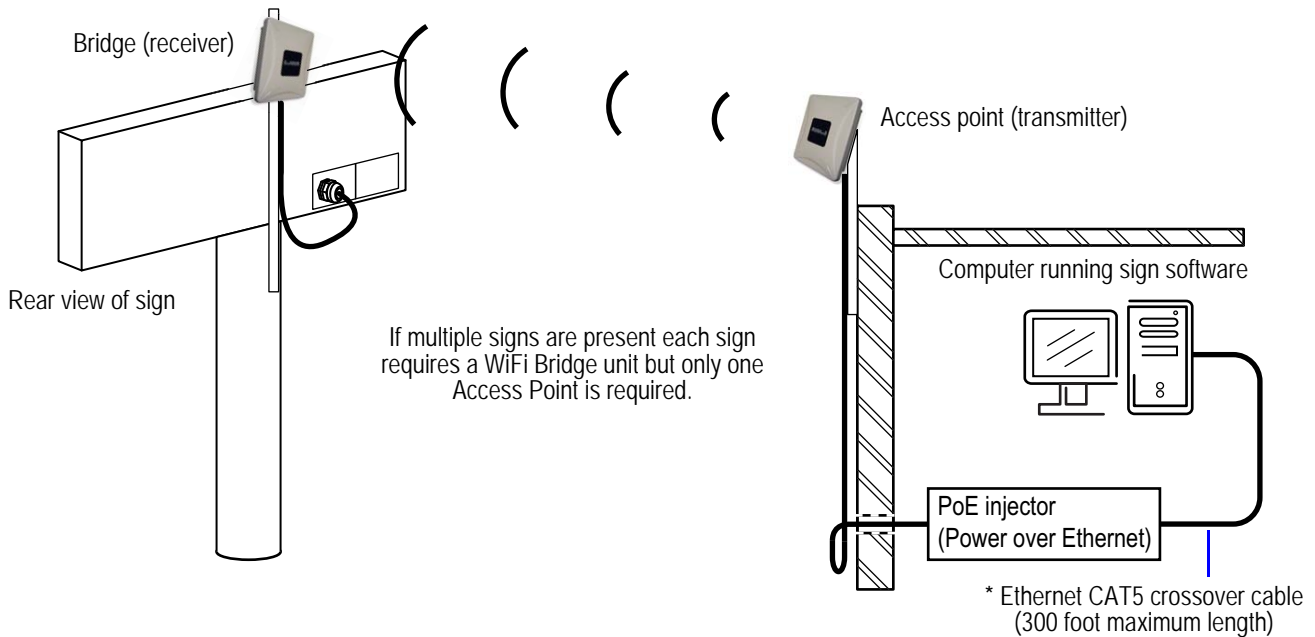


Model 1650 WiFi Wireless Setup Using Windows

WiFi wireless overview

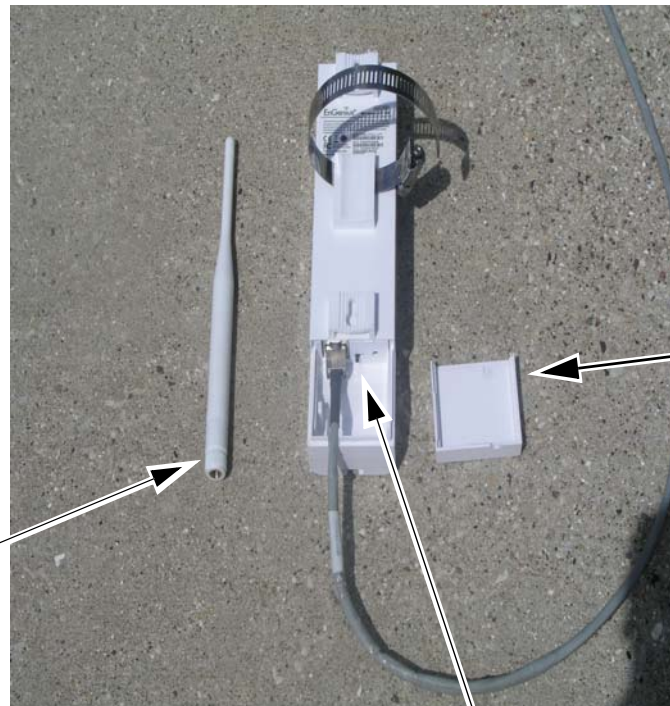


Note: A **Clear Line of Sight** between the Bridge and Access Point is the ideal / recommended solution and will result in a stronger wireless signal.

INSTALLATION BEST PRACTICES

- A clear line of sight between devices is recommended to provide the best operation/connection (no trees, bushes, light poles, etc.)
- Do not install units upside down, as moisture/rain will run down the Ethernet cable and into the device, causing it to fail.
- Make sure that the front of the AP and Bridge units face each other, and are within a 45 degree vertical plane of each other.
- If communication cannot be established with the sign do the following to resolve the issue
 1. Move the AP WiFi unit (connected to the computer) closest to the outside wall facing the outdoor LED sign.
 2. Attach the external antennas.
 3. If the above does not work - drill a hole through the wall and mount the AP outside to obtain a clear line of sight to the Bridge unit
- Metal buildings - if the facility is metal clad, the wireless signals will not penetrate through the walls. Both wifi devices must be installed with a clear line of sight between them.
- When using the external antenna, you must set the switch for external.
- Note - 45 degree vertical, 100 degree horizontal radiation pattern.
- Maximum distance between the AP and Bridge unit is 300 feet.

WiFi Model 1650



Backside View

Remove the access door and connect the outdoor Cat 5 cable into the RJ-45 port at the bottom. Replace the door to prevent moisture from getting into the connections

External antenna

Antenna switch - internal or external



Front View

The face of the WiFi unit (client bridge) that is attached to the LED sign must face the face of the WiFi unit (access point) that is connected to the sending PC/network.

WiFi Model 1650



Side View

Top

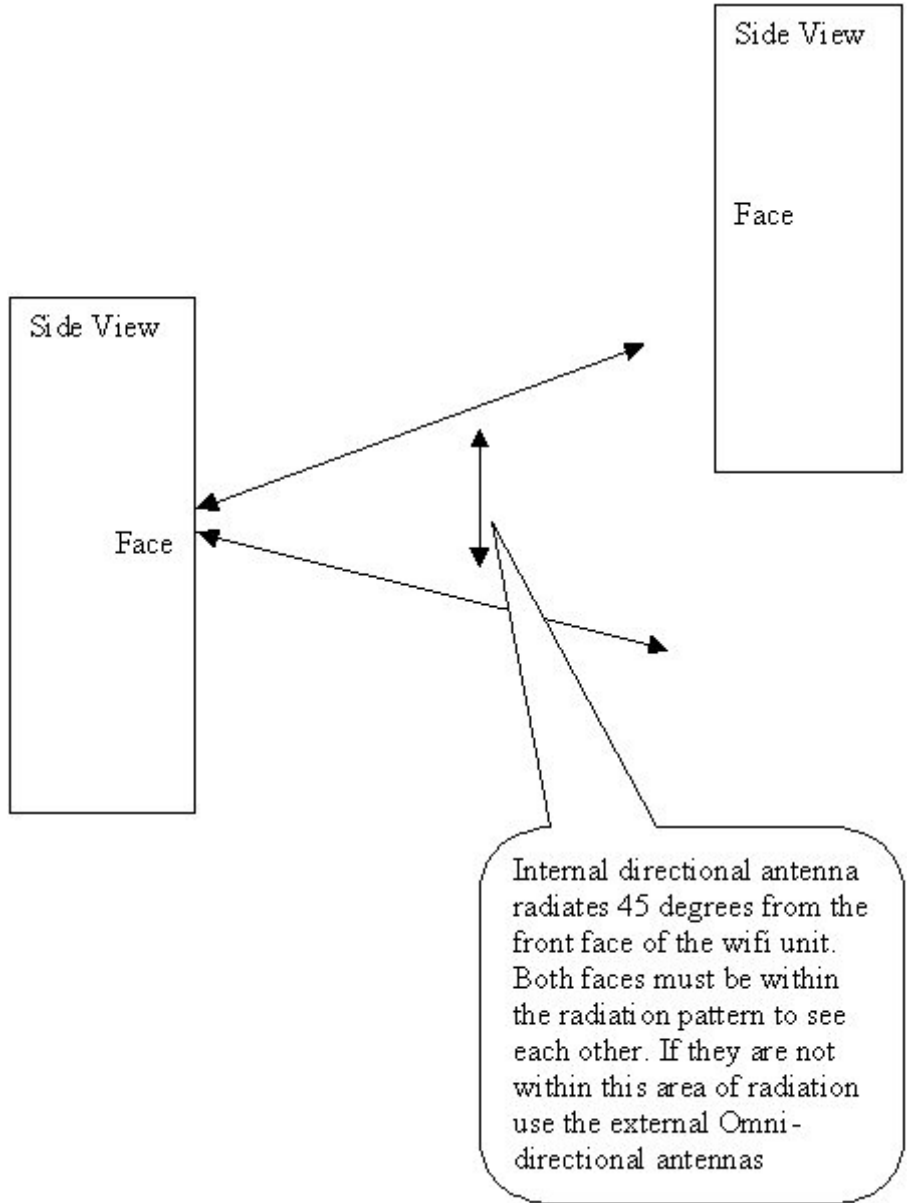
Use metal clamp to mount WiFi unit to metal conduit.

Do not install the unit upside down because moisture will get inside and cause it to fail.

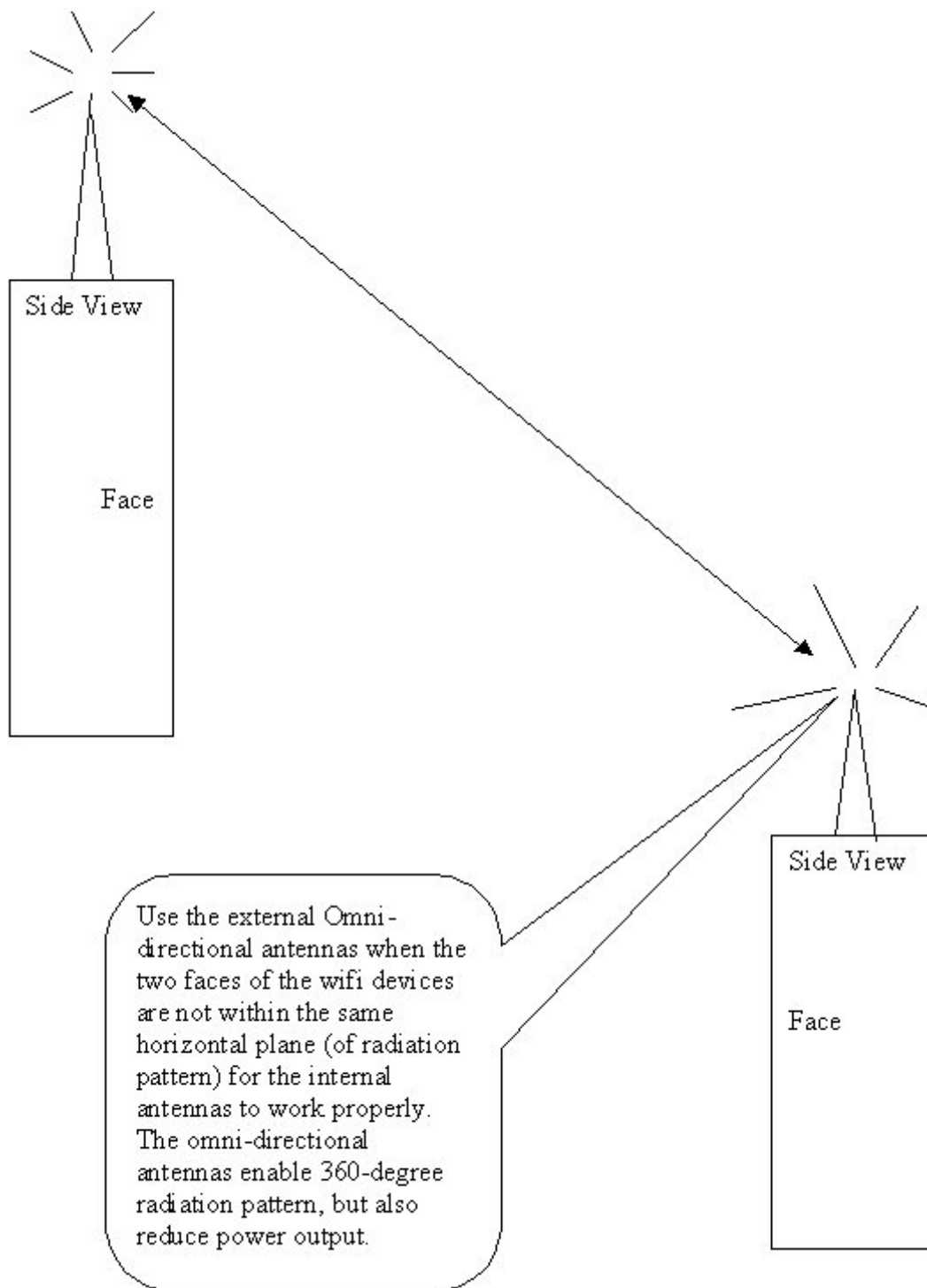
Bottom

Leave a loop in the cable at the bottom of the WiFi unit so moisture will drip down and away from the unit.

Clear Line of Sight Installation using the internal antennas when both WiFi faces are within the same radiation pattern of each other.



Clear Line of Sight Installation using Omni-Directional External Antennas

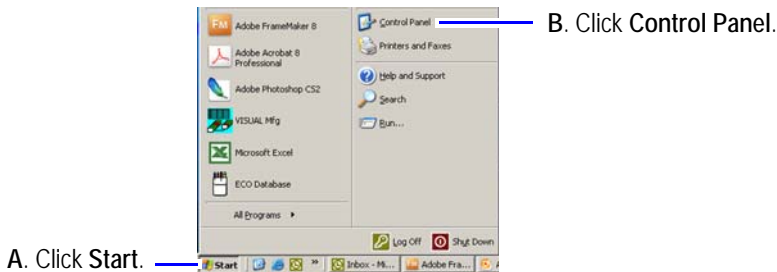


Changing your computer's IP address to communicate with the sign

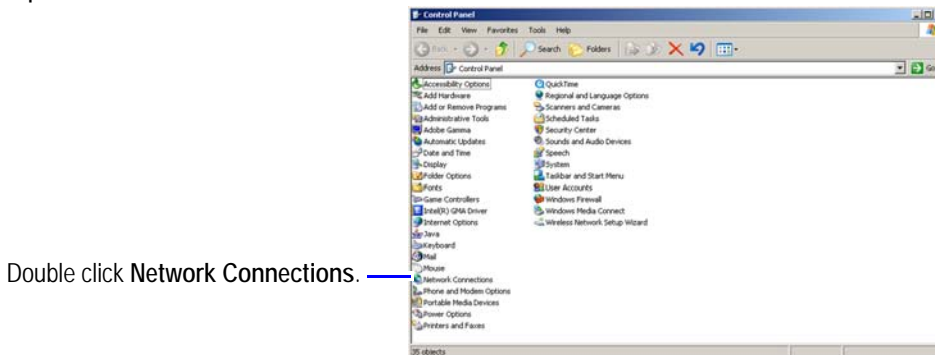


These instructions make the assumption that the sign is powered on, the WiFi Bridge unit(s) have already been correctly connected to the sign, and the WiFi Access Point is correctly connected to the computer running the sign software.

1. At the computer, click the **Start** button and click **Control Panel**.



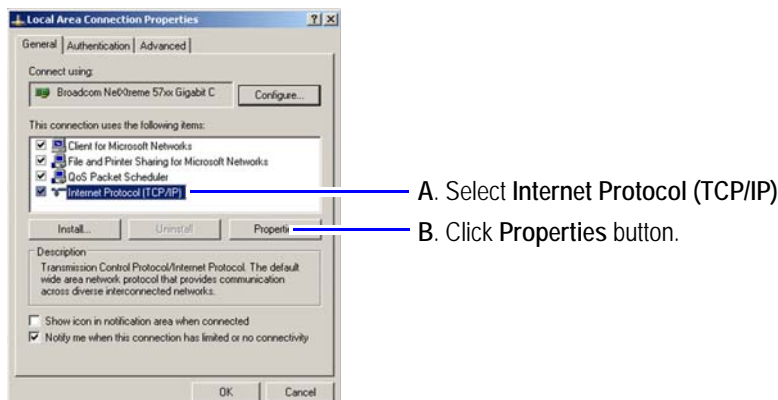
2. Open **Network Connections**.



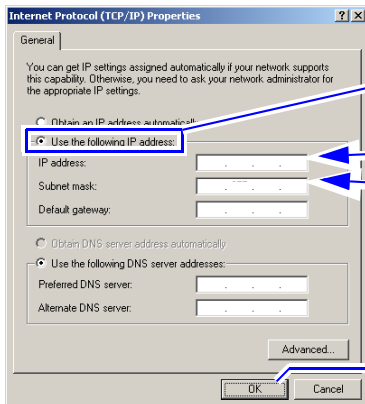
3. In the *Network Connections* window, right-click **Local Area Connection** and choose **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click the **Properties** button.



5. Change the IP address.



A. Click *Use the following IP address*.

B. Enter the following.

IP address: 10.11.11.253

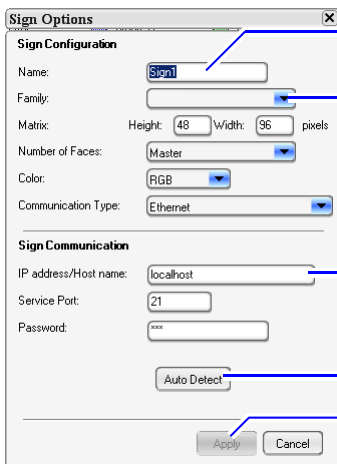
Subnet Mask: 255.255.255.0

C. Click OK.

6. Click **OK** to close the *Local Area Connections Properties* window. The computer is now in the same range as the sign's default IP address (10.11.11.254).

Confirming communications with the sign

1. Open the sign software.
2. Go to Schedule, then click Add
3. In the *Sign Option* window, use the **Auto Detect** feature to automatically fill in the sign configuration and communication settings.



D. Assign a name to your sign.

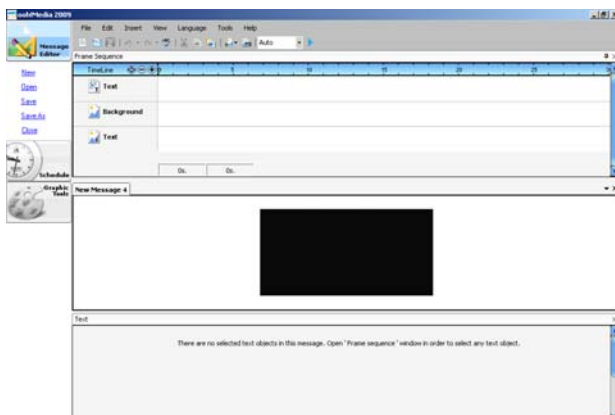
B. Select your sign type.

A. Type 10.11.11.254

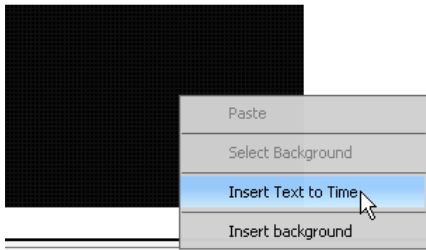
C. Select Auto Detect.

E. Select Ok.

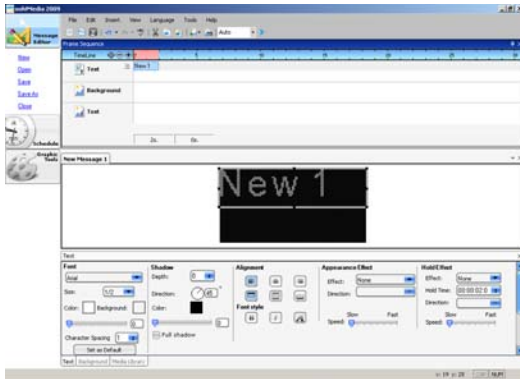
4. Sign software will open and a new blank message will appear in the *Message Editor* screen.



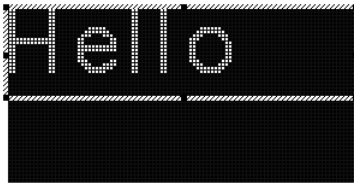
5. Right-click the *Emulation Area* (black area) and select **Insert Text to Time**.



A text message box “New 1” appears in the *Emulation area* and *Frame Sequence TimeLine*.



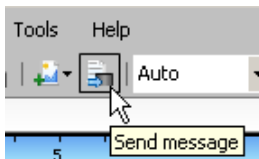
6. Click inside the message box, delete the current text, and type a message to appear on the sign.



7. Click the **Save** icon and save the message.



8. Click the **Send message** icon.



The WiFi wireless setup is now complete unless you have:

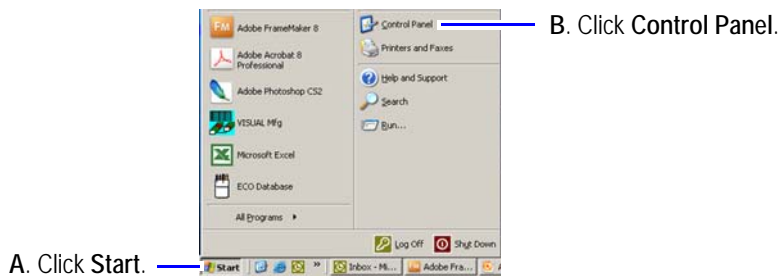
- communication problems - go to "Conducting a Site Survey" on page 9.
- or
- require wireless security - go to "Securing the WiFi network (recommended)" on page 12.

Conducting a Site Survey

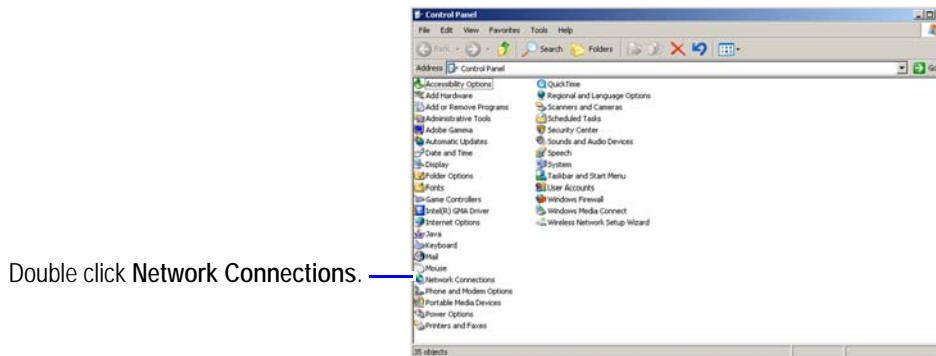
If you are having communication problems with the sign, conduct a site survey. Communication problems may result from poor signal strength between the Access Point and Bridge. Signal strength can be affected by other wireless devices in the area, or the location and distance between the WiFi units.

Change your computer's IP address to communicate with the WiFi units

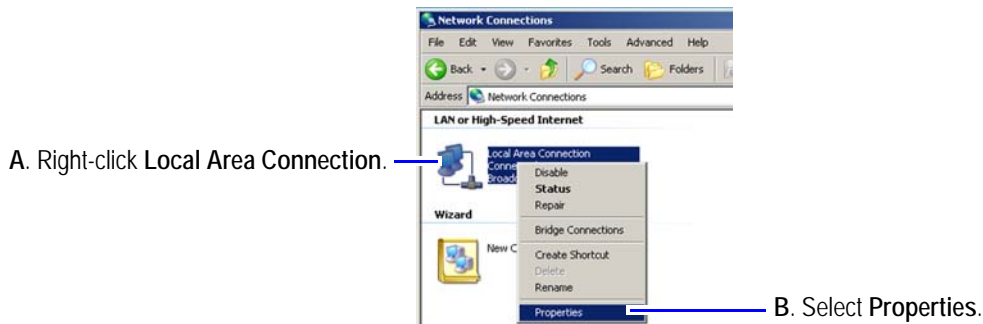
1. At the computer, click the **Start** button and click **Control Panel**.



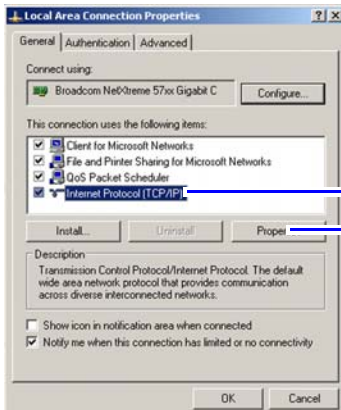
2. Open **Network Connections**.



3. In the *Network Connections* window, right-click **Local Area Connection** and choose **Properties**.

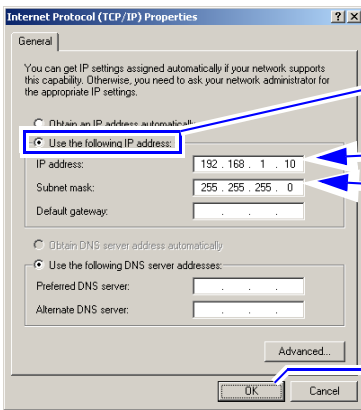


4. Select **Internet Protocol (TCP/IP)** and click the **Properties** button.



- A. Select Internet Protocol (TCP/IP)
- B. Click Properties button.

5. Change the IP address.



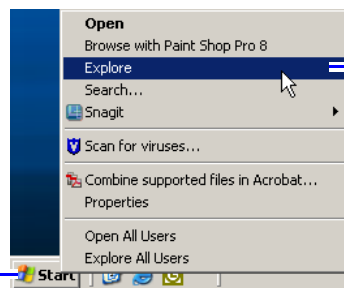
- A. Click *Use the following IP address*.
- B. Enter the following.

IP address:	<u>192.168.1.10</u>
Subnet Mask:	<u>255.255.255.0</u>
- C. Click OK.

6. Click **OK** to close the *Local Area Connections Properties* window. The computer is now in the same range as the WiFi's default IP address.

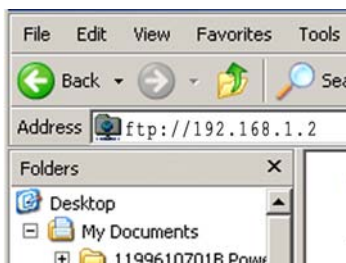
Conducting a site survey

1. At the computer open **Windows Explorer** or any web browser.



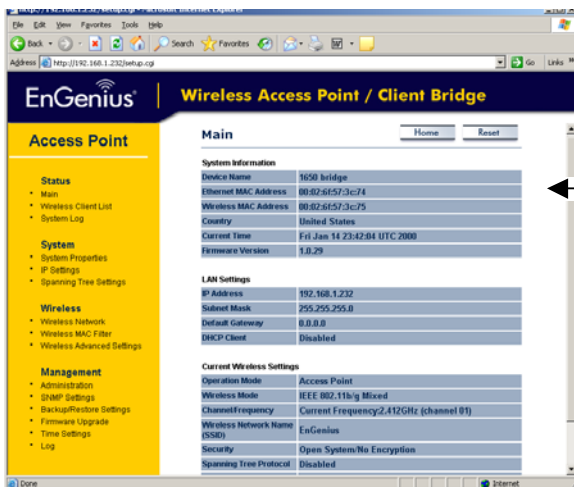
- A. Click Start.
- B. Select Explore.

2. In the address bar type **ftp://192.168.1.232** and click **GO**.



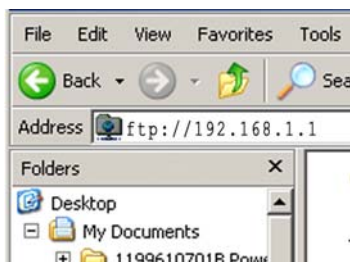
3. At the login prompt, type **admin** for the *Username* and *Password*.

A screen similar to the following will appear:

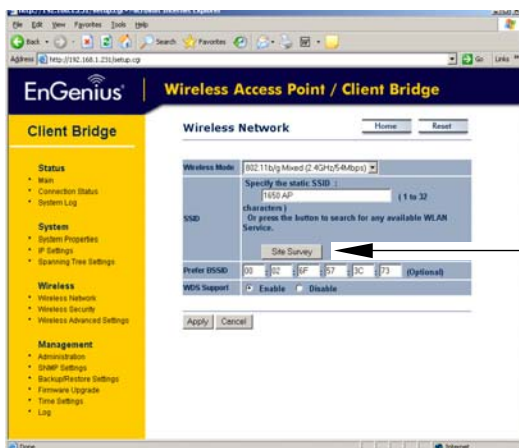


Record MAC here:

- In the address bar type `ftp://192.168.1.131` and click **GO**.

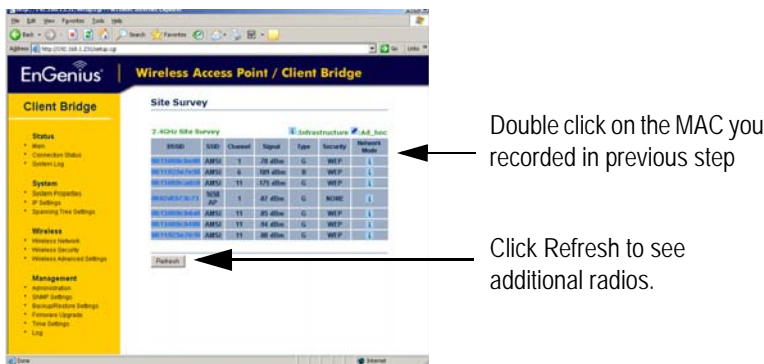


- At the login prompt, type `admin` for the *Username* and *Password*. In the left menu area click **Wireless** and select **Site Survey**.



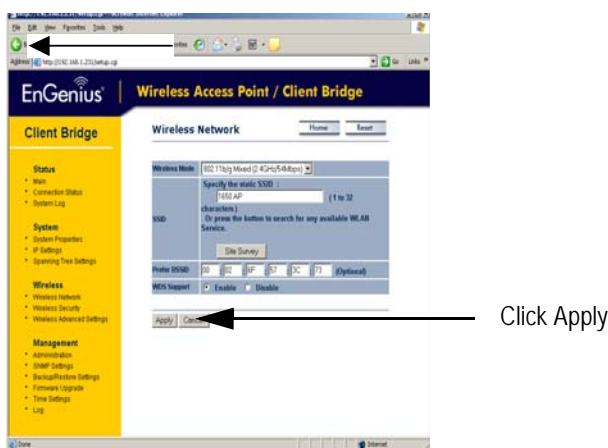
Click this button

- Identify the Access Point's MAC Address (recorded in STEP 3) in the **BSSID** column.



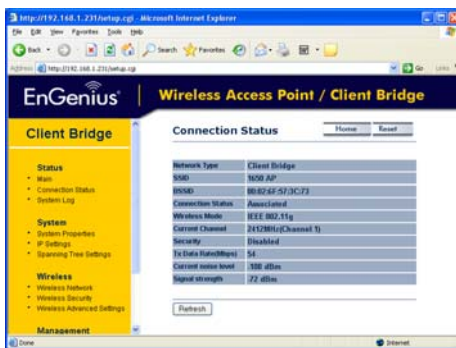
Double click on the MAC you recorded in previous step

Click Refresh to see additional radios.



Click Apply

- Adjust the position of the Access Point until you receive a strong signal shown in the **Signal** column. A **Clear-Line-of-Sight** between the Bridge and Access Point will provide the strongest signal.



Signal strength scale guide

- 0 to -50 indicates Strong signal strength
- 51 to -75 indicates Good signal strength
- 75 to -100 indicates Great signal strength

- Secure the Access Point in the location you received the strongest signal.
- Repeat "Changing your computer's IP address to communicate with the sign" on page 6 and "Confirming communications with the sign" on page 7.

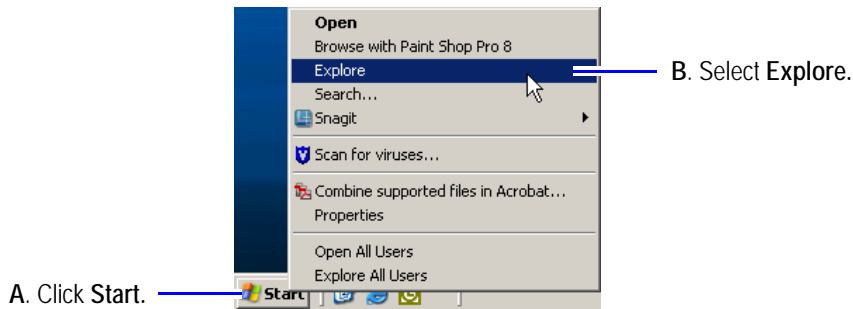
Securing the WiFi network (recommended)

Adding security to the WiFi network is not required to communicate with the sign; however it is recommended to secure the WiFi network limiting access to authorized personnel only.

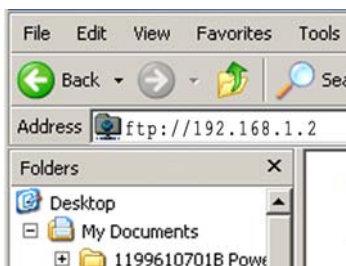
*The Bridge and Access Point security values **must be the same** or they will not communicate with each other.*

Note: The computer's IP address must be in the same range as the WiFi units. Refer to "Change your computer's IP address to communicate with the WiFi units" on page 9.

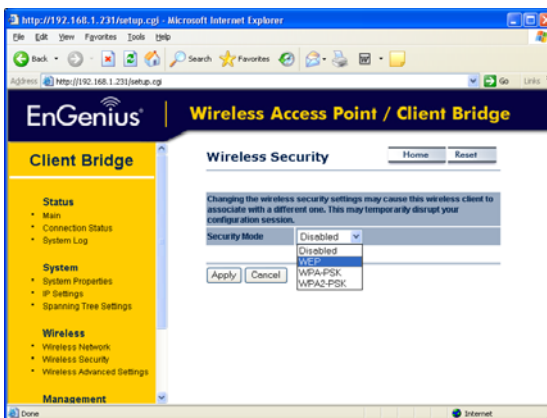
1. At the computer open **Windows Explorer** or any web browser.



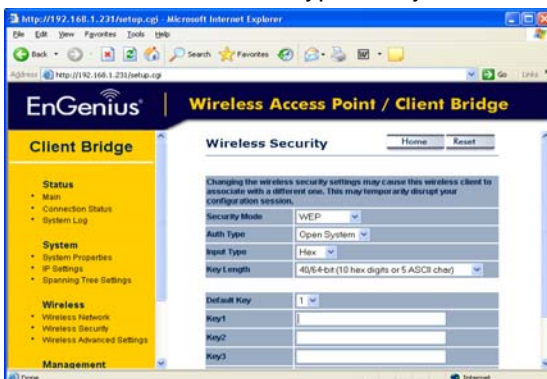
2. In the address bar type `ftp://192.168.1.2` and click **GO**.



3. In the left menu area click **Wireless** and select **Wireless Security**.
4. Set the *Encryption pull-down menu* to **WEP**.



5. Create and enter an Encryption key.



Enter Key 1. Only use letters A-F and numbers 0-9 for Encryption Key values.

Although you can leave the WEP Key Encryption value at the default settings, doing so would leave the sign and network susceptible to eavesdropping and hacking. Consult the *11g Wireless Outdoor Client Bridge/AP User's Manual* or your networking professional for more information.

- For *Key Length*, select **128-bit**.
- Set the **Key Encryption**:
Set at least the first key encryption value. To do this, enter 26 characters (**only letters A-F and numbers 0-9**) in the Encryption Key 1 field.

Note: Write down the encryption key in the space provided. You will need this same key to configure security for the wireless Bridge unit.

26 character encryption key:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

6. Click **Apply Changes**.
7. Click **Close**.
8. On the Wireless Security Setup screen, click **Apply Changes**.
9. Repeat the procedure "Securing the WiFi network (recommended)" on page 12 for the Bridge unit but use **192.168.1.1** (or the IP address labeled on the Bridge).

Do not forget to change your computer's IP address back to 10.11.11.253. Refer to "Changing your computer's IP address to communicate with the sign" on page 6
