

DMR and DMR2YSF on the Brandmeister system.

This will be a 4-part series explaining what you need to get onto DMR and DMR2YSF on the Brandmeister network.

Part 1: DMR equipment, registration (DMR node ID, Brandmeister registration) and software requirements.

Part 2: DMR Hotspot Setup.

Part 3: DMR radio transceiver configuration.

Part 4: DMR2YSF setup and how to use the cross mode DMR2YSF (DMR to C4FM).

OK, before we get back into it, this series is written by a Ham for Hams and is my interpretation of the DMR, Yaesu and Brandmeister network systems, that works for me. Use this as a guide to help you on your DMR and YSF journey.

REMEMBER: Before changing any software settings make a backup copy of what is already on your DMR radio and Hot Spot.

Part 2.

Let's get Hotspot up and running.

You will by now have a DMR ID, Brandmeister registration, MMDVM Hotspot, Raspberry Pi-3B or later, DMR radio transceiver and the WPSD software image on a micro sd card (follow the instructions on the web page to write this image to your sd card).

Now for the fun part, **Setup**.

What to do first: let's start with setting up the hotspot, you will need a computer connected to your local area network, MMDVM Hotspot, Raspberry Pi-3B or later version, WPSD image on a micro sd card and an ethernet cable from your internet router for you raspberry pi.

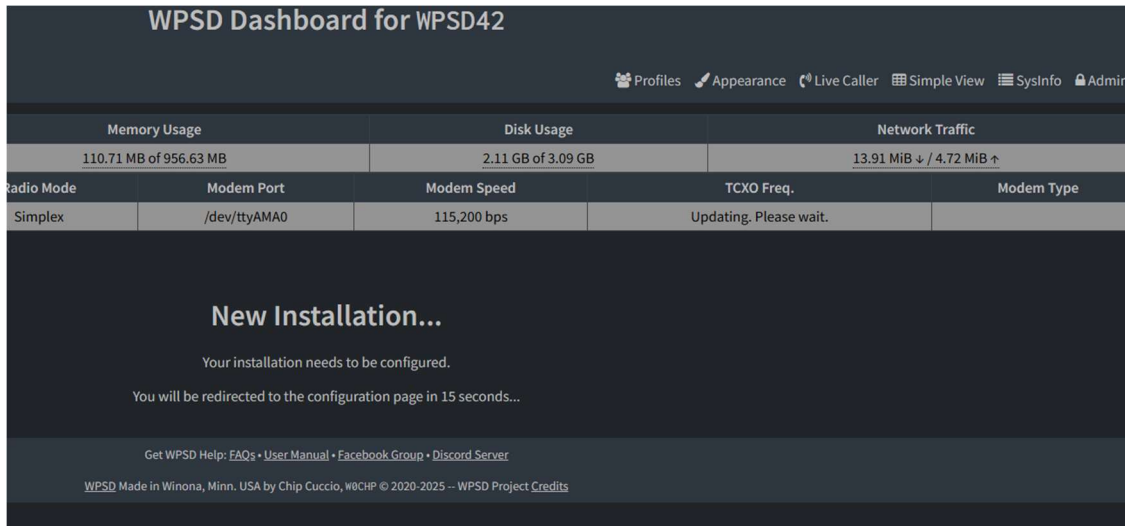
Note: running the raspberry Pi via wireless will not be efficient enough for this setup.

OK, well before powering up the Raspberry Pi, lets insert the Micro SD card into the it and attach the MMDVM_HS_HAT to the Pi's GPIO pins, this will only go around one way, see below picture for example. Next attach the ethernet cable and turn on the power to the raspberry pi.

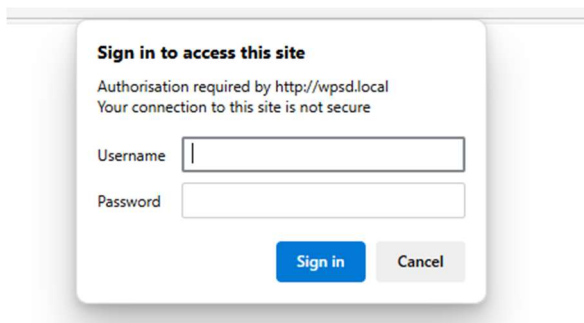


Hopefully you will see the Raspberry Pi and MMDVM Hotspot with the LEDs on the hotspot like the above picture the red led on the hotspot will be flashing slowly if all is good.

Great now to see if WPSD software is running; on your computer put the following text into the address bar of a web browser, **wpsd.local**, the web browser should then connect to the raspberry pi, and you should see a similar screen to the picture below on your computer monitor.



Next you will get a login screen, it will automatically pop up or you could click on the ADMIN button, you will get a login screen, for **Username:** (pi-star) and **Password:** (raspberry) enter what is written inside the brackets.



Once you are logged in you will be presented with the configuration page.

Let's do some settings.

I will run you through my settings that work from the top down starting at the General Configuration section, you only need to enter information in the following highlighted bold lines with the info contained in the brackets: **Apply Changes after you fill out each section.**

Node Callsign: (your Callsign), **DMR/CCS& ID:** (your new DMR ID number from RadioID.net), **Radio Frequency:** (145.145 or 439.125), **Radio/Modem Type:** (MMDVN_HS_Hat (DB9MAT & DF2ET) for Pi (GPIO)), **System Time Zone:** (Australia/Brisbane) and leave all the rest as default.

General Configuration		
Hostname:	wpsd	⚠ Do not add suffixes such as ".local", etc. Note: A reboot is required for this change to take effect.
Node Callsign:	VK4	⚠ Do not add suffixes such as "-G"
DMR/CCS7 ID:	123456	ℹ Required for DMR Mode & DMR Cross-Modes (If you don't have one, get a DMR ID from RadioID.Net)
NXDN ID:		ℹ Required for NXDN Mode & NXDN Cross-Modes (If you don't have one, get an NXDN ID from RadioID.Net)
Radio Mode:	☒ Simplex ☐ Duplex	ℹ Duplex mode requires Dual-Hat/Duplex Modems
Radio Frequency:	439.125.000 MHz	
Radio/Modem Type:	MMDVN_HS_Hat (DB9MAT & DF2ET) for Pi (GPIO)	
Modem Port:	/dev/ttyAMA0	ℹ Typically there is no need to manually change/set this; for advanced settings/usage.
Modem Baud Rate:	115200	
System Time Zone:	Australia/Brisba...	Dashboard Time Format: ☐ 24 Hour ☒ 12 Hour
Dashboard Language:	english_us	

Next is Node Location & Info Settings, these can be left as default. Fill out at your leisure.

Node Location & Info Settings		
Latitude:	0 degrees (positive value for North, negative for South)	
Longitude:	0 degrees (positive value for East, negative for West)	
ℹ Hint: You can use this tool to try and calculate your location coordinates.		
Show This Node on the WPSD User Map:	☒ Hide ☐ Display	Display Your WPSD Node on the WPSD User Map. ℹ Notes: You must input your latitude and longitude coordinates above to ensure map accuracy that they use WPSD and what their location is.
Town:	Town, L0C4T0R	
Country:	Country	
URL:	https://wpsd.radio	☐ Auto ☒ Manual ℹ Auto vs. Manual: Auto simply creates a URL to your QRZ.com callsign page. Manual allows y
APRS Gateway:	☐ APRS Host Pool: euro.aprs2.net	Publish APRS Data for Mode(s): ☐ DMR ☐ YSF ☐ DGLd ☐ NXDN ☐ M17 ☐ ircDDB (D-Star) (Note: Radio/MMDVM Mode must be enabled to select APRS mode publishing.) Select APRS Symbol: WPSD Default Preview:
ℹ APRSGateway will use the location information (Lat./Lon.) you have entered above. However, If you have a GPS device connected and have enabled GPSd (below), it will use the GPS i		
GPSd:	☐	ℹ Enabling this option, allows an externally-connected GPS device to send your location information to APRS, vs. the location inform requires that you also enable APRS Gateway (above).

Next **DMR Mode:** (Turn switch to green) and leave all the rest as default.



Radio/MMDVMHost Modem Configuration

Main Radio Modes

D-Star Mode:	☐	RF Hangtime: 20	Net Hangtime: 20	
YSF Mode:	☐	RF Hangtime: 20	Net Hangtime: 20	
M17 Mode:	☐	RF Hangtime: 20	Net Hangtime: 20	
DMR Mode:	☒	RF Hangtime: 20	Net Hangtime: 20	Primary DMR Network: Brandmeister
P25 Mode:	☐	RF Hangtime: 20	Net Hangtime: 20	
NXDN Mode:	☐	RF Hangtime: 20	Net Hangtime: 20	
POCSAG Mode:	☐	POCSAG Mode Hangtime: 5		

Radio Cross-Modes

YSF2DMR:	☐	Note: YSF Mode must be enabled & applied first.
YSF2NXDN:	☐	Note: YSF Mode must be enabled & applied first.
YSF2P25:	☐	Note: YSF Mode must be enabled & applied first.
DMR2YSF:	☐	Note: DMR Mode must be enabled & applied first.
DMR2NXDN:	☐	Note: DMR Mode must be enabled & applied first.

Leave all of the next screen shot as default settings. Unless you have a hotspot with a display, if so then you will only need to select your display type as per hotspot instructions.

MMDVMHost/Modem Display Configuration

MMDVM Display Type:	None	Port: /dev/ttyAMA0
Nextion Display Settings:	Layout Type: G4KLX	
OLED Display Options:	Display Always Active: (Displays data even while modem is idle)	☒ Enabled ☐ Disabled
	Scroll Display: (Note: OLED Type-3 (0.96") displays only)	☐ Enabled ☐ Disabled
	Rotate Display: (Rotates display orientation 180 deg.)	☐ Enabled ☒ Disabled
	Invert Display: (Inverts display background/foreground)	☐ Enabled ☒ Disabled

Next screen, **BrandMeister Master:** (BM_5051_Australia), **BM Hotspot Security:** (your BM security password) *not your BM login password*, **Brandmeister Network Enable:** (turn switch to green)

DMR Configuration

BrandMeister Network Settings

BrandMeister Master:	BM_5051_Australia
BM Hotspot Security:	
BrandMeister Network ESSID:	5051696 None
BrandMeister Network Enable:	☒
BrandMeister Network:	Hotspot/Repeater Information Edit Hotspot/Repeater (BrandMeister Selfcare)

Next screen, leave as default.

DMR+/FreeDMR/HBlink/Custom Network Settings

DMR+ / FreeDMR / HBlink / Custom Master:	FreeDMR_USA-Central
Network Options:	Options=
ESSID:	5051696 None
DMR+ / FreeDMR / HBlink / Custom Network Enable:	☐

SystemX Network Settings

SystemX Master:	SystemX_United_States
Network Options:	Options=
ESSID:	5051696 None
SystemX Enable:	☐
SystemX Network:	Options Generator

TGIF Network Settings

ESSID:	5051696 None
TGIF Security Key:	
TGIF Network Enable:	☐
TGIF Network:	TGIF SelfCare

XLX Network Settings

XLX Master:	XLX_493
XLX Startup Module:	E
Time Slot:	☐ TS1 ☒ TS2
XLX Master Enable:	☐

Next screen, leave as default.

General DMR Settings

DMR Color Code:	1
DMR EmbeddedLOnly:	☐
DMR DumpTAData:	☒

Node Access Control

Caution: This section is for advanced multi-user hotspot or repeater usage only!

Node Type:	☒ Private ☐ Semi-Public	Note: Semi-Public mode cannot be enabled without entering at least one allowed ID.
Access List:	7654321	Note: Enter one, or a comma-separated list of DMR/CCS7 IDs which are allowed access without adding each ID, ignore these settings and see the FAQs.

Firewall Configuration

UPnP:	☒ Enabled ☐ Disabled
Note: The following options cannot be made Public until UPnP is Enabled.	
Dashboard Access:	☒ Private ☐ Public
ircDDBGateway Remote:	☒ Private ☐ Public
SSH Access:	☒ Private ☐ Public

Next screen, leave as default.

AccessPoint Mode

Auto AP: ☒ On ☐ Off Note: Reboot Required If changed

Wireless Configuration

(No Connections Configured)

Add Connections

Action:

Select Country:

Auto AP SSID:

WPS:

Remote Access Password

User Name: Password:

NOTE: This changes the password for admin pages, this configuration page AND the 'pi-star' SSH account.

Auto-Updates and Diagnostics

Enable / Disable Auto-Updates & Diagnostics ☒ WPSD sends encrypted/private diagnostics data to the WPSD update servers to determine if updates are available. ☒ Enabled ☐ Disabled

Warning: Disabling Auto-Updates and Diagnostics will completely disable all automated and critical WPSD software updates, as well as hostfiles, talkgroups and user ID (DMR / NXDN) database updates. Also note, by disabling Auto-Updates and Diagnostics, you will forfeit any and all official WPSD support (we can't troubleshoot/support installations that are both outdated and which do not contain any diagnostics data.)

Save settings by clicking on the **APPLY Changes** button and then go to the **Dashboard** and you should see the following screen if all has gone well. Three green lights, **Mode Status: DMR**, **Network Status: DMR Net** and **DMR Status: Enabled**

WPSD Dashboard for VK4PQ

02:43:24 PM, Jul 6 Profiles Appearance Live Caller Simple View Sysinfo Admin

CPU Load	CPU Temp	Memory Usage	Disk Usage	Network Traffic
0%	104°F / 40°C	191.71 MB of 956.63 MB	2.13 GB of 3.09 GB	1.53 MiB + / 1.87 MiB +

Radio Status	TX/RX Freq.	Radio Mode	Modem Port	Modem Speed	TCXO Freq.	Modem Type
IDLE	439.125 MHz	Simplex	/dev/ttyAMA0	115,200 bps	14.7456 MHz	MMDVM_HS_Hat-v1.4.17

Mode Status

D-Star ☒ **DMR**

YSF ☐ P25

M17 ☐ NXDN

DMR X-Mode ☐ YSF X-Mode

POCSAG ☐

Gateway Activity Display TG Names ☒ Caller Details ☒ Hide Kierchunks ☐

Time (AEST)	Callsign	Country	Mode	Target	Src	Dur(s)	Loss
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Local RF Activity

Time (AEST)	Callsign	Mode	Target	Dur(s)	BER	RSSI
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Network Status

D-Star Net ☒ **DMR Net**

YSF Net ☐ P25 Net

M17 Net ☐ NXDN Net

DMR2NXDN ☐ DMR2YSF

YSF2DMR ☐ YSF2NXDN

YSF2P25 ☐ APRS Net

POCSAG Net ☐

DMR Status

TS2 ☒ **Enabled**

DMR ID

DMR CC

DMR Master

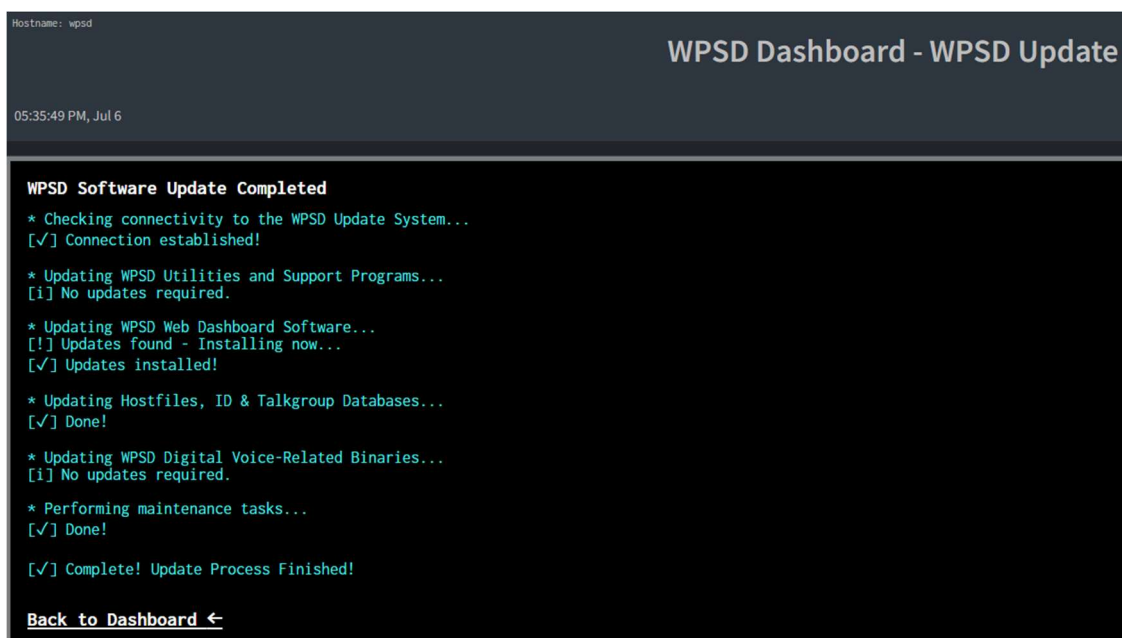
Fault finding: No green lights. Check the following.

Mode Status: DMR not green – then you have not switched DMR on, check the switch is set to green. (Radio/MMDVMHost Modem Configuration - section)

Network Status: DMR Net not green – check your DMR Id number and retype your Brandmeister security password, remember your security password is not your Brandmeister login password it's the security password you setup in self-care on the Brandmeister web page, also make sure the switch **Brandmeister Network Enabled:** is green. (General Config and DMR Config - sections)

DMR Status: Enabled not green – this will turn green when both of the above are corrected.

Last thing before we move on is to click on the top right of the WPSD dashboard where it may be saying updates are available, it pays to run these updates when they are available, this is the screen you will see when the updates are coming in, the updates will take a few minutes the first time you update the settings, so some patience needed. When done click on Back to Dashboard on the bottom left.



That's done, but before we can use it we need to configure a DMR Radio, this will mean creating the COE Plug (DMR radio settings), that will be done in Part 3. So please standby for that to come out, 73's de VK4PQ Peter.

ALWAYS when you are finished with the **HOTSPOT** and want to turn it off – go to **ADMIN** , login , then click **POWER** , wait for the next screen and then click the **SHUTDOWN** (Off) button.

Quick Check on Brandmeister Network to see if the hotspot is active.

To search your hotspot go to the brandmeister dashboard, click on the left side HOTSPOTS, then in the top right of the next window you will see a search box, type your callsign in there and when your callsign appears click on it and you will see a similar picture to below. (Activity on this is from another hotspot)

