

D-Link
DW-655H
Wireless LAN PC Card
User's Guide

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Introduction

This User Guide is to guide you to install a Wireless LAN designed for both large and small business and SOHO environments and let you share a local printer and files, access internet, and roam about different working places. The attached drivers and utilities support for Windows 95 (OSR2), Windows 98, Windows 2000, NT4.0 and Windows Millennium.

Package Contents

- DW-655H Wireless LAN PC Card
- Wireless LAN CD-ROM with drivers and utilities
- User's Guide
- Quick Start Guide
- Warranty Card

Planning your Wireless LAN

There are two usage modes for Wireless LAN, Ad-hoc mode and Infrastructure mode. Please review your need and build your Wireless LAN.

Ad-hoc Networking

Ad-hoc network also is called Peer-to-Peer network. Without Access Point, notebook users with DW-655H Wireless LAN PC card can build Ad-hoc Peer-to-Peer wireless networks to share files with each other, share a public office printer and other peripheral resources, even access the Internet via a modem.

Infrastructure Networking

802.11b-compatible Access Point is a bridge or routers connecting to the wired Ethernet network and wireless network. Through the deployment of Access Point, wireless LAN can be extended to the reach of a wired network. Therefore, a notebook user with DW-655H Wireless LAN PC Card can access to fixed local network resources.

Installation

Installation for Windows 95, Windows 98 and Windows 2000

Before installing the driver, you will need a copy of the operating system installation media, usually a CD supplied with your computer or operating system.

On Windows 98 systems, the installation files are sometimes archived on the hard disk in C:\WINDOWS\OPTIONS\CABS. On Windows 2000 systems, the system may prompt you to load operating system files from the Windows 2000 installation disk. Installation under Windows 95 is identical to the procedure given above for Windows 98 and Windows 2000. Only Windows 95 OSR2 or higher is supported.

The Setup program also installs Configuration Utility in the DW-655H Wireless LAN PC Card in the Program directory. This configuration utility can help you to understand and maintain your Wireless LAN.

Install Driver

Step 1: Turn on your computer.

Step 2: Insert the DW-655H Wireless LAN PC Card into the PC Card slot. Align the card properly before putting it in the slot. Insert the card firmly without forcing until it seats snugly.

CAUTION: *Forcing a misaligned card into the slot can damage the computer or the card.*

Step 3: Windows finds a new hardware shown *DW-655H* or *DW650* and asks for the driver of DW-655H Wireless PC Card. The driver installation wizard guides you through the steps standard for your operating system.

Step 4: You will be asked to supply CDs or directory path information for the driver. This driver shall be located in the following directory.

D:\DW650\ (if D:\ is your CD-ROM drive)

Step 5: Windows finds the driver described as *DW-655H Wireless LAN PC Card*. Follow the directions of Windows dialog boxes to complete the driver installation. After completing the installation, Windows dialog will display *Systems Setting Change* and ask to restart the notebook. Click "Yes" to reboot the computer.

Install Configuration Utility

1. Restart the computer and ensure *Wireless LAN Configuration Utility CD* in the CD-ROM drive.
You can run the program manually by selecting *Run* from the Start menu and running SETUP.EXE from the CD-ROM drive.
D:\DW650\SETUP.EXE (if D:\ is your CD-ROM drive)
2. On the *DW-655H Wireless LAN PC Card – Installation* screen, click next to start software installation. Read the information in the Welcome dialog box and click “Next”. Then, click “Yes” if you accept the Software License Agreement.
3. Enter the name of the Wireless LAN Service Set of the wireless network (SSID) to which your computer will connect. The name you enter here must match exactly the name assigned to the access point. Characters, capitalization, and spacing must be identical.

NOTE: If the access point you wish to associate with has encryption active, you must also enable encryption on the wireless client. Click Encryption in the Configuration Utilities after reboot to go to screens where you can enable and configure encryption. You must set the wireless client for the same Encryption algorithm and Key values as the access point it will associate. Refer to the Advanced Configuration section for more details about configuring encryption

4. Select which network mode is suitable for your Wireless LAN. Infrastructure Mode is default selection. This setting can be changed at any time after installation completion.
5. Accept the default program folder or select where the SETUP.exe stores the Configuration Utility.
6. Select “Yes”, I want to restart my computer now”. Reboot your computer by clicking Finish.

Operation

Orienting the Antenna

The PC Card antenna is attached to the end of the PC Card. For best use of the antenna:

- Keep the area around the antenna clear from materials that could block or obstruct

radio transmission, such as metal objects, electronic devices, cordless telephones, and microwave oven.

- If necessary, move your notebook computer a few inches to find a better signal. Environmental condition varies with users' location, a difference of one or two inches can mean the difference between a strong and a weak signal. Even a slight change in PC orientation can improve a wireless connection.
- If you have installed the Configuration Utility, you may use the Signal Strength display in the Link Info to determine the best location and orientation for a wireless network connection.

LED Indication

The yellow LED of Wireless LAN PC Card performs identical functions when indicating the operational status of the card.

Advanced Configuration

Configuration

Mode (Network Mode)

1. **Ad-Hoc:** The Ad-Hoc network is also known as a peer-to-peer network. An Ad-Hoc networking does not need Access Point. Instead, the Ad-Hoc network is a loose association of wireless computers that can communicate with each other using Wireless LAN PC Card in Ad-Hoc Mode
2. **Infrastructure:** In a wireless infrastructure network, wireless stations communicate with an Access Point to connect to a wired network. An infrastructure network also can consist of multiple Access Points. This can extend the coverage area of wireless network. In this configuration, the wireless network consists of cells. Each cell is a single Access Point that has different frequency channel to prevent from interfering each other. A wireless station can move from one Access Point to next without losing the network connection.

SSID

The SSID is the name of wireless network for Ad-Hoc or Infrastructure mode. To add a Wireless LAN PC Card to an existing wireless network, configure SSID to match the name of the wireless network

Tx Rate

The Fixed 1, 2, 5.5, 11Mb/s or Fully Auto transmit rates can be selected for Wireless LAN

Card. Basically, the Fully Auto setting allows the PC Card to automatically switch to a higher Tx rate for better throughput in most environment. A fixed rate setting does not allow PC Card to re-transmit at a lower rate even as a result of many retransmissions.

PS Mode (Power Saving Mode)

Enabling power saving mode can extend the battery life of the mobile notebook by allowing the PC Card to sleep, minimizing the power consumption.

Channel

DW-655H Wireless LAN PC Card supports up to 14 channels. However, the number of available channels varies in different countries and regions. The Access Point must be set to a channel. To avoid radio interference, adjacent Access Point within the same infrastructure network (the same SSID) should set to different channel. The channels of Access Points must be at least five channels apart, while the Wireless LAN PC Cards automatically use the same channels as the Access Point and roams between APs in the same wireless network.

Encryption

The Wireless LAN PC Card uses WEP encryption to protect wireless data communications.

Encryption Selection

WEP uses a combination of 40-bit keys or 128-bit keys to provide security for every data transmission. In order to decode a data transmission, an identical WEP key must be used by each wireless client on the network. Choose Enable or Disable to activate the security of wireless network.

Create with Passphrase

The WEP keys can be generated from a user-defined passphrase. The WEP text string is a maximum of 32 characters.

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.

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.

Caution: To assure continued compliance, use only shielded interface cables when connecting computer to peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

RF Exposure Warning: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm spacing between the antenna and all person's body (excluding extremities of hands, wrist and feet) during wireless mode of operation. Further, this transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. Optional vehicle mounted antenna must not exceed 10 dBi and should be professionally installed.

European Notice

Equipment with CE marking complies with the R&TTE Directive (1999/5/EC), EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the European Community. Compliance with these directives implies conformity to the following European Norms or Regulations (in parentheses are the equivalent international standards and regulations):

- EN 55022 (CISPR 22) – Electromagnetic Interference
- EN 50082-1 (IEC 801-2, IEC 801-3, IEC 802-4) – Electromagnetic Immunity
- EN 60950 (IEC 60950) – Product Safety
- ETS 300 326 – Technical characteristics and test conditions for data transmission equipment operating in the 2.4GHz ISM band and using spread spectrum modulation techniques
- ETS 300 826 – Electromagnetic Compatibility (EMC) standard for 2.4GHz wide band transmission systems and High Performance Local Area Network (HIPERLAN) equipment

This product may be used in the following EU and EFTA countries: Austria, Belgium, Denmark, Finland, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and United Kingdom. Products not marked with “Not for use in France” may be used in France.

Specifications

Radio Technology	IEEE 802.11b Direct Sequence Spread Spectrum
Operating Frequency	2400-2497MHz ISM band
Modulation Schemes	DQPSK, DBPSK and CCK
Channel Available	11 channels for United States 13 channels for Europe 14 channels for Japan
Data Rate	11Mbps with fall back rates of 5.5, 2 and 1Mbps
Media Access Protocol	CSMA/CA with ACK
Power Density	3mW/MHz
Antenna Type	Integrated Microstrip dual diversity antennas
Operating Voltage	5VDC
Interface	PCMCIA Type II
Range Coverage	Indoor: 35 - 100 meters (depends on environment) Outdoor: 100 - 300 meters (depends on environment)
LED Indicator	Power & Link status

Warning

- This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.
- Optional vehicle mounted antenna must not exceed 10 dBi antenna gain and should be professionally installed.