LevelOne

WAP-0008

11g Wireless AP Storage w/ STAT/IDE Interface

User Manual

V1.0

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NOTE: THE CONTENT OF THIS MANUAL WILL BE REVISED WITHOUT PRIOR NOTICE.

Chapter 1: Introduction

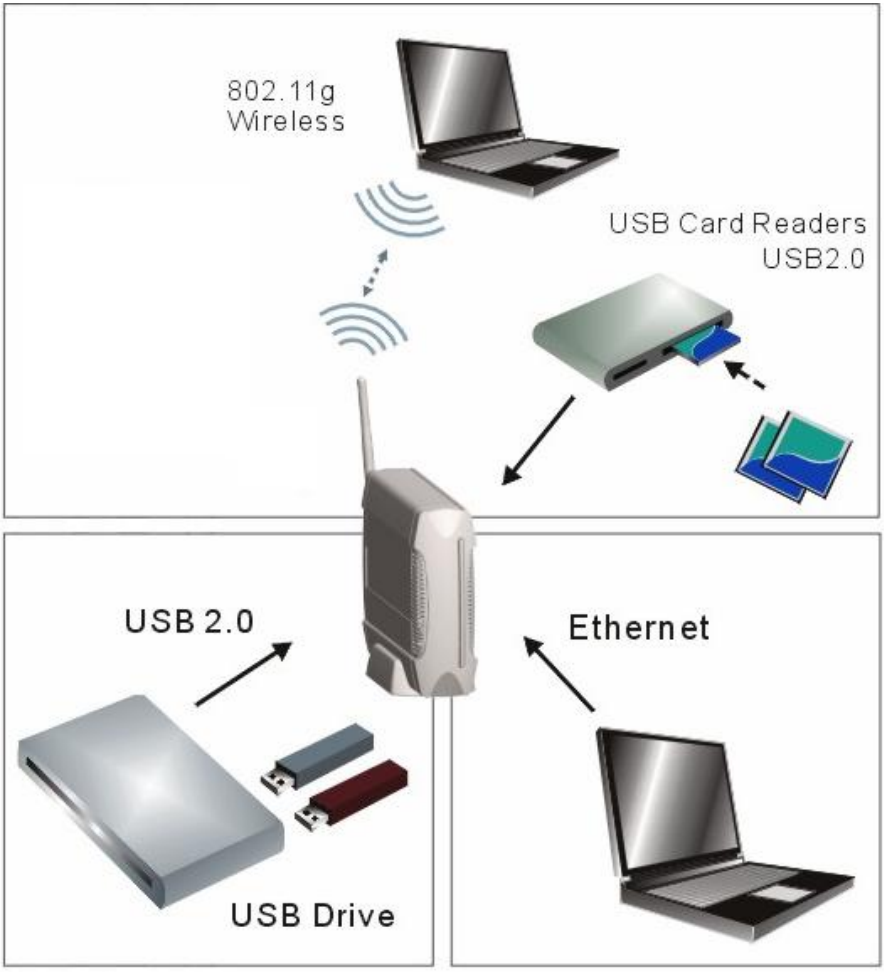
Congratulations on your purchase of this outstanding Network Storage device. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing, and is easy to configure and operate even for non-technical users. Instructions for installing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

1.1 Overview

The product is designed for 3.5” IDE and serial-ATA (SATA) hard disk drive use. It is an ideal device for small-medium companies and home users who need to backup and share files more efficiently and easily anytime and anywhere. Additionally, with its WLAN* feature which is fully compliant with IEEE 802.11b/g will also let you share files easily.

The Network Storage 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 its AP functionality. This device also has the additional advantage of providing network storage with its 3.5” hard disk which allows you to share information and storage capacity via wireless or wired network.

The Network Storage 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 Network Storage hard disk make the user backup files efficiently. Please refer to the following application diagram.



1.2 Features

Basic Functions

- Adapt for one 3.5” IDE or Serial-ATA(SATA) hard disk drive.
- Network File Storage and File Sharing via My Network Places in Windows or Samba in Linux and Mac OS.
- Backup files easily: compliant with Windows backup utility.
- Support FAT, FAT32, and Ext2 files system and can read from NTFS file system.
- Support security level as Guest or Authorization user for file sharing.
- Real time clock to synchronize the computer time setting.
- Easy to upgrade: using web browser or windows application to upgrade new version of firmware.
- Browser-based interface configuration and management: OS independent, easy-to-use for consumer installation.
- Support HDD sleeping mode to save power consumption.
- Built-in FTP server.
- UPnP (Universal Plug and Play) AV content directory support.
- Scheduling download assistant.
- Aluminum housing provides better effect for heat-release. (*It’s normal that aluminum housing getting warm when Network Storage is working.*)

USB Device

- Built-in USB2.0 host to connect to USB mass storage device, like USB flash drive, USB hard drive, etc.
- Easy copy button: Offer the button to copy folders and files from USB device to internal 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.
- Support 64/128-bit WEP encryption.
- Support 802.1X authentication.
- Support WPA, WPA-PSK with TKIP and AES encryption.
- Support WPA2, WPA2-PSK with TKIP and AES encryption.
- Support Client, AP, WDS, and WDS Hybrid wireless modes. (**NOTE.** Only AP mode and Hybrid mode can support WPA and WPA2.)

Scheduling Download Assistant

- Scheduling download assistant allows users to download files via FTP, HTTP without turning on computer.

1.3 System Requirements

To start to use the Network Storage, your system must have the following minimum requirements:

- Windows 98SE / ME / 2000 / XP, or any other operating system can support Samba.
- An Ethernet (10BaseT or 10/100BaseT) 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.
- Web browser installed.

The Network Storage requires an external 12V, 4A power supply which is included in the package. For safe operation, please **only** use the power adapter which is provided by this product.

1.4 Package List

The Network Storage package contains the following items:

- WAP-0008
- Power Adapter
- Stand
- Dipole Antenna
- CD Manual/Utility
- Quick Installation Guide

1.5 Hardware Configuration

LED Indicators:

LED	***Light Off***	***Solid Light***	***Blinking***
Power	Power off	Power on	
W.LAN	No packet		On transmitting
LAN	No device	Linked	On transmitting.
HDD R/W	Not in use	HDD read/write	
HDD Status	No HDD	HDD full or error	More blinking quickly, fewer available HDD capacity.
USB 1	No device	USB drive ready	
USB 2	No device	USB drive ready	
Status (Backup)			1. Blinking once per second when device works normally. 2. Blinking quickly when “Backup” button is pressed.

Front Buttons:

Buttons	***Description***
Shutdown	Press the button for 4 seconds to shut down the whole system before power-off.
Backup	Press the button for 4 seconds to copy data from attached USB device to HDD.

Reset	Press the buttons of “Shutdown” and “Backup” simultaneously for 6 seconds to reset the system setting to factory default.

Rear Ports:

Ports	***Description***
Antenna	Connect 2.4GHz dipole antenna.
LAN	Automatically MDI / MDIX LAN port can sense the cable type when connecting to Ethernet-enabled computer, network of hub, switch, or router.
USB1 / USB2	The ports where you can connect to USB disk, digital camera, or card reader. Card reader: * Memory card must insert to card reader first before connect to the storage device. * Storage device supports one memory card at a time. Please do not insert multiple memory cards into the card reader.
Power Switch	Switch on/off the device.
Power Jack	12V / 4A power inlet.

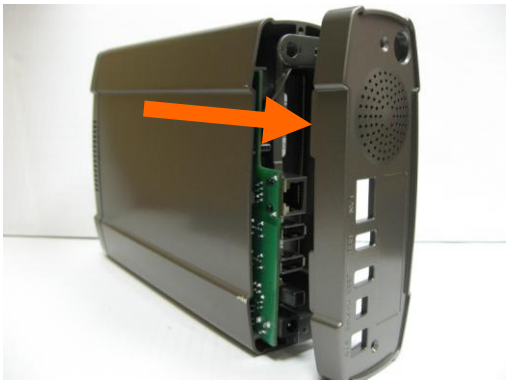
Chapter 2: Getting Started

2.1 Hard Disk Installation

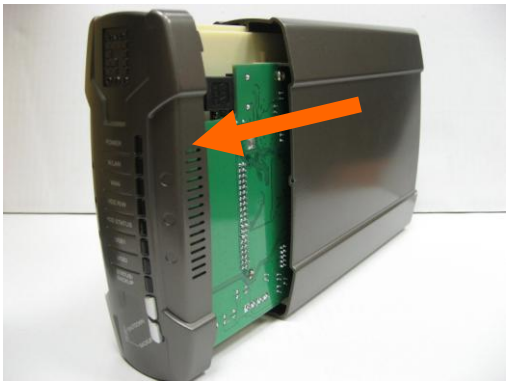
Follow the steps below to insert the 3.5” hard disk and assemble the device before using the Network Storage.

WARNING:
The Network Storage 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: Unfasten two screws at the rear side of device, and pull out the back cover.

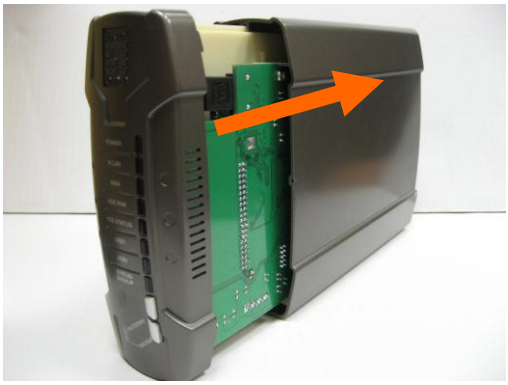


Step 2: Pull out the front panel.



Step 3: Put the 3.5” IDE or SATA hard disk into the slot, and connect proper data (the red cable is used for SATA hard disk and the gray one is for IDE hard disk) and power cable to the hard disk. Then fasten the screws that are included in the package to fix hard disk.

Step 4: Put the front panel back.



Step 5: Put the back cover back, and assemble tightly. Finally, fasten two screws.

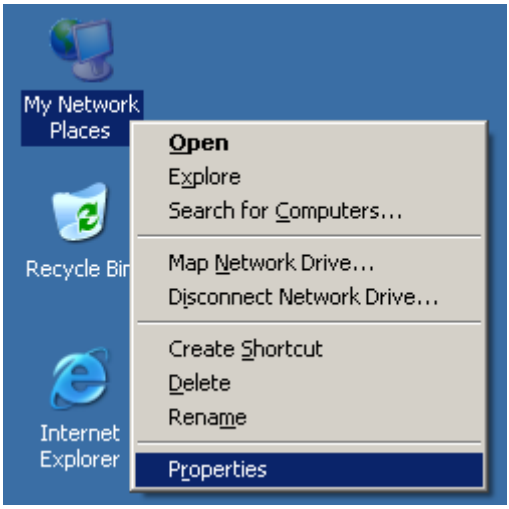
2.2 Making Connections

In order to access the Network Storage as the network storage drive or as a wireless AP, you need to configure the TCP/IP settings correctly in advance. Either the “Wired Ethernet Connection” or “Wireless Connection” can be used to connect to Network Storage.

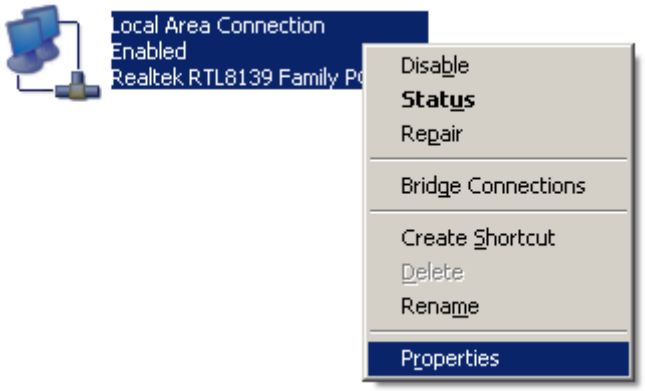
2.2.1 Install Necessary Communication Protocols

Follow the steps below to install **“Client for Microsoft Networks”**, **“File and Printer Sharing for Microsoft Networks”**, and **“Internet Protocol (TCP/IP)”** on your computer.

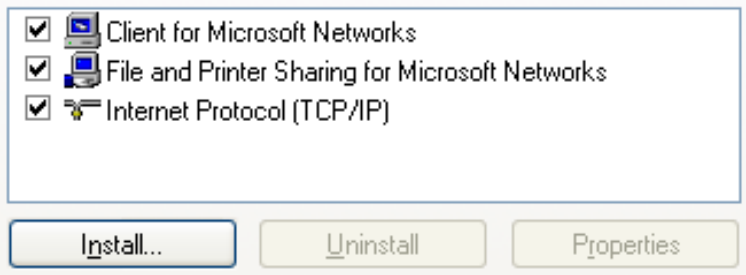
Step 1: Select the “**My Network Places**” on the desktop menu, and right click on the icon to choose “**Properties**”.



Step 2: You may see there are many connections in your computer. Just select one which you will use it to connect to Network Storage. Then choose the **"Properties"** of that connection.



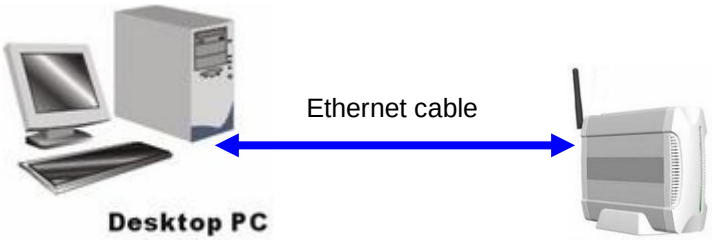
Step 3: Check the **"Client for Microsoft Networks"**, **"File and Printer Sharing for Microsoft Networks"**, and **"Internet Protocol (TCP/IP)"** are installed or not. If not, please install those communication protocols.



If you use other operating system, such as Linux, X-window or Mac OS, please refer to original manual of your OS to finish the configurations of TCP/IP and other required communication protocols.

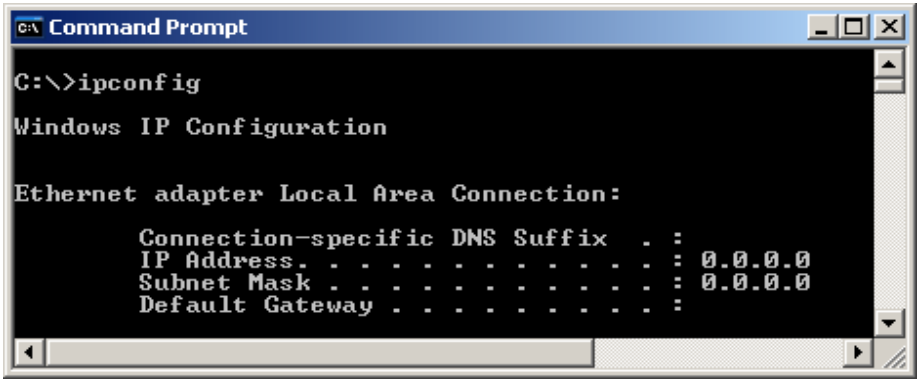
2.2.2 Wired Ethernet Connection

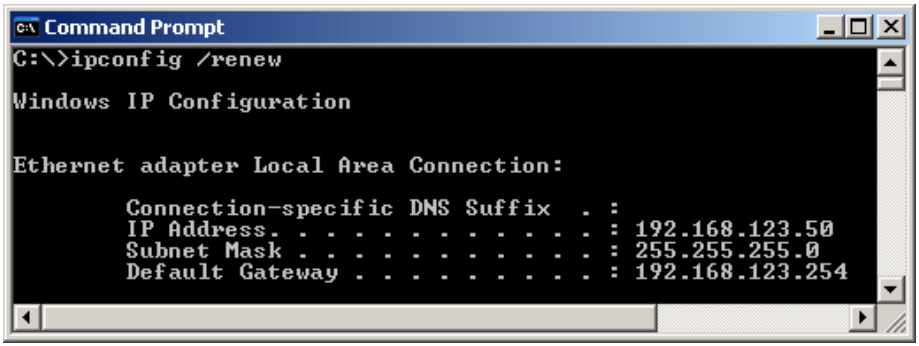
Use one Ethernet cable to connect the Network Storage and your computer directly. Then power on the Network Storage.



The Network Storage will detect automatically if there is any DHCP server nearby. If yes, it will get an IP address from DHCP server. But if there is no DHCP server in your environment, the Network Storage will become a DHCP server, and assign IP address to your computer. You can get some information as below shown.

Then go to **command prompt** mode from **Start Menu**->**Programs**-> **Accessories**, and type "**ipconfig**". If the IP address and subnet mask are shown 0.0.0.0, please type "**ipconfig /renew**" to retrieve an IP address.



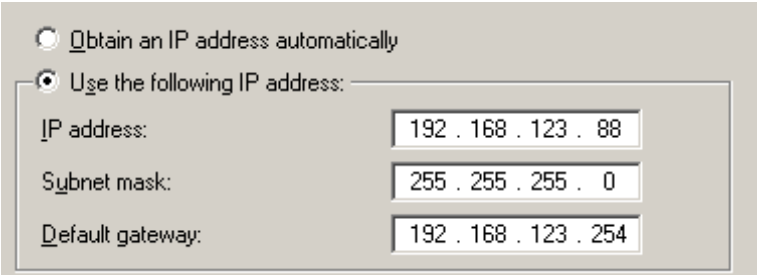


In addition, you can also allocate a static IP address on your computer as below:

Step 1: Find the **Internet Protocol (TCP/IP) Properties** from **My Network Places** and check the **Properties of Local Area Network Connection**. Choose "**Use the following IP address**", 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.

NOTE. The IP address of default gateway must be same as IP address of Network Storage.



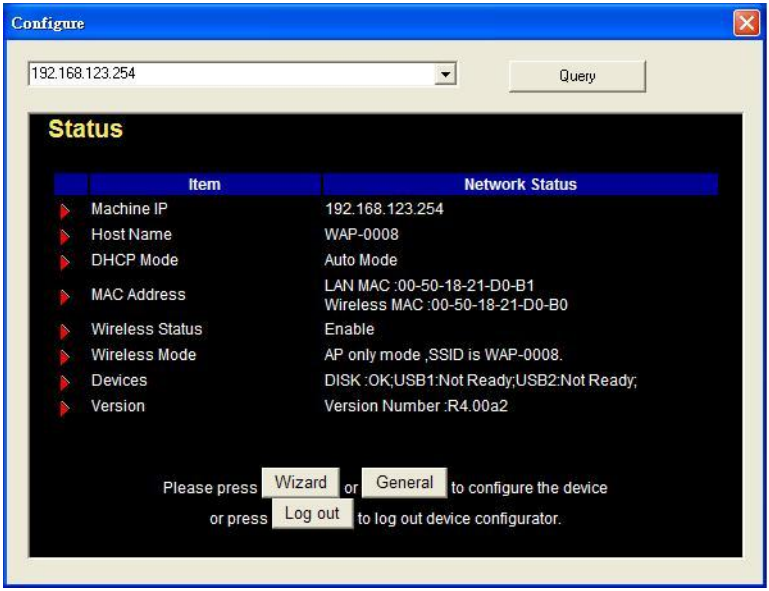
Step 2: Then go to command prompt mode from **Start Menu**->**Programs**-> **Accessories**. Type “**ipconfig**” and press the “**Enter**”. Then the following message should be found. Check the IP address, Subnet Mask, and Default Gateway addresses are same as previous settings. If same, you are successful to setup the network configuration.

There are three methods to configure Network Storage. Please refer to the following instructions, and choose one which is most convenient to you.

Method 1: Use Configuration Tool to Setup

Before you can do this, you need to install the configuration tool from installation CD first. After that, please use the configuration tool to "**Query**" and you will see the status page and input "**admin**" to login.

NOTE. The default login password is "**admin**".



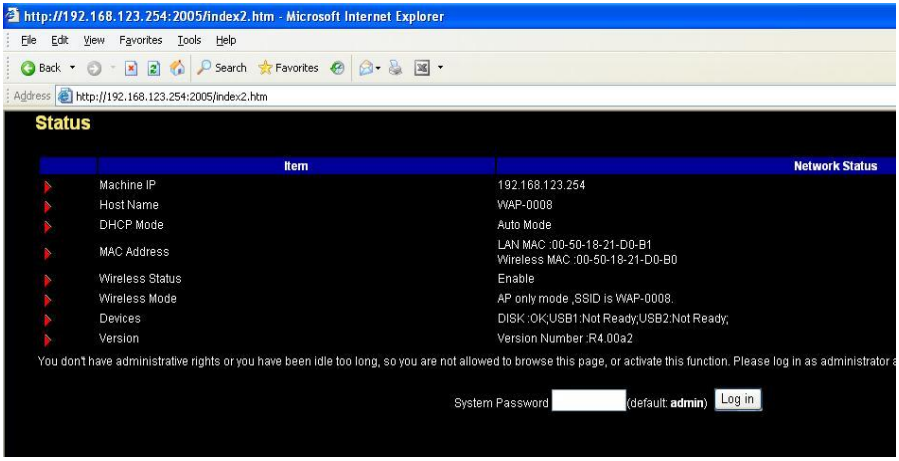
If there is any DHCP server in the network, Network Storage will be as the client and get one IP address from existed DHCP server. You can also use configuration utility to Query to find the IP address that Network Storage gets.

About other operating systems, such as Linux X-window or Mac OS, please use web browser to configure.

Method 2: Use Web Browser to Setup

Launch any web browser, such as Internet Explorer or Netscape on your computer, and then input IP address of Network Storage in the address field. For an example, type “http://192.168.123.254” and press “Enter”, then you can see the configuration page of Network Storage.

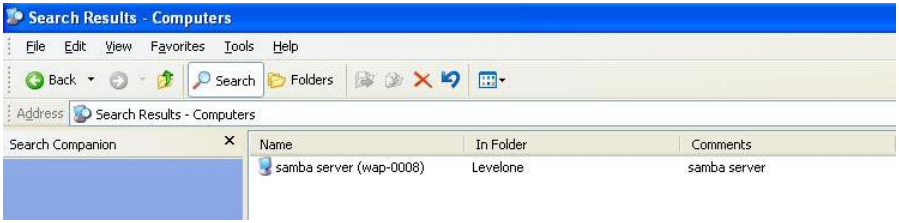
NOTE. You have to know the IP address of Network Storage when you use this method. The default IP address is “**192.168.123.254**”.



Method 3: Use “My Network Places” to Search and Setup

First, go to **My Network Places** and search “**WAP-0008**”.

NOTE. The default host name of Network Storage is “**WAP-0008**”.



Double click on “**samba server (wap-0008)**”, and you will see two folders. Then double click the folder “**Configure**”.

You can find there is a “**Configure.html**” in the folder, just double click on “**Configure.html**” directly to see configuration page.

2.2.3 Wireless Connection

Follow the steps below to connect to the Network Storage in a wireless environment. We assume that there is at least one WLAN card installed on your computer, and Network Storage is powered on.

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-0008** in the available network list, then select the **WAP-0008**, and click **Connect** button to connect. Otherwise, if you can’t find **WAP-0008**, please refresh network list again.

NOTE. The default network name (SSID) of Network Storage is “**WAP-0008**”.

Step 2: Then go to **command prompt** mode from **Start Menu**->**Programs**-> **Accessories**. Type "**ipconfig**" in the command prompt window and press the "**Enter**". Then the messages of **IP address**, **Subnet Mask**, and **Default Gateway** should be found.

Step 4: After you connect to Network Storage successfully, you can use method 1~3 that have been described in section 2.2.2 to configure Network Storage.

WARNING:

We strongly recommended that you enable wireless encryption feature, or add User Access rules on Network Storage. Otherwise, everyone can connect to it wirelessly and access data which is stored in your hard drive.

2.3 File Sharing

The Network Storage 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

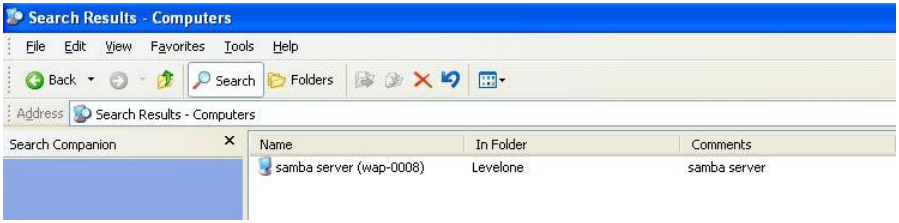
Select the "**My Network Places**" and type the address of "**\\WAP-0008**" and press "**Enter**". Then you will find the **Storage** icon.

Click the "**Storage**" icon, and you will find the "**C**" folder as below. The folder "**C**" is the root directory of attached hard disk drive.

NOTE. The other folder "**USB**" is the root directory of attached USB drive.

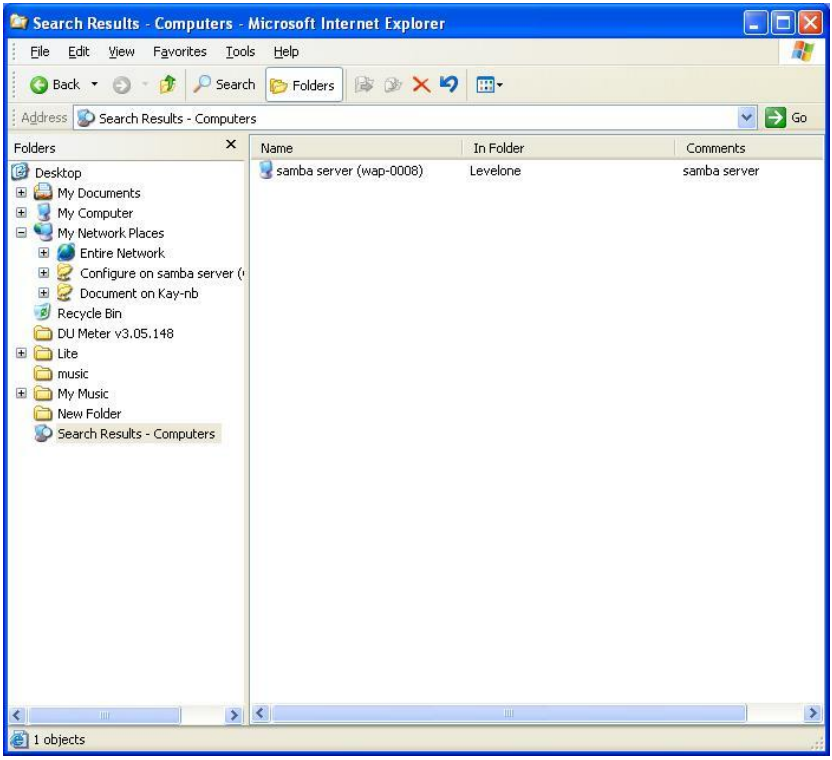
2.3.2 Searching the Computers

Open **"My Computer"** on the desktop menu, and use the "**Search**" function to search the computer of "**WAP-0008**" as below.



2.3.3 Search the “Entire Network” Manually

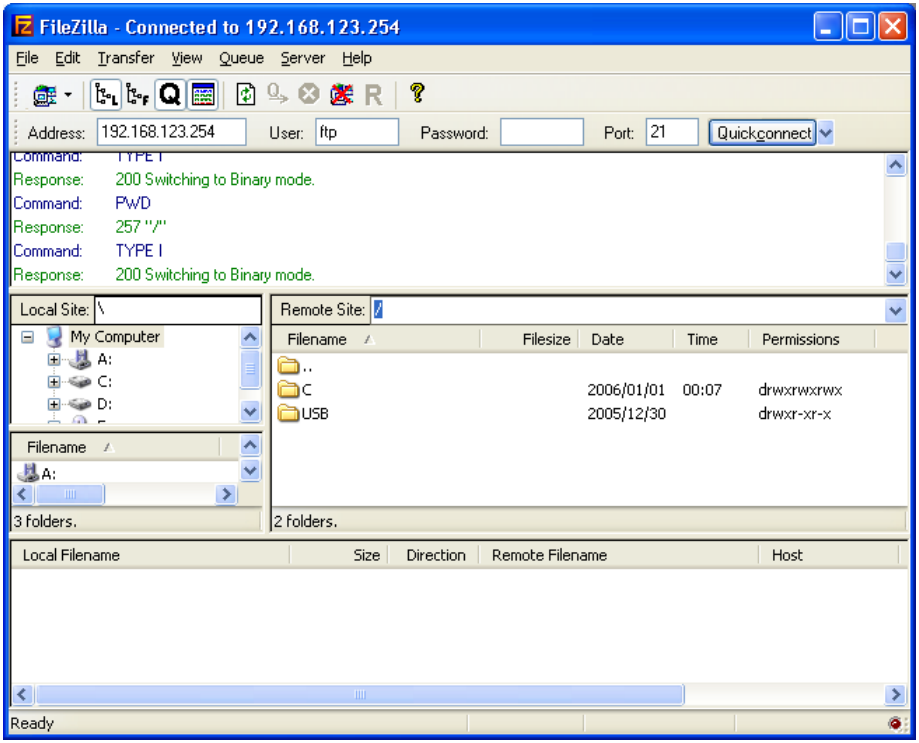
Open **Windows Explorer**, and then click the **My Network Places** icon. Double click the **Entire Network** to view the components of the network. Select and click the **Microsoft Windows Network** icon, then the various network components showed in the list. The default workgroup of Network Storage is **LevelOne**.



2.3.4 Accessing Files via FTP

The Network Storage offers FTP service for the clients which don't support Microsoft Windows File sharing. You can use any FTP client utility to connect to Network Storage with anonymous username and password (username: ftp, and without password) when the **Security Level** is set to "**Guest mode**". But if you change to "**Authorization mode**", the accessing permission is limited, and then users have to input specified username and password to access any permitted folders. The rule of access control would be explained in much detail in chapter 4.

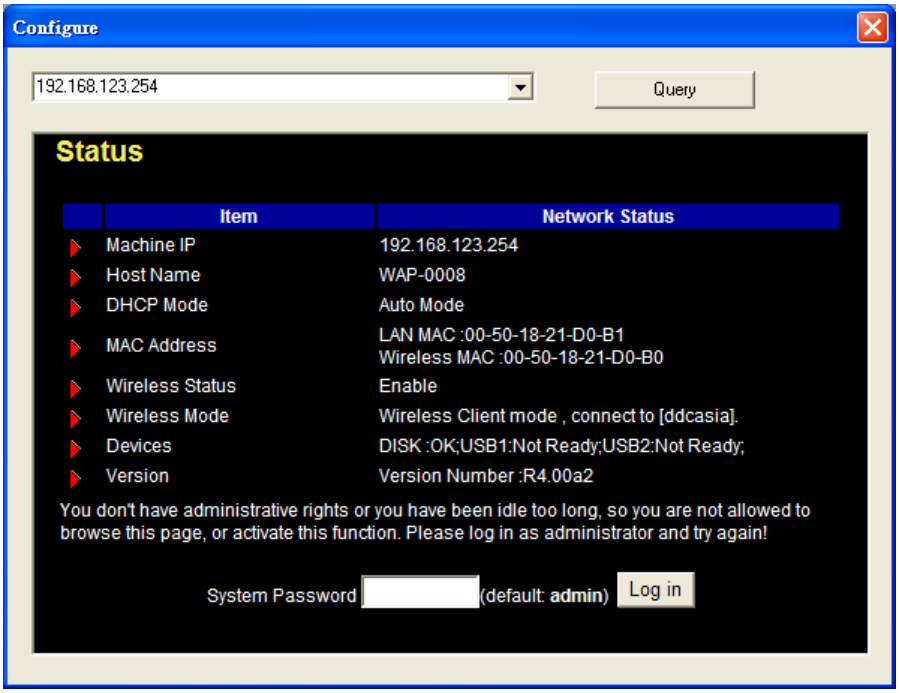
NOTE. The FTP service of Network Storage can be switched off.



Chapter 3: Making Configuration

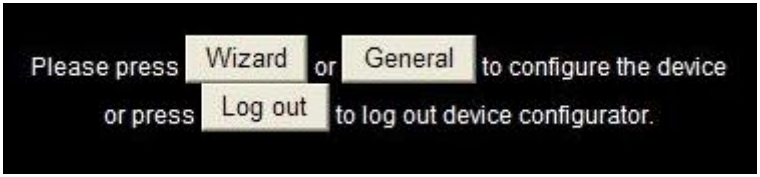
The Network Storage can be configured various settings through the proprietary Configuration Tool or general web browser. Even you don't know which IP is being used by Network Storage; the Configuration Tool will help you to find it. All you have to do is click the "**Query**" button of the Configuration Tool.

NOTE. You need to know the IP address of Network Storage if you want to configure it by web browser. The default IP address of Network Storage is 192.168.123.254.



When you enter the configuration mode, you are requested to provide the "**System Password**" to activate the configurations. The default login password is "**admin**".

After login, you could see these buttons:



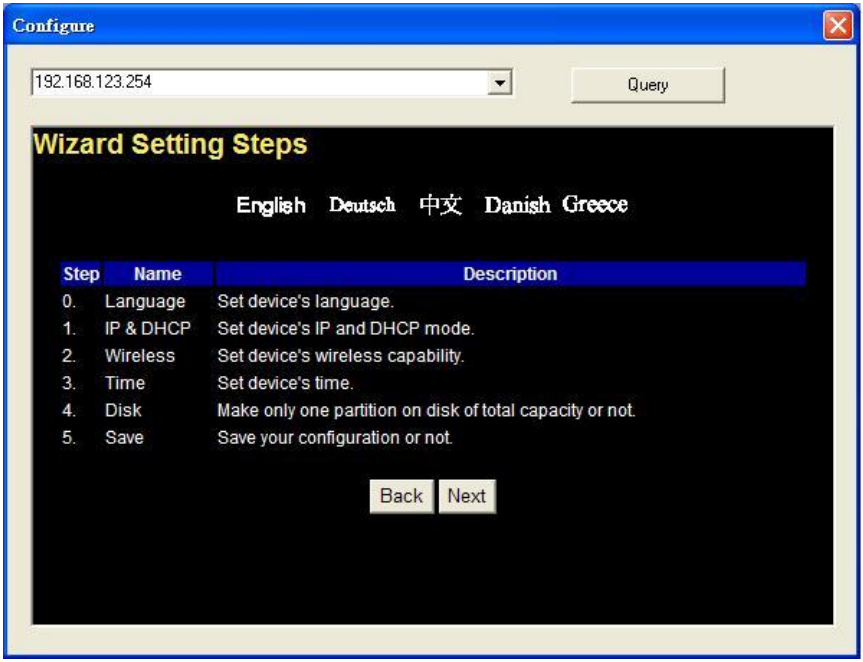
Press "**Wizard**" button if you want to do basic settings with simpler way. (Please check section 3.1)

Press "**General**" button if you want to make some advanced settings. (Please check each item from section 3.2)

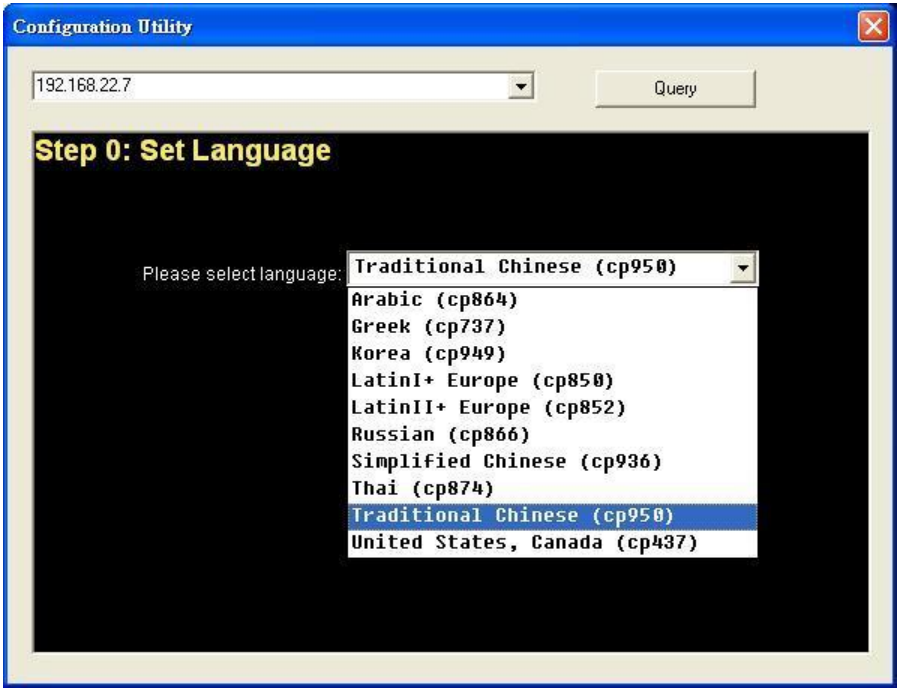
Press "**Logout**" button if you don't want to do anything.

3.1 Configuration Wizard

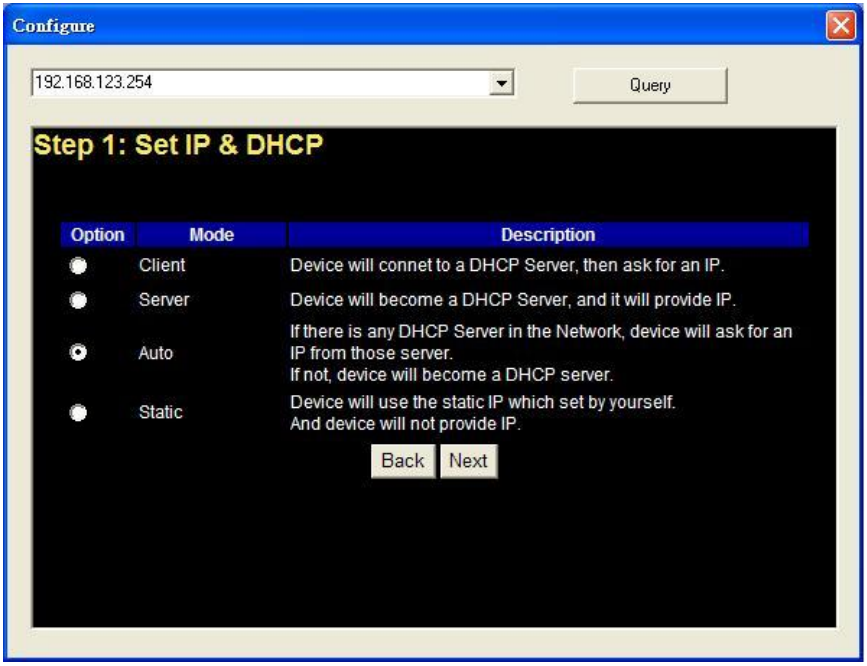
With wizard setting steps, you could configure Network Storage in a very simple way. This configuration wizard includes settings of **Language**, **IP & DHCP**, **Wireless**, **Time**, and **Disk**. Press “Next” button to start configuration.



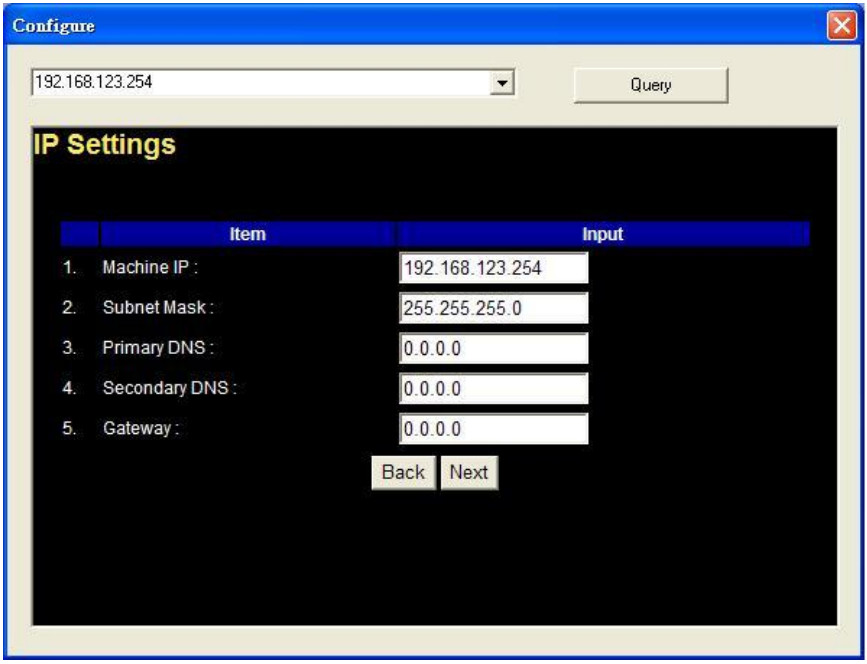
Step 1: Select which language will be used for folder/file name in the hard disk. Incorrect language setting may cause folder/file name unreadable.



Step 2: If you don't know how to set DHCP option, just keep it as Auto.

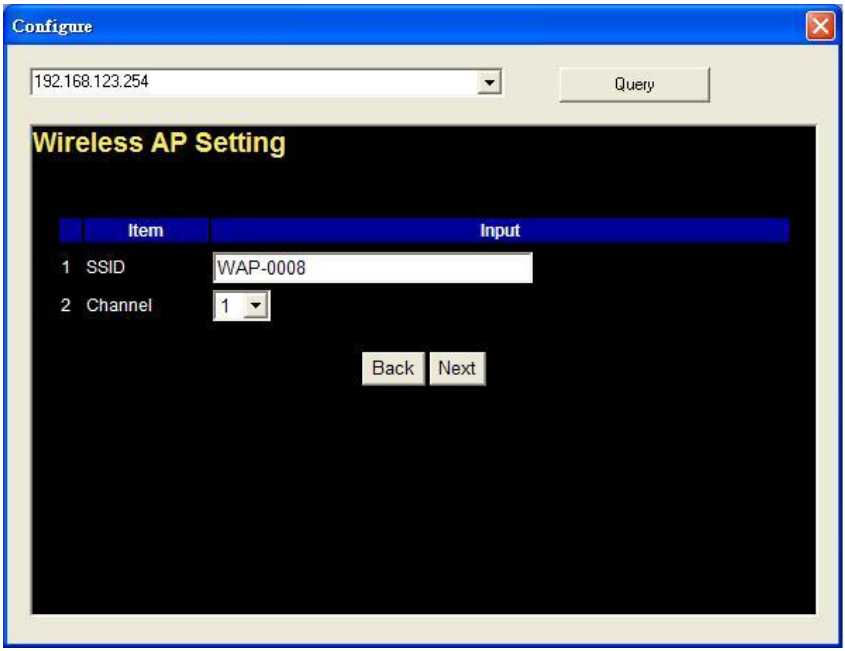


If you choose **Server**/**Auto**/**Static** mode, you need to set some TCP/IP settings for Network Storage. If you are not sure about these values, please ask your network administrator or ISP.

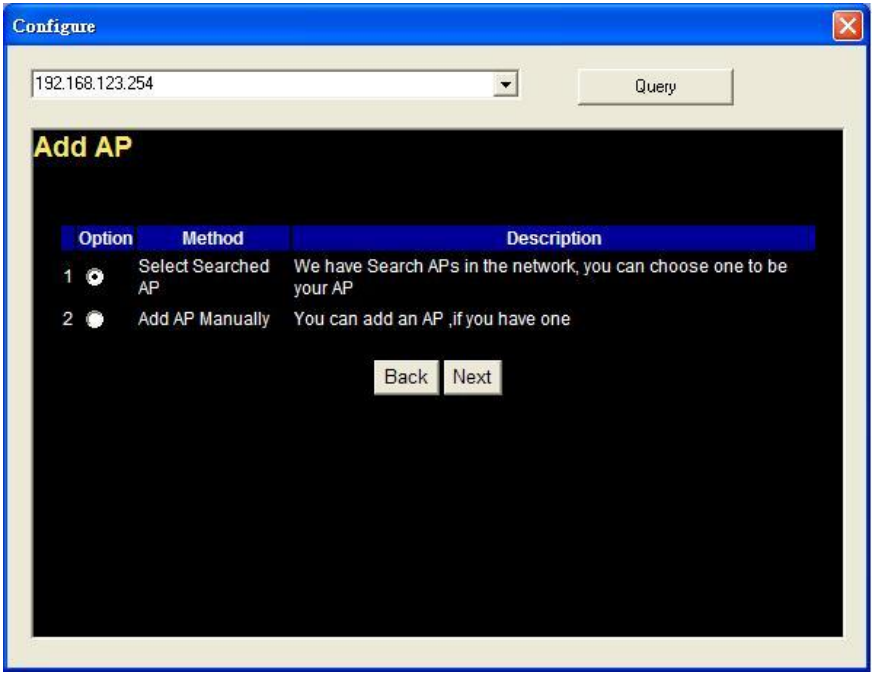


Step 3: Choose which wireless mode that you want to use. You can also disable wireless feature of Network Storage.

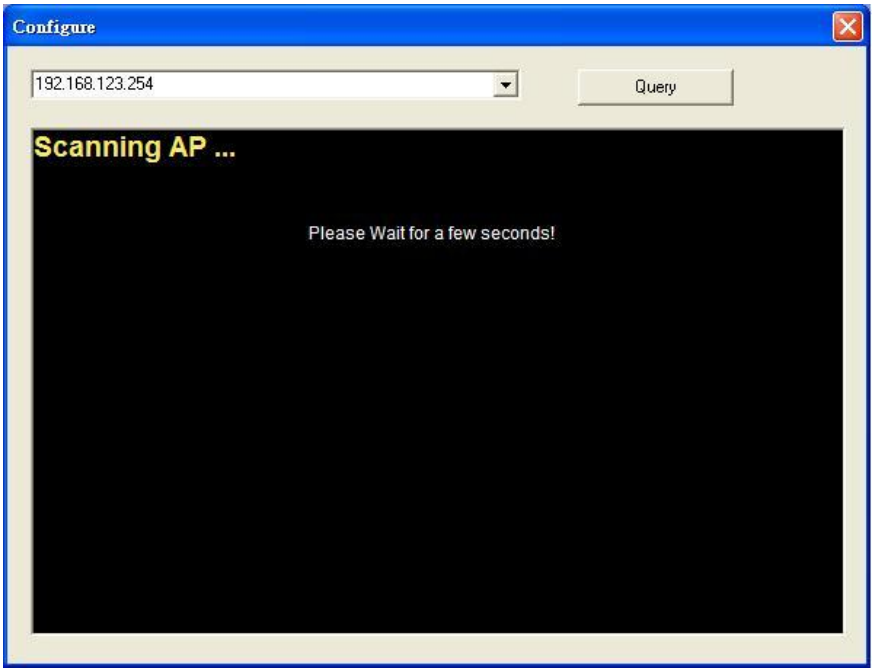
If you choose **AP Only Mode**, in next page, you could specify the SSID and the wireless channel number for Network Storage.



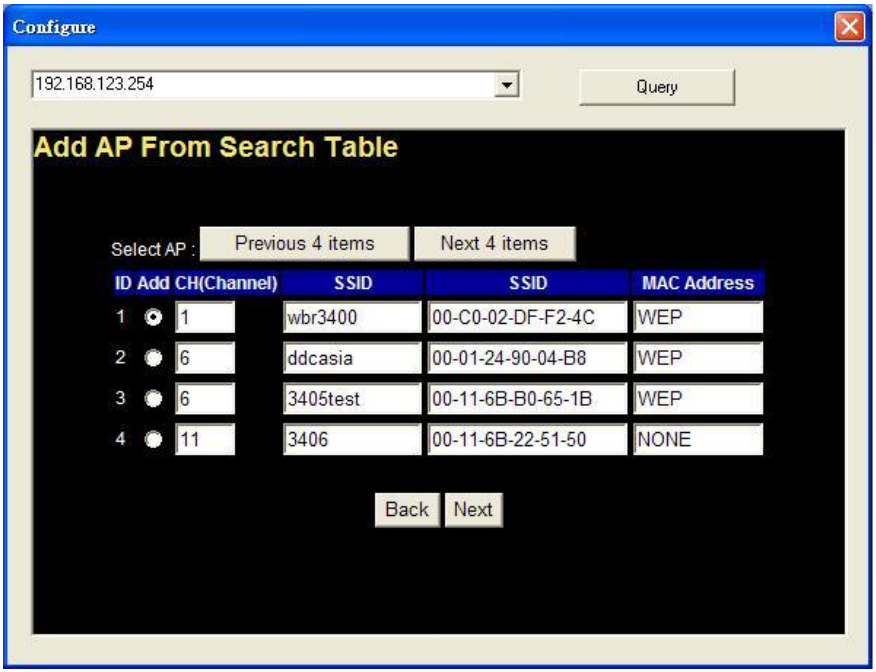
If you select the **Wireless Client Mode**, in next page, you would have to specify the AP that you want Network Storage to connect to.



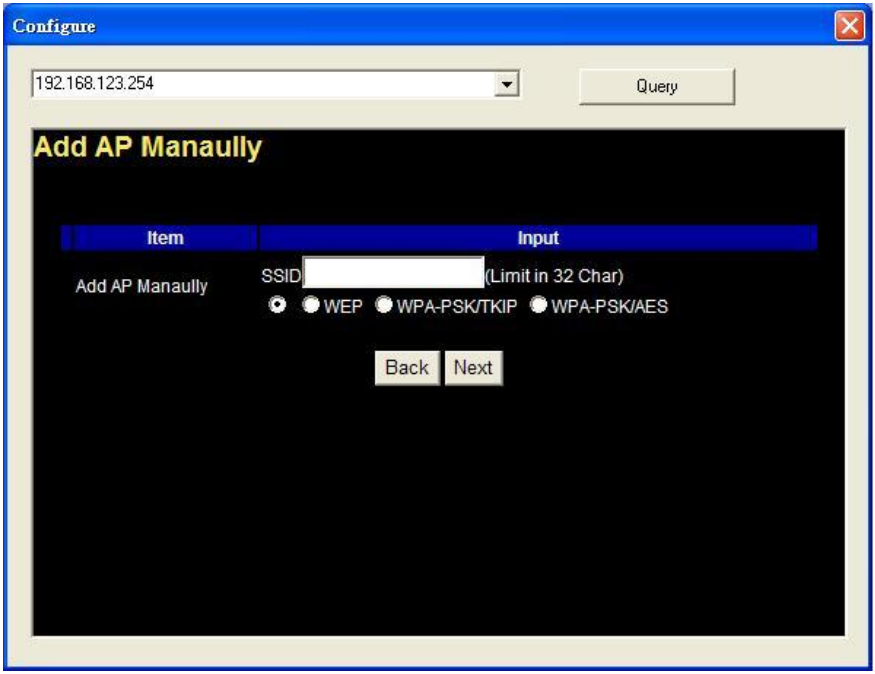
You have two ways to do this job. One is searching the available AP that Network Storage could get.



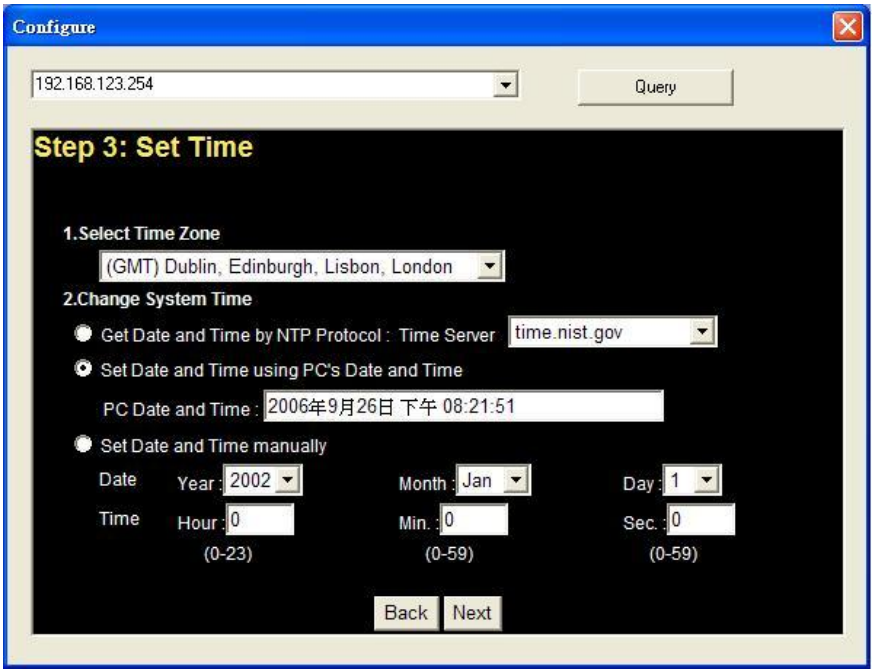
After finish searching, you could select the AP that you want Network Storage to connect to.



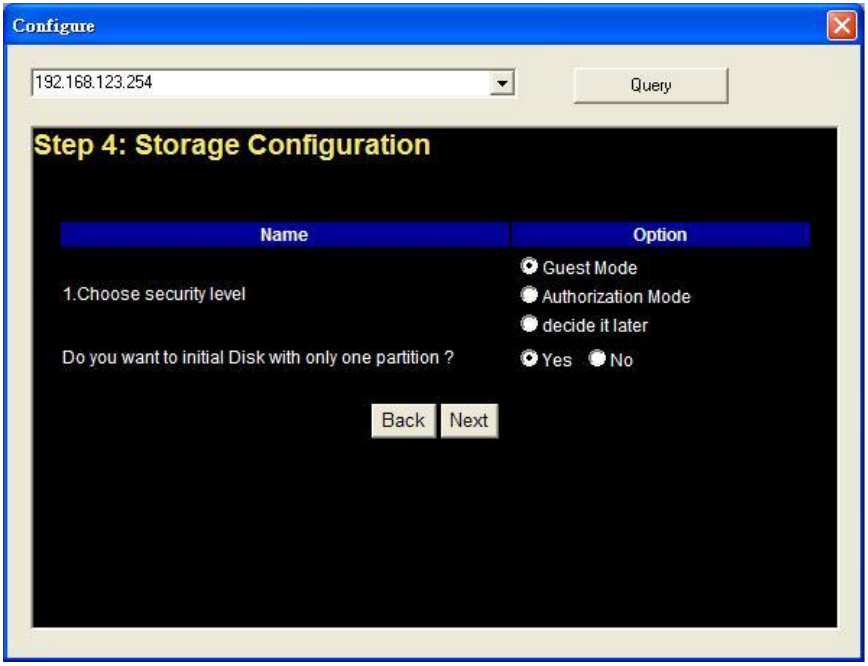
The other way to add an AP is setting the SSID manually.



Step 4: Next, you have three ways to set time for Network Storage. You could sync time with NTP server or your PC, or set time manually.



Step 5: Here you will see three options of security level. The "**Guest Mode**" means everyone can access any data in your hard disk drive. The "**Authorization Mode**" means only authorized user can access data which is stored in their home directory. Or you can decide the security level later if you don't have any idea yet.



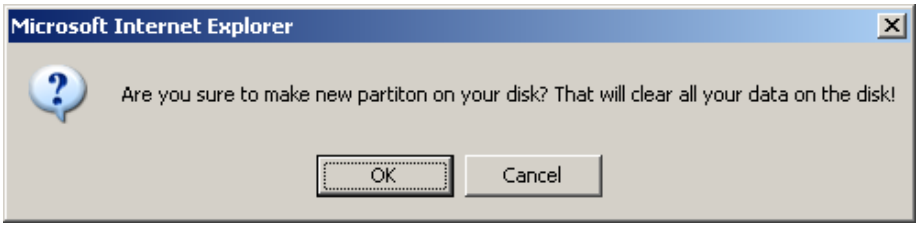
If you choose **Decide it later**, the Network Storage won't do any change to your hard disk. So you can keep all your data which has been stored in the hard disk.

If you choose **Guest Mode**, it's not necessary to initial your hard disk drive. As a result, 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**". **NOTE.** You can get better performance after disk initialization.

WARNING:

The format process will erase all your data which has been stored in your hard disk drive.

If you select "**Yes**", the Network Storage would ask you one more time to confirm your decision.

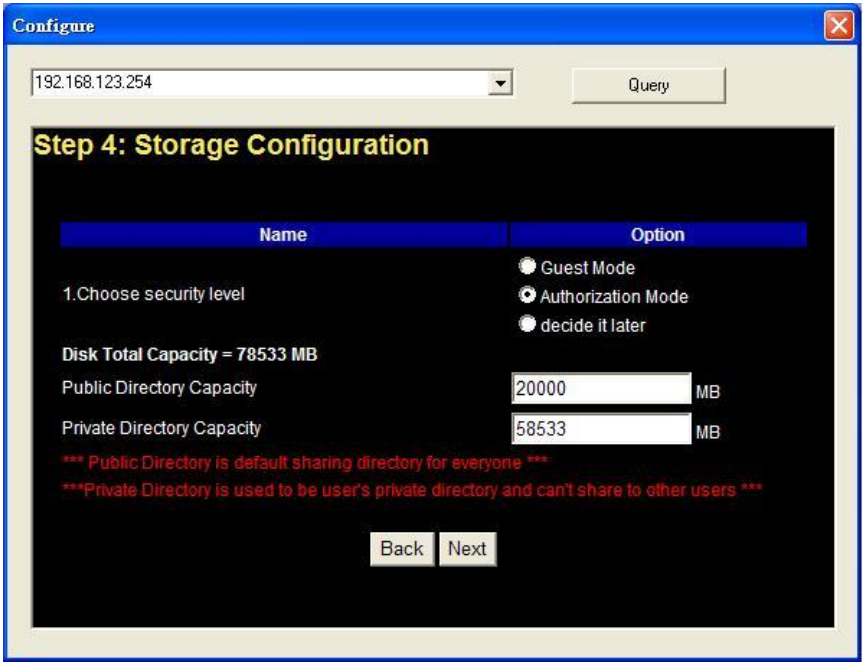


WARNING:

Even there is only one partition in your hard disk, the Network Storage will format your hard disk again if you press OK.

If you choose **Authorization Mode**, it's necessary to initial your hard disk drive. The public directory will store data which can be accessed by any user. But only authorized user can access data which is stored in their home directory in the private directory. Please indicate capacities for public directory and private directory separately. After you indicate capacity for one directory, the rest of capacity can be assign to the other directory automatically.

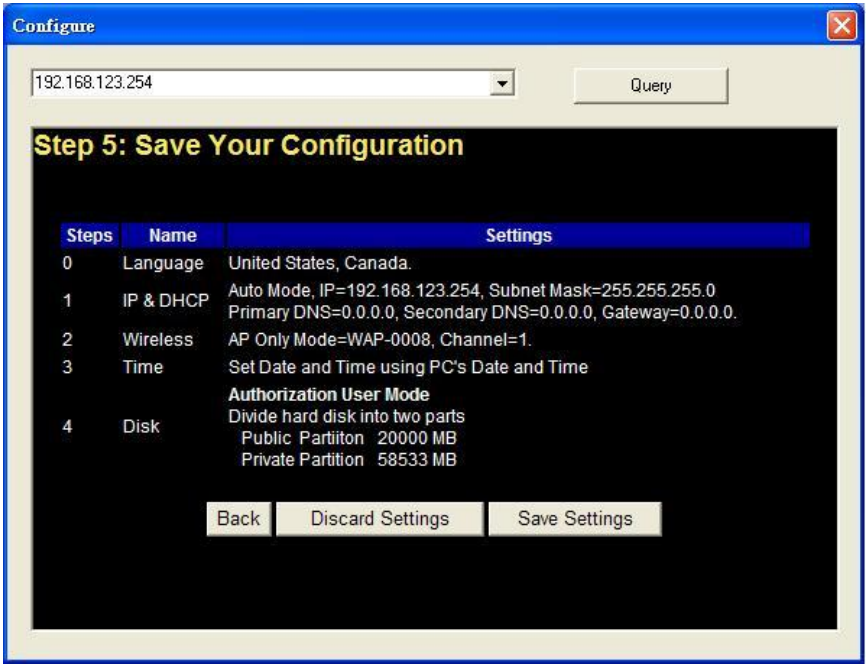
NOTE. The easy copy button in the front panel is going to copy folders/files from USB drive to public directory while you activate authorization mode.



WARNING:

The initialization will erase all your data which has been stored in the hard disk.

Step 6: This page will show the configurations that you choose, please check your settings again before saving. Click "**Discard Settings**", then you would return to the first page and without saving any changes. If you want to change any setting, please click "**Previous**" button to go back to previous page. Finally, if everything is okay, click "**Save Settings**" to save your new settings.



If you choose to initialize or format hard disk, please wait the progressing bar become 100%.

WARNING:

Do Not press any button or power off the Network Storage when the format is in progress.

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

3.2 Network Settings

3.2.1 DHCP Setting

Following sections describe the various DHCP settings.

- General Settings: default machine IP is **192.168.123.254.** This IP address must be unique on your network. You can change it if necessary. This setting is only used for DHCP server mode, and Static IP mode. Host name is the identification of Network Storage when you browse it in Microsoft My Network Places.
- DCHP 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 Network Storage will become a DHCP server on the network.
- ✓ Auto: Select this option to let Network Storage send out a DCHP request during boot up. If you have another DHCP server on the network, the Network Storage will receive an automatic IP address and subnet mask assignment. If there is no DHCP server on the network, the Network Storage will become a DHCP server on the network.
- ✓ Static: You can manually configure the IP address and subnet mask of Network Storage.

- Server Settings: (This information would be used when you choose Server mode or Static mode.)
  - ✓ Subnet Mask: subnet mask of your network.
  - ✓ IP Pool: decide the IP address range that DHCP server will 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 setup the gateway, please contact your network administrator or ISP.
  - ✓ Client List: When Network Storage 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 Network Settings page.

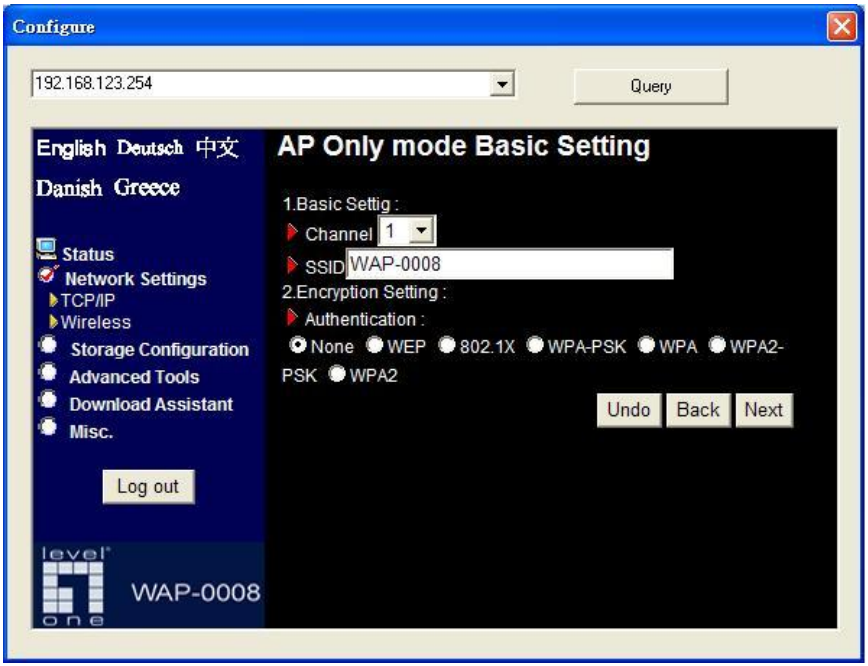
Following information will let you know the current wireless operation status.

- Basic Settings: allow you to enable or disable wireless function.
- Advanced Settings: the Network Storage provides four wireless modes to select. Please refer to the following section to check details of each wireless mode separately.

Choose the wireless mode you need, and click “**Next**” button to setup detail items.

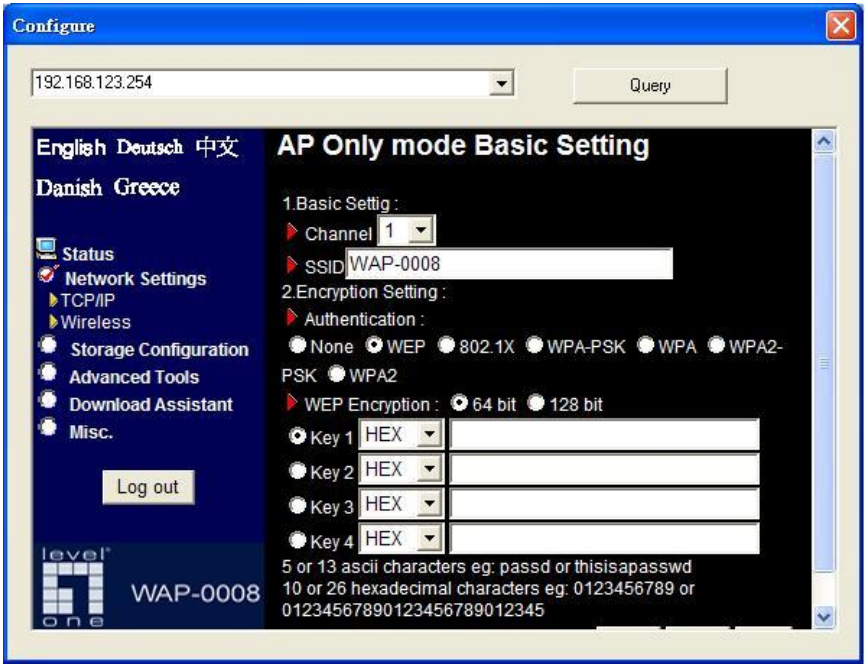
3.2.2.1 AP Only Mode

When you are in the **AP Only mode**, you can setup the basic wireless functions as below.

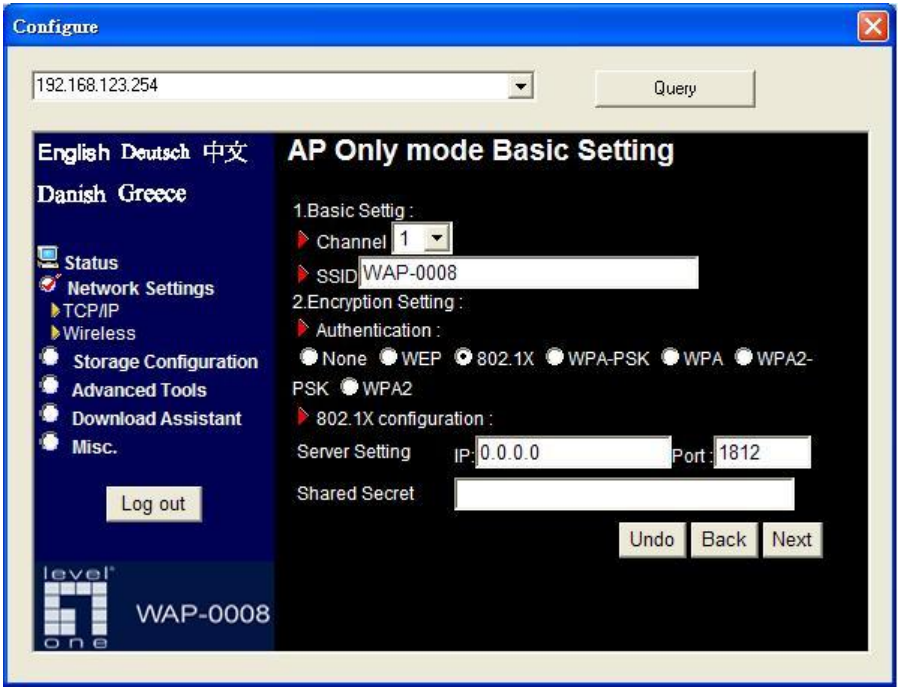


Wireless AP Setting:

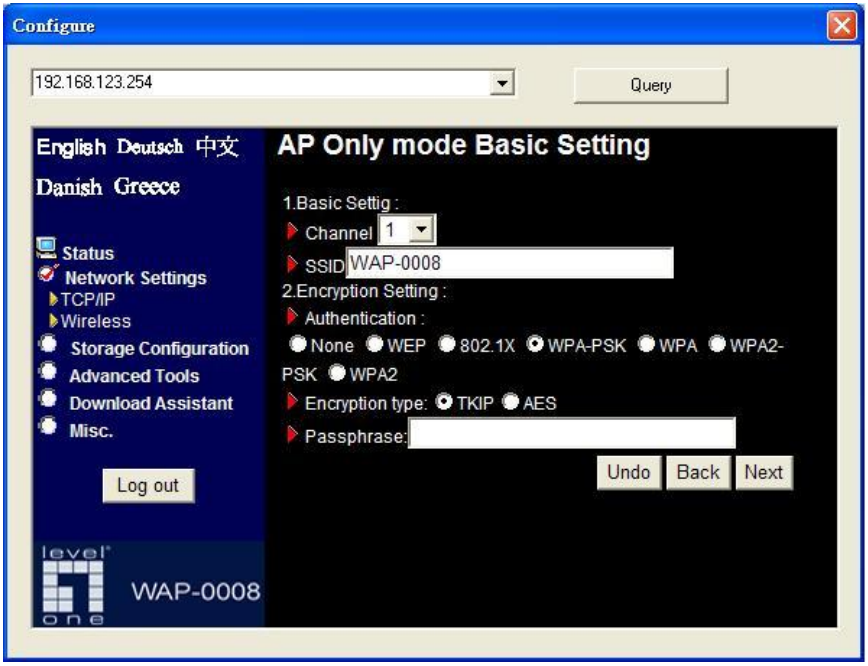
- Channel: choose the radio channel number. The default channel of Network Storage is "**1**". **Please DO NOT set the same channel with your existed wireless network.**
- SSID: the SSID identifies a specific wireless LAN. Before associating with a particular wireless LAN, a station must have the same SSID as the access point. The default SSID setting is "**WAP-0008**".
- 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.
- WEP Encryption: select "**64**" or "**128**" bits for encryption method to protect your data by encrypting it. The WEP key can be 5(or 13) ASCII characters or 10(or 26) hexadecimal characters based on whether you select 64 bit or 128 bit WEP encryption.



- 802.1X: IEEE 802.1x authentication can be done by using an external RADIUS server. You need to input the IP address of RADIUS server and Shared Secret. Please refer to FAQ in chapter 8 to get more detailed information.

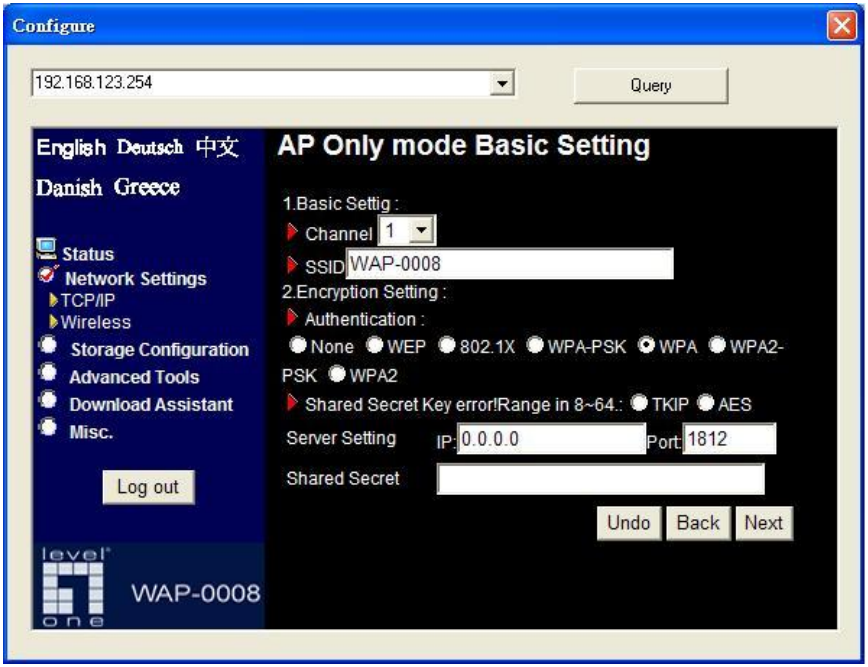


- WPA-PSK, WPA2-PSK: AP and Client need to use identical Pre-shared key (PSK). Please choose TKIP or AES for encryption type, and then input 64 Hex key (0~F) or 8~63 ASCII characters.

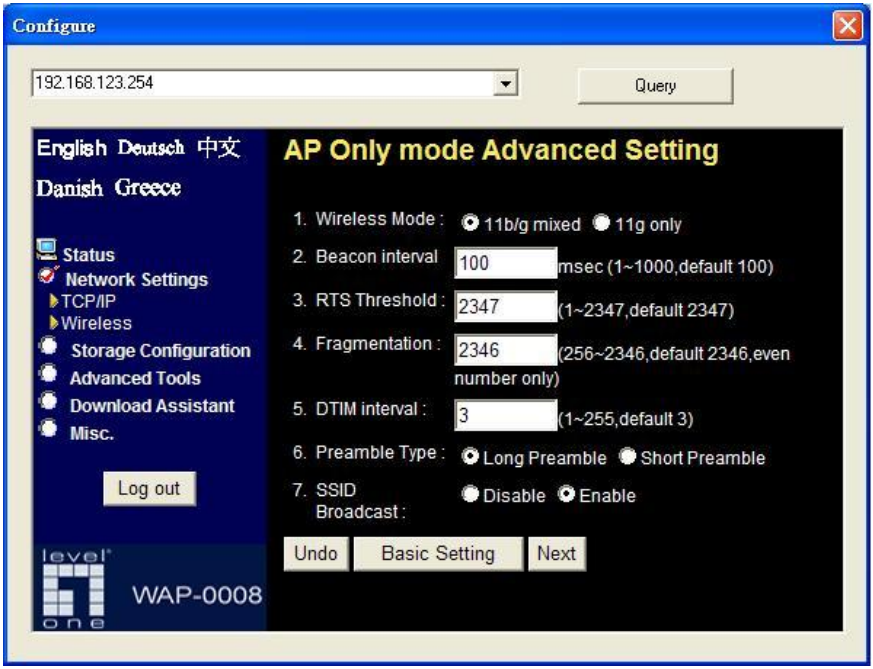


- WPA, WPA2: WPA applies IEEE802.1x and Extensible Authentication Protocol (EAP) to authenticate wireless clients using an external RADIUS server. Please input the IP address of RADIUS server and Shared Secret. Please refer to FAQ in chapter 8 to get more detailed information.

  NOTE. This device can support WPA version 1 and version 2.


Configure
192.168.123.254
Query
English Deutsch 中文
Danish Greece
Status
Network Settings
TCP/IP
Wireless
Storage Configuration
Advanced Tools
Download Assistant
Misc.
Log out
level one
WAP-0008
AP Only mode Basic Setting
1.Basic Settig :
Channel 1
SSID WAP-0008
2.Encryption Setting :
Authentication :
None WEP 802.1X WPA-PSK WPA WPA2-PSK WPA2
Shared Secret Key error!Range in 8~64.: TKIP AES
Server Setting IP: 0.0.0.0 Port: 1812
Shared Secret
Undo Back Next

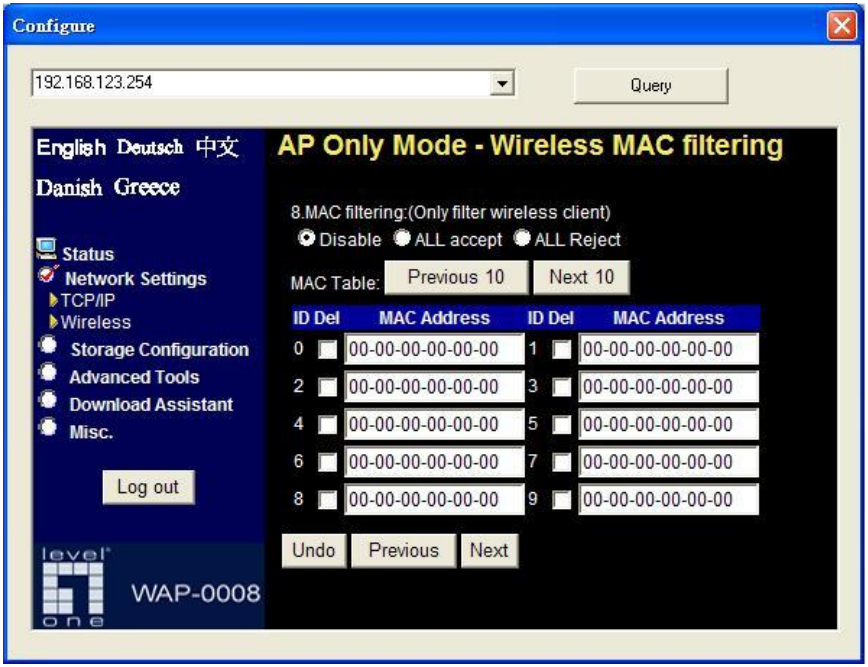
Advanced Setting:



- 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 decrease 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.
- DTIM 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 Network Storage is sent to wireless enabled devices on the LAN. This feature is enabled by default.

Then 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 Network Storage. When you select “**ALL accept**”, the wireless clients with the MAC addresses you enter below will be accepted to connect to this Network Storage, 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 Network Storage, the others will be accepted.

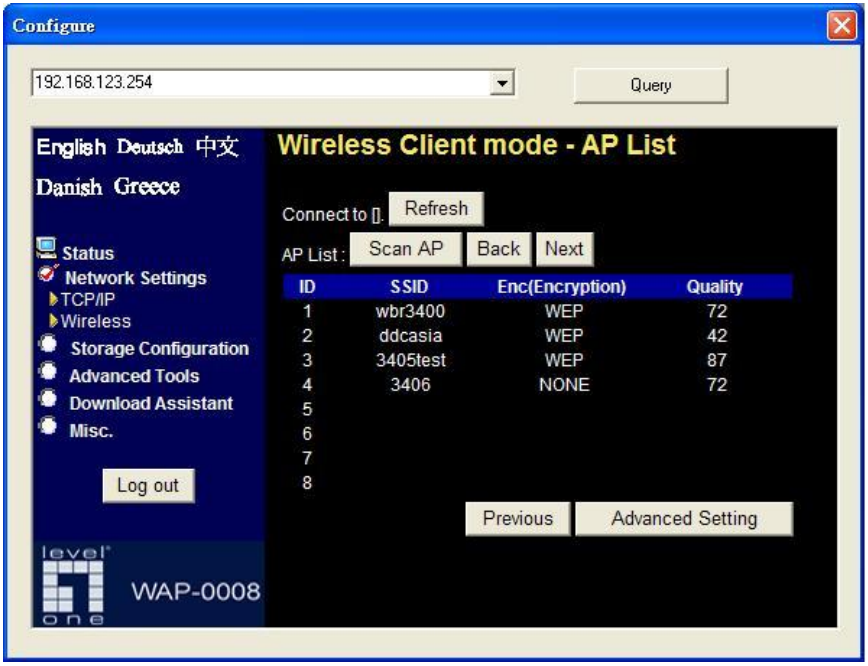
After finish configuration, press “**Next**” button to review all wireless settings. If everything is correct, then press “**Confirm**” button to save and take effect new settings.

3.2.2.2 Wireless Client Mode

Select the **“Wireless Client mode”** and click “Next” button to setup under the Wireless client mode.

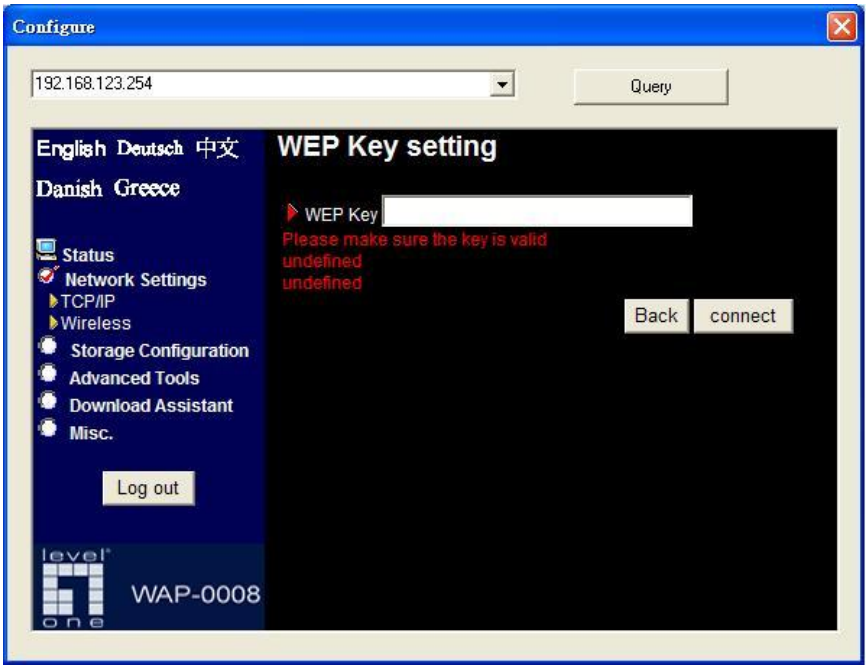
After entering the Wireless client mode setting, click the **“Scan AP”** to scan the existing AP in your environment. Then click the AP that you want to connect to.

NOTE. If Network Storage can’t find any AP in your environment, please check whether the antenna is well connected or not.



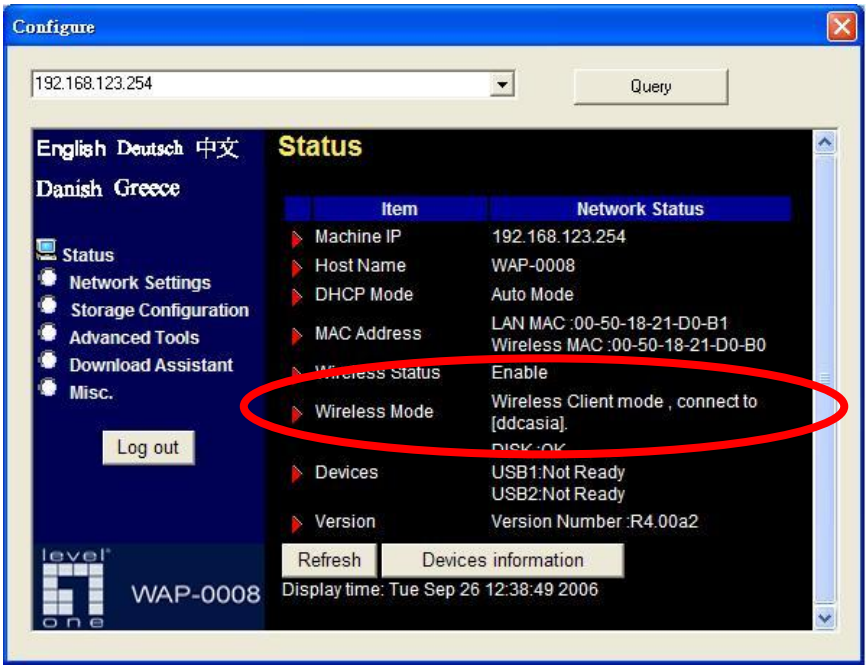
Input encryption keys if needed. Then press “**Connect**” button to connect.

NOTE. The encryption method is decided by remote AP.



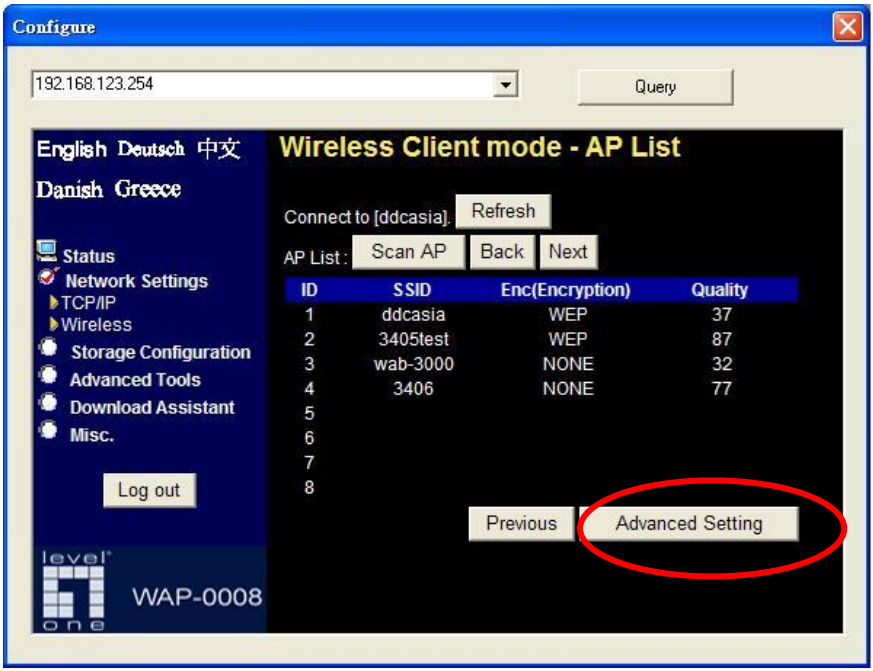
Then Network Storage will save configurations and reboot automatically.

After that, you can check the wireless status in the status page.

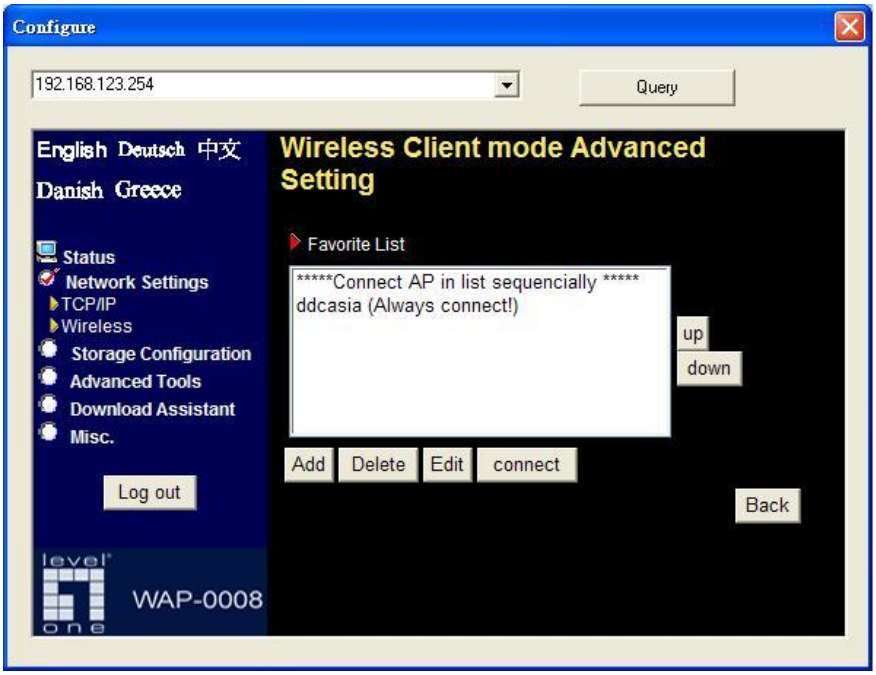


Besides selecting AP from available list, you can also add AP manually.

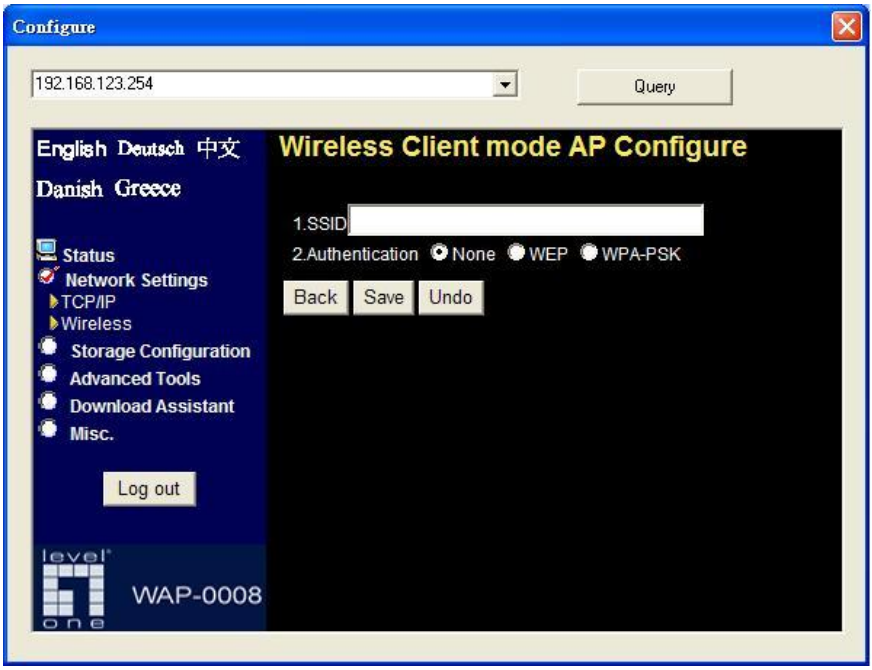
Press “**Advanced Setting**” in the wireless configuration page.



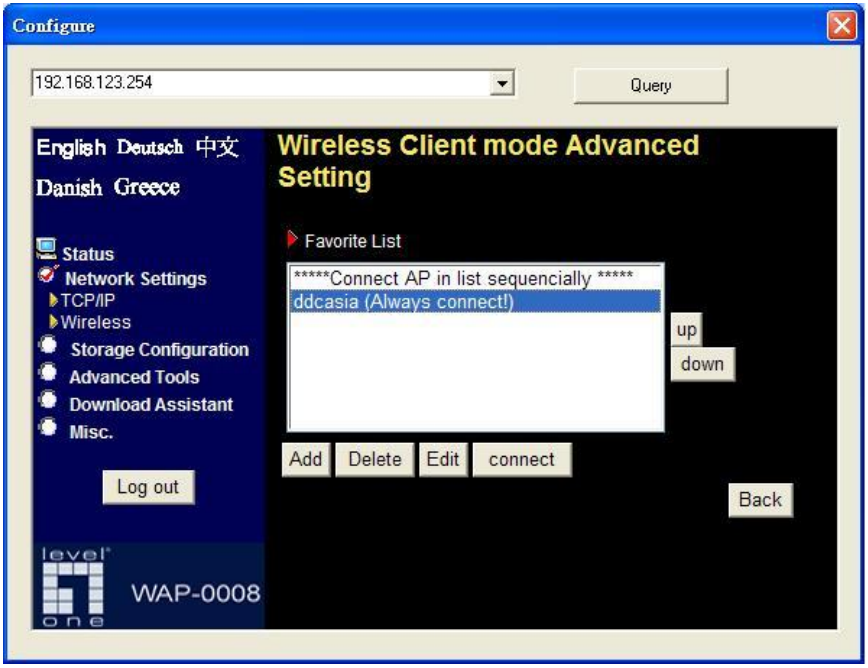
Press “**Add**” button to add a remote AP.



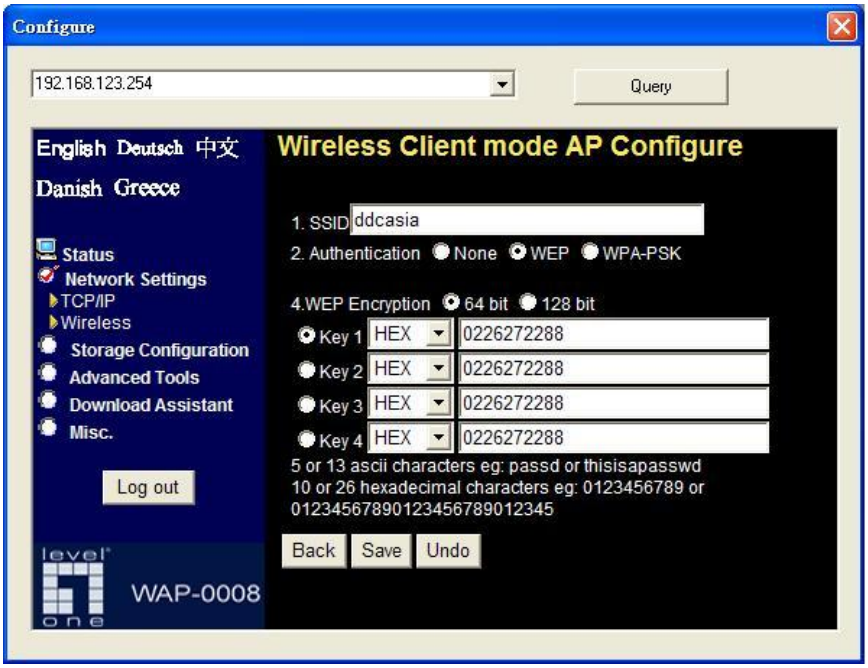
Input the SSID information of remote AP. You may also need to input correct encryption keys when remote AP activates encryption mechanism. Then press “**Save**” to save the configuration.



You can also modify attributes of existed AP. Go to wireless “**Advanced Setting**” page, choose the AP that you want to modify, then press “**Edit**” button.



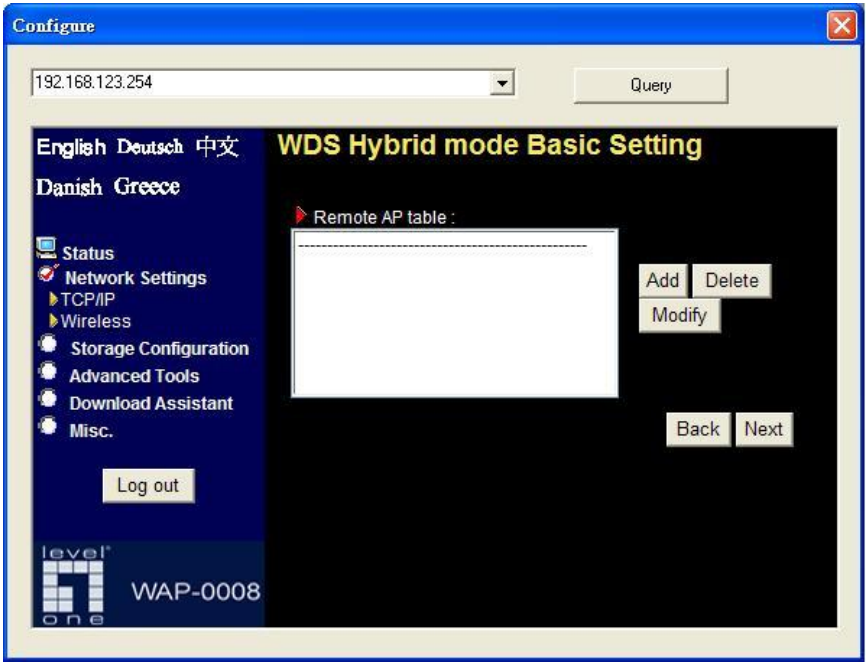
When you finish all the modification, press “**Save**” button to save changes.



3.2.2.3 WDS Hybrid Mode

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

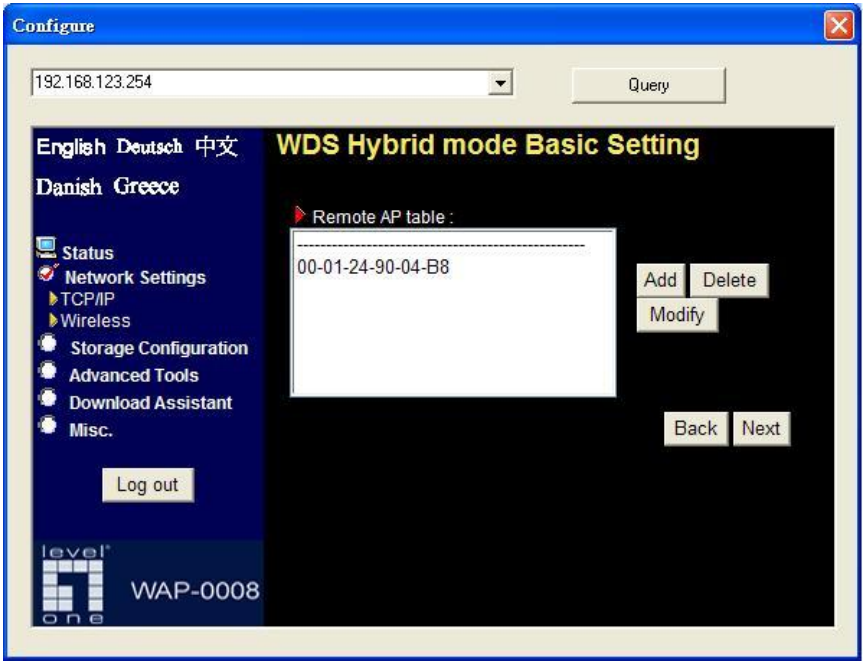
After entering the WDS Hybrid mode setting, click “**Add**” to set up.



You can select the remote AP from AP list, or you can also input the MAC address of remote AP manually.

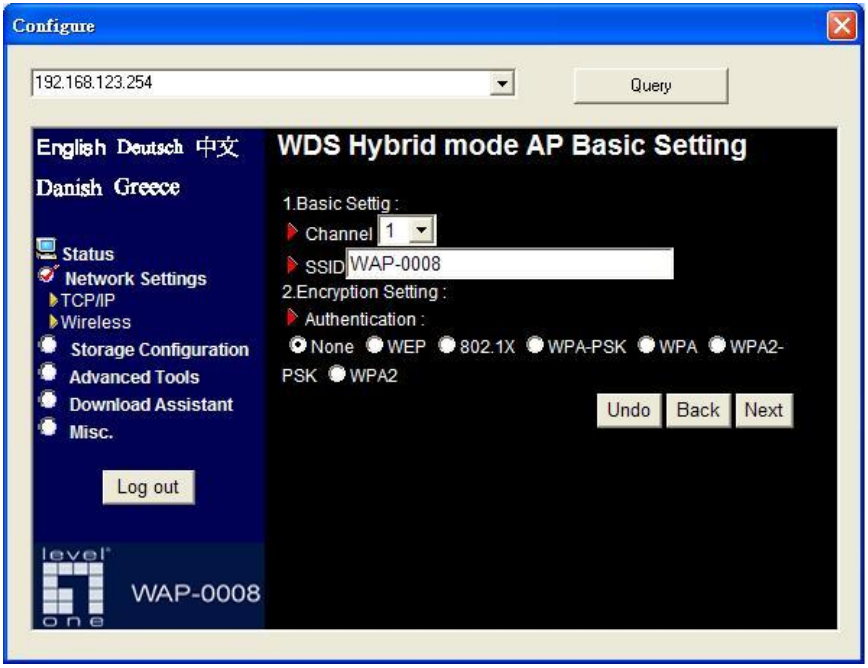
NOTE. The channel of Network Storage and remote AP must be the same.

After indicating MAC address of remote AP, press “**Next**” to continue.



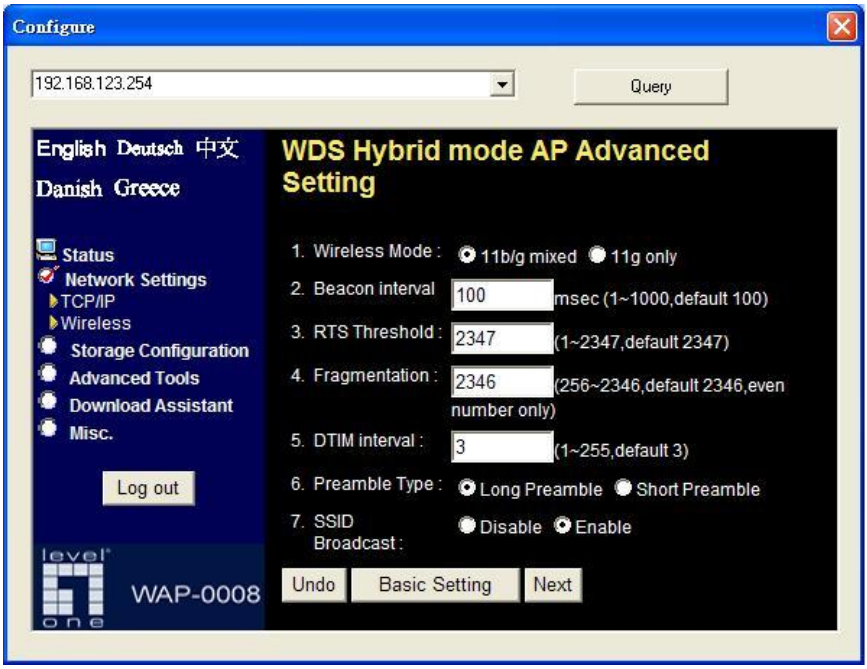
Input information of wireless channel, SSID, and encryption method of Network Storage. Press “**Next**” to continue.

NOTE. The wireless channel must be same as remote AP.



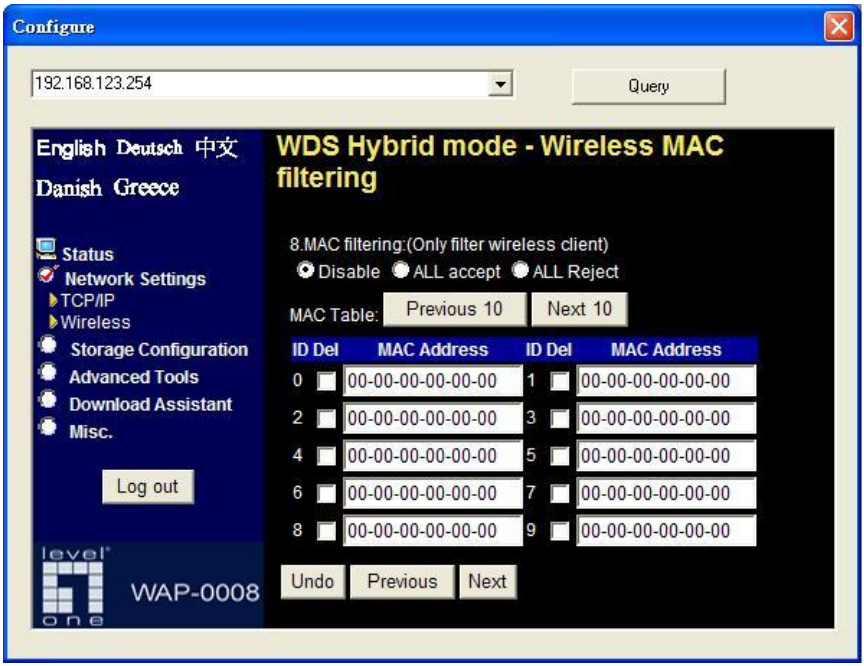
You can keep the original setting of this page, and then press “**Next**”.

NOTE. Please refer to 3.2.2.1 to review the meanings of this page.

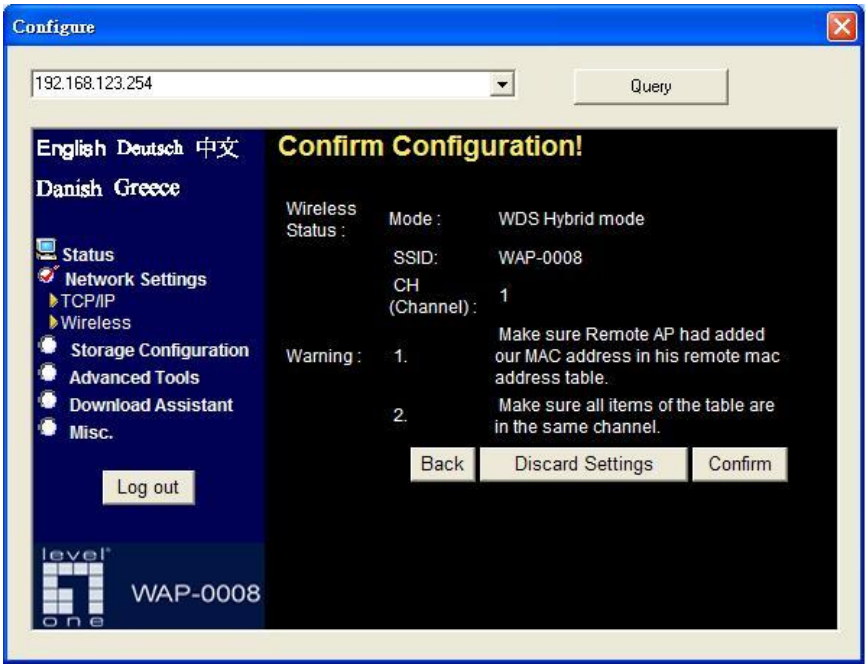


Edit wireless MAC Filtering setting, and then press “**Next**”.

NOTE. Please refer to 3.2.2.1 to review the meanings of this page.



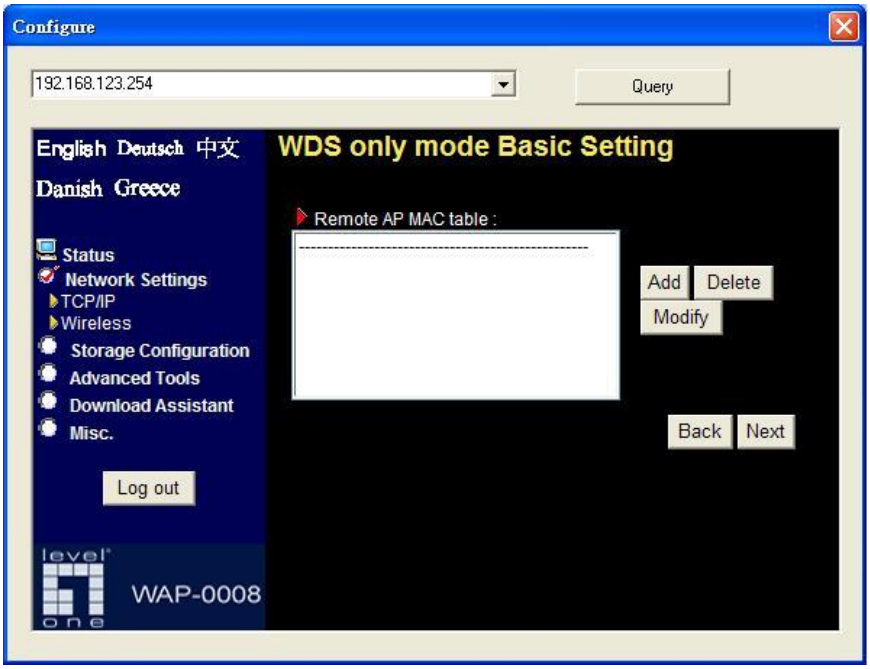
Finally, you could see the confirm page. If every setting is correct, just press "**Confirm**" to save all configurations.



3.2.2.4 WDS Only Mode

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

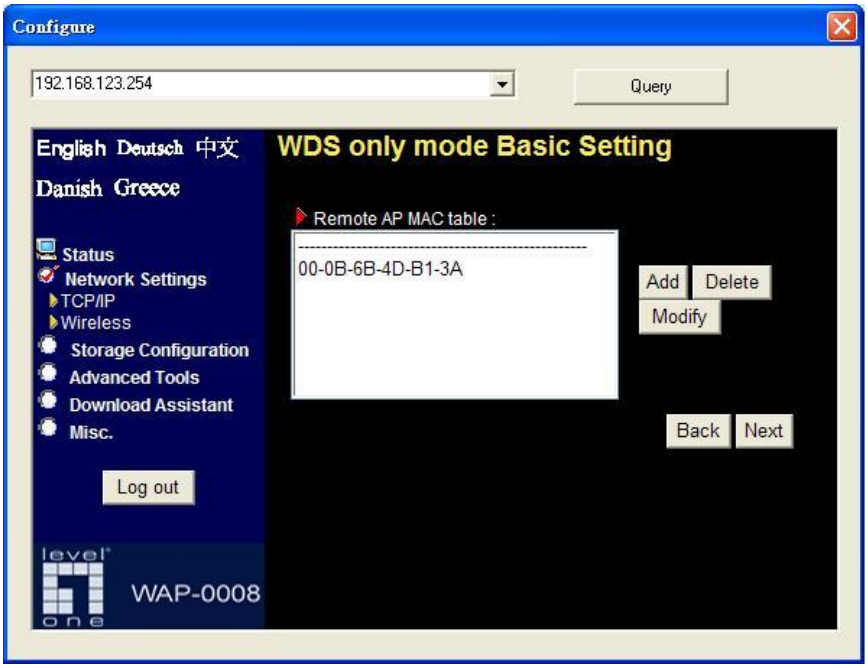
After entering the WDS Only mode setting, click “**Add**” to set up.



You can select the remote AP from AP list, or you can also input the MAC address of remote AP manually.

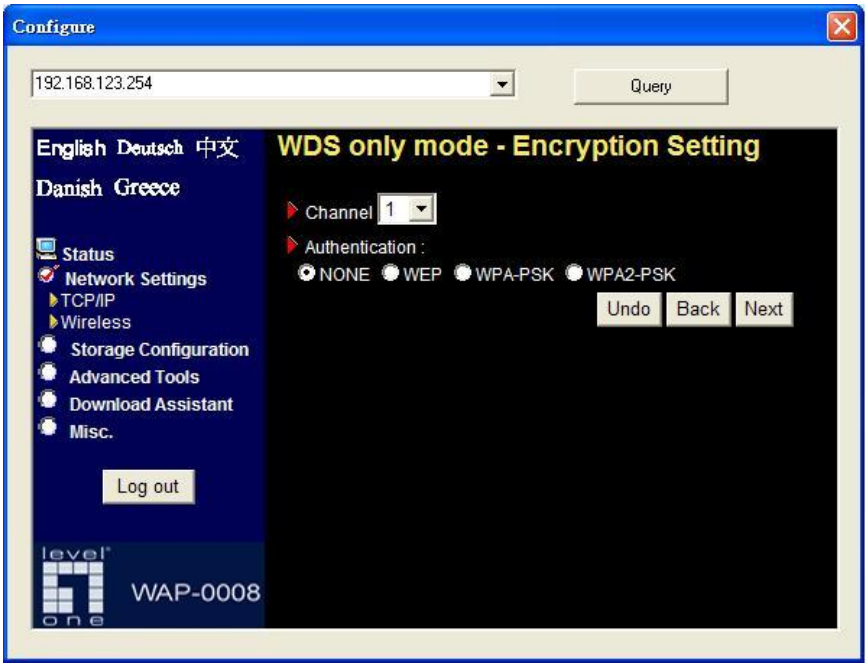
NOTE. The channel of Network Storage and remote AP must be the same.

After indicating MAC address of remote AP, press “**Next**” to continue.



Input information of wireless channel and encryption method of Network Storage. Then press “**Next**” to continue.

NOTE. The wireless channel must be same as remote AP.



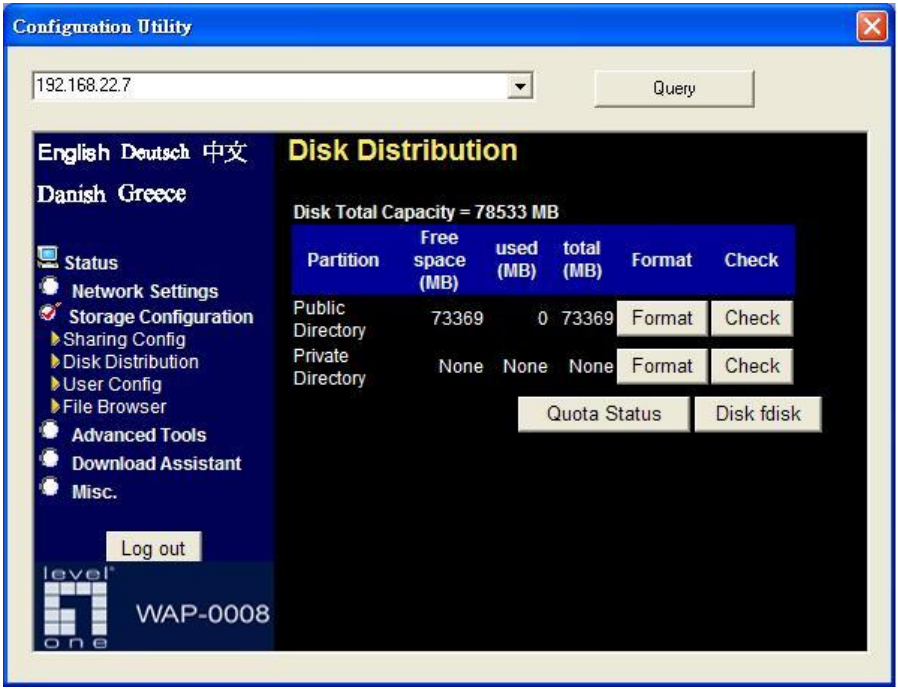
Finally, you could see the confirm page. If every setting is correct, just press "**Confirm**" to save all configurations.

Chapter 4: Storage Configuration

In this section, you will know how to use the **"Disk Utility"** to configure the hard disk setting. Besides, this chapter will also show you how to finish configuration of **File Sharing**, and assign user access rules.

4.1 Disk Utility

Before using the hard disk, users need to format the hard disk first. Click "**Format**" button, and the Network Storage will start to format the hard disk automatically. Once finishing the format, the Network Storage will reboot automatically, and please reconnect the network in 30 seconds.
NOTE. The hard disk will be formatted as "**Ext2**" file system.

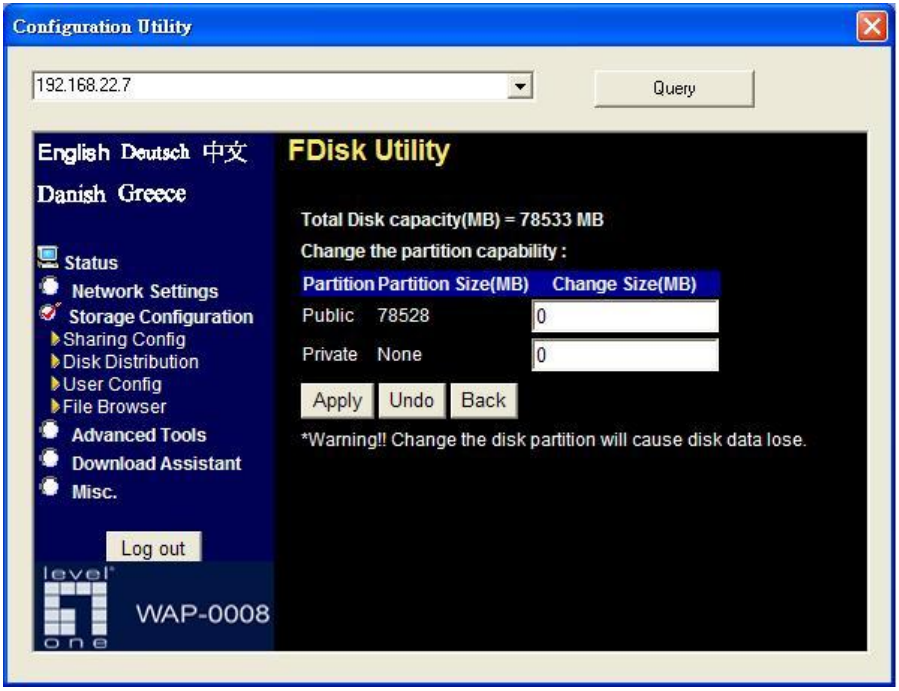


The other option is used for file checking. If you power off Network Storage before normally shut down the system, you are recommended to do this by pressing "**Check**" button. Click "**Disk fdisk**" for entering FDisk Utility to create new partition.

NOTE: Partition can only be created under **Authorization mode**.

Create a new partition

You could also format your hard disk by using **FDISK Utility**.



WARNING:

All data in the hard disk will be ERASED after pressing format button. The hard disk is formatted to Ext2 file system. It can not be connected directly to a Microsoft Windows system without reformatting to other file system that Windows system can recognize.

4.2 File Sharing

In the configuration of File Sharing, you can see the following items:

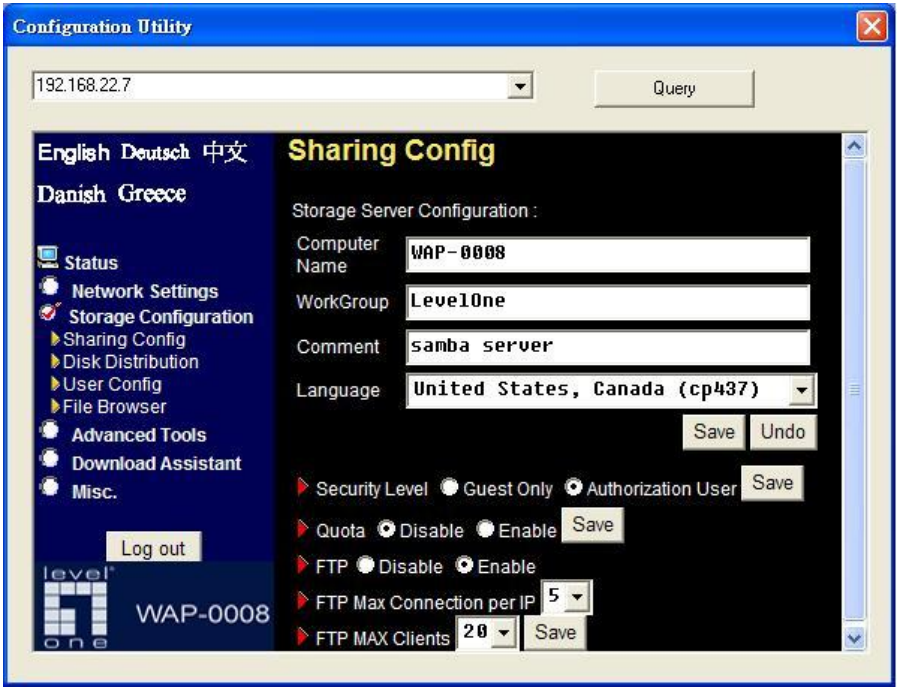
Computer Name: Host name is the identification of Network Storage when you browse it in Microsoft My Network Places.

WorkGroup: Indicate a workgroup name of Microsoft Network Places.

Server Comment: The comment will be showed when you browse it in Microsoft My Network Places.

Language: Select which language will be used for folder/file name in the hard disk. Incorrect language setting may cause folder/file name unreadable.

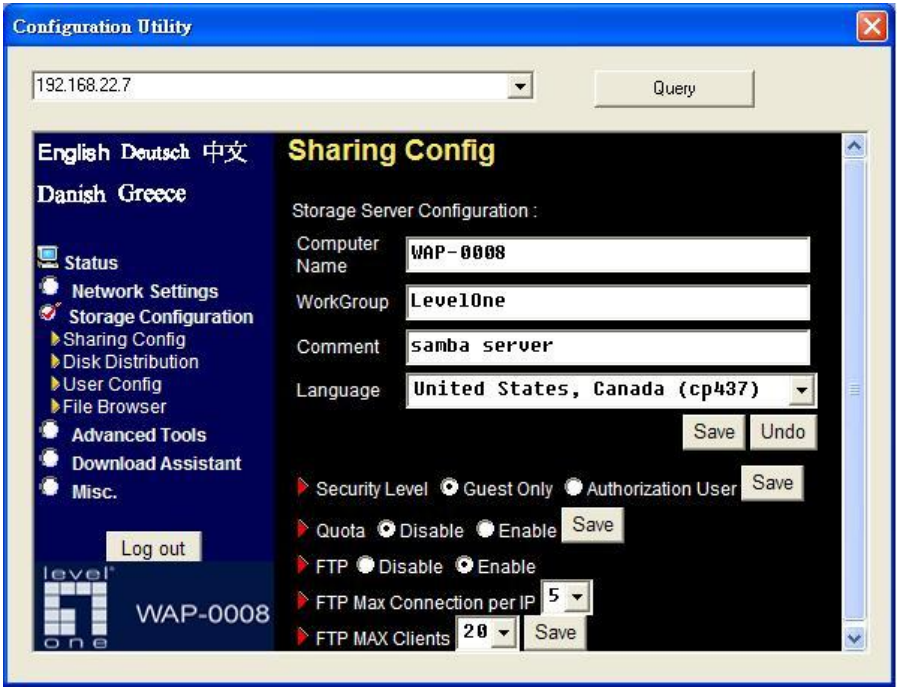
FTP Configuration: The FTP server is enabled by default, so you can also access Network Storage by any FTP client utility. Besides, you can also set the maximum concurrent connections of FTP service. The maximum concurrent connections of FTP are limited to 20.


Configuration Utility
192.168.22.7
Query
English Deutsch 中文
Danish Greece
Status
Network Settings
Storage Configuration
Sharing Config
Disk Distribution
User Config
File Browser
Advanced Tools
Download Assistant
Misc.
Log out
level one
WAP-0008
Sharing Config
Storage Server Configuration :
Computer Name
WAP-0008
WorkGroup
LevelOne
Comment
samba server
Language
United States, Canada (cp437)
Save
Undo
Security Level
Guest Only
Authorization User
Save
Quota
Disable
Enable
Save
FTP
Disable
Enable
FTP Max Connection per IP
5
FTP MAX Clients
20
Save

4.3 Access Control

The Network Storage can provide two security levels of access control. One is **Guest mode**; it means anyone can access any data which has been stored in the hard disk. With Guest mode, you don't need to edit any user configuration and start to enjoy file sharing.

Note. The security level here is applied to file sharing of Microsoft Network Places and FTP service.

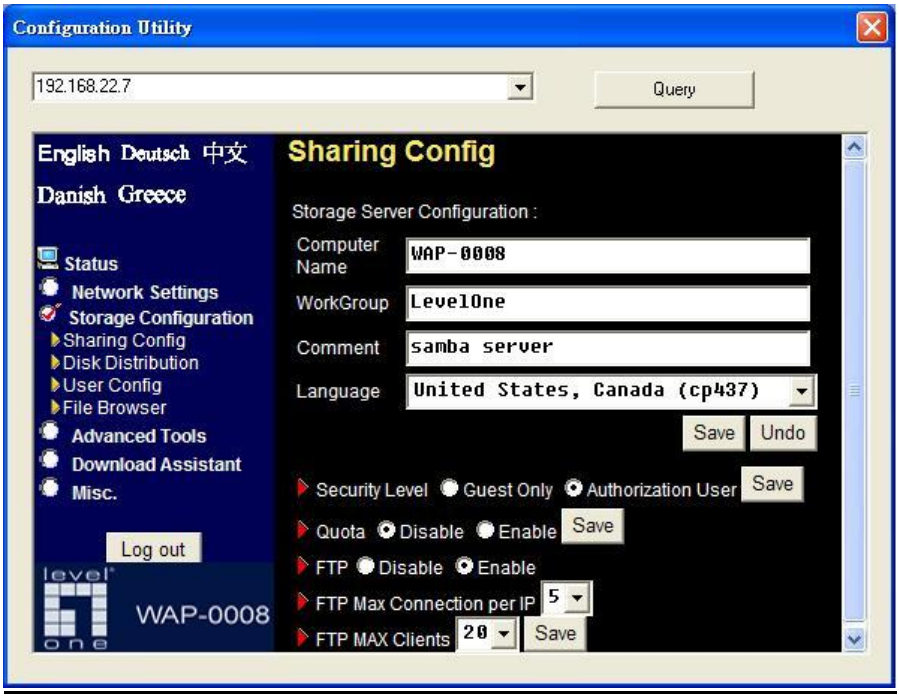


The other is **Authorization mode**, it means only authorized people can access certain folders in the hard disk. With Authorization mode, you need to edit user configuration to assign access right to privileged users. Besides, you can also assign quota limit for every user in the authorization mode.

Note. The hard disk needs to be initialized when you activate authorization mode by first time.

WARNING:

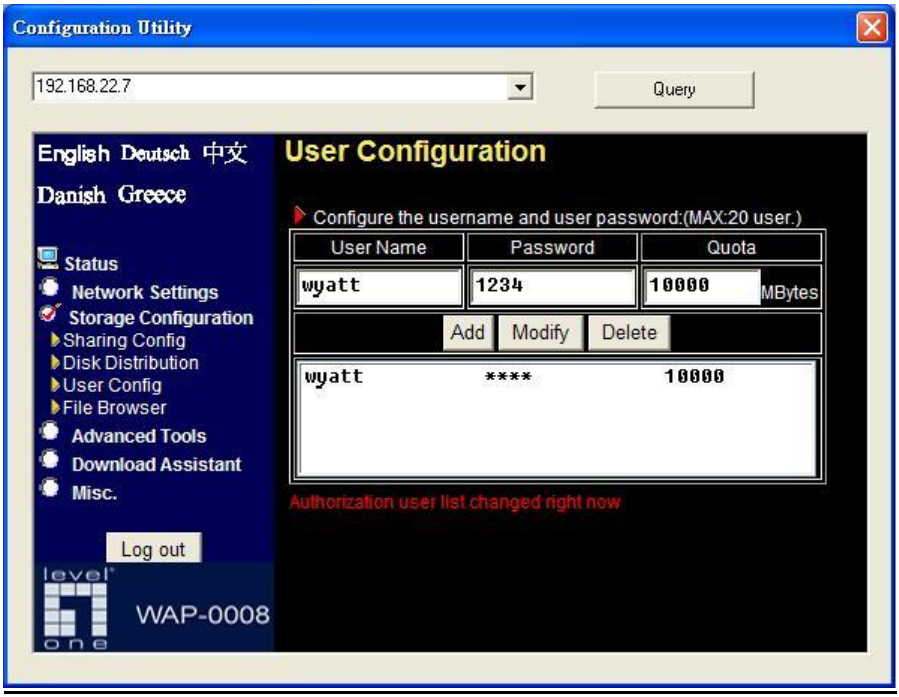
The initialization of hard disk will ERASE all data which have been stored in the hard disk.



User Configuration

With user configuration, you can add or delete user account for privileged user. After you input user name, password, and quota information, just press "**Add**" button to add user account.

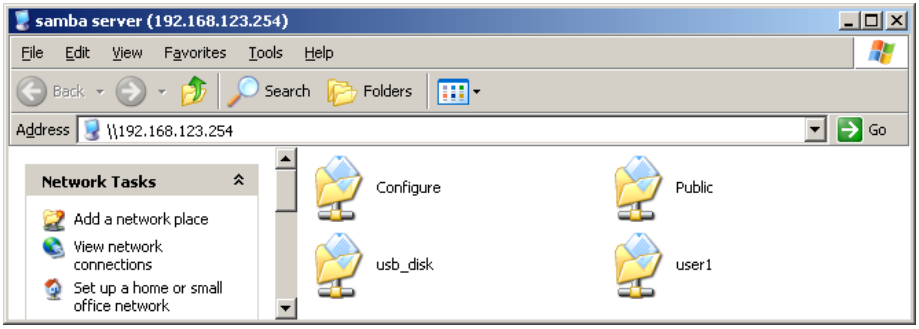
Note. The user information here is applied to file sharing of Microsoft Network Places and FTP service.



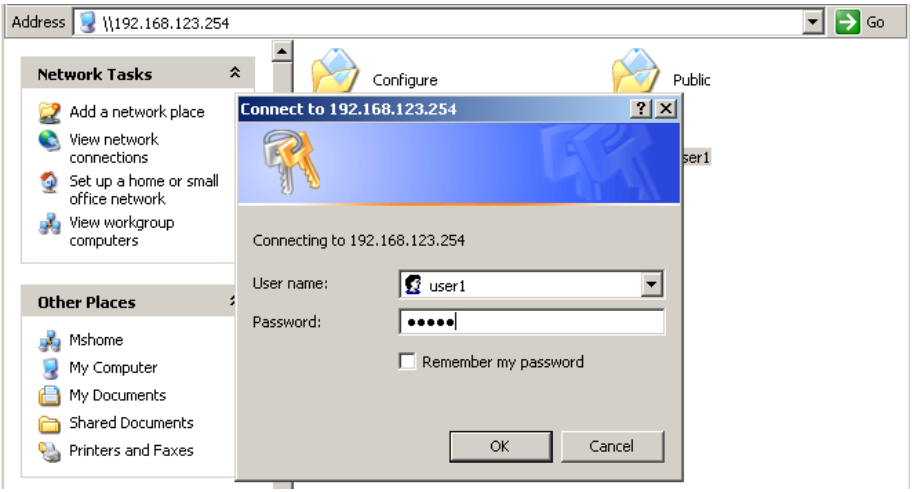
Besides, you can also check the status of used capacity for every user by entering new quota then pressing "**Modify**" button.

How to access folders in Authorization mode

If you have added a user account (named user1), then you will find the following folders when you browse Network Storage by My Network Places in authorization mode.



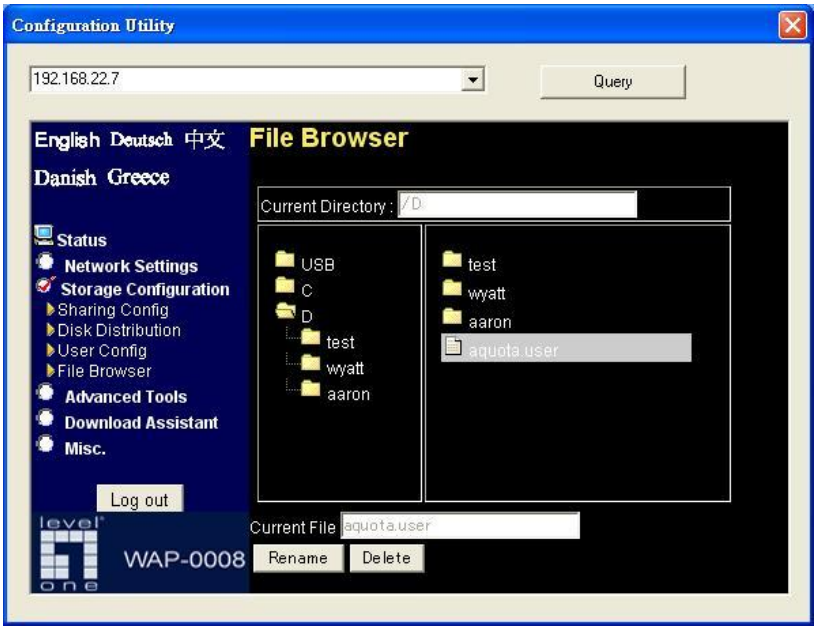
With this scenario, everyone can access data which is stored in folder **Public** and **usb_disk**. But only **user1** can access data which is stored in folder **user1**. If you try to access folder user1, an authentication window will pop-up.


Address
\\192.168.123.254
Go
Network Tasks
Add a network place
View network connections
Set up a home or small office network
View workgroup computers
Other Places
Mshome
My Computer
My Documents
Shared Documents
Printers and Faxes
Configure
Public
Connect to 192.168.123.254
Connecting to 192.168.123.254
User name:
user1
Password:
Remember my password
OK
Cancel

4.4 File Browser

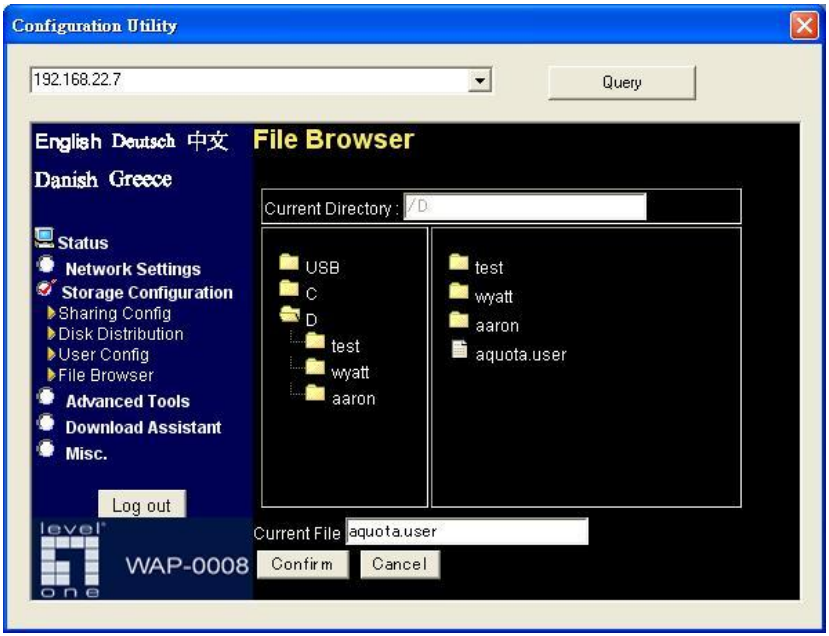
The Network Storage provides a file browser to let users rename and delete folders/files easily. Especially when users can not rename or delete folder/file via FTP or Microsoft My Network Places successfully. For an example, users may download an “unrecognized” file, such as *$#@*2$.avi* from Internet, and they can’t change the file name via My Network Places or FTP. In this case, users can correct the file name with this file browser.

Step 1: Select a folder/file that you want to change name or delete.



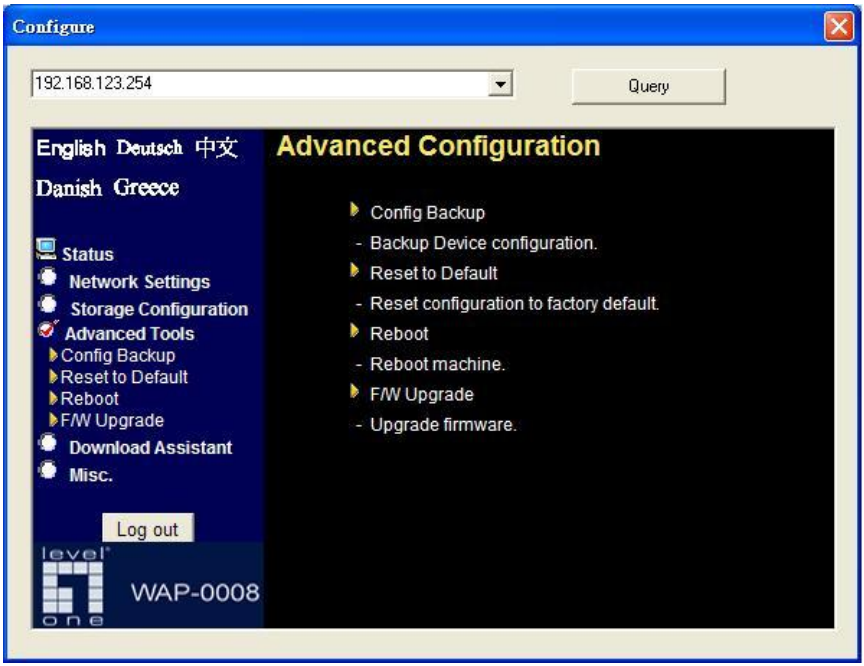
Step 2: Press the “Delete” button if you want to delete that file.

Step 3: Or press the “Rename” button if you want to rename the file name. The field of “Current File” will become editable when pressing “Rename” button. After inputting a new file name, just press “Confirm” button to finish changing.



Chapter 5: Advanced Tools

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



5.1 Backup Configuration

This option enables you to backup current settings of Network Storage.

5.2 Reset Configuration to Default

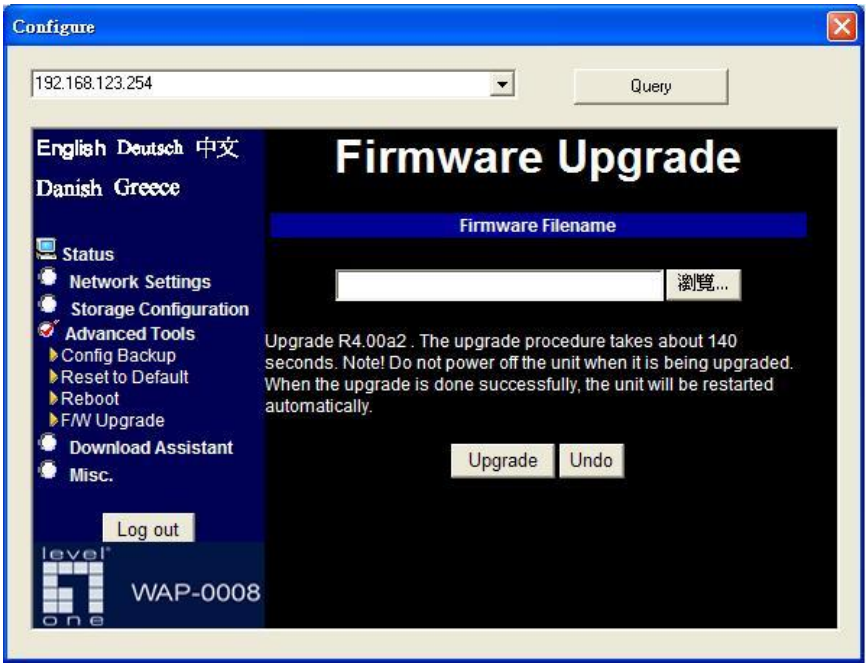
This option enables you to reset the Network Storage to its default factory settings.

5.3 Reboot

This option enables you to reboot the device.

5.4 Firmware Upgrade

This option enables you to upgrade new firmware, or restore backup configuration to this product.

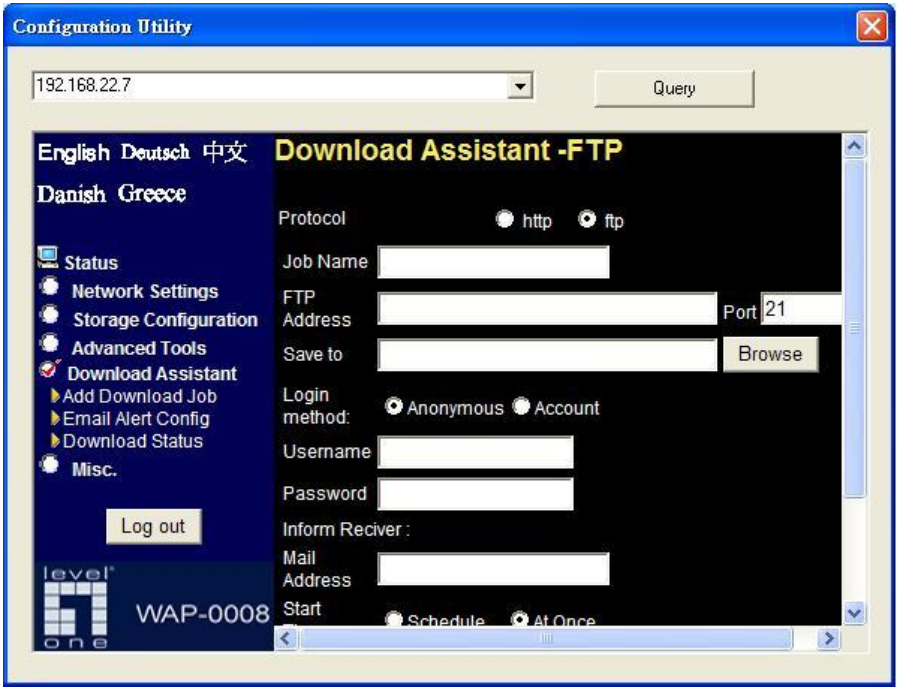


Chapter 6: Download Assistant

With Download Assistant, you can download files from remote server without using any computer. The one thing you need to do is adding a download task in the configuration page. Besides, you can also set a schedule rule to indicate which time the download task will start. As a result, the download task won't disturb your daily work, and can start automatically when you are sleeping. Additionally, the download assistant will send a mail to inform the receiver automatically when the file is downloaded completely.

6.1 FTP

This page allows you to download files from remote FTP server. Please refer to the following description.



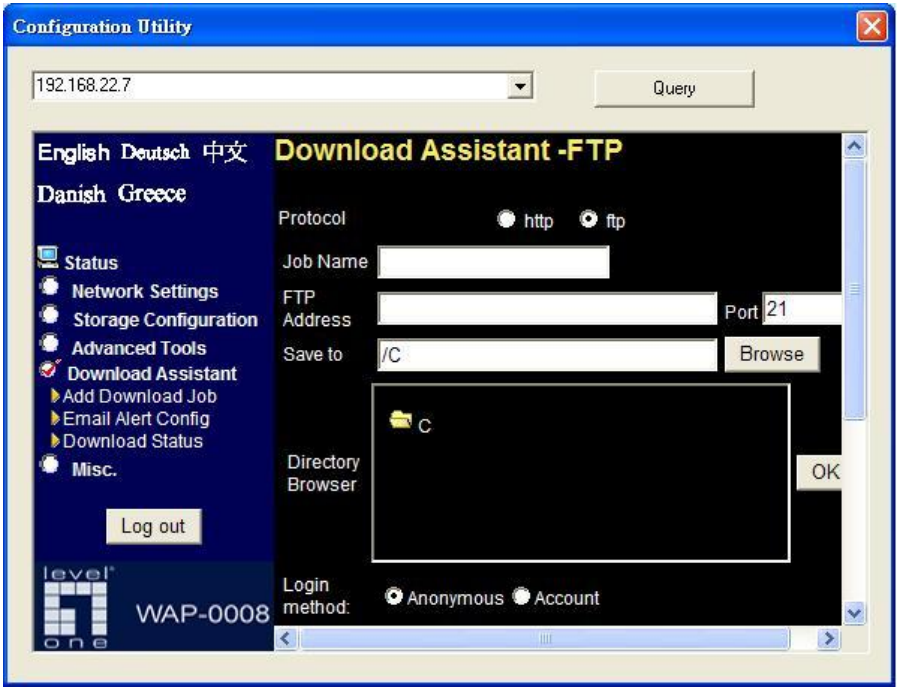
Job Name: Name of download task.

FTP Address: IP address and file path of remote FTP server.

(e.g. ftp://ftp.yahoo.com/file1.avi)

Port: Port number that remote FTP server uses.

Save To: Indicate which folder you will save the file in the hard disk. You can type the file path manually or press **Browse** button to select the destination folder. Press **OK** button when you finish the selection.



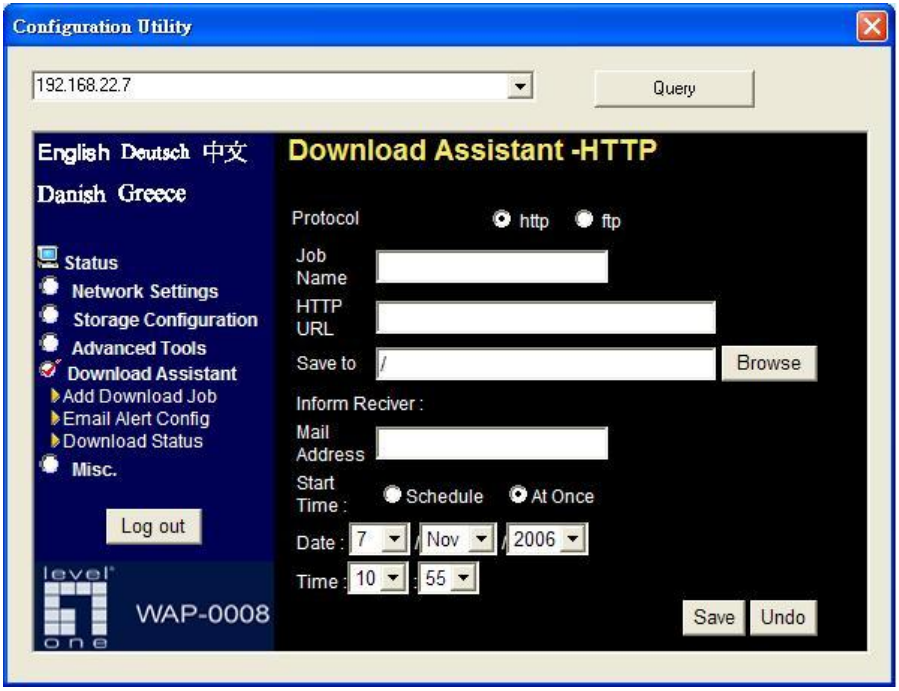
Login method: The login method is decided by remote FTP server. You can choose anonymous login or input authorized user name and password.

Inform Receiver: This option is used for mail alert. This device will send a mail to inform the receiver when the file is downloaded completely. You need to indicate the SMTP server, and mail address of receiver. Use "**;**" to separate different mail addresses.

Start Time: The download task can be started immediately, or assign a schedule rule. You can set the start time to midnight or other time when the network bandwidth is more available.

6.2 HTTP

This page allows you to download files from remote HTTP server. Please refer to the following description.

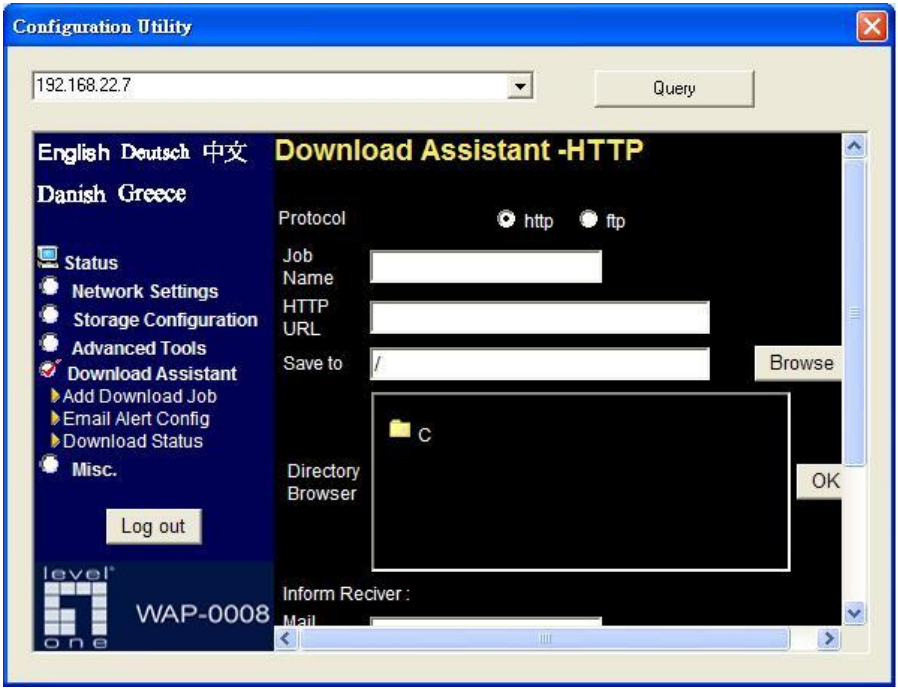


Name: Name of download task.

URL: IP address and file path of remote HTTP server.

(e.g. http://software.yahoo.com/file1.avi)

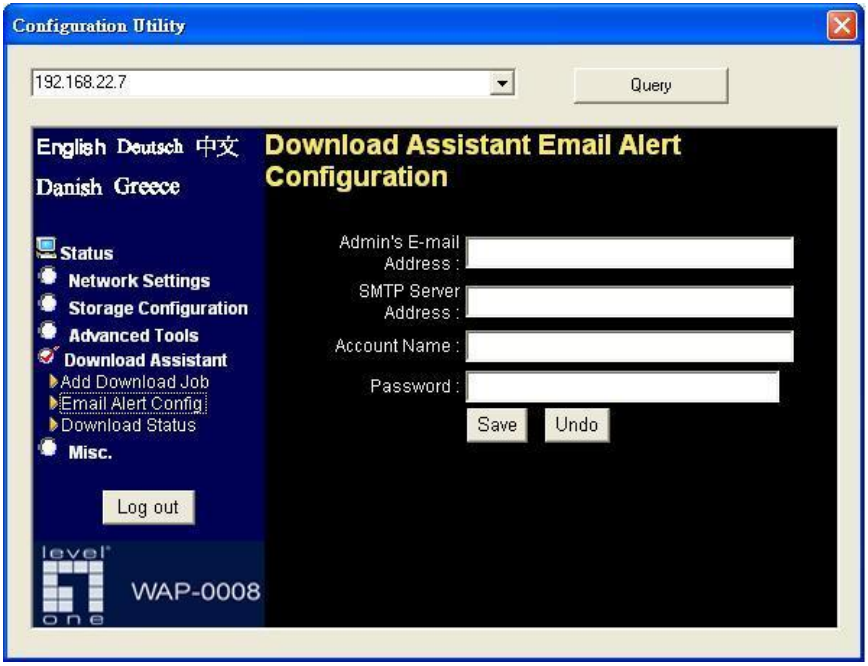
Save To: Indicate which folder you will save the file in the hard disk. You can type the file path manually or press **Browse** button to select the destination folder. Press **OK** button when you finish the selection.



Inform Receiver: This option is used for mail alert. This device will send a mail to inform the receiver when the file is downloaded completely. You need to indicate the SMTP server, and mail address of receiver. Use "**;**" to separate different mail addresses.

Start Time: The download task can be started immediately, or assign a schedule rule. You can set the start time to midnight or other time when the network bandwidth is more available.

6.3 Email Alert Configuration



E-mail Alert Configuration: You need to finish the configuration of E-mail server before mail alert function can be working properly.

Admin's E-mail Address: Please enter an E-mail address that will be used as the sender of e-mail alert feature.

Note. Some mail servers would refuse the mail relay service if the sender isn't on the same mail server.

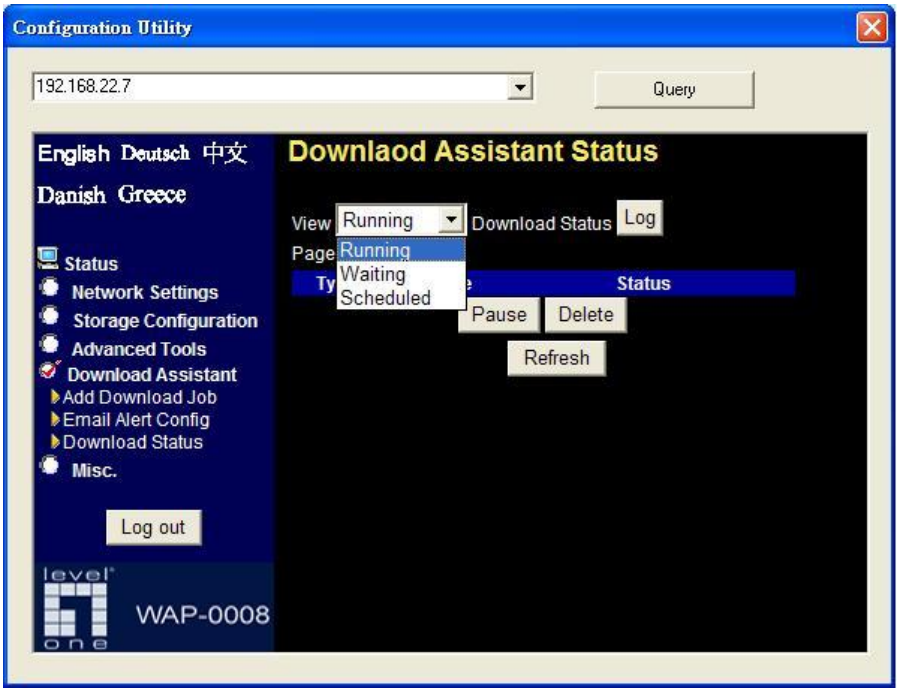
SMTP Server Address: Please enter the IP address or domain name of mail server that you want to use.

Account Name: Please enter your login name of mail server if needed.

Password: Please enter your login password of mail server if needed.

6.4 Download Status

This page displays detailed status of configured download task in Network Storage. The **Running** page contains all download tasks that are running. The **Waiting** page contains download tasks that are ready to run, but the number of current connections is over the maximum limit. So these download tasks won't be started until another connection is available. The **Scheduled** page contains download tasks that are scheduled to run.



Chapter 7: MISC

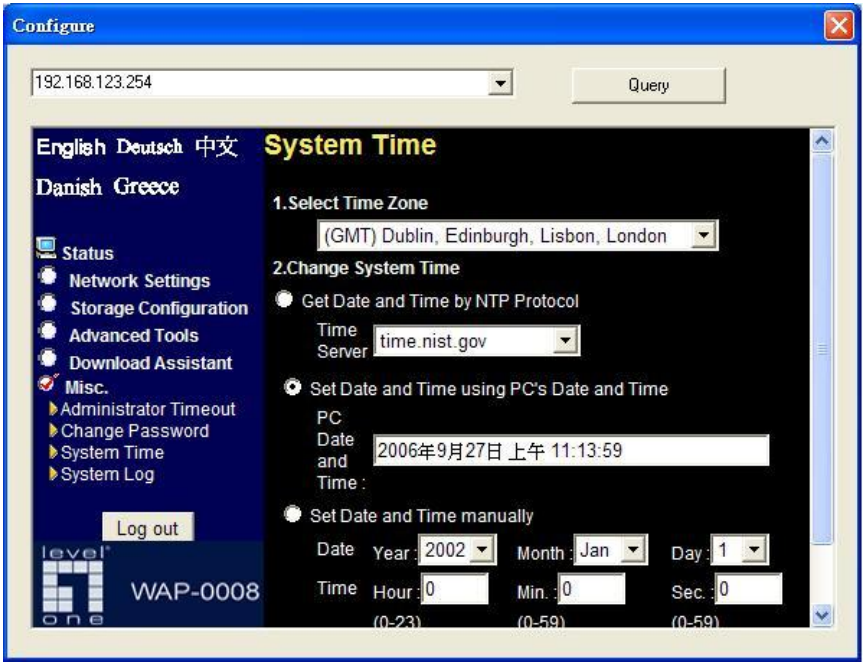
7.1 Time Setting

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

Get Date and Time by NTP Protocol: synchronize the date and time with Internet NTP server.

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.



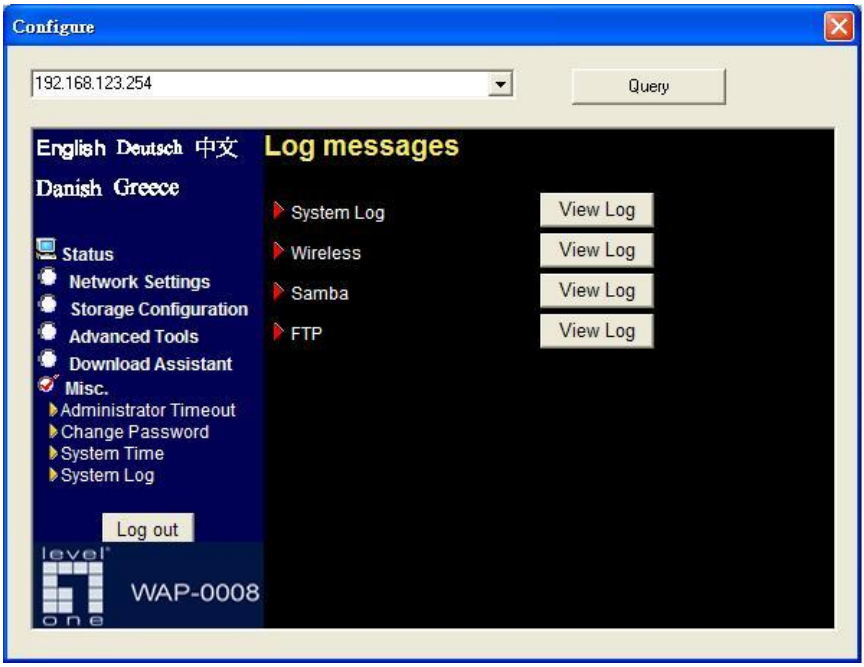
7.2 Login Setting

Administrator Timeout: If users login, and idles for a period of time (the default value is 600 seconds), then that user will be logged out automatically. Set this value to "**0**" to disable this feature.

Change Password: To change the login password, you have to enter the old password and confirm the new password twice.

7.3 System Log

Logs are useful for troubleshooting, and you can review the whole system logs here. There are four categories of logs: **System Log**, **Wireless**, **Samba**, and **FTP**.



Chapter 8: FAQ & Trouble Shooting

8.1 What can I do when I have some trouble?

1. How do I connect to Network Storage?

A: Please prepare one RJ45 cable and connect the LAN port directly**.** The Network Storage already supports MDI/MDIX.

2. How to "Reset settings to default"?

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

3. What can I do if I forget login password?

A: Please refer to question 2 above to reset setting to default. The default login password is **admin**.

4. When I login the storage of Network Storage via My Network Places, but I can not find any files of folders even if I have plugged HDD in Network Storage.

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

Note. This Network Storage supports FAT/FAT32/Ext2 file systems. If the file system of HDD is NTFS, the device just can read files and can

not copy any files to any NTFS folders.

5. No matter what I do, I can not configure Network Storage even if I setup fixed IP and can search or Ping to Network Storage.

A: Please check the Status LED or HDD LED. If normal, they will be flash. Otherwise, reset the settings to factory default and try it again.

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

A: Please check the file system of your hard disk. This problem will occur if the file system is FAT or FAT32. Convert file system to Ext2 can solve this problem. The format utility of Network Storage will format HDD to ext2.

7. I can't access the shared folder with Microsoft Windows 98/Me.

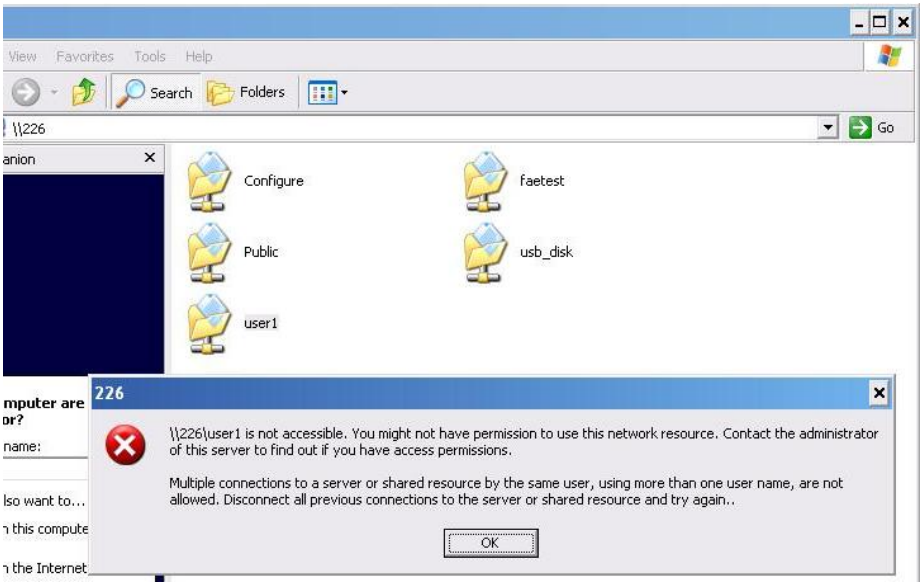
A: If you use Microsoft Windows 98/Me, and want to access the authorized folder, you **MUST** have the same account and password in the Network Storage and your computer.

8. Why do I see the wrong folder/file name in My Network Places?

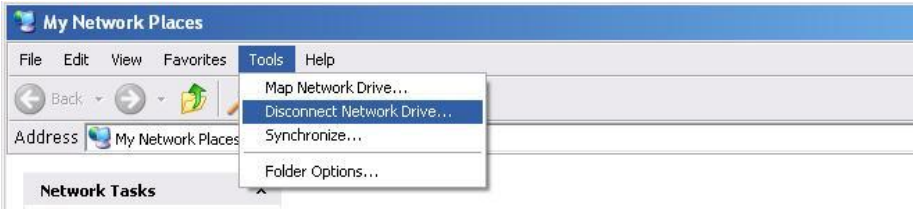
A: Please select the proper language as you need.

9. Why can't I access the file from My Network Places after enabling Authorization mode?

A: Sometimes I can't access folders via My Network Places by using correct user name and password, such as shown below:



This is because Windows system caches the previous login records, so that user can not use another account to login this device. To solve this problem, please disconnect previous network drive first.



After deleting previous record, please try to login again.

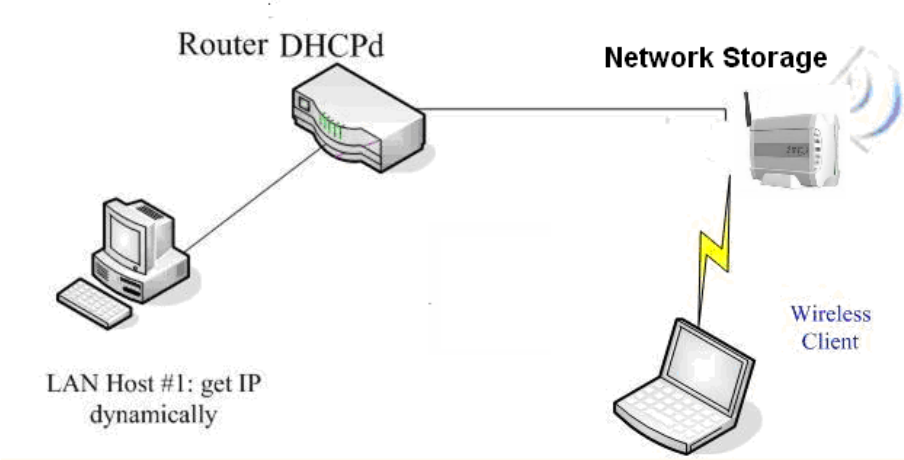
8.2 How to setup wireless function?

1. How can I use the wireless function?

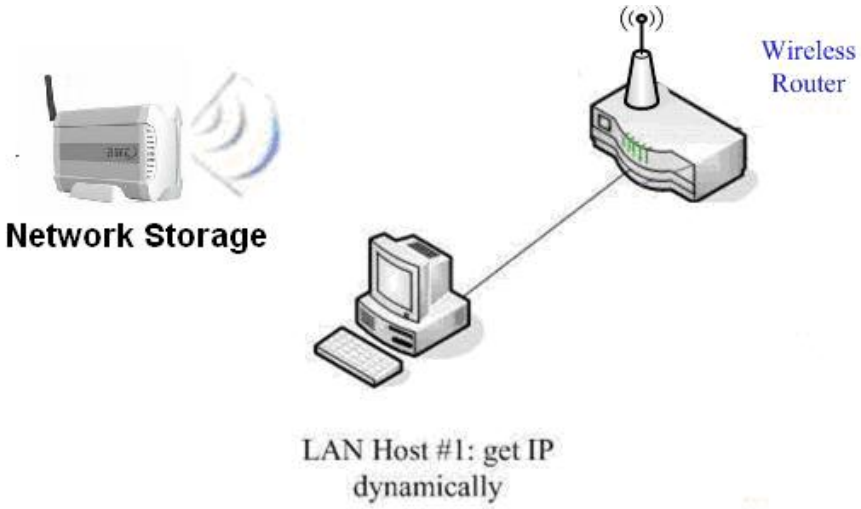
A: Generally speaking, there are four modes to setup in this device. The most common function is “AP mode”. The user can make this device as a wireless AP device as follows.

AP mode:

First, the wireless client sets up the same SSID with Network Storage and get IP address from another gateway router. Then the wireless client can associate the network or roam Internet via Network Storage.



Wireless Client Mode: First, you need to connect your computer to Network Storage via a RJ45 cable. Then use Scan AP feature of Network Storage to connect to another wireless router. After Network Storage connect to wireless router, your computer can communicate with LAN Host#1 via Network Storage.



WDS only mode: WDS→Wireless Distribution system. This device also supports this function. How to configure this in your environment? The below Figure1 is for your reference. First, check which channel you want to use. We choose channel 10 for the example. Scan other AP which channel is 10 and also supports WDS function. Second, add the wireless MAC address of Network Storage 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. Finally, LAN-Host #1 can find Wireless Router #2 and LAN-Host #2.

Figure 1:

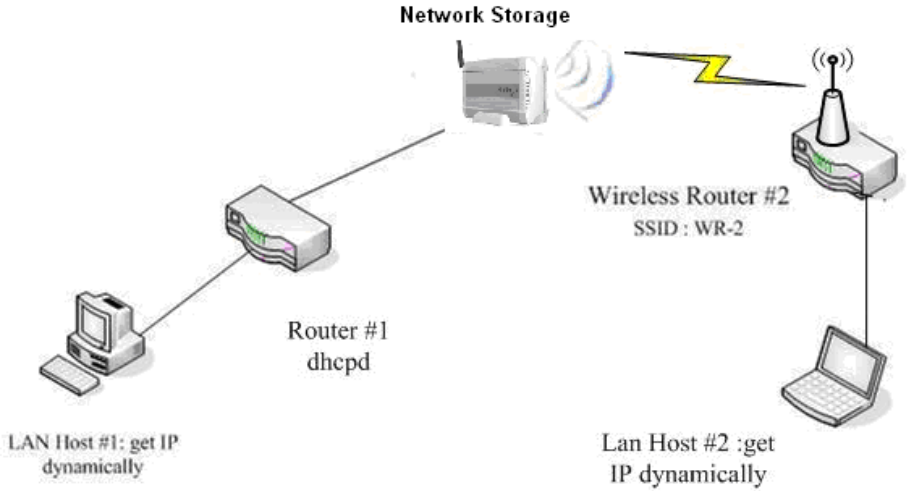
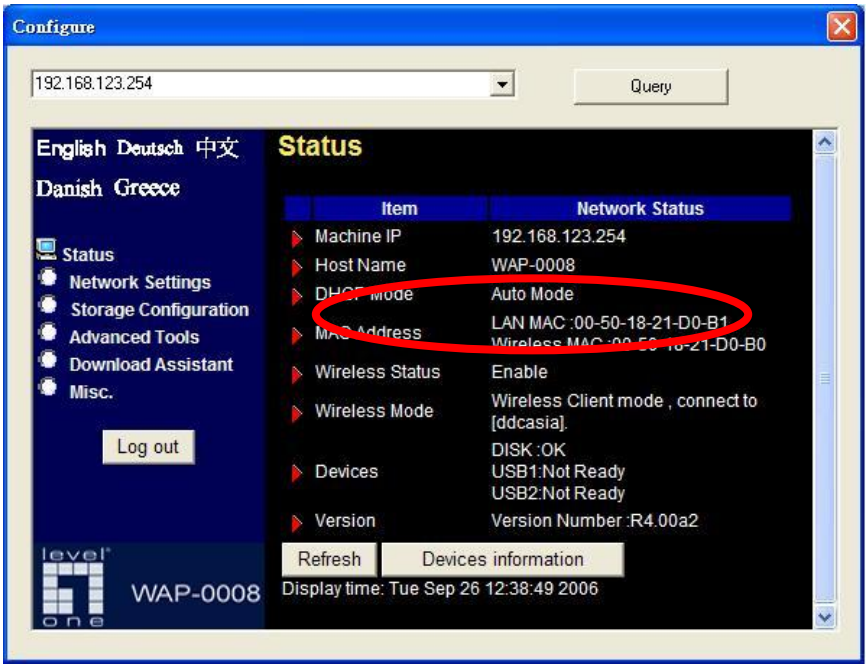
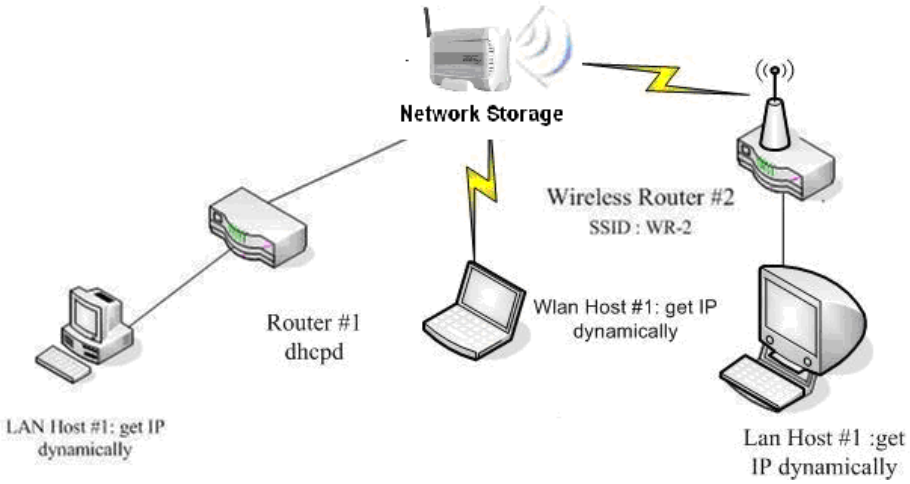

Network Storage
Wireless Router #2
SSID : WR-2
Router #1
dhcpd
LAN Host #1: get IP
dynamically
Lan Host #2 :get
IP dynamically

Figure 2:


Configure
192.168.123.254
Query
English Deutsch 中文
Danish Greece
Status
Network Settings
Storage Configuration
Advanced Tools
Download Assistant
Misc.
Log out
WAP-0008
Status
Item
Network Status
Machine IP
192.168.123.254
Host Name
WAP-0008
Auto Mode
LAN MAC :00-50-18-21-D0-B1
Wireless Status
Enable
Wireless Mode
Wireless Client mode , connect to [ddcasia].
Devices
DISK :OK
USB1:Not Ready
USB2:Not Ready
Version
Version Number :R4.00a2
Refresh
Devices information
Display time: Tue Sep 26 12:38:49 2006

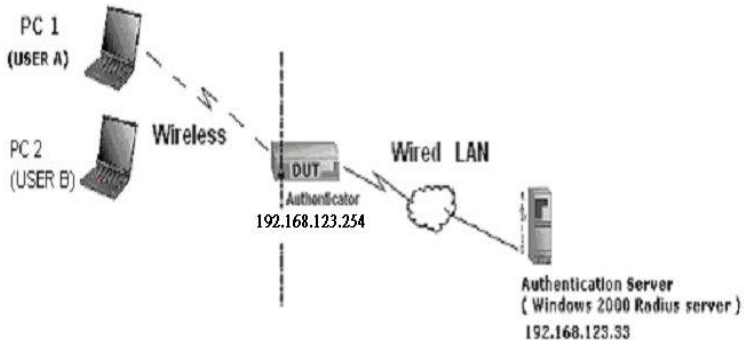
WDS Hybrid mode: This device also supports WDS and AP mode at the same time. How to configure this in your environment? The below figure is for your reference.



For the WDS setting, 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?



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 built-in 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 choose to 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.

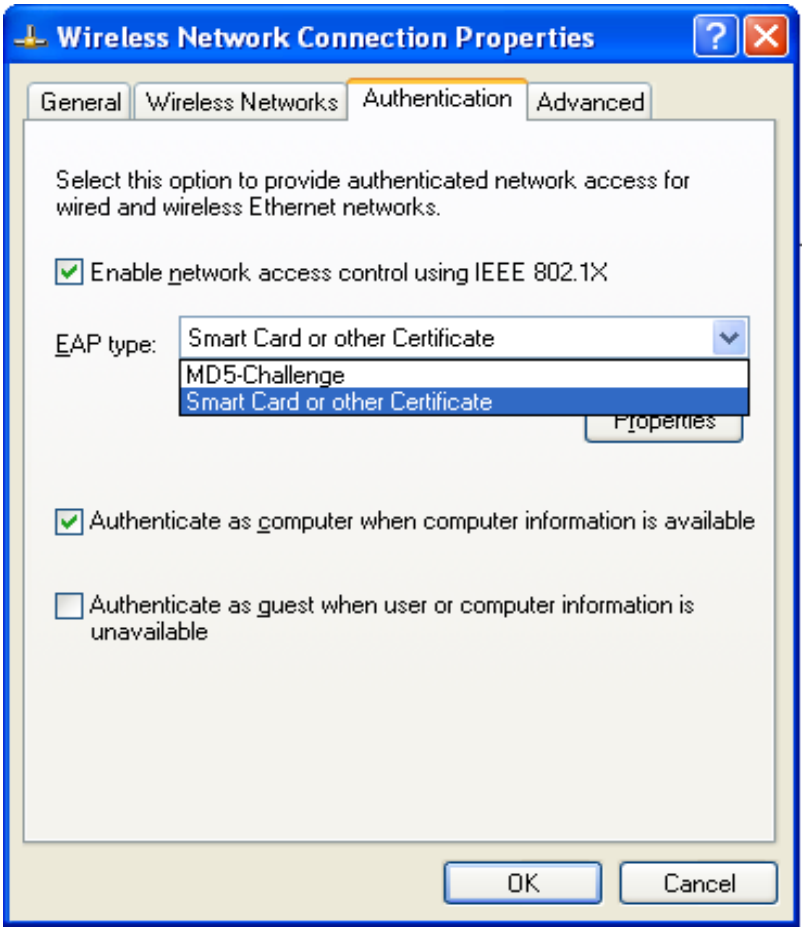


Figure 2: Enable IEEE 802.1X access control

- 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 3)
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 4)
7. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure. (Figure 5)
8. Terminate the test steps when PC1 get dynamic IP and PING remote host successfully.

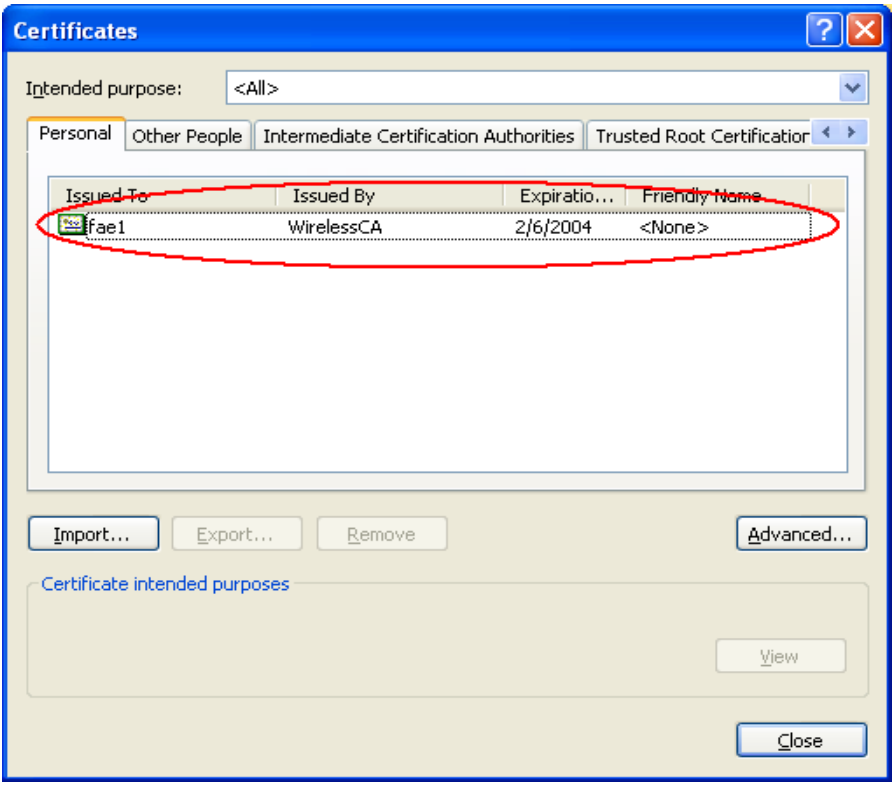


Figure 3: Certificate information on PC1

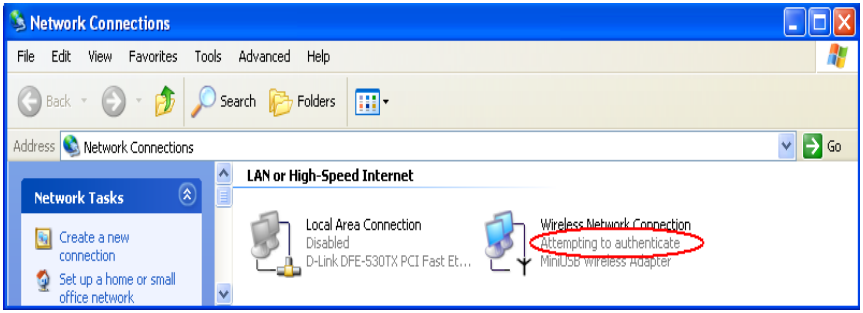


Figure 4: Authenticating

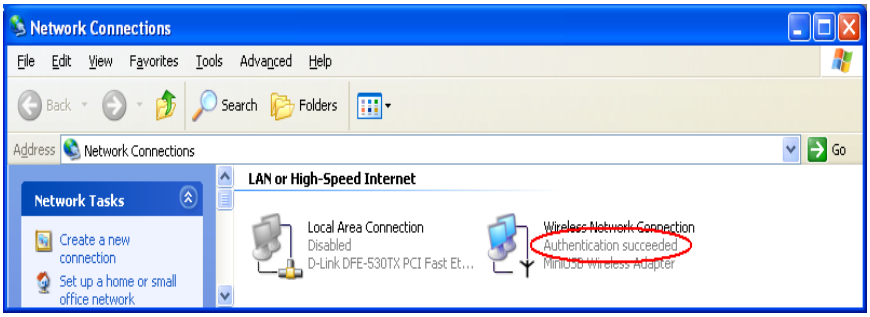


Figure 5: Authentication success

- 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.

8.3 How to map network drive in Windows?

Mapping a network drive to a virtual drive in your computer can help you access that drive easily. After finishing mapping, the virtual drive will appear when you launch **My Computer** in Windows.

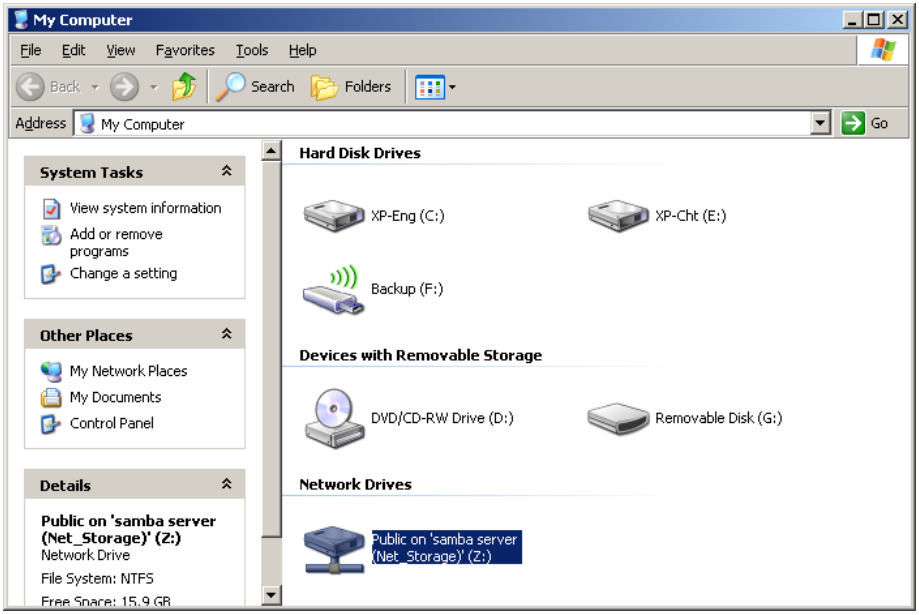
Step 1: Search Network Storage in Windows My Network Places. The default host name of Network Storage is **WAP-0008**.

Step 2: After find the Network Storage, double click on the icon. Right click on the folder which you want to map, and choose **Map Network Drive**.

Step 3: Select the prompt of this drive that you like. Then press **Finish** button to close the dialogue window.

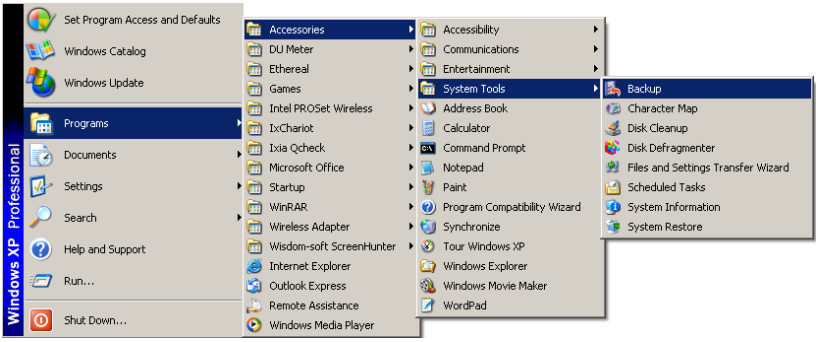
If the folder can only be accessed by authorized user, then you need to click "**Connect using a different user name**", and input authorized user name and password.

Step 4: After finish drive mapping, you can find an additional **Z** drive in **My Computer** group. Then you can access network drive via **Z** drive, and don't need to search network drive every time.



8.4 How to backup data by using Microsoft backup utility?

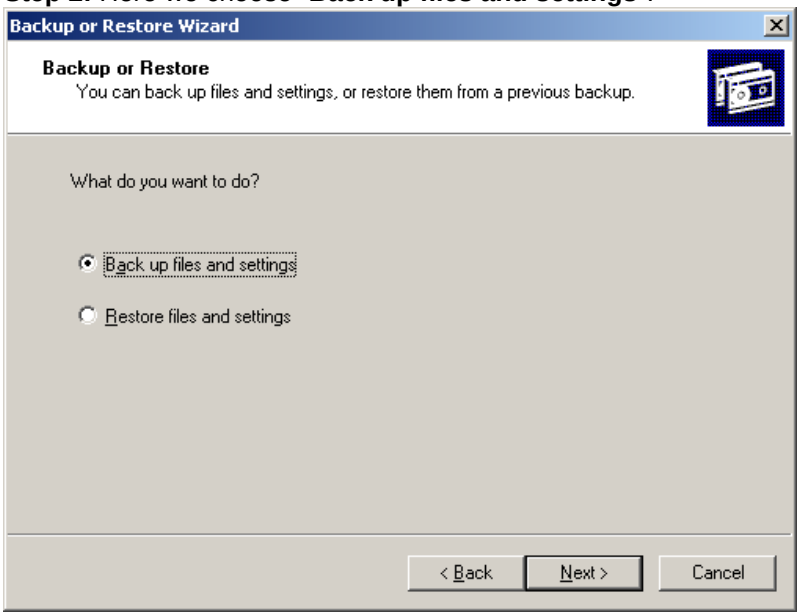
The backup utility is installed and ready for use if you use Windows XP Professional edition. Otherwise, if you use Windows XP Home edition, please install **Ntbackup.msi** from Windows installation CD first.



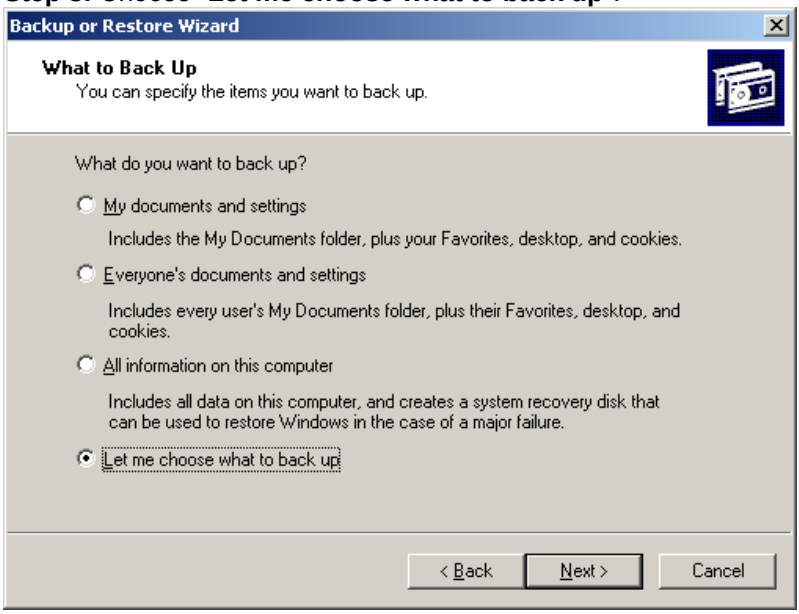
Step 1: Please refer to 8.3 to map a network drive of Network Storage first.

Then start Windows backup utility, and press next button to continue.

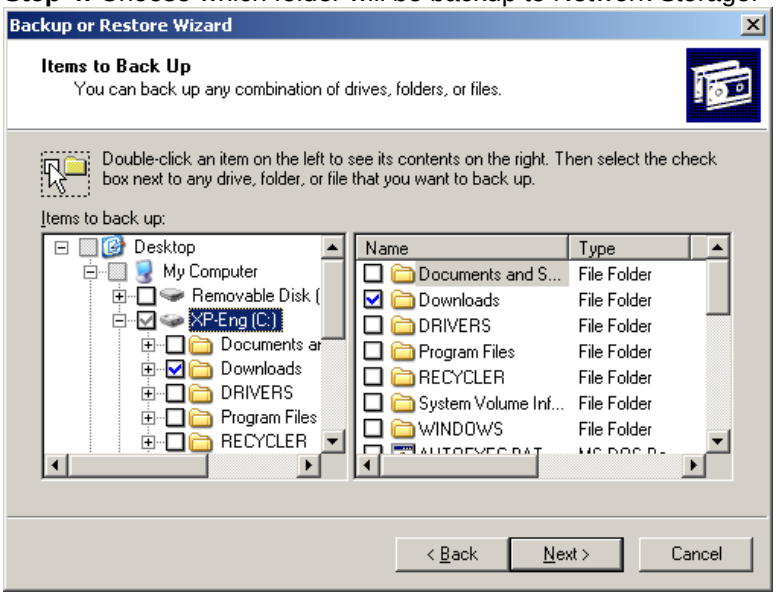
Step 2: Here we choose “**Back up files and settings**”.



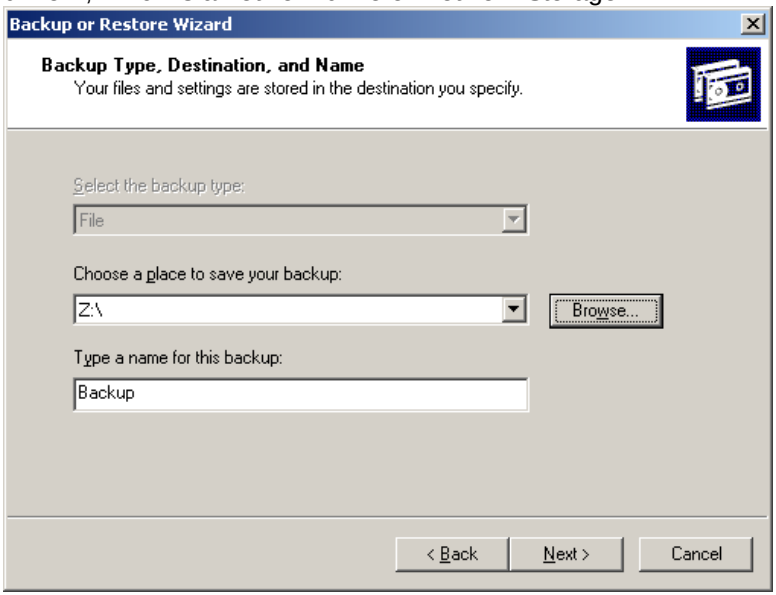
Step 3: Choose "**Let me choose what to back up**".



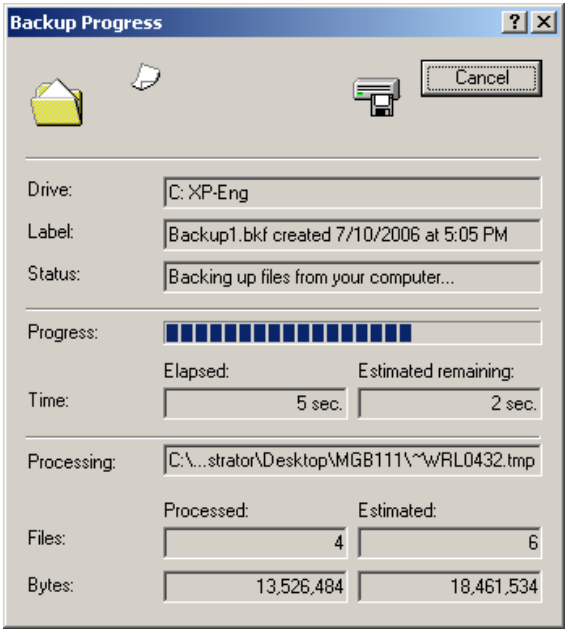
Step 4: Choose which folder will be backup to Network Storage.



Step 5: Choose the destination that you will save files. Here we choose drive **Z**, which is a network drive of Network Storage.



Step 6: Finally, press **Finish** button to start backup right now. Otherwise, press **Advanced** button to set a schedule rule for this backup task.



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