

# WIRELESS ACCESS POINT

802.11b Wireless Access Point/Bridge

WAP1011BB

Instruction Guide



\* Actual product may vary from photo

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## FCC COMPLIANCE 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 or more 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**

This equipment must be installed and operated in accordance with provided instructions and a minimum 20cm (8 inches) spacing must be provided between computer mounted antenna and a person's body (including extremities of hands, wrists, and feet) during wireless modes of operation.

## Table of Contents

<b>Introduction</b> .....	2
<b>Wireless Access Point Basics</b> .....	3
<b>Getting Started</b> .....	4
<b>Configuring Your Wireless Access Point</b> .....	4
<b>Home</b> .....	5
<b>Wireless Setting</b> .....	6
<i>AP Mode</i> .....	6
<i>Station - Ad Hoc Mode</i> .....	7
<i>Station - Infrastructure</i> .....	8
<i>AP Bridge - Point to Point</i> .....	9
<i>AP Bridge - Point to Multi-Point</i> .....	10
<i>AP Bridge - WDS</i> .....	11
<b>Advanced Setting</b> .....	12
<b>Security</b> .....	13
<b>MAC Filtering</b> .....	15
<b>System Utility</b> .....	16
<b>Configuration Tool</b> .....	18
<b>Upgrade</b> .....	19
<b>Reset</b> .....	20

**Note:** Due to firmware upgrades, the information in this Instruction Guide may not be identical to what you see on your screen. Check [www.startech.com](http://www.startech.com) for firmware upgrades or updates to the Instruction Guide. (October 30, 2003)

## Introduction

Thank you for purchasing a StarTech.com wireless access point (WAP). Based on the IEEE 802.11b (2.4 GHz) wireless standard, this access point lets you connect your 802.11b wireless devices to your wired Ethernet LAN or bridge wireless Infrastructure networks together. The WAP1011BB supports wireless access point roaming and bridging, and uses 64/128-bit WEP encryption to keep your network transmissions secure. With auto-rate fallback and web-based configuration control, you'll be able to seamlessly and securely integrate your wired and wireless networks.

## Features

- Complies with 802.11b (2.4 GHz) specifications
- Supports auto-rate fallback and high data rates of 11/5.5/2/1 Mbits/sec
- Interoperable with other IEEE 802.11b compliant wireless devices
- Allows web-based configuration through Ethernet port
- Uses built-in DHCP server for auto IP address assignment
- Backed by StarTech.com's two year warranty

## Before You Begin

To ensure a quick and easy access point installation, please read through this section carefully before attempting to install the access point.

### System Requirements

- A desktop or laptop computer with an Ethernet port running Windows XP, 2000, Me, NT, 98, 95
- Other 802.11b (2.4 GHz) enabled devices

### Package Contents

- 1 x WAP1011BB wireless access point
- 1 x 12V DC 0.5A power adapter

## Wireless Access Point Basics

### Back Panel



The back panel is divided into sections: Power, LAN, Reset, and Wireless.

- The 12VDC power adapter plugs into the power port.
- The LAN port connects your wireless access point to your wired LAN.
- The Reset button can be used to reboot the wireless access point if it is experiencing problems. If you press and hold the reset button for **less** than four seconds, the wireless access point will reboot with your settings and configurations intact. If you hold the reset button for **more** than four seconds, the wireless access point will reset itself to the factory default settings and you will lose all your settings and configurations.
- Screw the wireless antenna into the wireless port.

### Front Panel



LED	Color	Status	Description
PWR	Green	Lit Off	Power is supplied No power
WLAN	Green	Flashing Off	Antenna is transmitting/receiving data Antenna is not transmitting/receiving
LAN	Green	On Flash Off	A valid link is established LAN is transmitting/receiving No link is established

## Getting Started

The section is designed to assist you in the installation of your WAP1011BB. Please read through this section carefully and complete each step in the order listed.

1. Locate the optimum location for your Access Point. The best location is usually in the center of your wireless network, with a clear line of sight to all your wireless stations. See “Installation Considerations” on page 21 for hints on positioning your access point.
2. Using a standard UTP cable, connect the access point’s LAN port to your network switch, hub, or router.
3. Connect the AC power adapter to the access point’s **Power** port and connect the other end to an appropriate power source. Only use the power adapter supplied with this product. Using a different adapter may damage the access point.
4. If not already connected, screw the antenna into the wireless port.

The wireless access point is now online. To associate your wireless devices with your WAP, make sure that your WAP is powered and your wireless clients are equipped with 802.11b-compatible wireless adapters. From your 802.11b-enabled computer, use the instructions provided by your wireless adapter manufacturer to connect the computer to the wireless access point.

The WAP’s default settings are:

**ESSID:** default

**Channel:** 1

**Encryption Key:** None

**Note:** To ensure the security of your network, StarTech.com recommends that you set up some form of web encryption as soon as possible. See **Security** on page 13 for details.

## Configuring the Wireless Access Point

**Note:** To configure the wireless access point, you must be using a client PC that is on the same subnet as the wireless access point. See Appendix B: Configuring Your PCs on page 22 for details.

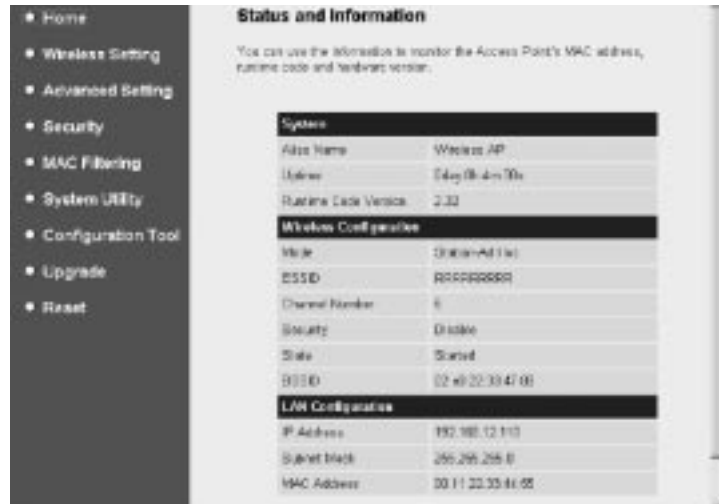
1. On one of your client PCs, open your web browser. In the address field, enter the WAP’s default IP address (192.168.2.1) and press Enter.



2. Once the website has loaded, enter the User Name and Password and click OK. By default, the User Name is **admin** and the password is **1234**. You should change the password as soon as possible (see **System Utility** on page 16 for details). You will now be on the WAP’s web-based management home page.

## Home

The WAP's home page gives you information on your current WAP settings.



<i>Parameter</i>	<i>Description</i>
<b>Alias Name</b>	The alias name for the WAP. See <b>Wireless Setting</b> on <b>page 6</b> for information on changing the alias name.
<b>Uptime</b>	The amount of time WAP has been running.
<b>Runtime Code Version</b>	The firmware version the WAP is using. See <b>Upgrade</b> on <b>page 19</b> for information on upgrading the firmware.
<b>Mode</b>	The mode the WAP is operating in. See <b>Wireless Setting</b> on <b>page 6</b> for information on changing the mode.
<b>ESSID</b>	The ESSID of the WAP. See <b>Wireless Setting</b> on <b>page 6</b> for information on changing the ESSID.
<b>Channel Number</b>	The channel the WAP is using. See <b>Wireless Setting</b> on <b>page 6</b> for information on changing the channel number.
<b>Security</b>	The current security settings for the WAP. See <b>Security</b> on <b>page 13</b> for information on changing your security settings.
<b>Associated Clients</b>	The number of wireless clients currently associated with the WAP.
<b>BSSID</b>	The BSSID of the WAP. In Access Point mode, the BSSID is the MAC Address of the WAP.
<b>IP Address</b>	The IP address of the WAP.
<b>Subnet Mask</b>	The subnet mask used by the WAP.
<b>MAC Address</b>	The WAP's MAC address.

## Wireless Setting

The Wireless Setting screen lets you change the mode the WAP is operating in. The options available on the Wireless Setting screen change depending on the mode you select.

### AP Mode



<i>Parameter</i>	<i>Description</i>
<b>Mode</b>	The mode fields shows that the WAP is in AP (access point) mode.
<b>Alias Name</b>	You can change the alias name of the WAP.
<b>ESSID</b>	You can change the ESSID (up to 31 printable ASCII characters) for your WAP. Remember, in order for your wireless clients to associate with each other, they must have the same ESSID.
<b>Channel Number</b>	You can change the channel the WAP is using. Remember, in order for your wireless clients to associate with the WAP, they must have the same channel. Whenever you change the channel on the WAP, make sure that the channel numbers on your associated clients are also changed.
<b>Associated Clients</b>	Clicking on the <b>Show Active Clients</b> button brings up the Active Wireless Client Table. The table shows the MAC Address, number of transmitted packets, number of received packets, transfer rate, power saving mode, and time expired for each device associated with the WAP.

When you are satisfied with your AP settings, click **Apply**.

## Station - Ad Hoc mode

Both Station - Ad Hoc and Station - Infrastructure mode let your WAP1011BB act like a wireless adapter for your wired PC. Station - Ad Hoc mode lets you join your WAP1011BB to a wireless LAN with peer-to-peer communication.

<i>Parameter</i>	<i>Description</i>
<b>Mode</b>	The mode field shows that the WAP is Station - Ad Hoc mode.
<b>Alias Name</b>	You can change the alias name of the WAP1011BB.
<b>ESSID</b>	You can change the ESSID (up to 31 printable ASCII characters) for your WAP. Remember, in order for your wireless clients to associate with each other, they must have the same ESSID.
<b>Channel Number</b>	You can change the channel the WAP is using. Remember, in order for your wireless clients to associate with each other, they must have the same channel. Whenever you change the channel on the WAP, make sure that the channel numbers on your other devices are also changed.
<b>Site Survey</b>	Click the <b>Select Site Survey</b> button to view the Wireless Site Survey table. This table gives you a list of all available access points in your area. You can then select an access point to associate with. The table gives you information on the SSID, BSSID, channel, type, encryption, and signal of each access point.

When you are satisfied with your Ad Hoc settings, click **Apply**.

## Station - Infrastructure

Both Station - Ad Hoc and Station - Infrastructure mode let your WAP1011BB act like a wireless adapter for your wired PC. Station - Infrastructure mode lets your PC join a wireless LAN through another wireless access point.

<i>Parameter</i>	<i>Description</i>
<b>Mode</b>	The mode fields shows that the WAP is in Station-Infrastructure mode.
<b>Alias Name</b>	You can change the alias name of the WAP.
<b>ESSID</b>	You can change the ESSID (up to 31 printable ASCII characters) for your WAP. Remember, in order for your wireless clients to associate with each other, they must have the same ESSID.
<b>Site Survey</b>	Click the <b>Select Site Survey</b> button to view the Wireless Site Survey table. This table gives you a list of all available access points in your area. You can then select an access point to associate with. The table gives you information on the SSID, BSSID, channel, type, encryption, and signal of each access point.

When you are satisfied with your Infrastructure settings, click **Apply**.

## AP Bridge - Point to Point

The AP Bridge modes let you bridge two or more wired Ethernet networks together. AP Bridge - Point to Point mode lets you connect to another wireless access point in order to connect the two wired networks.

The screenshot shows the 'Access Point' configuration page from StarTech.com. The 'Wireless Setting' section is active, displaying three input fields: 'Mode' (set to 'AP Bridge-Point to Point'), 'Channel Number' (set to '11'), and 'MAC Address' (set to '000000000000'). Below the fields are 'Apply' and 'Cancel' buttons. A sidebar on the left lists navigation options: Home, Wireless Setting, Advanced Setting, Security, MAC Filtering, System Utility, Configuration Test, Upgrade, and Reset.

<i>Parameter</i>	<i>Description</i>
<b>Mode</b>	The mode fields shows that the WAP is AP Bridge - Point to Point mode.
<b>Channel Number</b>	You can change the channel the WAP is using. Remember, in order for your wireless clients to associate with the WAP, they must have the same channel.
<b>MAC Address</b>	Enter the MAC address of the second wireless access point you want to connect to.

**Note:** AP Bridge - Point to Point mode can only be used to bridge wired networks together. When in this mode, the WAP1011BB can not accept connections from any other wireless stations. If you need to be able to bridge wired Ethernet networks and still provide connection service for other wireless stations, see **AP Bridge - WDS** on **page 11**.

When you are satisfied with your AP Bridge - Point to Point settings, click **Apply**.

## AP Bridge - Point to Multi-Point

The AP Bridge modes let you bridge two or more wired Ethernet networks together. AP Bridge - Point to Multi-Point mode lets you connect to other wireless access points in order to connect their wired networks.

The screenshot shows the 'Wireless Setting' page in the Access Point configuration utility. The mode is set to 'AP Bridge-Point to Multi-Point'. The channel number is 11. There are six fields for MAC addresses, each with a corresponding 'X' icon. The 'Apply' and 'Cancel' buttons are visible at the bottom right.

<i>Parameter</i>	<i>Description</i>
<b>Mode</b>	The mode fields shows that the WAP is AP Bridge - Point to Multi-Point mode.
<b>Channel Number</b>	You can change the channel the WAP is using. Remember, in order for your wireless clients to associate with the WAP, they must have the same channel.
<b>MAC Address</b>	Enter the MAC addresses of your other wireless access points you want to connect to.

**Note:** AP Bridge - Point to Multi-Point mode can only be used to bridge wired networks together. When in this mode, the WAP1011BB can not accept connections from any other wireless stations. If you need to be able to bridge wired Ethernet networks and still provide connection service for other wireless stations, see **AP Bridge - WDS** on **page 11**.

When you are satisfied with your Point to Multi-Point settings, click **Apply**.

## AP Bridge - WDS

In AP Bridge - WDS, the WAP1011BB is able to bridge wired Ethernet networks and still provide connection service for other wireless stations. AP Bridge - WDS mode is a combination of AP Mode and AP Bridge - Point to Multi-Point mode.

The screenshot shows the 'Wireless Setting' page in the StarTech.com Access Point configuration utility. The 'Mode' is set to 'AP Bridge-WDS'. Below this, there are several configuration fields: 'Alias Name' (StarTech.com Wireless AP), 'ESSID' (default), 'Channel Number' (11), and 'Associated Clients' (Show Active Clients). At the bottom, there are six 'MAC Address' fields, each containing a hexadecimal value: FFFFFFFF, 01020304, 00000000, 00000000, 00000000, and 00000000.

<i>Parameter</i>	<i>Description</i>
<b>Mode</b>	The mode fields shows that the WAP is AP Bridge - WDS mode.
<b>Alias Name</b>	You can change the alias name of the WAP.
<b>ESSID</b>	You can change the ESSID (up to 31 printable ASCII characters) for your WAP. Remember, in order for your wireless clients to associate with each other, they must have the same ESSID.
<b>Channel Number</b>	You can change the channel the WAP is using. Remember, in order for your wireless clients to associate with the WAP, they must have the same channel.
<b>MAC Address</b>	Enter the MAC addresses of your other wireless access points that you want to bridge to.

When you are satisfied with your WDS settings, click **Apply**.

## Advanced Setting

The Wireless Advanced Settings page lets you set some advanced wireless LAN parameters. You should not change these parameters unless you know what effects they will have on the WAP.

Parameter	Description
<b>Authentication Type</b>	Choose the type of authentication for your wireless LAN: <b>Open System:</b> In Open System, wireless stations can associate with the WAP without any WEP encryption. <b>Shared Key:</b> With Shared Key, only wireless clients with the same WEP encryption key will be able to associate with the WAP. In Shared Key mode, you will need to set up a WEP key (See <b>Security</b> on page 13 for details). <b>Both:</b> If you select Both, your wireless clients will be able to associate with the WAP using either authentication type.
<b>Fragment Threshold</b>	Specifies the maximum packet size for data transmission. If you set this value too low, it will result in bad performance.
<b>RTS Threshold</b>	Specifies the RTS threshold for data transmission. When a data packet is less than the specified RTS threshold, the WAP will not use the RTS/CT mechanism to send the packet.
<b>Beacon Interval</b>	Specifies the amount of time between beacon broadcasts.
<b>Data Rate</b>	Choose between transfer rates of <b>Auto</b> (best available rate), <b>11</b> , <b>5.5</b> , <b>2</b> , or <b>1</b> Mbits/sec.
<b>Preamble Type</b>	Defines the length of the CRC block in the frames during the wireless transmission. "Short Preamble" is appropriate for high traffic networks. "Long Preamble" provides more reliable communication for less busy networks.
<b>Broadcast ESSID</b>	Choose whether or not to broadcast the WAP's ESSID.
<b>IAPP</b>	Choose to enable or disable IAPP. Enabling IAPP is recommended if you have more than one wireless access point in your WLAN and your wireless stations have roaming requirements. Disabling this feature provides more security.

When you are satisfied with your Advance settings, click **Apply**.

## Security

The Security page lets you set up encryption for your wireless network. **If you set up an encryption key, you must use the same key for both your WAP and each of your wireless clients.**



<i>Parameter</i>	<i>Default</i>	<i>Description</i>
<b>WEP Mode</b>	Disable	If you enable WEP mode, you can choose either a 64-bit or 128-bit WEP key. The 128-bit key provides greater security, but a lower throughput. If you select Disable, your data will be transmitted without encryption.

If you select a 64-bit or 128-bit WEP key, you will need to enter the WEP key to encrypt your data. See the next page for details.

## Encryption, continued

<i>Parameter</i>	<i>Description</i>
<b>Key Format</b>	You can use either ASCII characters (alphanumeric format) or hexadecimal digits (in the A~F, a~f, and 0~9 range) to be the WEP key. For example: <b>ASCII:</b> guest <b>Hexadecimal:</b> 12345abcde
<b>Key Length</b>	Choose the length of your WEP encryption key.
<b>Default Key</b>	Select one of the four encryption keys to encrypt your data. Only the key you select in “Default Key” will take effect.
<b>Key 1 ~ Key 4</b>	Fill in the text box using the rules below: <b>64-bit WEP:</b> Input a ten-digit hexadecimal value (example: 12345abcde) or a five-digit ASCII value (example: guest). <b>128-bit WEP:</b> Input a 26-digit hexadecimal value (example: 0123456789abcdef0123456789) or a 13-digit ASCII value (example: guestpassword).

When you are satisfied with your encryption settings, click **Apply**.

## MAC Filtering

MAC filtering protects your network by allowing only specified computers to access your network. Only computers with the specified MAC addresses will be able to associate with your WAP.



<i>Parameter</i>	<i>Description</i>
<b>Enable Wireless Access Control</b>	Check this box to allow MAC filtering.
<b>MAC Address</b>	Enter the MAC address of the PC that is allowed to access the Internet
<b>Comment</b>	You can use this space to describe the setting.
<b>Add, Clear</b>	When you have entered all the above information, click the <b>Add</b> button to add the setting to the MAC Filtering Table. To empty all fields, click <b>Clear</b> .
<b>Delete Selected, Delete All, Reset</b>	To remove a setting, select it from the MAC Filtering Table and click <b>Delete Selected</b> . To delete all settings, click <b>Delete All</b> . Click <b>Reset</b> to clear your current selections.

Only the MAC Addresses entered into the MAC Address Filtering Table will be able to associate with the WAP.

## System Utility

The System Utility page lets you change the WAP's password, IP address, and Subnet Mask, or configure the WAP's DHCP server.

<i>Parameter</i>	<i>Description</i>
<b>Current Password</b>	Enter your current password.
<b>New Password</b>	Enter your new password.
<b>Re-enter Password</b>	Re-enter your new password for confirmation.  <b>WARNING!</b> If you forget your password, you will have to reset the WAP, which will erase <b>all</b> of your configurations.
<b>IP Address</b>	Enter a new IP address for the WAP.
<b>Subnet Mask</b>	Enter a new subnet mask for the WAP.
<b>DHCP Server</b>	Choose whether you want the DHCP server enabled or disabled.
<b>Default Gateway IP</b>	Specify the gateway IP for your network. It must be different from the IP address.
<b>Domain Name Server IP</b>	Enter either the DNS IP Address given to you by your ISP or the IP address of your preferred DNS server.

## System Utility, continued

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<i>Parameter</i>	<i>Description</i>
<b>Start/End IP</b>	Designate an IP range for your DHCP server to assign to your IP clients. By default, the range is 192.168.2.100 to 192.168.2.200.
<b>Domain Name</b>	Enter a domain name for your WAP.
<b>Lease Time</b>	The DHCP server will temporarily give your LAN clients an IP address. If you specify a time period in the Lease Time field, the DHCP server will refresh your IP addresses once that time period has expired.

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When you are satisfied with your System Utility settings, click **Apply**.

## Configuration Tool

The Configuration Tools page lets you save, restore, or reset your router's configuration settings.



<i>Parameter</i>	<i>Description</i>
<b>Backup Settings</b>	Clicking on the <b>Save</b> button will save the router's current configuration to a file named "config.bin".
<b>Restore Settings</b>	Click on the <b>Browse</b> button to locate the file and click <b>Upload</b> to re-load the saved configuration.
<b>Restore to Factory Default</b>	Click <b>Reset</b> to force the router to do a power reset that will clear all configurations and restore the original factory default settings.

## Upgrade

StarTech.com may periodically offer firmware upgrades as a download on our website. Visit [www.startech.com](http://www.startech.com) and click on the Downloads link to check for possible firmware upgrades for this product. If there is an upgrade available, download the file according to instructions on the website and then proceed with the following steps.



<i>Parameter</i>	<i>Description</i>
<b>Firmware Upgrade</b>	Browse to the location of the firmware upgrade and click the <b>Apply</b> button. You may have to wait a few minutes for the upgrade to complete.

## Reset

You can reset the WAP if you are experiencing any problems. Performing this step will not change any of your current settings. If you want to reboot to the factory defaults, see **Configuration Tool** on page 18.



Click on the **Apply** button to reset the WAP. You will be asked to confirm your decision. Once the reset process is complete, you can start using the WAP again.

## Appendix A: Wireless Installation Considerations

There are some factors to keep in mind when attempting to set up a wireless connection. The wireless signal range can be limited by the number, location, thickness, and material of ceilings, walls or similar that the signal must pass through. To maximize your wireless range, keep the following considerations in mind when positioning your antenna:

- The best place for a wireless access point is in the center of your wireless network with line of sight to all your wireless clients.
- Try to minimize the number of walls, ceilings, and similar between your wireless devices. Each wall or ceiling the signal must cross can reduce the signal range by up to 90 feet (30 m). Position your receiving devices so that the path between them is as unobstructed as possible.
- The type of material the wireless signal must cross through also affects its range. A solid metal door or concrete wall can decrease the signal's range. Whenever possible, position the adapters so that the signal can pass between drywall or open doors.
- Make sure that you are aware of the line the signal must take to travel between devices. The angle that the signal is on as it travels through a door, wall, or ceiling affects how thick the obstruction is. For example, if a wall is 1.5 feet thick and the signal passes through it at a 45-degree angle, the signal must pass through 3 feet (1m) of wall. At a 2-degree angle, the wall appears to be 42 feet (14m) thick. Always try to position your devices so that the signal can travel at 90-degree angles.
- Electrical devices or appliances that generate RF noise (such as microwaves, electric motors or computer monitors) can interfere with the wireless signal. Try to keep your adapter at least 3-6 feet (1-2 m) away from these types of devices.

## Appendix B: Configuring Your PCs

You can configure your wireless access point from any wired or wireless station that is on the same subnet as the wireless access point. The default IP address of the WAP is **192.168.2.1** and the default subnet mask is **255.255.255.0**. See the section below for information on how to configure your PCs to be on the same subnet mask as the wireless access point.

### Windows XP

**Note:** These instructions assume you are using the default Windows XP layout. If you are using Classic View, the process may vary slightly.

1. Click on **Start** then **Control Panel**.
2. Click on **Network and Internet Connections**, then **Network Connections**.
3. Right-click **Local Area Connection** and click **Properties**.
4. From the "This connection uses the following items:" list, select **Internet Protocol (TCP/IP)** and click **Properties**.
5. Select **Use the following IP Address**.
6. In the **IP Address** field, enter an IP address between **192.168.2.2** and **192.168.2.254**. In the **Subnet Mask** field, enter **255.255.255.0**. In the **Default Gateway** field, enter the IP address of your network's gateway (like the IP address of your router). If your network does not have a gateway, leave this field blank.

### Windows 2000

1. Click **Start**, then **Settings**, then **Control Panel**.
2. Double-click **Network and Dial-Up Connection**, then double-click **Local Area Connection**.
3. Click **Properties**.
4. From the "Network Components" list, select **Internet Protocol [TCP/IP]** and click **Properties**.
5. Select **Use the following IP Address**.
6. In the **IP Address** field, enter an IP address between **192.168.2.2** and **192.168.2.254**. In the **Subnet Mask** field, enter **255.255.255.0**.
7. Click **OK** to confirm the setting.

### Windows Me/98/95

1. Click **Start**, then **Settings**, then **Control Panel**.
2. Double-click **Network**.
3. From the “Network Components” list, select **Internet Protocol [TCP/IP]** and click **Properties**. (If TCP/IP is not on your list, follow Microsoft’s instructions for details on how to install it)
4. Check each tab and verify the following:

**Bindings:** Check “Client for Microsoft Networks” and “File and printer sharing for Microsoft Networks”

**Gateway:** All fields are blank.

**DNS Configuration:** Select “Disable DNS.”

**WINS Configuration:** Select “Disable WINS Resolution.”

**IP Address:** Select “Specify an IP Address.” In the **IP Address** field, enter an IP address between **192.168.2.2** and **192.168.2.254**. In the **Subnet Mask** field, enter **255.255.255.0**.

## Troubleshooting

If you are having trouble with your wireless connections, check the following:

- Make sure all your wireless clients are equipped with 802.11b-compatible wireless adapters.
- Make sure that your WAP and all your wireless clients have the same ESSID and are on the same channel.
- If you have enabled encryption options, make sure that the same encryption key has been entered on each device. Make sure that the key selected on your WAP is the same key entered on the other wireless device you want to connect to.
- If you are experiencing intermittent network connections, try re-orienting the adapter. See Appendix A: Installation Considerations for more details.

### Forgotten Password

- If you have forgotten your password, you have to reset the WAP. Press the reset button for **more** than 4 seconds and the WAP will reset itself to the factory default settings. All your configurations will be replaced with the factory default settings.

## Glossary

**802.11b:** A family of IEEE-defined specifications for wireless networks. The 802.11b standard supports data transfer rates up to 11 Mbits/sec in the 2.4 GHz band using DSSS technology. Also known as WiFi.

**Access Point:** See *Wireless Access Point*.

**Ad Hoc:** A wireless computer-to-computer LAN. An Ad Hoc network can consist of two devices with wireless adapters, and does not require a WAP, router, or gateway. Also known as peer-to-peer mode. See also infrastructure.

**Associated Client:** See *Client PC*.

**Beacon:** A packet that identifies the location of the base wireless station and allows the mobile clients to synchronize with the base station.

**Bridge:** An intelligent, internetworking device that forwards or filters packets between different networks based on data link layer (MAC) address information.

**Broadband:** A method of communication where a wide band of frequencies is available to transmit voice, data, and video signals over a single medium. Information can be sent on many different channels, allowing more information to be sent in a given period of time (the same way multiple lanes allow more cars on the road).

**BSSID (Basic Service Set Identifier):** The MAC address of the wireless router. A BSS consists of a Wireless Access Point and the adapters associated with it.

**Cable Modem:** A device that provides Internet access to a user by connecting a computer to the cable television network, which in turn connects to the Internet. Cable modem users have a continuous always-on connection to the Internet.

**Channel:** A specific carrier frequency used in wireless communications. In order to communicate with each other, each wireless device must be on the same channel.

**Client PC:** Any computer connected to the router, whether wired or wireless.

**Daisy Chain:** A hardware configuration where devices are connected one after the other in series. Transmitted signals proceed down the chain from the first device to the second, and so on.

**Default Gateway:** A routing device used to forward traffic that is not on the local subnet. When a network device wants to send an IP packet to a destination that is not on the same network, the device sends the packet to a default gateway, which will send it out towards the destination.

**Denial of Service Attack:** A method used by hackers to prevent legitimate users from accessing a service or resource. A DoS attack usually involves the hacker sending a large number of request packets to a targeted network service, making it unusable for other users.

**DHCP (Dynamic Host Configuration Protocol):** A protocol that automatically assigns dynamic IP addresses to PC/LAN clients logging in to a TCP/IP network. Without DHCP, IP addresses must be logged in manually at each computer.

**DNS (Domain Name System):** A system that translates an Internet address (like www.startech.com) into a proper IP address (like 192.168.2.1). A DNS server keeps a database of Internet servers and their respective Internet and IP addresses, so that when you type “www.startech.com” into your web browser, you are sent to the web site located at 192.168.2.1, for example. Your ISP can provide you with the IP address of the DNS server you use when connected to the Internet.

**DSL Modem (Digital Subscriber Line Modem):** A device that provides a user with Internet access using telephone lines to connect the computer to the Internet at high speeds.

**Dynamic IP Address:** A temporary IP address given to a PC/LAN client by the DHCP server for the duration of an Internet session or some other established period of time. The IP address is chosen at random from a pool of available IP addresses on the DHCP server. When the session is concluded or the lease-time has expired, the IP address is returned to the pool.

**Encryption:** The transformation of data into encoded ciphertext to ensure data transmission can not be accessed by users outside the network. Encryption uses an encryption algorithm and encryption keys to encode and decode the information. See also WEP.

**Encryption Algorithm:** A formula used to convert data from understandable “plaintext” into encoded “ciphertext.” Each algorithm uses a key (a string of bits) to perform the calculations. The larger the key (most are 64 or 128-bits in length), the more difficult to break the code.

**ESSID (Extended Service Set Identifier):** The identifying name of an 802.11b network. An ESS consists of two or more BSSes in the same subnet. In order to communicate with each other, each wireless device must have the same ESSID.

**Ethernet:** A popular network standard of communication using either twisted pair or coaxial cables. The most widely used LAN access method, Ethernet networks are connected by special cables and hubs, and can transfer data at speeds up to 10 or 100 million bits per second (Mbits/sec). Also known as IEEE 802.3.

**Firewall:** A configurable program or hardware device that filters information coming to your private network or computer from the Internet. If a firewall flags a packet of information, it does not get through to your network or PC.

**Firmware:** Programming that is inserted into a device’s read-only memory (ROM) to become a permanent part of the device. Firmware upgrades are often provided to upgrade or improve a hardware device.

**IAPP (Inter Access Point Protocol):** A protocol that gives the necessary information that wireless access points need to support roaming. IAPP automatically broadcasts information about associate wireless clients. This aids roaming between wireless access points.

**Infrastructure Mode:** An 802.11 networking mode where wireless devices communicate through a wireless access point, instead of directly with each other (Ad Hoc mode).

**IP Address (Internet Protocol Address):** A unique number that identifies a device on a network. IP addresses are expressed in decimal form as four numbers between 0 and 255 that are separated by periods. (Example: 192.168.2.1) *See also: Dynamic IP Address, Static IP Address, Public IP Address, Private IP Address.*

**ISP (Internet Service Provider):** A company that provides individuals or businesses with access to the Internet.

**ISP Gateway Address:** The IP address for the Internet router located at the ISP's office. Your ISP can provide you with this address, if needed.

**LAN (Local Area Network):** A group of computers and devices connected together in a relatively small area (such as a house or an office).

**MAC Address (Media Access Control Address):** A unique number assigned by the manufacturer to any Ethernet networking device (such as a network adapter) that allows the network to identify it at the hardware level. Also known as the physical address or Ethernet number.

**MTU (Maximum Transmission Unit):** The largest physical packet size (in bytes) that a network can transmit. Any messages larger than the MTU are divided into smaller packets before being sent.

**NAT (Network Address Translation):** A process that allows a single public IP address to represent several private IP addresses when accessing the Internet. This allows multiple users on a network to share an Internet connection without having to purchase multiple IP addresses from an ISP.

**Network Mask:** See *Subnet Mask*.

**NIC (Network Interface Card):** A circuit board or card that is installed inside a computer or network device so that the device can be connected to the Internet. Also known as a network adapter.

**Physical Address:** See *MAC Address*.

**Private IP Address:** An IP address given to a LAN device that is unknown to the Internet. These are unregistered IP addresses that have been set aside for use in a LAN environment where constant connection to the Internet is not required. *See also: NAT*.

**Protocol:** An objective set of rules for how computers communicate with each other across networks. A protocol describes the form a message must take as well as how that message is exchanged. Hypertext Transfer Protocol (HTTP), for example, governs the way information is exchanged on the World Wide Web.

**Public IP Address:** A unique, "legal" IP address allocated by an ISP that is used when accessing the Internet. A public IP address can be reached by another device over the Internet. *See also: NAT*.

**Router:** An intelligent network device that forwards packets between different networks based on network layer address information such as IP addresses.

**Static IP Address:** A dedicated, unique IP address that has been assigned to a given computer or server for an extended period of time. Static IP addresses are useful if you are operating a computer that other Internet users need to access, such as a web server.

**SOHO (Small Office/Home Office):** A small or at-home business.

**Subnet Mask:** A technique used by the IP protocol to filter messages into a particular network segment or subnet. Subnet masks are expressed as four decimal numbers between 0 and 255 separated by periods. (Example: 255.255.255.1) It is used to create private IP addresses for use within a particular network. Also known as a network mask.

**TCP/IP** (Transmission Control Protocol/Internet Protocol): The basic communication protocol for the Internet. TCP breaks data down into packets, “reassembles” the data at its destination and verifies delivery. IP determines how to address and forward data and sets packet size limitations.

**WAN** (Wide Area Network): A communications network that covers a wide geographic area (different buildings, cities, countries). The Internet is an example of a WAN.

**WAP** (Wireless Access Point): A networking device that seamlessly connects wired and wireless networks. Used in Infrastructure networks, a wireless access point is capable of connecting to an Ethernet network as well as an 802.11 network.

**WEP** (Wired Equivalent Protocol): A security protocol designed to provide a wireless network with the same level of security as a wired LAN. WEP offers protection primarily by encrypting the information that flows between adapters.

**Wi-Fi:** See *802.11b*.

**WLAN** (Wireless LAN): A group of computers and devices wirelessly connected together in a relatively small area (such as a house or an office).

## Technical Specifications

Ethernet Interface	10/100 Mbits/sec
Standards	IEEE 802.11b, IEEE 802.3
Radio Technology	Direct Sequence Spread Spectrum (DSSS)
Modulation	CCK@11/5.5 Mbits/sec, DQPSK@2Mbits/sec, DBSK@1 Mbit/sec
Security	64/128-bit WEP encryption
Frequency	2.4 GHz (ISM band)
Antenna	External detachable dipole (with RP-SMA connector)
Transmit Power	18dBm
Power	12V DC, 0.5A
LEDs	Power, Wireless LAN, LAN
Supported transfer rates	11, 5.5, 2, 1 Mbits/sec
Data range in close space	115~328 ft (35~100 m)
Data range in open space	328~ 984 ft (100m~300m)
Operating Temperature	32~131°F (0~55°C)
Storage Temperature	-4~158°F (-20~70°C)
Certification	FCC, CE Mark

## Technical Support

The following technical resources are available for this StarTech.com product:

### On-line help:

We are constantly adding new information to the *Tech Support* section of our web site. To access this page, click the *Tech Support* link on our homepage, [www.startech.com](http://www.startech.com). In the tech support section there are a number of options that can provide assistance with this product.

Knowledge Base - This tool allows you to search for answers to common issues using key words that describe the product and your issue.

FAQ - This tool provides quick answers to the top questions asked by our customers.

Downloads - This selection takes you to our driver download page where you can find the latest drivers for this product.

Call StarTech.com tech support for help:

**USA/Canada:** 1-519-455-4931

**UK/Ireland/Europe:** 00-800-7827-8324

*Support hours: Monday to Friday 9:00AM to 5:00PM EST (except holidays)*

## Warranty Information

**This product is backed by a one-year warranty. In addition StarTech.com warrants its products against defects in materials and workmanship for the periods noted, following the initial date of purchase. During this period, the products may be returned for repair, or replacement with equivalent products at our discretion. The warranty covers parts and labor costs only. StarTech.com does not warrant its products from defects or damages arising from misuse, abuse, alteration, or normal wear and tear.**

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