

## Using your Wi-Fi for Boats Onboard Hot Spot with WPA Encryption Security

No special computer configuration is required for Windows, Mac OS, UNIX, iPhones, iPads, or Android Devices when using our Onboard Wi-Fi system.

Turn on your Wi-Fi enabled device and follow your normal method of selecting Wi-Fi connection. You should see a new station with the name you gave your hotspot during the setup. If you followed my suggestion this would be the name of your boat.

Connect to this station just as you would usually connect to any Internet station.

You will be asked for a security password. Enter your secret password you entered when setting up the hotspot. Remember this password as you will need to enter this each time you connect.

You are now connected to your Wi-Fi for Boats Antenna.

We can now instruct the Wi-Fi for Boats Antenna to connect to a shore side station.

Start your Internet Browser and in the **Address Line** enter **172.16.1.1**



You will be asked for a User Name and Password.



Enter "ubnt" for Username

Enter "Admin" for Password

Click OK

Click on the **Wireless** tab and the following screen will be displayed.

**BULLET M2** AirOS™

MAIN **WIRELESS** NETWORK ADVANCED SERVICES SYSTEM Tools: [v] Logout

Basic Wireless Settings

Wireless Mode: [?] **Station** [v] Under no circumstances should you ever change the Wireless Mode. This must be set to Station

SSID: CYCDeck Select...

Lock to AP MAC: [ ]

Country Code: United States [v]

IEEE 802.11 Mode: B/G/N mixed [v]

Channel Width: [?] Auto 20/40 MHz [v]

Channel Shifting: [?] Disabled [v]

Frequency Scan List, MHz:  Enabled

Auto Adjust to EIRP Limit:

Antenna Gain: 0 [ ] dBi Cable Loss: 0 [ ] dB

Output Power: [ ] 28 [ ] dBm

Max TX Rate, Mbps: MCS 7 - 65 [150] [v] Automatic

Wireless Security

Security: WPA2-AES [v]

WPA Authentication: PSK [v]

WPA Preshared Key: [ ]  Show

Change

**To Select a shore side station: Click on the Select button.**

The select button causes the radio to scan all the Wi-Fi channels listening for active stations. When it has completed scanning the system will display a list of all the available Access Points you may be able to connect to like the example below.

UBNT: [Bullet M2] - Site Survey - Windows Internet Explorer

http://172.16.1.1/survey.cgi?iface=ath0

Site Survey

Scanned Frequencies:  
2.412GHz 2.417GHz 2.422GHz 2.427GHz 2.432GHz 2.437GHz 2.442GHz 2.447GHz 2.452GHz 2.457GHz 2.462GHz

MAC Address	SSID	Device Name	Encryption	Signal / Noise, dBm	Frequency, GHz	Channel
<input type="radio"/> 00:27:22:4E:92:02	Wi-Fi for Boats	UBNT	WPA	-56 / -81	2.412	1
<input type="radio"/> 00:1A:70:FC:08:29	RepeaterWEP		WPA	-75 / -82	2.422	3
<input type="radio"/> 00:15:6D:80:EE:CA	Corrupt_ID	BAD BOY	WPA2	-76 / -85	2.427	4
<input type="radio"/> 00:15:6D:EA:34:3B	CYCDeck		WPA2	-50 / -87	2.462	11
<input checked="" type="radio"/> 58:6D:8F:D7:05:B3	Fowled Anchor-guest		NONE	-82 / -96	2.412	1
<input type="radio"/> E4:83:99:12:82:E0	The Internets		WPA	-92 / -96	2.437	6
<input type="radio"/> 00:26:99:D7:27:60	spectre		WPA2	-93 / -96	2.432	5
<input type="radio"/> 00:02:2D:AB:5E:EF	riverplacenorth		NONE	-93 / -96	2.462	11
<input type="radio"/> 06:72:CF:28:20:FE	PFS_Public		NONE	-93 / -96	2.457	10

Selectable SSID's must be visible and have compatible channel bandwidth and security settings

Lock to AP Select Scan

In the screen picture above, you see a list of the possible stations to connect to. Your list may be a lot longer than this so you might have to scroll down to see the buttons on the bottom.

Click on **Signal/Noise dbm** until you see the lowest signal numbers at the top of the list.

Next look at the Encryption Column and look down looking for stations that have the word "NONE" for Encryption. Pick a station with the lowest Signal dbm that is not encrypted and the signal strength is lower than 87. Above 88 it is unlikely you will be able to reliably connect.

Pick a station that has a strong signal by clicking on the button to the left of it.

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http://172.16.1.1/survey.cgi?iface=ath0

Site Survey  
Scanned Frequencies:  
2.412GHz 2.417GHz 2.422GHz 2.427GHz 2.432GHz 2.437GHz 2.442GHz 2.447GHz 2.452GHz 2.457GHz 2.462GHz

MAC Address	SSID	Device Name	Encryption	Signal / Noise, dBm	Frequency, GHz	Channel
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<input type="radio"/> 00:15:6D:EA:34:3B	CYCDock		WPA2	-50 / -87	2.462	11
<input checked="" type="radio"/> 58:6D:8F:D7:05:B3	Fowled Anchor-guest		NONE	-82 / -96	2.412	1
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Lock to AP Select Scan

Then click on Select at the bottom of the list and your screen will go back to the previous screen but with your selection now filling the boxes.

If you selected an encrypted station you must know the password. Enter the password as in the example below.

Wireless Security

Security: WPA2-AES

WPA Authentication: PSK

WPA Preshared Key: [password masked] Show

Change

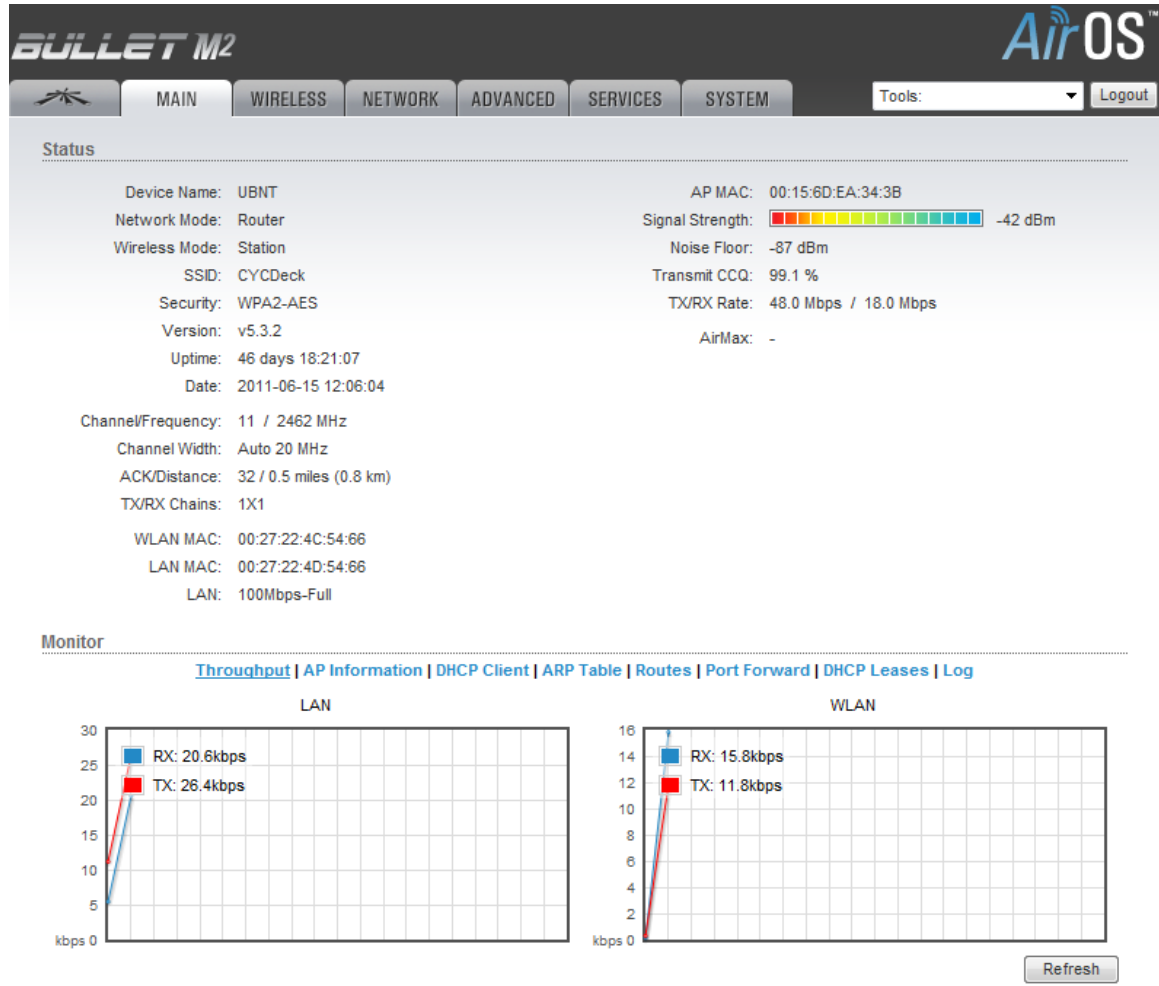
Now click on **Change** at the bottom of the screen to tell the router you want it to make the changes.

You will be asked to confirm the changes at the top of your screen. Click **Apply**.

Configuration contains changes. Apply these changes?

Test **Apply** Discard

When the screen refreshes Click on the Main Tab to see screen below.



You are now connected to the station you selected. The color bar at the top of the screen shows the signal strength and the graphs at the bottom of the screen show the amount of data being transferred over the connection. Another important number on this screen is the Transmit CCQ which indicates the quality of the connection.

**Now open a new browser window and connect to the internet.**

### Reasons you may not be able to connect:

Many stations now use one or more of the following methods of blocking unauthorized connections. The most prevalent is Encryption. Other methods are MAC Filtering and Proxy Servers and Router detection. Encryption will show in the listing, and to connect to a secure site you must know the security key or password. If you have registered with a secure site, you will be given a security key and instructions of how to use it.

MAC filtering and Router detection is very secretive. When you try to connect to a station that does not show as being secure, but yet you are not able to connect, you may be trying to connect to a station using MAC filtering or router detection. Some internet providers are attempting to block multiple devices from a single connection today. When they detect a router they refuse the connection or send you to a subscription page based upon the MAC.

Proxy Filters are becoming more prevalent as Internet Service Providers attempt to control the number of connections to their services. When you select a site you wish to connect to, your computer attempts to a connection through well-known ports to the Internet. An Internet Service Provider may redirect these well-known ports to a filtering process that limits Internet access or request that you subscribe to a paid service.

Xfinity's new Public Internet Subscription services are becoming more common. When you connect you will be asked to subscribe. When you subscribe to the Xfinity service, the network learns your MAC and grants access. On future connections anywhere in their system it recognizes your MAC and connects you to their service when you are using your Wi-Fi system.

**OK, Lets make all of this super simple for you going forward!**

Click on **Wireless**. With that on your screen save it as a favorite in your Browser. Better yet, save it as a shortcut on your Desktop! That way any time you want to connect to a different station, all you have to do is click on the shortcut!

If you forget to make a shortcut on your desk top, all you have to do is enter the 172.16.1.1 address in your Browser and press Enter. You should write 172.16.1.1 down on sticky note and put it on your computer.

If you are wondering about all of the other information on the Wi-Fi for Boats Router screens, look **but do not touch!** A simple change will cause your system to stop working and require that the system be re-programmed.

We hope you enjoy using our system.

If you need help, do not hesitate to contact us by calling +1 202 286-0213 or e-mail to [dalton@wiforboats.com](mailto:dalton@wiforboats.com) and [dalton@svquietly.com](mailto:dalton@svquietly.com).