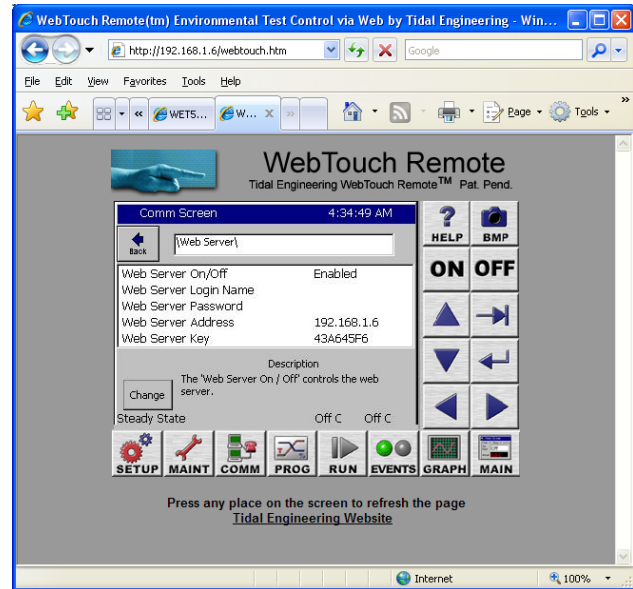
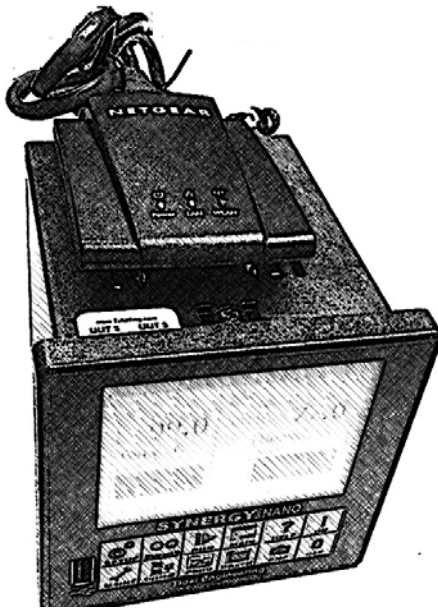


Synergy Controller Wireless Network Setup



Overview

Synergy Controllers, including the Synergy Micro, Synergy Micro 2, and Synergy Nano (shown above), are equipped with an Ethernet network port for network communications and support Telnet, Web (http), SMTP (e-mail) and FTP protocols.

This application note explains how you can use the controller's wired Ethernet port and a NETGEAR WNCE2001 Wi-Fi adapter to connect these controllers to a wireless network.

Note that virtually any 10/100 wireless bridge can be used for this purpose. See APPENDIX B for setup instructions for the Linksys WET54g.

This application note also explains how to use of the Synergy's WebTouch Remote™ feature to control the chamber with a standard web browser and the FTP server to drag-and-drop files to and from the controller. Follow the links below for demonstration videos.

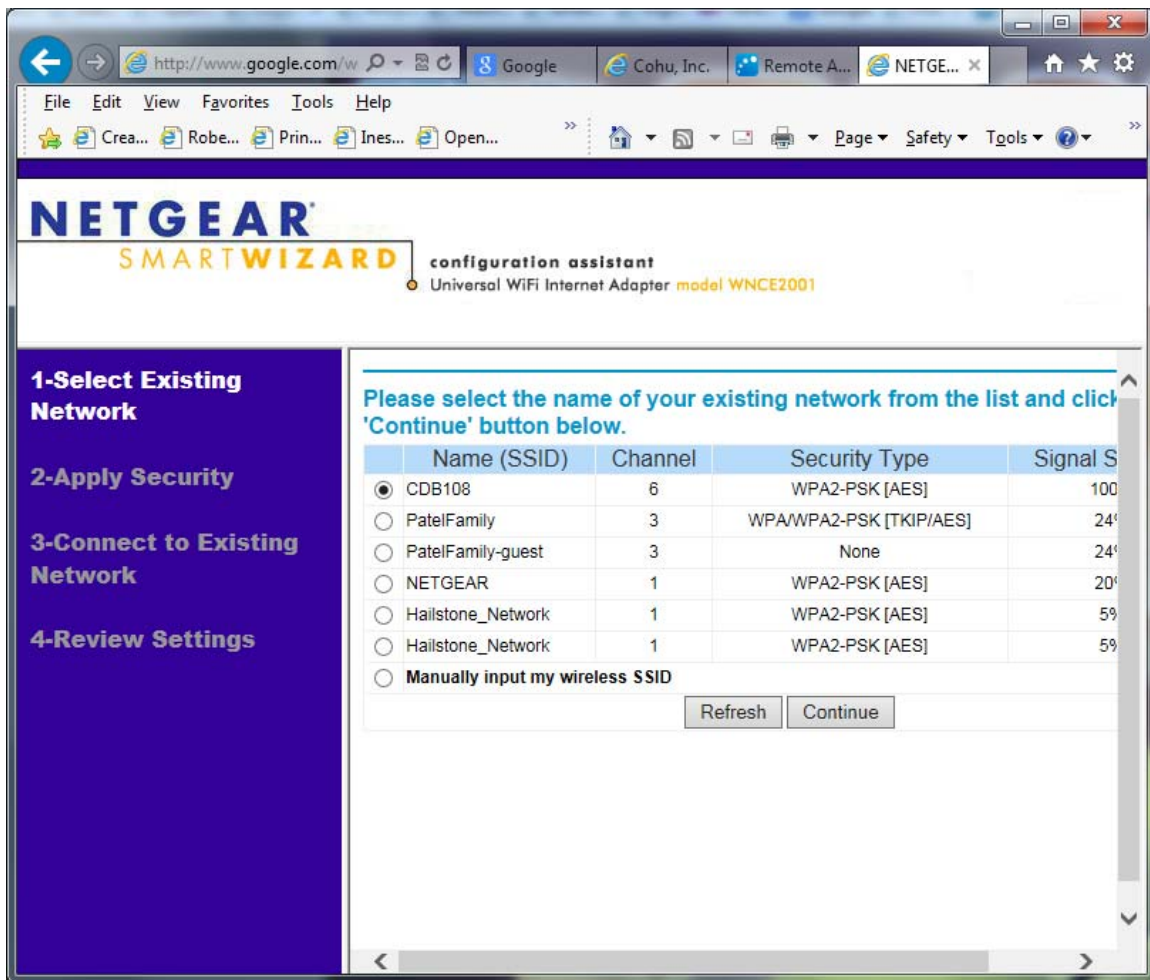
http://tidaleng.com/swf/Synergy_Controller_WebTouch_Remote_Demonstration.htm

http://tidaleng.com/swf/FTP_Server_App_Note_45_Web/FTP_Server_App_Note_45_Web.html

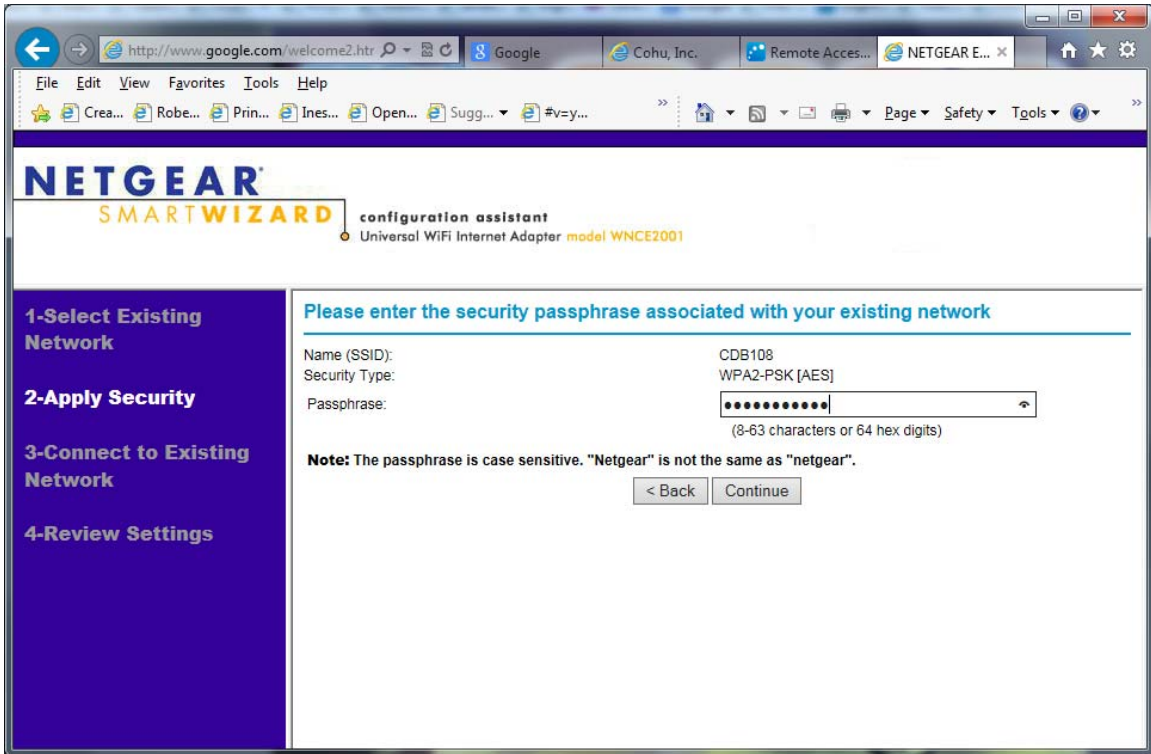
This setup procedure requires a PC with a wired Ethernet port.

Setup the NETGEAR WNCE2001 See APPENDIX A NETGEAR WNCE2001 Setup Guide

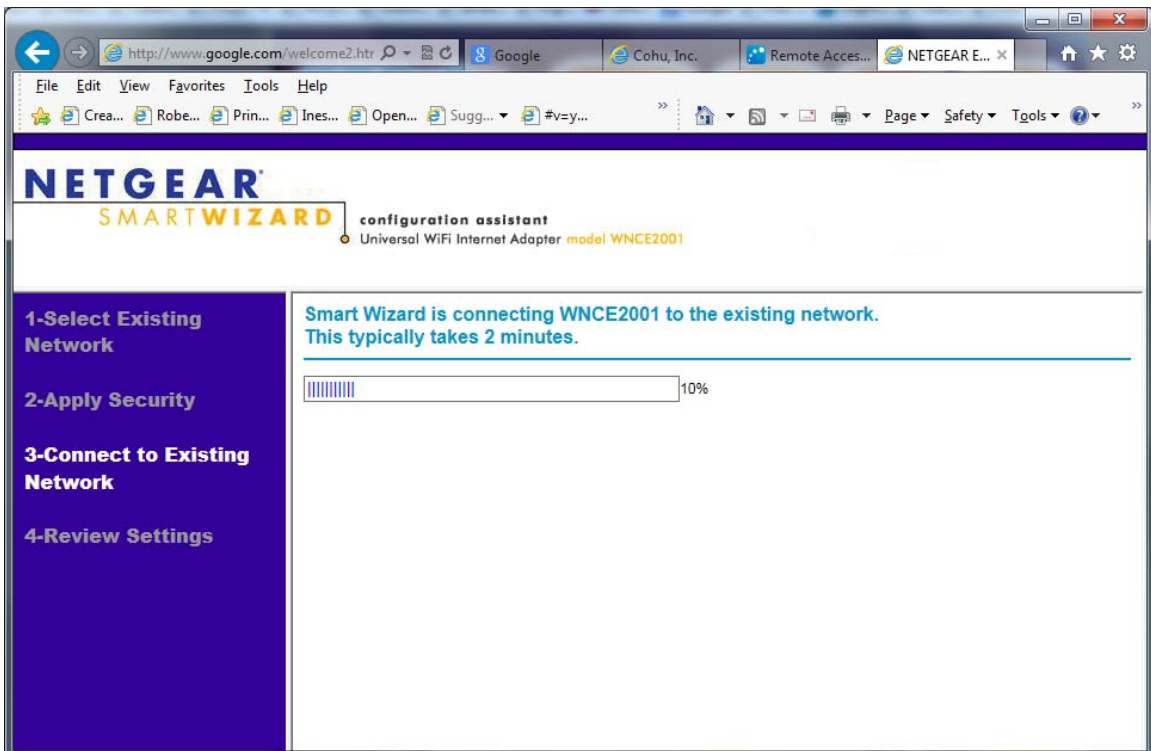
1. Disconnect any wireless connection to the router and/or remove the Ethernet cable currently connected to the computer. You can restore the connection after the WNCE2001 installation is complete.
2. Connect the WNCE2001 to your computer, using the Ethernet cable and the power the unit with the transformer provided.
3. Wait until both the Power and LAN LEDs on the NETGEAR WNCE2001 are solid green. Make sure the computer gets the IP address. Then, open your Internet browser and it will automatically take you to the setup page.
4. The following web page should appear in your browser. Select your wireless network from the list.



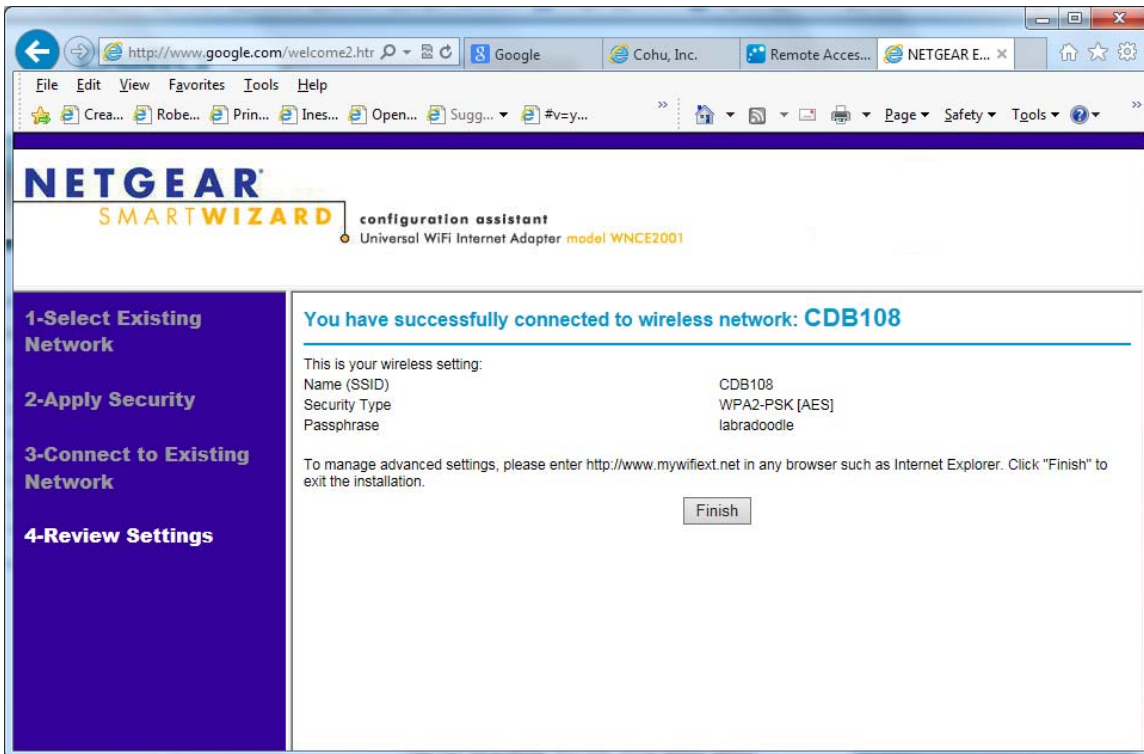
5. Enter the Wireless Network passphrase or password as instructed.



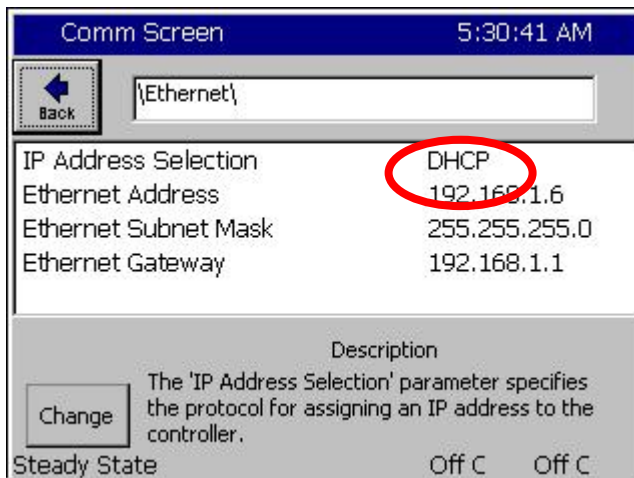
6. Wait while the NETGEAR Smart Wizard connects the WNCE2001 adapter to your network.



- The webpage will indicate when it has successfully connected to your network as shown below.

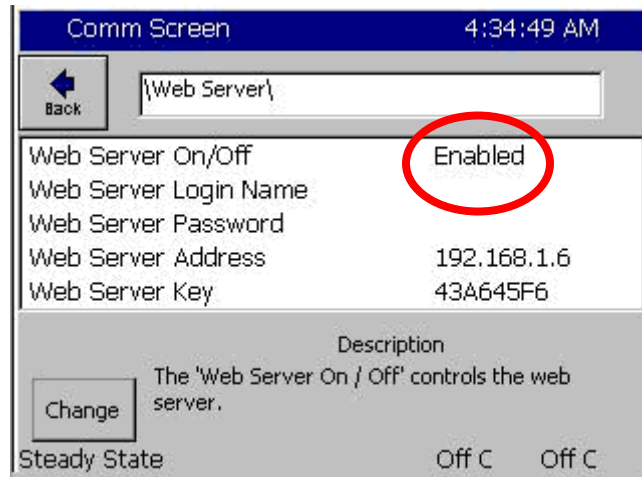


- Disconnect the Ethernet cable from your computer and connect it to our Synergy Controller
- If the WNCE2001 router was moved, plug the power transformer's DC plug back into the NETGEAR WINCE2001 and plug the transformer into a local electrical outlet.
 - Press the COMM button on the controller and open the Ethernet folder. Select the *IP Address Selection* method and confirm the Ethernet Address (aka IP address) and the other Ethernet settings. Note that it may be necessary, when going from Static to DHCP addressing, to leave the screen using the *Back* button and return or cycle power on the controller.



Note: For more information regarding WebTouch Remote™ and the Synergy Controller's networking features see the Technical Manual.

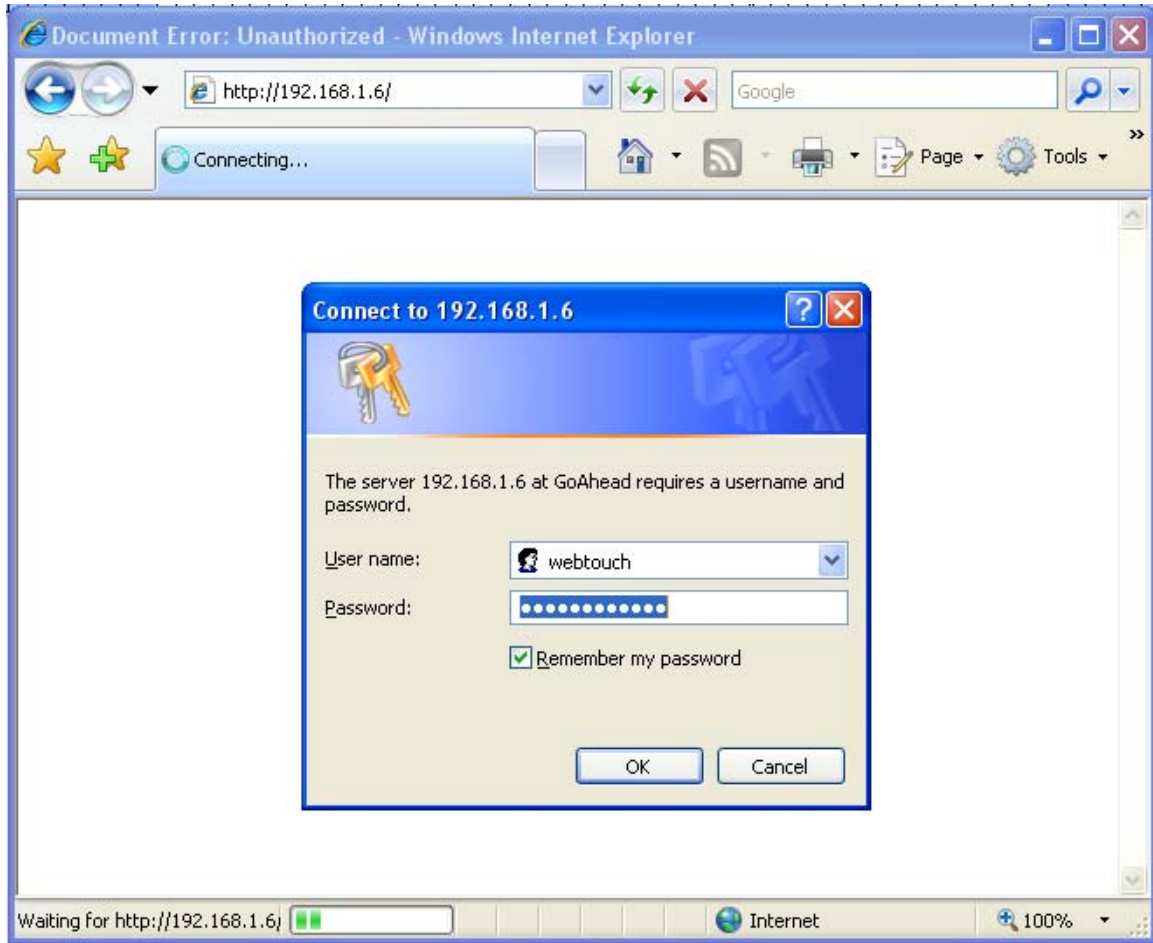
12. Press the COMM button on the controller and open the Web server folder. (Note that a WebTouch Remote™ Registration Key will be required for this). Enable the Web server.



13. Type the IP address (Web Server Address) in the address box of your browser as shown below.

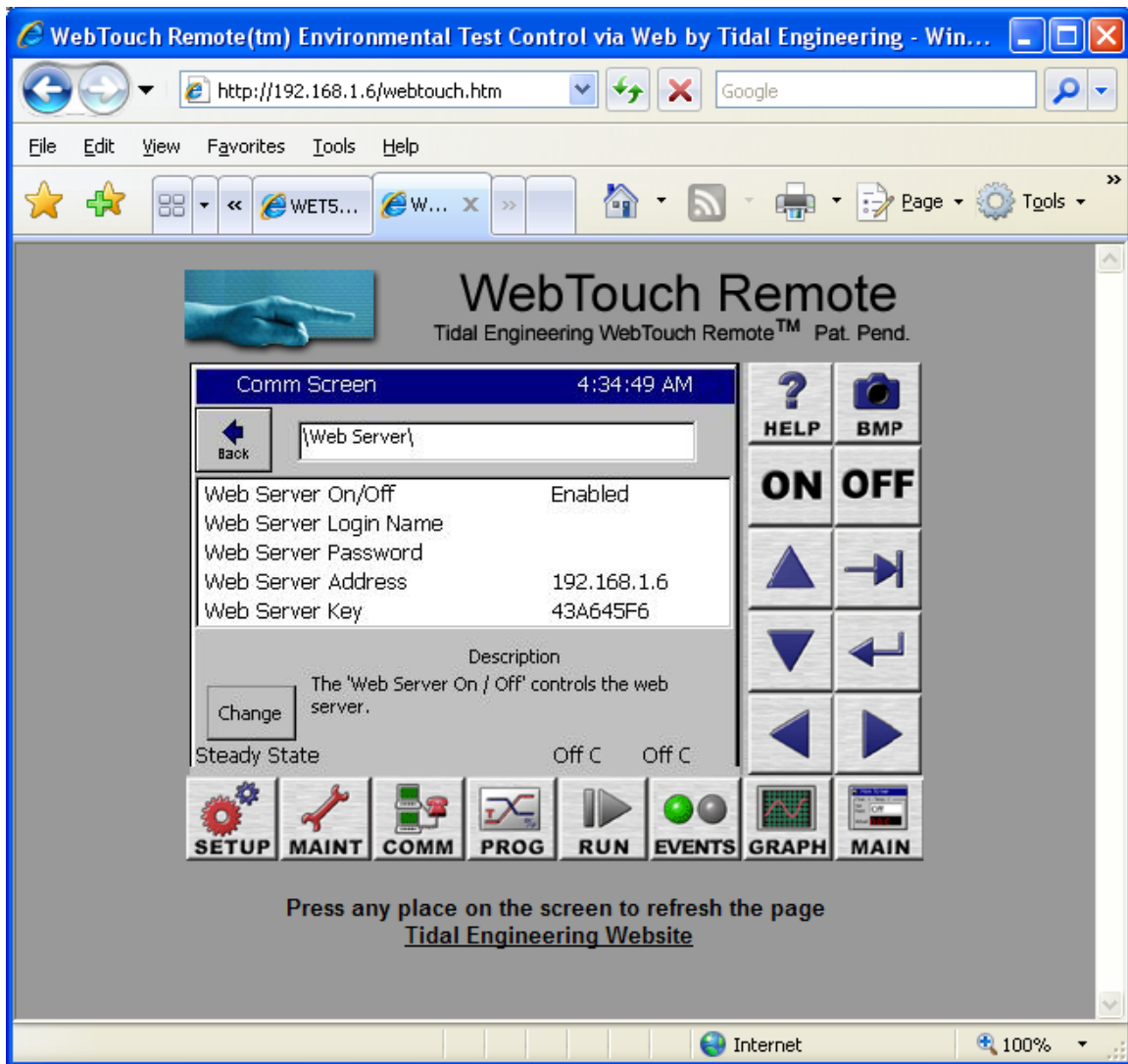


14. Then enter the *User name* and *Password*.

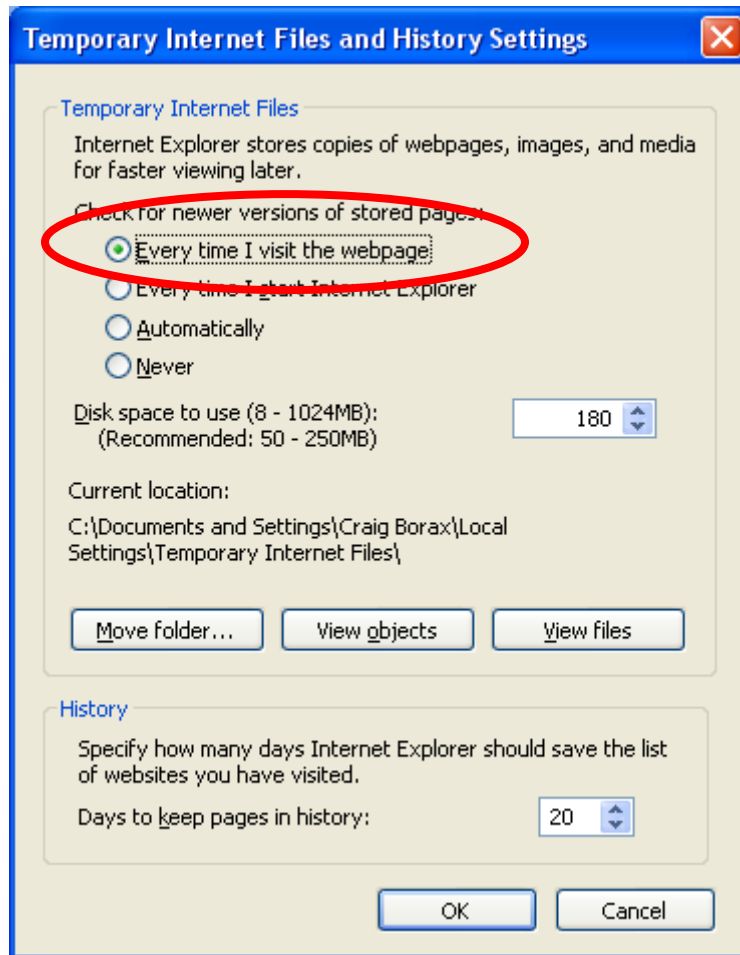


Note that the default username and password are WebTouch and Williamsport.

15. The WebTouch Remote™ interface will open in the browser as shown below. From this interface you can operate the touch screen.



Note that an adjustment to the Internet Explorer settings is required. Verify that *Check for newer version of stored page Every time I visit the webpage* is selected in the Temporary Internet Files and History Settings option of the Internet Explorer settings as shown below. See the technical manual for more details concerning the WebTouch Remote™.

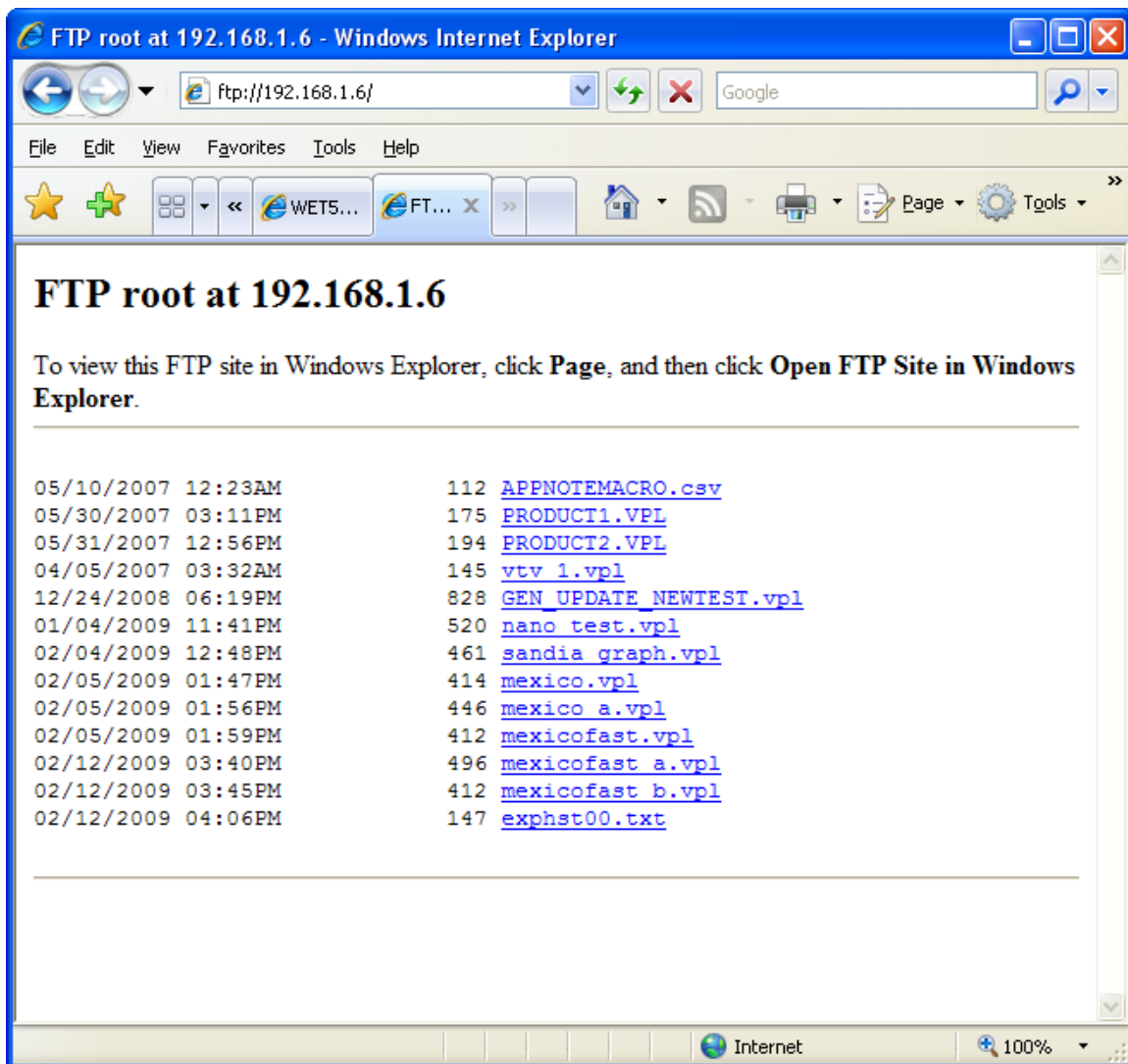


The WebTouch Remote™ web server, FTP and Telnet servers are available over the network. Note that not all versions of the Synergy Controller offer an FTP server option.

With the FTP server, you can drag and drop profiles and Macro files to and from the controller. You can also retrieve the history log file from the controller.

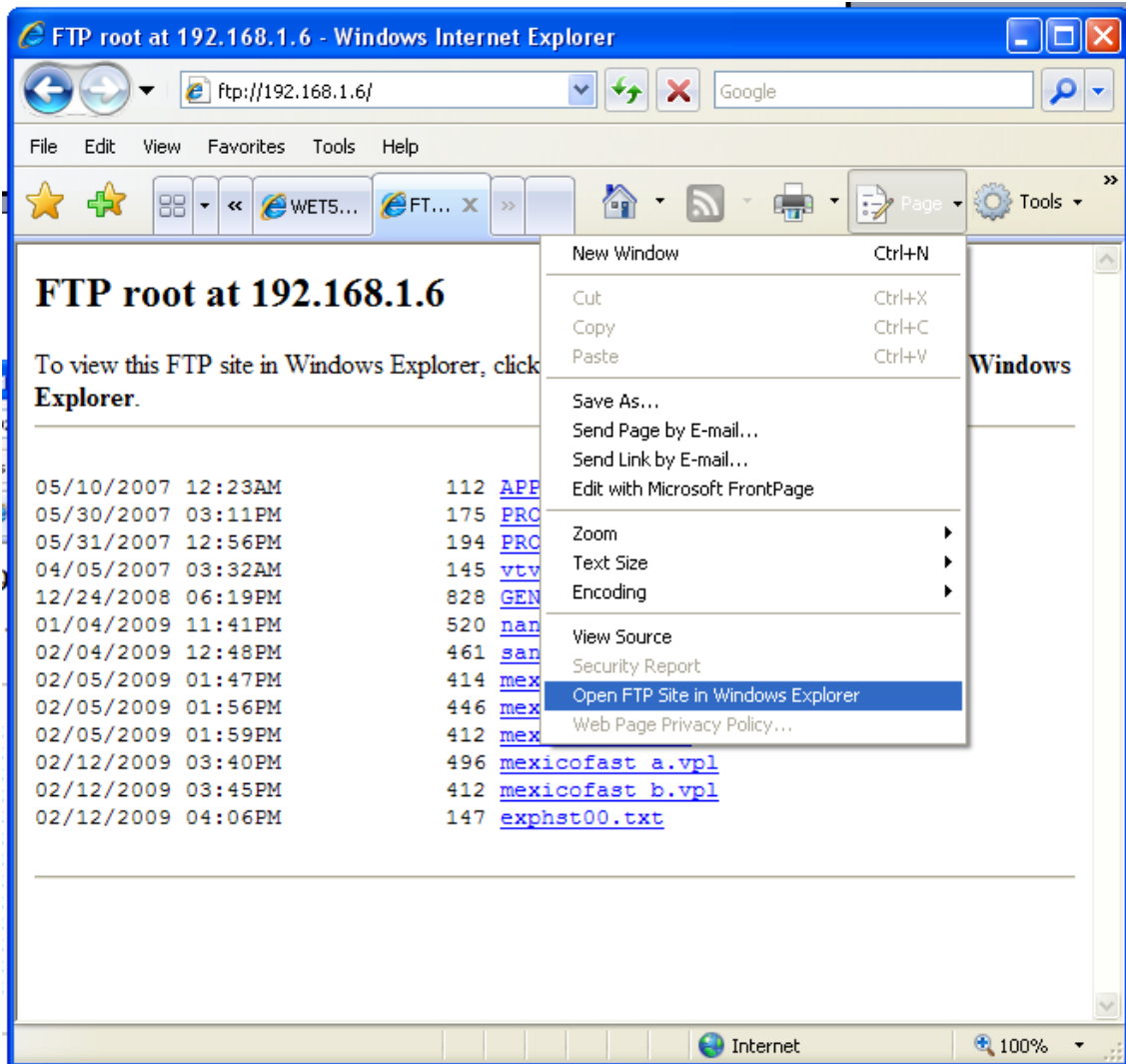
To access the FTP server using your web browser, change the address in the address box from <http://192.168...> to <ftp://192.168> (use the IP address appropriate for your network and controller). The controller file contents are displayed in the browser window as shown below.

The use and application of the Synergy Controller's FTP server is explained in Synergy Controller FTP server application note (App note 45)

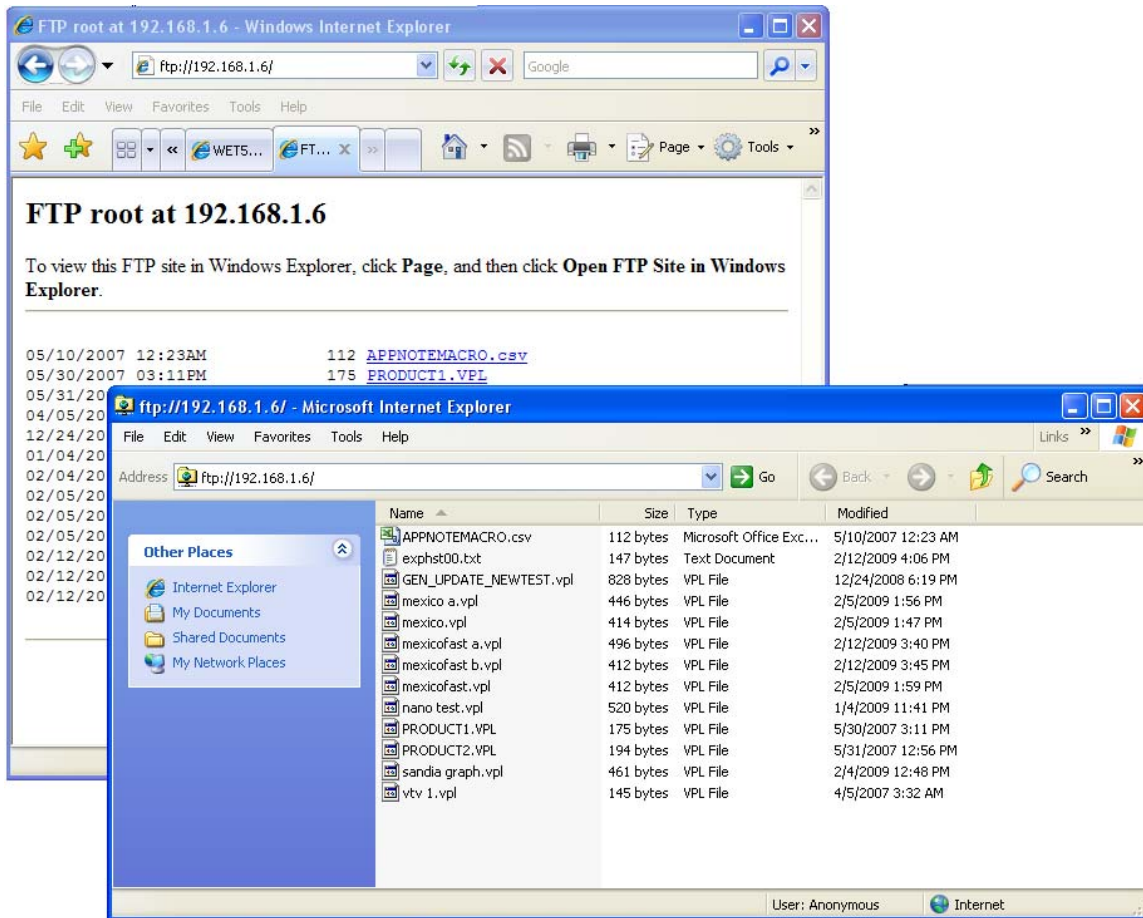


Windows Explorer can be used to “drag and drop” files to and from the Synergy Controller’s FTP server.

To open the FTP site in Windows Explorer, drop down the Page Menu and click the “Open FTP Site in Windows Explorer” in Windows Explorer: selection as shown below.



The Windows Explorer view will open. Now you can drag and drop profiles and Macro files to and from the controller. You can also copy the history file from the controller. You export the history database to the FTP directory using the COPYHISTTOFTP as explained in the Synergy Controller FTP server application note (App note 45)



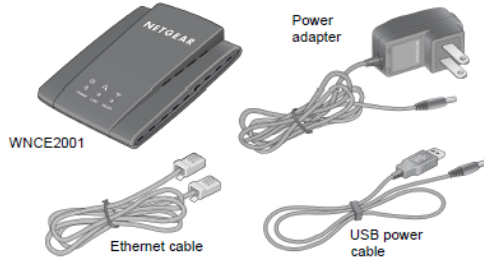
APPENDIX A NETGEAR WNCE2001 Setup Guide



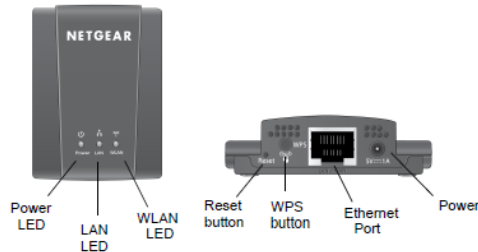
Installation Guide

Universal WiFi Internet Adapter (WNCE2001)

Package Contents



Top and Back Views



What is WPS? WPS (WiFi Protected Setup) is a simple and secured way to connect a device to an existing network.

If you have a NETGEAR router, this feature is called Push 'N' Connect. Look for the or symbols on the router to make sure the NETGEAR router supports WPS. For non-NETGEAR routers, please refer to the user manual to determine if the router supports WPS. Once you know whether your router supports WPS, choose the appropriate installation method below.

Installation with WPS

Step 1: Connect the WNCE2001 to your TV, Xbox, or Blu-ray player using the Ethernet cable (included) and one of the power connection options. For more information on power-up methods, see "Power Connection Options" on the reverse side.



Step 2: Wait until the Power LED on the WNCE2001 is solid green. Push the WPS button on the WNCE2001. The WLAN LED will blink amber and green, showing that the WPS is running.



Step 3: Push the WPS button on your router. The WLAN LED on the WNCE2001 will stay green for 5 seconds when the wireless connection has been established.



Step 4: Congratulations! Your installation is complete.

Installation without WPS

Step 1: Please disconnect any wireless connection to the router and/or remove the Ethernet cable currently connected to the computer. You may restore the connection after the WNCE2001 installation is complete.

Step 2: Connect the WNCE2001 to your computer, using the Ethernet cable (included) and one of the power connection options. For more information on power-up methods, see "Power Connection Options" on the reverse side.



Step 3: Wait until both the Power and LAN LEDs are solid green. Make sure the computer gets the IP address. Then, open your Internet browser and it will automatically take you to the setup page. Follow the instructions on the setup page, then return to this guide and continue to **Step 4**.

Step 4: Disconnect the Ethernet and USB cables from your computer.

Step 5: Connect the WNCE2001 to your TV, Box, or Blu-ray player. If your device doesn't have a USB port, see "Power Connection Options" on the reverse side.



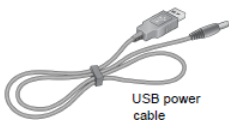
Step 6: Congratulations! Your installation is complete.

NOTE: Make sure you go through the connection settings on your TV, Xbox, or Blu-ray player after the WNCE2001 is configured and connected. If asked for the type of connection, make sure **WIRED** is selected.

Power Connection Options

You can power on your WNCE2001 using **either** of these methods:

- Connect the WNCE2001 to a wall outlet with the included power adapter.



NOTE: Depending on the cable that you received in the box, you may or may not need a plug converter to connect the WNCE2001 to the power adapter or the USB cable. If it is needed, the plug converter is included in the box.



FAQ

1. Which power connection options should I choose?

Many consumer electronics devices have Ethernet and USB ports in close proximity. Using the USB power cable option allows you to free up one power outlet that can be used for something else. Even if the device to which you connect the WNCE2001 does not have a free USB port, as long as there is a free USB port on a neighboring device within cable length of the WNCE2001, and that device can be turned on when you use the WNCE2001, you can plug the USB power cable into the neighboring device. Note that some USB ports on consumer electronic devices may not be capable of providing the power that the WNCE2001 requires. In such cases, the WNCE2001 may reset itself or turn itself off. When this happens, please use the WNCE2001 power adapter when powering up the WNCE2001.

2. When setting up the WNCE2001 without using WPS, does the computer have to be on DHCP for the installation to work?
Yes.
3. I tried to install without WPS, but when I launched my browser, I got an error page. What can I do?

Make sure that your Ethernet cable is fully seated between the WNCE2001 and the computer, and that the WNCE2001 LAN LED is on. If not, re-connect the Ethernet cable, and re-launch your Internet browser.

4. Why am I getting the error "Connection was not established to the selected network."?

There are a few reasons for this. First, you may have entered the incorrect network name or key. Make sure it is typed in correctly by clicking **Cancel** and re-typing the name and key. Second, the router may have stopped broadcasting. Make sure the router that is broadcasting your wireless network is still turned on and there is a clear line of sight between the WNCE2001 and the router. If possible, move the WNCE2001 closer to the router and click **Try Again**. If after repeated attempts to connect, you are still seeing this message, you may need to upgrade your router to one that provides greater wireless range, or purchase a Range Extender to extend its wireless range.

5. What should the LED colors be when the WNCE2001 is set up correctly?
The Power and LAN LEDs should remain solid green. The WLAN LED should remain solid green or amber.

6. What should I do if the WLAN LED is red?

The best connection is established when there is a clear line of sight between the WNCE2001 and the router you are connecting to. Make sure there are no physical obstacles between the WNCE2001 and the router, and try to move the WNCE2001 closer to the router.

7. Why is the Power LED solid red?

It is likely that the USB port you are connected to does not provide enough power for the WNCE2001. Please see Question 1 for more details and immediately switch the power supply to the included power adapter.

8. How do I change the settings after the WNCE2001 is set up initially?

Follow the instructions in the "Installation without WPS" section. As you enter <http://www.mywifext.net>, you may further configure advanced settings.

9. My device resets itself intermittently. What should I do?

Please refer to Question 1.

Extender LED Activity

Power LED Activity	
OFF	Unit is not powered.
Solid Red	Power source does not provide enough power.
Solid/Blinking Amber	Unit is busy.
Solid Green	Unit is powered on.
LAN LED Activity	
ON	Ethernet cable is plugged in.
OFF	No Ethernet cable is attached.
WLAN LED Activity	
OFF	No wireless connection.
Red	Connection to router is poor.
Amber	Connection to router is good.
Green	Connection to router is excellent.

© 2010 by NETGEAR, Inc. All rights reserved. NETGEAR and the NETGEAR logo are registered trademarks of NETGEAR, Inc. in the United States and/or other countries. Other brand and product names are trademarks or registered trademarks of their respective holders. Information is subject to change without notice.



201-12236-04



July 2010

APPENDIX B Linksys WET54G Setup



Connect the Wireless-G Ethernet Bridge for Setup

1. Screw the detachable antenna to the bridge.
2. Plug the included Ethernet network cable into the LAN port on the back of the Bridge.



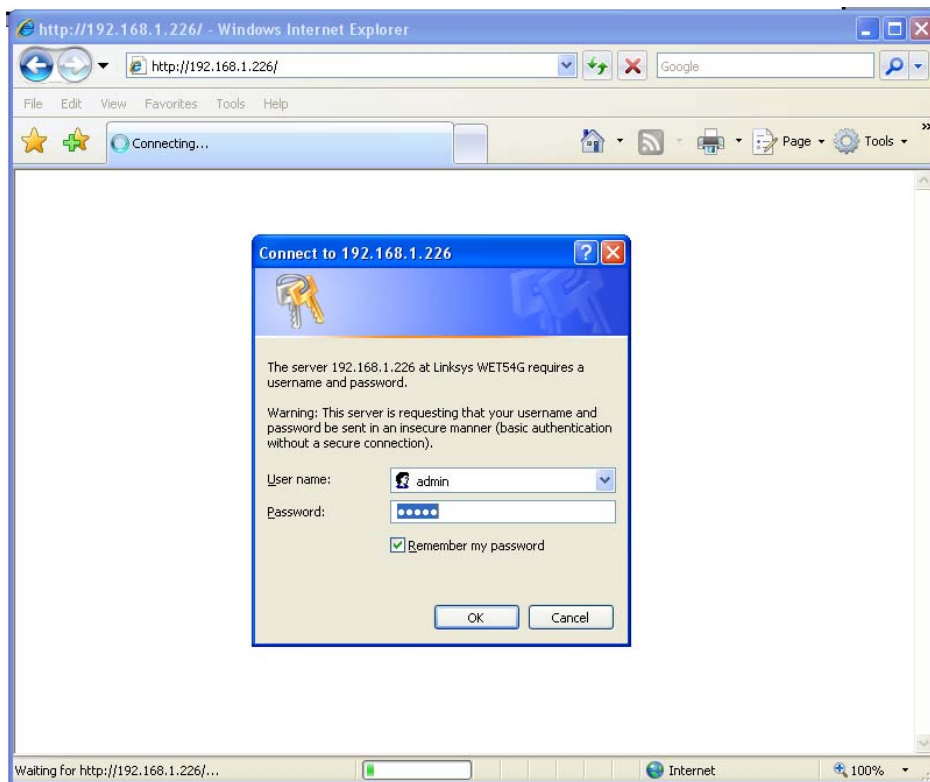
3. Plug the other end of the Ethernet network cable into the RJ-45 port of a hub, switch, or PC you wish to use to configure the Bridge.
4. Plug the supplied power adapter into the Power port on the back of the Bridge. Then plug the other end into an electrical outlet



Set up the Wireless-G Ethernet Bridge

1. Open Windows Internet Explorer on your PC and type in the default IP address of the WET54G's web server, 192.168.1.226 as shown below.

Note that a PC with an IP address compatible with (on the same subnet) 192.168.1.226 and an appropriately configured network is required to setup the WET54G. Alternatively, a laptop can be used with a direct connection to the bridge.

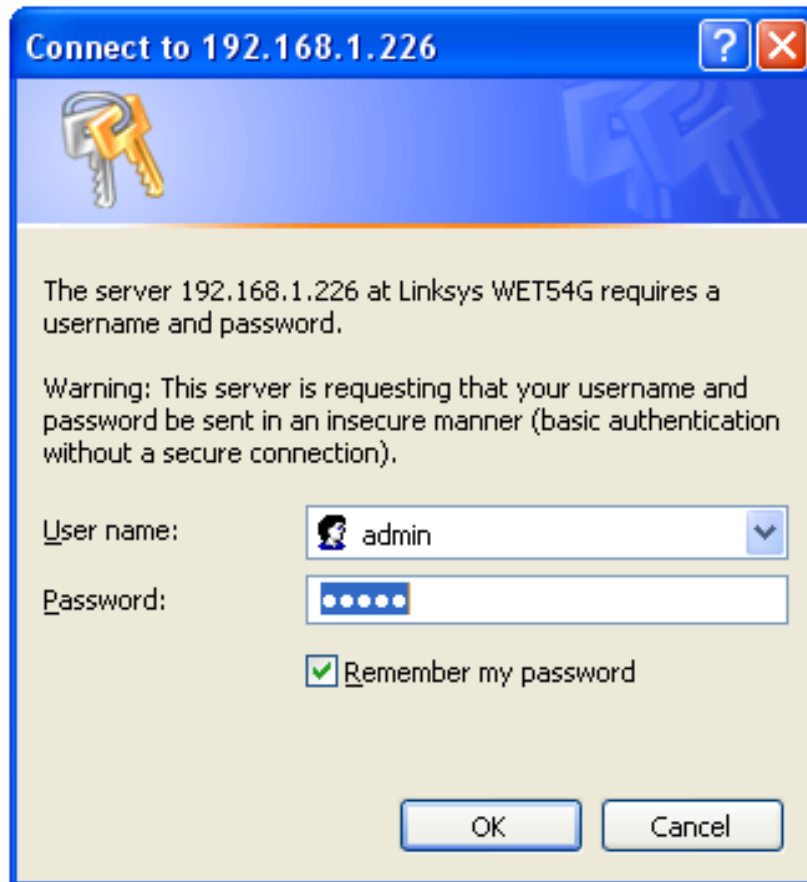


2. Enter the User name and Password and press *Enter*.

User name = admin

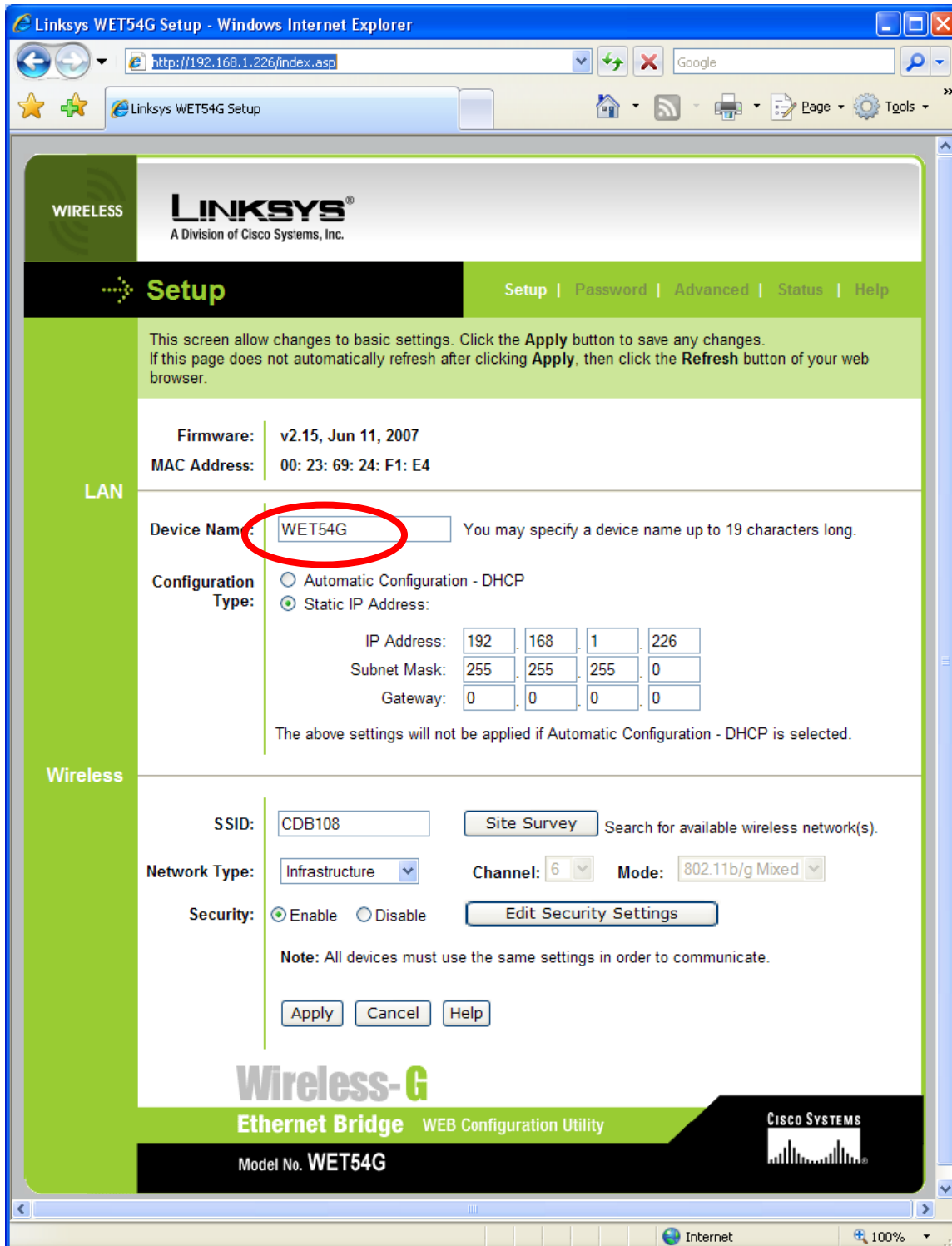
Password = admin

(Note that the Linksys technical manual doesn't mention the User name but it must be set to "admin")

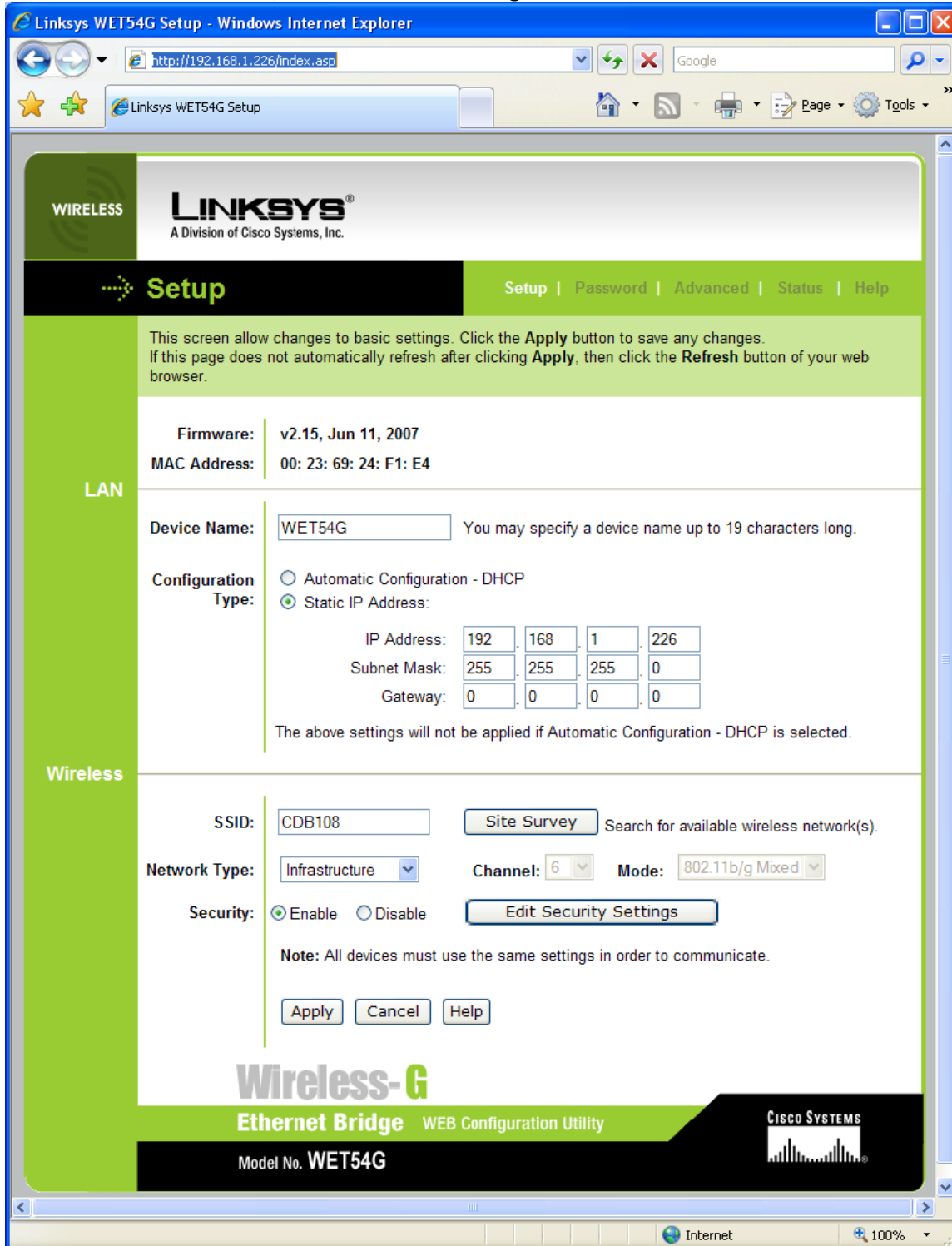


The WET54G Setup Web page will open as shown below.

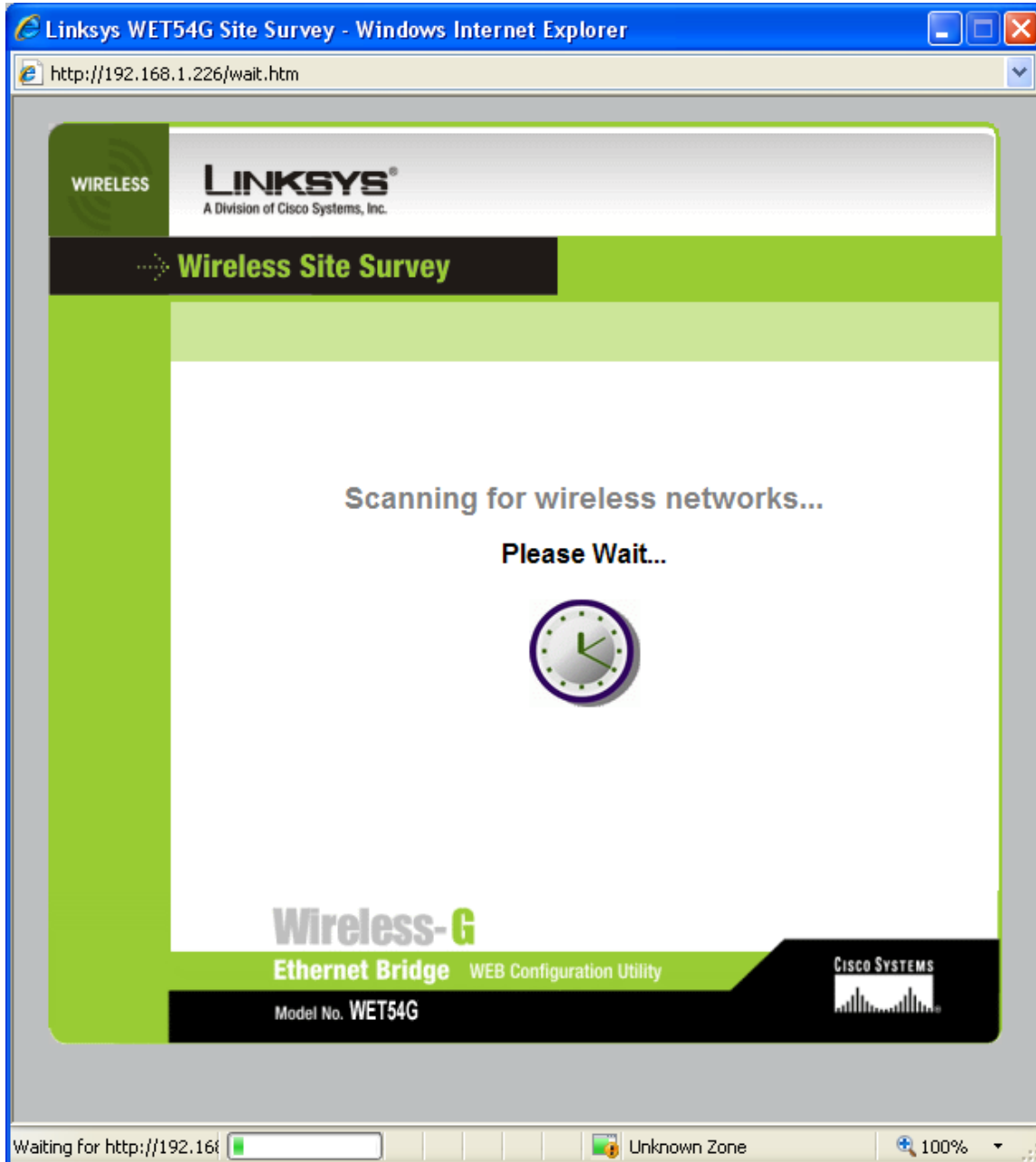
3. In the *Device Name* field, enter a unique name for the Bridge.



Select Automatic Configuration -DHCP or Static IP Address as required by your network configuration. Your network administrator should be able to help with this if you have any questions. Normally if your network has a DHCP server, select Automatic Configuration -DHCP.



4. Use the Site Survey button and the Scanning for wireless networks page will appear as shown below. Then a list of Wireless Networks will appear.



5. Click on the network that you want to join and click *Close*.

LINKSYS
A Division of Cisco Systems, Inc.

Site Survey

This page displays information about all wireless devices detected by the Bridge.

SSID	MAC Address	Channel	Signal Strength (%)	Mode
Belkin N	00-11-50-f7-41-af	6	45%	11G, Infra., Secure
CDB108	00-0f-b5-e7-10-da	11	100%	11G, Infra., Secure
Hallstone	00-1d-7e-db-ed-8e	1	45%	11G, Infra., Secure
OMJX2	00-1f-90-f1-1b-b2	11	15%	11G, Infra., Secure
linksys	00-21-29-d3-b6-d7	11	15%	11G, Infra.,
natashaishni	00-18-f8-5d-2a-13	4	45%	11G, Infra., Secure

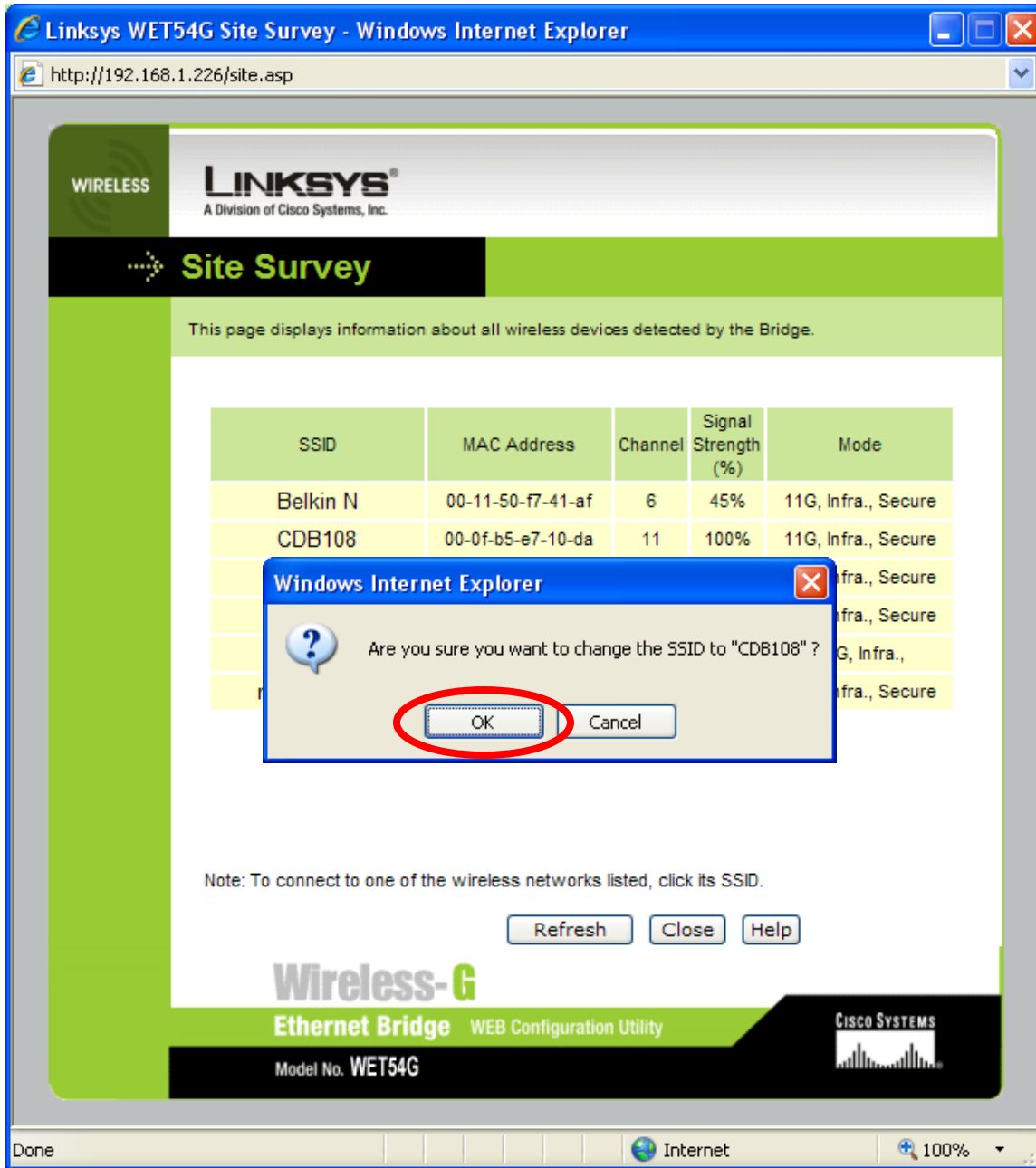
Note: To connect to one of the wireless networks listed, click its SSID.

Refresh Close Help

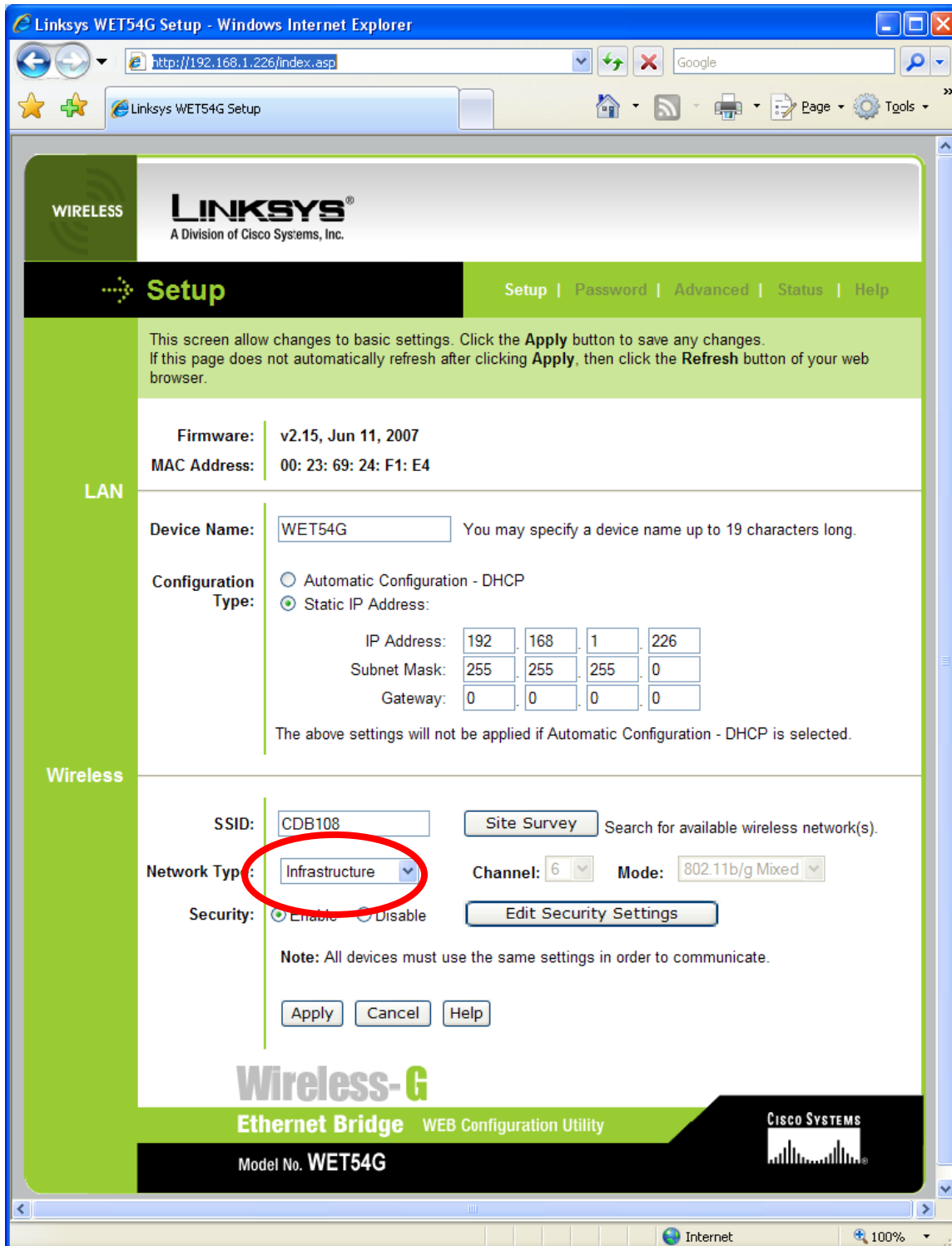
Wireless-G
Ethernet Bridge WEB Configuration Utility
Model No. WET54G

CISCO SYSTEMS

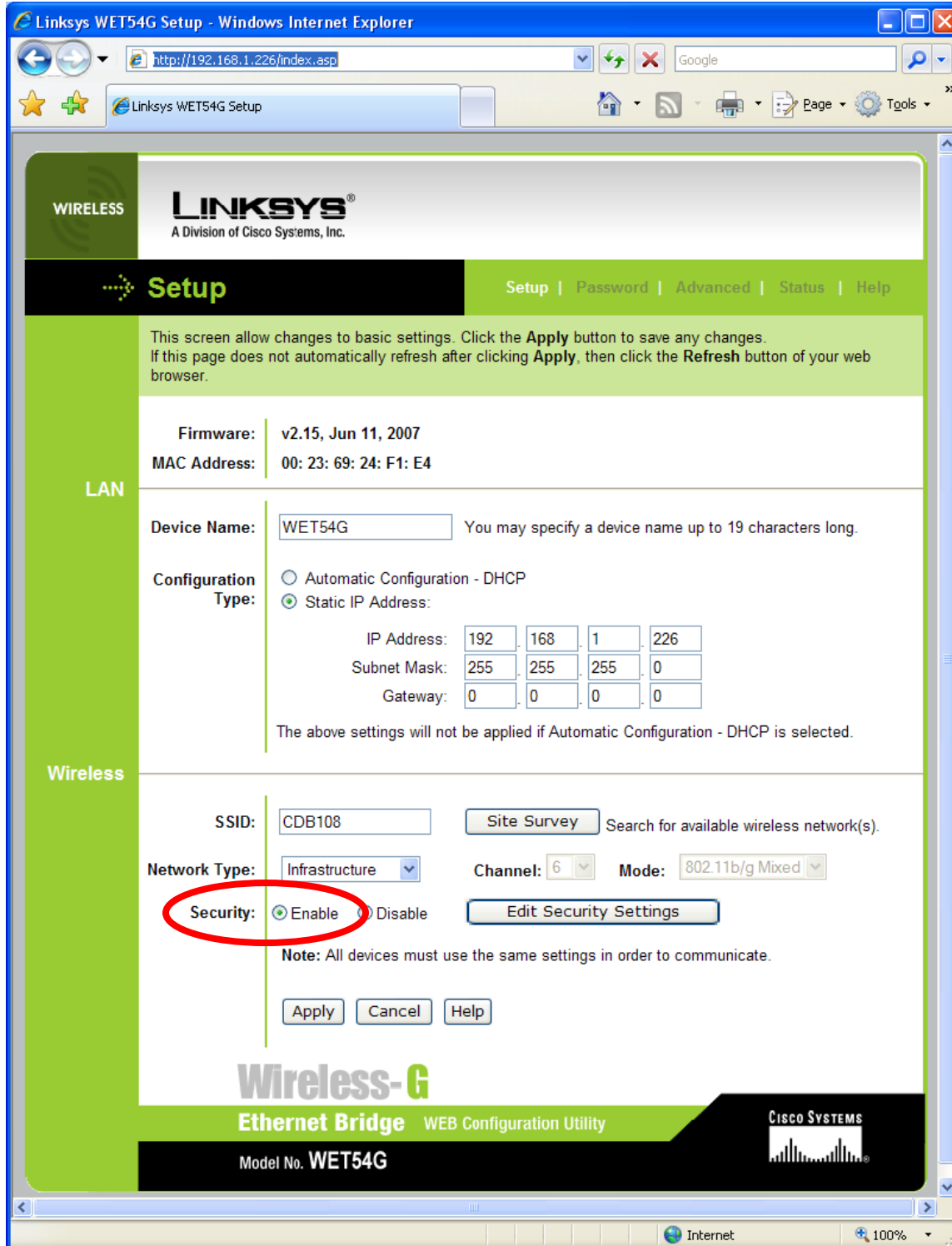
6. Click OK when prompted “Are you sure you want to change the SSID to the “XXXXXX”



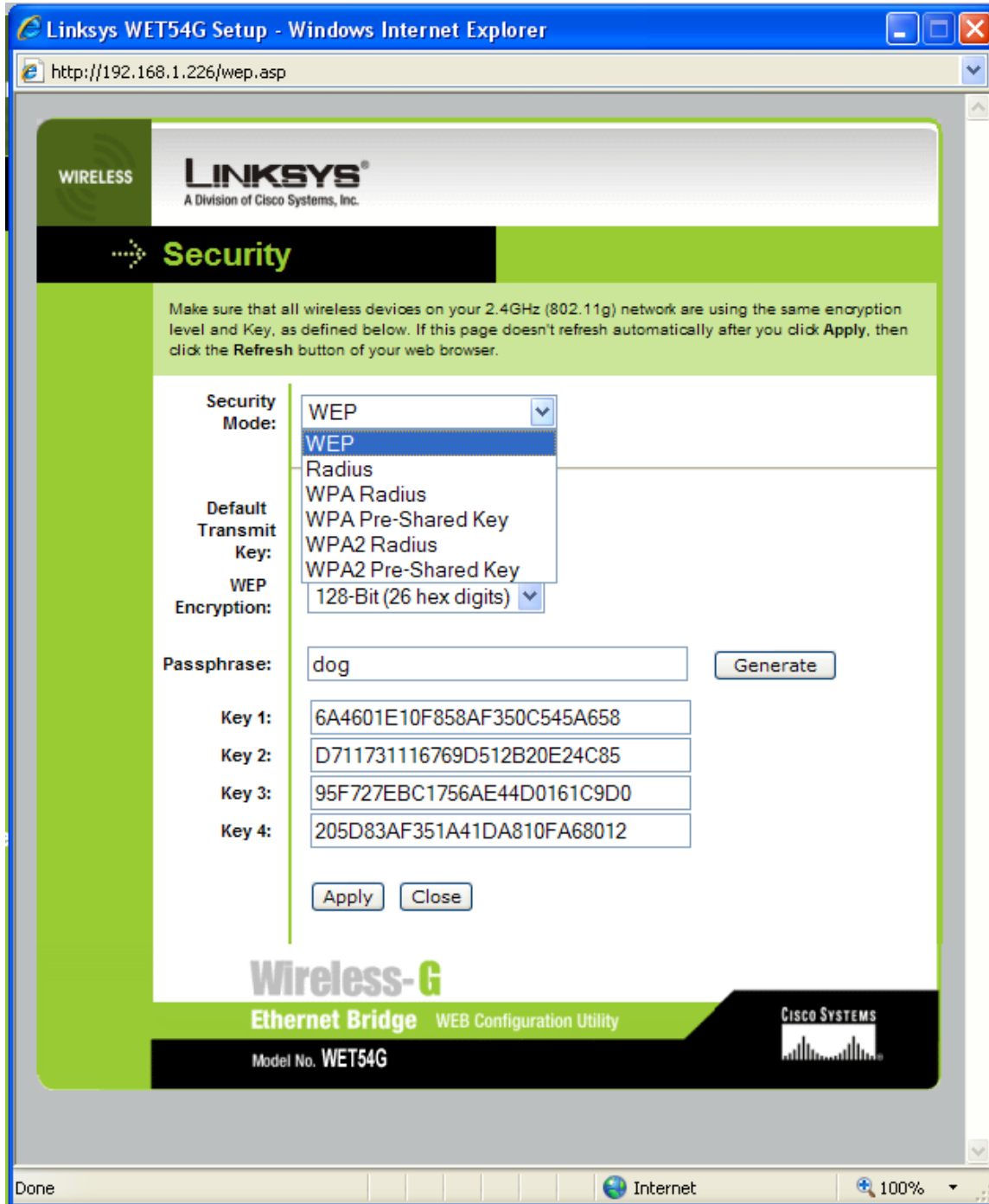
7. Select Infrastructure form the *Network Type* field. (This assumes you want to connect to a wireless access point. For other applications, consult the Linksys documentation.)



8. Determine if Security is enable on your wireless network. If it is secure, select the *Security: Enable* radio button and then click the *Edit Security Settings* button. (Note: Wireless security is recommended.)

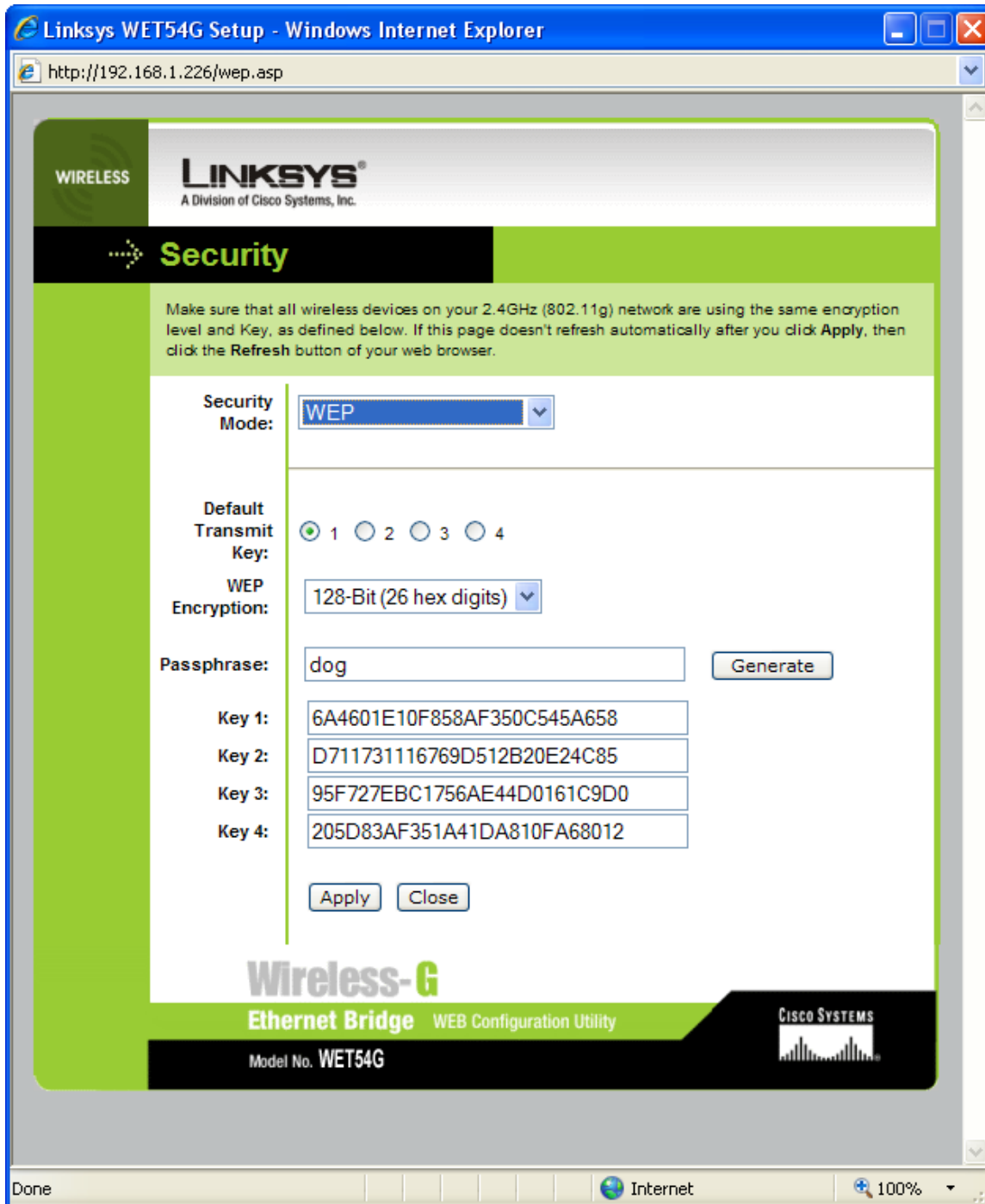


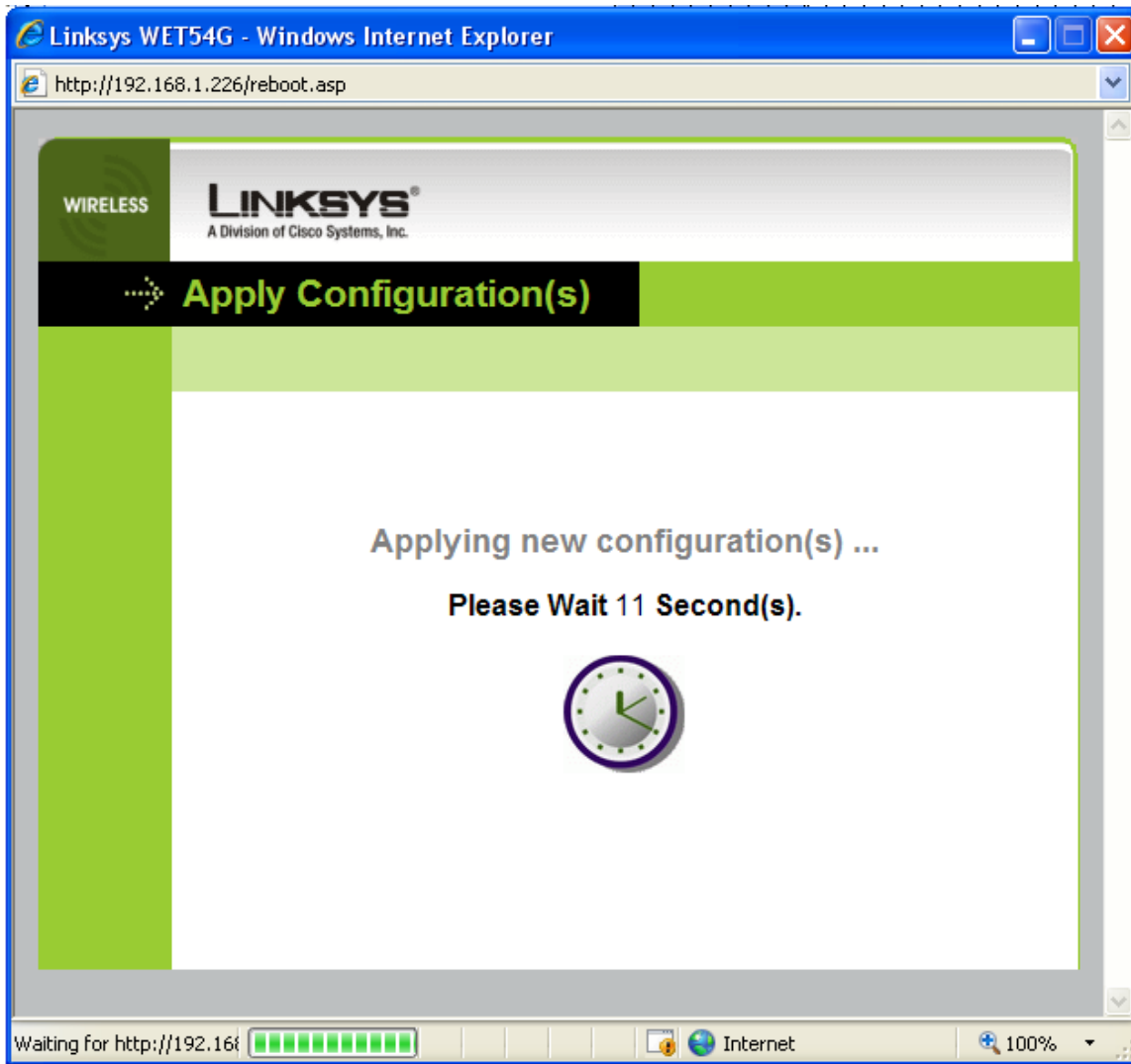
9. Select the *Security Mode* from the list to match your wireless network as shown below.



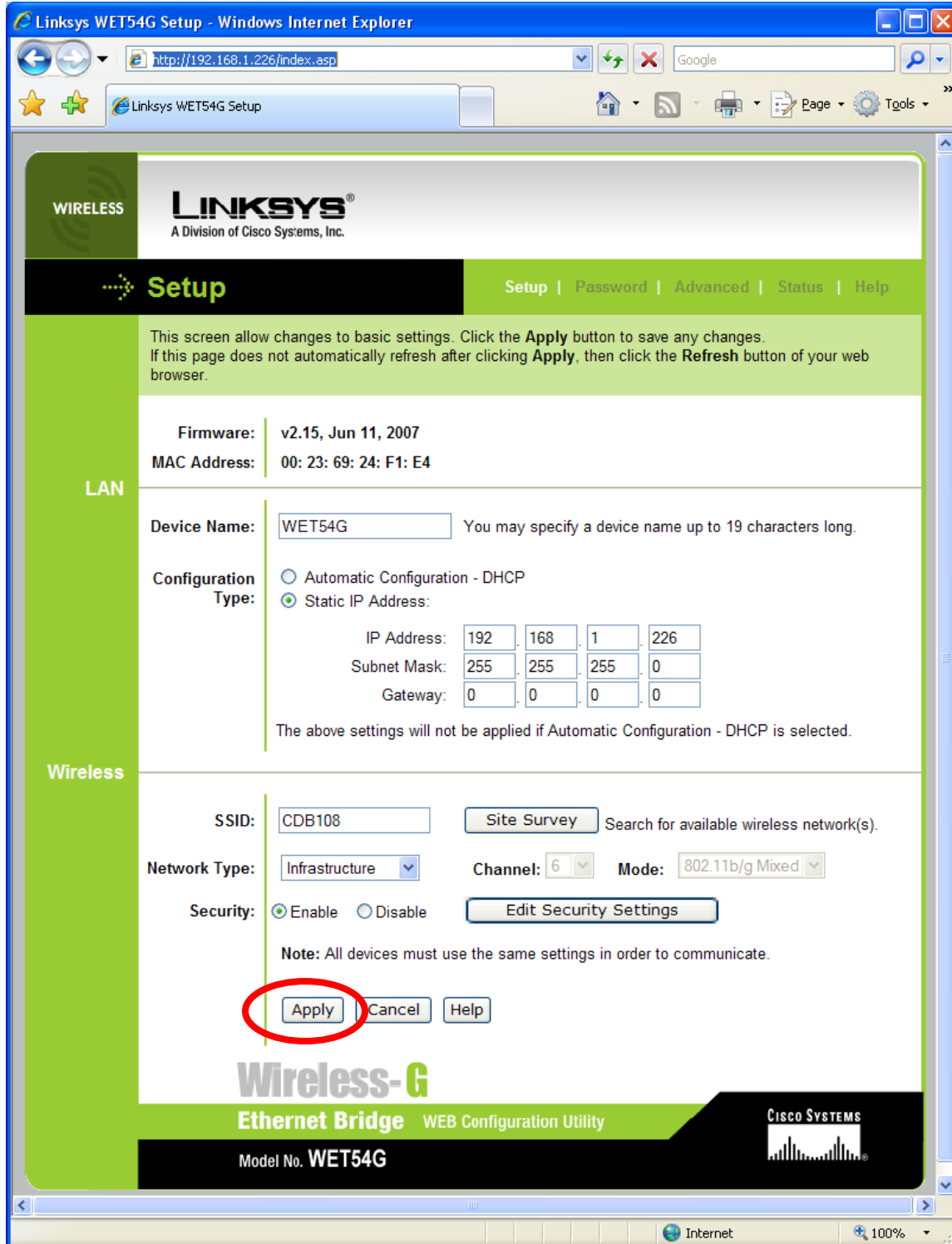
10. Enter the security key or enter a Passphrase and click *Generate*. Then click *Apply* and the Applying new configurations screen will appear as shown below.

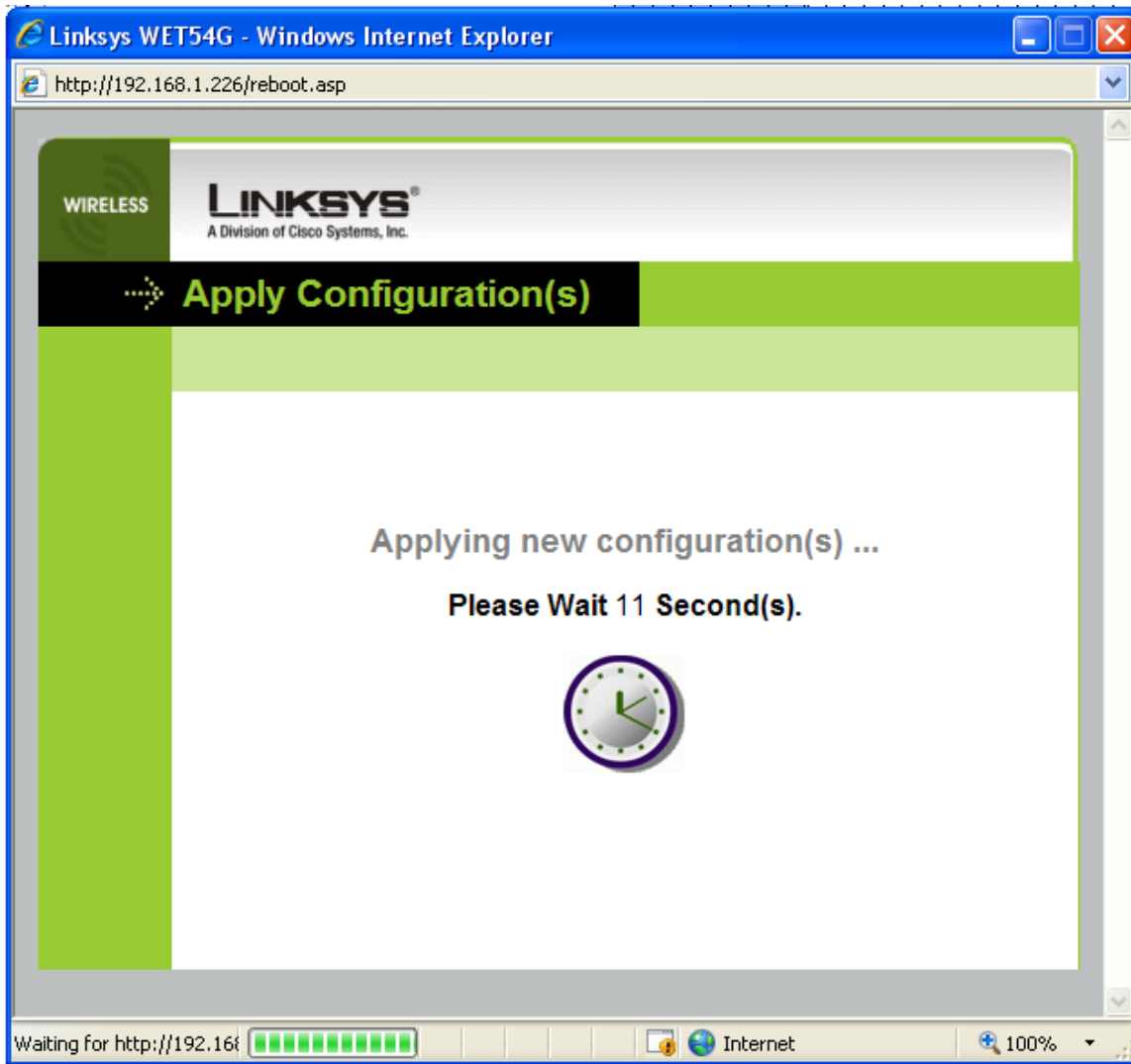
(Note that all wireless device manufacturers don't use the same Passphrase algorithm to generate wireless keys so check the actual generated key against your network key when using the Passphrase feature to generate your key)





11. Then *Setup* screen will load. Check the settings and adjust as necessary or click *Apply*. The *Applying new configurations* screen will appear as shown below.





Linksys WET54G Specifications



Parameter	Specification
Model	WET54G v.3
Standards	IEEE 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u
Ports	One 10/100 Auto-Cross Over Port, Power Port
Buttons	Reset Button
Cabling Type	Category 5 or better
LEDs	Power, Ethernet, Wireless-G
Transmit Power	16 ± 1 dBm @ 11Mbps CCK12 ± 1 dBm @ 54Mbps OFDM
Security Feature	WEP Encryption, WPA, RADIUS, WEP Key Bits 64/128-bit
Protocols	802.11b: CCK (11Mbps), CCK (5.5Mbps) DQPSK (2Mbps) DBPSK (1Mbps) 802.11g: OFDM (54Mbps)
Dimensions	4.96" x 1.06" x 4.21" (126 mm x 27 mm x 107 mm)
Unit Weight	8.50 oz. (0.24 kg)
Power	5V DC
Certifications	FCC, CE
Operating Temp.	32°F to 104°F (0°C to 40°C)
Storage Temp	-4°F to 158°F (-20°C to 70°C)
Operating Humidity	10% to 85%, Non-Condensing
Storage Humidity	5% to 90%, Non-Condensing
Warranty	3 Year Limited
	http://www.linksys.com or

About the Synergy Controller Family

Tidal Engineering's Synergy Controllers, both the Synergy Micro 2 and the ¼ DIN Synergy Nano provide state-of-the-art usability and connectivity for environmental test control and data acquisition. They combine the functions of a chamber controller and a data logger and are designed to improve test efficiency by supporting both factory automation and test and measurement protocols and standards.

Synergy Controller feature highlights includes:

- ➔ Color touch screen
- ➔ Ethernet, RS-232 and GPIB communications
- ➔ Built in 100 MB Data logger with USB drive support
- ➔ Data Acquisition, up to 64 T-type thermocouples (Optional)
- ➔ Built-in Web Server for remote control; WebTouch Remote™
- ➔ Compatible with Synergy Manager for PC based control, monitoring and programming.
- ➔ Built-in FTP Server for factory automation and test and measurement applications

For more information regarding these controllers please see the full Synergy Controller Technical Manual on our website at <http://www.tidaleng.com/synergy.htm>

About Tidal Engineering

Headquartered in Randolph, NJ, Tidal Engineering Corporation has been designing and building award-winning embedded hardware and software for test and measurement and data acquisition applications since 1992. The company is recognized for technical expertise in such areas as Embedded IEEE 488, and turnkey SCADA (Supervisory Control and Data Acquisition) systems.

Tidal Engineering Corporation
2 Emery Avenue
Randolph, NJ 07869
Tel: 973/328-1173
Fax: 973/328-2302
www.TidalEng.com
info@tidaleng.com

