

Your AirStation's WDS bridging capability allows you to extend the size of your wireless network by adding additional AirStations, all connected wirelessly.

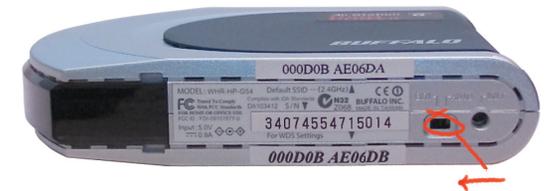
In this simple example, we'll connect two AirStations in a wireless bridge. You may use these same steps to add additional bridges for greater coverage.\*

For easiest configuration, we recommend configuring all components in close proximity before deploying them to their final positions. Wired connections make initial configuration even simpler.

The first AirStation will be the router that receives the internet connection. On the bottom of the AirStation, make sure that the switch is set to "AUTO". If desired, you may connect the Ethernet cable from your cable or DSL modem to its WAN port now, though this is not necessary for configuration. Power on the first AirStation.



The second AirStation will be configured as a repeater/bridge. Make sure that its switch is set to "BRI". Use a RJ-45 cat5 Ethernet cable to connect LAN ports of the two AirStations. Power up the second AirStation. Connect a PC's Ethernet port to another RJ-45 port on the main router (the first AirStation). You will use this PC to configure the settings of the AirStations.



Here's the whole setup, ready for initial configuration.



\* Note: Each AirStation may be part of 6 different bridges. Remember that each layer of bridges takes about half your total network speed, so avoid configuring daisy-chains more than 4 bridges long. A star-pattern is always better, with a central router serving multiple bridges.

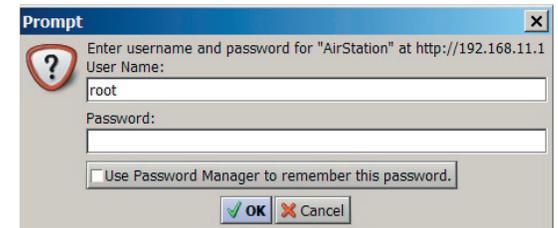
Once the AirStations are powered on, you will want to make sure that they are in factory default configuration. On the bottom of each, hold down the “INIT” button for three seconds. This will reset them to factory defaults. They will take 30-60 seconds to reboot afterwards.



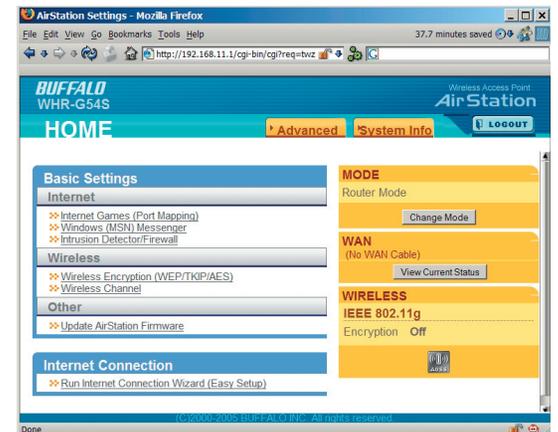
Power on your PC. Make sure that it is configured to “obtain an IP address automatically” from DHCP. Open a web browser and in the address field, enter *192.168.11.1*. This is the default IP address of your first AirStation.



A login window will pop up. The default username is “root”. Leave the password field blank and click OK.

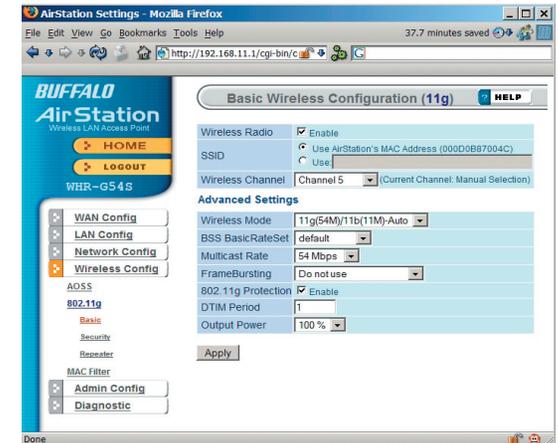


The Web-Based Configuration Utility for your first AirStation will open. Click on the *Advanced* tab.



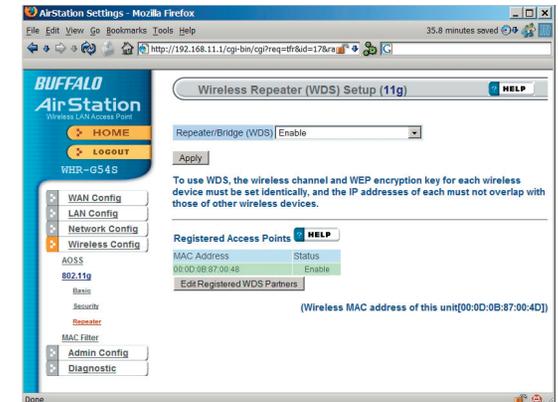
On the left side menu, click on *Wireless Config*, and then *Basic*.

Change the *Wireless Channel* from *Auto* to a channel. Make a note of the channel that you've chosen, because all of your wireless devices will need to be configured to use this same channel. Change *Framebursting* from *125 High Speed Mode* to *Framebursting* or *Do not use* (*Framebursting* is recommended if all your client devices support it). Click *Apply*. Your AirStation will reboot in 30-60 seconds. Optional: Note the *SSID* of this AirStation. By default, this value will be different for each AirStation. For easy roaming, you may want to change the SSIDs of both AirStations to a constant value.

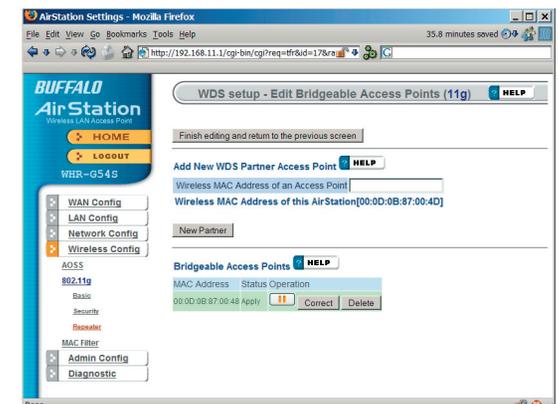
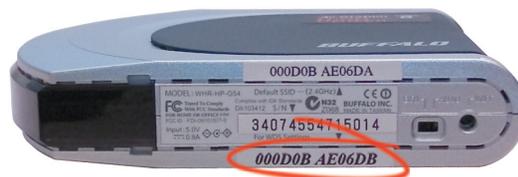


On the left-side menu, click on *Wireless Config*, and then *Repeater*.

*Repeater-Bridge (WDS)* must be set to *Enable*. If it is not, change it to *Enable* in the drop down menu and click *Apply*. After the AirStation reboots, the screen will refresh. Click *Edit Registered WDS Partners*.



Under *Add New WDS Partner Access Point*, enter the wireless MAC address of the second AirStation, the one that you want to form a bridge with. You can get this from the bottom of the second AirStation. Enter it with each pair of digits separated by a colon, e.g. 000D0B10F778 would be entered "00:0D:0B:10:F7:78". Press *New Partner* when done. The AirStation will reboot, and when the screen refreshes, the second AirStation's MAC address will be listed under *Bridgeable Access Points*.



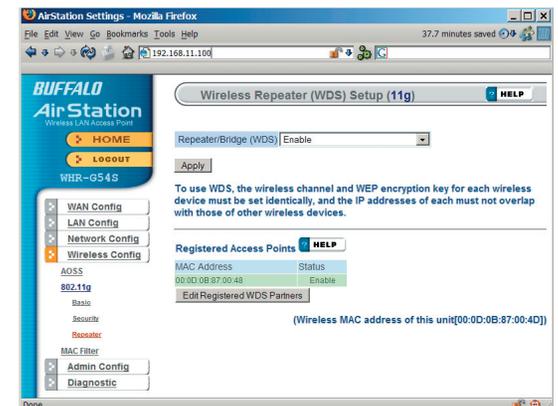
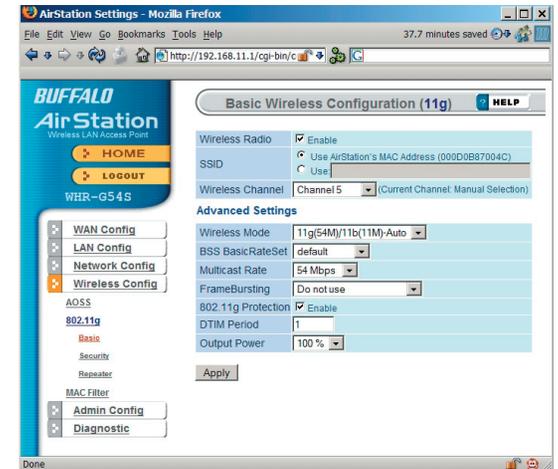
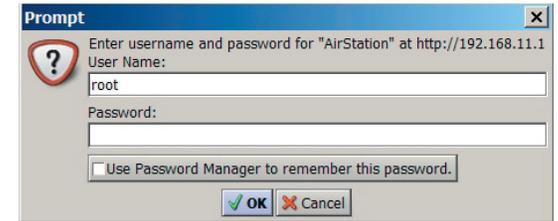
Now, you need to configure the second AirStation with the MAC address of the first one. In your browser's address field, enter "192.168.11.100". This will take you into the Web-Based Configuration Utility for the second AirStation.

Once again, the username is "root" and the password is blank.

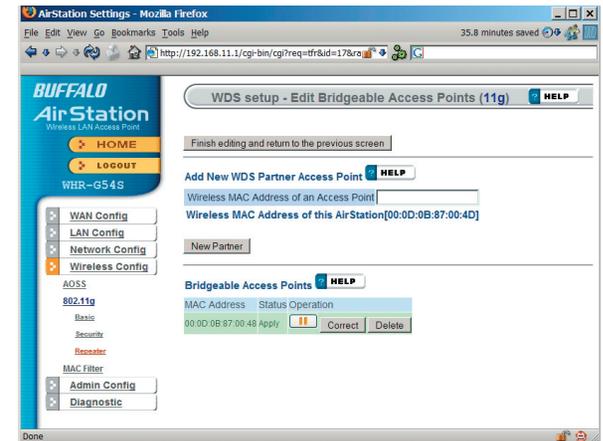
In the Web-Based Configuration Utility, click on the *Advanced* tab, select *Wireless Config*, and choose *Basic*. Change the wireless channel to match the one you set for the first AirStation. Change *Framebursting* from *125 High Speed Mode* to *Framebursting* or *Do not use* (whichever you chose for the first AirStation). For easy roaming, you may change the *SSID* to match the current SSID setting of the other AirStation. Click *Apply*. Your AirStation will reboot in 30-60 seconds.

Now, under *Wireless Config*, choose *Repeater*.

Confirm that *Repeater-Bridge (WDS)* is set to *Enable*. Click *Edit Registered WDS Partners*.

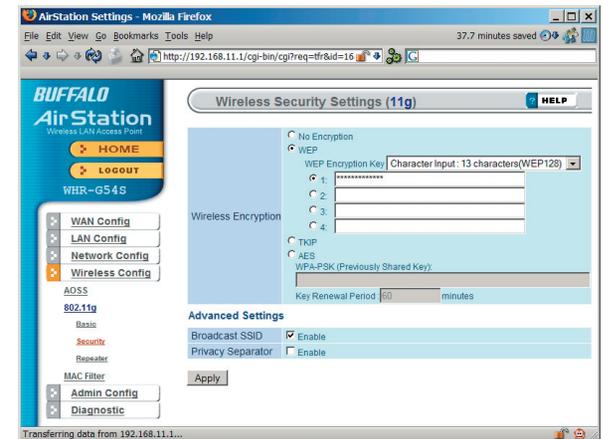


Under *Add New WDS Partner Access Point*, enter the wireless MAC address of the first AirStation (available from the bottom of the first AirStation), with each pair of digits separated by a colon, e.g. MAC:000D0B10F779 would be entered 00:0D:0B:10:F7:79. Click *New Partner* when done. The AirStation will reboot, and when the screen refreshes, the first AirStation's MAC address will be listed under *Bridgeable Access Points*.



The two AirStations are now linked by a wireless bridge. Unplug all the network cables and test the bridge by logging into each of the access points with a wireless client. You should be able to connect to either of the access points from Windows Wireless Network connection, getting an IP address assigned to your client with no error messages. You should also be able to log into both of their Web-Based Configuration Utilities by entering their IP addresses into a web browser (192.168.11.1 for the main access point; 192.168.11.100 for the bridged access point). If the first AirStation is connected to the internet, you should be able to connect to the second AirStation and surf the web.

Once you can connect to each of your access points, you should configure WEP encryption. Without WEP, anyone within range of your access points can easily connect to your network. From within the second AirStation's Web-Based Configuration Utility (192.168.11.100), click on *Advanced*, then *Wireless Config*, then *Security*. Note that you must set up WEP on the bridge (second AirStation) first, before configuring it on the main router (first AirStation), or you will have to reconnect the network cables to finish configuration.



Change wireless encryption from “no encryption” to “WEP”. Note that TKIP and AES encryption schemes will not work with WDS; you must use WEP for encryption. WEP keys may be any of 4 different types; choose one of the following types from the drop-down “WEP Encryption Key” box:

*Character Input - 13 characters* (ASCII WEP128 104 bit, key should contain 13 alphanumeric characters a-z, A-Z, 0-9)

*Character Input - 5 characters* (ASCII WEP64 40 bit, key should contain 5 alphanumeric characters a-z, A-Z, 0-9)

*Hexadecimal Input - 26 digits* (Hex WEP128 104 bit, key should contain 26 characters A-F, 0-9)

*Hexadecimal Input - 10 digits* (Hex WEP64 40 bit, key should contain 10 characters A-F, 0-9)

Enter at least one encryption key in the first encryption key space. The key should match the format of the chosen WEP encryption type. Additional keys may be entered in boxes 2, 3, and 4.

Click *Apply* when finished!

After configuring the bridge (the second AirStation) for WEP, log into the first AirStation’s Web-Based Configuration Utility (192.168.11.1) and make exactly the same changes to the WEP settings. All WEP configuration settings must be exactly the same, or the AirStations will not be able to communicate.

Each wireless client that will connect to the AirStations must also be configured with the exact same WEP encryption key type and encryption key. Consult your wireless client’s documentation for more information on configuring its WEP settings.

### **Troubleshooting:**

Most problems with setting up WDS are caused by incorrectly entering the MAC addresses into each AirStation’s Web-Based Configuration Utility. If you’re having problems, check the MAC address settings in both AirStations’s Web-Based Configuration Utilities. Each Airstation should be configured to be in a bridge with the other’s wireless MAC address.

Confirm that all bridges are set to the same wireless channel.

Check the Packet Log (Advanced/Diagnostic/Packet Info) in each AirStation’s Web-Based Configuration Utility to confirm communication between them (screenshot to right). The “WDS” entries should show packets both sent and received. In this example, the packet log shows packets sent but not received, so the next troubleshooting step would be to check the other AirStation’s settings and packet log for more clues.

If you cannot access the AirStations wirelessly, reconnect the Ethernet cables as shown on page 1 of this document to easily access the AirStations’s Web-Based Configuration Utilities.

