IO wireless™

Access Point User's Guide

Model AWS-110

Version 1.1

TABLE OF CONTENTS

1 Introduction

The I-O Wireless Access Point allows you to create an infrastructure type wireless network (LAN). The wireless Access Point converts airwave data into wired Ethernet data, acting as a bridge between the wired LAN and wireless clients. Connecting multiple Access Points via a wired Ethernet backbone can further extend the wireless network coverage. As a mobile computing device moves out of the range of one access point, it moves into the range of another. As a result, wireless clients can freely roam from one access point domain to another and still maintain seamless connection to the network.

Features:

- Complies with the IEEE 802.11b Direct Sequence Spread specification
- Complies with IEEE 802.3 specification
- Supports 11, 5.5, 2 and 1 Mbps Data Rates on the wireless interface
- Supports 10 Mbps Data Rate on the Ethernet interface
- WEP 64-bit data encryption for security
- Roaming capability
- Provides SNMP V1 management
- Remote management via SNMP protocol
- Local management via USB interface
- Firmware upgrade via USB interface
- Requires 5V@800mA power supply
- FCC Certified under Part 15 to Operate in 2.4GHz ISM Band
- Driver Support Microsoft Windows ® 98, Me and 2000

2 Connect the Access Point to the Network

2.1 Install the Hardware

Connecting the I-O Wireless Access Point to the network is as simple as connecting a hub or switch to another hub or switch.

1. Connect the Ethernet port of the Access Point to a hub or switch.

2. Connect the power supply to the Access Point. The three LEDs will turn on. The middle LED will flicker as it is an indicator of activity on the Ethernet line.

2.2 Configure the Access Point

Configuring the Access Point involves setting the IP Address, a sub-net mask, assigning a wireless network name, and setting up security for the wireless network. There are a number of other configuration parameters that may be set, but using the default values generally meets the needs of most installations.

There are two ways to configure the Access Point:

- Locally using the USB interface. This method connects a PC directly to the Access Point using the USB interface. A USB driver and configuration utility must be installed on the PC to use this method.

- Remotely using the Ethernet link. This method uses an SNMP configuration utility installed on a PC to connect to the Access Point over the Ethernet link.

The following sections describe how to install the USB driver and configuration utilities as well as using the utilities to configure the Access Point. After you determine which configuration method you will use (locally with USB or remotely via Ethernet) go to the appropriate section.

Note: If you are going to the USB interface, you will need to install the USB driver before installing the configuration utilities.

3 USB Driver Installation

The USB Driver is installed on the PC that will be connected to the Access Point via the USB cable. With this type of connection, you will be able to configure the Access Point prior to using it on the Ethernet LAN.

1. Connect the Access Point:

    a. To your computer using the USB cable
    b. To the LAN hub or switch using the Ethernet cable
    c. To the power supply

2. Insert the Utility CD into the CD-ROM drive.

3. Proceed to the one of the three following sections depending upon the version of Windows on your PC.

3.1 Install Driver Under Windows 98

4. Windows 98 automatically recognizes a new USB Device. Click the Next button to proceed.

5. Select **Search for the best driver for your device**. Click Next.

6. Select **Specify a location**. Enter the driver location as “d:\Driver” (d: is your CD-ROM drive). Click *Next*.

7. Windows is now ready to install the driver. Click *Next*.

8. After Windows copies the files from your CD, you will be notified that installation has been completed. Click *Finish* to complete the installation.

9. To verify that the USB driver has been installed, right click the mouse on the **My Computer** icon and select **Properties.** Click **Device Manage**r. The **Wireless 802.11b Access Point** will be listed if the driver installation was successful.

10. Proceed to the Install the Configuration Utilities section to install the USB Configuration Utility, and then configure the Access Point using the utility.

3.2 Install Driver Under Windows Me

4. Windows ME automatically recognizes a new USB Device added. Select **Specify the location of the driver.** Click the *Next* button to proceed.

5. At this point, Windows will ask you for new drivers. Make sure that **Search for the best driver for your device** and **Specify a location** options are selected. Enter the driver location as “d:\Driver” (d: is your CD-ROM drive). Click *Next*.

6. Windows is now ready to install the driver. Click *Next*.

7. Windows will indicate that installation is complete. Click Finish to complete the installation.

8. To verify that the USB driver has been installed, right click the mouse on the **My Computer** icon and select **Properties**. Click **Device Manage**r. The **Wireless 802.11b Access Point** will be listed if the driver installation was successful.

9. Proceed to the Install the Configuration Utilities section to install the USB Configuration Utility, and then configure the Access Point using the utility.

3.3 Install Driver Under Windows 2000

4. Windows 2000 automatically recognizes the Wireless Access Point when it is connected to the PC. Click the *Next* button to proceed.

5. Select **Search for a suitable driver for my device**. Click Next.

6. Select **Specify a location.** Click *Next*.

7. Enter the driver location as “d:\Driver” (d: is your CD-ROM drive). Click *OK*.

8. Windows is now ready to install the driver. Click *Next*.

9. Windows will indicate that installation is complete. Click Finish to complete the installation.

10. To verify that the USB driver has been installed, right click the mouse on the **My Computer** icon and select **Properties**. Select **Hardware** and click **Device Manager**. The **Wireless 802.11b Access Point** will be listed if the driver installation was successful.

11. Proceed to the Install the Configuration Utilities section to install the USB Configuration Utility, and then configure the Access Point using the utility.

4 Install the Configuration Utilities

The configuration utilities must be installed before the Access Point can be configured.

1. Execute the **Setup.exe** file found in the **Utility sub-directory** on the CD-ROM. Click Start | Run and enter “d:\Utility\setup.exe” (d: is your CD-ROM drive). Click *OK*.

2. Windows will bring you to the InstallShield Wizard screen. Click *Next*.

3. At this point, Windows will ask for the destination folder. Either accept the default or enter a folder of your choice. Click *Next*.

4. Windows will ask for the program folder. Either accept the default or enter a folder of your choice. Click *Next*.

5. Windows will indicate that installation has been completed. Click *Finish* to complete the installation.

6. Proceed to either the USB Configuration Utility or SNMP Manager Configuration Utility section to setup the configuration parameters for the Access Point.

5 USB Configuration Utility

The USB Configuration Utility is used when the Access Point is connected directly to a PC.

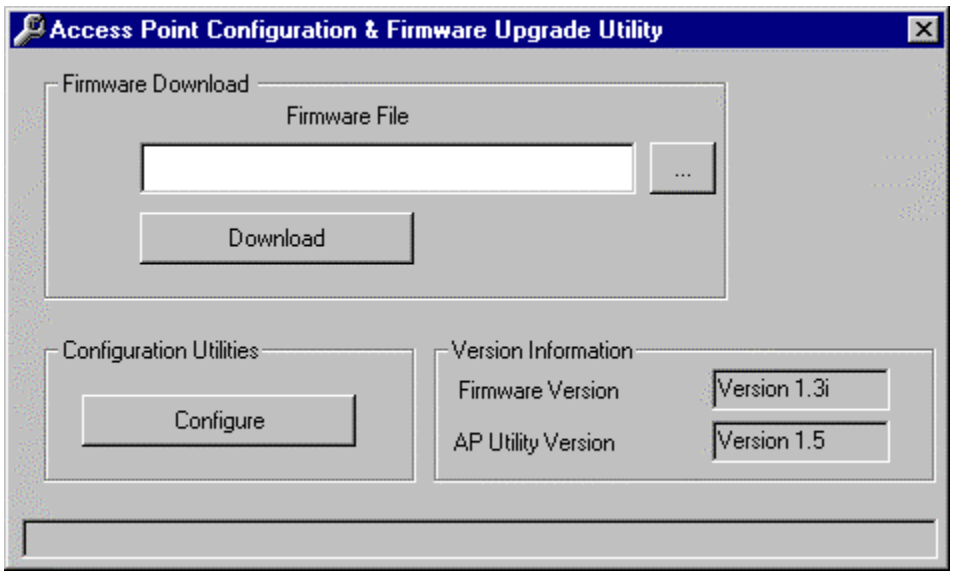
5.1 Access the USB Configuration Utility

1. Using the **USB cable**, connect the Access Point to computer where the USB driver has been installed.

2. Select the **USB Configuration Utility** option from within the **Wireless 802.11b Access Point Utility** program group (or group where you installed the configuration tools).

3. Windows will bring you to the Access Point Configuration & Firmware Upgrade Utility screen.

From this screen, you will find the software firmware level, configure the Access Point, and upgrade the Access Point's firmware.

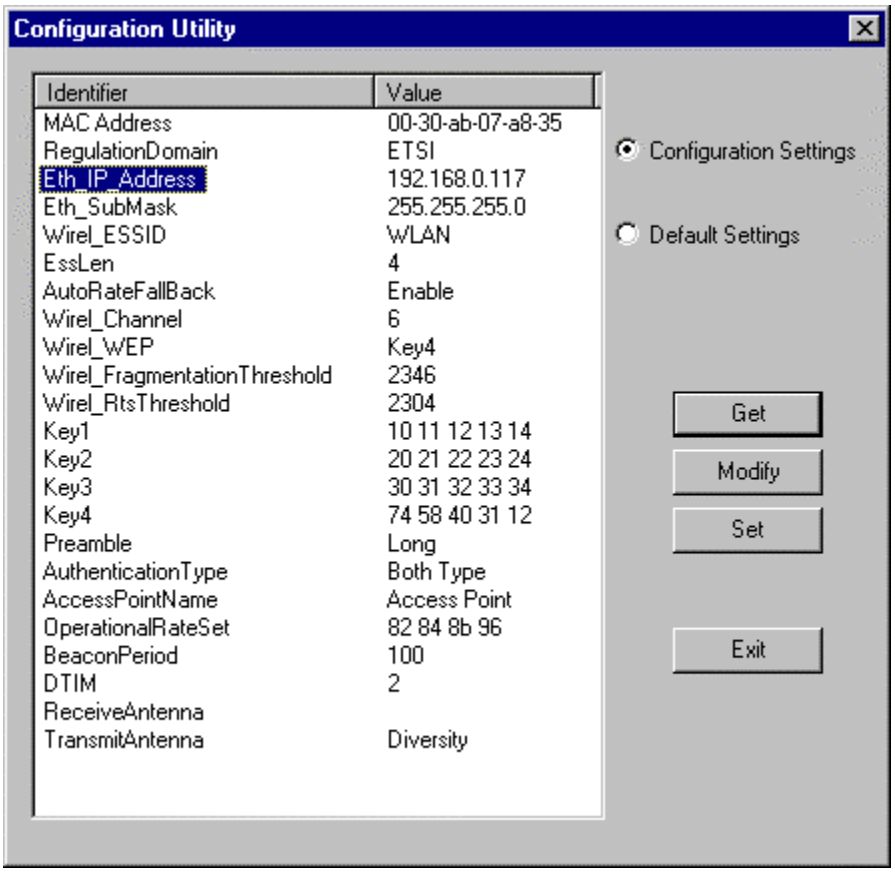


5.2 Setting the IP Address

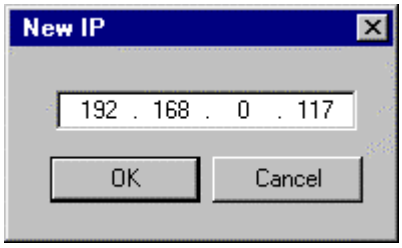
If this is the first time you are connecting to the Access Point, the IP Address, sub-net mask and ESSID (SSID) network name will need to be set up.

1. From within the Access Point Configuration & Firmware Upgrade Utility screen, click the *Configure* button, then click the *Get* button.

2. In the left column, click on the **Eth_IP_Address** identifier. Then click the *Modify* button.



3. Enter the IP Address, click *OK*.



4. Set up the values for the sub-net mask and the ESSID name.

5. Click the *Set* button.

5.3 Configuration Utility

There are two different configuration sets that may be stored in the Access Point: the current set that is being used for normal operation, and a default set. The default set can be customized and stored. This allows you to change the current set for testing specific situations and then easily restore the default set. The SNMP Manager Configuration Utility has an option that allows you to easily restore the default values.

To configure the Access Point using the USB Configuration Utility:

1. From within the Access Point Configuration & Firmware Upgrade Utility screen, click the *Configure* button. The **Configuration Utility** screen appears.

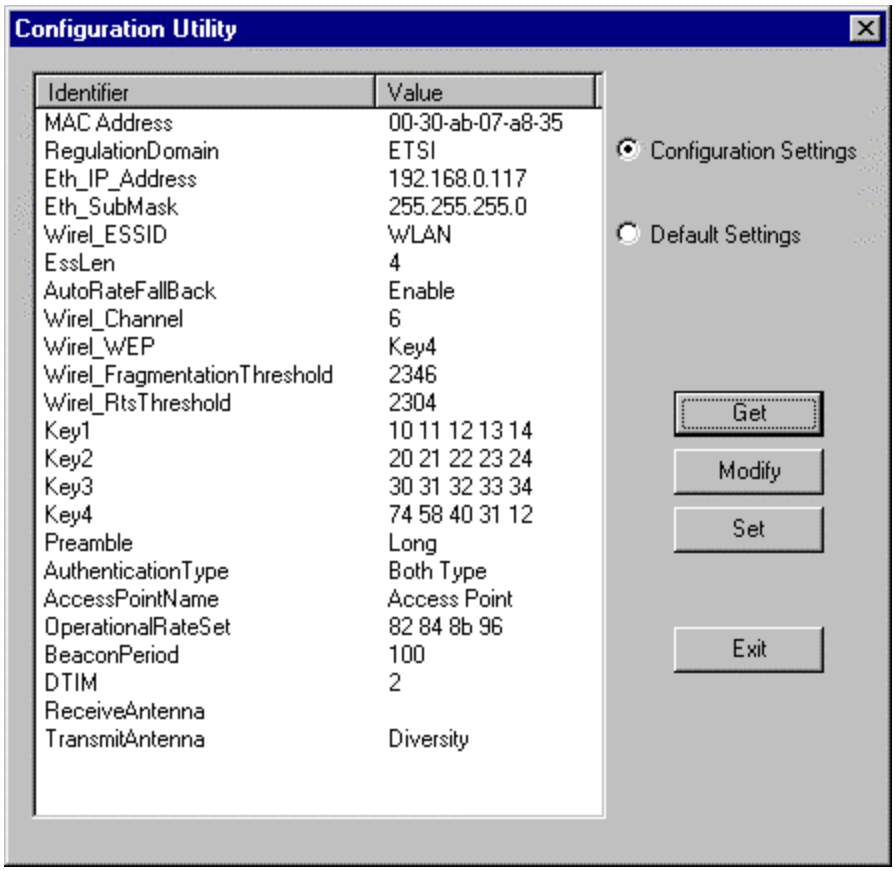
2. Select whether you want to configure the current configuration settings or modify the default settings by clicking on either the **Configuration Settings** or the **Default Settings** options.

3. Click the *Get* button. The Identifier and Value fields will be listed.

4. Select the Identifier you want to modify and click the *Modify* button. You may change the Value by either entering a new value or selecting a value from the drop down box.

5. Click the *Set* button to set the Configuration.

6. *Exit* the utility when complete.



- The **Eth_IP_Address** value is the IP Address of the Access Point.

- The **Eth_SubMask** value is the sub-net mask used for the network.

- The **Wirel_ESSID** (also known as the SSID) is a unique name shared among all points in a wireless network. The ESSID must be the same for all points in the network. It is case sensitive and must not exceed 32 characters.

- The **Wirel_AutoFallBack** value is for roaming flexibility. When the wireless devices move away from the Wireless Access Point, the transfer rate will automatically fall back to the optimum rate.

- The **Wirel_Channel** value specifies the channel used in wireless communication between the wireless clients and the Access Point. It should be set to the same channel as the other points in the wireless network.

- The **Wirel_WEP** value specifies the WEP key to be used for secured communication between the wireless clients and the Access Point. It should be set to the same key number as all other points in the wireless network.

- The **Wirel_Fragmentation_Threshold** value sets the length of the fragment. Each fragment is a frame no larger than the Fragmentation Threshold.

- The **Wirel_Rts_Threshold** value sets the length threshold. An Access Point uses a RTS/CTS exchange for directed frames only when the length of the MPDU is greater than the length threshold.

- The **Key1**, **Key2, Key3** and **Key4** values are the keys used for establishing secured communication between the Access Point and the wireless clients. The keys are to be set to the same keys as all other points in the wireless network. Each key is a combination of five sets of two digits. Each key should be unique.

- The **Preamble** value sets the length of preamble. The **Long** mode is set to 144 bits. The **Short** mode is set to 72 bits.

- The **AuthenticationType** value sets the type of authentication service. The **Open System** mode is for any wireless device. The **Shared Key** mode is for a wireless device with a shared secret key. The **Both** selection allows both types to be used by the wireless clients connecting to this Access Point.

- The **AccessPointName** value is the name of this Access Point.

- The **OperationalRateSet** is a hexadecimal representation of the communication speed setting. For IEEE 802.11b wireless networks, select the **1, 2, 5.5 11 Mbps** setting. The **1, 2** setting is for older 802.11 networks.

- The **BeaconPeriod** is a numeric value indicating the typical amount of time that elapses between Beacon frame transmissions. The interval is measured in time units. Each time unit is 1024 microseconds.

- The **DTIM** period is used to inform mobile stations with power saving capability when multicast frames that have been buffered at the AP will be delivered and how often that delivery will occor.

- The **ReceiveAntenna** selection identifies which antenna is to be used for receiving wireless packets.

    - **Diversity** setting tells the Access Point to use the antenna that receives the best single. If the Access Point has two fixed (non-removable) antennas, use this setting for both receive and transmit.

    - **Right** tells the Access Point to use the right antenna connection if the Access Point has removable antennas and a high-gain antenna has been installed on the Access Point's right connector. Use this setting for both receive and transmit.

- **Left** tells the Access Point to use the Left antenna connection if the Access Point has removable antennas and a high-gain antenna has been installed on the Access Point's left connector. Use this setting for both receive and transmit.

- The **TransmitAntenna** selection identifies which antenna is to be used for receiving wireless packets.

  - **Diversity** setting tells the Access Point to use the antenna that receives the best single. If the Access Point has two fixed (non-removable) antennas, use this setting for both receive and transmit.

  - **Right** tells the Access Point to use the right antenna connection if the Access Point has removable antennas and a high-gain antenna has been installed on the Access Point's right connector. Use this setting for both receive and transmit.

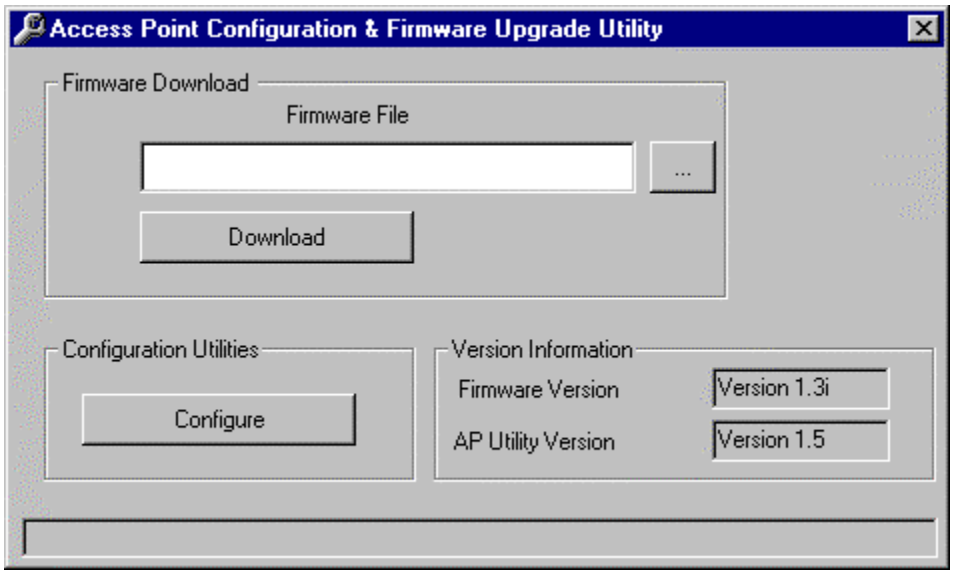
  - **Left** tells the Access Point to use the Left antenna connection if the Access Point has removable antennas and a high-gain antenna has been installed on the Access Point's left connector. Use this setting for both receive and transmit.

5.4 Firmware Download

The Firmware Download is for upgrading the firmware.

1. From within the Access Point Configuration & Firmware Upgrade Utility screen, click the Browse button and select the Firmware File.

2. Click the *Download* button.



5.5 Version Information

The Version Information field shows the release information for the USB Configuration Utility.

5.6 Exit the Utility

To exit the USB Configuration Utility, click on the "**X**" box on the right hand side of the title bar (upper right hand corner of the window).

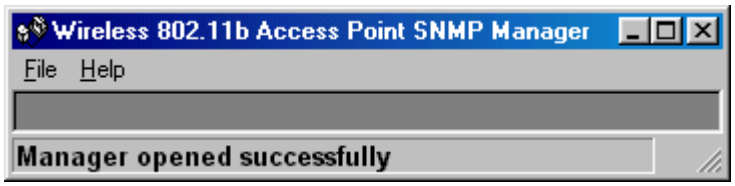
6 SNMP Manager Configuration Utility

6.1 Access the SNMP Manager Configuration Utility

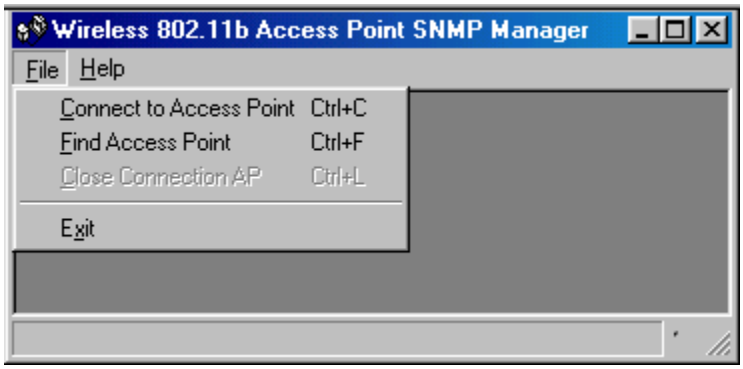
1. Go to the PC where you have installed the configuration utilities.

2. Select the **SNMP Manager Configuration Utility** option from within the **Wireless 802.11b Access Point Utility** program group (or group where you installed the configuration tools).

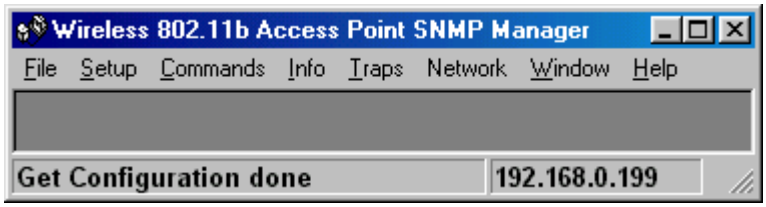
3. Windows will bring you to the **Wireless 802.11b Access Point SNMP Manager** screen. Only two menu options will be visible, File and Help.



4. You will need to connect to the Access Point. This can be done either by having the utility search for all available access points, or directly by entering the IP address of the desired access point. You will use either **the Find Access Point** or the **Connect to Access Point** options in the File menu (see below).



5. After connecting to the Access Point, the Wireless 802.11b Access Point SNMP Manager screen will show six additional menus: **Setup, Commands, Info, Traps, Network, and Window.**



6. If this is the first time you are connecting to the Access Point, the IP Address, sub-net mask, ESSID (the name of the wireless network), the channel, and security settings will need to be configured. Other configuration parameters may also need to be set. You will use options from within the Setup menu to perform these configurations (see below).

6.2 Setting the IP Address

If this is the first time you are connecting to the Access Point, the IP Address will need to be set up.

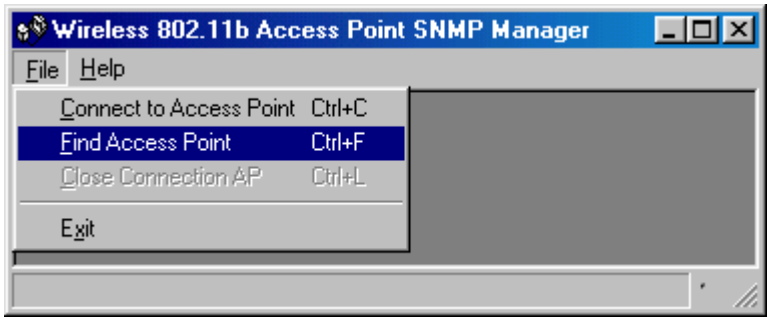
This can be done automatically if DHCP is active on the Ethernet LAN. If DHCP is not active, the IP Address is assigned manually in the Bridge IP Configuration section (see below). In either case, you will use the Find Access Point option in the File menu.

6.3 File

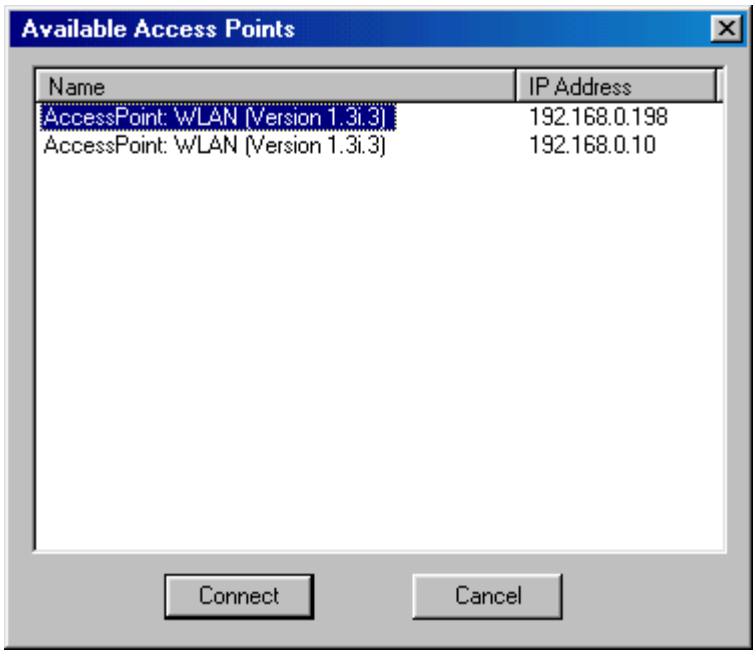
6.3.1 Find Access Point

Use this option to connect to an Access Point when you are not sure of the IP Address, or if this is the first time you are connecting to a new Access Point.

1. From the **File** tab, select the **Find Access Point** item.



2. Windows will bring you to the **Available Access Points** screen listing the Access Point. Highlight the Access Point to which you want to configure. Click the *Connect* button.



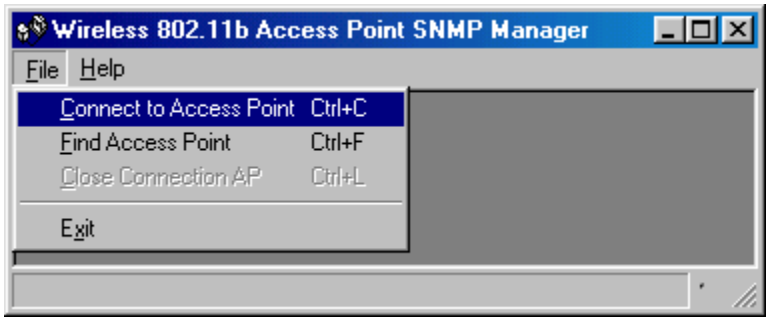
3. After connecting to the Access Point, the Wireless 802.11b Access Point SNMP Manager screen will show six additional menus: Setup, Commands, Info, Traps, Network, and Window.

4. Proceed with configuring the Access Point using the options in the Setup menu.

6.3.2 Connect to Access Point

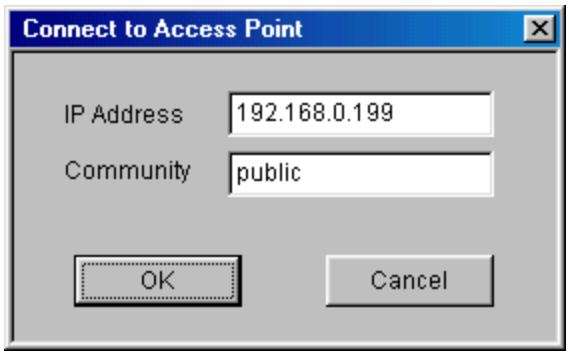
Use this option to connect to an Access Point when you know the IP Address.

1. Select the **Connect to Access Point** option from the **File** menu.



2. Enter the IP Address of the Access Point.

3. In the Community field, enter "**public**".



4. Click the *OK* button.

5. After connecting to the Access Point, the Wireless 802.11b Access Point SNMP Manager screen will show six additional menus: Setup, Commands, Info, Traps, Network, and Window.

6. Proceed with configuring the Access Point using the options in the Setup menu.

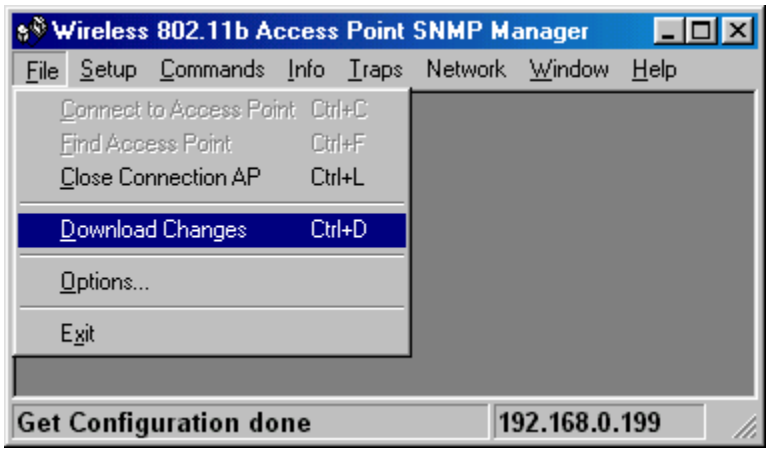
6.3.3 Download Changes

After you have made all configuration changes, you need to download the configuration settings to the Access Point.

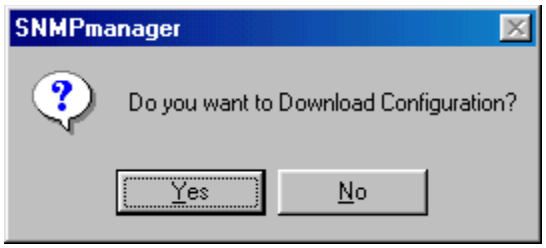
Note: This must be done for the configuration settings to become active!

(The exception to this is when you restore defaults.)

1. From the **File** tab, select the **Download Changes** item.



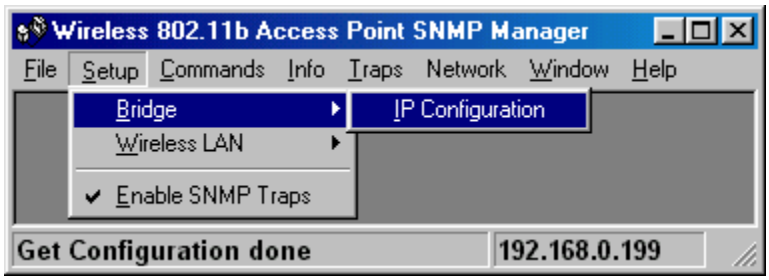
2. Click the *Yes* button to download configuration.



6.4 Setup

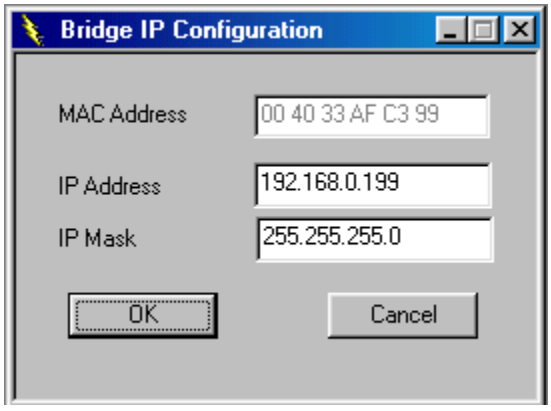
6.4.1 Bridge IP Configuration

1. From the **Setup** tab, select the **Bridge** item and then the **IP Configuration** item.



2. The **IP Address** field must be set to a unique IP Address.

3. The **IP Mask** field must be set to the same sub-net mask used by the wireless clients in the wireless network.



4. Click *OK* to set the configuration exit this screen.

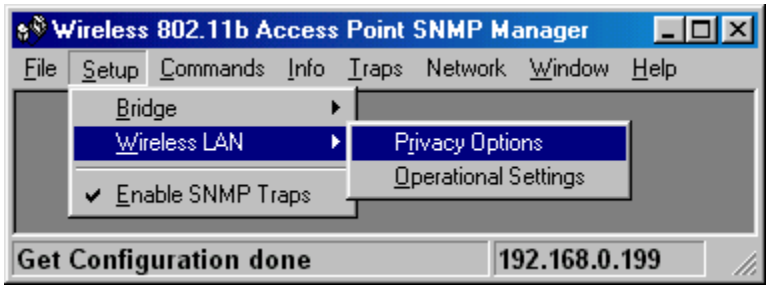
5. If there are no other changes to be made in any of the menu items, select the **Download Changes** item from the **File** menu to send the settings to the Access Point.

6.4.2 Privacy Option

Use this option to setup the WEP security keys. Make sure that the key used and values entered into the keys are exactly the same for all wireless devices in the wireless network.

1. From the **Setup** tab, select the **Wireless LAN** item.

2. Click the **Privacy Options** item.

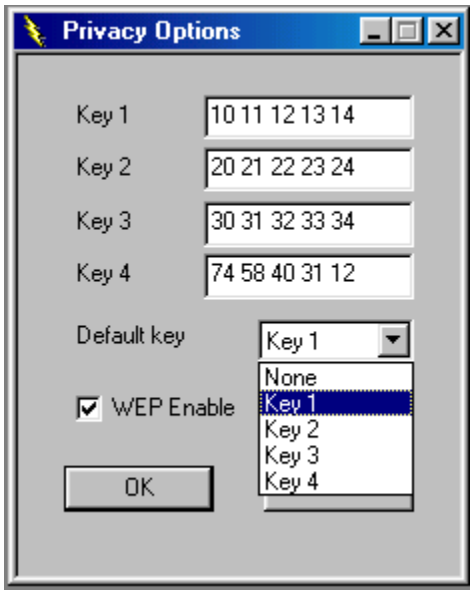


3. Windows will bring you to the **Privacy Options** screen.

4. The 64-bit WEP keys can be set for four different keys: **Key 1, Key 2, Key 3, and Key 4** . Each key is a combination of five sets of two digits. Each key should be unique. Make sure that the keys are exactly the same for all wireless devices in the wireless network.

5. The **Default Key** drop down box selects which of the four keys are to be used. Make sure that this key number is the same for all wireless devices in the wireless network.

6. Checking the **WEP Enable** box enables the WEP security feature.



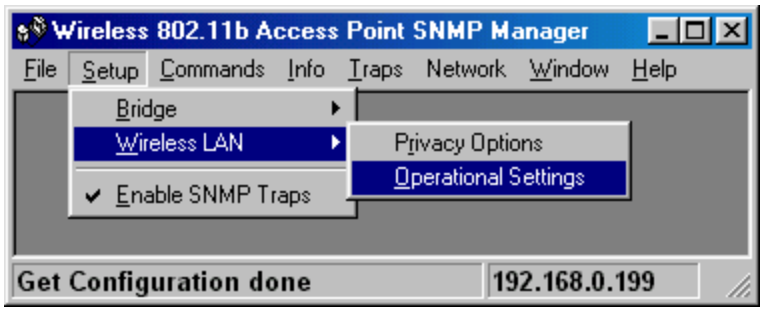
7. Click *OK* to save the settings and exit this screen.

8. If there are no other changes to be made in any of the menu items, select the **Download Changes** item from the **File** menu to send the settings to the Access Point.

6.4.3 Wireless Operational Settings

1. From the **Setup** tab, select the **Wireless LAN** item.

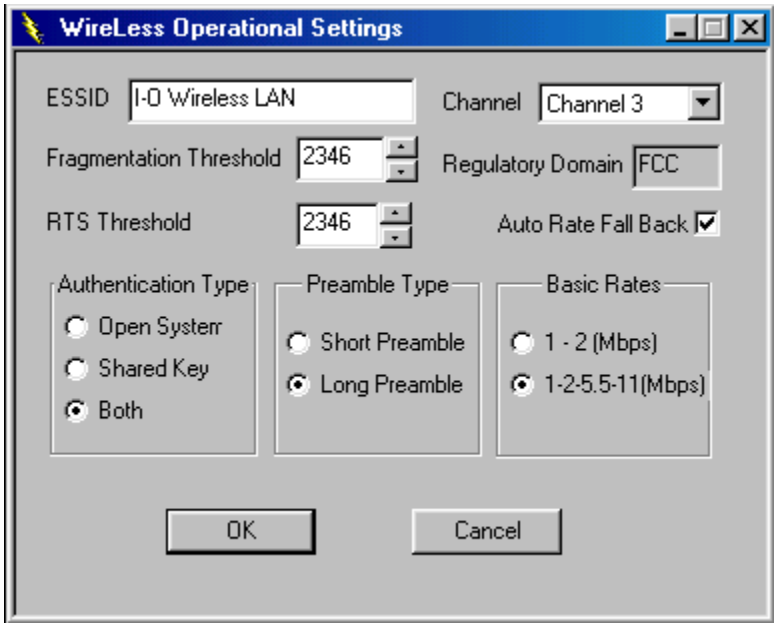
2. Select the **Operational Settings** item.



3. Windows will bring you to the **Wireless Operational Settings** screen.

4. Make the settings and changes as required for your wireless network. Click *OK* when complete.

5. If there are no other changes to be made in any of the menu items, select the **Download Changes** item from the **File** menu to send the settings to the Access Point.



- The **ESSID** (also known as the SSID) is a unique name shared among all points in a wireless network. The ESSID must be the same for all points in the network. It is case sensitive and must not exceed 32 characters.

- The **Channel** field setting specifies the channel used in wireless communication between the wireless clients and the Access Point. It should be set to the same channel as the other points in the wireless network.

- The **Fragmentation Threshold** field sets the length of the fragment. Each fragment is a frame no larger than the Fragmentation Threshold.

- The **RTS/CTS Threshold** field sets the length threshold. An Access Point uses a RTS/CTS exchange for directed frames only when the length of the MPDU is greater than the length threshold.

- The **Auto Rate Fall Back** is for roaming flexibility. When the wireless devices move away from the Wireless Access Point, the transfer rate will automatically fall back to the optimum rate.

- The **Authentication Type** field sets the type of authentication service.

- The **Open System** mode is for any wireless device. The **Shared Key** mode is for a wireless device with a shared secret key.

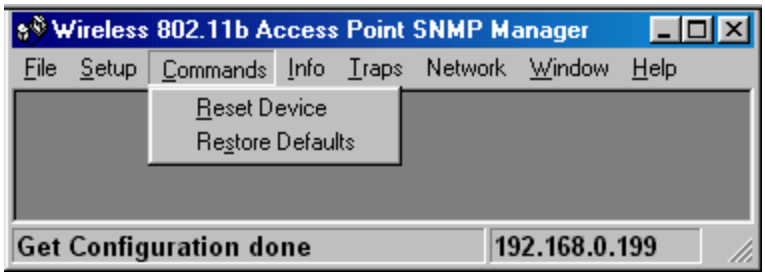
- The **Preamble Type** field sets the length of preamble. The **Long** mode is set to 144 bits. The **Short** mode is set to 72 bits.

- The **Basic Rates** field is set for the transfer rate for the Access Point. Commands

6.5 Commands

6.5.1 Reset Device

1. From the **Commands** tab, select the **Reset Device** item.

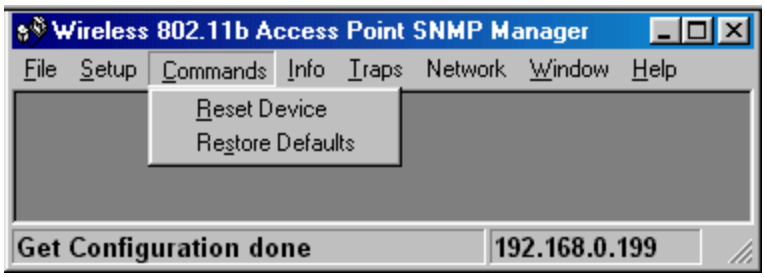


2. Click the *Yes* button to reset the Access Point.

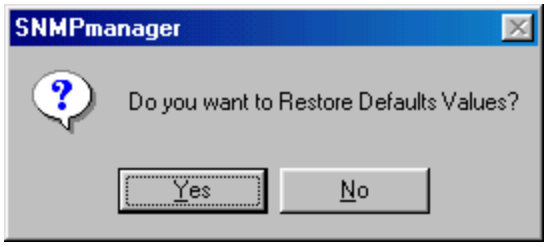
6.5.2 Restore Defaults

This command will restore the default settings that have been created using the USB Configuration Utility.

1. From the **Commands** tab, select the **Restore Defaults** item.



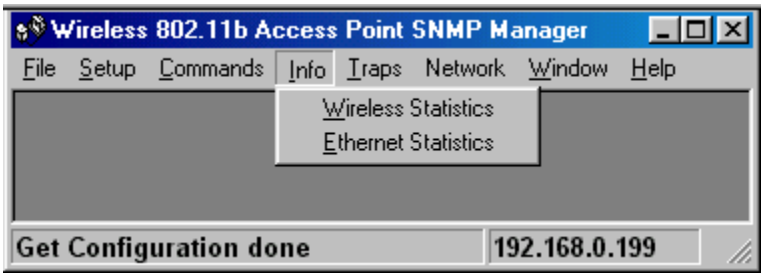
2. Click the *Yes* button to restore the default configuration of the Access Point.

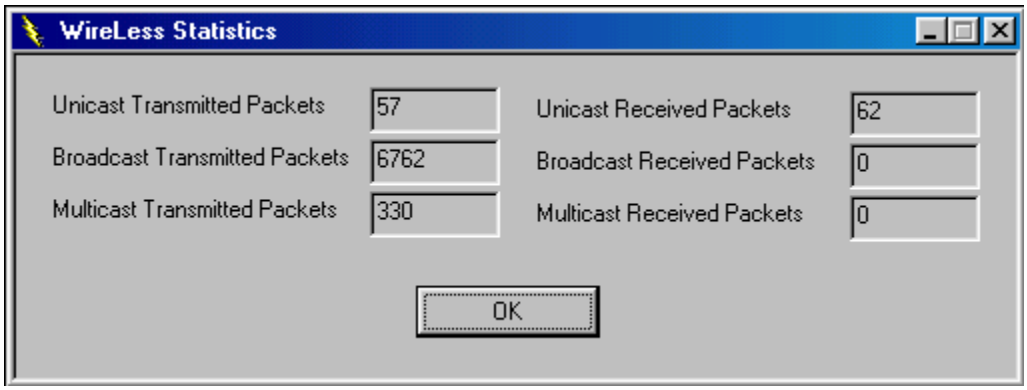


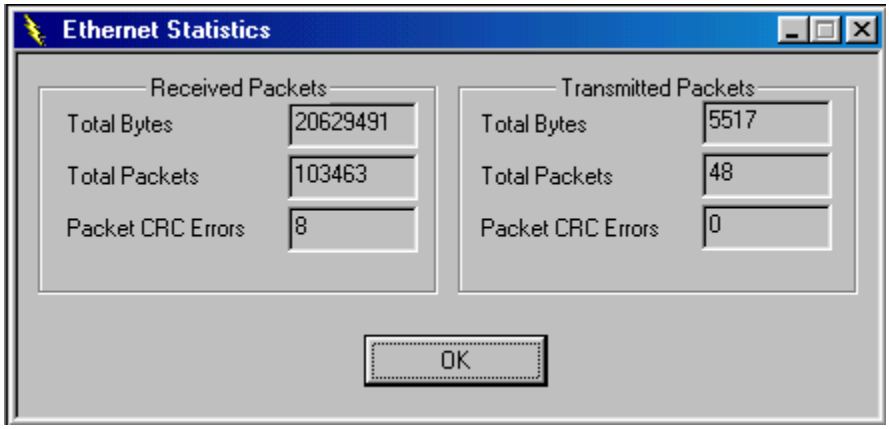
6.6 Info

The **Wireless Statistics** screen will show you the number of packets transmitted and received for Unicast, Broadcast, and Multicast.

The **Ethernet Statistics** screen will show you the total bytes, total packets, and packet CRC errors for both received and transmitted packets.

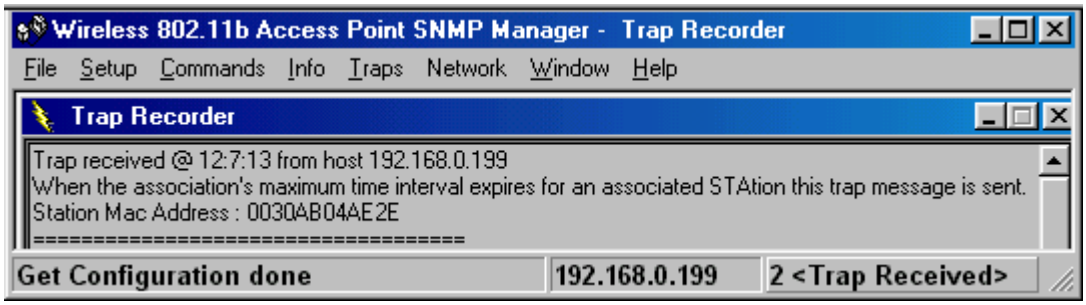






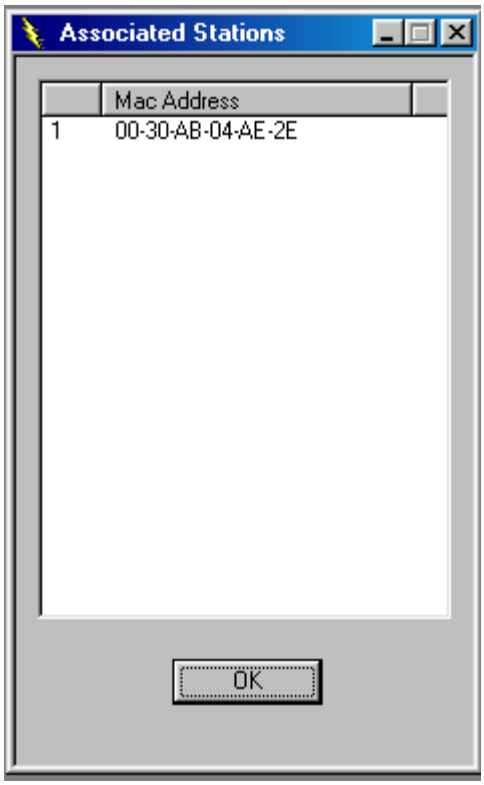
6.7 Traps

The **Traps | View Record** screen shows you the traps received from the Access Point. This information is primary informational.



6.8 Network

The **Network | Associated Stations** screen will show the MAC address of the wireless clients that are currently connected to the Access Point.



6.9 Help

The **Help | About SNMP Manager** screen shows the release information for the SNMP Manager Configuration Utility.

7 Firmware Upgrade Utility

The Firmware Upgrade Utility is used to upgrade the Wireless Access Point's firmware via the Ethernet link.

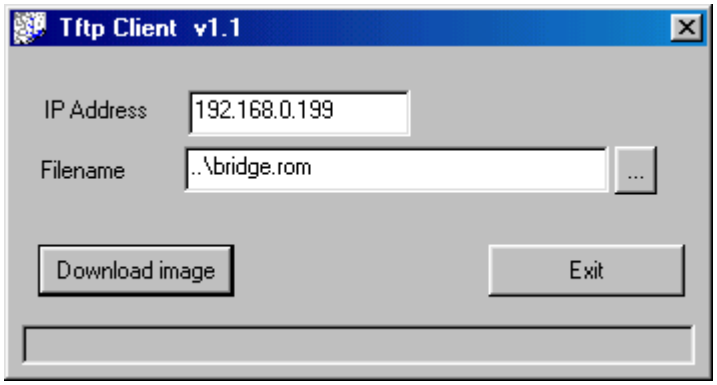
1. From the **Start** menu, select **Wireless 802.11 Access Point Utility** and then click **Firmware Upgrade Utility.**

2. Windows will bring you to the **TFTP Client v1.1** screen.

3. Set the **IP Address** and click the **Browse** button.

4. Select the new firmware file.

5. Click the **Download image** button to upgrade the firmware.



Note: The USB Configuration Utility can also be used to upgrade the firmware when the Access Point is connected locally to a PC using the USB cable (see the USB Configuration Utility section).

FCC Compliance Notices

Radio Frequency Notice

This device complies with part 15 of the Federal Communications Commission (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.

Note: 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 or more of the following measures: (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.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

Technical Specifications

Standard	IEEE 802.11b, IEEE 802.3 USB 1.0 Specification
Data Rate	11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps (Auto-Fallback)
Security	64 Bit WEP Data Encryption
Frequency Band	2.4 GHz ISM Frequency Band 2400 - 2483.5 MHz (US, Canada) 2400 - 2497 MHz (Japan, ETSI)
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Modulation Type	DBPSK @ 1 Mbps, DQPSK @ 2 Mbps, CCK @ 5.5 Mbps and 11 Mbps
Operating Channels	11 Channels (US, Canada) 13 Channels (ETSI) 14 Channels (Japan)
Operating Range	
Indoor	120 feet at 11 Mbps 200 feet at 5.5 Mbps 240 feet at 2 Mbps 300 feet at 1 Mbps
Outdoor	400 feet at 11 Mbps 600 feet at 5.5 Mbps 750 feet at 2 Mbps 1000 feet at 1 Mbps
Antenna Type	Two Dipole Antennas
Maximum Clients	256 (30-50 Recommended)
Receive Sensitivity (Typical)	-84dBm for 11 Mbps (8% PER) -87dBm for 5.5 Mbps (8% PER)
Interface	Ethernet RJ-45 Connector, USB Interface as Console Port for Local

	Configuration and Firmware Upgrades
LED Indicator	Power, Ethernet Link/Activity, RF Link/Activity
Output Power	13 dBm – 25 mW
Emissions	FCC Part 15
Power Supply	5V @ 800mA
Operating Temperature	0 to 40° C
Storage Temperature	-20 to 70° C
Operating Humidity	10% to 90% RH

Hardware Warranty

I-O Wireless (I-O) warrants the hardware product against defects in material and workmanship for a period of one (1) year commencing from date of purchase by the original customer, when operated and maintained in accordance with I-O's published specifications. I-O's liability shall be limited, at its option and expense, to refund to buyer the actual amount paid by buyer or to repair or replace any defective or non-conforming product or part thereof, F.O.B. I-O's authorized repair depot. Buyer will pay reasonable labor and handling charges for each product returned for repair which is found to have no defect.

THE EXPRESS WARRANTY SET FORTH ABOVE IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. OTHERWISE, THE PRODUCTS ARE SOLD AS IS WITHOUT FURTHER OBLIGATION OR LIABILITY ON THE PART OF I-O. I-O EXPRESSLY EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. EXCEPT AS EXPRESSLY SET FORTH HEREIN, IN NO EVENT SHALL I-O BE LIABLE FOR ANY CLAIMS OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM THE FURNISHING OR FAILURE TO FURNISH PRODUCTS, SPARE OR REPLACEMENT PARTS, INFORMATION OR SERVICES HEREUNDER. UNDER NO CIRCUMSTANCES SHALL I-O BE LIABLE IN ANY WAY FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT BASED ON BREACH OF WARRANTY, CONTRACT, OR NEGLIGENCE.

I-O shall not be liable for non-performance or delays hereunder due to causes beyond its control. These shall include, but not be limited to, acts of God, wars, strikes, fires, flood, storm, earthquake, shortages of labor or materials, labor disputes, transportation embargoes, acts of any government or agency thereof.

Some jurisdictions do not allow implied warranties to be excluded or consequential damages in the case of injury to the person to be limited if the products are used or bought for use primarily for personal, family or household purposes. Therefore if the products are used or bought for use primarily for personal, family or household purposes, all of the above limitations or exclusions may not apply to you.

SOFTWARE: Software provided with this product is covered under the separate warranty. See the applicable software license agreement for details on any software warranty.

Software License Agreement

By installing this software on your computer system, you indicate your acceptance of the following terms and conditions. If you do not agree with these terms and conditions, do not proceed further and delete any information obtained from this software and return the software to I-O Wireless (I-O).

GRANT OF LICENSE. Subject to the terms and restrictions set forth herein, I-O grants to you the right to use one copy of the enclosed software program or subsequent upgrades (SOFTWARE) on a single personal computer system.

COPYRIGHT RESTRICTIONS. The SOFTWARE is owned by I-O or its suppliers and is protected by the United States copyright laws and international treaty provisions. You may either (i) make one copy of the SOFTWARE solely for backup and archival purposes provided that you reproduce all copyright and other proprietary notices that are on the original copy of the SOFTWARE provided to you, or (ii) transfer the SOFTWARE to a single hard disk provided that you keep the original solely for backup or archival purposes. You may not copy the written materials accompanying the SOFTWARE.

OTHER RESTRICTIONS. You may not rent or lease the SOFTWARE. You may transfer your interest in this License on a permanent basis provided you retain no copies or versions thereof and the recipient agrees to the terms of this Agreement. You may not reverse engineer, decompile, disassemble, or create derivative works from the SOFTWARE.

BREACH OF RESTRICTIONS. Breach of the copyright or any other restriction herein shall revoke the license granted without further action or notice by I-O.

GENERAL PROVISIONS. You acknowledge and agree that (i) you have independently determined that the SOFTWARE licensed hereunder meets your intended requirements, and (ii) you have sole responsibility for the installation, use and results obtained from the SOFTWARE.

You acknowledge and agree that the SOFTWARE is subject to restrictions and controls imposed by the United States Export Administration Act (ACT) and the regulations thereunder. You agree and certify that neither the SOFTWARE nor any direct product thereof is being or will be acquired, shipped, transferred or re-exported, directly or indirectly, into any country prohibited by the ACT and the regulations thereunder or will be used for any purpose prohibited by the same. This Agreement is governed by the laws of the State of Utah, USA. The provisions of the Uniform Commercial Code as therein adopted shall apply to this transaction.

LIMITED WARRANTY. I-O warrants this SOFTWARE for a period of ninety (90) days commencing from the date of purchase by the original end-user that: (i) the SOFTWARE will substantially conform to the applicable user documentation and (ii) that the magnetic media and the user documentation (if any) are free from defects in material and workmanship. I-O's liability shall be limited, at its option and expense, to refund to original end-user the actual amount paid by original end-user or to repair or replace any defective or non-conforming product or part thereof, F.O.B. I-O's authorized repair depot.

THE EXPRESS WARRANTY SET FORTH ABOVE IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. OTHERWISE, THE PRODUCTS ARE SOLD AS IS WITHOUT FURTHER OBLIGATION OR LIABILITY ON THE PART OF I-O. I-O EXPRESSLY EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, IN NO EVENT SHALL I-O BE LIABLE FOR ANY CLAIMS OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM THE FURNISHING OR FAILURE TO FURNISH PRODUCTS, SPARE OR REPLACEMENT PARTS, INFORMATION OR SERVICES HEREUNDER. UNDER NO CIRCUMSTANCES SHALL I-O BE LIABLE IN ANY WAY FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO LOST BUSINESS OR PROFITS, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT BASED ON BREACH OF WARRANTY, CONTRACT, OR NEGLIGENCE.

Some jurisdictions do not allow implied warranties to be excluded or consequential damages in the case of injury to the person to be limited if the products are used or bought for use primarily for personal, family or household purposes. Therefore if the products are used or bought for use primarily for personal, family or household purposes, all of the above limitations or exclusions may not apply to you.

Product Support and Warranty Administration Policy

Contact I-O Wireless™ if . . .

- You have questions about the installation or operation of your I-O Wireless product, or
- You believe your I-O Wireless product may not be working properly.

How to contact I-O Wireless

Web site address: www.iowireless.com

- Frequently asked questions, installation guides, and technical information are available for reference and assisting with self-help.
- Questions or requests may be submitted via e-mail in the "Contact Us" section.

Telephone: 1.877.471.9933 (toll-free)

- Hours of support are 12:00 noon to 8:00pm MST, Monday - Friday.
- Voice mail messages may be left outside normal hours of operation

Support

You must have your product serial number to qualify for I-O Wireless telephone support.

Telephone support is provided at no charge for 90 days from date of purchase.

Telephone support after 90 days is billed at $15 per call, up to one year from date of purchase. Support charges after one year are $25 per call. The following credit cards are accepted forms of payment:

- Visa
- MasterCard

No telephone support will be given without first verifying your I-O Wireless product serial number. This number was activated when your product was shipped. The product serial number is found on the label attached on the bottom side of the product.

Please have your product serial number noted before calling I-O Wireless.

Self-help assistance or e-mail inquiries via the I-O Wireless web site are always free.

Returning a product

If the I-O Wireless Customer Service Representative determines that your product should be replaced under the manufacturers terms of warranty, you will be able to choose from two handling options:

- Normal Replacement: Return your product in it's original packaging, freight pre-paid, to I-O Wireless. Upon receipt of your returned unit, I-O Wireless will send you a replacement product, freight pre-paid.
- Expedited Replacement: If you require expedited replacement service, you may pay for a replacement unit that would be shipped immediately (in advance of returning your defective unit). When your original unit is returned (freight pre-paid) and received by I-O Wireless, a reversal of the replacement charge will be processed, off-setting the expedited replacement charge to zero.