

MMDVM Hotspot Configuration

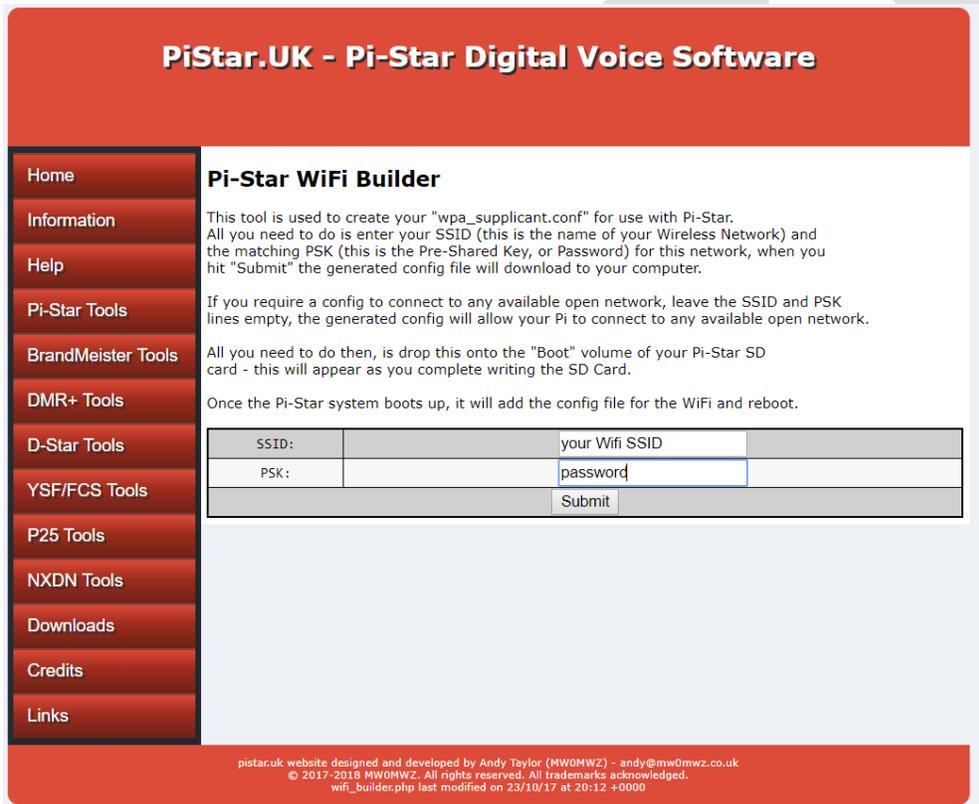
The ttcI MMDVM hotspot is a completely assembled MMDVM board over a Raspberry Pi Zero W and with Pi-Star firmware already installed and configured.

A few steps are needed, however, to get you online and on the air with the hotspot.

WiFi Configuration

Note: the MMDVM Hotspot only operates on 2.4GHz Wifi due to the Raspberry Pi Zero

1. Point your PC browser to https://www.pistar.uk/wifi_builder.php



Pi-Star.UK - Pi-Star Digital Voice Software

Home | **Pi-Star WiFi Builder**

Information | This tool is used to create your "wpa_supplicant.conf" for use with Pi-Star. All you need to do is enter your SSID (this is the name of your Wireless Network) and the matching PSK (this is the Pre-Shared Key, or Password) for this network, when you hit "Submit" the generated config file will download to your computer.

Help | If you require a config to connect to any available open network, leave the SSID and PSK lines empty, the generated config will allow your Pi to connect to any available open network.

Pi-Star Tools | All you need to do then, is drop this onto the "Boot" volume of your Pi-Star SD card - this will appear as you complete writing the SD Card.

BrandMeister Tools | Once the Pi-Star system boots up, it will add the config file for the WiFi and reboot.

DMR+ Tools

D-Star Tools

YSF/FCS Tools

P25 Tools

NXDN Tools

Downloads

Credits

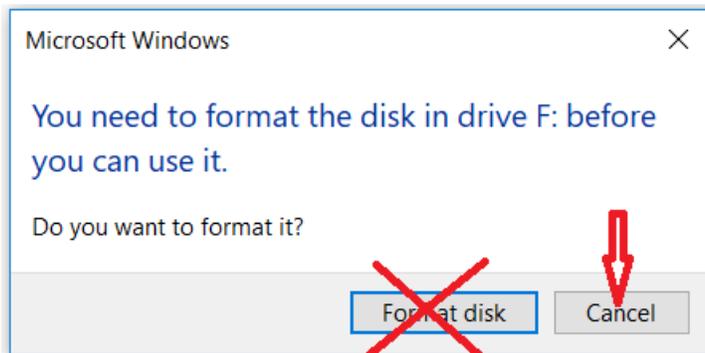
Links

SSID:	<input type="text" value="your Wifi SSID"/>
PSK:	<input type="text" value="password"/>
<input type="button" value="Submit"/>	

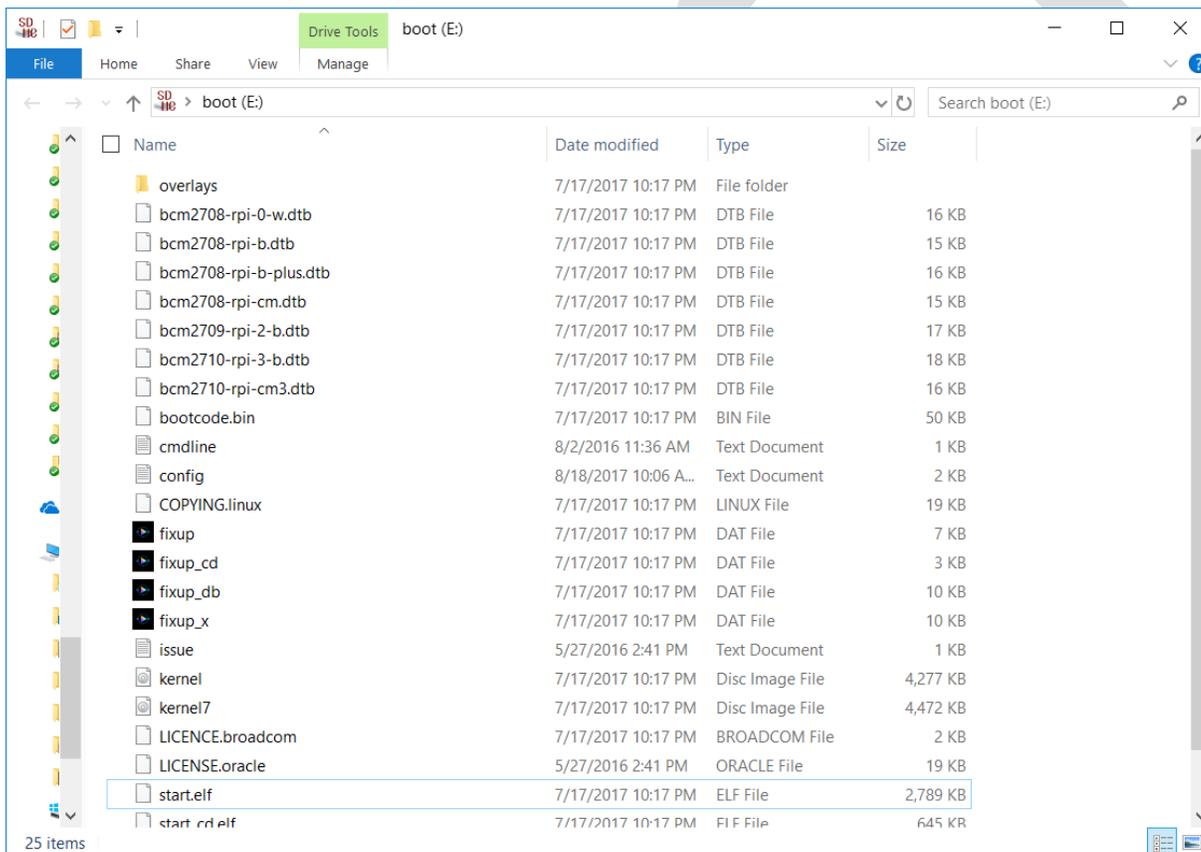
pistar.uk website designed and developed by Andy Taylor (MW0MWZ) - andy@mw0mwz.co.uk
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wifi_builder.php last modified on 23/10/17 at 20:12 +0000

2. In the SSID field enter your WiFi SSID name
3. In the PSK field enter you WiFi's password
4. Click on Submit, a file called "wpa_supplicant.conf" will be generated and downloaded, note the location of the downloaded file which will be needed in the next steps

5. While MMDVM Hotspot is turned OFF, remove the microSD card from the MMDVM Hotspot and insert into your PC (**you may need a microSD adapter**)
6. If you get this message, Do Not format disk, click Cancel to ignore



7. The root folder directory will show like the screenshot below



8. Copy file "wpa_supplicant.conf" and paste it anywhere in the "boot:" directory
9. Safely eject the microSD card from your PC, and insert back into the MMDVM Hotspot



10.NOTE: If you would like to use your hotspot on a different WiFi network, please repeat steps above by generating a WiFi configuration file for the appropriate SSID

MMDVM Hotspot Initial Settings for DMR

1. Power on the MMDVM Hotspot by connecting the USB cable to a power source, wall wart or battery pack. For best performance a 2 Amp DC supply is needed
2. Wait 3-5 minutes for the MMDVM Hotspot to boot up
3. Ensuring that both the MMDVM Hotspot and your PC are running on the same WiFi network, launch your browser and point it to “**pi-star**” do not include www or http
4. The Pi-Star dashboard will open up
5. Note: If the Pi-Star dashboard does not open up on your browser, try the following steps
 - a. Move both PC and MMDVM Hotspot close to the WiFi Router
 - b. Open your WiFi router manager and look for the IP address of the MMDVM, the hostname is **pi-star**
 - c. Type IP address in the browser
6. Once Pi-Star dashboard is open, click on “**Configuration**” enter username “**pi-star**” password “**raspberrry**”
7. Under “Control Software” and “MMDVMHost Configuration” ensure the highlighted selections are set, then click on “**Apply Changes**”. Do not move to the next section until you save by clicking apply changes. The MMDVM Hotspot will reboot and be back on within 30 seconds approximately



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+	Pi Zero W Rev 1.1 (512MB)	0.48 / 0.4 / 0.22	37.9°C / 100.2°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 checked="" type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input 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:	<input checked="" type="radio"/> OLED Port: /dev/ttyAMA0 Nextion Layout: G4KLX

Apply Changes

General Configuration

Setting	Value
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8. Scroll down to next section **“General Configuration”**
9. Enter your ham call sign, DMR ID* You will need to apply for a DMR ID at <https://www.radioid.net/register#>! Request new digital ID
10. Select a free UHF frequency for your MMDVM Hotspot, ensuring it does not interfere with nearby repeaters
11. Enter Lat, Long, Town and Grid, Country, URL (point to your QRZ page)
12. Very important; Select Radio/Modem Type: STM-32-DVM / MMDVM_HS – Raspberry Pi Hat (GPIO)
13. Enter timezone and language then click **“Apply Changes”** and wait for Hotspot to reboot



General Configuration

Setting	Value
Hostname:	pi-star <small>Do not add suffixes such as .local</small>
Node Callsign:	<input type="text"/> Enter your ham callsign
CCS7/DMR ID:	<input type="text"/> Enter your DMR ID
Radio Frequency:	433.800.000 MHz Select the frequency of your Hotspot
Latitude:	39.35 <small>degrees (positive value for North, negative for South)</small>
Longitude:	-77.46 <small>degrees (positive value for East, negative for West)</small>
Town:	<input type="text"/> Frederick, MD FM19gi
Country:	<input type="text"/> United States
URL:	<input type="text"/> https://www.qrz.com/db/ <input type="text"/> <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	<input type="text"/> STM32-DVM / MMDVM_HS - Raspberry Pi Hat (GPIO) <input type="text"/>
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	<input type="text"/> America/New_York
Dashboard Language:	<input type="text"/> english_us

Apply Changes 1

DMR Configuration

Setting	Value
DMR Master:	<input type="text"/> BM_United_States_3108 Choose Master Server closest to you
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR Color Code:	<input type="text"/> 1
DMR EmbeddedLCOnly:	<input type="checkbox"/>
DMR DumpTADData:	<input checked="" type="checkbox"/>

Apply Changes 2

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 <small>Note: Reboot Required if changed</small>
uPNP:	<input checked="" type="radio"/> On <input type="radio"/> Off

Apply Changes 3

- Next step select the BrandMeister Master server geographically closest to you, visit https://wiki.brandmeister.network/index.php/United_States_of_America for details
- Select Color Code 1, and **Apply Changes** wait for Hotspot to reboot before moving to next step
- Firewall Configuration: select these options and **Apply Changes** wait for Hotspot to reboot



You are almost done! A few more step are needed

Frequency Offsets

1. Click on Expert, then click on MMDVMHost

Pi-Star:3.4.16 / Dashboard: 20181111

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+	Pi Zero W Rev 1.1 (512MB)	0.17 / 0.12 / 0.09	40.1°C / 104.2°F

Control Software

Pi-Star:3.4.16 / Dashboard:20181111

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | **MMDVMHost** | DMR GW | YSF GW | P25 GW | NXDN GW
Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat **Tools:** CSS Tool | SSH Access

Expert Editors

****WARNING****

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it.

73 and enjoy your Pi-Star experience.

Pi-Star UK Team.



2. Scroll down to “Modem” and enter 500 in RXOffset and TXOffset, then finally click “Apply Changes” and wait for hotspot to reboot. NOTE: to confirm the correct offset for your MMDVM Hotspot, turn off Hotspot, remove antenna and gently pull apart the metal cover and look under the MMDVM PCB board which is the upper board with screen, a white sticker is attached with the correct value.

File	/usr/local/etc/NXDN.csv	
Time	24	
<input type="button" value="Apply Changes"/>		
Modem		
Port	/dev/ttyAMA0	
TXInvert	1	
RXInvert	0	
PTTInvert	0	
TXDelay	100	
RXOffset	500	Enter 500 for RX and TX Offset. Check bottom of MMDVM board for a sticker with correct offset numbers
TXOffset	500	
DMRDelay	0	
RXLevel	50	
TXLevel	50	
RXDCOffset	0	
TXDCOffset	0	
RFLevel	100	
CWIdTXLevel	50	
D-StarTXLevel	50	
DMRTXLevel	50	
YSFTXLevel	50	
P25TXLevel	50	
NXDNTXLevel	50	
RSSIMappingFile	/usr/local/etc/RSSI.dat	
Trace	0	
Debug	0	
<input type="button" value="Apply Changes"/>		



Program your DMR radio codeplug to use the frequency of your MMDVM Hotspot and add channels and appropriate talkgroups and start enjoying DMR. There are many resources online for how to create DMR codeplugs (aka DMR channels)

Pi-Star Activity Dashboard

Hostname: pi-star
Pi-Star:3.4.16 / Dashboard: 20181111

Pi-Star Digital Voice Dashboard for

[Dashboard](#) | [Admin](#) | [Live Logs](#) | [Power](#) | [Update](#) | [Configuration](#)

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.3 / 0.16 / 0.11	39°C / 102.2°F

Service Status

MMDVMHost	DMRGateway	YSFGateway	YSFPParrot	P25Gateway	P25Parrot
DStarRepeater	ircDDBGateway	TimeServer	PiStar-Watchdog	PiStar-Remote	PiStar-Keeper

Modes Enabled

D-Star	DMR
YSF	P25
YSF XMode	NXDN
DMR XMode	POCSAG

Active BrandMeister Connections

BrandMeister Master	Default Ref	Timeout(s)	Active Ref	Static TGs	Dynamic TGs
BM United States 3108	REF0	0(s)	None	None	None

Gateway Activity

Time (EST)	Mode	Callsign	Target	Src	Dur(s)	Loss	BER
11:59:59 Dec 9th	DMR Slot 2	KE8JGX	TG 310	Net	0.5	0%	0.0%
11:59:17 Dec 9th	DMR Slot 2	AB3LI	TG 310	Net	1.6	0%	0.0%
11:58:44 Dec 9th	DMR Slot 2	KN4QHV	TG 310	Net	0.5	0%	0.0%
11:58:17 Dec 9th	DMR Slot 2	K50LA	TG 310	Net	0.5	0%	0.0%
11:57:51 Dec 9th	DMR Slot 2	KE2HO	TG 310	Net	0.5	0%	0.0%
11:57:48 Dec 9th	DMR Slot 2	GM0UDL	TG 310	Net	0.5	0%	0.0%
11:57:27 Dec 9th	DMR Slot 2	WA7SN	TG 310	Net	1.7	0%	0.0%
11:56:31 Dec 9th	DMR Slot 2	KB1RAJ	TG 310	Net	0.8	0%	0.0%
11:55:07 Dec 9th	DMR Slot 2	W4LLZ	TG 310	Net	1.2	10%	0.0%
11:54:33 Dec 9th	DMR Slot 2	W1EJE	TG 310	Net	1.6	0%	0.0%
11:54:07 Dec 9th	DMR Slot 2	KA0YKC	TG 310	Net	0.5	0%	0.0%
11:53:55 Dec 9th	DMR Slot 2	W5ERX	TG 310	Net	0.5	0%	0.0%
11:53:34 Dec 9th	DMR Slot 2	KE6ABJ	TG 310	Net	1.6	0%	0.0%
11:53:23 Dec 9th	DMR Slot 2	KK4EZZ	TG 310	Net	0.7	50%	0.0%
11:52:15 Dec 9th	DMR Slot 2	KG5QVV	TG 310	Net	0.4	0%	0.0%
11:51:07 Dec 9th	DMR Slot 2	N4BFR	TG 310	Net	1.2	30%	0.0%
11:50:55 Dec 9th	DMR Slot 2	N4TUR	TG 310	Net	1.6	0%	0.0%
11:49:24 Dec 9th	DMR Slot 2	VE4NW	TG 310	Net	0.5	0%	0.0%
11:49:01 Dec 9th	DMR Slot 2	KE8FWY	TG 310	Net	0.8	0%	0.0%
11:48:56 Dec 9th	DMR Slot 2	4000		Net	1.0	0%	0.0%

Local RE Activity

Network Status

D-Star Net	DMR Net
YSF Net	P25 Net
YSF2DMR	NXDN Net
YSF2NXDN	YSF2P25
DMR2NXDN	DMR2YSF

Radio Info

Trx	Listening
Tx	433.800000 MHz
Rx	433.800000 MHz
FW	HS_Hat:v1.4.12

DMR Repeater

DMR ID	3103121
DMR CC	1
TS1	disabled
TS2	enabled
TG 310/No Ref	
DMR Master	
BM United States ..	



Advanced Steps (optional but recommended)

Update the hotspot

Pi-Star:3.4.16 / Dashboard:20181111

Pi-Star Digital Voice - Expert Editors

[Dashboard](#) | [Admin](#) | [Update](#) | [Upgrade](#) | [Backup/Restore](#) | [Configuration](#)

Quick Edit: [DStarRepeater](#) | [ircDDBGateway](#) | [TimeServer](#) | [MMDVMHost](#) | [DMR GW](#) | [YSF GW](#) | [P25 GW](#) | [NXDN GW](#)
Full Edit: [DMR GW](#) | [PiStar-Remote](#) | [WiFi](#) | [BM API](#) | [DAPNET API](#) | [System Cron](#) | [RSSI Dat](#) **Tools:** [CSS Tool](#) | [SSH Access](#)

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Pi-Star - Digital Voice Dashboard - Update

[Dashboard](#) | [Admin](#) | [Power](#) | [Backup/Restore](#) | [Configuration](#)

Update Running

```
Starting update, please wait...
Stopping Services...
Done
Updating DV Binaries...
From https://github.com/AndyTaylorTweet/Pi-Star_Binaries
* branch master -> FETCH_HEAD
Already up-to-date.
Done
Updating Pi-Star Binaries...
From https://github.com/AndyTaylorTweet/Pi-Star_Binaries_sbin
* branch master -> FETCH_HEAD
Already up-to-date.
Done
Updating Hostfiles...
Done
Updating Dashboard...
From https://github.com/AndyTaylorTweet/Pi-Star_DV_Dash
* branch master -> FETCH_HEAD
Already up-to-date.
Done
Updating PiStar-Firewall...
Done
Starting Services...
Done
Updates complete, sleeping for a few seconds before making the disk Read-Only
Finished
```



Best Practice

To turn off the hotspot, click on Admin, then Power and Shutdown

Pi-Star:3.4.16 / Dashboard: 20181111

Pi-Star Digital Voice - Power

[Dashboard](#) | [Admin](#) | [Update](#) | [Backup/Restore](#) | [Configuration](#)

Reboot	Power	Shutdown
		

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Need help? [Click here for the Support Group](#)
Get your copy of Pi-Star from [here](#).