UserGuide for Duplex_hotSPOT_v0721

April 17, 2018

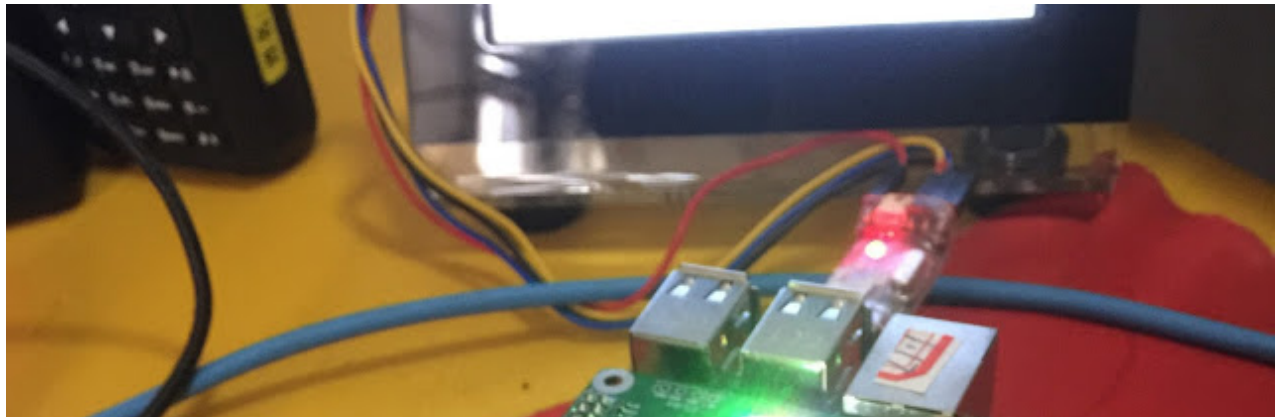
for HAT Ver1.0,Ver1.0.1

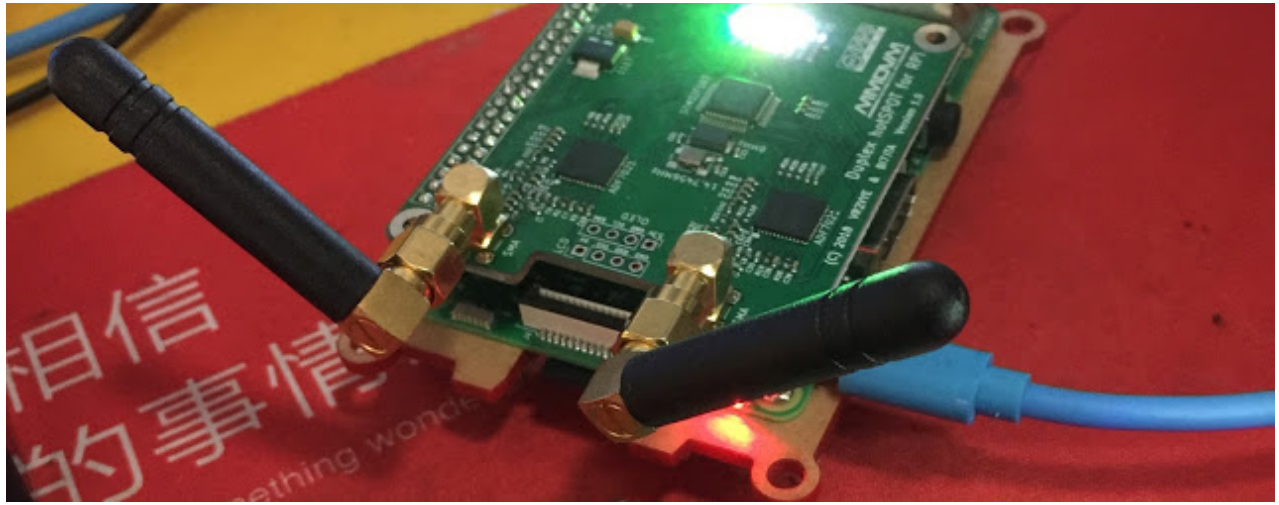
by bi7jta

Configuration for PI-STAR and Radio

(1) Get ready for pi-star OS,

Connect SMA ANT,Connect RPi to hotSPOT use GPIO.

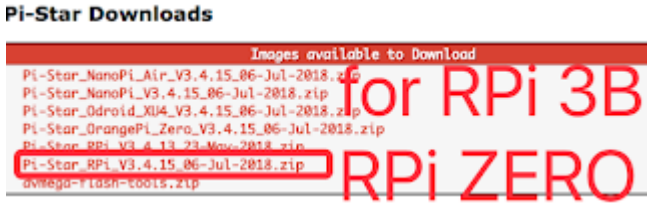




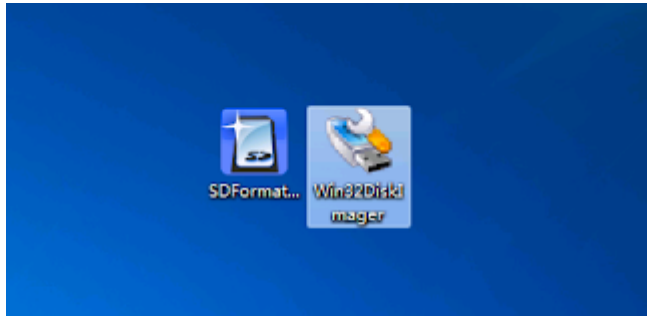
Download Pi-Star IMG here

http://www.pistar.uk/downloads/ for RPi 3B/ZERO Pi-Star_RPi_V*.zip

http://www.pistar.uk/beta/ for RPi 3B+



Flash pi-star img to SDCard http://wiki.pistar.uk/Main_Page

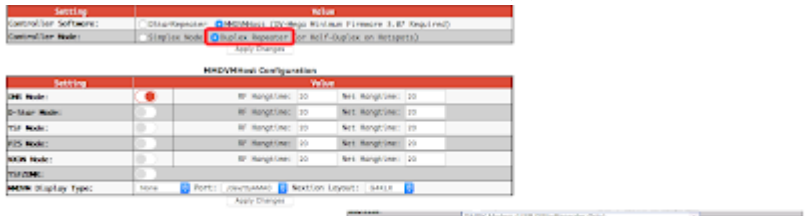


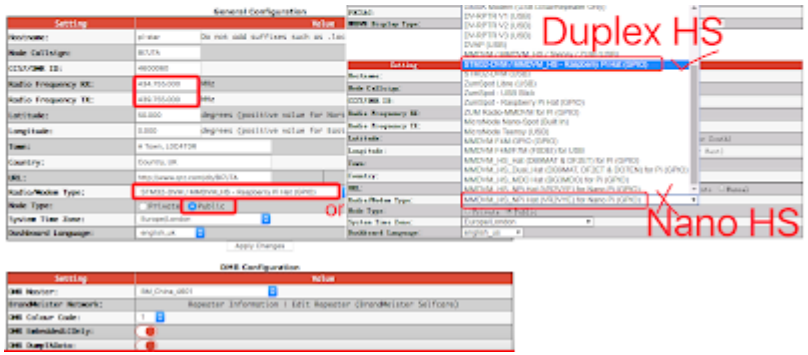
Need tools in Windows: SDFormatter,Win32DiskImager ,also need USBtoSDCard adapt.

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)





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

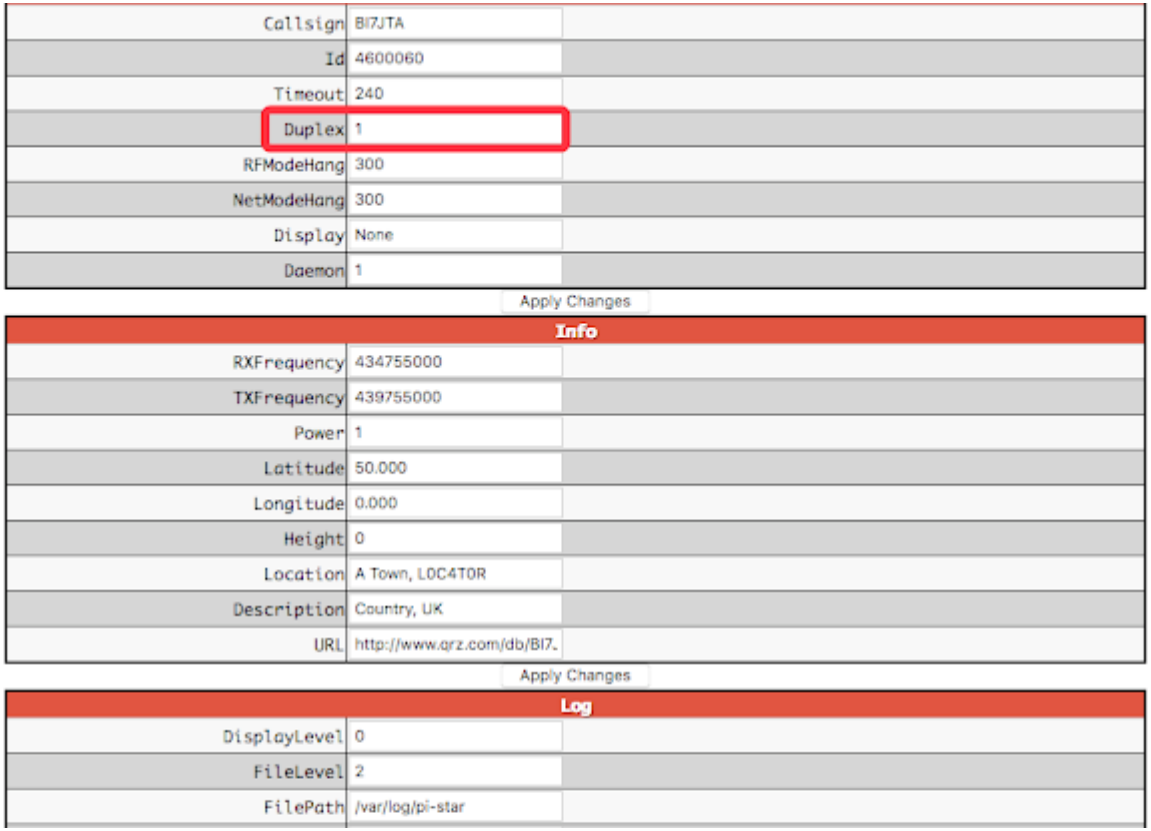
NOTE:

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：
* If not set,Error Rate % will hight, -300 is the offset of this bath 14.7456MHz 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.



FileRoot	MMDVM

Apply Changes

CW Id	
Enable	0
Time	10

Apply Changes

Modem	
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

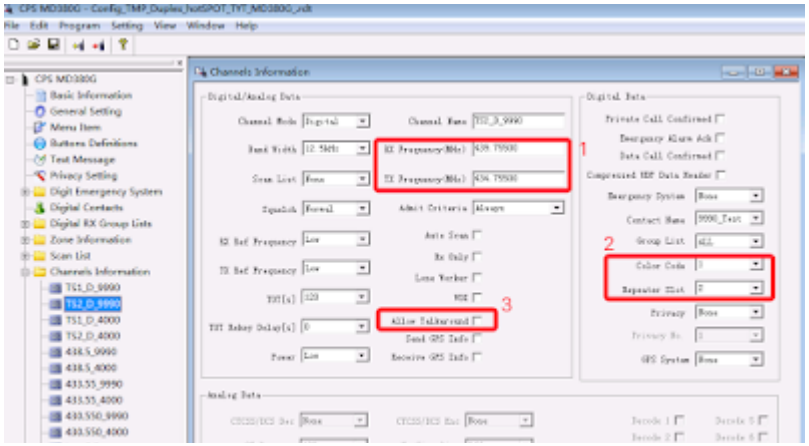
Radio RX = HotSpot TX

Color Code = 1 (same as setting as pi-star)

Repeater Slot = 1 (TS1 as brandmeister.network)

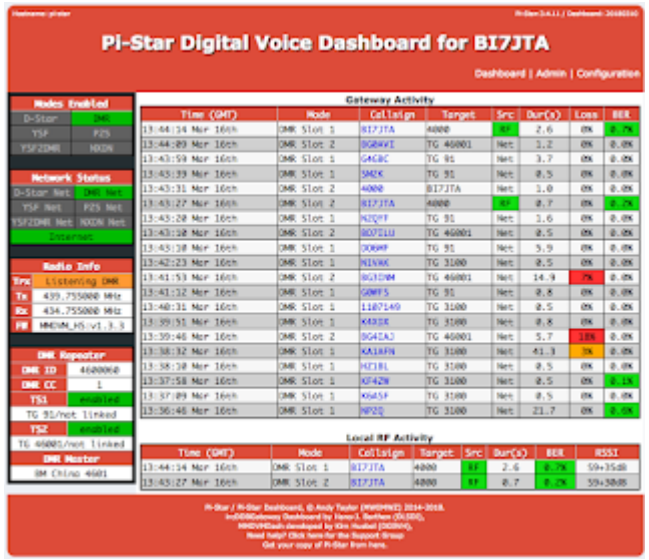
Repeater Slot = 2 (TS1 as brandmeister.network)

Close Allow Talk round option



(6) Testing

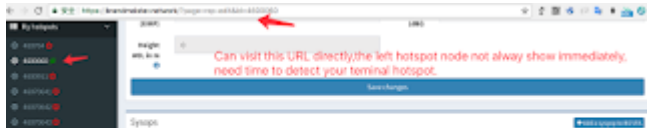
Dial private call to 9990（Parrot）,listening your voice,in TS1,TS2
Dial private call to 4000 (Disconect tip),listening system voice ,in TS1,TS2



(7) Set Static Talkgroups for Timeslot 1 and Timeslot 2 ,when use DMR mode,

eg. *https://brandmeister.network/?page=rep-edit&id=4600060*

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

HS 3.3V --> OLED 3.3V

HS GND --> GND

HS SCL --> SCL

HS SDA --> SDA

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/d001aeecb3c6d6c2b787ce32117fcae134f6bafe/IO.h

Duplex hotSPOT V1.0 (Hz)
#define UHF1_MIN 420000000
#define UHF1_MAX 475000000
#define UHF2_MIN 842000000
#define UHF2_MAX 950000000

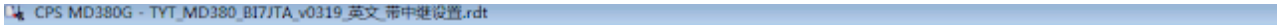
Duplex hotSPOT V1.0.1 Hz(from 20180505)
#define VHF1_MIN 144000000
#define VHF1_MAX 148000000
#define VHF2_MIN 219000000
#define VHF2_MAX 225000000

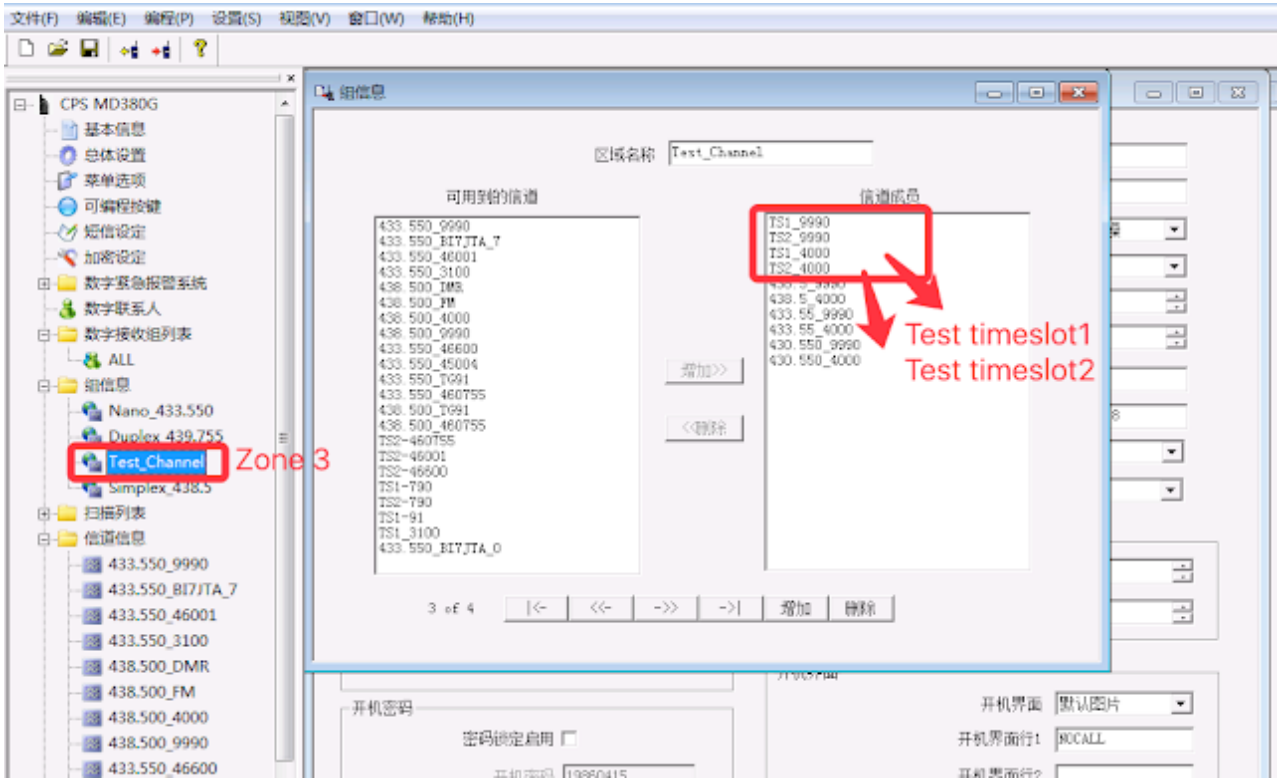
Demo live Duplex hotSPOT (Please do not modify anything,TKS!)

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

Config template for TYT-MD380 and Pi-Star_ver0327

https://github.com/nano-mmdvm/Duplex_hotSPOT





Discuss 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
 # user: pi-star
 # pass: raspberry

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
curl -OL
https://github.com/juribeparada/MMDVM_HS/releases/download/v1.3.3/install_fw_hsdualhat.sh

#4) make runable
chmod +x install_fw_hsdualhat.sh

#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

#7) Startup MMDVMHost service
sudo pistar-watchdog.service start; sudo systemctl start mmdvmhost.timer; sudo systemctl start

mmdvmhost.service

More discuss please join facebook group
https://www.facebook.com/groups/nano.mmdvm/

Duplex_hotSPOT UserGuide

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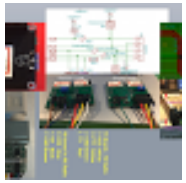

Repeater Kit Board interface definition (for Nano series) #MMDVM#, using with MOTO GM338/GM300/M120/GM3188, Interface definition reference, other devices follow board interface "PTT/TX/GND/RSSI/COR/RX" . ...

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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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