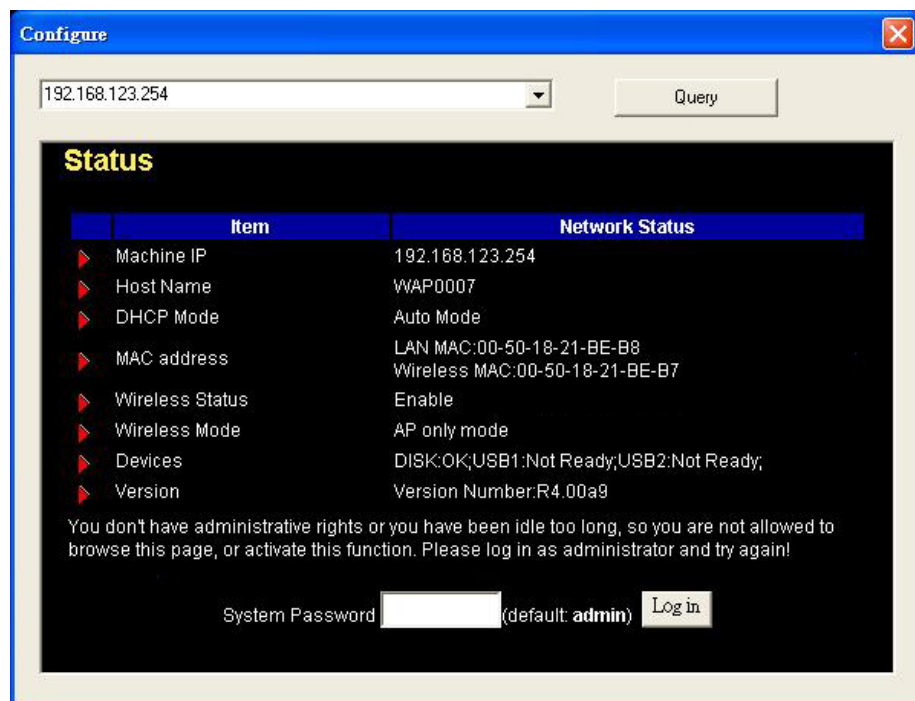
Select and click the Microsoft Windows Network icon, then the various network components showed in the list.

### 2.3.4 Accessing Files via FTP

WAP-0007 offers FTP service for the clients who don't support Microsoft Windows File sharing. You can use any FTP client utility to connect to WAP-0007 with anonymous username and password (username: ftp, and without password) when the permission setting is set to "Guest Only". But if you change to "Authorization users" mode, the accessing permission is limited, and then users have to input specified username/password to access any permitted folders.

## Chapter 3: Making Configuration

The WAP-0007 can be configured various settings through the Configuration Tool. Even you don't know which IP is being used by WAP-0007, the Configuration Tool will help you to find it. All you have to do is click the “Query” button of the Configuration Tool.

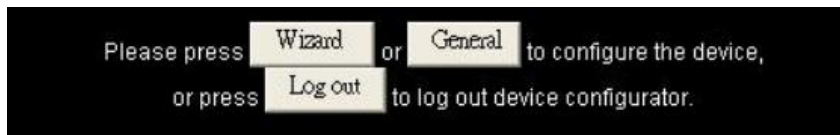


When you enter the configuration mode, you are requested to provide the

**“System Password”** to activate the configurations. The default authorization password is **“admin”**.

A screenshot of a login form with a light yellow background. It features the text "System Password" followed by a white rectangular input field. To the right of the input field is the text "(default: admin)". Further right is a grey button with the text "Log in" in white.

After login, you could see these buttons:



Press “Wizard” if you want to do basic settings with simpler way. (Please check chapter 3.1)

Press “General” if you want to make some advanced settings. (Please check each item from chapter 3.2)

Press “Log out” if you don’t want to do anything.

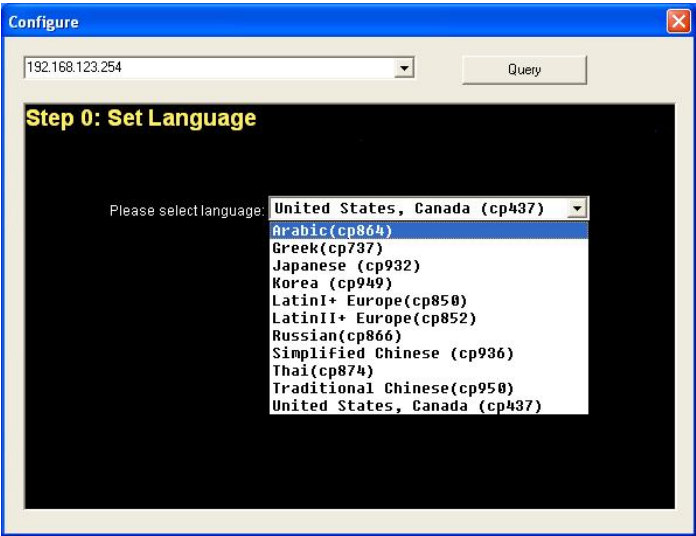
## 3.1 Wizard

With wizard setting steps, you could configure WAP-0007 in a very simple way. Select your preferred language in this page. There are three languages available, which are English, German, and Chinese.

Press button Next to start configuration.



**Step 0: Select Language**



**Step 1:** You have to choose the DHCP option, default setting is Auto.



If you use Server/Auto/Static mode, you need to set some TCP/IP settings for

WAP-0007. If you are not sure these values, ask your MIS or ISP.

Configure

192.168.123.254

Query

IP Settings

	Item	Input
1.	Machine IP:	192.168.123.254
2.	Subnet Mask:	255.255.255.0
3.	Primary DNS:	0.0.0.0
4.	Secondary DNS:	0.0.0.0
5.	Gateway:	0.0.0.0

Previous

Next

**Step 2:** You have to choose the Wireless mode, default setting is AP Only Mode.

192.168.123.254

Query

Step 2: Setup Wireless

Option	Mode	Description
<input checked="" type="radio"/>	AP Only Mode	Device will become a wireless Access Point
<input type="radio"/>	Wireless Client Mode	Device will become a wireless client

Previous

Next

If you choose to use AP Only Mode, in next page, you could specify the SSID and the wireless channel number for WAP-0007.



The screenshot shows a 'Configure' window with a title bar. At the top, there is a text field containing '192.168.123.254' and a 'Query' button. Below this, the main content area is titled 'Wireless AP Setting'. It contains a table with two columns: 'Item' and 'Input'. The first row shows '1' under 'Item' and 'WAP-0007' under 'Input'. The second row shows '2' under 'Item' and a dropdown menu with '1' selected under 'Input'. At the bottom of the table, there are two buttons: 'Previous' and 'Next'.

Item	Input
1	WAP-0007
2	1

If you select the Wireless Client Mode, in next page, you would have to specify the AP that you want WAP-0007 to connect to.

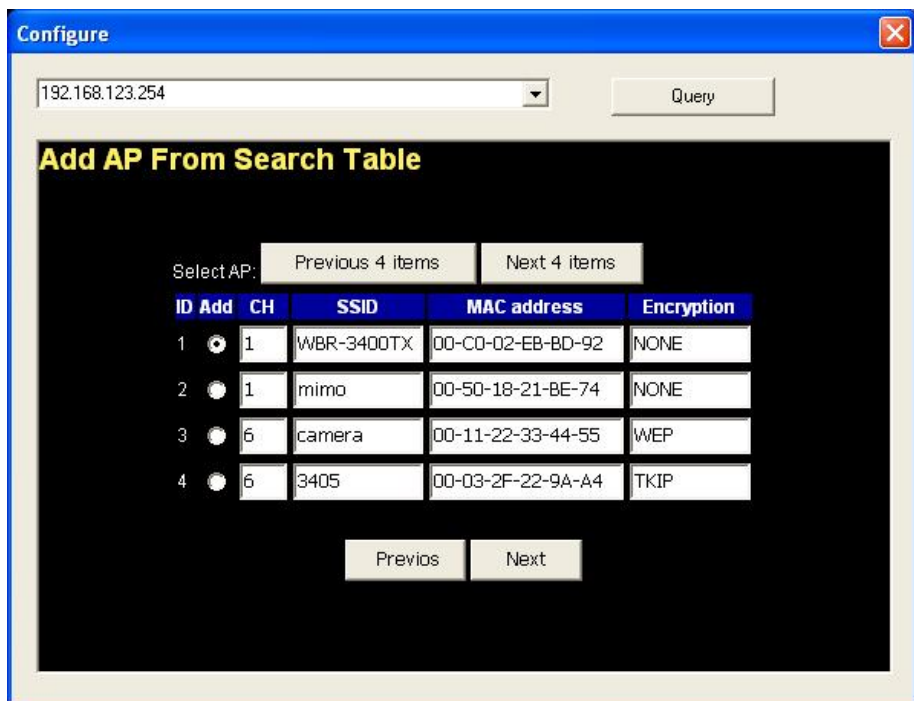
The screenshot shows a 'Configure' window with a title bar. At the top, there is a text field containing '192.168.123.254' and a 'Query' button. Below this, the main content area is titled 'Add AP'. It contains a table with three columns: 'Option', 'Method', and 'Description'. The first row shows '1' under 'Option', 'Select Searched AP' under 'Method', and 'We have Search APs in the network, you can choose one to be your AP' under 'Description'. The second row shows '2' under 'Option', 'Add AP Manually' under 'Method', and 'You can add an AP ,if you have one' under 'Description'. At the bottom of the table, there are two buttons: 'Previous' and 'Next'.

Option	Method	Description
1	Select Searched AP	We have Search APs in the network, you can choose one to be your AP
2	Add AP Manually	You can add an AP ,if you have one

You have two ways to do this job. One is searching the AP that WAP-0007 could get. (This step is for AP Client mode only)



In this page, you could select the AP you want WAP-0007 to connect with.  
(This step is for AP Client mode only)



The other way to add an AP is adding the SSID manually. (This step is for AP Client mode only)

The screenshot shows a configuration window with a title bar containing an IP address '192.168.123.254' and a 'Query' button. The main content area has a yellow header 'Add AP Manually'. Below this is a table with two columns: 'Item' and 'Input'. The table contains one row with 'Add AP Manually' in the 'Item' column and 'SSID' in the 'Input' column, followed by a text input field and the text '(Limit in 32 Char)'. At the bottom of the table are two buttons: 'Previous' and 'Next'.

Item	Input
Add AP Manually	SSID <input type="text"/> (Limit in 32 Char)

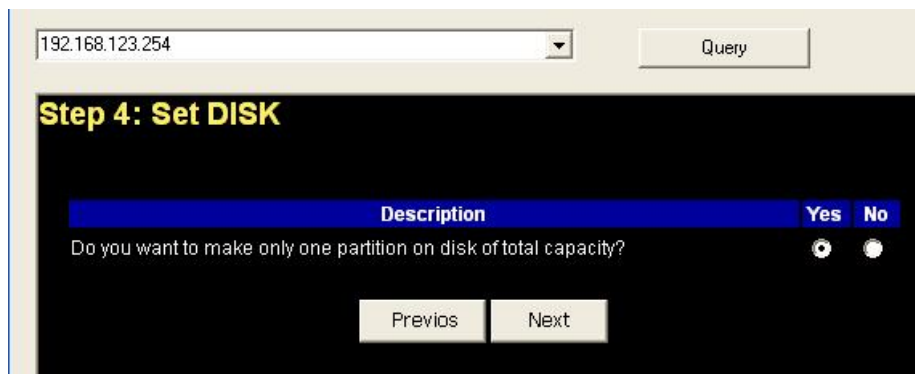
**Step 3:** You have two ways to set time for WAP-0007. You could sync time with your PC, or set time manually.

The screenshot shows a configuration window titled 'Configure'. It has a title bar with an IP address '192.168.123.254' and a 'Query' button. The main content area has a yellow header 'Step 3: Set Time'. Below this are two radio button options: 'Set Date and Time using PC's Date and Time' (which is selected) and 'Set Date and Time manually'. Under the first option, there is a text field showing 'Thursday, December 01, 2005 4:20:58 PM'. Under the second option, there are three groups of input fields: 'Date' with 'Year' (2002), 'Month' (Jan), and 'Day' (1); 'Time' with 'Hour' (0), 'Min.' (0), and 'Sec.' (0). Each of these fields has a range in parentheses below it: (0-23) for Hour, (0-59) for Min., and (0-59) for Sec. At the bottom are two buttons: 'Previous' and 'Next'.

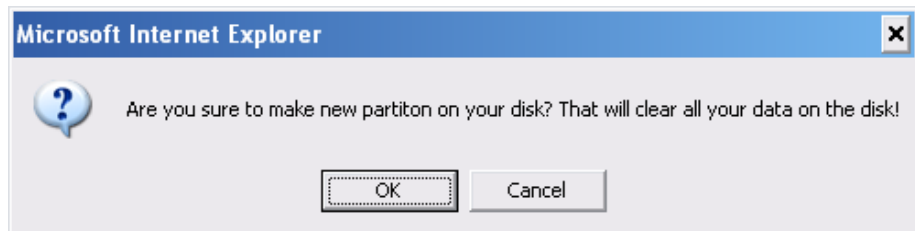
☒ Set Date and Time using PC's Date and Time  
PC Date and Time: Thursday, December 01, 2005 4:20:58 PM

☐ Set Date and Time manually  
Date Year: 2002 Month: Jan Day: 1  
Time Hour: 0 Min.: 0 Sec.: 0  
(0-23) (0-59) (0-59)

**Step 4:** If you use a whole new hard disk, please select “Yes”. If you already have data in this hard disk, you might want to select “No”. This option would format your hard disk to one partition if you select “Yes”.



To confirm your decision, WAP-0007 would ask you one more time.



**Step 5:** Check your settings again before saving. Click “Discard Settings” and you could return the first page. If you want to change any setting, please click “Previous” button. If everything is okay, click “Save Settings”.

Configure

192.168.123.254

Query

Step 5: Save Your Configuration

Steps	Name	Settings
0	Laguage	Traditional Chinese.
1	IP & DHCP	Auto mode, IP=192.168.123.254, Subnat Mask=255.255.255.0 Primary DNS=0.0.0.0, Secondary DNS=0.0.0.0, Gateway=0.0.0.0.
2	Wireless	AP only mode, SSID=WAP-0007, Channel=1.
3	Time	Set Date and Time using PC's Date and Time.
4	Disk	Do not make only one partition on disk of total capacity.

Previous

Discard Settings

Save Settings

If you need to format disk, please wait the progressing bar become 100%.

Format progressing

Please Waiting for format...0 %

After all done, system would reboot automatically. Please wait 30 seconds at least for system restarting.

**System is restarting! Wait a moment to reconnect...**

Note! Your LAN IP might change, Please reconnect.

## 3.2 Network Settings

In the configuration UI, you can always switch the displayed languages. There are three languages available, which are English, German, and Chinese

### 3.2.1 DHCP Setting

The screenshot shows a 'Configure' window with a blue title bar. At the top, there is a text field containing '192.168.123.254' and a 'Query' button. Below this, the window is divided into two main sections. On the left is a dark blue sidebar with a menu containing 'Status', 'Network Settings' (with 'DHCP' highlighted), 'Wireless', 'Disk Management', 'Advanced Tools', and 'Misc.'. A 'Log out' button is at the bottom of the sidebar. At the bottom left of the sidebar is a logo for 'level one' and the text 'WAP-0007'. The main area on the right has a yellow header 'DHCP'. It contains four numbered settings: 1. IP Setting: Machine IP (192.168.123.254); 2. Host Name: (WAP0007); 3. DHCP Mode: (Client, Server, Auto (selected), Static); 4. Server Setting: Subnet Mask (255.255.255.0), Low IP (50), High IP (199), Primary DNS (0.0.0.0), Secondary DNS (0.0.0.0), and Gateway (0.0.0.0). At the bottom of the main area are buttons for 'Save', 'Undo', 'Clients List...', and 'Fixed Mapping...'.

Following sections describe the various DHCP settings.

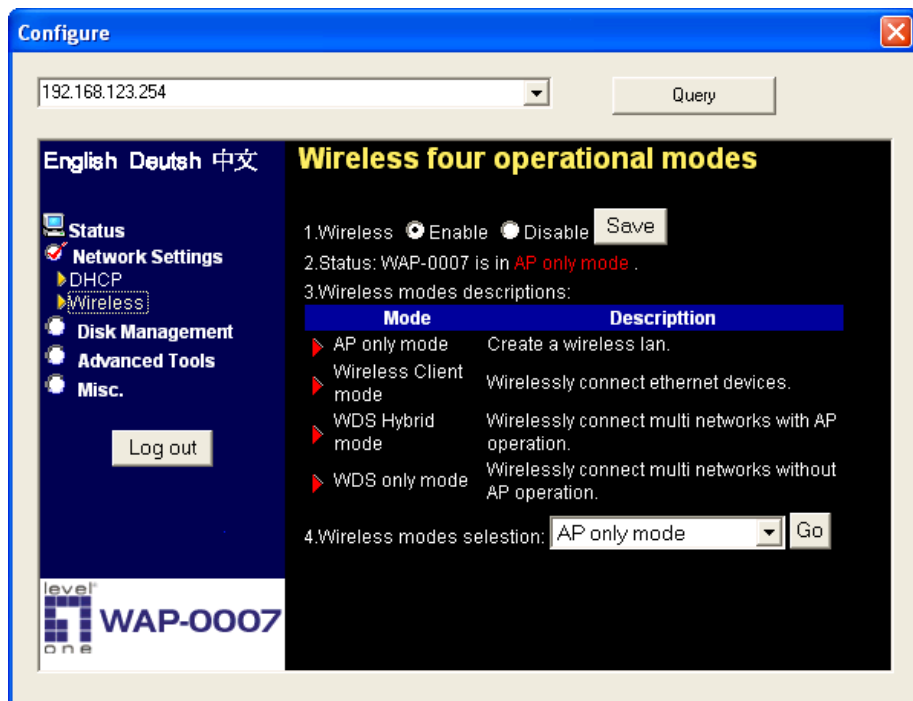
- IP Settings: default machine IP is **192.168.123.254**. This IP address must be unique to your network. You can change if necessary. This setting is only used for DHCP server mode, and Static IP mode.
- DHCP Mode: The default mode is “**Auto**”

- ✓ Client: If you have a DHCP server on the network, set this option to receive an automatic IP address and subnet mask assignment.
- ✓ Server: The WAP-0007 will be a DHCP server on the network.
- ✓ Auto: Select this option to let WAP-0007 send out a DHCP request during boot up. If you have a DHCP server on the network, the WAP-0007 will receive an automatic IP address and subnet mask assignment. If no DHCP server on the network, the WAP-0007 will be a DHCP server on the network.
- ✓ Static: You can manually configure the IP address and subnet mask.
- Server Setting:
  - ✓ Subnet Mask
  - ✓ Low IP and High IP: decide the IP address range that DHCP server could offer.
  - ✓ Primary DNS / Secondary DNS: This feature allows you to assign DNS Servers. You could get this information from your ISP.
  - ✓ Gateway: The gateway IP address would be the IP address of an alternate Gateway. If you do not know how to set up the Gateway, leave this option blank.
  - ✓ Client List: When WAP-0007 is as a DHCP server, here will show some information of DHCP client.
  - ✓ Fixed Mapping: DHCP server can assign the same IP address to a certain "MAC address".



### 3.2.2 Wireless Setting

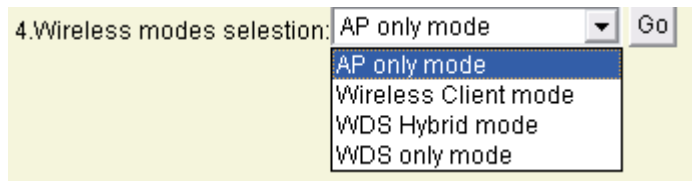
Select the **Wireless** option in the configuration mode.



Followings information will let you know the current wireless operation status.

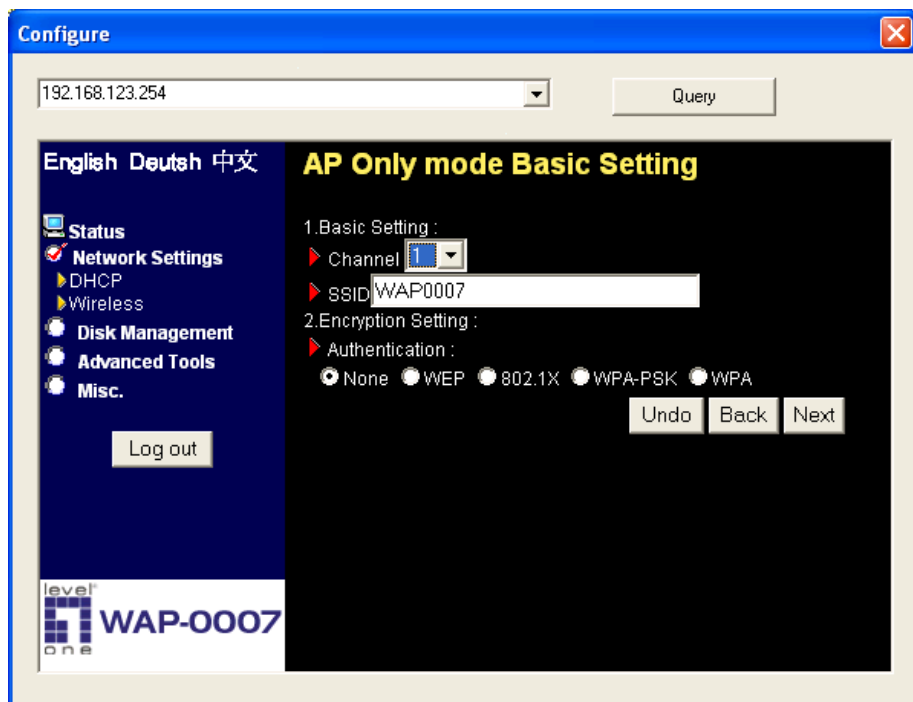
- Wireless: you can select “**Enable**” or “**Disable**” the wireless function.
- Status: to show the current wireless mode you are using.
- Wireless mode description: to describe the each wireless mode's major function.
- Wireless modes selection: WAP-0007 provides four wireless modes to select.

Choose the wireless mode you need and click “Go” to set up detail functions.



### 3.2.2.1 Wireless AP only

When you are in the AP only mode, you can set up the basic wireless functions as below:



## AP setting:


- SSID: The SSID identifies a specific wireless LAN. Before associating with a particular wireless LAN, a station must have the same SSID as the access point. The default SSID setting is “WAP0007”. **NOTE: Please DO NOT set the same SSID with your current wireless network.**
- Channel: The radio channel number. The default channel is “6”. **NOTE: Please DO NOT set the same Channel with your current wireless network.**

The screenshot shows a web browser window titled 'Configure'. At the top, there is an IP address field set to '192.168.123.254' and a 'Query' button. Below this is a language selection bar with 'English', 'Deutsch', and '中文'. A left-hand navigation menu includes 'Status', 'Network Settings' (selected), 'DHCP', 'Wireless', 'Disk Management', 'Advanced Tools', and 'Misc.'. A 'Log out' button is located below the menu. The main content area is titled 'AP Only mode Basic Setting' and contains two sections: '1. Basic Setting' and '2. Encryption Setting'. In the 'Basic Setting' section, 'Channel' is set to '6' and 'SSID' is 'WAP0007'. The 'Encryption Setting' section shows 'Authentication' set to 'WEP' (selected) with options for 'None', 'WEP', '802.1X', 'WPA-PSK', and 'WPA'. Below this, 'WEP Encryption' is set to '64 bit' (selected) with options for '64 bit' and '128 bit'. There are four 'Key' fields, each with a 'HEX' dropdown and an input box. At the bottom of the main area, there is a note: '5 or 13 ascii characters eg: passed or thisisapasswd', '10 or 26 hexadecimal characters eg: 0123456789 or 01234567890123456789012345'. At the very bottom of the window are 'Undo', 'Back', and 'Next' buttons.

- Authentication: Authentication ensures that digital data transmissions

are delivered to the intended receiver. This option enables you to set the authentication method for various encryption schemes for the selected AP.

- Open or shared WEP Encryption: Select “64” or “128” bits in the pull-down menu for encryption method to protect your data by encrypting it. The WEP key can be 5~13 ASII characters or 10~26 hexadecimal characters based on whether you select 64 bit or 128 bit WEP encryption.
- 802.1X: IEEE802.1x authentication can be done by using an external RADIUS server.



802.1X configuration :

Server Setting IP: 0.0.0.0 Port: 1812

Shared Secret

Undo Back Next

Please input the IP address of RADIUS server and Shared Secret.

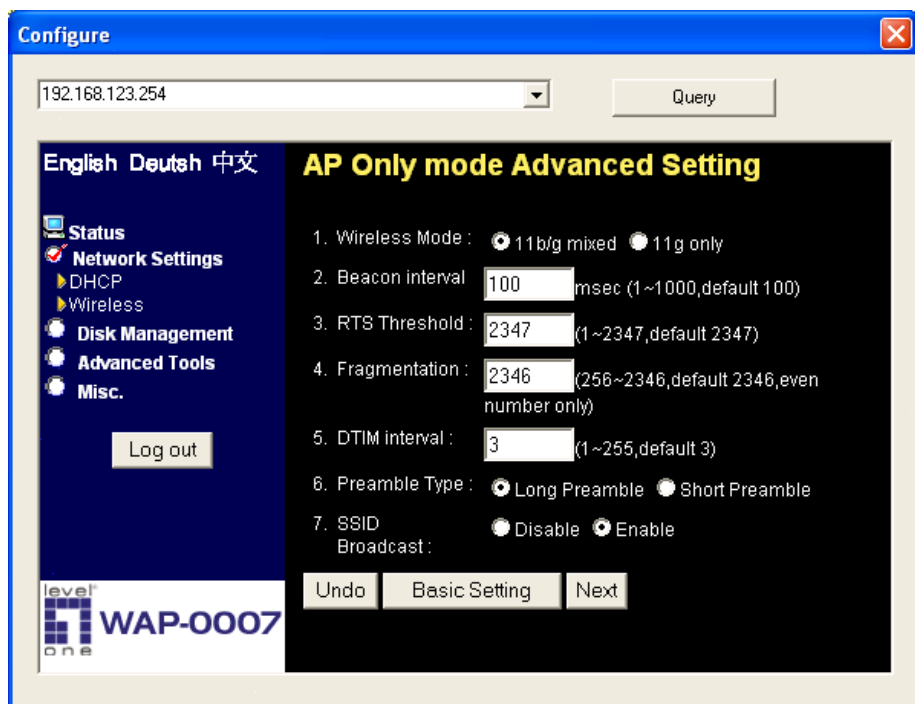
Please refer to FAQ in Chapter 7 to get more detailed information.

- WPA-PSK: AP and Client need to use identical Pre-shared key (PSK). Please input 64 Hex key (0~F) or 8~63 characters in ASCII Type.  
Note. This device only supports WPA version 1.
- WPA: WPA applies IEEE802.1x and Extensible Authentication Protocol (EAP) to authenticate wireless clients using an external RADIUS server.

Please input the IP address of RADIUS and Shared Secret.

Please refer to FAQ in Chapter 7 to get more detailed information.

## Advance Setting:

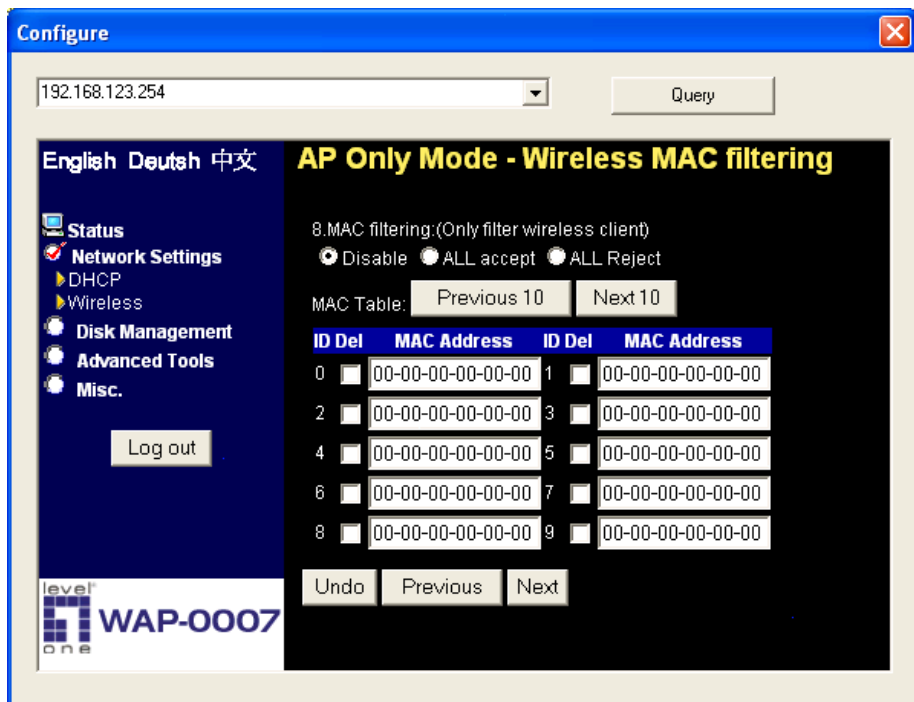


- Wireless mode: **11b/g mixed** can let 11g or 11b computers both exist on the network, but the speed will be reduced. Select **11g only** for maximum speed, but no 11b users will be allowed on the network.
- Beacon interval: This represents the amount of time between beacon transmissions. The interval tells receiving devices on the network how long they can wait in low-power mode before waking up to handle the beacon. Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a Beacon interval value between 1 and 1000. The default value is set to 100 milliseconds.
- RTS Threshold: The RTS threshold specifies the packet size of an RTS transmission. This helps control traffic flow through an access

point, especially one with many clients. The setting value range is from **1 to 2347**, and default value is set to **2347**.

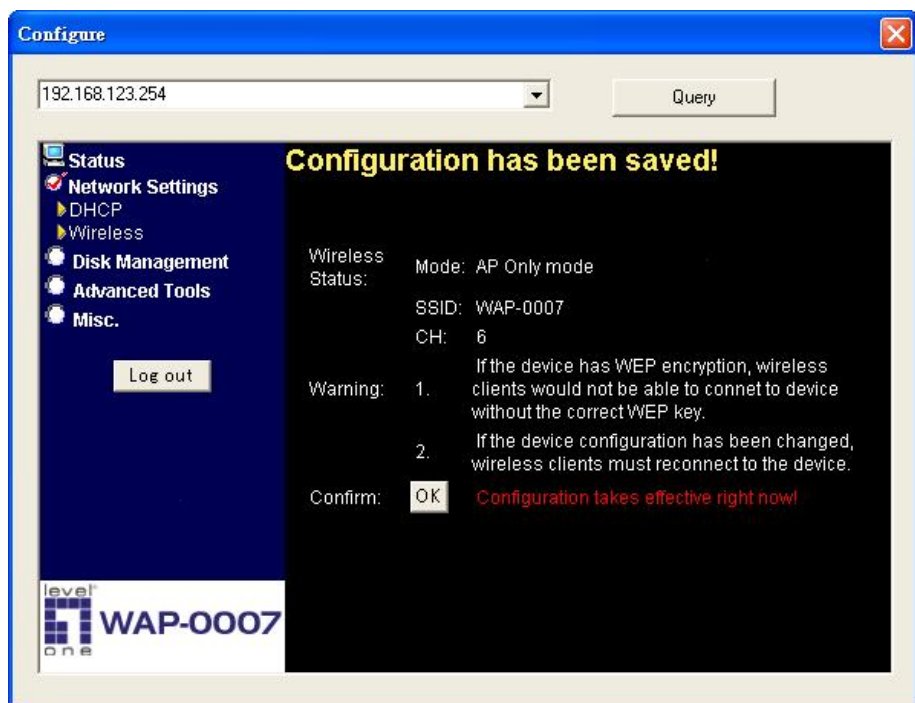
- **Fragmentation:** In a network, the maximum size or length of a fragment is determined by the protocol used to transport the data. This value should remain at its default setting of **2346**. If you experience a high packet error rate, you may slightly increase your "Fragmentation" value within the value range of **256 to 2346, even number only**. Setting the Fragmentation value too low may result in poor performance.
- **DTM interval:** A Delivery Traffic Indication Message (DTIM) is a countdown informing clients of the next window for listening to broadcast and multicast messages. When the Access Point has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. AP clients hear the beacons and awaken to receive the broadcast and multicast messages. Enter a value from **1 to 255** for DTIM. The default value for DTIM interval is set to **3**.
- **Preamble Type:** The Preamble Type defines the length of the CRC (Cyclic Redundancy Check) block for communication between the Access Point and roaming wireless adapters.
- **SSID Broadcast:** **Enable** or **Disable** a SSID broadcast. When enabled, the SSID of WAP-0007 is sent to wireless enabled devices on the LAN.

Press "Next" button, you could see the Wireless MAC Filtering setting.



The default setting is “**Disable Mac filtering**”, every wireless client could connect to this AP. When you select “**ALL accept**”, the wireless clients with the MAC addresses you enter below will be accepted to connect to this AP, the others will be rejected. When you select “**ALL Reject**”, the wireless clients with the MAC addresses you enter below will be rejected to connect to this AP, the others will be accepted.

Press “Save” button, WAP-0007 would show you this page about the wireless settings you have done.





### 3.2.2.2 Wireless client mode

Select the “**Wireless client mode**” and click “Go” to set up under the Wireless client mode.

4. Wireless modes selection: AP only mode Go

- AP only mode
- Wireless Client mode**
- WDS Hybrid mode
- WDS only mode

After entering the Wireless client mode setting, click the **AP List** icon to set up the AP connecting list.

**Configure**

192.168.123.254 Query

**Wireless Client mode Basic Setting**

1. AP list: AP List Save

ID	Del	Mod	CH	SSID	Encription
1	Del	Mod			
2	Del	Mod			
3	Del	Mod			
4	Del	Mod			
5	Del	Mod			
6	Del	Mod			

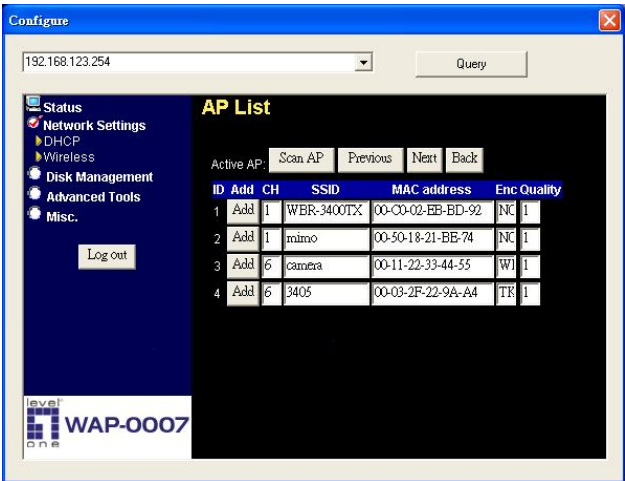
2. Force SSID:  (0~6, 0: automatically sequential search)

3. Add AP Manually: SSID  (Limit in 32 Char) Add

**level one WAP-0007**

Log out

Click the “**Scan AP**” to scan the existing AP list. Select the AP you want to connect and click “**Add**” to set up the AP list.



Select the AP you want to connect and click “**Add**” to set up the AP list.

Click “**Mod**” to specify the AP information. After clicking the “Mod” button, you will find the following information and modify it depending on your actual wireless environment; this should be done necessarily when you are in the secured wireless network with WEP.

Configure X

192.168.123.254 Query

Status

**Network Settings**

  DHCP

  Wireless

**Disk Management**

Advanced Tools

Misc.

Log out

level  
one WAP-0007

### Wireless Client mode Basic Setting

1. AP list
AP List
Save

ID	Del	Mod	CH	SSID	Encryption
1	Del	Mod	1	WBR-3400TX	NONE
2	Del	Mod			
3	Del	Mod			
4	Del	Mod			
5	Del	Mod			
6	Del	Mod			

2. Force SSID:  (0-6, 0: automatically sequential search)

3. Add AP Manually SSID:  (Limit in 32 Char) Add

Click the **“Next”** for advanced setting, or click **“Save”** or **“Undo”** for your need.

Configure X

192.168.123.254 Query

Status

**Network Settings**

  DHCP

  Wireless

**Disk Management**

Advanced Tools

Misc.

Log out

level  
one WAP-0007

### Wireless Client mode AP Configure

1. SSID:
2. Authentication: ☐ WEP ☒ WPA-PSK
3. Encryption type: ☒ TKIP ☐ AES
4. Passphrase:

Back
Save
Undo
Next

The advanced setting items are shown as below:

192.168.123.254 Query

Status  
Network Settings  
    DHCP  
    Wireless  
Disk Management  
Advanced Tools  
Misc.  
Log out

### Wireless Client mode Advanced Setting

1. Wireless Mode: ☒ 11b/g mixed ☐ 11b only

2. RTS Threshold:  (1~2347,default 2347)

3. Fragmentation:  (256~2346,default 2346,even number only)

Basic Setting Save Undo

For the meanings of above items, please refer to “Advanced setting”.

After saving the values of client mode, you have to go back the “Wireless Client mode Basic Setting” page and click “Save” on the top of the page. Then you could check the settings that you have done.

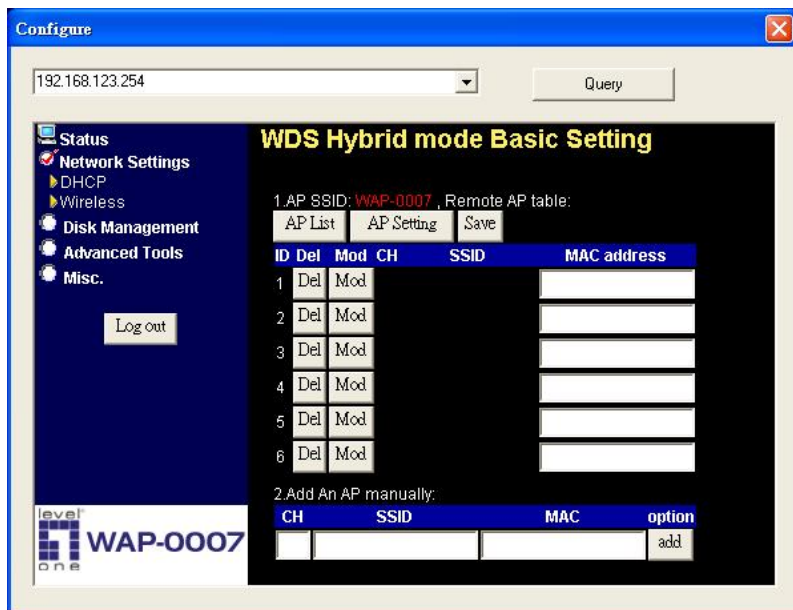
### 3.2.2.3 WDS Hybrid mode

Select the “**WDS Hybrid mode**” and click “Go” to set up

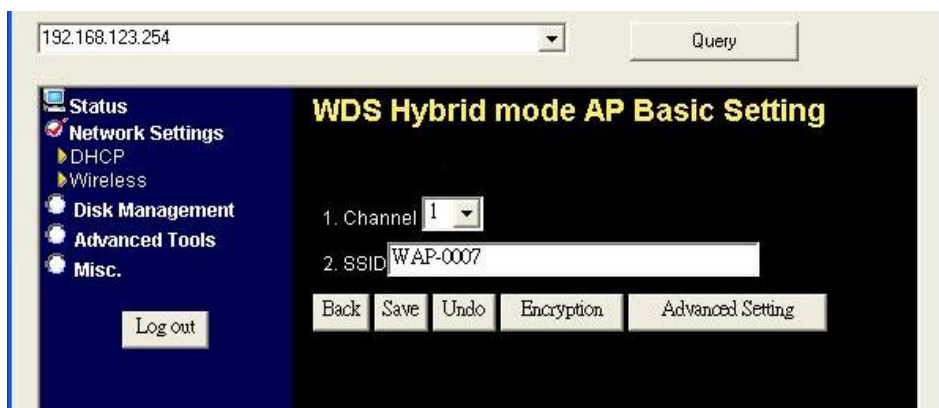
4. Wireless modes selection:  Go

- AP only mode
- Wireless Client mode
- WDS Hybrid mode
- WDS only mode

After entering the WDS Hybrid mode setting, click the **AP List** icon to set up the AP connecting list. Then click the “**AP Setting**” icon and set up the AP.



NOTE: You **MUST** use the same channel with the AP you want to bridge. In this example, we set the channel to 10.



Click the **Advanced Setting** icon, and you could set more values. About the meanings of these please refer to 3.2.2.1.

Go back to Basic Setting, and click “Save”.

The screenshot shows a web-based configuration interface for a WDS Hybrid mode AP. The window has a blue title bar labeled 'Configure' with a close button. Below the title bar, there is a text input field containing '192.168.123.254' and a 'Query' button. On the left side, there is a dark blue sidebar with a tree view containing 'Status', 'Network Settings' (with sub-items 'DHCP' and 'Wireless'), 'Disk Management', 'Advanced Tools', and 'Misc.'. A 'Log out' button is located below the sidebar. The main content area has a black background with yellow text for the title 'WDS Hybrid mode AP Advanced Setting'. It contains seven numbered settings: 1. Wireless Mode: ☒ 11b/g mixed ☐ 11g only; 2. Beacon interval:  msec (1~1000, default 100); 3. RTS Threshold:  (1~2347, default 2347); 4. Fragmentation:  (256~2346, default 2346, even number only); 5. DTIM interval:  (1~255, default 3); 6. Preamble Type: ☒ Long Preamble ☐ Short Preamble; 7. SSID Broadcast: ☐ Disable ☒ Enable. At the bottom of the main area, there are five buttons: 'Basic Setting', 'Encryption', 'Save', 'Undo', and 'Next'. In the bottom left corner, there is a logo for 'level one' and the text 'WAP-0007'.

You could see the confirm page after setting, and let you know configurations have been saved.

### 3.2.2.4 WDS only mode

Select the “**WDS only mode**” and click “Go” to set up.

4. Wireless modes selection: WDS only mode ▼ Go

AP only mode

Wireless Client mode

WDS Hybrid mode

**WDS only mode**

After entering the WDS only mode setting, click the **AP List** icon to set up the AP connecting list, or add it manually.

Configure

192.168.123.254

Query

Status

Network Settings

DHCP

Wireless

Disk Management

Advanced Tools

Misc.

Log out

**WDS Only mode Expert Setting**

1.Remote AP MAC address: AP List Encryption Save

ID	Del	Mod	CH	SSID	MAC address
1	Del	Mod	1	wab1000	00-02-6F-20-90-1F
2	Del	Mod			
3	Del	Mod			
4	Del	Mod			
5	Del	Mod			
6	Del	Mod			

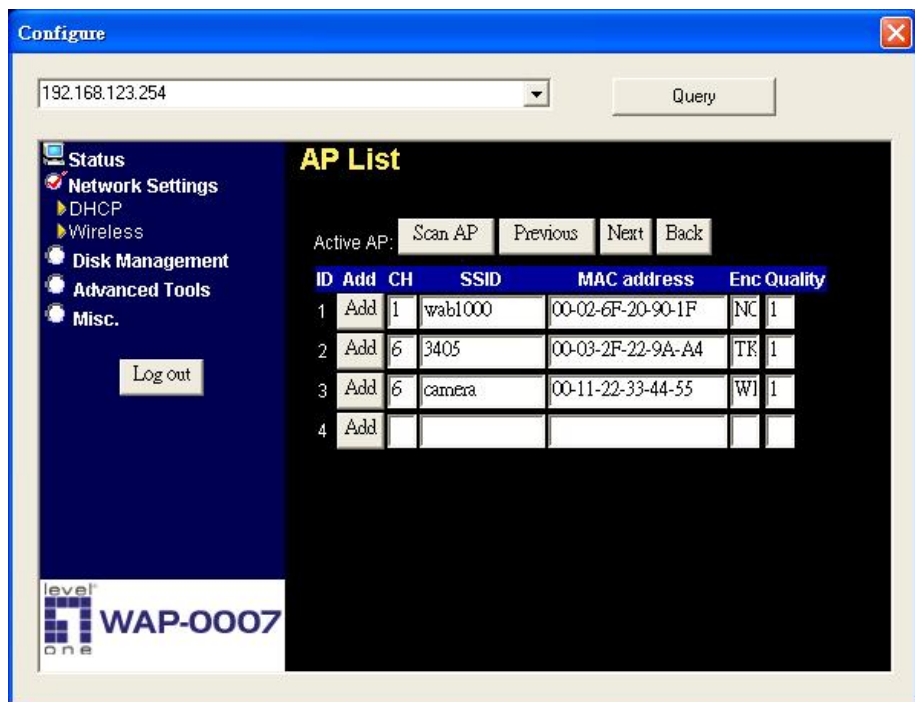
2.Add An AP manually:

CH	SSID	MAC	option
			add

level one

WAP-0007

**NOTE:** In WDS only mode, each AP that bridged together **MUST** use the same channel.



After all, click “Save” to make it work.

**NOTE:** Each WDS device **MUST** set the others' MAC addresses, or the WDS mode would be failed.



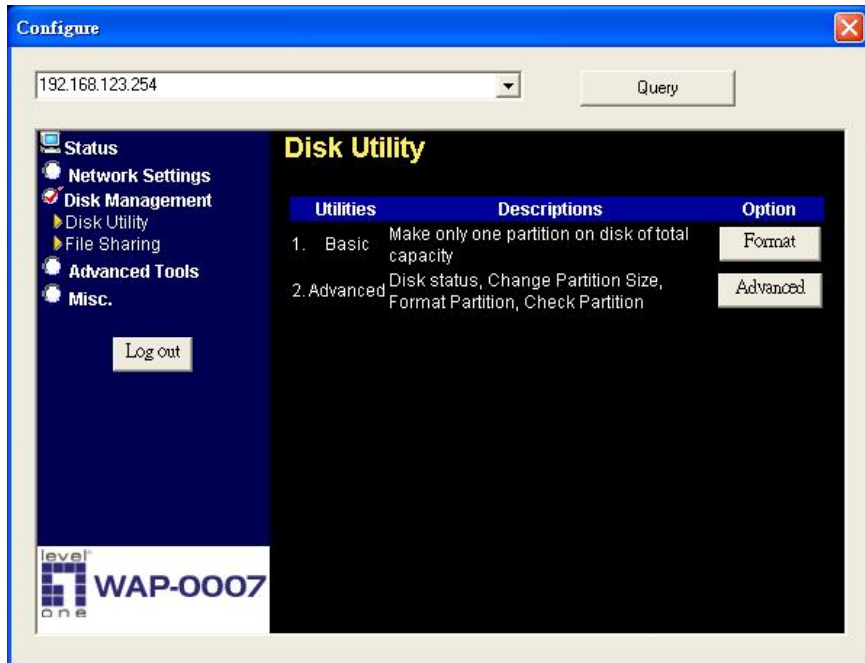
# Chapter 4: Disk Management

In this section, you will know how to use the “**Disk Management**” tools to configure the hard disk setting.

## 4.1 Disk Utility

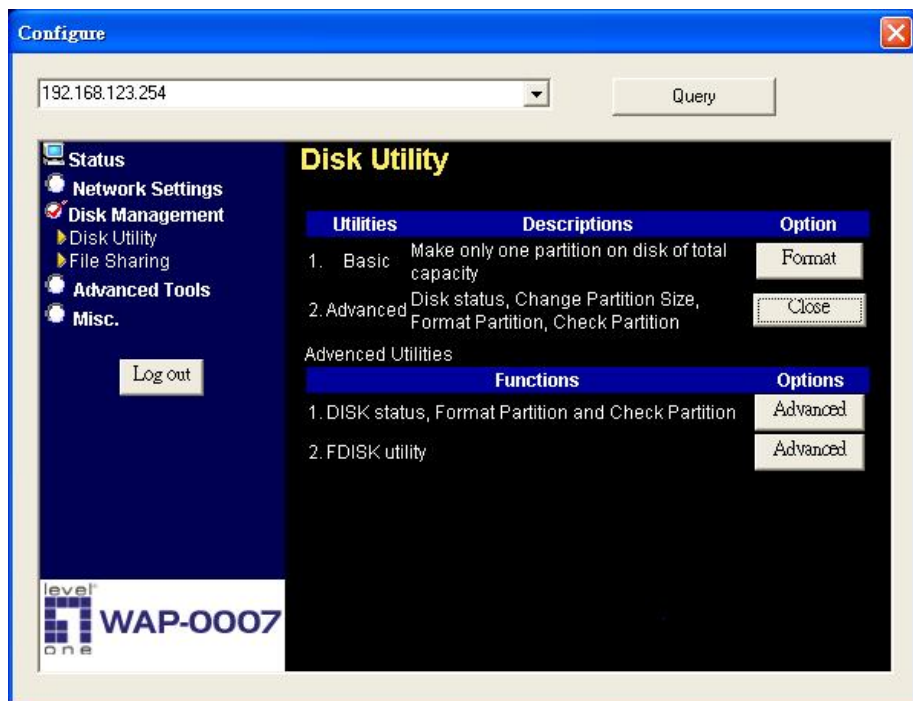
Before using the hard disk, users need to format this hard disk first. Click “Format” button, and the WAP-0007 will start to format the hard disk automatically. Once finishing the format, the WAP-0007 will reboot automatically, and please reconnect the network in 30 seconds.

The Hard disk will be formatted as “ext2” file system.



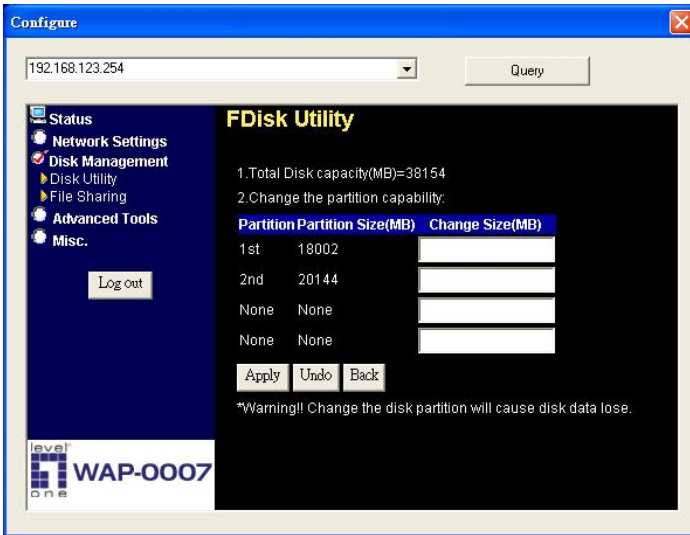
## Advanced Function

In the advanced function, two more options will be shown:



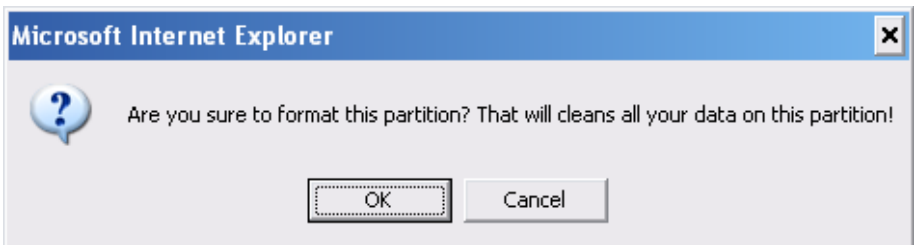
The first option is used for disk checking. If you power off WAP-0007 before normally shut down the system, you are recommended to do this. With second option, you could partition your hard disk to the size you want.

Total Disk Capacity: to indicate the total capacity of the hard disk. This page shows the partitions of internal hard disk, you could format/check one of them.



Change the partition capacity: this tool can make you create up to four partitions. Specify the size of the partitions in megabytes and click the **“Apply”** to apply the new settings.

When you click **“Apply”**, system would alert this message to confirm if you really want to do the format action.



### Warnings:

Any data in the hard disk will be lost after creating the new partitions. The hard disk is formatted to EXT2 file system. It cannot be connected directly to a Microsoft Windows system without reformatting.

# Chapter 5: ADVANCED FUNCTIONS

Click the **Advanced Functions** option on the left panel to display its submenus. The **Advanced Functions** menus enable you to configure the various system settings. Refer to the following sections for more details.

## 5.1 Config Backup

This option enables you to back up your settings. Once you want to restore these settings, please click the F/W Upgrade option and use the bin file you saved.

## 5.2 Reset to Default

This option enables you to reset the WAP-0007 to its default factory settings.

## 5.3 Reboot

This option enables you to reboot the device.

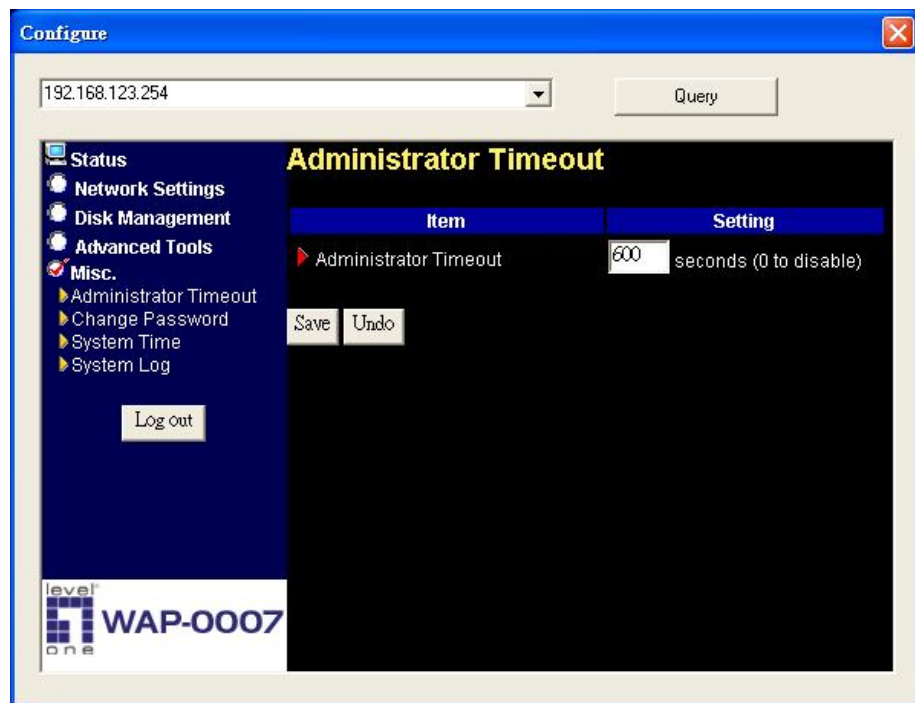
## 5.4 F/W Upgrade

This option enables you upgrade the new firmware to this product

# Chapter 6: MISC

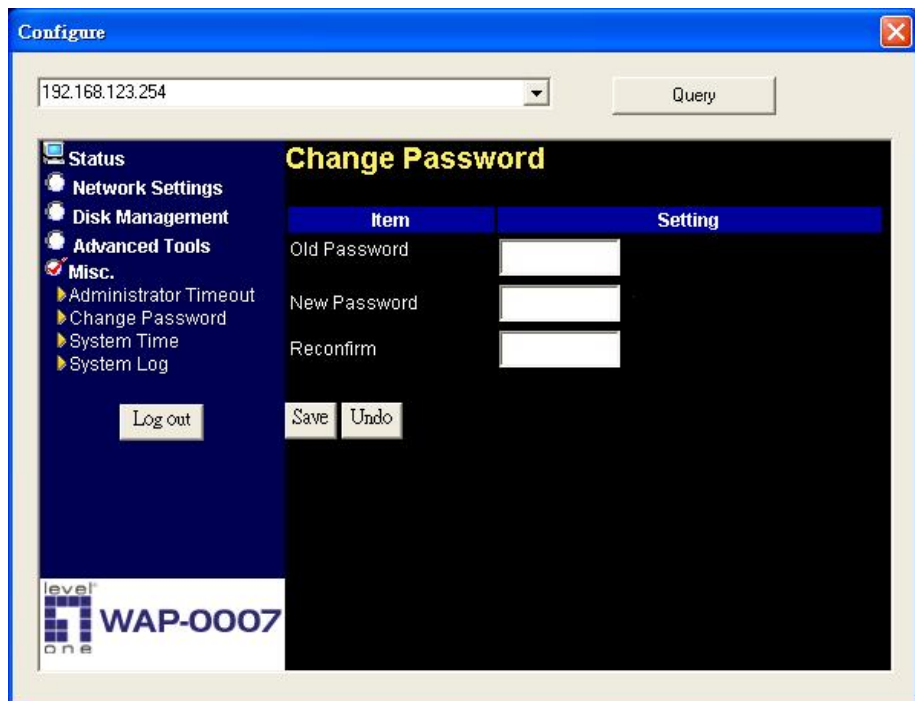
## 6.1 Administrator Timeout

If users login, and idles for a period of time (e.g. 600 seconds), then that user will be logged out automatically.



## 6.2 Change Password

To change the password, you have to enter the old password and confirm the new password twice.



The screenshot shows a web browser window titled "Configure". At the top, there is a text input field containing the IP address "192.168.123.254" and a "Query" button. On the left side, there is a navigation menu with the following items: "Status", "Network Settings", "Disk Management", "Advanced Tools", and "Misc.". Under "Misc.", there are sub-items: "Administrator Timeout", "Change Password", "System Time", and "System Log". The "Change Password" item is selected. Below the menu is a "Log out" button. The main content area is titled "Change Password" and contains a table with two columns: "Item" and "Setting". The table has three rows: "Old Password", "New Password", and "Reconfirm", each with a corresponding text input field. Below the table are "Save" and "Undo" buttons. At the bottom left, there is a logo for "level one" and the text "WAP-0007".

Item	Setting
Old Password	<input type="text"/>
New Password	<input type="text"/>
Reconfirm	<input type="text"/>

## 6.3 System Time

The **System Time** provides two options for you to select.

**Set Date and Time using PC's Date and Time:** synchronize the date and time with the computer.

**Set Date and Time manually:** Manually setting up the date and time.

Configure

192.168.123.254 Query

Status  
Network Settings  
Disk Management  
Advanced Tools  
Misc.  
Administrator Timeout  
Change Password  
System Time  
System Log

Log out

level one WAP-0007

### System Time

☒ Set Date and Time using PC's Date and Time

PC Date and Time: 2005年12月2日 下午 05:45:25

☐ Set Date and Time manually

Date Year: 2002 Month: Jan Day: 1

Time Hour: 0 Min.: 0 Sec.: 0  
(0-23) (0-59) (0-59)

Save Undo

# Chapter 7: Trouble Shootings

## What can I do when I have some trouble in the first time?

### **1. How do I make the client to connect the WAP-0007?**

**A:** Please prepare for one RJ45 cable and connect the LAN port directly. WAP-0007 already supports MDI/MDIX.

### **2. How to “Reset to default”?**

**A:** Press the buttons of “Shutdown” and “Backup” simultaneously over 6 seconds to reset the system to the factory default setting.

### **3. When I login the storage of WAP-0007 via my network place, but I can not find any files of Folders even if I have plugged HDD in WAP-0007.**

**A:** First, check your HD status LED. If the HD is correctly connected, the HD status LED will flash. If the LED didn't flash, maybe you forget to format the new HD before using it, or maybe the HD is not connected correctly, or maybe the HD is corrupted.

WAP-0007 supports FAT/FAT32/EXT2 file systems. If the format of HDD is NTFS, the device just can read files and cannot copy any files to NTFS folders

### **4. No matter what I do, I can not configure WAP-0007 even if I setup fixed IP and can search or Ping WAP-0007.**

**A:** Please check the WLAN Led or HDD LED. If normal, they will be flash. Otherwise Reset to Default and try it again.



**5. I can not save the file which size is large than 2GB.**

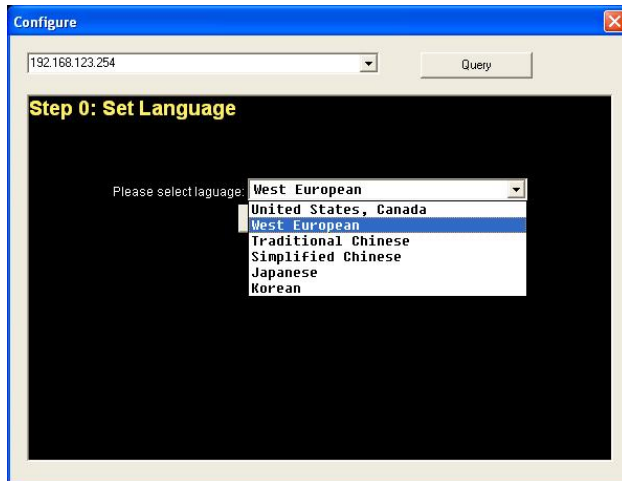
**A:** Please check the file system of your HDD. For FAT or FAT32, this problem does exist. Suggestion: To convert to ext2.

**6. I can't access the shared folder with 98/Me.**

**A:** If you use Windows 98/Me, and want to access the authorized folder, you **MUST** have the same account and password in WAP-0007 and your computer.

**7. Why do I see the wrong name of file during the setting or in the my network place?**

**A:** Please select the corresponding language as you need. Please configure again.

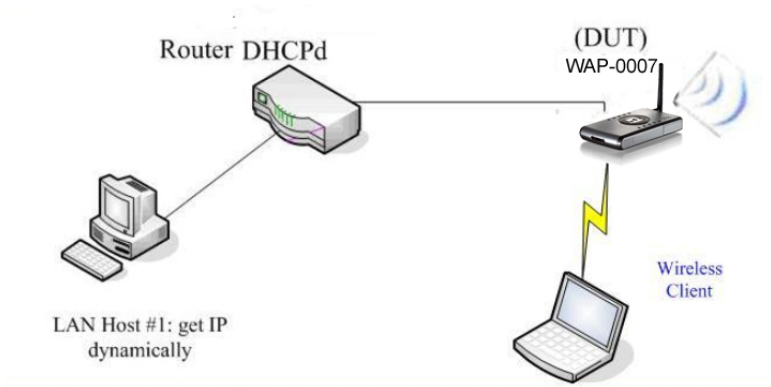


**How to setup wireless function?**

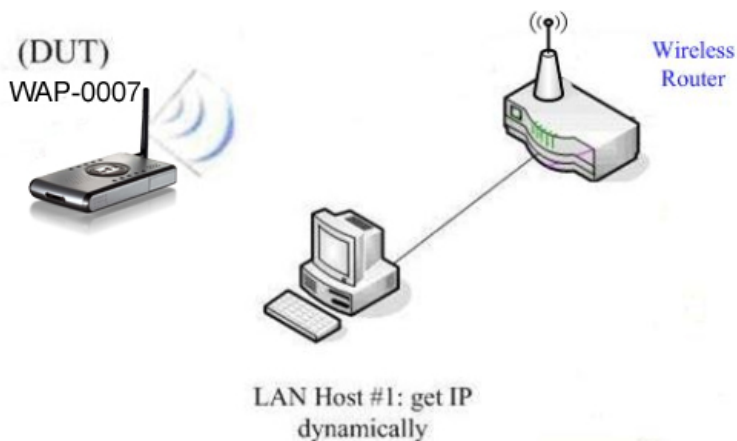
**1. How can I use the wireless function?**

**A:** Generally speaking, there are four modes to setup in this device. The common function is “AP mode”. The user can make this device as Wireless AP device as follows:

First, the wireless client sets up the same SSID with WAP-0007 and get IP from Router. Then Wireless client can associate the network or roam Internet via Router.

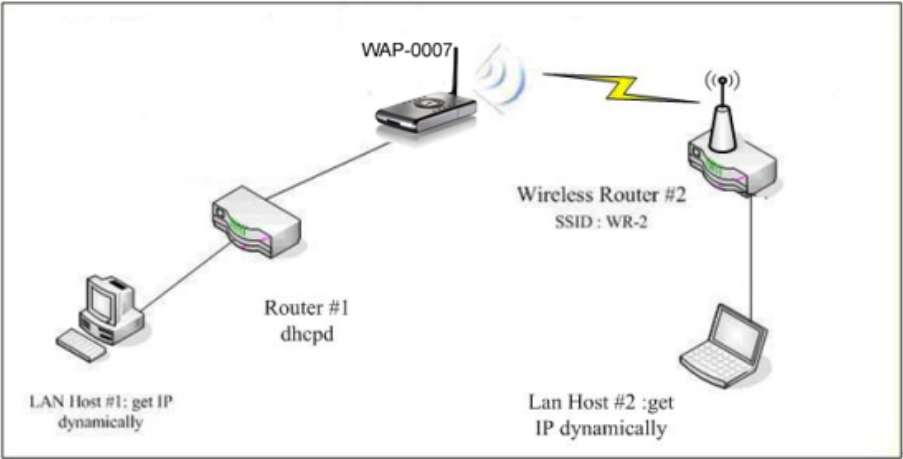


**Wireless Client Mode:** First, please configure the wireless setting of WAP-0007 via wire. Then use Scan AP of AP-List and join it. Plug up the cable form WAP-0007. The client from LAN can use “Configure” utility to Query.

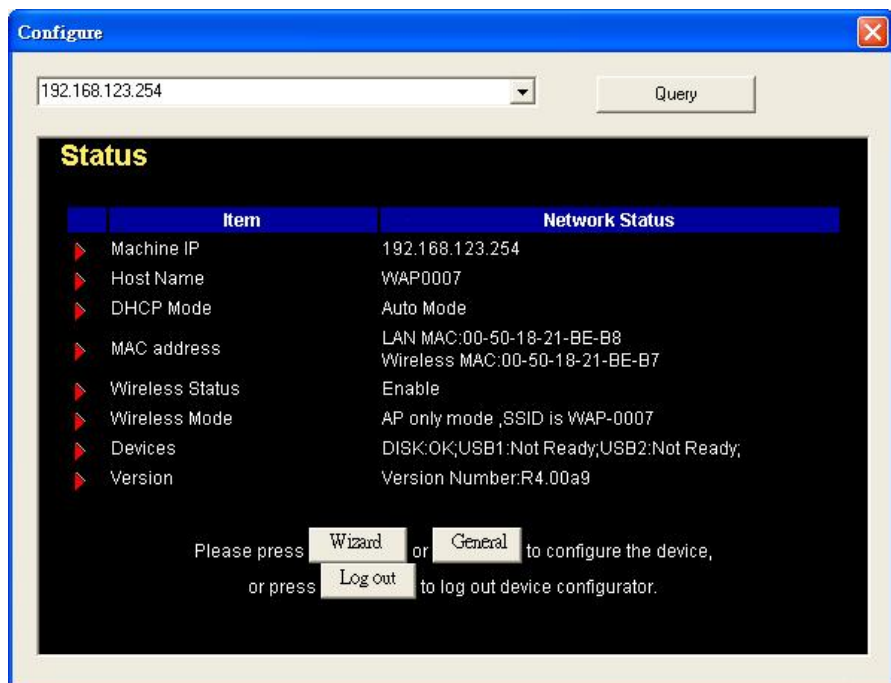


**WDS only mode:** WDS→Wireless Distribution system. This device also supports this function. How to configure this in your circumstance? The below Figure1 is for the reference. First, check which channel you want to use. For example, channel 10. Scan other AP which channel is 10 and supports WDS function. Second, add the wireless MAC address of WAP-0007 in this Wireless Router # 2. (Figure2). And use Scan AP to find the wireless which SSID is “WR-2” and join it in the list. Third, if it is normal, LAN-Host#1 can find the devices, like Wireless Router #2 and LAN-Host#2.

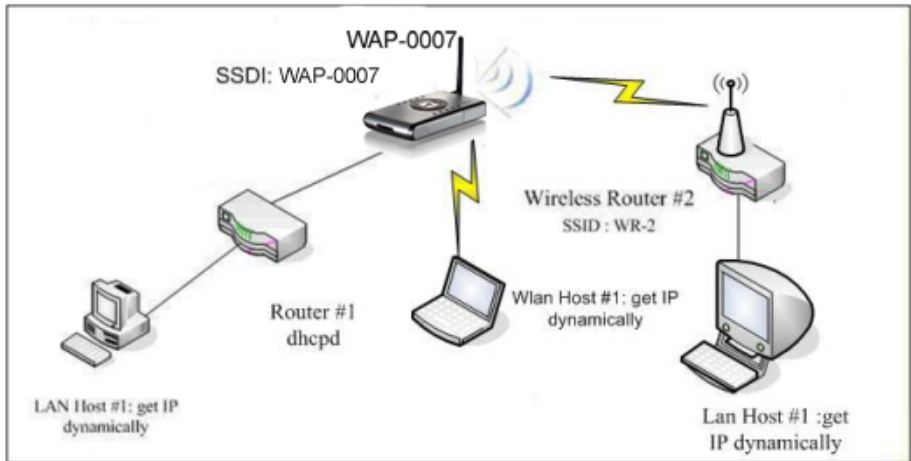
**Figure 1:**



**Figure2:**

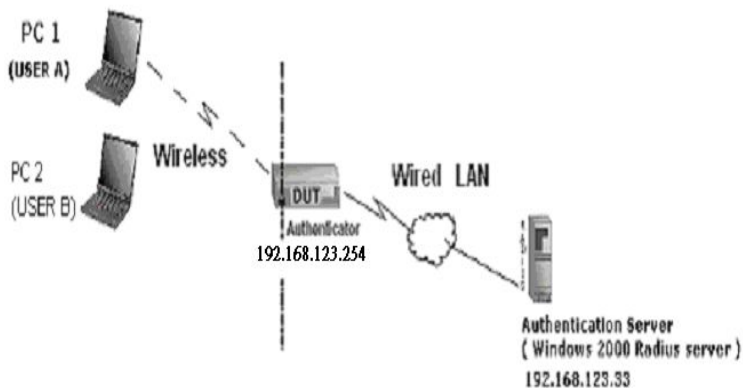


**WDS Hybrid mode:** This device also supports WDS and AP mode at the same time. How to configure this in your circumstance? The below figure is for the reference.



For the setting of WDS, please refer to the above WDS only mode.  
For AP setting, please refer to the AP mode.

## 2. How to configure 802.1x or WPA with Radius server?



### ■ Equipment Details

PC1:

Microsoft Windows XP Professional without Service Pack 1.

Wireless LAN adapter

Driver version: 3.0.5.0 (Driver date: 03.05.2003)

## **PC2:**

Microsoft Windows XP Professional with Service Pack 1a.

Wireless LAN USB adapter

Driver version: 1.7.29.0 (Driver date: 10.20.2001)

Authentication Server: Windows 2000 RADIUS server with Service Pack 3 and HotFix Q313664.

Note. Windows 2000 RADIUS server only supports PEAP after upgrade to service pack 3 and HotFix Q313664 (*You can get more information from <http://support.microsoft.com/default.aspx?scid=kb;en-us;313664>*)

## **DUT Configuration:**

1. Enable DHCP server.
2. WAN setting: static IP address.
3. LAN IP address: 192.168.123.254/24.
4. Set RADIUS server IP.
5. Set RADIUS server shared key.
6. Configure WEP key and 802.1X setting.

The following test will use the inbuilt 802.1X authentication method such as EAP\_TLS, PEAP\_CHAPv2 (Windows XP with SP1 only), and

PEAP\_TLS (Windows XP with SP1 only) using the Smart Card or other Certificate of the Windows XP Professional.

## ■ DUT and Windows 2000 RADIUS Server Setup

1. Setup Windows 2000 RADIUS Server. We have to change authentication method to MD5\_Challenge or using smart card or other certificate on RADIUS server according to the test condition.

2. Setup DUT

- ✓ Enable the 802.1X (check the “Enable checkbox”).
- ✓ Enter the RADIUS server IP.
- ✓ Enter the shared key. (The key shared by the RADIUS server and DUT).
- ✓ We will change 802.1X encryption key length to fit the variable test condition.

3. Setup Network adapter on PC

- ✓ Choose the IEEE 802.1X as the authentication method.  
(Figure 2)

Note. Figure 2 is a setting picture of Windows XP without service pack 1. If users upgrade to service pack 1, then they can't see MD5-Challenge from EAP type list any more, but they will get a new Protected EAP (PEAP) option.

- ✓ Choose MD5-Challenge or Smart Card or other Certificate as the EAP type.



- ✓ If choosing use smart card or the certificate as the EAP type, we select to use certificate on this computer.
- ✓ We will change EAP type to fit the variable test condition.

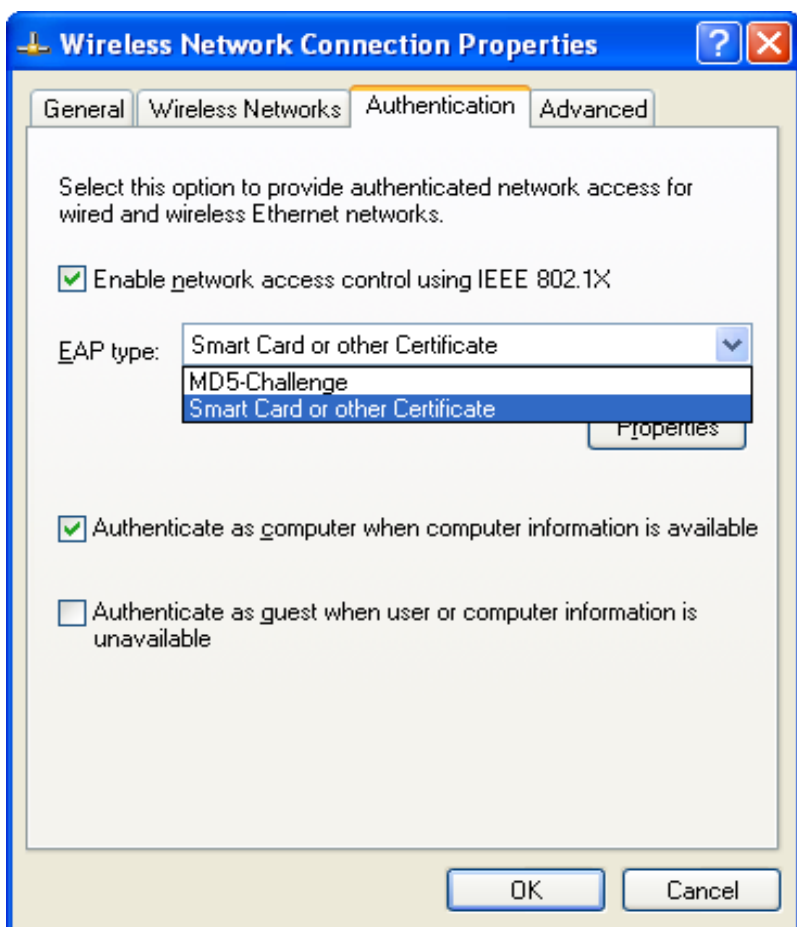


Figure 2: Enable IEEE 802.1X access control

- Windows 2000 RADIUS server Authentication testing:
  1. DUT authenticate PC1 using certificate. (PC2 follows the same test procedures.)
  2. Download and install the certificate on PC1. (Figure 4)
  3. PC1 choose the SSID of DUT as the Access Point.
  4. Set authentication type of wireless client and RADIUS server both to EAP\_TLS.
  5. Disable the wireless connection and enable again.
  6. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC1. (Figure 5)
  7. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure. (Figure 6)
  8. Terminate the test steps when PC1 get dynamic IP and PING remote host successfully.

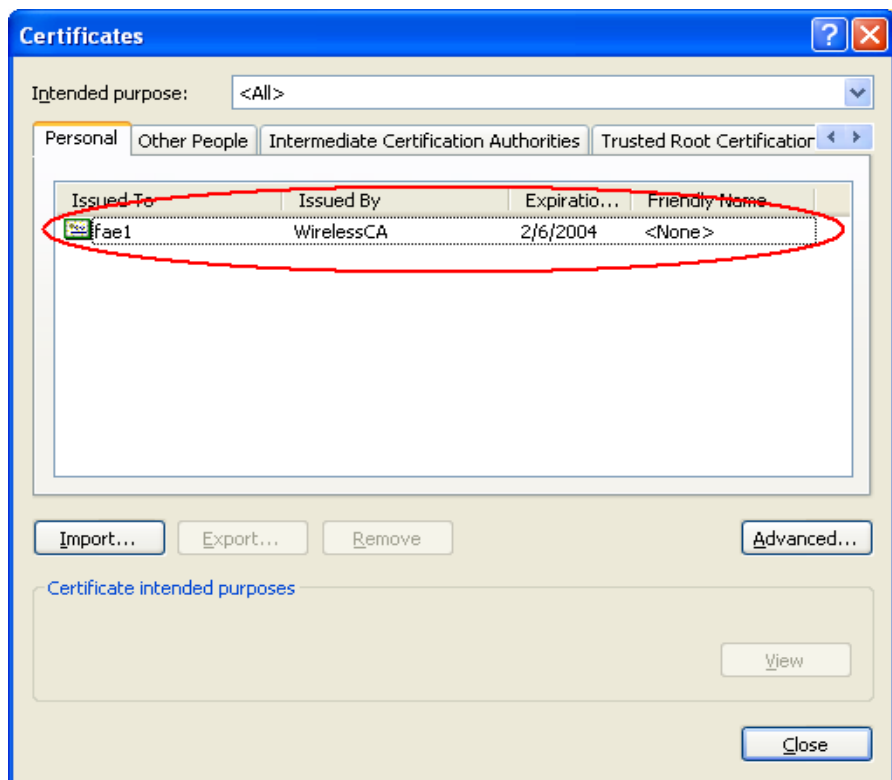


Figure 4: Certificate information on PC1

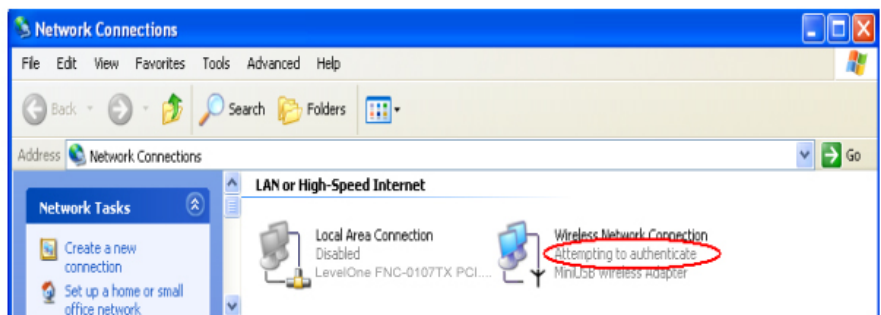


Figure 5: Authenticating

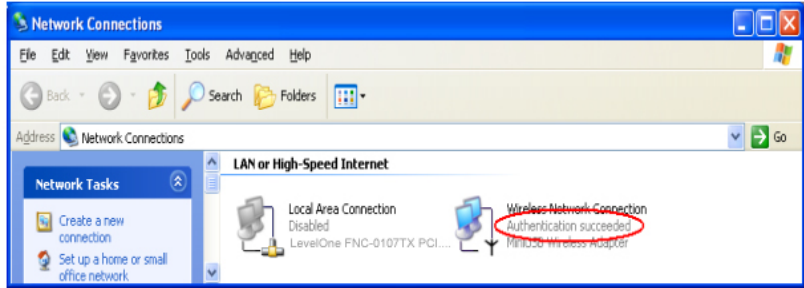


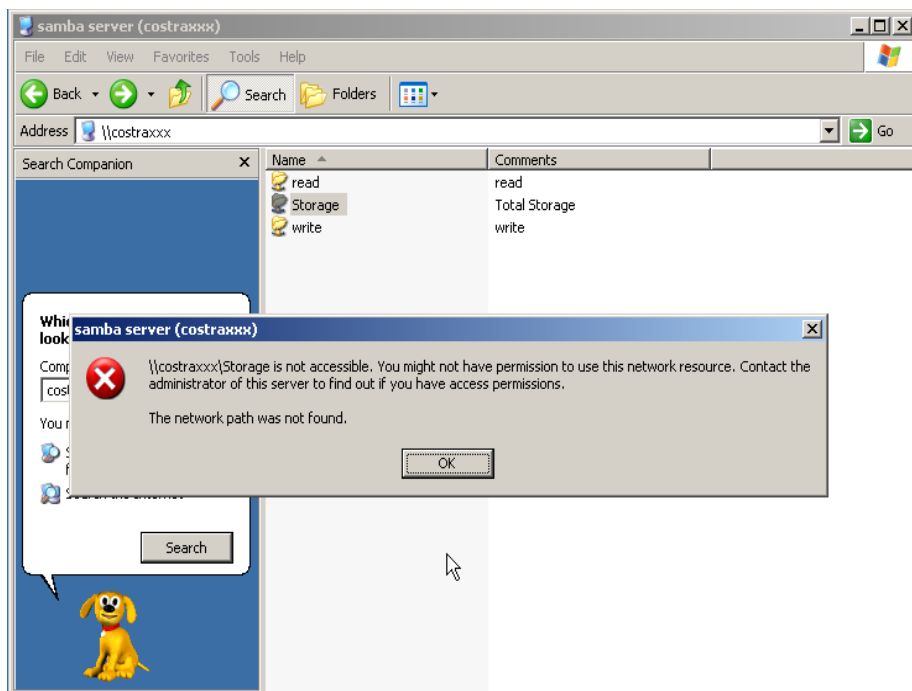
Figure 6: Authentication success

- DUT authenticate PC2 using PEAP-TLS.
  1. PC2 choose the SSID of DUT as the Access Point.
  2. Set authentication type of wireless client and RADIUS server both to PEAP\_TLS.
  3. Disable the wireless connection and enable again.
  4. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC2.
  5. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure.
  6. Terminate the test steps when PC2 get dynamic IP and PING remote host successfully.

## Problems of security level

### 1. Why can't I access the file from my places after enabling Security Level?

**A:** Sometimes, I can not access the folders via my places after enabling Security Level, like below:



If the user sees the warning message, please restart windows and try it again. But there are some situations that the users can not access this folder if even they input correct the account and password as below:

Situation 1: The users can access the files or folders before WAP-0007 is not enabled “security Level”. But when WAP-0007 is enabled it, the authorization users can not login by inputting the account and password. Please restart your window OS and It can be accessed.

Situation 2: Change the account and password of WAP-0007. In brief, the users have some Limit authority to access the folders, but if someone changes account and password this time, other authorization users can not access at all. Please restart your window OS.

This is because the windows will cache some records so that the settings can not work immediately and the users have no idea to restart the device.

## 2. How do I configure the authority of file-shared by my places and ftp service?

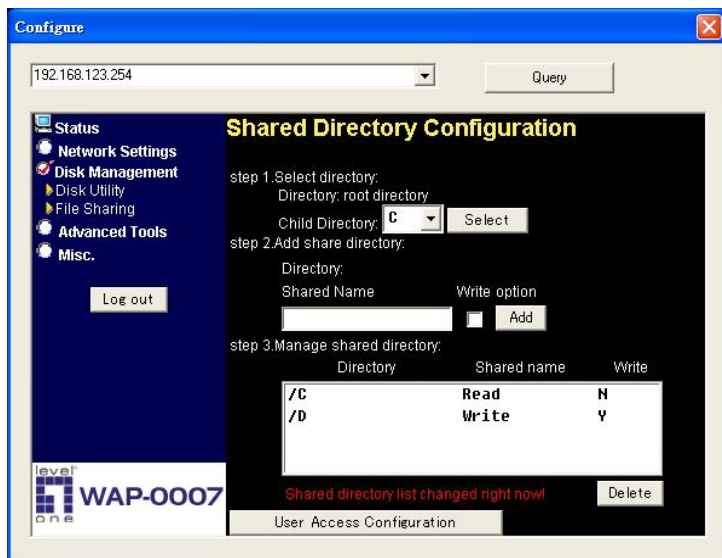
A: Take an example as follows:

First, Set account 123 and password 12345.

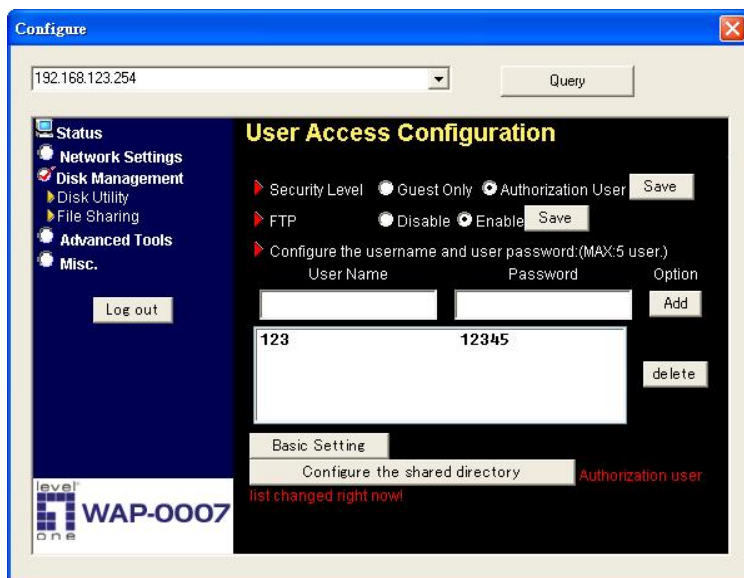
Then Click Configure the shared directory.



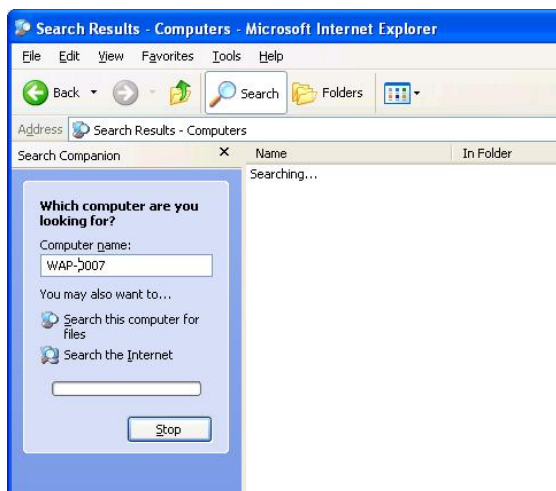
Create two folders. One is “read”, and the other is “write”. The authority is as follows:



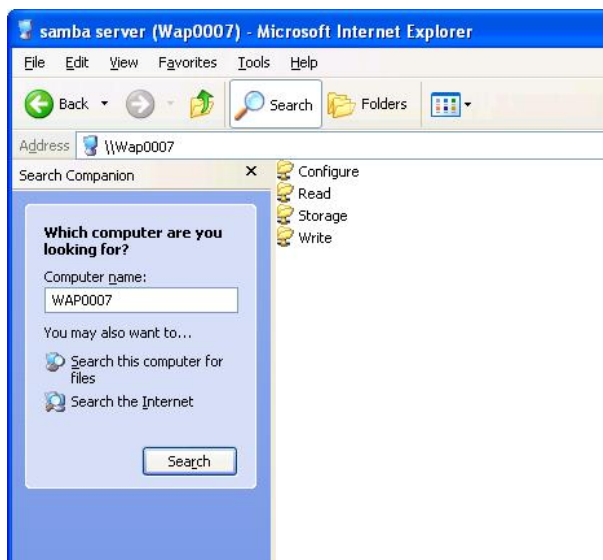
Then click the User Access Configuration and save “Security Level”.



Use search WAP-0007 hostname, if you can not access the directory “Storage”.



Then you will find the WAP-0007 and will find some folders, like read, write and Storage.





If you are a guest and you can only copy the files in the folder "read" and copy, move and delete the files or folders in the folder "write".

※But if you are an Authorization user. You can directly click the folders "read and write". However, you just have the same limits of authority with guests. Please login the folder "Storage" to begin.

This product also defines two user-level(Guest and Authorization users) to share files by ftp service.

The configuration is the same with above. There are two folders to share. If the users use guest to login ftp service, he just accesses read or write folders. Or login as Authorization users, he can access all.

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