WIRELESS-N USB ADAPTER
with UPGRADABLE ANTENNA

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e-mail techsupport@hawkingtech.com

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USER’S MANUAL
LIMITED WARRANTY

Hawking Technology guarantees that every HWUN1 Wireless-N USB Adapter with Upgradable Antennas is free from physical defects in material and workmanship under normal use for one(1) year from the date of purchase. If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Hawking Technology does not issue any refunds. BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CAN NOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase.

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Warning Statement:
Federal Communication Commission Interference Statement
Federal Communications Commission (FCC) Requirements, Part 15
1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. 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.
   (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Caution:
FCC RF Exposure Statement:
This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

Regulatory information/Disclaimers:
Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.
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1. INTRODUCTION

Thank you for purchasing the Hawking HWUN1 Wireless-N USB Adapter. Now you can enjoy the latest Wireless-N technology with excellent speeds, of up to 300Mbps*. The Wireless-N USB Adapter extends your wireless network coverage by up to 3 times and boosts transmission throughput 12 times more than a standard Wireless-G Network. It allows you to connect a notebook or desktop to any wireless network** using the USB port. Now, you can stream HD video, play games online, download music, images and data while maintaining your freedom of mobility.

In addition, the HWUN1 comes with an upgradable antenna option. Replace the default antennas with Hawking Hi-Gain Antennas and you can enjoy extended wireless range.

The HWUN1 is also packed with security applications. For more security-sensitive applications, the HWUN1 supports Hardware-based IEEE 802.11i encryption/decryption engine, including 64-bit/128-bit WEP, TKIP, and AES. Also, it supports Wi-Fi alliance WPA and WPA2 encryption. Cisco CCX V1.0, V2.0 and V3.0.

2. FEATURES

<table>
<thead>
<tr>
<th>Features</th>
<th>Advantages</th>
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<tbody>
<tr>
<td>High Speed Data Rate Up to 300Mbps*</td>
<td>Capable of handling heavy data payloads such as MPEG video streaming</td>
</tr>
<tr>
<td>IEEE 802.11b/g Compliant</td>
<td>Fully Interoperable with IEEE 802.11b / IEEE802.11g compliant devices with legacy protection</td>
</tr>
<tr>
<td>Supports WPA/WPA2 (IEEE 802.11i), WEP 64/128 bits</td>
<td>Powerful &amp; Robust data security.</td>
</tr>
<tr>
<td>Dual Radios (2Tx * 2Rx)</td>
<td>Enables Smart Antenna for more range and speed</td>
</tr>
<tr>
<td>WMM (IEEE 802.11e) standard support</td>
<td>Wireless Multimedia Enhancements Quality of Service support (QoS) / enhanced power saving for Dynamic Networking.</td>
</tr>
<tr>
<td>Upgradable Antenna Design (2X)</td>
<td>Flexible with SMA connector design</td>
</tr>
</tbody>
</table>

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.
** Preferably Wireless-N network for maximum throughput rate.
** *All specifications are subject to change without notice.
3. PACKAGE CONTENTS

Before you begin the installation, please check the items of your package. The package should include the following items:

- One HWUN1 Wireless-N USB network Adapter
- One USB cable (1.0m)
- One CD-ROM with User’s Manual & Drivers
- Quick Installation Guide
- 2 Dipole Antenna (SMA connector)
- One Laptop Clip

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
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<tbody>
<tr>
<td>LINK</td>
<td>Blinks when active connection is available else remains switched OFF</td>
</tr>
<tr>
<td>PWR</td>
<td>Blinks rapidly when data communication in progress else remains switched OFF</td>
</tr>
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4. SYSTEM REQUIREMENTS

To begin using the WLAN USB Adapter, your PC/Notebook must meet the following minimum requirements:

- Operating System – Microsoft Windows 2000/XP/Vista
- An Available USB Port on your Laptop or Desktop
- 256MB system memory or larger
- 750MHz CPU or higher configuration

5. Driver Installation for Windows Vista

a. Insert the included CD an auto load page will appear instantly on your screen.

b. Select Driver & Utility Setup
c. Select Install to begin the Installation

d. Please wait a while as the installation process takes place.

e. After installation is complete, exit the wizard by clicking on the Finish button.

f. Now, plug in your HWUN1 adapter.
5.1. USING WINDOWS CONFIGURATION (VISTA)

It is recommended that you use the Windows Configuration for the Wireless-N Adapter.

a. To open up the Windows Configuration, go to Start → Connect To

b. Select the Network you wish to connect to. If you are connecting to an unsecure network, go to step c. If you are connecting to a secured network, go to step d.
c. If you are connecting to an open network (unsecured network), a warning may appear indicating that the network is an unsecured network. Select Connect Anyway and skip step d.

d. If your selected network is a secured (encryption) network, then a window will prompt you to enter security key or passphrase. If you are connecting to a network that is security enabled, but do not have the security key or passphrase, please obtain the passphrase from your Network Administrator.
e. Please wait while your HWUN1 is connecting.

f. The HWUN1 Wireless-N USB Network Adapter is now connected, you may save this network as your preferred network.
6. INSTALLATION (WINDOWS 2000/XP)

**Important!** Please Install the HWUN1 Driver & Utility before connecting the HWUN1 into the USB port on your computer. The HWUN1 Driver & Utility is located on the CD.

Insert the support CD into your CD Drive.

In the CD drive folder, you will see the following file.

- HWUN1_v1.01.exe
- Setup.exe
- Macrovision Corporation

Open the file and you can briefly see the following…

Choose HWUN1 Configuration Utility & click next and then click install.
Await instructions as you see the setup progress as shown below...
After a few seconds, the set up is complete and will show up as follows. It may give you the option to restart. Click **Finish** to restart the PC/notebook.

Restart your computer if the wizard prompted you to do so. Otherwise, please plug the Hawking HWUN1 Wireless-N Network Adapter into an available USB port on your desktop or notebook.
6.1. Verify installation (WINDOW 2000/XP)

1. Open Control Panel ➔ Double-click on System.
2. Select Hardware tab ➔ Click on Device Manager.

Select and double-click on 802.11N USB wireless LAN card.

Verify the device status of the 802.11N USB Wireless LAN Card
This device is working properly ➔ Click OK
6.2. Network Configuration (WIN 2000/XP)

- Go to Start Menu → Control Panel → Network.
- Right-click on Wireless Network.
- Select → Local Area Connection icon → select Properties.
- Select Internet Protocol (TCP/IP) → Click Properties.
7. SETUP WLAN (WIN 2000/XP)  
– Using Hawking Configuration-Utility

Prerequisite:

• Your home/office environment should have a wireless LAN Access Point (AP) that is available for your use.

• You should readily have the (security keys) to connect to those Wireless LAN Access Points (AP)

Configuration utility will first automatically link with the Wireless AP if there is no security key required. If the connection is successful, a message will appear on taskbar.

1. The following steps guide you on how to initially setup a wireless network connection.

Select the [General] tab.

a. If your Wireless Router supports [DHCP] function, please select both [Obtain an IP address automatically] and [Obtain DNS server address automatically].

b. If the router does not support [DHCP] function, you have to configure the IP and DNS settings.
2. Mouse over the “Hawk” icon and you’ll get a brief description and status of your WLAN. For example, the figure below shows the HWUN1 is connected to an NRouter.

![Wireless LAN Card status: Normal (NRouter)](image)

3. Right click on the “HAWK” icon and it will open up a menu as shown below

- Launch Config Utilities
- Use Zero Configuration as Configuration utility
- Exit

4. Click on **Launch Config Utilities**

![HWUN1 Wireless Utility](image)

To see a list of available wireless networks, click on **Site Survey** tab→ Press **Rescan**. All detected service set identifiers (SSID) will be listed under SSID column. **Note:** the SSID indicates an individual Access Point (AP).
To connect, select a SSID or an AP that you wish to connect to and click Connect and OK. (Note: if the selected SSID has encryption, you need to enter a security key in order to connect (refer to Chapter 7 for network settings). If the selected SSID is an open network or has no encryption, “none” will be listed under Encryption column.)

When you are successfully connected, a handshake icon will appear on the left, next to the selected AP.

When the HWUN1 fails to connect, the status bar (bottom left of the HWUN1 Wireless Utility) will show “Disconnected”.

### 7.1. NETWORK SECURITY (WEP, WPA…)

If your AP/Router has a networking security key, you must enter the same security key and setting. If you do not have the Network Encryption key, please request it from the Network Administrator or the person who set up your wireless network.

After you obtained the network security information, open up Hawking Wireless Utility. Continue below to set up your Network Security Code.

#### 7.1.1. WEP Setup

If the SSID or Access Point you wish to connect has WEP authentication, select the SSID and click on Connect.
An Authentication and Security Window (figure 7.1b) should appear shortly.

Figure 7.1b

WEP Setup Instructions:
(All settings should correspond with settings of the wireless AP that you are connecting to.)

a. **Authentication Type** field: indicates the authentication type of the AP/Router.
   Please confirm the setting of the AP/Router.
   - **Open**: WEP open system is based on request and grant. It is essentially no authentication.
   - **Shared**: WEP shared key is based on request, challenge, challenge response, grant/deny.

b. **Encryption** field: Select **WEP**

c. Enter in AP encryption keys (64/128bits) in the box Key1~Key4. Please accept the auto selected setting of [Hex]/ [ASCII].

d. Select the current AP encryption keys from Key1~Key4.

e. Press [OK] to finish setting.

### 7.1.2. WPA Setup

WPA encryption type can be divided into WPA-PSK, WPA2-PSK, WPA (also known as WPA-EAP), and WPA2 (also known as WPA2-EAP). All settings should correspond with the wireless AP that you wish to connect to.
WPA-PSK and WPA2-PSK

Setting the Authentication and Security Page:

a. **Authentication Type**: Select WPA-PSK or WPA2-PSK (note: your AP must support this function).

b. **Encryption**: Select TKIP or AES in the drop down menu. (Must Correspond to the Value on your AP)

c. Enter the **WAP Preshared Key** and click **OK**.
WPA and WPA2

1. If you wish to connect to an AP with WPA or WPA2 authentication, select the AP or SSID and select Connect. (For example the NRouter is being selected, the security settings must correspond to Wireless Access Point)

2. Setting the Authentication and Security Page:
   a. **Authentication Type**: select WPA or WPA2-PSK (AP must support the function).
   b. **Encryption**: select TKIP or AES (Same as AP)
   c. If the AP/router has **802.1x Setting** function, click it for advanced settings. Please consult your network administrator for details or check the user manual of the Wireless Access Point. (See the Screen shot on the next page)
Click **OK** to finish setting.

### 7.2. Adding Profiles

1. Select an AP in the SSID column (example: NRouter → Click **Add to Profile** and the page shown below will appear.

2. Setting items in the **configuration** tab:
   - **Profile Name**: Enter the connected AP profile, eg: PROF1.
• **SSID**: Click the drop-down menu and select one AP. You can also enter the AP manually.

• **PSM**: When CAM is selected, it indicates that the product is not in power saving status. When PSM is selected, the product is in power saving status. (Only select it under Infrastructure network type).

• **Network Type**: [Infrastructure] or [Ad Hoc] type. We recommend you to select [Infrastructure].

• **Transmit power**: the amount of power used by a radio transceiver to send the signal out. User can choose power value by sliding the bar.

• **[RTS Threshold]** and **[Fragment Threshold]**: We recommend you to use the default value 2312. User can adjust threshold numbers by sliding the bars or key in the values directly.

3. Click **OK** and the set AP will appear in the **Profile** tab.

![HWLN1 Wireless Utility](image)

• **Add**: Click **Add** to add a new profile.

• **Delete**: to delete a profile, select one profile name and click **Delete**.

• **Edit**: to edit the setting of a profile, select the profile and click **Edit**.

• **Activate**: to activate the selected profile, select the profile and click **Activate**.
7.3. **WPS Configuration**

Wi-Fi Protected Setup (WPS) configuration function - provides easy procedures to set up wireless security. Wi-Fi Protected Setup gives you a variety of setup options. It uses familiar methodologies such as typing in a Personal Identification Number /numeric code (PIN method), and pushing a button (Push-Button Configuration, or PBC) to enable users to automatically configure network names and strong WPA2 (Wi-Fi Protected Access 2™) data encryption and authentication.
8. QoS

Wi-Fi CERTIFIED™ for WMM (Wi-Fi Multimedia) provides multimedia enhancements for Wi-Fi® networks that improve the user experience for audio, video, and voice applications. WMM is a profile of the IEEE 802.11e Quality of Service (QoS) extensions for 802.11 networks and started a certification program for WMM to satisfy the most urgent needs of the industry for a QoS solution for Wi-Fi networks. WMM provides prioritized media access and is based on the Enhanced Distributed Channel Access (EDCA) method. Click **WMM Enable** to turn on the WMM capability.

Click **WMM – Power Save Enable** and this can improve the power savings by at least 15% as far as the HWUN1 power consumption is concerned.
9. Advanced Settings

**TX-Burst**: Turbo Mode. When it is checked and the HWUN1 Wireless N-Adapter is connected to an Access Point with TX-Burst function, the transmission throughput will be improved. (Note: This only works with Access Point that supports this function)

**Enable TCP Window Size**: When checked, the reception speed will improve.

**Fast Roaming at ____ dBm**: Will enter roaming mode when dBm reaches defined level.

**CCX 2.0**: Open CCX (supports Cisco Compatible Extensions function). Check it after making sure the Wireless AP supports it.

**Turn on CCKM**: Open CCKM function (Cisco Key Management).

**Enable Radio Measurements**: Open the function of CCK Monitor AP Channel.

**Non-Serving Channel Measurements**: Select and start to monitor the channels on which the AP is not transmitting

**Turn off RF**: Disable wireless radio.

**Turn on RF**: Enables wireless radio.

**Apply**: Click this when finished with the settings.

*Wireless mode*: Select wireless network mode (speed)

- 802.11b/g mixed: Automatically detect 11b or 11g
- 802.11b only: Frequency only 11b
- 802.11b/g/n mixed: Automatically detect 11b or 11g or 11n

In order to keep the connection stable, please select [Auto] to automatically confirm which mode the wireless network is working.
10. Statistics

The Statistics tab displays detailed information about Wireless LAN TX/RX.

- **Transmit Statistics**: Statistic of transmitted frames.
- **Receive Statistics**: Statistic of received frames.
- **[Reset Counters]**: Click [Reset Counter] to start over at zero the statistic numbers of transmitting and receiving data.
11. Link Status

This tab displays the information of the Wireless connection status.

- **Status**: Displays the linked AP name and MAC address. When [Disconnect] appears in this box, the connection is failed.
- **Extra Info**: link status and strength.
- **Channel**: Current channel in use.
- **Link Speed**: Shows current transmit rate and receive rate.
- **Throughput**: Displays transmit and receive throughput value.
- **Link Quality**: Displays connection quality based on signal strength and TX/RX packet error rate.

- **Signal Strength 1 & 2**: Receive signal strength, user can choose to display as percentage or dBm format
- **Noise Level**: Display noise signal strength.
12. About

The About tab displays version information of

1. Driver
2. Utility
3. EEPROM binary
4. Firmware
5. IP Address (current)
6. MAC address of the PHY
7. Subnet MASK Address
8. Default Gateway
13. Uninstalling Hawking Utility/Driver

Select Uninstall option from the start menu.

You can see the wizard preparing for uninstallation

Select **Remove All**. When asked if you are sure you want to remove application and all its features, click **Yes**.
Removing the utility is in progress. At any time you may press cancel to abort uninstallation.
You will need to restart your computer to ensure a clean removal of the Hawking Utility.
Data Rates
1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54, 72, 84, 150 and 300Mbps (with 2-stream on both ends)

Standards / Compliance
IEEE802.3, IEEE802.3u, IEEE802.11b, IEEE802.11g, 802.11n 2.0

Regulation Certifications
FCC Part 15, ETSI 300/328/CE

Operating Voltage
5 V ± 0.25V

Status LEDs
LINK

Drivers
Windows 2000/XP/Vista

RF Information
Frequency Band
U.S., Europe and Japan product covering 2.4 to 2.484 GHz, programmable for different country regulations

Media Access Protocol
Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)

Modulation Technology
802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
802.11b: DSSS (DBPSK, DQPSK, CCK)

Operating Channels
11 for North America, 14 for Japan, 13 for Europe

Receive Sensitivity (Typical)
- 2.412~2.472G(IEEE802.11b)
  -91dBm @ 1Mbps
  -90dBm @ 11Mbps
- 2.412~2.472G(IEEE802.11g)
  -90dBm @ 6Mbps
  -74dBm @ 54Mbps
- 2.412~2.472G(IEEE802.11N)
  -90 dBm @ MCS 8
  -65 dBm @ MCS 15

Available transmit power
- 2.412~2.472G(IEEE802.11b)
  18dBm @ 1~11Mbps
- 2.412~2.472G(IEEE802.11g)
  15 dBm @6Mbps
  14 dBm @54Mbps
- 2.412~2.472G(IEEE802.11N)
  15dBm

Antenna Configuration
2T2R Mode (detachable 2.4GHz antenna /2.0dBi gain)

Networking

Topology
Ad-Hoc, Infrastructure

Security
WPA/WPA2 (AES, 64,128-WEP with shared-key authentication)
Cisco CCS V1.0, V2.0 and V3.0 compliant

Physical
Form Factor
USB 2.0/1.1

Dimensions (H x W x D)
70(L) mm x 57.5(W) mm x 16(H) mm

Weight
55 g/ 2.0oz

Environmental
Temperature Range
Operating: 0°C to 50°C
Storage: -10°C to 75°C

Humidity (non-condensing)
5%~95% Typical
PRODUCT SUPPORT INFORMATION

Thank you for choosing Hawking Technologies. Please do not hesitate to contact us if you have any questions regarding the installation of your product. We’re here to help you 24 hours a day, 7 days a week!

PHONE SUPPORT

• 888.202.3344
  Toll-Free 24/7 Technical Support Line (US & Canada Only)

WEBSITE SUPPORT

• http://www.hawkingtech.com/support
  You’ll find: (a) Firmware/Driver updates with the latest features and news on your product (b) Frequently Asked Questions (FAQs) with answers to common asked questions about your product.

EMAIL SUPPORT

• techsupport@hawkingtech.com

DOCUMENT SUPPORT

• Product User’s Manual
  (Normally located on the product CD) 
  You’ll find detail install instruction on your product and default user name and password.

RMA (RETURN MERCHANDISE AUTHORIZATION)

• http://www.hawkingtech.com/support/customerservice.php

CUSTOMER SERVICE

• Email: customerservice@hawkingtech.com
• Tel: 949.790.0800 ext:1000

We want to hear from you! We hope you will have a wonderful experience using our hawking product. If there is any concern, please email us at customerservice@hawkingtech.com.