

MMDVM Hotspots



Create, Configure, Communicate

What is an MMDVM Hotspot?

- Multi Mode Digital Voice Modem (VHF/UHF)
- Supports Digital Voice & Data modes:
 - D-star
 - DMR
 - APCO P25
 - Yaesu FUSION (YSF)
 - Kenwood NXDN

Why so Many modes?

Click below to

Compare Digital Modes

Why should I get an MMDVM?

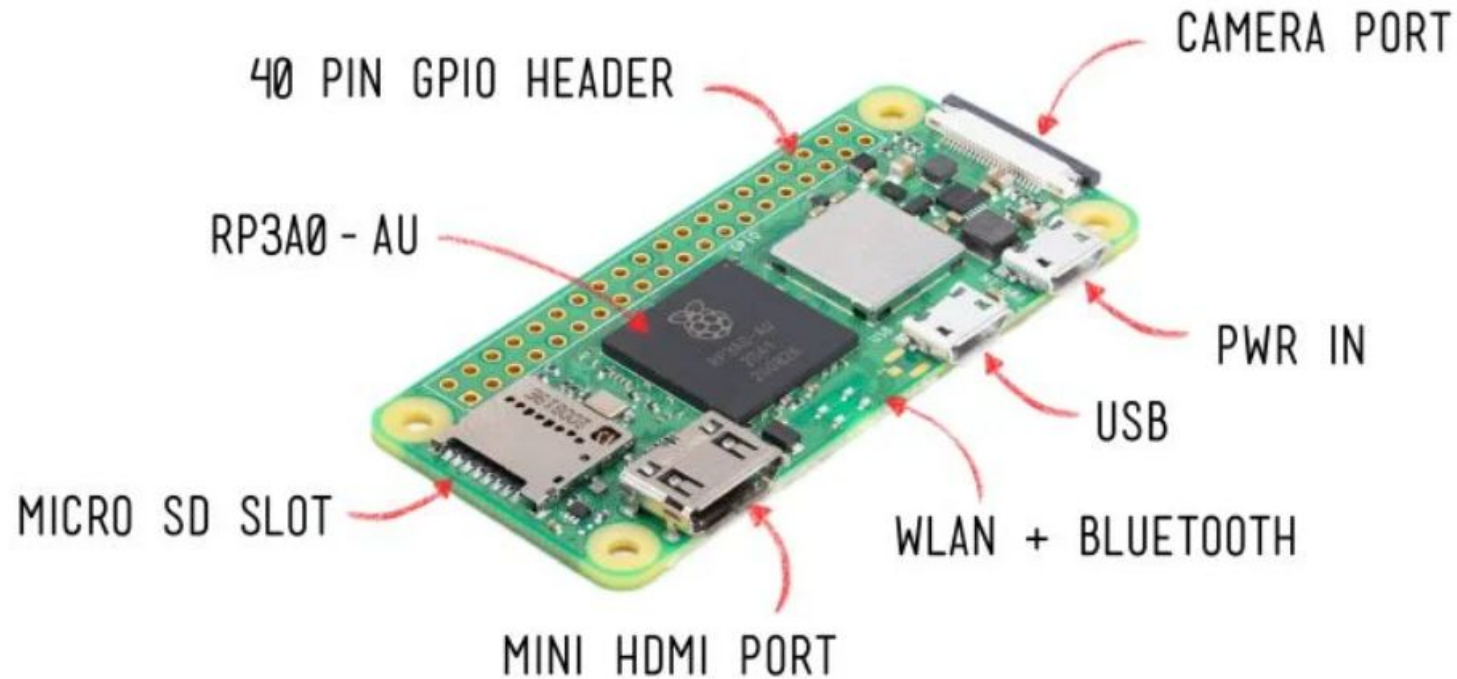
- No nearby reachable Repeater
- Multi-mode requirement
- Cross Protocol
- Multi-Network
- Portability
- Mobility

Where to get an MMDVM Hotspot?

- Aliexpress
- Ebay
- Amazon
- Various Amateur Radio dealers

What's in an MMDVM?

Raspberry Pi Zero W



Dual MMDVM HAT



MMDVM Components

- 1) **Raspberry Pi (often Pi Zero W)**
- 2) **MMDVM Hat with small display**
- 3) **Antenna**
- 4) **5 volt Power** (recommended =>2A)
- 5) **Wi-Fi Internet**
- 6) **Micro SD Card =>8GB**
- 7) **Pi-star Software**
- 8) **PC with an internet browser**

MMDVM ASSEMBLY

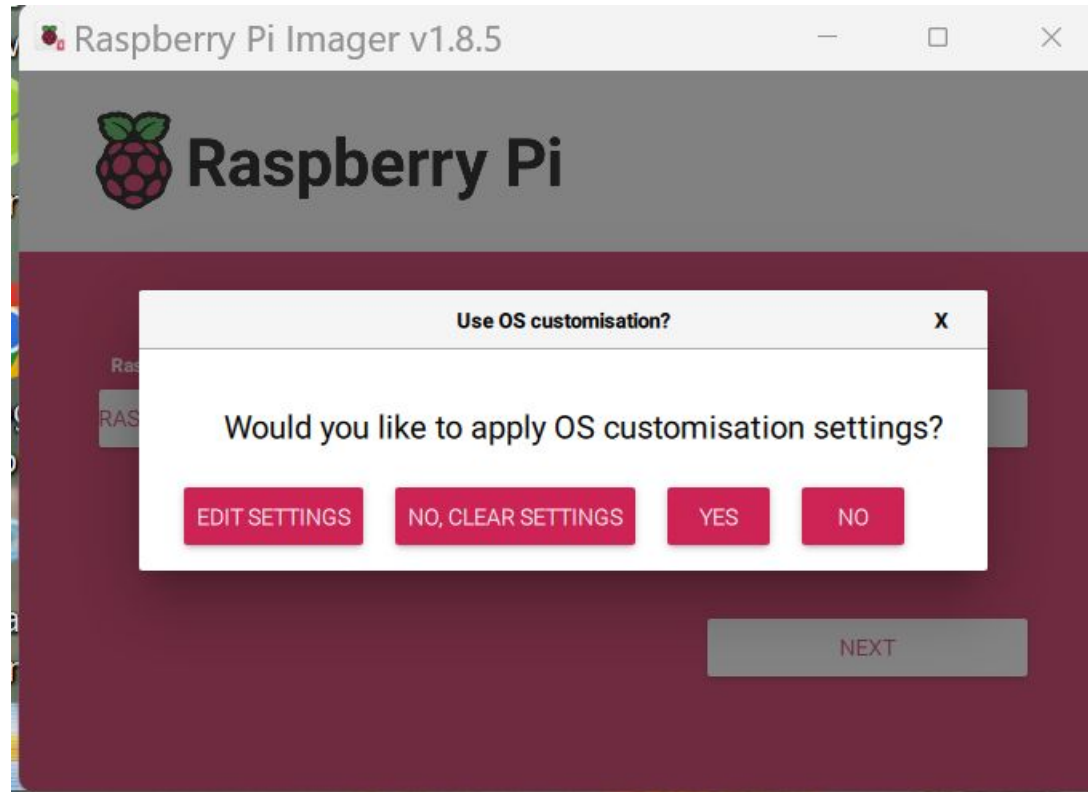
Download:

Raspberry Pi Imager

Latest software image from Pi-Star.uk

- 1)Flash Pi-star Image to SD Card using Imager**
- 2)Connect MMDVM Hat onto Raspberry Pi**
- 3)Insert Imaged SD card into Raspberry Pi**
- 4)Apply Power, wait 2 minutes**
- 5)Navigate to your Hotspot's URL via a Browser**





Click on “EDIT”



OS Customisation



GENERAL

SERVICES

OPTIONS

☒ Set hostname: .local

☒ Set username and password

Username:

Password:

☒ Configure wireless LAN

SSID:

Password:

☐ Show password ☐ Hidden SSID

Wireless LAN country:

☒ Set locale settings

Time zone:

Keyboard layout:

SAVE

- **Click *Save***
- **Proceed to write to the the SD Card**
- **After write completion, Insert card in Raspberry Pi**
- **Make sure MMDVM hat and antenna(e) attached**
- **Apply 5v power via USB cable, wait for boot completion Wait (approx 2 minutes).**

Configuration

- After the boot process has completed, search for the IP address of your MMDVM and type it into your Browser's address bar.
- Or type `http://pistar.local` in your browser's address bar, or whatever name you configured your hotspot to be.
- Default user is pi-star, default Password is Raspberry. But use whatever you set yourself
- Use your PC's Wi-Fi selector to connect to the MMDVM's access point, and find the IP address
- Or type `http://pistar.local` in your browser



But I can't find my Hotspot's IP address!

Download and use an IP finding app such as

Nirsoft 'Wireless Network Watcher'

https://www.nirsoft.net/utils/wireless_network_watcher.html

Or 'Angry Ip Scanner'

<https://angryip.org/download/#windowS>

I still can't find my Hotspot on my Network

- You probably didn't configure your WiFi SSID & Password properly.
 - You could reflash the Pi-star image with proper WiFi parameters
- OR:**
- If the hotspot can't connect to a WiFi network, the hotspot sets up it's own network, not internet connected. But you can connect to this network via your PC's WiFi & browser to configure the Hotspot's wifi parameters to the correct one.
 - Also handy if you have moved (or travelled) to another location with a different WiFi network.

How to Configure your Hotspot

DMR Configuration	
Setting	Value
DMR Master:	DMR+_IPSC2-VKHOTSPOT ▾ ← Select this DMR Master
DMR Options:	Options=StartRef=4000;RelinkTime=15;UserLink=1;TS1_1=9;TS2_1=505
DMR ESSID:	505232701 ▾ ← Select an ESSID from 1 to 99
DMR Colour Code:	1 ▾ ← Select Colour Code 1 Insert DMR Options here
DMR EmbeddedLCOnly:	<input type="checkbox"/>
DMR DumpTADData:	<input checked="" type="checkbox"/>

Apply Changes

Click "Apply Changes"

Further Parameters

<https://www.vkdmr.com/connect-your-hotspot/>

Communicating

- **Part of Configuring via your hotspot is selecting a frequency the hotspot will operate on.**
- **The usual frequencies are 434 or 436 MHz. This is totally up to you, and depend on your local interference conditions.**
- **To use the hotspot, program a zone on your TRANSCEIVER called (lets say) MMDVM434, with the frequency of operation of 434 MHz**
- **Some transceivers need to have both the TX & RX set at 434 MHz and/or the offset to be zero.**

Programming DMR Talkgroups on your Transceiver

In zone MMDVM434 program a memory channel for:

- Talkgroup 505 (colour code 1, time slot 2,).
- Each talkgroup you intend to use, all on time slot 1, colour code 1.
- For example TG 3801,3802,3803 etc etc
- Aussie talkgroups are defined here:
<https://www.vkdmr.com/talk-groups/>

Testing

- Tune your transceiver to your MMDVM zone
- Choose a talkgroup memory channel
- Navigate to: <http://hot.vkdmr.com/ipsc/> via your PC browser
- Transmit for a few seconds
 -
- And look for your callsign and next to it, the talkgroup you triggered.
 -
- If no success, you have configured something incorrectly. Go back and go through configuration and programming steps again.

Mode Useage Information Links

DMR

D-STAR

Yaesu Fusion

Dashboards

VKDMR Repeaters

VKDMR Hotspots

D-star

Yaesu Fusion (YSF)

Have Fun!

THE END