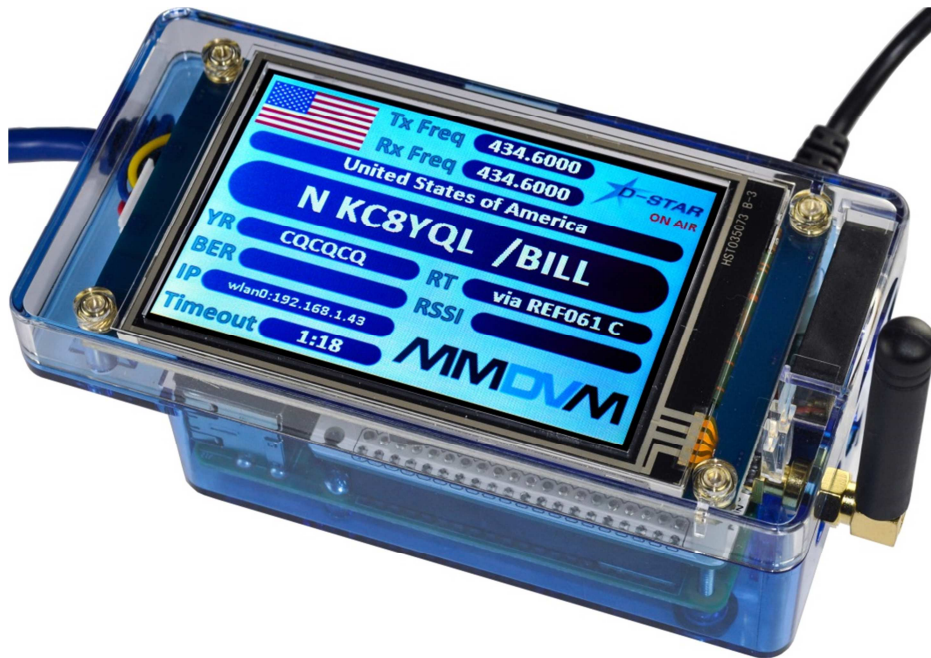


## Elite 3.5 LCD ZUMspot

The Elite 3.5 LCD ZUMspot kit is a low power simplex digital mode hotspot. It supports Dstar, DMR, Fusion, NXDN, P25 and POCSAG.



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## **ZUMspot board specifications:**

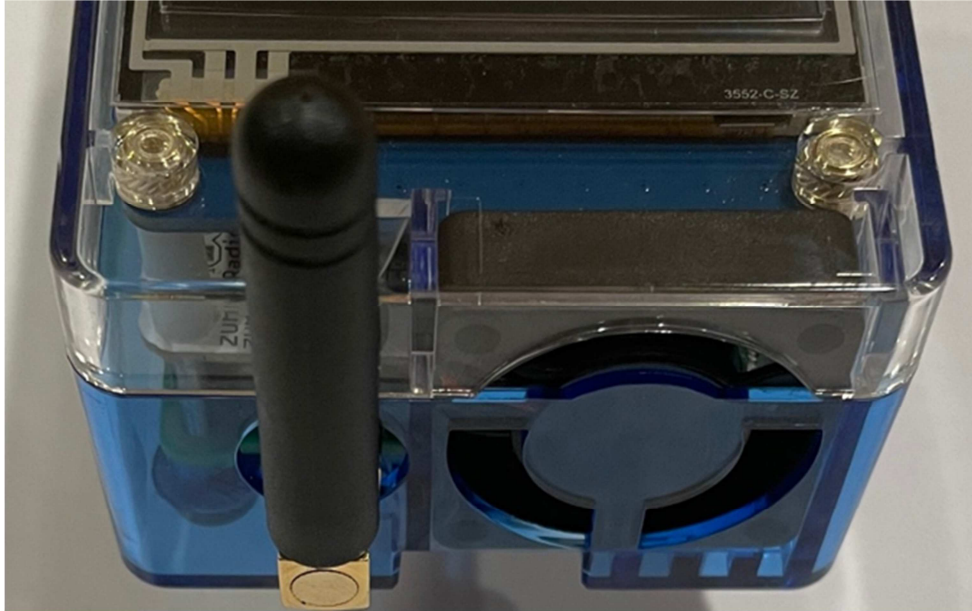
- ZUMspot Board Fully Assembled And Tested
- High performance 32-bit ARM processor
- Supports DMR, P-25, D-Star, System Fusion, NXDN and POCSAG
- Onboard LEDs to show status (Tx, Rx, PTT, Mode)
- Up to 10mW RF power
- SMA antenna connector, UHF antenna included
- The firmware is pre-loaded and is easily upgraded via software

## **Kit includes:**

- ZUMspot RPi UHF Board
- Raspberry Pi 4
- Custom case
- 3A power supply
- 3.5" LCD screen
- UHF Antenna
- Pre-Imaged 16 GB MicroSD Card with Pi-Star Software
- 1 Year Warranty

## Setup:

- Make sure the SD card is installed in the Raspberry Pi 4
- Install the antenna onto the RF connector



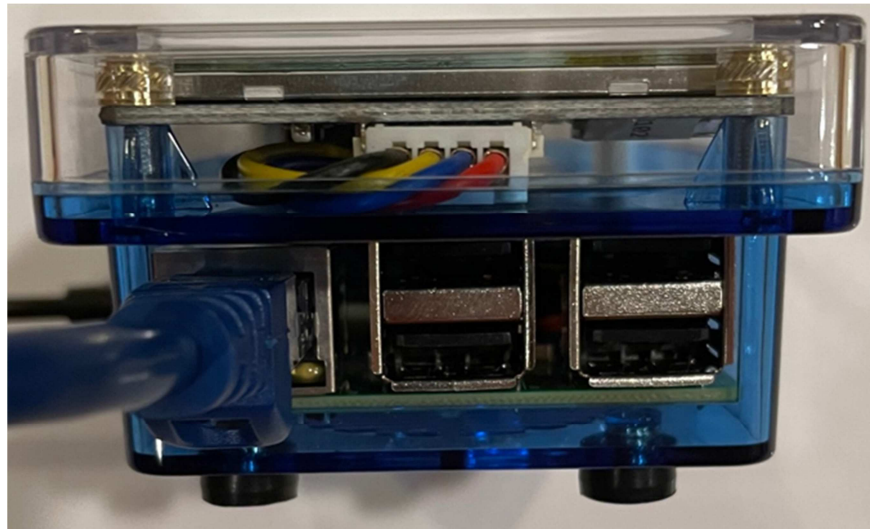
## Powering up:

- Plug in the USB-C power cable to your Elite 3.5 ZUMspot LCD kit. Then plug the cable into the wall adapter and insert that into an AC outlet.
- If the Elite 3.5 LCD ZUMspot kit doesn't power up, then press the switch on the cable and it should power up now.



**Ethernet:**

- If you are going to use Ethernet, plug the cable into the RJ45 connector on the end of the case.



## Setup Pi-Star:

### Configure display type:

- In the “MMDVMHost Configuration” section
- Make sure “MMDVM display Type” is set to “Nextion”
- Make sure “Port” is set to “Modem”
- Make sure “Nextion Layout” is set to “ON7LDS L3”

**Pi-Star Digital Voice - Configuration**

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35-v7+	Pi 3 Model B (1GB) - Stadium	0.17 / 0.13 / 0.08	43.5°C / 110.3°F

Control Software	
Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MMDVMHost Configuration			
Setting		Value	
DMR Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/>	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>		
YSF2NXDN:	<input type="checkbox"/>		
YSF2P25:	<input type="checkbox"/>		
DMR2YSF:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
DMR2NXDN:	<input type="checkbox"/>	Uses 7 prefix on DMRGateway	
POCSAG:	<input type="checkbox"/>	POCSAG Paging Features	
MMDVM Display Type:	Nextion	Port: Modem	Nextion Layout: ON7LDS L3

Apply Changes

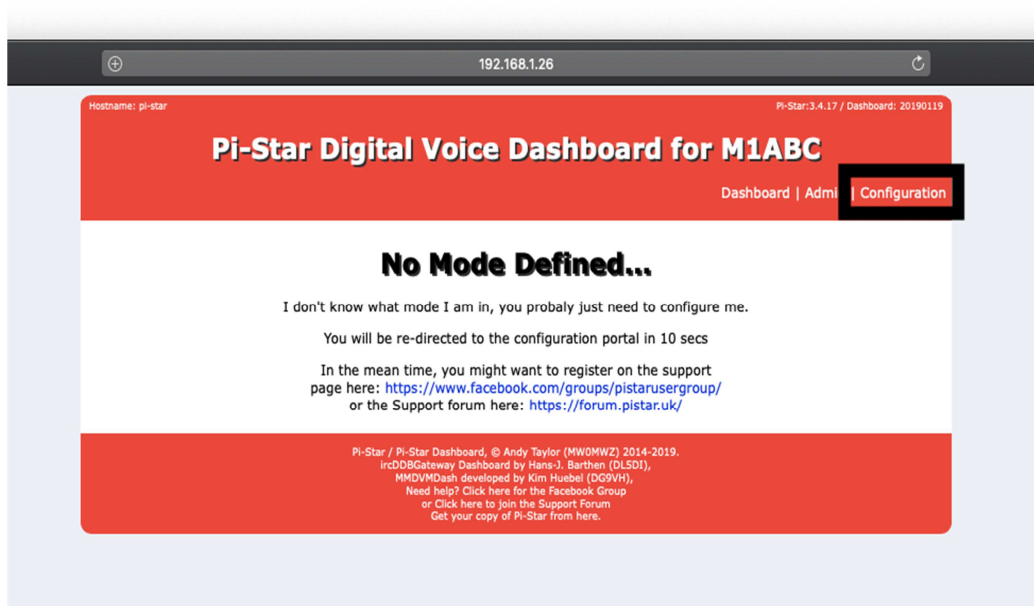
General Configuration		
Setting		Value
Hostname:	pi-star	Do not add suffixes such as .local
Node Callsign:	KI6ZUM	
Radio Frequency:	434.800.000	Mhz
Latitude:	60.00	degrees (positive value for North, negative for South)
Longitude:	-3.00	degrees (positive value for East, negative for West)
Town:	Town, LO4TOR	
Country:	Country	
URL:	http://www.mw0mwz.co.uk/pi-star/	<input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)	
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public	
System Time Zone:	America/Los_Angeles	
Dashboard Language:	english_us	

### Ethernet:

- If you are using Ethernet, the IP address should automatically be retrieved by the DHCP system built into the PiStar software. No other configuration should be needed.

**Wi-Fi:**

- Power up the Elite 3.5 LCD ZUMspot kit.
- After 3 minutes, scan for Wi-Fi access points from your phone or laptop. One should appear with the name “**Pi-Star-Setup**”
- Connect to it. When asked for the Wi-Fi password type in: raspberry
- After 3 minutes, go to your web browser (Chrome, Firefox, etc.) and connect to the website:  
<http://pi-star> (for Windows, Linux and Android devices)  
<http://pi-star.local> (for OS X and iOS devices)
- You should see this page:



- Go to **Configuration**
  - You will be asked to put in the default username which is “**pi-star**” and the default password which is “**raspberry**”

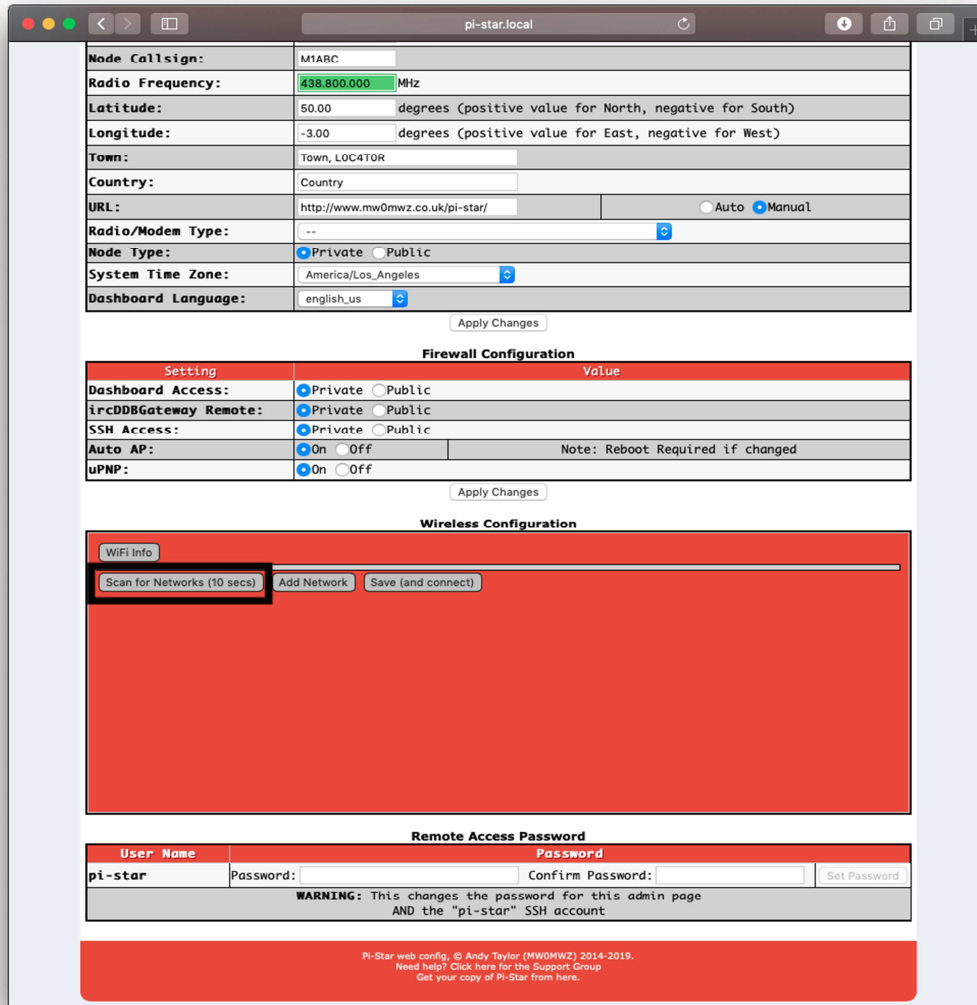
- Select "Configure WiFi"

The screenshot shows the Pi-Star web configuration interface in a browser window. The address bar shows 'pi-star.local'. The interface is divided into several sections:

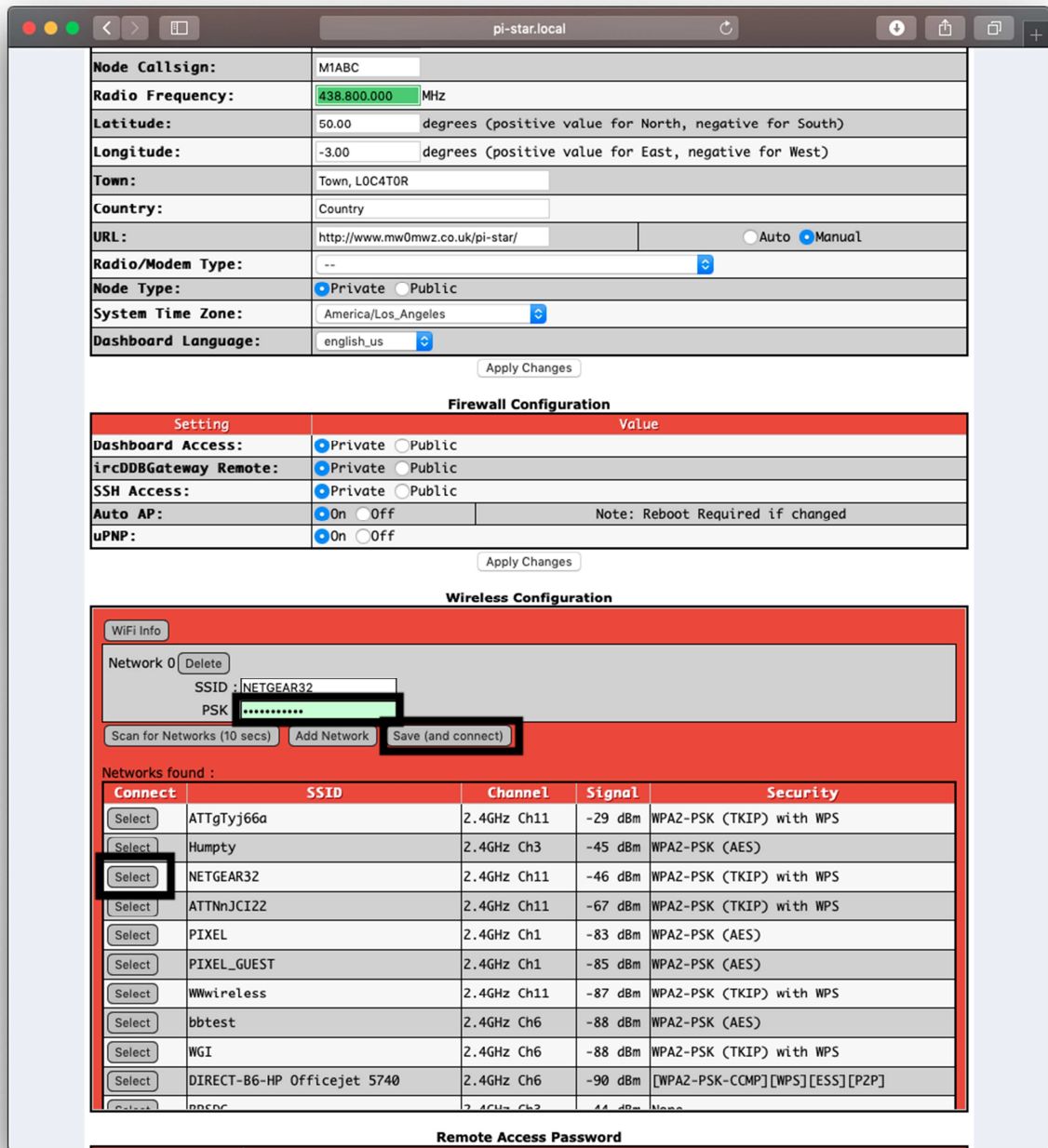
- General Settings:** A table of configuration options including Node Callsign (M1ABC), Radio Frequency (438.800.000 Mhz), Latitude (50.00 degrees), Longitude (-3.00 degrees), Town (Town, LOC4TOR), Country, URL, Radio/Modem Type, Node Type (Private selected), System Time Zone (America/Los\_Angeles), and Dashboard Language (english\_us). An 'Apply Changes' button is below.
- Firewall Configuration:** A table with columns 'Setting' and 'Value'. Settings include Dashboard Access, ircDDBGateway Remote, SSH Access, Auto AP, and uPNP, each with radio button options for Private/Public or On/Off. A 'Note: Reboot Required if changed' is present for Auto AP. An 'Apply Changes' button is below.
- Wireless Configuration:** A red-bordered section containing:
  - Buttons: Refresh, Reset WiFi Adapter, and **Configure WiFi** (highlighted with a red box).
  - Wireless Information and Statistics:** A table with two columns: 'Interface Information' (Interface Name: wlan0, Status: Interface is down, IP Address, Subnet Mask, Mac Address: b8:27:eb:1b:b1:b9) and 'Wireless Information' (Connected To, AP Mac Address, Bitrate, Signal Level). Below this is an 'Interface Statistics' section for Received/Transferred Packets and Bytes.
  - Footnote: Information provided by ifconfig and iwconfig.
- Remote Access Password:** A table with columns 'User Name' and 'Password'. It shows the user 'pi-star' with fields for Password and Confirm Password, and a 'Set Password' button. A warning message states: 'WARNING: This changes the password for this admin page AND the "pi-star" SSH account'.
- Footer:** Pi-Star web config, © Andy Taylor (MW0DMWZ) 2014-2019. Need help? Click here for the Support Group. Get your copy of Pi-Star from here.



- Click on “Scan for Networks (10 secs)”



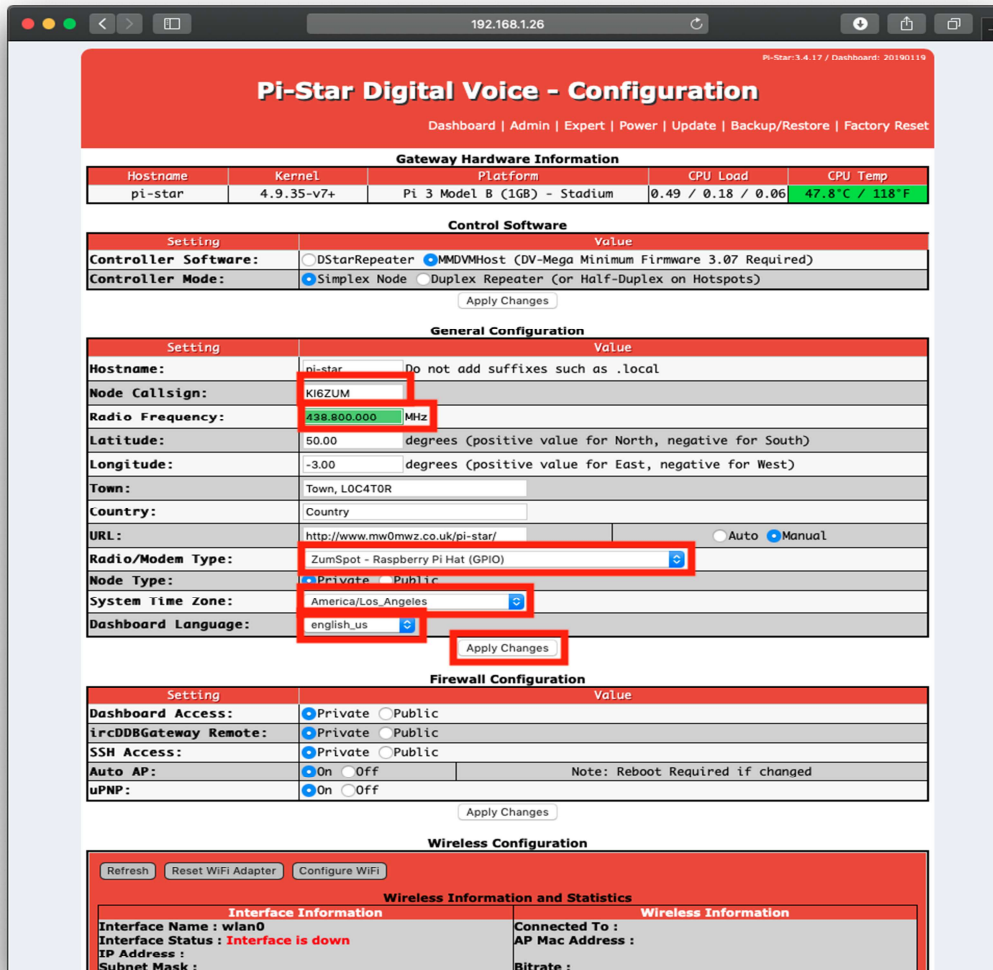
- Select your Wi-Fi SSID and enter your password.
- Click on **“Save (and connect)”** to save the Wi-Fi configuration



- Reboot your Elite 3.5 LCD ZUMspot kit

## Configuration:

- Change the Node Callsign to your own, set the **“Radio Frequency”** to match your radio and make sure the **“Radio/Modem Type”** is set to **“ZUMspot - Raspberry Pi Hat (GPIO)”**, set the **“System Time Zone”** to your time zone, and set the **“Dashboard Language”** to the language you prefer.



**Pi-Star Digital Voice - Configuration**

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information			
Hostname	Kernel	Platform	CPU Load / CPU Temp
pi-star	4.9.35-v7+	Pi 3 Model B (1GB) - Stadium	0.49 / 0.18 / 0.06 47.8°C / 118°F

Control Software	
Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

General Configuration	
Setting	Value
Hostname:	pi-star Do not add suffixes such as .local
Node Callsign:	K16ZUM
Radio Frequency:	438.800.000 MHz
Latitude:	50.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	Town, LOC4TOR
Country:	Country
URL:	http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	America/Los Angeles
Dashboard Language:	english_us

Apply Changes

Firewall Configuration	
Setting	Value
Dashboard Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
ircDDBGateway Remote:	<input checked="" type="radio"/> Private <input type="radio"/> Public
SSH Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
Auto AP:	<input checked="" type="radio"/> On <input type="radio"/> Off Note: Reboot Required if changed
uPNP:	<input checked="" type="radio"/> On <input type="radio"/> Off

Apply Changes

Wireless Configuration		
Wireless Information and Statistics		
Interface Information	Wireless Information	
Interface Name : wlan0	Connected To :	
Interface Status : <b>Interface is down</b>	AP Mac Address :	
IP Address :	Bitrate :	
Subnet Mask :		

- Click **“Apply Changes”** when you are done

**Configuration (example to enable D-Star):**

- Now you can turn on D-Star by selecting the “D-Star Mode” switch and clicking “Apply Changes”

**Pi-Star Digital Voice - Configuration**

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

**Gateway Hardware Information**

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35-v7+	Pi 3 Model B (1GB) - Stadium	0.17 / 0.13 / 0.08	43.5°C / 110.3°F

**Control Software**

Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

**MMDVMHost Configuration**

Setting	Value
DMR Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>
YSF2NXDN:	<input type="checkbox"/>
YSF2P25:	<input type="checkbox"/>
DMRZYSF:	Uses 7 prefix on DMRGateway
DMR2NXDN:	Uses 7 prefix on DMRGateway
POCSAG:	POCSAG Paging Features
MMDVM Display Type:	Nextion Port: Modem Nextion Layout: ON7LDS L3

Apply Changes

**General Configuration**

Setting	Value
Hostname:	pi-star Do not add suffixes such as .local
Node Callsign:	KI6ZUM
Radio Frequency:	434.600.000 MHz
Latitude:	60.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	Town, LOC4TOR
Country:	Country
URL:	http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	America/Los_Angeles
Dashboard Language:	english_us

## Finished:

Once you have completed the Pi-Star configuration you can start using the Elite 3.5 LCD ZUMspot kit to connect to DSTAR, DMR and other networks.



There is more information on configuring and using Pi-Star in this document:

[https://amateurradionotes.com/images/1-Playing\\_with\\_Pi-Star.pdf](https://amateurradionotes.com/images/1-Playing_with_Pi-Star.pdf)

## Support:

MMDVM groups.io group:

<https://groups.io/g/OpenDV>

Pi-Star support forum:

<https://forum.pistar.uk/>

Pi-Star Facebook support group:

<https://www.facebook.com/groups/pistar/>

Pi-Star Wiki:

<http://wiki.pistar.uk>

ZUM Radio Facebook group:

<https://www.facebook.com/groups/249802742395450/>