



**DIGISOL<sup>TM</sup>**



# **DG-WN3150Nu**

**802.11b/g/n 150Mbps Wireless Micro USB**

**Adapter**

## **User Manual**

**V3.3**

**2021-07-28**

As our products undergo continuous development the specifications are subject to change without prior notice

## **COPYRIGHT**

Copyright 2021 by DIGISOL SYSTEMS LTD. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of this company.

This company makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties, merchantability or fitness for any particular purpose. Any software described in this manual is sold or licensed "as is". Should the programs prove defective following their purchase, the buyer (and not this company, its distributor, or its dealer) assumes the entire cost of all necessary servicing, repair, and any incidental or consequential damages resulting from any defect in the software. Further, this company reserves the right to revise this publication and to make changes from time to time in the contents thereof without obligation to notify any person of such revision or changes.

## **Trademarks:**

DIGISOL™ is a trademark of DIGISOL SYSTEMS LTD. All other trademarks are the property of the respective manufacturers.

## **Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacturer must therefore be allowed at all times to ensure the safe use of the equipment.

## **EU Countries Intended for Use**

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

**EU Countries Not intended for use:** None.

# Index

<b>1. Product Information .....</b>	<b>6</b>
1-1 Introduction and Safety Information .....	6
1-2 Safety Information .....	6
1-3 System Requirements .....	7
1-4 Package Contents .....	7
1-5 Get familiar with your new wireless USB adapter .....	8
<b>2. Driver Installation and Configuration .....</b>	<b>9</b>
2-1 Network Adapter Installation .....	9
2-2 Configuration Utility .....	14
2-2-1 Utility Overview .....	15
2-3 Connect to Wireless Access Point .....	16
2-3-1 Using Mediatek Utility .....	16
2-3-2 Using Windows Zero Configuration .....	24
2-4 Connection Profile Management .....	28
2-4-1 Add a new profile .....	29
2-4-2 Remove an existing profile .....	30
2-4-3 Edit an existing profile .....	31
2-4-4 Import/Export Profile .....	32
2-4-5 Add WPS Profile .....	34
2-4-5-1 Push Button .....	36
2-4-5-2 PIN Code .....	37
2-5 Network Statistics, Link Information and Status .....	40
2-5-1 Link Status .....	40
2-5-2 Throughput .....	41
2-5-3 Statistics .....	42
2-6 Advanced .....	43
2-7 About .....	46
2-8 Help Section .....	47
<b>3. Soft-AP Function .....</b>	<b>48</b>
3-1 Switch to AP Mode .....	48
3-1-1 Configure SSID and Channel .....	49
3-1-2 Access Control List .....	52
3-1-3 Connected Devices .....	53

---

3-1-4 About .....	54
<b>4. Client + AP Mode .....</b>	<b>55</b>
4-1 Switch to Client + AP Mode .....	55
4-2 AP Configuration .....	57
4-3 MAC Table .....	58
<b>5 Appendix .....</b>	<b>59</b>
5-1 Configuration for DG-WN3150Nu in “Client + AP” Mode: .....	59
5-2 Hardware Specifications .....	63
5-3 Troubleshooting .....	64
5-4 Glossary .....	66

# 1. Product Information

## 1-1 Introduction and Safety Information

Thank you for purchasing DG-WN3150Nu IEEE 802.11b/g/n 150Mbps wireless N micro USB adapter! This adapter has an ultra-nano size design which enables users to plug it into the USB port of your computer. The ultra nano design makes the wireless adapter portable and easy to carry even when the users are roaming. DG-WN3150Nu supports wireless standards IEEE802.11b/g, this wireless adapter also supports IEEE802.11n through which users can get data transfer speed up to 150Mbps.

*Other features of this Wireless USB adapter include:*

- IEEE 802.11b/g/n compatible.
- Wireless data transfer rate – up to 150Mbps.
- Supports WMM wireless QoS feature.
- Supports 64/128-bit WEP, WPA, WPA2 with IEEE 802.1x functions for high level of security.
- Supports the most popular operating system: Windows XP/7/8/10
- Supports WPS (Wi-Fi Protected Setup) soft button for easy connection.
- Supports soft AP function.
- Supports USB 2.0 interface.
- Portable and Ultra-Nano size design.

## 1-2 Safety Information

In order to keep the safety of users and your properties, please follow the safety instructions as mentioned below:

1. This wireless micro USB adapter is designed for indoor use only. **DO NOT** expose this wireless adapter to direct sun light, rain, or snow.
2. **DO NOT** put this USB adapter at or near a hot or humid place, like kitchen or bathroom. Also, do not leave this wireless adapter in the car in summer.

3. This USB adapter is small enough to put in a child's mouth, and it could cause serious injury or could be fatal. If they throw the USB adapter, it will be damaged.

**PLEASE KEEP THIS USB ADAPTER OUT OF REACH OF CHILDREN.**

4. This USB adapter can get heated up when being used for long time (This is normal and is not a malfunction). **DO NOT** put the USB adapter on a paper, cloth, or other flammable objects after the USB adapter has been used for a long time.

5. There's no user-serviceable part inside the USB adapter. If you find that the USB adapter is not working properly, please contact your dealer of purchase and ask for help. **DO NOT** disassemble the USB adapter yourself, warranty will be void.

6. If the USB adapter falls into water, **DO NOT USE IT AGAIN BEFORE YOU SEND IT TO THE DEALER OF PURCHASE FOR INSPECTION.**

7. If you smell something strange or even see some smoke coming out from the USB adapter, switch the computer off immediately, and call the dealer of purchase for help.

## *1-3 System Requirements*

- An empty USB 2.0 port
- Windows XP, Windows 7, Windows 8 & Windows 10 operating system
- CD-ROM drive
- At least 100MB of available disk space

## *1-4 Package Contents*

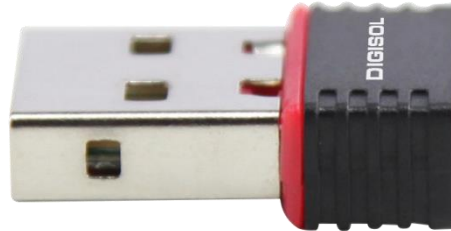
Before you start using this wireless USB adapter, please check the following items in the package.

- DG-WN3150Nu 150Mbps Wireless Micro USB Adapter (1 No.)
- Quick installation guide
- Installation software CD (includes User Manual, QIG & Driver/Utility)

***If any of the above items are missing, contact your supplier as soon as possible.***

## *1-5 Get familiar with your new wireless USB adapter*

### 1. USB interface





## 2. Driver Installation and Configuration

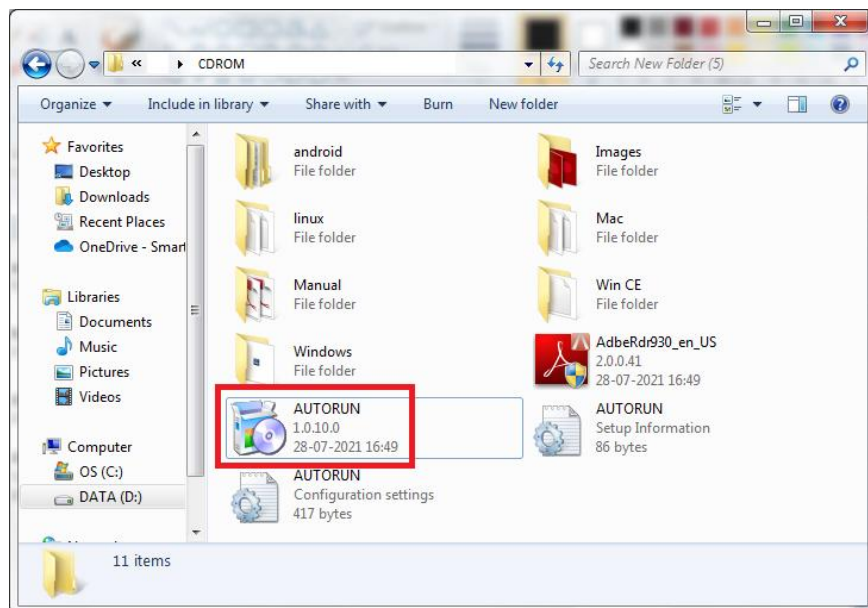
### 2-1 Network Adapter Installation

Please follow the instructions mentioned below to install your new wireless USB adapter:

**Note1:** *The following installation was operated under Windows XP. (Procedures are similar for Windows7/8.)*

**Note2:** *If you have installed the Wireless PC Adapter driver & utility before, please uninstall the previous version first.*

1. Insert “**Installation Software CD**” into the CD/DVD ROM drive of your computer, and Browse it. Execute „**AUTORUN**” program.

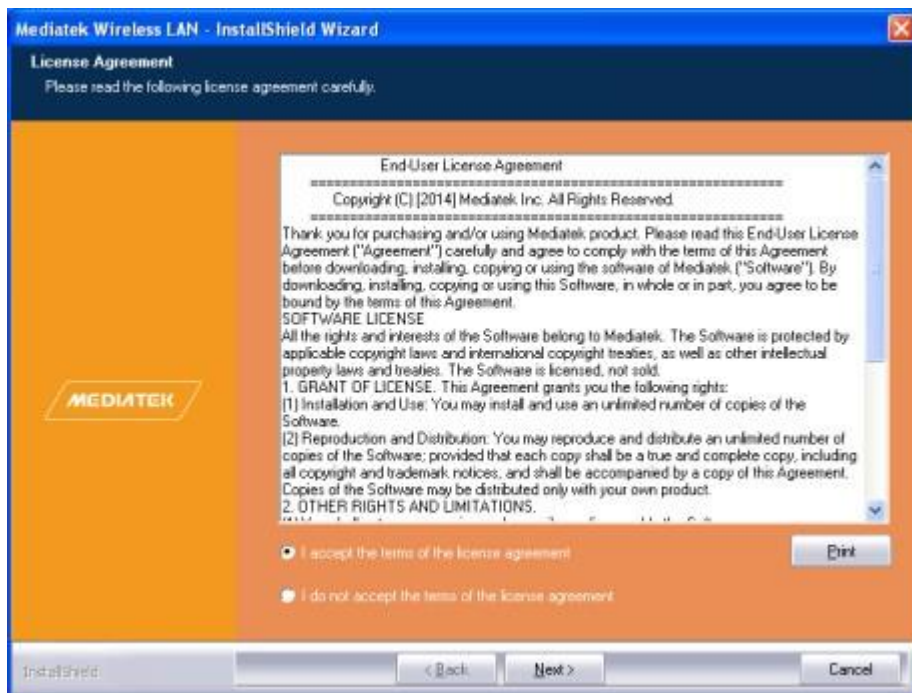


Once you run the “AUTORUN” file, the screen shown below will appear.

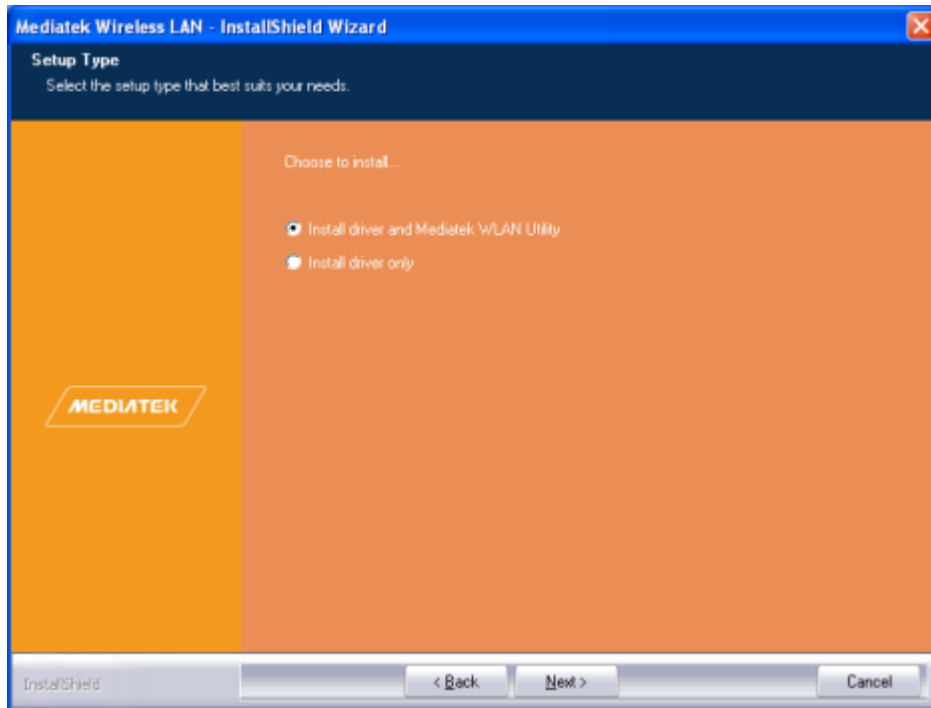


Click on “**Drivers & Utility**”. The screen as shown below will appear.

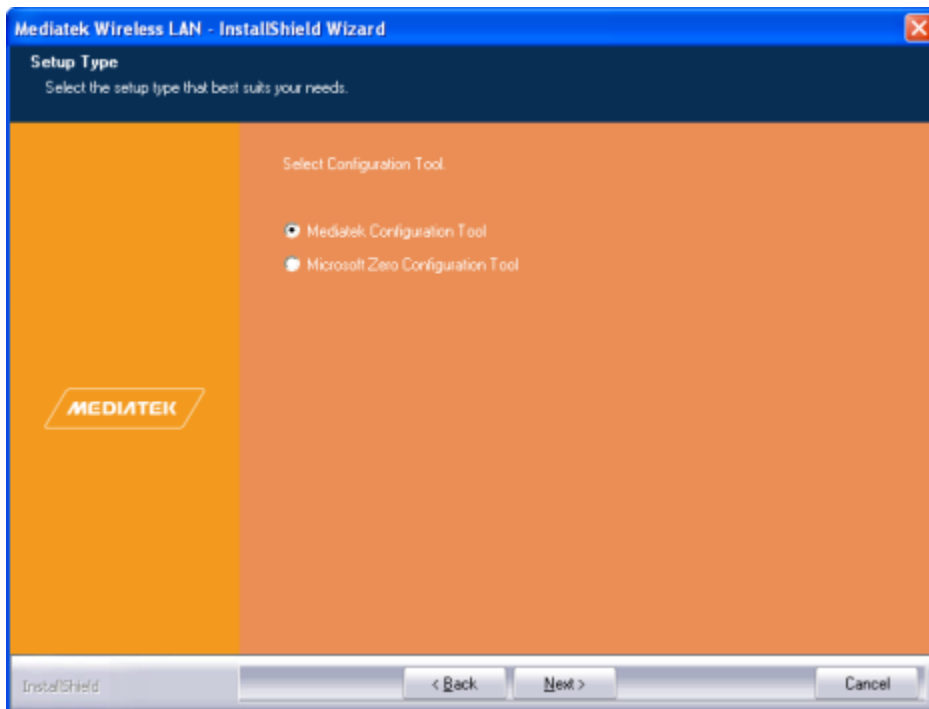
2. Select the option “**I accept the terms of the license agreement**”. Click on “**Next**”



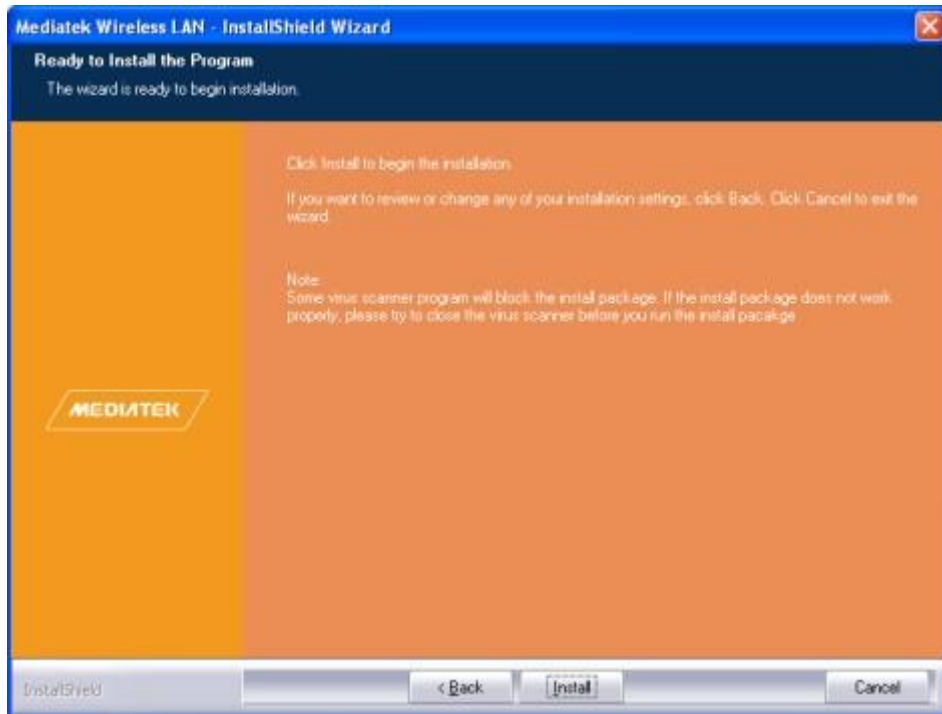
3. The screen as shown below will appear. Select “**Install driver and Mediatek WLAN utility**”. Click on “**Next**”.



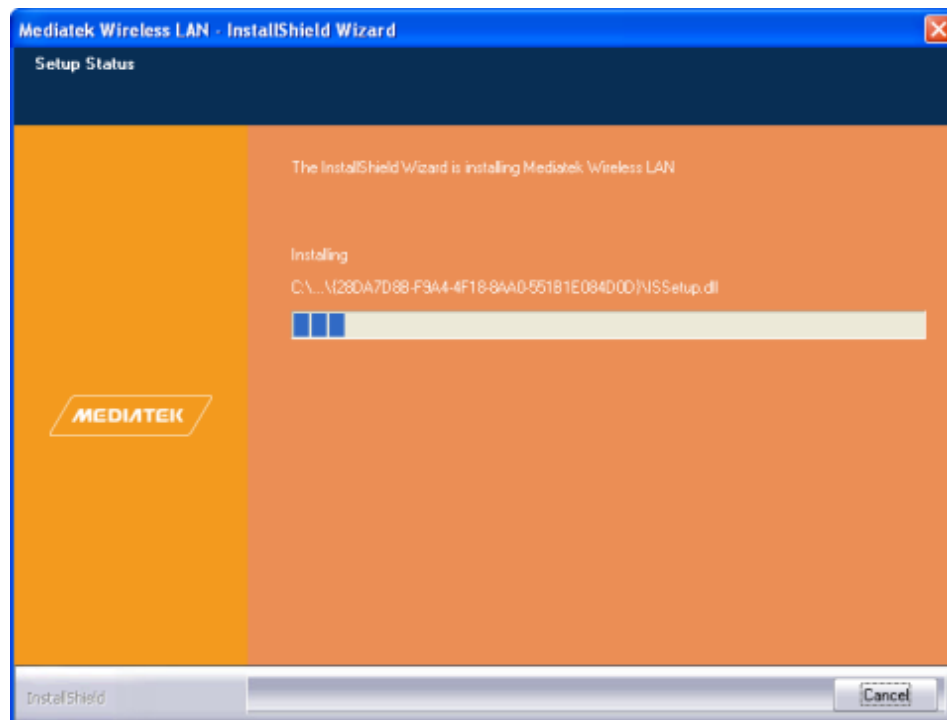
4. The screen shown below will appear. Select “**Mediatek Configuration Tool**”. Click on “**Next**”.



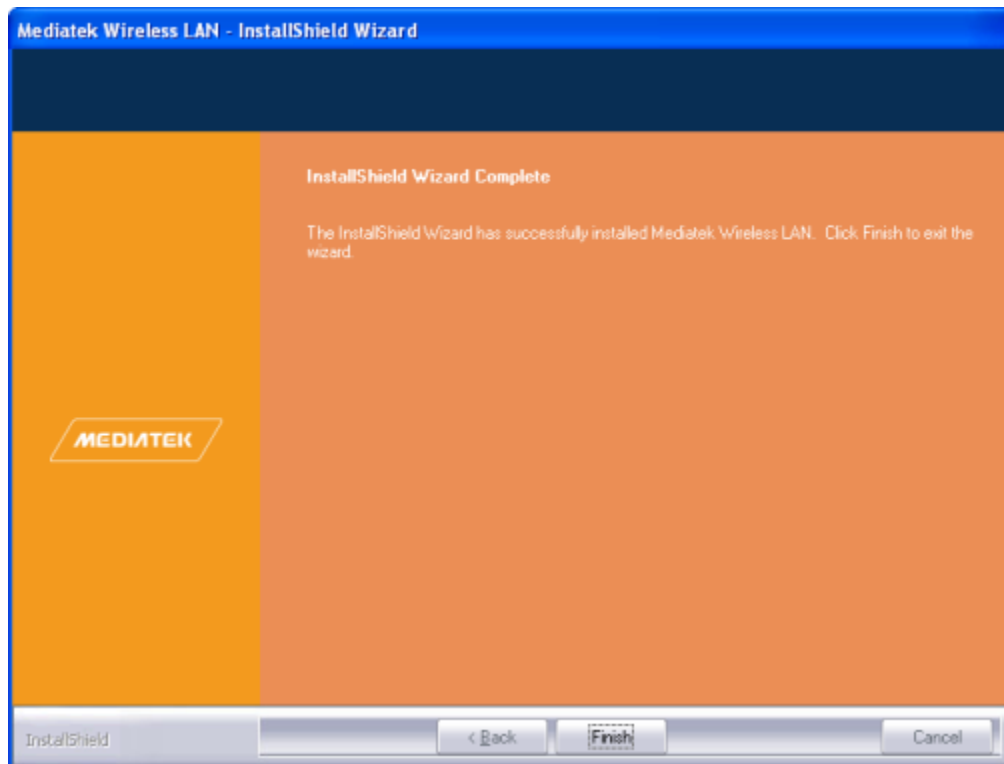
5. The screen shown below will appear. Click on “**Install**”. The installation process will appear as shown below.



6. The installation process will start as shown below.



Once the installation is complete, the below given screen will appear. Then click on “**Finish**”.



Click on „**Finish**“ to reboot your computer to complete the installation procedure.  
A new icon will appear near the clock of system tray:



**HERE!**

Left-click the icon and it will launch the wireless network configuration utility.

The different color & logo indicates the different wireless connection status:



Wireless USB adapter not detected.



No connection with access point is established.



Connection with access point has been established.

For detailed instructions of wireless network configuration utility, please see next section.

## 2-2 Configuration Utility

The Configuration Utility is a powerful application that helps you to configure the Wireless Micro USB Adapter and monitors the link status and the statistics during the communication process.

The Configuration Utility appears as an icon on the system tray and desktop of Windows. You can open it by double-clicking on the icon.

Right click the icon in the system tray there are some items for you to operate the configuration utility.

- Launch Config Utility  
Select “**Launch Config Utility**” to open the configuration utility.
- Use Zero Configuration as Configuration Utility  
Select this option to use Windows default configuration utility.
- Switch to AP Mode  
Select this option to configure this adapter as Soft AP.
- Exit  
Select “**Exit**” to exit the utility in the system tray.



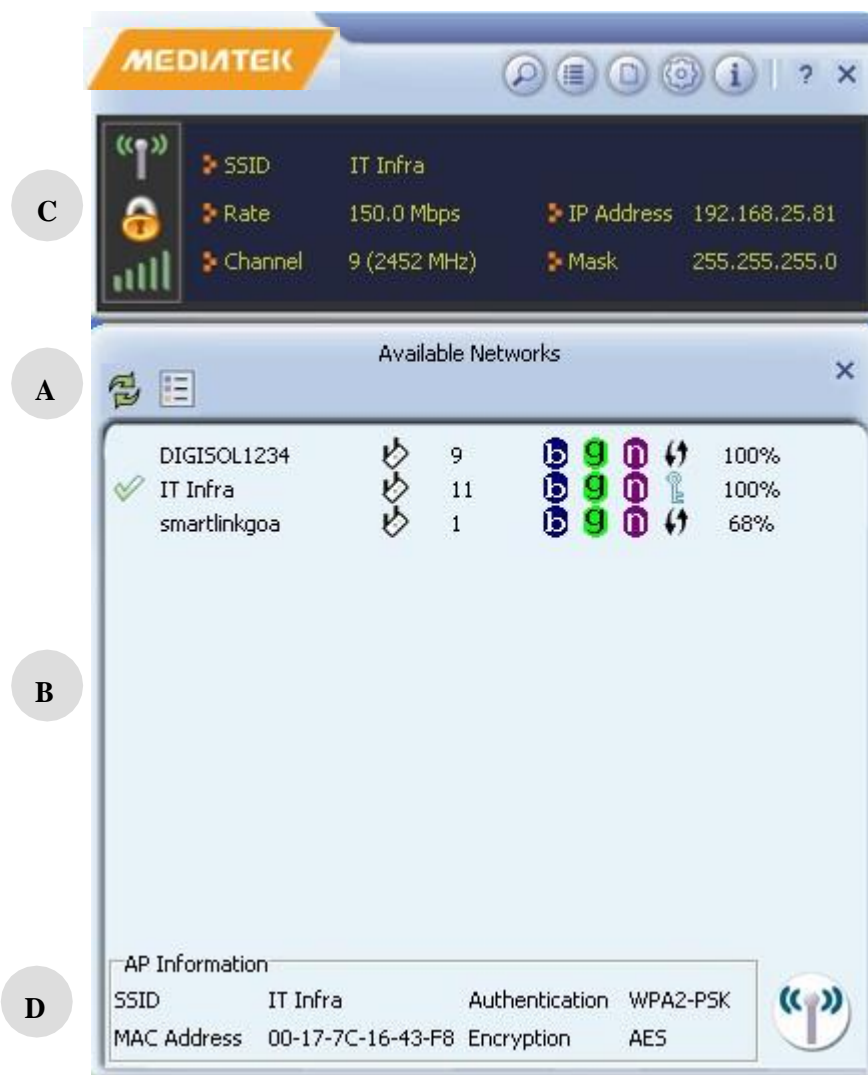
**In the System Tray**



**In the System Tray (Right Click)**

## 2-2-1 Utility Overview

There are several parts in the utility screen. Please refer to the following table for the description.



Parameter	Description
A	Refresh – Refresh adapter list in the “A” block. Add to Profile – Select the desired network & click this icon to add the desired profile in the utility.

<b>B</b>	This is a list for you to configure several available wireless networks in your PC using the utility.
<b>C</b>	Shows the status of the SSID, Rate, Channel, IP address and Mask.  Turn Off RF– This function is for you to turn off or turn on the radio of the adapter. If the radio is turned off, the adapter will not work.
<b>D</b>	Displays the connected AP information like: SSID, Authentication, MAC address and Encryption. Connect Button: To Connect to the desired profile.

## 2-3 Connect to Wireless Access Point

To use wireless network, you have to connect to a wireless access point first. You can either use the Mediatek utility (comes with wireless adapter driver), or Windows Zero Config utility (comes with Windows operating system) for configuration purpose.

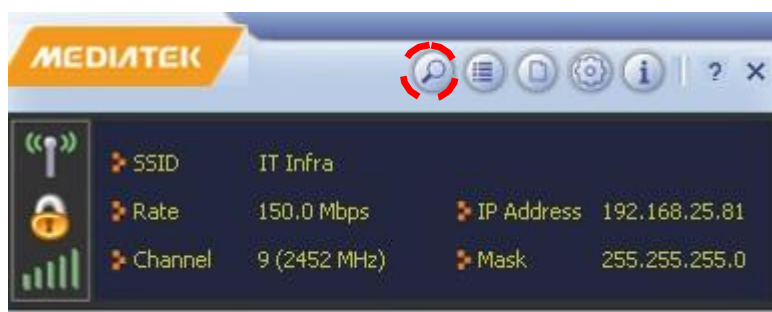
### 2-3-1 Using Mediatek Utility

Please follow the instructions mentioned below to use Mediatek configuration utility to connect to the wireless access point.

1. Left-click the Mediatek configuration utility icon located at lower-right corner of computer desktop, and configuration menu will appear.

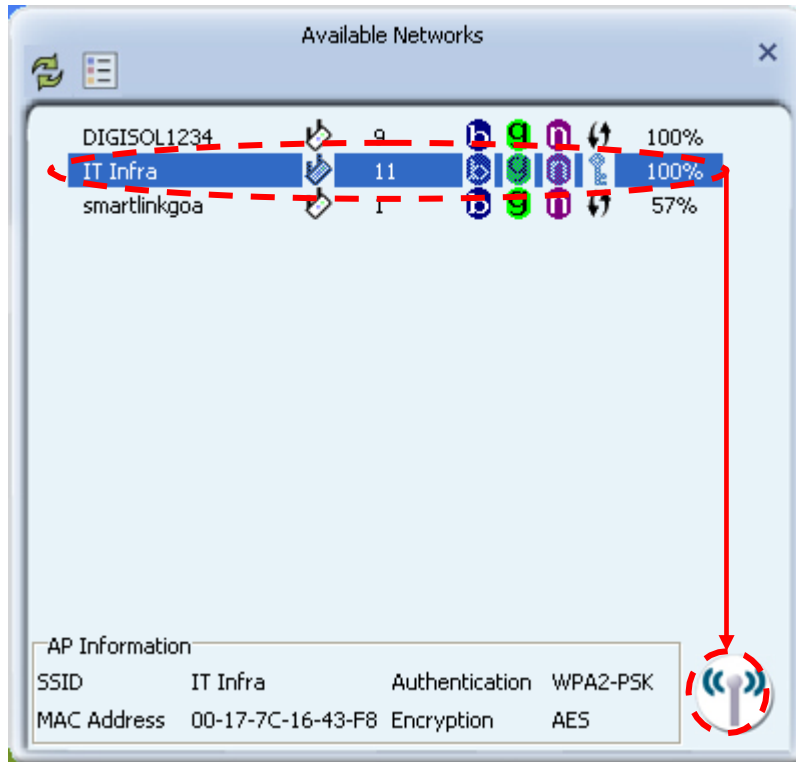


2. To connect to an available network, click the Available Networks button as shown below.





3. In the Available Networks window that appears, select the name of the network to which you are connecting. Then click the connect icon  and wait for several seconds while the utility sets up a connection.



If the wireless access point you wish to connect does not appear here, you can click „**Refresh**“ button to scan for wireless access points again; if the wireless access point you are looking for still does not appear, try to move the access point closer.

When the access point you’re looking for is on the list, click it and then click „**Connect**“ button as highlighted in the screen shot above.

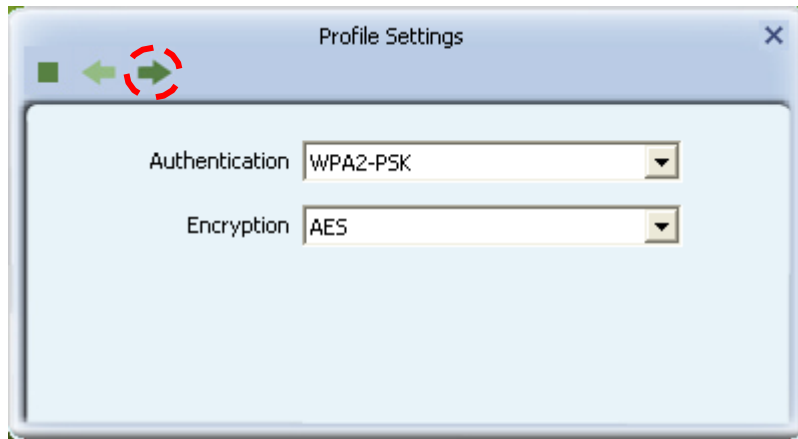
**Note:** If you wish to save the added network, click on “**Add Profile**” icon under “**Available Networks**”

4. The Mediatek Utility automatically detects and displays the security settings of the network to which you are connecting in the Profile Settings screens. For instructions on setting up security, click on the security method detected for your network.

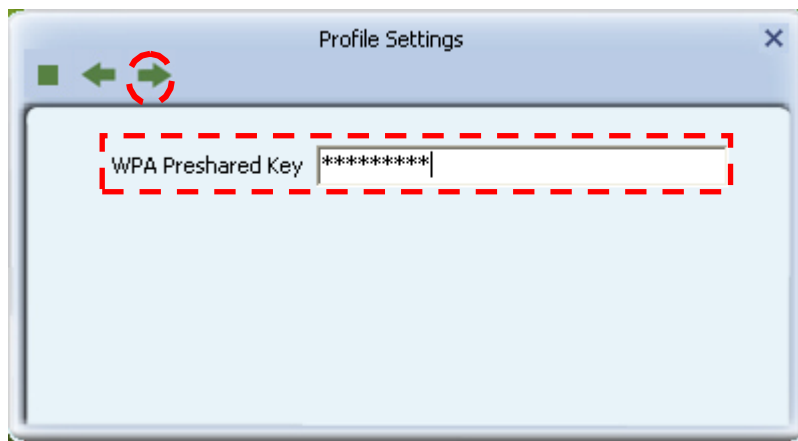
- WPA2-PSK
- WEP
- 802.1X or WPA2
- No Security

## WPA2-PSK

If the Utility shows that WPA2-PSK security is detected, click the right arrow to continue with the settings.

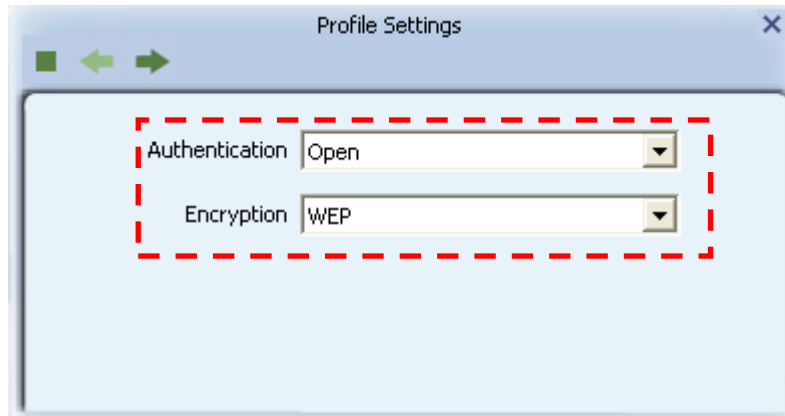


In the screen that displays, in the 'WPA Preshared Key' field, type a security key, the same as that used by the AP or wireless router to which you are connecting. Click the right arrow to save your settings and connect to the network.

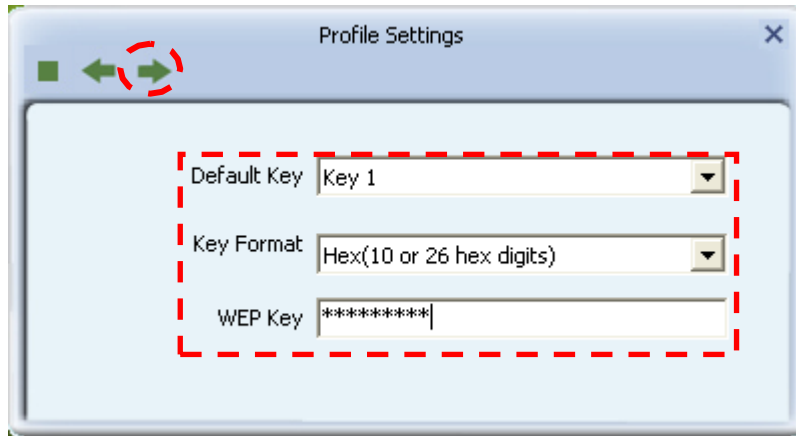


## WEP

If the Utility shows that WEP security is detected, click the right arrow to continue with the settings.

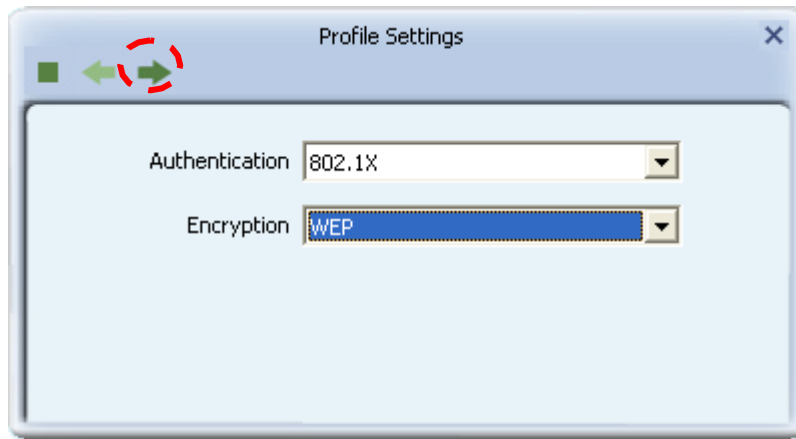


In the '**WEP Key**' field, type the same WEP key as that configured on the AP or wireless router to which you are connecting, and ensure that '**Default Key**' and '**Key Format**' settings are also the same. Click the right arrow to save your settings and connect to the network.

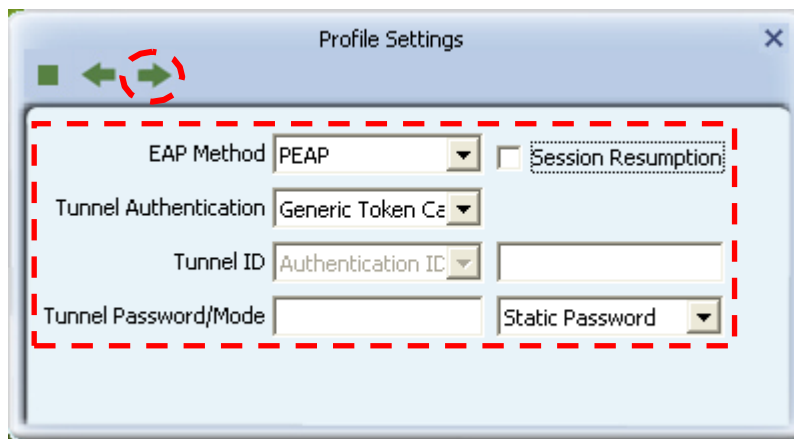


## 802.1X: WEP

If the Utility shows that 802.1x: WEP security is detected, click the right arrow to continue with the settings.

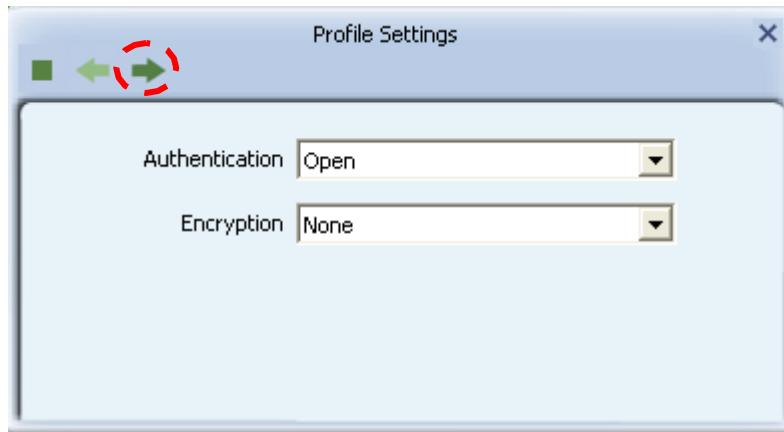


Select the EAP Method (Extensible Authentication Protocol) and Tunnel Authentication, and if required, the Tunnel ID and also enter the user name and password, using the settings provided by your organization's network administrator. Click the right arrow to save your settings.



## No Security

If your network has no security (not recommended), no further settings are required. Click the right arrow to save your settings and connect to the network.



Once you are connected, the Available Networks screen shows the status of your connection.



The table below explains the parameters in detail.

Parameter	Description
Profile name	Define a recognizable profile name for you to identify the different networks. It can be any phrase to help you remember.
Network Name (SSID)	<p>The SSID is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. You may specify a SSID for the adapter and then only the device with the same SSID can interconnect to the adapter.</p> <p>This field will be filled as the access point you selected when SSID is not hidden and grayed out. If SSID is hidden, you have to input correct SSID yourself.</p>
Channel	This setting is only available for Ad Hoc mode. Select the number of the radio channel used for networking. The channel setting should be the same with the network you are connecting to.
Network Authentication	<p>This setting has to be consistent with the wireless networks that the adapter intends to connect.</p> <p>Open System – No authentication is needed among the wireless network.</p> <p>Shared Key – Only wireless stations using a shared key (WEP Key identified) are allowed to connect to each other.</p> <p>WPA2-PSK – WPA2-PSK is also for home and small business. The difference between WPA-PSK and WPA2-PSK is that WPA2-PSK provides data encryption via the AES by default. In contrast, WPA-PSK uses Temporal Key Integrity Protocol (TKIP) by default.</p>
Data encryption	<p><b>Disabled</b> – Disable the WEP Data Encryption.</p> <p><b>WEP</b> – Enable the WEP Data Encryption. When the item is selected, you have to continue setting the WEP Encryption keys.</p> <p><b>TKIP</b> – TKIP (Temporal Key Integrity Protocol) changes the temporal key every 10,000 packets (a packet is a kind of</p>

	<p>a message transmitted over a network.) This ensures much greater security than the standard WEP security.</p> <p><b>AES</b> – AES has been developed to ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11i for the security in the wireless network.</p> <p><i>Note: All devices in the network should use the same encryption method to ensure the communication. Select the data encryption type from drop-down menu. This setting must be identical with the setting of wireless access point you wish to connect.</i></p>
ASCII / PASSPHRASE	<p>When the encryption type is „WEP“, it's required to input a set of „passphrase“ to connect to the wireless access point. Check „ASCII“ or „HEX“ depending on the security setting of the access point, and input it in the box.</p> <p>The network key must be identical with the setting of the wireless access point you wish to connect.</p>
Key index	<p>Select WEP key index. For most of the access points you can select „1“, but please refer to the setting of the access point.</p>
Network key	<p>When the encryption type is „WPA2-PSK“, it's required to input a network key to connect to the wireless access point. Please input the same network key in the „confirm network key“ box.</p>

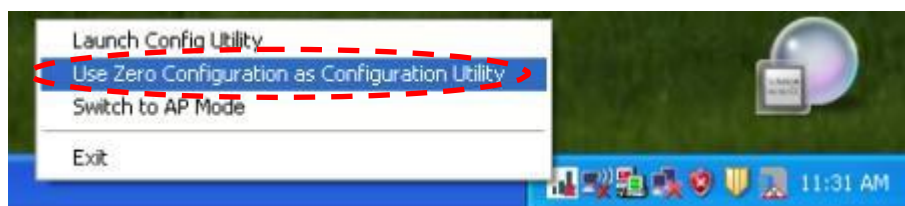
**NOTE:** Network security type („Network Authentication“ and „Data encryption“) will be selected automatically based on wireless access point's security setting. It's not required to change these settings yourself.

**NOTE:** If you are connected to an access point but the connection has dropped soon, please check security settings and re-check password spelling.

## 2-3-2 Using Windows Zero Configuration

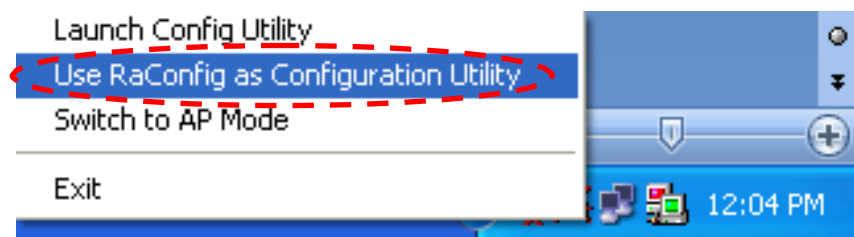
Windows XP and Vista have a built-in wireless network configuration utility, called as „Windows Zero Configuration“ (WZC). You can also use WZC to configure your wireless network parameter:

1. Right-click Mediatek configuration utility icon, and click **“Use Zero Configuration as Configuration Utility”**.



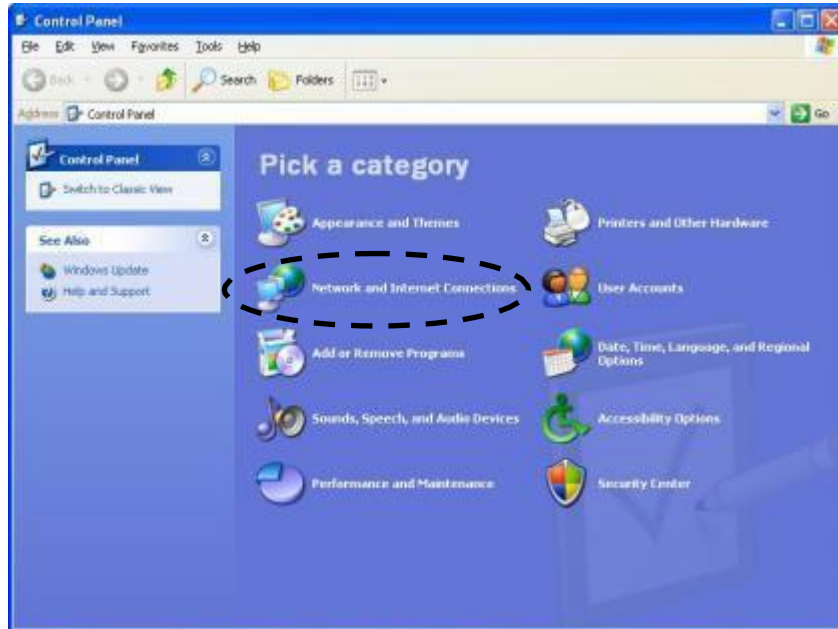
Once you switch to Windows Zero Configuration, you won't be able to add the network via the Mediatek utility & Profile button will be grayed out in Mediatek utility.

**NOTE:** To return to use Mediatek utility, right click Mediatek configuration utility icon, click **“Use RaConfig as Configuration Utility”**.

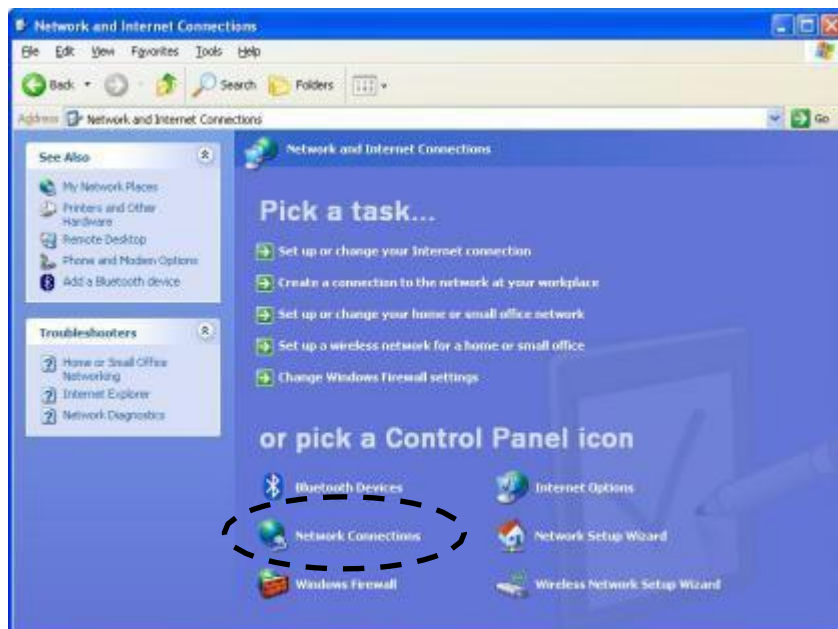




2. Click „Start“ button click „Control Panel“, then click „Network and Internet Connections“ in Control Panel.



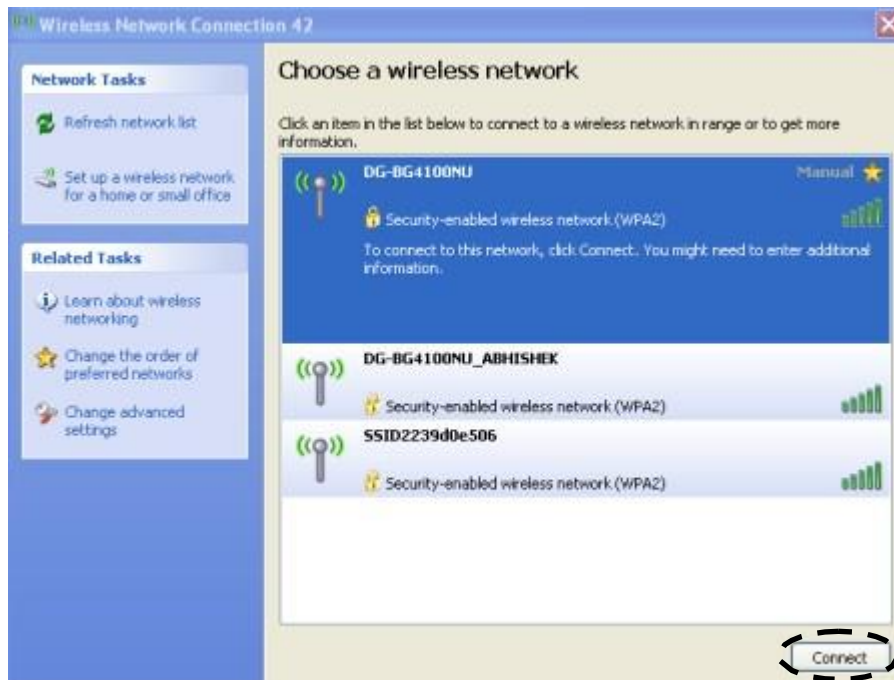
3. Double click „Network Connections“.



4. Right-click „**Wireless Network Connection**“ (it may have a number as suffix). If you have more than one wireless network card, please make sure you right-click the DIGISOL 802.11n Wireless LAN Card, then select „**View Available Wireless Networks**“.



5. All wireless access points in proximity will be displayed here. If the access point you want to use is not displayed here, please try to move your computer closer to the access point, or you can click „**Refresh network list**“ to rescan access points. Click the access point you want to use if it's shown, then click „**Connect**“.

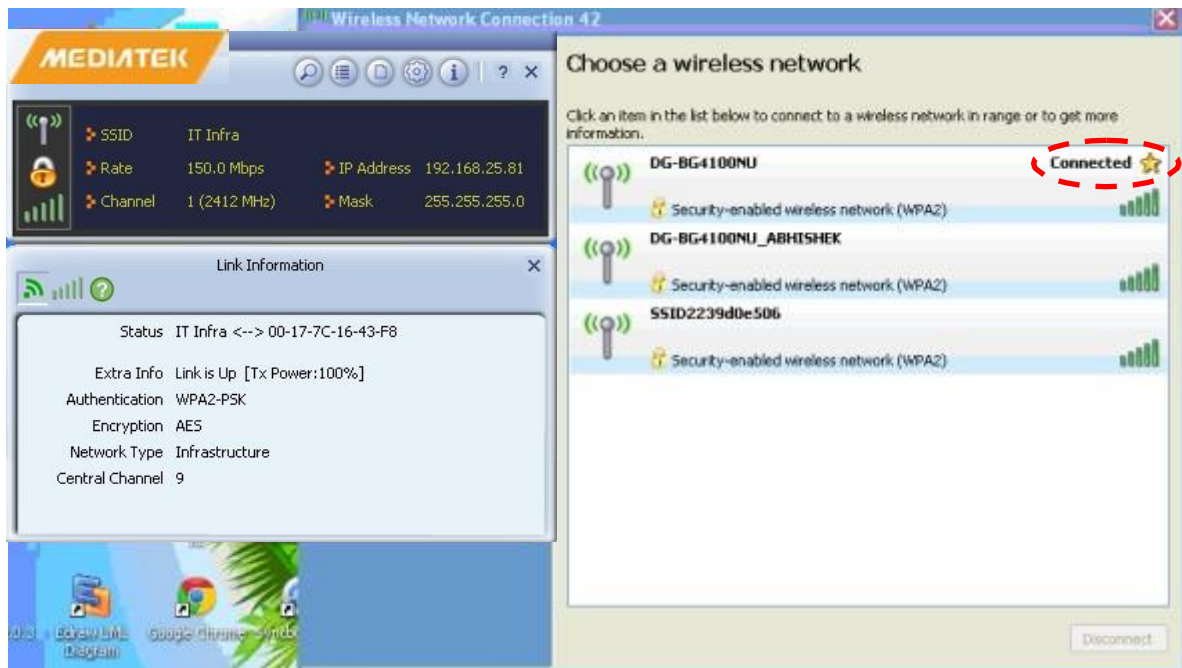


- If the access point is protected by encryption, you have to input its security key or passphrase here. It must match the encryption setting on the access point.

If the access point you selected does not use encryption, you'll not be prompted for security key or passphrase.



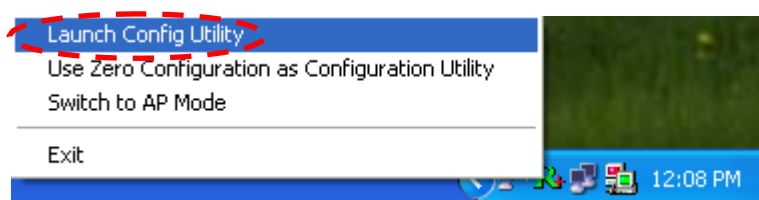
- If you can see „**Connected**“ message, the connection between your computer and the wireless access point is successfully established.



## 2-4 Connection Profile Management

If you need to connect to different wireless access points at different time, for example, access point of your home, office, cybercafé, or public wireless service, you can store the connection parameters (SSID, encryption, passphrase, security etc.) as a profile for every access point, so you don't have to input these parameters every time when you want to connect to a specific wireless access point.

To manage profiles, right-click the Mediatek configuration utility icon located at lower-right corner of computer desktop, then click „**Launch Config Utility**“.




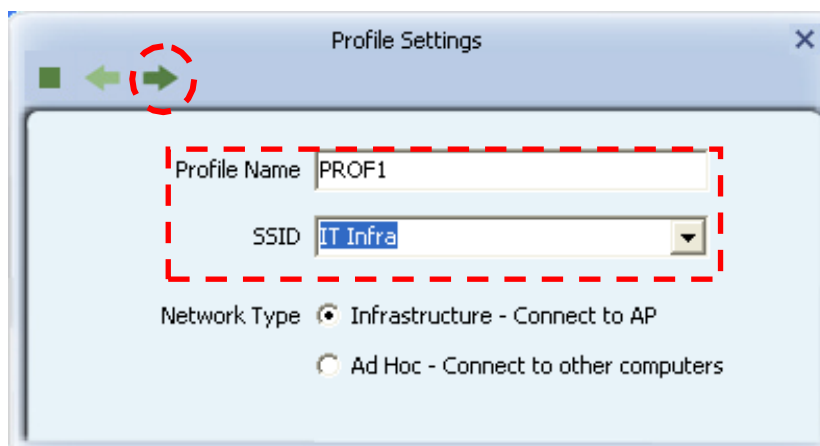
Click the „**Profile**“ menu.



## 2-4-1 Add a new profile

By this function you can setup the connection parameters for a specific wireless access point in advance, when connecting it for the first time.

If you want to create a new profile, click „**Profile**“ menu, then click „“ button. Enter the SSID and Network type here and click on the next arrow as shown below.



You'll be prompted to input connection parameters for the wireless access point you wish to connect.

When all required parameters are set, click „**OK**“ to create and save a new profile.


## 2-4-2 Remove an existing profile

When you no longer need an existing profile, you can remove it.

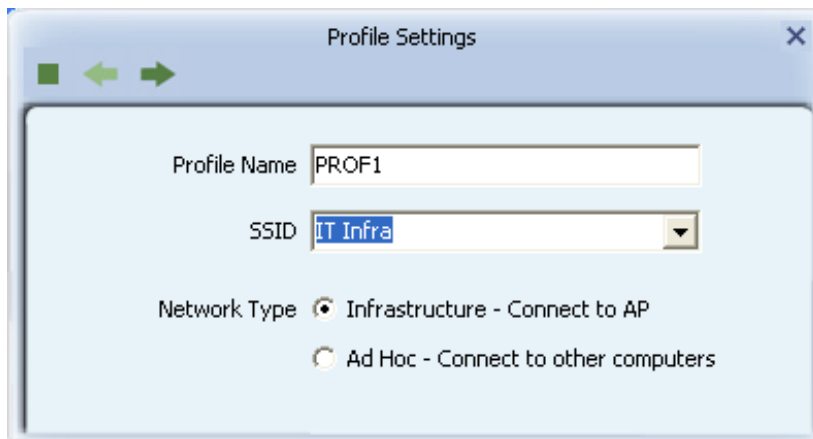
If you want to remove a profile, click on the profile, then select an existing profile which you wish to remove, and then click „✖“ button.



### 2-4-3 Edit an existing profile

If you have added a profile before, and you wish to change the content of the profile, you can use this function. Please select a profile from the list first, then click „“ button. You“ll be provided with the contents of selected profile, and you can edit them.

The screen shown below appears, when you click on .




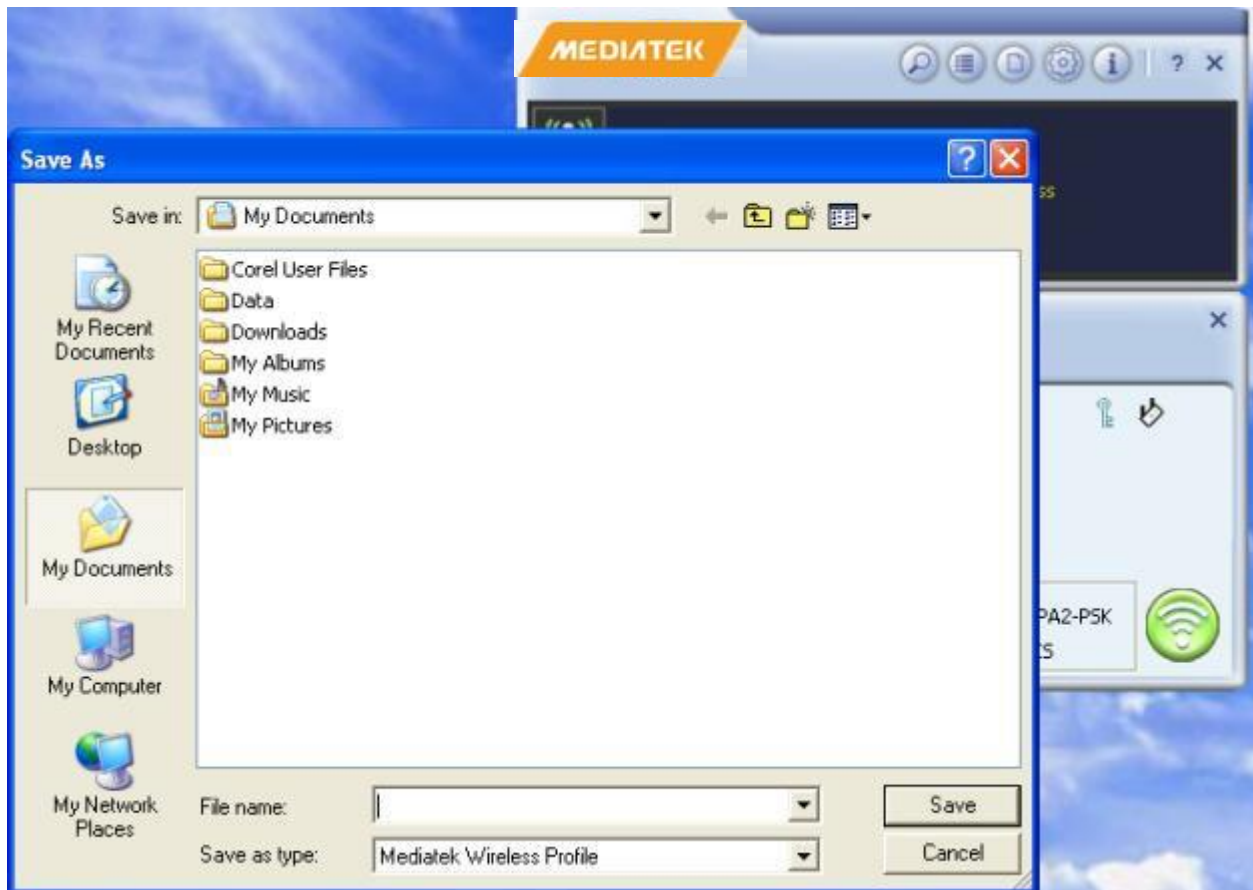
The screenshot shows a window titled "Profile Settings" with a close button (X) in the top right corner. Inside the window, there are three main sections: "Profile Name" with a text input field containing "PROF1"; "SSID" with a dropdown menu showing "IT Infra"; and "Network Type" with two radio button options: "Infrastructure - Connect to AP" (which is selected) and "Ad Hoc - Connect to other computers".




## 2-4-4 Import/Export Profile

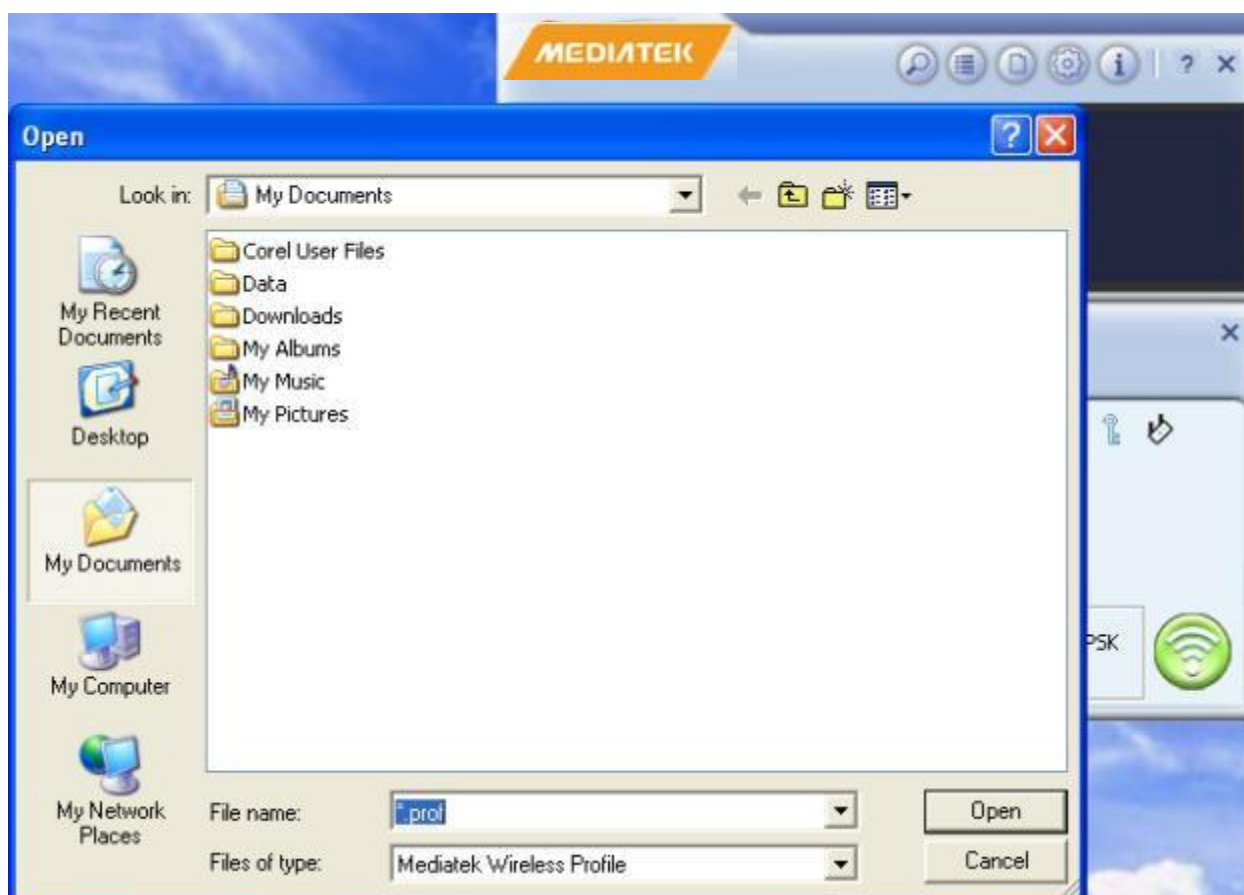
If you need to make a copy of a specific profile, you can use this function. This function is very convenient when you need to build a new profile with parameters that are similar to any existing profile.

To copy (Export) the settings, select an existing profile, then click „“ button. The following screen will appear.



To reload (Import) the Profile Settings, click  button, the following screen will be displayed to load the profile.





## 2-4-5 Add WPS Profile

Wi-Fi Protected Setup (WPS) is the latest wireless network technology which makes wireless network setup become very simple. If you have WPS-enabled wireless access point, and you want to establish a secure connection to it, you don't have to configure the wireless access point and setup data encryption by yourself. All you have to do is go to the WPS setup page of this USB wireless adapter, click a button, and then press a specific button or enter a set of 8-digit code on the wireless access point you wish to establish a secure connection - just three simple steps.

For older wireless access points, it's possible to perform a firmware upgrade to become a WPS-enabled access point. Since they may not have a hardware button to press for WPS setup, you can use an alternative WPS setup method - input the pin code. Every WPS-compatible wireless USB adapter supports pin code configuration method; you can just input the code to wireless access point, then the wireless access point and wireless USB adapter will do the rest for you.

This wireless USB adapter is compatible with WPS. To use this function, the wireless access point you wish to connect to must support WPS function too. Now, please follow the instructions mentioned below to establish secure connection between WPS-enabled wireless access point and your wireless USB adapter.

This wireless network adapter supports 2 kinds of WPS: PIN code and Push-Button.

To do this, click „“ button. The following screen will appear.



You can use PIN code or Push-Button configuration, and WPS-compatible wireless access point must use the same type of WPS.

### 2-4-5-1 Push Button

To use Push-Button WPS configuration, select „**Push Button**“ option. This is the easiest way to establish secure connection by WPS, but if there are more than one WPS-compatible AP using Push-Button method, please use PIN Code instead.

Select Push Button & click on Next arrow, the following screen will appear:



Click on Start PBC button.



Please activate Push-Button function on wireless access point now, and wireless USB adapter will establish secure connection with access point within one minute.

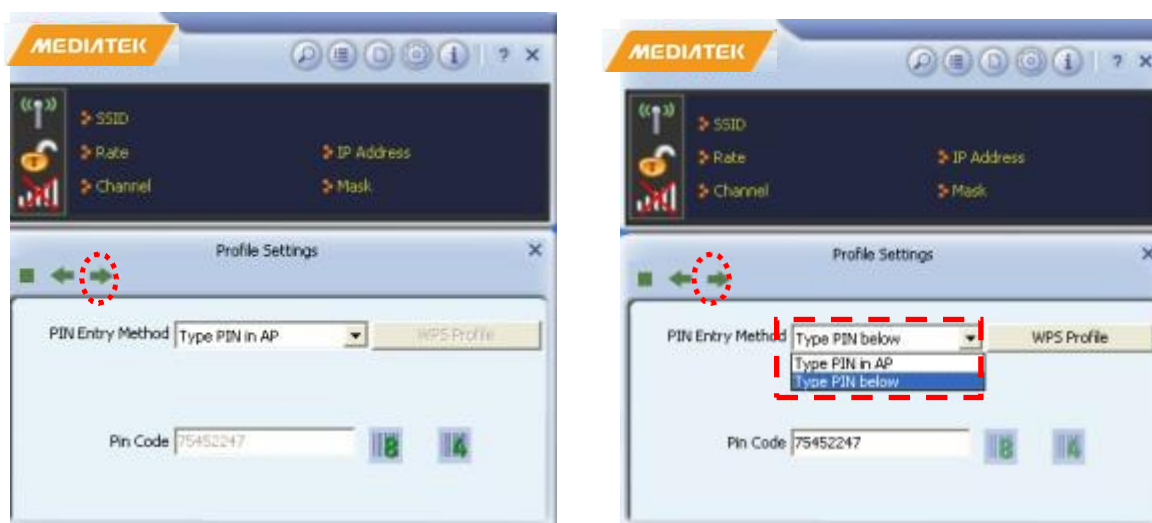
### 2-4-5-2 PIN Code

The PIN code of your wireless USB adapter is an 8/4-digit number located at the bottom position of configuration utility. Remember it, and input the number to your wireless access point as the WPS PIN code (Please refer to the user manual of your wireless access point for instructions about how to do this).

Once you select PIN Method, below you can see the available WPS AP List, select the desired AP & click Next arrow.



It will prompt you the below screen:



If the USB adapter is an enrollee, select **“Type PIN in AP”** option. If you want to configure it as a Registrar, select the other option as **“Type PIN below”** & click WPS profile button to create a WPS setup.

Depending on your Wireless AP, select either 4 or 8 digit PIN Code to be entered in your Wireless AP. Input the PIN Code displayed in the utility to your Wireless AP configuration menu within 2 minutes, and the network adapter will establish secure connection with AP automatically.



Click Start PIN to start the PIN Method configuration.



Once the setup is completed, it will display the network details as below:




## 2-5 Network Statistics, Link Information and Status

The configuration utility provides information about network statistics and link status. If you want to know how your wireless USB adapter works, you can use these functions to get detailed information about the wireless connection you are using.

### 2-5-1 Link Status

If you want to know the general information of the access point you're connecting to, click „**Link Information**“ menu:


This screen shows the information of Extra Info, Authentication, Encryption, Network type and Central Channel of the wireless network the adapter that it is connecting to.

If you want to know the status of your wireless network adapter, click „“ menu:






## 2-5-2 Throughput

Click on the icon , shown below. The link throughput information will appear as shown below like: Link Quality and Signal Strength.




## 2-5-3 Statistics

You can get the real time information about the packet transmission and receiving status during wireless communication from this screen.


To view the statistical data of wireless network adapter, click „“ icon, and the statistics of wireless connection will be displayed:






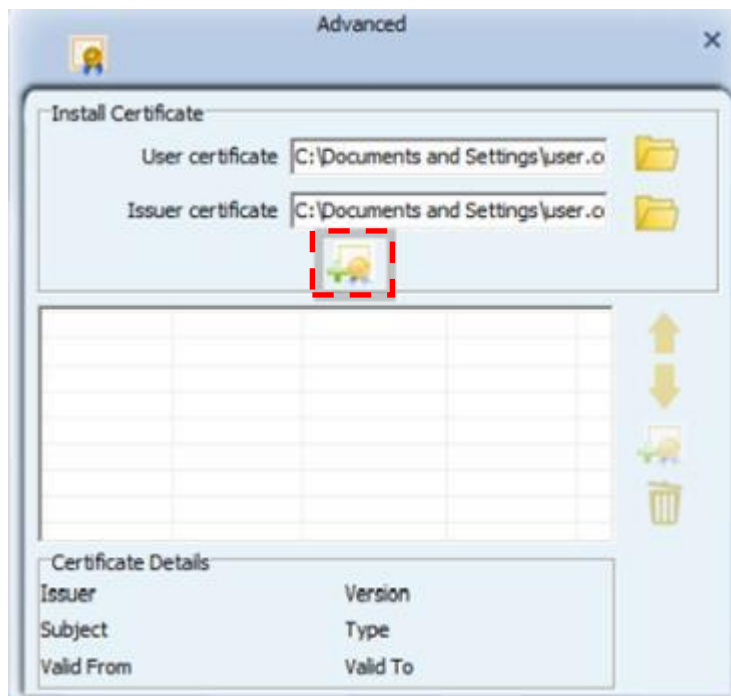
Under this menu, the data statistics about software access point will be displayed. You can get the real time information about the packet transmission and receiving status during wireless communication from this screen.

Click „**Reset Counter**“  to reset the value of every item back to „0“.

## 2-6 Advanced

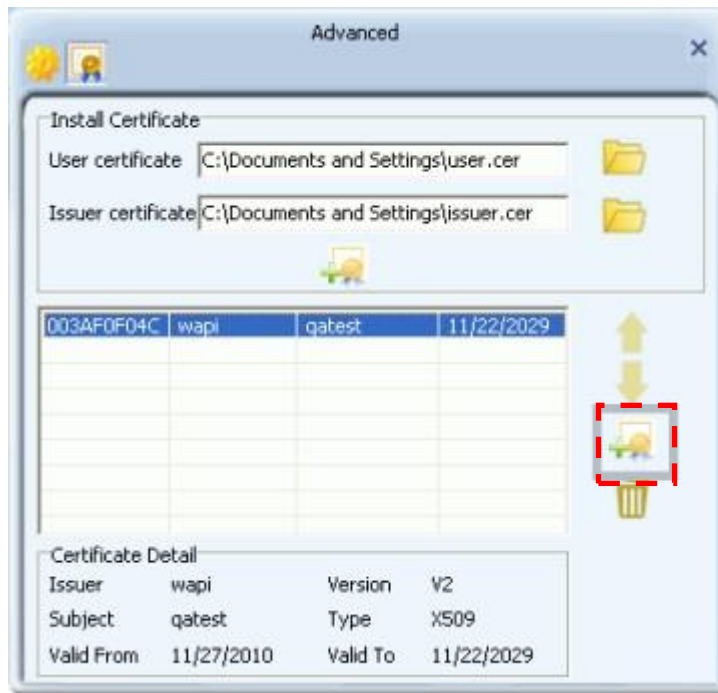
Click on the icon  to go to advanced screen.

To install WAPI certificates, first, in the certificate installation screen, in the 'User Certificate' field, click on the folder icon  to browse to and select a WAPI user certificate. Then, in the 'Issuer Certificate' field, click on the folder icon  to browse to and select a WAPI issuer certificate. Next, click the first install button  to verify the user and issuer certificate, and install the authentication server unit (ASU) certificate.

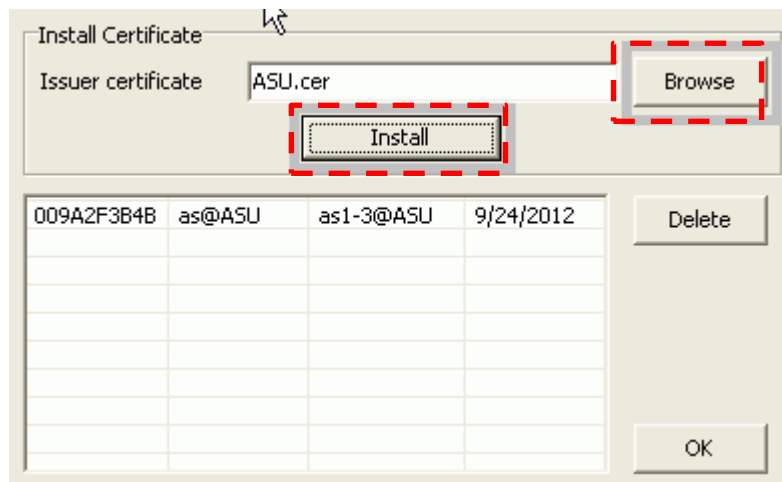


The ASU certificate and its details appear in the screen.

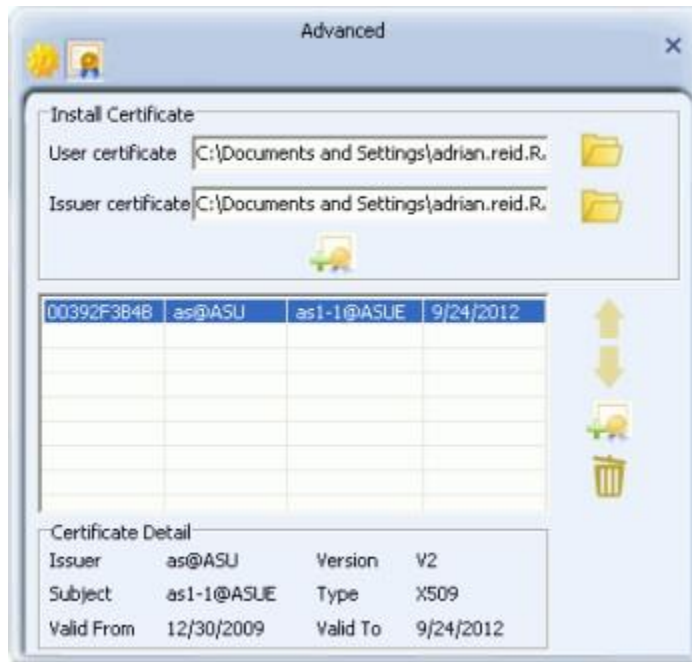
- If the authentication server on your network is installed on your network's AP, you have completed certificate installation. Close this screen and go to the final step in this set of instructions.
- If the authentication server on your network is external to your network's AP, click the second install button to install the ASU.



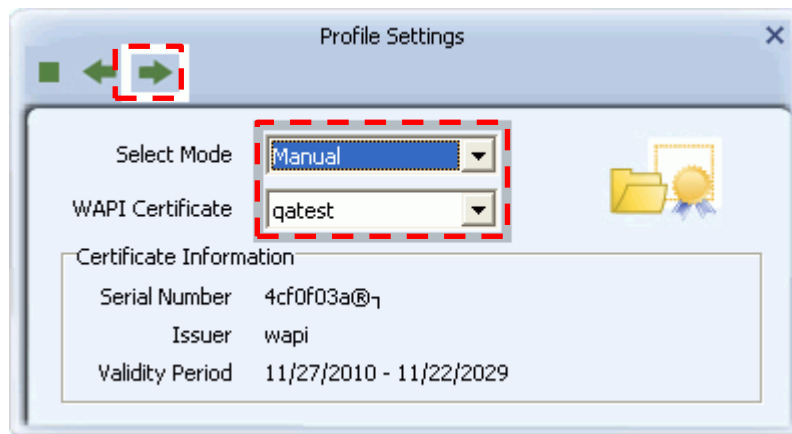
Click the 'Browse' button to browse to and select an ASU, and click 'Install'. The ASU appears in the list in this window. Click OK to close this screen.



The ASU appears in the certificate list. Close this window to complete the certificate installation procedure.

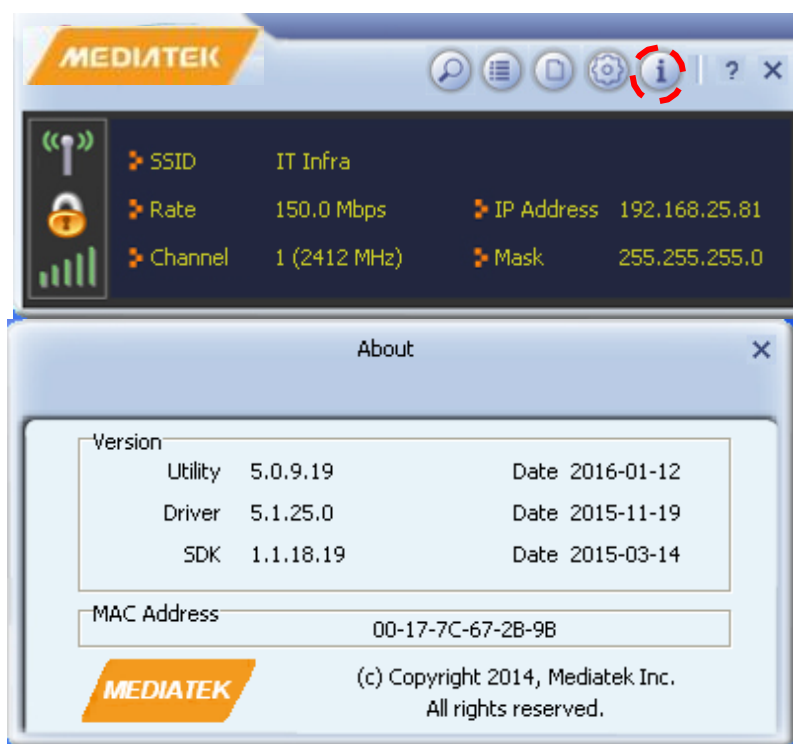


Select 'Auto' to let the Utility automatically detect a valid certificate for your connection, or select 'Manual' and from the drop-down list, select the name of the certificate to be used in your connection. Click the right arrow to complete setting up WAPI-CA security.

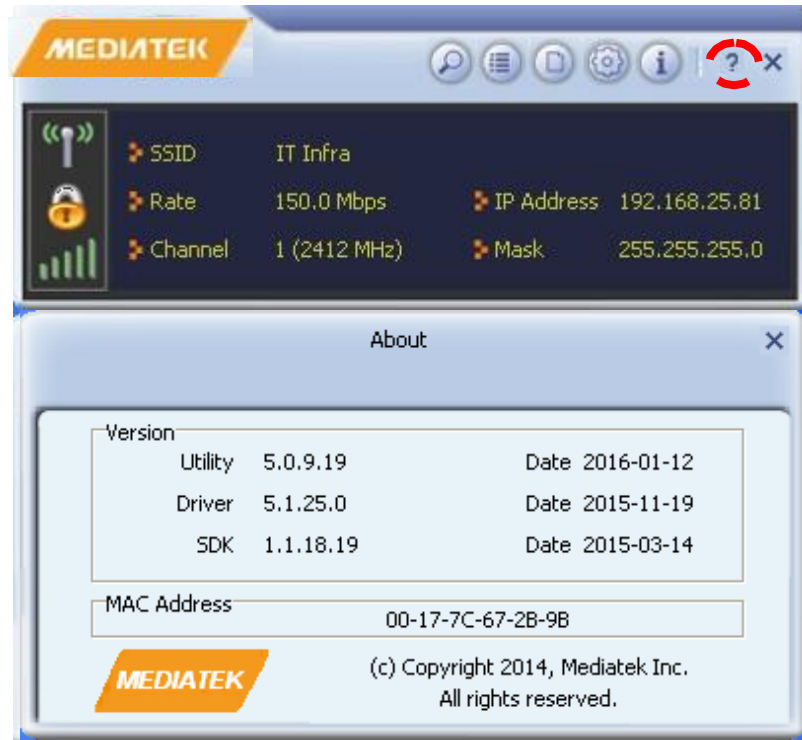


## 2-7 About

Under this section, you can view the software version information of DG-WN3150Nu Configuration Utility.



## 2-8 Help Section



Under this tab, you can search the HELP-related topics and contents of DG-WN3150Nu Configuration Utility.

## 3. Soft-AP Function

DIGISOL DG-WN3150Nu can act as a wireless service provider also. You can switch this wireless adapter's operating mode to „AP“ mode to simulate the function of a real wireless access point by software, and all other computers and wireless devices can connect to your computer wirelessly, even share the internet connection you have.

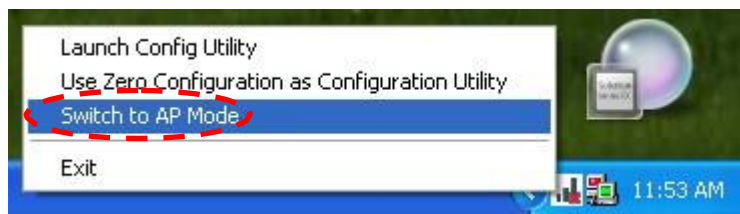
Please follow the instructions in the following chapters to use the AP function of your wireless adapter.

### 3-1 Switch to AP Mode

The operating mode of the wireless adapter is „**Station Mode**“ (becoming a client of other wireless access points) by default.

Please follow the instructions mentioned below to switch to AP mode.

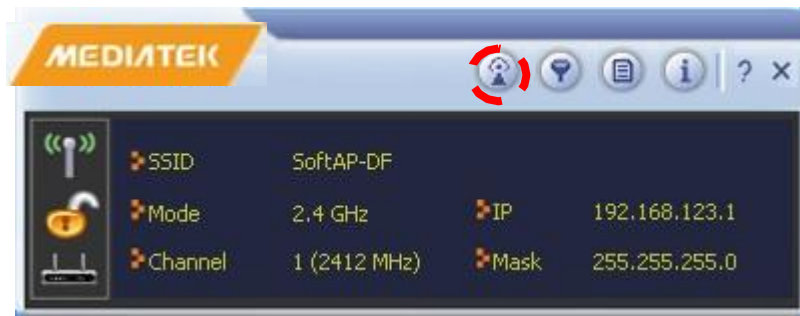
Right-click Mediatek configuration utility icon, and click „**Switch to AP Mode**“. It requires few seconds to switch to AP mode, please be patient.





### 3-1-1 Configure SSID and Channel

It will display the following screen:



Click on “AP Setup” icon to configure Soft AP Mode. The following screen will appear:



Please note that Ad-Hoc mode is not available when wireless adapter is in AP mode.

Configure SSID & select the desired Interface from the drop-down menu under ICS WAN to share the internet connectivity. Then click Next arrow.



Define the desired Channel number, authentication type if any & finish the AP configuration setup.

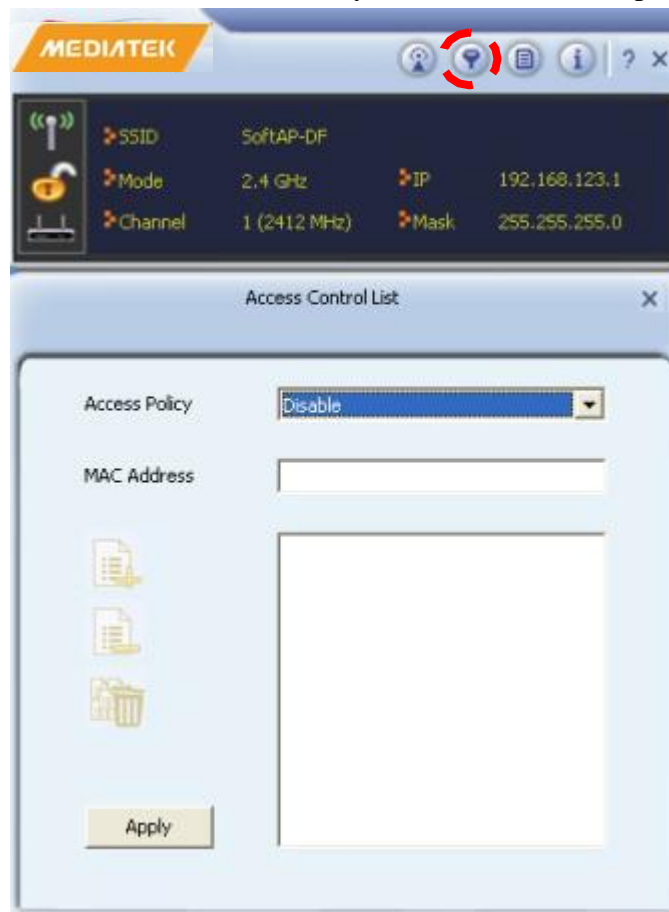
The description of setup items about wireless security are listed below:

Parameter	Description
Network Authentication	<p>This setting has to be consistent with the wireless networks that the USB adapter intends to connect.</p> <p>Open System – No authentication is needed among the wireless network.</p> <p>WPA-PSK – It is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, known as Pre-Shared Key, the user manually enters the starting password in their access point or gateway, as well as in each wireless station in the network. WPA-PSK takes over automatically from that point, keeping unauthorized users that don't have the matching password from joining the network, while encrypting the data traveling between authorized devices.</p>

	<p>WPA2-PSK – WPA2-PSK is also for home and small business. The difference between WPA-PSK and WPA2-PSK is that WPA2-PSK provides data encryption via the AES by default. In contrast, WPA-PSK uses Temporal Key Integrity Protocol (TKIP) by default.</p> <p>WPA-PSK/ WPA2-PSK – WPA Mixed Mode.</p>
Data encryption	<p>No Encryption – Disable the Data Encryption.</p> <p>TKIP – TKIP (Temporal Key Integrity Protocol) changes the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This insures much greater security than the standard WEP security.</p> <p>AES – AES has been developed to ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11i for the security in the wireless network.</p> <p><b>Note: All devices in the network should use the same encryption method to ensure the communication. Select the data encryption type from drop-down menu. This setting must be identical with the setting of wireless access point you wish to connect.</b></p>
Network key	<p>When the encryption type is „WPA-PSK“ or „WPA2-PSK“, it's required to input a network key to connect to the wireless access point.</p>
Group Rekey Interval	<p>You can specify the time interval to re-issue the key to your wireless clients here. You can click „10 seconds“ or „Kpackets“ to change the unit of time interval. (Every 10 seconds or a thousand data packets times the value you specified in „Group Rekey Interval“ field).</p>

### 3-1-2 Access Control List

If you are not going to open your computer & wireless resources to the public, you can use MAC address filtering function to enforce your access control policy, so only wireless clients with MAC addresses you defined can be connected to your software Access point.



Here is the description of every setup item:

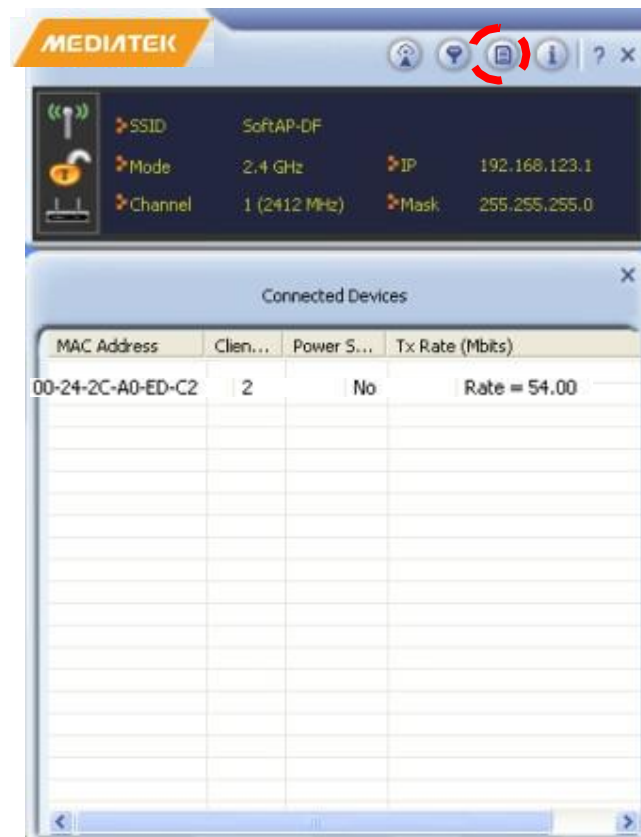
Parameter	Description
Access Policy	<p>Select the policy type of your access rule.</p> <p><b>Disable:</b> Allow any wireless client with proper authentication settings to connect to this Access Point.</p> <p><b>Allow All:</b> Only allow wireless clients with MAC addresses listed here to connect to this Access Point.</p> <p><b>Reject All:</b> Reject wireless clients with MAC addresses</p>

	listed here to connect to this Access Point.
MAC Address	Input the MAC address of the wireless client you wish to allow or reject here. No colon (:) or hyphen (-) is required.
Add	Add the MAC address you inputted in „MAC address“ field to the list.
Delete	Please select a MAC address from the list, then click „Delete“ button to remove it.
Remove All	Delete all MAC addresses in the list.

When you finish with the settings and want to save changes, click „**Apply**“ button.

### 3-1-3 Connected Devices

If you want to see the list of all wireless clients connected to this Soft Access Point, please select „**Connected Devices**“ tab from the utility.

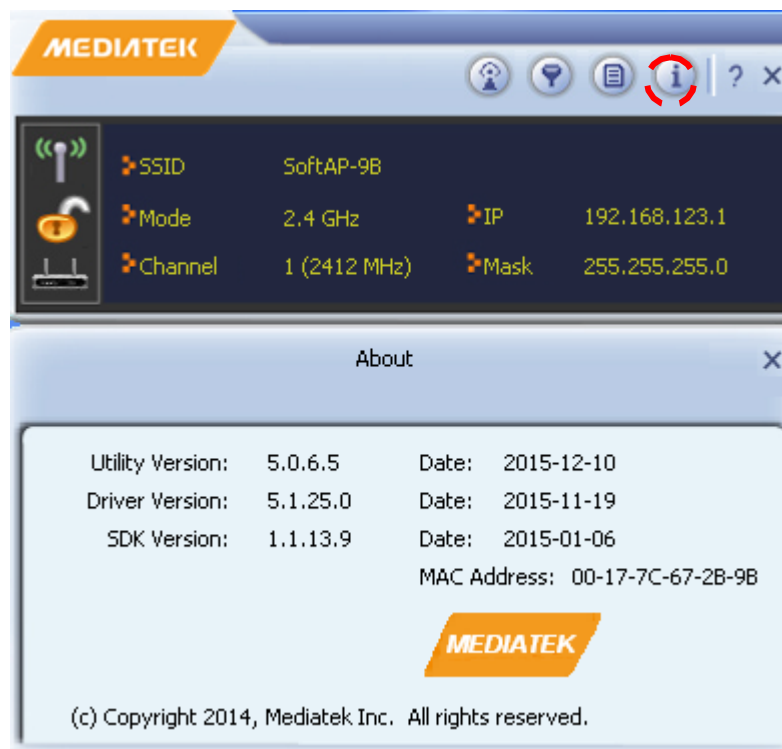


Here is the description of every field:

Parameter	Description
MAC Address	Displays the MAC address of the wireless client.
Client ID	Displays the client ID.
Power Saving Mode	Displays the capability of power-saving function of the wireless client.
Tx Rate (Mbits)	Displays the current data transfer rate of the wireless connection.

### 3-1-4 About

The „About“ tab provides you the information about version number of the configuration utility, driver, and other important information about your wireless Access Point.



## 4. Client + AP Mode

DIGISOL DG-WN3150Nu can connect to a Wireless Service Provider and act as an AP at the same time. This is possible in the feature “**Client + AP Mode**,”. This feature can also be used to extend the Wireless signal up to few meters.

***NOTE:** This feature is available for Operating systems like Windows 7/ Windows 8 only.*

Please follow the instructions in the following chapters to use the „**Client + AP Mode**“ function of your wireless USB adapter.

### 4-1 Switch to Client + AP Mode

The operating mode of wireless adapter is „**Station Mode**“ (becoming a client of other wireless access points) by default.

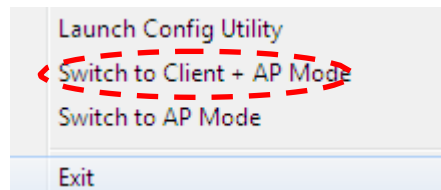


Next, follow the below instructions to switch to Client + AP mode.

Right-click Mediatek configuration utility icon, and click „**Switch to Client + AP Mode**“. It



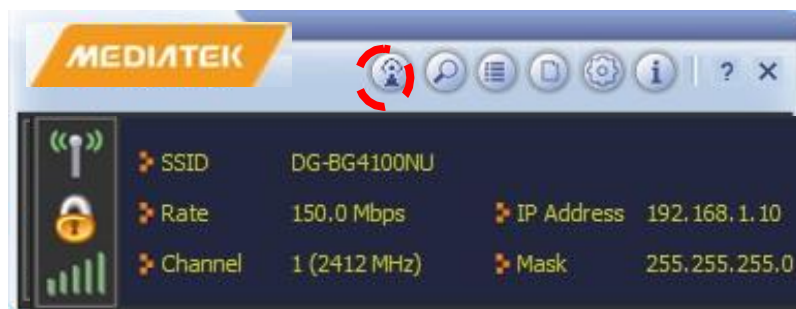
requires few seconds to switch to „**Client + AP**“ mode, please be patient.



The following screen will be displayed as shown below:



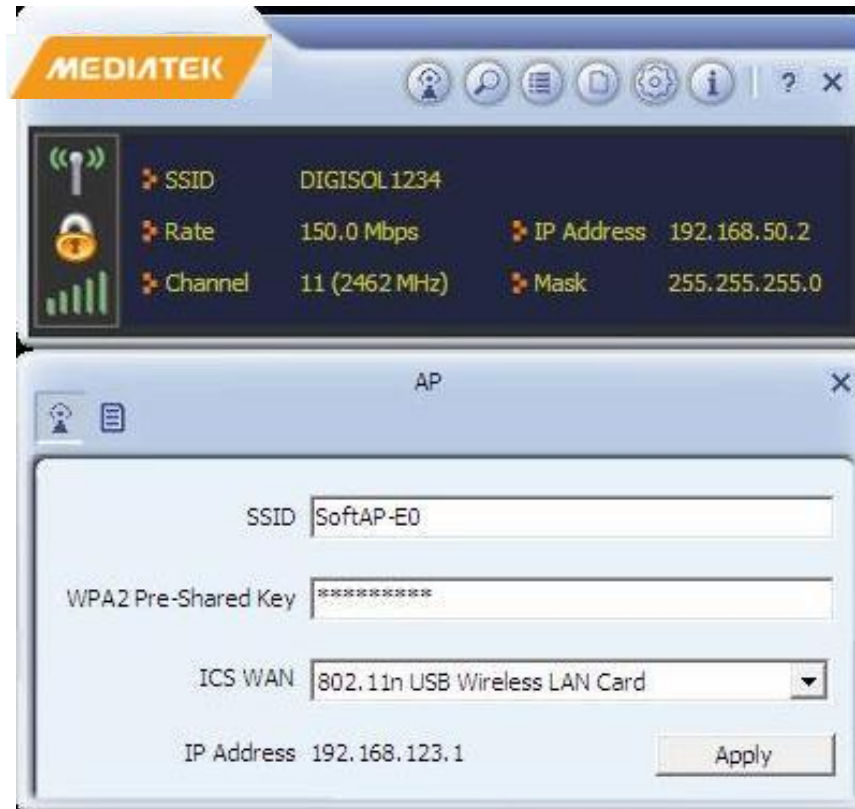
You can define the desired SSID & WPA2 Pre-Shared Key for this Mode & click OK. The following screen will appear:



Click on AP icon as highlighted above to configure the settings.



## 4-2 AP Configuration



Under „**AP Configuration**“, define SSID, WPA2 Pre-shared key & select the connected USB adapter Interface from the drop-down menu under ICS WAN to share the internet connectivity. Then click Apply to save the changes.

### 4-3 MAC Table

Under this tab, you can see the MAC addresses of wireless clients connected to the „**Client + AP**“ Mode of this USB adapter.



**Note:** Please refer to Appendix [Section 5-1](#) if you are connecting other DG-WN3150Nu adapter as a wireless client to this “Client + AP” network.

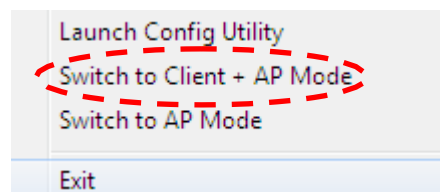
## 5 Appendix

### 5-1 Configuration for DG-WN3150Nu in “Client + AP” Mode:

To Connect other DG-WN3150Nu as a wireless client to this “**Client + AP**” network, follow the steps as mentioned below:

Switch to “**Client + AP**” Mode using Mediatek Configuration Utility.

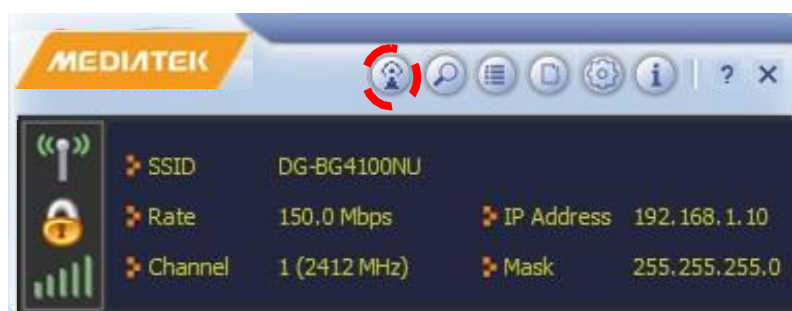
Right-click Mediatek configuration utility icon, and click „**Switch to Client + AP Mode**“. It requires few seconds to switch to „**Client + AP**“ mode, please be patient.



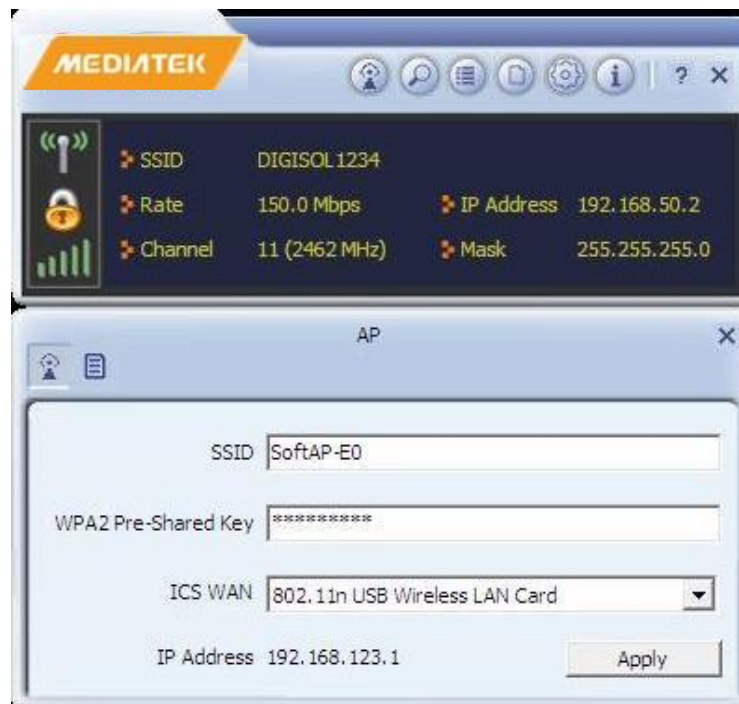
The following screen will be displayed as below:



You can define the desired SSID & WPA2 Pre-Shared Key for this Mode & click OK. The following screen will appear:



Click on AP icon as highlighted above to configure the settings.



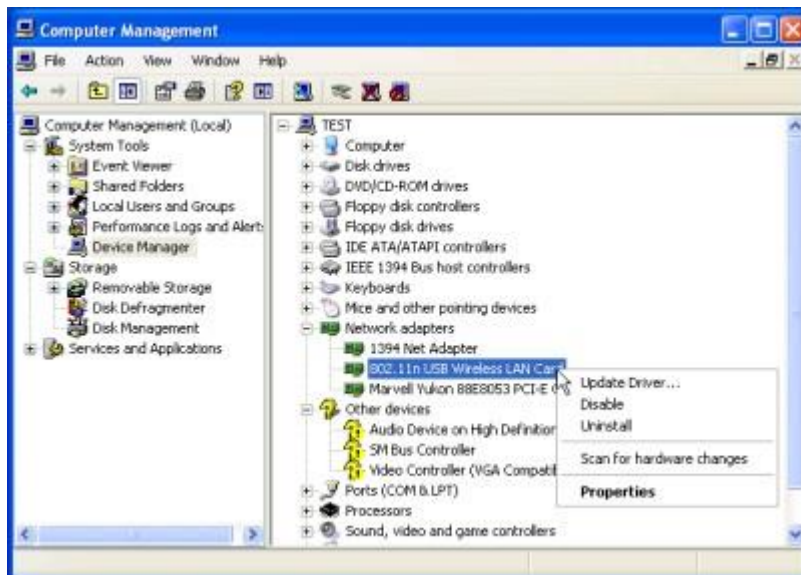
Under „AP Configuration“, define SSID, WPA2 Pre-shared key & select the connected USB adapter Interface from the drop-down menu under ICS WAN to share the internet connectivity. Then click Apply to save the changes.

It will give the IP address in 192.168.123.x range.

### **Configuration For DG-WN3150Nu as a Wireless Client:**

If you want to connect other DG-WN3150Nu adapter as a wireless client to this network, kindly follow the steps below:

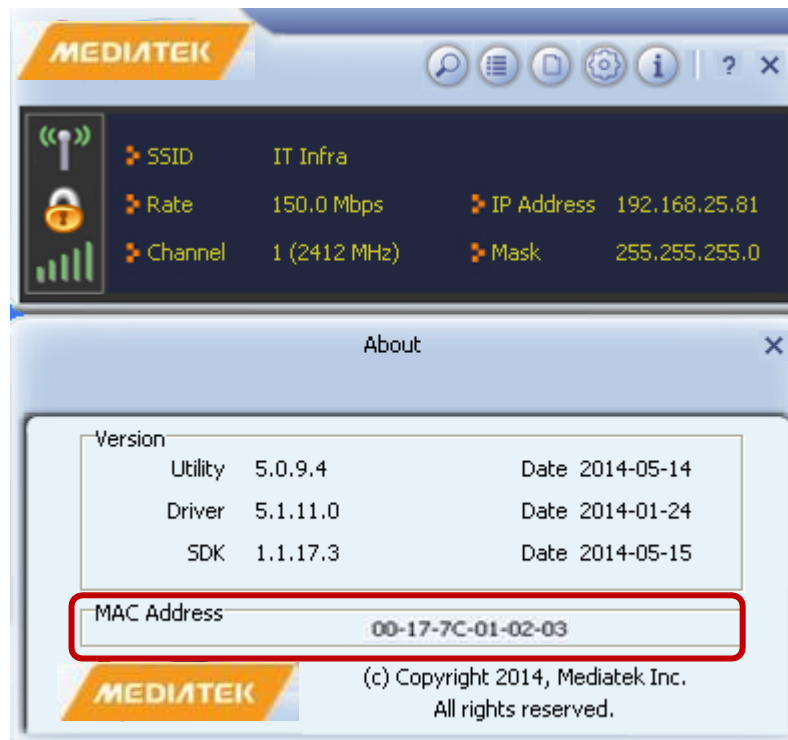
Once DG-WN3150Nu adapter is installed, go to **Device Manager>>Right Click on 802.11n USB Wireless LAN card>>Properties.**



Click on **Advanced** tab>>Assign the MAC address to DG-WN3150Nu adapter as **00:17:7C:01:02:03**.



Click OK & verify if the assigned MAC address is reflecting in the utility of DG-WN3150Nu adapter.



Then try to connect the wireless network.

## 5-2 Hardware Specifications

- Standards: IEEE 802.11b/g/n
- Interface: USB 2.0
- Frequency Band: 2.4000 ~ 2.4835GHz (Industrial Scientific Medical Band)
- Data Rate: 11b: 1/2/5.5/11Mbps  
11g: 6/9/12/24/36/48/54Mbps  
11n: Support PHY rate up to 150Mbps.
- Securities: WEP 64/128, WPA, WPA2, WPS and IEEE 802.1x
- Antenna: Internal Antenna (1T1R)
- Drivers: Windows XP/Windows 7/ Windows8/Windows10
- LED: Link/Activity
- Transmit Power: 11b: 18+/- 1dBm, 11g: 15+/- 1dBm, 11n: (HT20@MCS7), 14+/-1dBm(HT40@MCS15), 14+/-1dBm
- Dimensions: Net Dimension: 23(L) x 13.8(W) x 6(H) mm  
Gross Dimension:169(L) x 114(W) x 15(H) mm
- Weight: Net weight: 2.5gms  
Gross weight: 22.7gms
- Temperature: Operating: (-10~50°C)  
Storage: (-20~85°C)
- Humidity: Operating: 10~90% (Non-Condensing)  
Storage: 5%~90% (Non-Condensing)



## 5-3 Troubleshooting

If you encounter any problem when you're using this wireless network adapter, don't panic. Before you call your dealer of purchase for help, please check this troubleshooting table, the solution of your problem could be very simple, and you can solve the problem yourself.

Scenario	Solution
I can't find any wireless access point / wireless device in „Site Survey“ function.	<ol style="list-style-type: none"><li>1. Click „Rescan“ for few more times and see if you can find any wireless access point or wireless device.</li><li>2. Please move closer to any known wireless access point.</li><li>3. „Ad-hoc“ function must be enabled for the wireless device you wish to establish a direct wireless link.</li><li>4. Please adjust the position of the network adapter (you may have to move your computer if you're using a notebook computer) and click „Rescan“ button for few more times. If you can find the wireless access point or wireless device you want to connect by doing this, try to move closer to the place where the wireless access point or wireless device is located.</li></ol>
Nothing happens when I click „Launch Config Utility“.	<ol style="list-style-type: none"><li>1. Please make sure the wireless network adapter is inserted into your computer's USB port.</li><li>2. Reboot the computer and try again.</li><li>3. Remove the adapter and insert it into another USB port.</li><li>4. Remove the driver and re-install.</li><li>5. Contact the dealer of purchase for help.</li></ol>
I cannot establish connection with a certain wireless access point.	<ol style="list-style-type: none"><li>1. Click „Add to Profile“ for few more times.</li><li>2. If the SSID of the access point you wish to connect is hidden (nothing displayed in „SSID“ field in „Site Survey“ function), you have to input correct SSID of the access point you wish to connect. Please contact the owner of access point to ask for correct SSID.</li><li>3. You have to input correct passphrase / security key to connect an access point with encryption. Please contact the owner of access point to ask for correct passphrase /</li></ol>



	<p>security key.</p> <p>4. The access point you wish to connect only allows network cards with specific MAC addresses to establish connection. Please go to „Status“ menu and write down the value of „MAC Address“, then present this value to the owner of access point so he / she can add the MAC address of your network adapter to his / her access point“s list.</p>
The network is slow / having problem when transferring large files.	<p>1. Move closer to the place where the access point is located.</p> <p>2. There could be too many people using the same radio channel. Ask the owner of the access point to change the channel number.</p>

Please try one or more solutions listed above.

## 5-4 Glossary

**IEEE 802.11n standard:** 802.11n will work by utilizing multiple wireless antennas in tandem to transmit and receive data. The associated term MIMO (Multiple Input, Multiple Output) refers to the ability of 802.11n and similar technologies to coordinate multiple simultaneous radio signals. MIMO increases both the range and throughput of a wireless network. An additional technique employed by 802.11n involves increasing the channel bandwidth.

**IEEE 802.11g standard:** 802.11g is the new IEEE standard for high-speed wireless LAN communications that provides up to 54 Mbps data rate in the 2.4 GHz band. 802.11g is quickly becoming the next mainstream wireless LAN technology for home, office and public networks. 802.11g defines the use of the same OFDM modulation technique specified in IEEE 802.11a for the 5 GHz frequency band and applies it in the same 2.4 GHz frequency band as IEEE 802.11b. The 802.11g standard requires backward compatibility with 802.11b.

The standard specifically calls for:

- A. A new physical layer for the 802.11 Medium Access Control (MAC) in the 2.4 GHz frequency band, known as the extended rate PHY (ERP). The ERP adds OFDM as a mandatory new coding scheme for 6, 12 and 24 Mbps (mandatory speeds), and 18, 36, 48 and 54 Mbps (optional speeds). The ERP includes the modulation schemes found in 802.11b including CCK for 11 and 5.5 Mbps and Barker code modulation for 2 and 1 Mbps.
- B. A protection mechanism called RTS/CTS that governs how 802.11g devices and 802.11b devices interoperate.

**IEEE 802.11b standard:** The IEEE 802.11b Wireless LAN standard subcommittee, which formulates the standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

**Ad-hoc:** An Ad-hoc integrated wireless LAN is a group of computers, each has a Wireless LAN card, connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

**Infrastructure:** An integrated wireless and wired LAN is called an infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

**WEP:** WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802.11 standard.

**TKIP:** TKIP is a quick-fix method to quickly overcome the inherent weaknesses in WEP

security, especially the reuse of encryption keys. TKIP is involved in the IEEE 802.11i WLAN security standard, and the specification might be officially released by early 2003.

**AES:** AES (Advanced Encryption Standard), a chip-based security, has been developed to ensure the highest degree of security and authenticity for digital information, wherever and however communicated or stored, while making more efficient use of hardware and/or software than previous encryption standards. It is also included in IEEE 802.11i standard. Compare with AES, TKIP is a temporary protocol for replacing WEP security until manufacturers implement AES at the hardware level.

**DSSS and FHSS:** Frequency-hopping spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise.

Direct-sequence spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip is, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

**Spread Spectrum:** Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread –spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

**WPS:** WPS stands for Wi-Fi Protected Setup. It provides a simple way to establish unencrypted or encrypted connections between wireless clients and access point automatically. User can press a software or hardware button to activate WPS function, and WPS-compatible wireless clients and access point will establish connection by themselves. There are two types of WPS: PBC (Push-Button Configuration) and PIN code.

This product comes with limited lifetime warranty. For further details about warranty policy and Product Registration, please visit support section of **[www.digisol.com](http://www.digisol.com)**