DMR2NXDN via Pi-Star hotspot

By

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Introduction

Another mode transcoded! This mode transcodes seamlessly and sounds the same as DMR to DMR.

The NXDN core can be accessed using a Tier 2 DMR radio and done with ease through Pi-Star.

There will be two areas to change, the radio and the Pi-Star hotspot.

This is information I have gathered from online articles, watching Youtube videos and from my own experimenting with Pi-Star. I have not created anything new, full credit must go to the developers of this fantastic software.

Lets get started!

Setting up Pi-Star

The first step is to turn on DMRGateway if not already enabled.

DMR Configuration

Setting	Value
DMR Master:	DMRGateway ▼
BrandMeister Master:	BM_United_Kingdom_2341 ▼
BM Hotspot Security:	
BrandMeister Network ESSID:	2354 None ▼
BrandMeister Network Enable:	🔴
BrandMeister Network:	Repeater Information | Edit Repeater (BrandMeister Selfcare)
DMR+ Master:	DMR+_IPSC2-Scotland ▼
DMR+ Network:	Options=
DMR+ Network ESSID:	2354 None ▼
DMR+ Network Enable:	⚪
XLX Master:	XLX_950 ▼
XLX Startup Module:	Default ▼
XLX Master Enable:	⚪
DMR Colour Code:	1 ▼
DMR EmbeddedLCOnly:	🔴
DMR DumpTAData:	🔴

Apply Changes

Next step, enable DMR2NXDN and click "Apply Changes".

MMDVMHost Configuration

Setting	Value		
DMR Mode:	🔴	RF Hangtime: 20	Net Hangtime: 20
D-Star Mode:	⚪	RF Hangtime: 20	Net Hangtime: 20
YSF Mode:	⚪	RF Hangtime: 20	Net Hangtime: 20
P25 Mode:	⚪	RF Hangtime: 20	Net Hangtime: 20
NXDN Mode:	⚪	RF Hangtime: 20	Net Hangtime: 20
YSF2DMR:	⚪		
YSF2NXDN:	⚪		
YSF2P25:	⚪		
DMR2YSF:	⚪	Uses 7 prefix on DMRGateway	
DMR2NXDN:	🔴	Uses 7 prefix on DMRGateway	
POCSAG:	⚪	POCSAG Paging Features	
MMDVM Display Type:	None ▼ Port: /dev/ttyUSB0 ▼ Nextion Layout: G4KLX ▼		

Apply Changes

NXDN configuration box now appears in the configuration section of Pi-Star.

NXDN Configuration

Setting	Value
NXDN Startup Host:	None ▼
NXDN RAN:	1

Apply Changes

The "Startup Host" can be left as "None" and this is how I've set mine up, or you can

choose from the drop down list and Pi-Star will connect to the host on startup.

NXDN RAN = 1

These are the only settings on Pi-Star to adjust, click "Apply Changes" then your done.

How DMR2NXDN works

The current NXDN Reflector list is updated hourly and can be found at

https://www.pistar.uk/nxdn_reflectors.php

NXDN Number	Description	TG Direct	DMR2NXDN via DMRGateway
505	VKCore, 505	TG 505	TG 7000505
530	New Zealand, 530	TG 530	TG 7000530
1200	Florida, 1200	TG 1200	TG 7001200
5057	VK7 TAS, 5057	TG 5057	TG 7005057
50599	BM NXCore bridge, 50599	TG 50599	TG 7050599
10200	North America, 10200	TG 10200	TG 7010200
26810	Portuguese speaking test, 10268	TG 26810	TG 7026810
10301	Spanish speaking, 10301	TG 10301	TG 7010301
10302	NXDN 10302 Multimode BM 21461 EA Spain	TG 10302	TG 7010302
10303	Italian speaking, 10303	TG 10303	TG 7010303
10304	REM-ADER Spain Group, 10304	TG 10304	TG 7010304
10400	Pacific, 10400	TG 10400	TG 7010400
20000	Europe, German speaking, 20000	TG 20000	TG 7020000
25000	CT NXCore, 25000	TG 25000	TG 7025000
25641	Russia NXDN Net, 25641	TG 25641	TG 7025641
28299	America-Ragchew, 28299	TG 28299	TG 7028299
30639	NorCal-Bridge / Multimode-NXDN, 30639	TG 30639	TG 7030639
31010	Alabama-Link, 31010	TG 31010	TG 7031010
31088	Colorado HD, 31088	TG 31088	TG 7031088

This list shows reflectors available to connect to through Pi-Star and the 2 ways of accessing them. Direct using an NXDN radio through an NXDN enabled Pi-Star repeater/hotspot, or a DMR radio via DMR2NXDN on a Pi-Star hotspot.

Below is a screen shot of some of the above reflectors in the radio codeplug. Note that they are "Group Call" not "Private".

No	Call Alias	Call Type	Call ID
39	TG3 USA	Group Call	3
40	TG31010 ALABAMA	Group Call	31010
41	TG6 XLX	Group Call	6
42	TG7009999	Group Call	7009999
43	TG7010200	Group Call	7010200
44	TG7010400	Group Call	7010400
45	TG7028299	Group Call	7028299
46	TG7031010	Group Call	7031010
47	TG7031088	Group Call	7031088
48	TG7031092	Group Call	7031092
49	TG7031171	Group Call	7031171
50	TG7031188	Group Call	7031188
51	TG7031672	Group Call	7031672
52	TG7065000	Group Call	7065000
53	TG8 DMR+	Group Call	8
54	TG80 UK 1	Group Call	80
55	TG81 UK 2	Group Call	81

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I created several hotspot channels using the reflectors in the picture above making sure to name them with the relevant information. I then created a new zone and named it "NXDN" putting TG7009999 the "Disconnect"command in the 1st position.

I can now navigate the NXDN reflectors with ease. To connect simply select the channel with the reflector you want to use and press and hold the PTT for about a second, you will get a confirmation "Connected to....." and you can listen or put out a call.

If you wish to change reflector simply change to another reflector and press the PTT and connect to a new reflector as above.

Some notes: These reflectors look like DMR talkgroups and in a way they are. They seem to act like DMR dynamic talkgroups however, they don't time out and you cannot open multiple talkgroups at once. This is why they are referred to as reflectors.

I decided to have the "Startup Host" set to "None" as the hotspot I am using only has 1 slot and I do all sorts of experimenting with it. I don't want to overload my single slot with too many things happening at once. The "Disconnect" command TG7009999 is perfect for stopping connections to the NXDN core.