

# *USER MANUAL*

*DWM-110*

*VERSION 1.0*



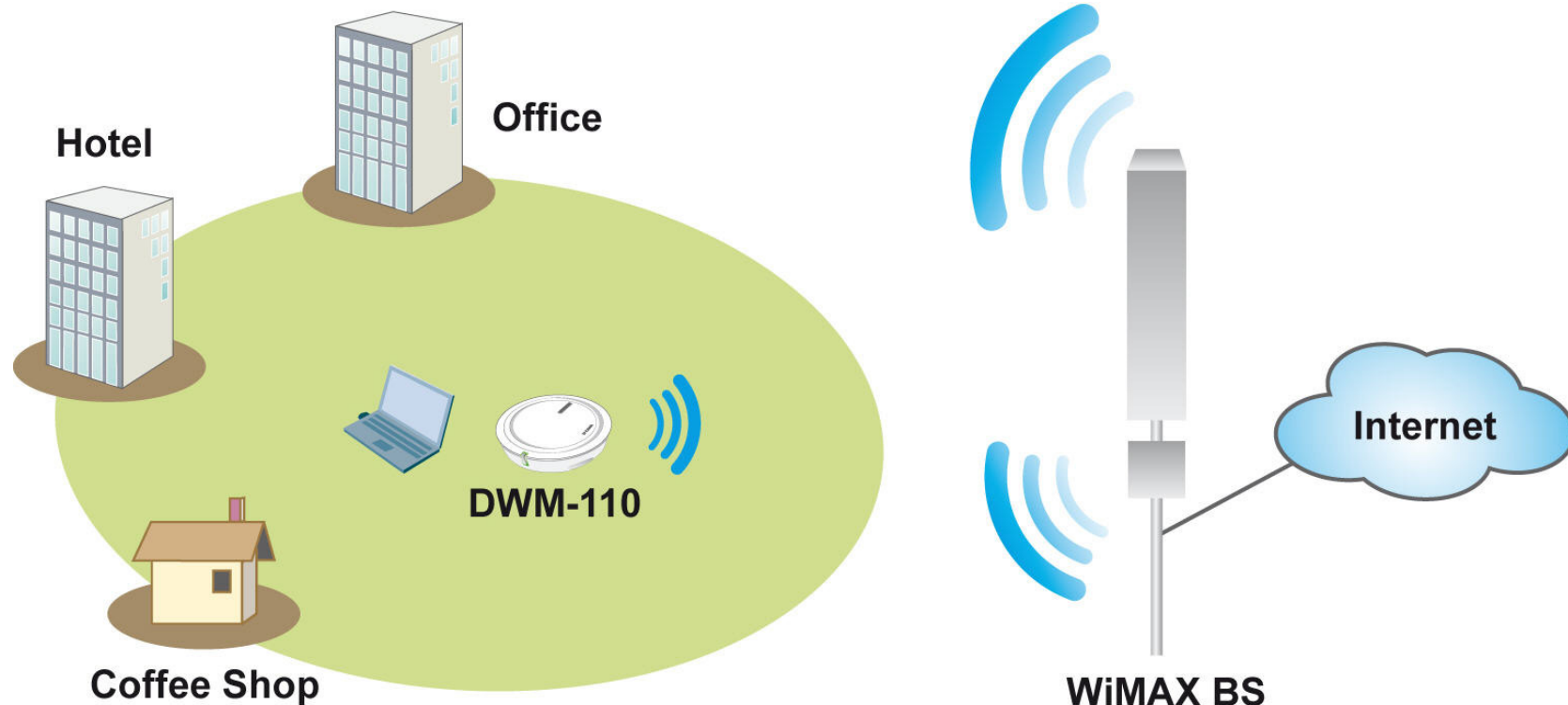


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# Introduction

Worldwide Interoperability for Microwave Access (WiMAX) is the 802.16 networking standard that wirelessly provides high bandwidth at long distances. D-Link DWM-110, with IEEE 802.16e-2005 standard, is a broadband wireless access (BWA) USB adapter. With simple configurations, you can wirelessly access high-speed Internet via the WiMAX base station (BS) of your Internet service provider (ISP) within its coverage area. Simply plug the D-Link DWM-110 Adapter into your USB, and get started.



## **Package Contents**

- DWM-110 IEEE 802.16e WiMAX USB Adapter
- CD-ROM with User Manual/ WiMAX Utility

## **System Requirements**

- Computer with:
  - At least one USB 2.0 port
  - Windows XP/Vista
- WiMAX Utility

## **Features**

- Supports IEEE802.16e-2005 Wireless MAN-OFDMA and Wireless HUMAN air interface
- Visual graphic icon and signal strength for connecting and disconnecting WiMAX
- Radio on/off function for when traveling on an airplane or any location that prohibits radio usage
- EAP base authentication for security

## Hardware Overview



**Power LED:** A steady green light indicates that the WiMAX Adapter is ready for use.

## Hardware Installation

1. Find an open USB port.
2. Insert the DWM-110 into the USB port.

**Note:** Make sure that you have installed the WiMAX utility before inserting the adapter into your USB port. The WiMAX utility also includes the WiMAX adapter driver.

## Before You Start

Before starting installation of the device and utility, make sure that you have the following information obtained from your ISP:

- User name/Identity
- Password
- Anonymous Identity (If necessary)
- Frequency (If necessary)

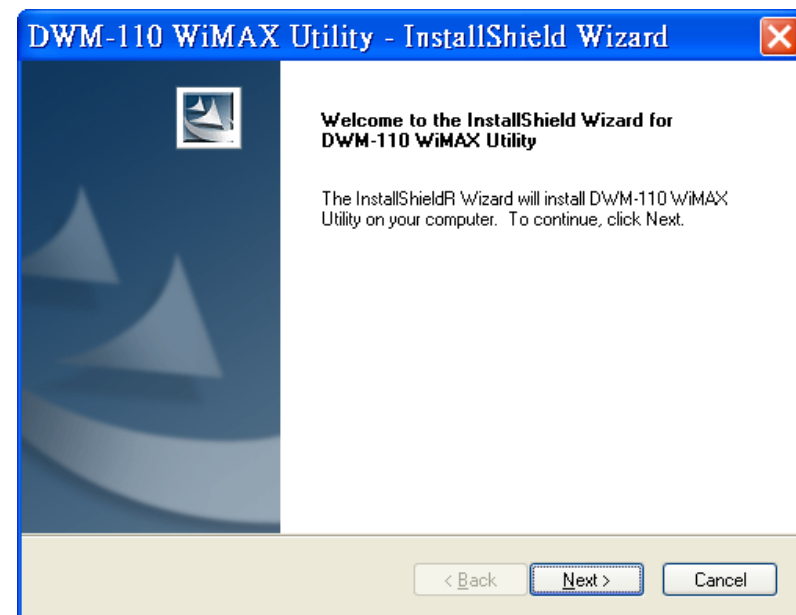
**Note:** If you need to configure the frequency of WiMAX channels, use WiMAX Utility Advanced mode for configuration.

# DWM-110 WiMAX Utility

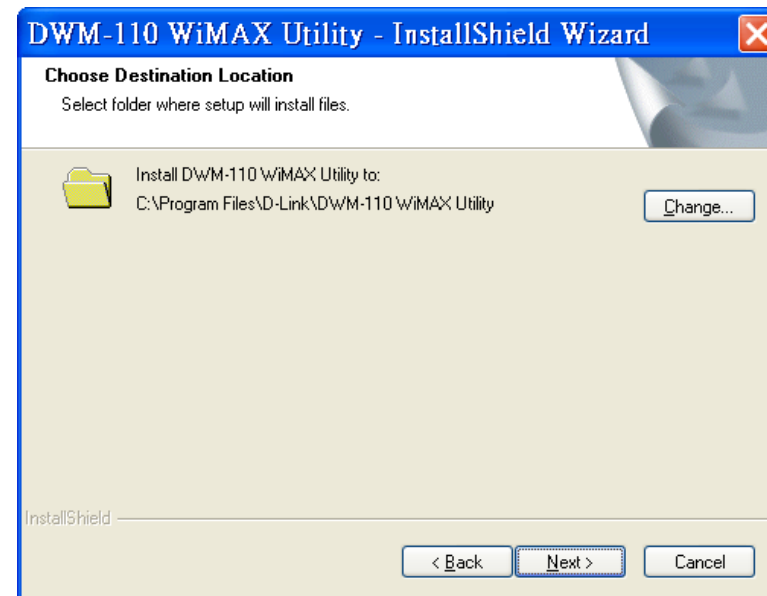
The WiMAX Utility helps you to configure the settings of the WiMAX adapter. You may need to get the information from your Internet Service Provider (ISP) in order to connect to the Internet with the WiMAX Adapter.

## Installing the Utility

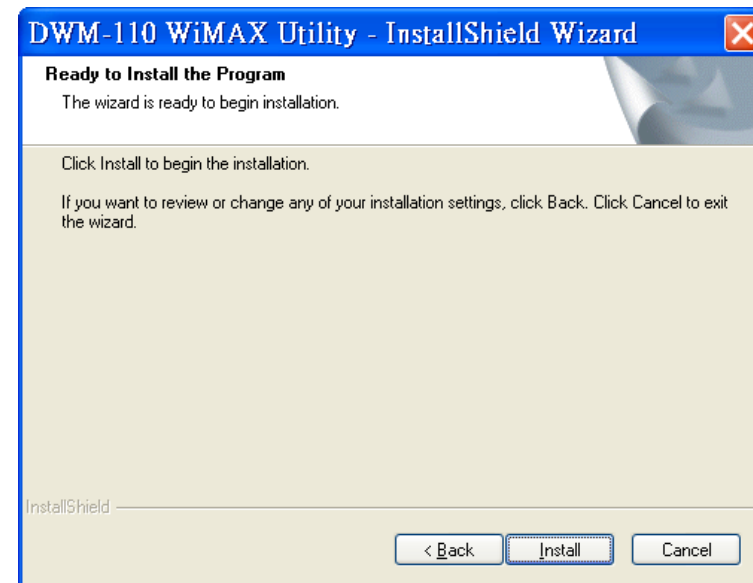
Double-click on the **Setup.exe** file and the installation dialog will then box appear. Click **Next** to proceed.



Choose WiMAX Utility's destination location by clicking **Change**. If you do not need to change the given default location, click **Next**.



Click **Install** to start the installation.





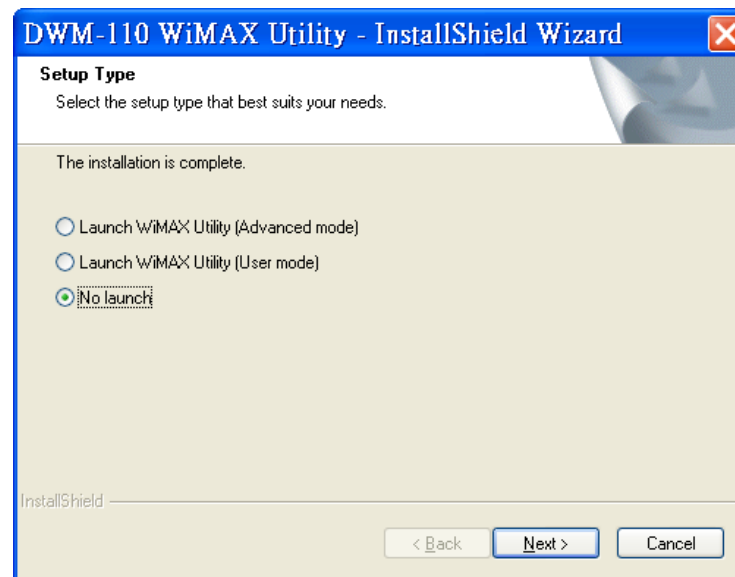
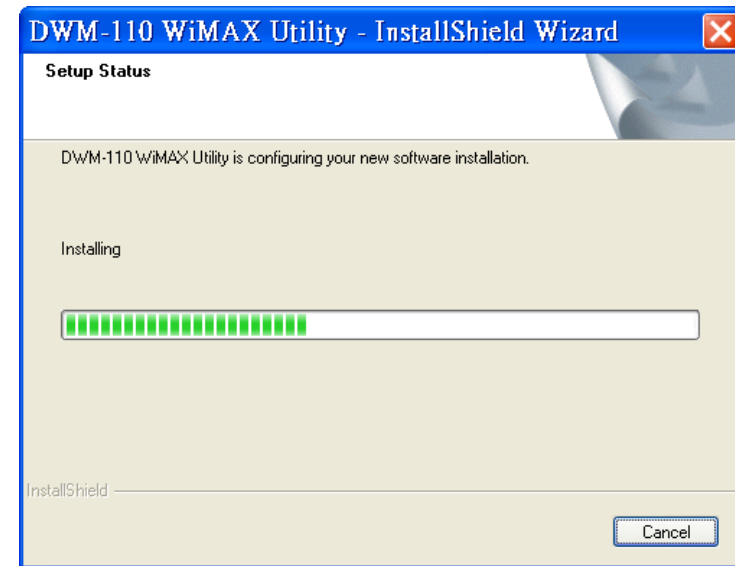
The process bar indicates that the installation is proceeding.

If you select **Launch WiMax Utility (Advanced mode)** or **Launch WiMax Utility (User mode)**, the software will start after clicking **Next**. If **No launch** is selected, the software will not automatically start, and you can go to **Start > Programs > D-Link > DWM-110 WiMAX Adapter**, and select one of the WiMax Utility modes to start.

Once the mode is selected, you will see an icon on the taskbar as shown below. Double-click on the D-Link icon to open up the WiMax Utility screen.



**Hint:** It is recommended to use WiMAX Utility (User mode) unless the ISP suggests to change advanced settings such as frequency.




## Accessing the WiMAX Utility (User mode)

Click **Start > Programs > D-Link > DWM-110 WiMAX Adapter > D-Link WiMAX Utility (User mode)** to start the utility, or double-click  – located in the taskbar – to start **WiMAX Utility (User mode)**.

## Using the Utility


### Home

Click  to see the home page. This page provides you with basic information on the WiMAX USB Adapter and its utility.



## User Profile



Click  to see the Authentication page. This page is for a base station to authenticate the device. The device supports Extensible Authentication Protocol (EAP). Information for this page needs to be obtained from your ISP.

Select **Enable authorization** for user name, identity and password entry during usage.

You may select **Anonymous ID.**, and enter the identity if requested by the ISP.

The **CA**, **Certificate**, **Private key** and **Private key password** boxes can be edited depending on the EAP type that is selected. Click **Browse** to find a CA, certificate or private key file to add to the field accordingly.

**Note:** If you want to change the EAP type, open up WiMAX Utility (Advanced mode) for configuration.

Select **Remember my settings** to save personal settings for future connection.


Click **Apply** to save your current information.



The screenshot shows the 'User Profile' configuration window for the D-Link DWM-110. The window has a blue header with the 'D-Link DWM-110' logo and a 'connected' status indicator. Below the header is a navigation bar with four icons: Home, Authentication (wrench), Information, and RF. The main content area is titled 'Authentication' and contains the following fields and controls:

- ☒ **Enable authorization**
- ☒ **Anonymous ID.** with a text field containing '00:ED:04:A5:10:6C'
- User name** text field containing 'wsd4'
- Password** text field containing '\*\*\*\*'
- Type** dropdown menu set to 'TTLS/Chap'
- CA** text field containing 'sample certificate\cakey.pem' with a **Browse** button
- Certificate** text field with a **Browse** button
- Private key** text field with a **Browse** button
- Private key password** text field
- ☒ **Remember my setting**
- Apply** button



Click  to see the information page. This page displays the status of your WiMAX connection.

**WiMAX State** will display one of the following connecting statuses:

**Init:** The device is attempting to connect to a base station.

**DL Synchronization:** The device is receiving downlink information from a base station.

**DL Acquisition:** The device is moving from one coverage area to another, and is receiving downlink information from another base station.

**UL Acquisition:** The device is receiving uplink information from another base station.

**Capabilities negotiation:**

**Ranging:** The device is moving from one coverage area to another, and is attempting to connect to a new base station.

**Authorization:** The device is sending out authentication.

**Registration:** The device is registering with a server.

**Operational:** The device has successfully connected to a base station and is ready to use.

**Idle:** The device is in Power Saving mode.

## Information



**Aborted:** The device is not connected to any base station.

**RSSI:** Received Signal Strength Indication, which usually ranges from -100 to 0 dBm.

**CINR:** Carrier to Interference plus Noise Ratio.


**Frequency:** The operating frequency of the BS connection.

The connection flow diagram of the WiMAX Utility (User mode).



## Radio On/Off




Click  to turn radio connection on, the button will then grey out, representing the radio channel is on. Click the button again to turn the radio channel off.



## Connect/Disconnect




Click , located at the top-right of the user interface, to start your WiMAX connection. You will see **connected** highlighted to its left when connection is established. Click the button again to disconnect.

## Accessing WiMAX Utility (Advanced Mode)

WiMAX Utility (Advanced mode) offers more manual configurations than standard WiMAX Utility, including the Network Profile option, extended authentication options, and additional choices of available BS. Consult with a technical staff or the ISP during configuration for this mode. Click **Start > Programs > D-Link > DWM-110 WiMAX Adapter > D-Link WiMAX Utility (Advanced mode)** to start the utility.




## Using the Utility

### Home

Click  to see the home page. This page provides you with basic information on the WiMAX USB Adapter and its utility.



## Profile

Click  to see the Profile page. Click  or  to see more settings for the **User Profile** or **Network Profile** respectively.





## User Profile

This page is for a base station to authenticate the device. The device supports Extensible Authentication Protocol (EAP).

**Note:** You may need to contact your ISP for filling in information on this page.

Select **Enable authorization** to create username/identity and password entry for authorization.


You may select **Anonymous identity**, and enter the identity if requested by the ISP.

Select an EAP type from the **Type** drop-down list.

The **CA**, **Certificate**, **Private key**, and **Private key password** boxes can be edited depending on the EAP type you selected. Click **Browse** to find a CA, certificate or private key file to add to the field accordingly.

Select **Remember my settings** to save personal settings for future connection.

Click **Apply** to save your current information.

Click  to go back to the Profile's main page.



The screenshot shows the 'User Profile' configuration window for the D-Link DWM-110. The window has a blue header with the 'D-Link DWM-110' logo and a 'connected' status indicator with a signal strength bar. Below the header are four icons: a home button, a settings gear, an information 'i' button, and a WiMAX tower icon. The main configuration area includes a checkbox for 'Enable authorization' (checked), an 'Anonymous ID.' field with the value '00:1B:11:C9:D5:3A', a 'User name' field with 'wsd4', and a 'Password' field with '\*\*\*\*'. There is a 'Type' dropdown menu set to 'TTLS/Chap'. Below this are fields for 'CA', 'Certificate', 'Private key', and 'Private key password', each with a 'Browse' button. At the bottom, there is a checkbox for 'Remember my settings' (checked) and an 'Apply' button. A close button (X icon) is located in the top right corner of the configuration area.

## Network Profile

This page lists the radio frequencies for channels connecting to the ISP's base stations.

**Note:** The information should be obtained from your ISP.

There are two ways to add more radio frequency channels:


1. Click **Smart** to enter the range of channels in the **Frequency (MHz)** fields, followed by the step increments desired in the **Step (MHz)** field. Click **Add** and the utility will input the channels – based on your requirements – into your channel list.
2. Click **Manual** to individually enter the frequency number in the **Frequency (MHz)**, then click **Add**.

To remove added channels, select a channel from the **Channel List** and click **Remove**.

Click **Refresh** to update the list.

Click **Export** to save your channel list as an INI file. The file can then be used by other devices by clicking **Import** and selecting the particular file.

Click **Options** to see more settings.

Click  to go back to the Profile's main page.




### Network Profile – Options

Select **Disable radio** to turn off the radio.

Select **Use FFT 512** to enable FFT 512 point.

Click **OK** to save current settings.




The image shows a dialog box titled "Network Profile – Options" with a light blue background and a dark blue border. It contains two checkboxes: "Disable radio" and "Use FFT 512", both of which are currently unchecked. Below these are two dropdown menus: "Bandwidth" set to "10" with "MHz" as the unit, and "Frame duration" set to "5000" with "Usec" as the unit. At the bottom right, there are two buttons: "OK" and "Cancel".

<input type="checkbox"/> Disable radio		
<input type="checkbox"/> Use FFT 512		
Bandwidth	10	MHz
Frame duration	5000	Usec

OK Cancel

## Information

Click  to see the information page, this page displays the status of your WiMAX connection.

**WiMAX State** displays one of the following current connecting statuses:

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The connection flow diagram of the WiMAX Utility.



## Network Search



Click  to see the Network Search page. This page displays the available wireless connections at a base station.

Click **Start Scan** to search for available connections around the base stations nearby.

Select a channel located within the **Available Channel List** and click **Connect** to connect to a wireless network.

**Note:** The frequencies first need to be configured in the Network Profile page in order to search for its available connection.



# Technical Specifications

## Frequency Range

- 2.5GHz radio front-end cover from 2.5GHz to 2.7GHz (NCC Frequencies 2.5025~2.6875GHz )

## RF/Antenna

- Transmit power 23dBm
- Embedded antenna
- Support MIMO Matrix A processing

## Modulation

- Support QPSK, 16QAM, 64QAM modulation (DL)

## Mode

- Support TDD (Time Division Duplex) mode

## Channel Bandwidth

- For profile 3A, support 5MHz and 10MHz bandwidth

## Standards

- IEEE 802.16e-2005

## Interface

- USB 2.0

## LED Indicator

- Power

## Authentication

- Support PKMv2 protocol, EAP-based authorization, EAP-TLS, EAP-TTLS.

## Utility

- Device drivers: Windows XP/Vista

# Warning Statement

## **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

===== RF Exposure statement for mobile device without SAR measurement=====

## **IMPORTANT NOTE:**

### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.



This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

減少電磁波影響，請妥適使用