## NANO MMDVM | jTA Duplex hotSPOT mmdvm.bi7jta.org

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## UserGuide for Duplex\_hotSPOT\_v0721

April 17, 2018

for HAT Ver1.0, Ver1.0.1

by bi7jta

## **Configuration for PI-STAR and Radio**

## (1) Get ready for pi-star OS, Connect SMA ANT,Connect RPi to hotSPOT use GPIO.





#### Download Pi-Star IMG here

http://www.pistar.uk/downloads/ for RPi 3B/ZERO Pi-Star\_RPi\_V\*.zip http://www.pistar.uk/beta/ for RPi 3B+

Pi-Star Downloads



Flash pi-star img to SDCard http://wiki.pistar.uk/Main\_Page





Need tools in Windows: SDFormatter, Win32DiskImager , also need USBtoSDCard adapt.



NOTE: Ppzip the file ,write .IMG file to SDCard, not copy,not all SDCards can use for boot, Choose Sandisk or Samsung,8GB enough.

# (2)Controller Mode:Duplex Repeater

(also make sure expert mode Duplex flag 1 not 0)

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Controller Softwore:	COMPRESSION ON CONTRACT (CONTRACT FOR STATE AND FOR STATE AND CONTRACT OF CONTRACT					
Control/Ler Note:	Simplex Node OBuplex Repeater or Helf-Duplex on Hetapeta)					
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		Apply therges				

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GHE Colour Code:	1 日			
DHI Talenbled: Chily:				
OH Day Minter				

http://pi-star/admin/configure.php

User: pi-star

Pass: raspberry

## (3)Set RX/TX MHz , Support UHF and VHF from Ver1.0.1,eg.

RXFrequency 434755000

TXFrequency 439755000

NOTE:

set UHF TX - RX >= 5MHZ to Get better performance, set VHF TX - RX >= 900MHzHZ to Get better performance, Just work at amateur frequencies, and different countries have different amateur frequencies.

## (4) set RXOffset,TXOffset

in expert mode

http://pi-star/admin/expert/edit\_mmdvmhost.php RXOffset=-300

TXOffset=-300

NOTE:

 $\star$  If not set, Error Rate % will hight, -300 is the offset of this bath 14.7456 MHz TCXO offset.

\* If your radio has Offset MHz, please adjust first

You can also adjust the parameters that make the Error Rate % to the lowest.

Callsign		BI7JTA	
Id		4600060	
Timeout		240	
	Duplex	1	
RFModeHang		300	
NetModeHang		300	
Display		None	
Daemon		1	

Apply Changes						
Info						
RXFrequency	434755000					
TXFrequency	439755000					
Power	1					
Latitude	50.000					
Longitude	0.000					
Height	0					
Location	A Town, LOC4TOR					
Description	Country, UK					
URL	http://www.grz.com/db/BI7.					

Apply Changes

Log						
DisplayLevel	0					
FileLevel	2					
FilePath	/var/log/pi-star					

FileRoot	MMDVM					
Apply Changes						
CTT Id						
Enable	0					
Time	10					
	Apply	Changes				
Nodem						
Port	/dev/ttyAMA0					
TXInvert	1					
RXInvert	0					
PTTInvert 0						
TXDelay	100					
RXOffset	-300					
TXOffset	-300					

( 5 ) Program your DMR Radio(Also YSF/P25/Other)
Make sure that:
Radio TX = HotSpot RX
Radio RX = HotSpot TX
Color Code = 1 (same as setting as pi-star).
Repeater Slot = 1 (TS1 as brandmeister.network).
Repeater Slot = 2 (TS1 as brandmeister.network).
Close Allow Talk round option



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China_D_T040001 China_S_T046001	he Signaling Off 🛛 💌 🕅 Hereros Durat/Turareff Code	Jacobs 4 🗖 🛛 Dacada 8 🗖
TO DE LA CONTRACTA	E a a ann an	

## (6) Testing Dial private call to 9990 (Parrot), listening your voice, in TS1, TS2

Dial private call to 4000 (Disconect tip), listening system voice , in TS1, TS2

				shooer	e i Aomin	1 Conn	gurae
		<b>Gateway Act</b>	ivity				
Time (OHT)	Hode	Calleig	n Target	Sec	Dur(s)	Loss	10
13144134 Mir 16th	OMR SLOT 1	8173TA	4000	3.5	2.6	(IN)	0.7
13:44:20 Mor 16th	OMR Slot 2	DOBHVII .	TG 45001	Net	1.2	6%	0.0
13:43:59 Mar 16th	OMR Slot 1	GAGBC	TG 95	Net	3.7	60K	0.0
13:43:39 Mir 16th	OMM SLOT 1	542K	TG 91	Net	0.5	(IK	0.0
13:43:31 Mor 16th	OMR Slot 2	4000	817JTA	Net	1.0	0%	0.0
13:43:27 Mar 16th	OMR SLOT 2	8173TA	4000	8.5	0.7	(IN)	0.2
13:43:20 Mor 16th	OMR Slot 1	142017	TG 91	Net	1.6	6K	0.0
13:43:18 Mar 16th	OMR Slot 2	807113	TG 46901	Net	0.5	606	0.0
13:43:18 Mir 16th	OMR Slot 1	006MP	TG 91	Net	5.9	(IK	0.0
13:42:23 Mar 16th	OMR Slot 1	NINK	TG 3100	Net	0.5	ex.	0.0
13:41:53 Nor 16th	OMR Slot 2	863.0W	TG 46801	Net	14.9	78	0.0
13:41:12 Mor 16th	OMR Slot 1	GOMP 5	TG 91	Net	9.8	8K	0.0
13:40:31 Mor 16th	OMR Slot 1	1187149	TG 3100	Net	8.5	ex.	0.0
13139151 Mar 16th	OMR SLOT 1	64333	TG 3180	Net	0.8	0K	0.8
13:39:46 Mor 16th	OMR Slot 2	864EA3	TG 45001	Net	5.7	125	0.0
13:38:32 Mar 16th	OMR Slot 1	KA18FN	TG 3100	Net	41.3	3%	0.0
13:38:18 Nor 16th	OME SLOT 1	HEIRL	TG 3180	Net	9.5	0K	0.0
13:37:58 Mar 16th	OMR Slot 1	07428	TG 3100	Net	0.5	6%	0.1
13137189 Mor 16th	OMR SLOT 1	K645F	TG 3188	Net	0.5	(IK	0.0
13:36:46 Mar 16th	DMR Slot 1	NP2Q	TG 3100	Net	21.7	0K	8.6
		Local REAC	inity.				
Time (QID)	Made	Collision	Target Sec	Burth	0.000		66T
13-44-14 Mag. 16th	OMP STOR 1	OTTITA .	4990	2.6		50.	35.40
La contrat our store	COMPANY OF COMPANY		4888			10	10.00
	Time (040) 13:044:10 Mar 100h 13:044:20 Mar 100h 13:04:20 Mar 100h 13:04:20 Mar 100h 13:04:20 Mar 100h 13:04:22 Mar 100h 13:04:22 Mar 100h 13:04:22 Mar 100h 13:04:22 Mar 100h 13:04:23 Mar 100h 13:04:23 Mar 100h 13:04:21 Mar 100h 13:04:23 Mar 100h 13:04:23 Mar 100h 13:04:23 Mar 100h 13:04:24 Mar 100h 13:04:24 Mar 100h 13:04:24 Mar 100h 13:04:24 Mar 100h	Film: (241)         Hods           13.44114         Mar. 16(h)         248. S101         1           13.44124         Mar. 16(h)         248. S101         1           13.43127         Mar. 16(h)         248. S101         1           13.43128         Mar. 16(h)         248. S101         1           13.43128         Mar. 16(h)         248. S101         1           13.43128         Mar. 16(h)         248. S101         1           13.44128         Mar. 16(h)         248. S101         1           13.53128         Mar. 16(h)         248. S101         1           13.53128         Mar. 16(h)         248. S101         1           13.53128         Mar. 16(h)	Geteway Act           Yime (GHC)         Node         Calling           13.944124 Mar 166h         098, Slot 1         SC177A           13.944129 Mar 166h         098, Slot 2         SC277A           13.944129 Mar 166h         098, Slot 2         SC277A           13.944129 Mar 166h         098, Slot 2         SC277A           13.943129 Mar 166h         098, Slot 2         SC277A           13.43129 Mar 166h         098, Slot 2         SC277A           13.43127 Mar 166h         098, Slot 2         SC277A           13.43129 Mar 166h         098, Slot 1         XC27           13.43129 Mar 166h         098, Slot 1         XC27           13.43129 Mar 166h         098, Slot 1         XC27           13.44121 Mar 166h         098, Slot 1         XC27           13.44121 Mar 166h         098, Slot 1         XC28           13.44121 Mar 166h         098, Slot 1         XC28           13.94129 Mar 166h         098, Slot 1         XC28           13.94129 Mar 166h         098, Slot 1         XC28           13.94129 Mar 166h         098, Slot 1         XC28           13.9419 Mar 166h         098, Slot 1         XC28           13.9419 Mar 166h         098, Slot 1         XC2	Getewary Activity           Time (Q41)         Mode         Cellady         Target           13.44124 Mc (241)         000         000         Cellady         Target           13.44124 Mc (241)         000         000         Cellady         Target           13.44124 Mc (261)         000         000         Cellady         Target           13.44129 Mc (260)         000         5101         2         Cellady         TG 4800           13.44129 Mc (260)         000         5101         2         Cellady         TG 4800           13.45127 Mc (260)         000         5101         2         Cellady         TG 4800           13.45127 Mc (260)         000         5101         2         Cellady         TG 480           13.45127 Mc (260)         000         5101         2         Cellady         Anne           13.45127 Mc (260)         000         5101         2         Cellady         Kellady           13.45129 Mc (260)         000         5101         2         Cellady         TG 6400           13.45129 Mc (260)         000         5101         1         Cellady         TG 6400           13.45129 Mc (260)         000         5101         1<	Optimizery Activity           Yime (OHC)         Rode         Callsign         Yanget         Sec           13.44.124 Mar 104h         098, Stol 1         872717         Aloge         Mail           13.44.124 Mar 104h         098, Stol 2         828482         TO 400001         Net           13.44.124 Mar 104h         098, Stol 2         828482         TO 400001         Net           13.44.129 Mar 104h         098, Stol 2         828482         TO 400001         Net           13.45.127 Mar 104h         098, Stol 2         828482         TO 54         Net           13.45.127 Mar 104h         098, Stol 2         4000         81777.4         Auge         Net           13.45.127 Mar 104h         098, Stol 2         4000         81777.4         Auge         Net           13.45.128 Mar 104h         098, Stol 2         4000         81777.4         Auge         Net           13.45.128 Mar 104h         098, Stol 2         4000         Net         Net         Net           13.45.128 Mar 104h         098, Stol 2         00100         TO 58         Net           13.45.139 Mar 104h         098, Stol 2         1167149         TO 51000         Net           13.46.139 Mar 104h         098, Sto	Geteway Activity           Time (Q4D)         Hode         Callaign         Target         Scc.         Dur(s)           13.44124 Mrr 100h         04K 5101         1277.4         4000         Mit         2.6           13.44124 Mrr 100h         04K 5101         2         968/82         TG 48000         Mit         2.6           13.44124 Mrr 100h         04K 5101         2         968/82         TG 48000         Mit         3.7           13.43129 Mit 100h         04K 5101         2         968/82         TG 58         Mit         3.7           13.43129 Mit 100h         04K 5101         2         969/8         81777A         Mote         3.7           13.43127 Mit 100h         04K 5101         2         9777A         Mote         4.7           13.43127 Mit 100h         04K 5101         2         9777A         Mote         4.7           13.43127 Mit 100h         04K 5101         2         9777A         4000         Mit         4.7           13.43127 Mit 100h         04K 5101         1         9777A         148         5.8         1.4         1.4           13.44121 Mit 100h         04K 5101         1         97877         5.8         8.4 <td< td=""><td>Optimizery Activity           Time (O(T)         Rode         Callsign         Target         Src         Dard (S)         Loss           13.944124 Mr (160)         098, 5101         51727         Aloge         MI         2, &lt;</td>         0.00           13.944124 Mr (160)         098, 5101         51727         Aloge         MI         2,          0.00           13.944129 Mr (160)         098, 5101         51727         Aloge         MI         2,          0.00           13.944129 Mr (160)         098, 5101         2.6426         T0 61         Het         1,          0.00           13.943129 Mir (160)         098, 5101         2.4626         T0 61         Het         1, 0         0.00           13.943129 Mir (160)         098, 5101         2.4000         Bit         8, 7         0.00           13.943129 Mir (160)         098, 5101         2.0000         Bit         8, 7         0.00           13.943129 Mir (160)         098, 5101         2.00011         T0 51         Bit         5, 0         0.00           13.943129 Mir (160)         098, 5101         1.00096         To 51         Bit         8, 0         0.01         0.00001         Bit         3, 0         0.01</td<>	Optimizery Activity           Time (O(T)         Rode         Callsign         Target         Src         Dard (S)         Loss           13.944124 Mr (160)         098, 5101         51727         Aloge         MI         2, <

(7) Set Static Talkgroups for Timeslot 1 and Timeslot 2, when use DMR mode, eg. <u>https://brandmeister.network/?page=rep-edit&id=4600060</u>

NOTE:Can use 4600060XX XX is 01~99 ,flag different hotSPOT You must to Register and Login first.





(8) Install Nextion and OLED for Duplex hotSPOT View HS board Silk screen, Nextion LCD: (NOTE: Ver1.0.1 VCC,GND not same as Ver1.0, do not reverse +5V and GND, otherwise you will damage your LCD circuit) HotSpot +5V --> Nextion +5V HotSpot RXD --> Nextion TX HotSpot TXD --> Nextion RX HotSpot GND --> Nextion GND

OLED: suggest use 1.3 inch <u>HS 3.3V --> OLED 3.3V</u> <u>HS GND --> GND</u> <u>HS SCL --> SCL</u> <u>HS SDA --> SDA</u>





#### MORE

Web SSH mode http://pi-star/admin/expert/ssh\_access.php (Use IP Address instead) update current OS to the last: sudo pistar-update && pistar-upgrade

### Install Nextion LCD for Duplex hotSPOT

http://mmdvm.bi7jta.org/2018/04/install-nextion-lcd-for-duplex-hotspot.html

Assembly Aluminum alloy Case for duplex\_hotSPOT

http://mmdvm.bi7jta.org/2018/05/assembly-aluminum-alloy-case-for.html

### Firmware upgrade (All update here)

http://mmdvm.bi7jta.org/2018/05/mmdvm-uses-experience-and-skills.html

### Pi-Star OS upgrade sudo pistar-update && sudo pistar-upgrade

#### Amateur radio frequency range Definition in firmware

From:

https://github.com/juribeparada/MMDVM\_HS/blob/d001aeecb3c6d6c2b787ce32117fcae134f6baf e/IO.h

Duplex hotSPOT V1.0 (Hz) #define UHF1\_MIN 42000000 #define UHF1\_MAX 475000000 #define UHF2\_MIN 842000000 #define UHF2\_MAX 95000000

Duplex hotSPOT V1.0.1 Hz(from 20180505) #define VHF1\_MIN 144000000 #define VHF1\_MAX 148000000 #define VHF2\_MIN 219000000 #define VHF2\_MAX 225000000

Demo live Duplex hotSPOT (Please do not modify anything, TKS!)

http://bi7jta.myq-see.com:8088/

⁰ Config template for TYT-MD380 and Pi-Star\_ver0327

https://github.com/nano-mmdvm/Duplex\_hotSPOT

Lig CPS MD380G - TYT\_MD380\_BI7JTA\_v0319\_英文 带中继设置.rdt



⁰Discuss and share

Youtube video share

https://www.youtube.com/playlist?list=PLe3vAuVeEGj\_oXs7N6ewZuQtQh\_D8jBmi Facebook Group https://goo.gl/Zz1mp5

## # Downgrade to official version 1.3.3,

The purpose is to test the AnyTone Radio Compatibility with Duplex HS

# From https://github.com/juribeparada/MMDVM\_HS/releases
# Step by Setp

# 1) login ssh mode: # http://pi-star/admin/expert/ssh\_access.php # default <u># user: pi-star</u> <u># pass: raspberry</u>

# Use Ctrl+C, Ctrl+V, copy the follow CMD to Web SSH windows, then press ENTER

#2) Change system to Read and Write; rpi-rw

#3) Download flash script

<u>curl -OL</u>

https://github.com/juribeparada/MMDVM\_HS/releases/download/v1.3.3/install\_fw\_hsdualhat.sh

#4) make runable <u>chmod +x install\_fw\_hsdualhat.sh</u>

#5) Stop MMDVMHost serice

sudo pistar-watchdog.service stop; sudo systemctl stop mmdvmhost.timer; sudo systemctl stop mmdvmhost.service

#6) Flash to lastest version

./install\_fw\_hsdualhat.sh

sudo pistar-watchdog.service start; sudo systemctl start mmdvmhost.timer; sudo systemctl start

<sup>#7)</sup> Startup MMDVMHost service

#### mmdvmhost.service

More discuss please join facebook group <a href="https://www.facebook.com/groups/nano.mmdvm/">https://www.facebook.com/groups/nano.mmdvm/</a>



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#### UserGuide for Repeater Kit Board (LinkerV3)

April 16, 2018



Repeater Kit Board interface definition (for Nano series) #MMDVM#, using with MOTO GM338/GM300/M120/GM3188, Interface definition reference, other devices follow board interface "PTT/TX/GND/RSSI/COR/RX".



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### NANO Series DIY Project for MMDVM (INSTRUCTIONS and PRICE)

May 05, 2018



The follow content I will show my project.

About Duplex hotSPOT 65\$

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