ZUMspot/PiStar ZUMspot/Pi-Star Bring-up and initialization Updated for Pi-Star v4.1.5

David Hull, KC6N



Revised (11/26/2021)

Preface

This document covers initial setup and maintenance of ZUMspot based "hotspots" running on Raspberry PiZeroW (or Pi3) platforms using Pi-Star software. Parts I through III describe steps needed to bring up a new system. This is followed by a series of appendices that cover other topics likely to be encountered during subsequent operation.

Contents

- Preparing your ZUMspot for first use
 - Part I: Preparing a Pi-Star µSD card
 - Part II: Configuring/Customizing Pi-Star
 - Part III: Configuring your radios
- Appendices: (specific topics and issues)
 - Updating FW, Setting up Brandmeister, Access to special features, etc.

Note on SW versions:

Many of the screen shots in the first sections are based on release 3.4.11. Some of the material in the appendices are based on later versions. Everything in the PDF should work on versions up to and including the version referenced on the title page. It is a bit of work to replace the screenshots each time a new release is made so I don't do it if the older ones are still good. As a result, if you are bringing up something later than 3.4.11, your screens might look slightly different in some cases.

ZUMspot/PiStar

Part I Preparing a µSD card with a Pi-Star Image

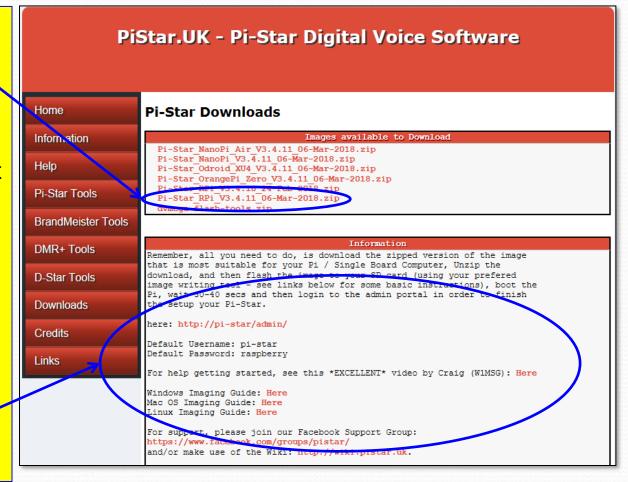
Do this section if you are starting anew with a blank μ -SD card, or you are upgrading to a new version using a new blank card. If you are starting from a kit that came with an imaged card, as long as the image is later than v3.4.11 (and it probably will be) you can skip to Part II.

Download the Pi-Star Image (1)

	e following URL: w.pistar.uk/index.php	Pi	iStar.UK - Pi-Star Digital Voice Software
		Home	Home
Click: "D	ownloads", Click: "Download Pi-	Information Help	Pi-Star is a software image built initially for the Raspberry Pi (produced by the Raspberry Pi Foundation). The design concept is simple, provide the complex services and configuration for Digial Voice on Amateur radio in a way that makes it easily accessable to anyone just starting out, but make it configurable enough to be interesting for those of us who can thelp but tinker.
Star"		Pi-Star Tools	PI-Star can be what ever you want it to be, from a simple single mode hotsport running simplex providing you with access to the increasing number of Digital Voice networks, up to a public duplex multimode repeater!
		BrandMeister Tools	The world is at your fingertips, and the choices are yours!
Pi	Star.UK - Pi-Star Digital Voice Software	DMR+ Tools	If you like to get your hands dirty, delve beneath the simple to use web based dashboard, Pi-Star provides some unique tools to make administration easy, but we also encourage those who want to understand what the system is and how it works to be as involved as they want to be!
		D-Star Tools Downloads	Most importantly, have fun using Pi-Star!
Home	Pi-Star Downloads	Download Pi-Star	Pi-Star Digital Voice Dashboard for MW0MWZ
Information	Images available to Download Pi-Star NanoPi Air V3.4.11 06-Mar-2018.zip		Hodes Spolind 0-Star 040 735 P25TAR 0 P35TAR
Help	Pi-Star NanoPi V3.4.11 06-Mar-2018.zip Pi-Star Odroid XU4 V3.4.11 06-Mar-2018.zip	Credits	Ketemork Status Celor B OHGAR U Blackwood Club Menbers Group 30 30 Last 20 cells heard via this Gateway Star Ket OHK Ket Trans (Status)
Pi-Star Tools	Pi-Star OrangeFi Zero V3.4.11 06-Mar-2018.zip Pi-Star RPI V3.4.10 24-Peb-2018.zip Pi-Star RPI V3.4.11 06-Mar-2018.zip dymega-flash-tools.zip	Links	Type And P/25 Anel Dial Dial <thdia< th=""> <thdial< th=""> Dial</thdial<></thdia<>
BrandMeister Tools	dvmega-iiasn-coois.zip		To: Elseming 2017-465-300 166:19:25 2048. Stot 2 Autom 16:6 4et 16 6d:0 0.00 To: 451:187900 Her 2027-455-300 16:19:25 Delt 2:10 Stot 2 Autom To: 91:10700 Her 06 0.00
DMR+ Tools	Information Remember, all you need to do, is download the zipped version of the image		Distant See 2017/04/2 2017/05-30 Encide Distant CopyCQC via REMOND C Net 0.7 Distant Representer 2017/05-30 Encide Distant CopyCQC via REMOND C Net 0.7<
D-Star Tools	that is most suitable for your Pi / Single Board Computer, Unzip the download, and then flash the image to your SD card (using your prefered image writing tool - see links below for some basic instructions), boot the		MINUNCA O 2017-055-09 161:10-12 D-51:00 MINUNCA O 2017-055-09 161:10-12 0.06 DPS:LINE INFERSION 0007-055 06.09 05:00:00 0002000 00000 0000
Downloads	Pi, wait 30-40 secs and then login to the admin portal in order to finish the setup your Pi-Star.		Discourse Province 2017-05-30 15:541-49 D-Stor Marcine COCQCQ Net 1.2 96X 0.86 Linked to ReFerei T. 2017-05-30 15:541-49 D-Stor Marcine COCQCQ Net 1.2 96X 0.86 Linked to ReFerei T. 2017-05-30 55:451-30 D-Stor Marcine COCQCQ Net 0.4 0.86 0.86 2017-05-30 D-Stor Communication D-Stor Communication 0.86 0.86
Credits	here: http://pi-star/admin/		DHR. Repeater 2817-85-30 15:47:88 0-5tor Destar Logs and Logs 4.2 96 0.06 DHR. TO 2553159 2017-85-30 15:47:48 0-5tor DESTAR 0.46 4.6 8.6 0.06 DHR. CC 1 2017-95-30 15:47:30 D-5tor DESTAR 0.5tor
Links	Default Username: pi-star Default Password: raspberry		T51 disabled T52 embled T6 (J)-obs Time (851) Hold Time (851)
	For help getting started, see this *EXCELLENT* video by Craig (W1MSG): Here		Operation Control Contro Control <thcontrol< th=""> <t< th=""></t<></thcontrol<>
	Windows Imaging Guide: Here Mac OS Imaging Guide: Here Linux Imaging Guide: Here		n Haar / Alaar / Alaar Alaar / Alaar / Maad / Haar / Cit Alaar kas for the Baguet Chrow Gel gan gan gang yar Ala dha faan han ka
	For support, please join our Facebook Support Group: https://www.facebook.com/groups/pistar/ and/or make use of the Wiki: http://wiki.plstar.uk.		pistar.uk website designed and developed by Andy Taylor (MWOMWZ) - andy®mw0mwz.co.uk © 2017-2018 MWOMWZ. All rights reserved. All trademarks acknowledged. index.php last modified on 12/09/17 at 19:14 +0000

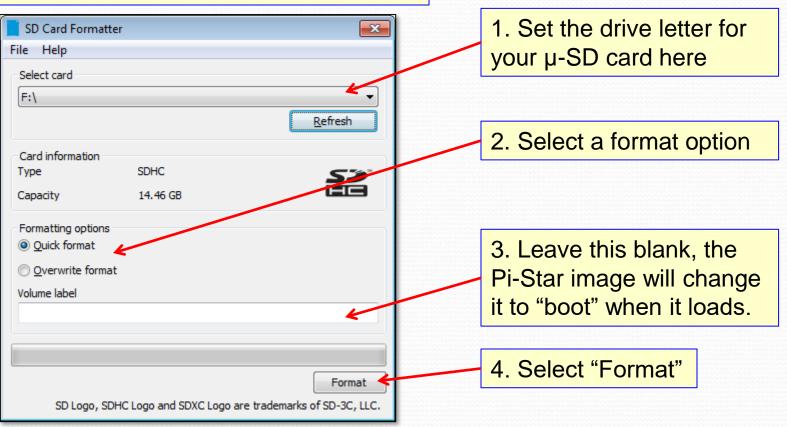
Download the Pi-Star Image (2)

- Download the file with the name "Pi-Star_Rpi..." and save it somewhere that you will remember.
- Note this is a "zip'ed" file, you will need to "un-zip" it to get the xxx.img file which you will put on your μ-SD card.
- 3. Unzip the folder and note the "xxx.img" file (that is what you will use later)
- Note that there are some other interesting links on, this page you may want to look at as well.



Format a blank µSD Card

Use "SDFormatter" to format a μ -SD card prior to loading an image.



Transferring the image

- The XXX.img file is a compressed µ-SD card image which must be uncompressed by an imager program to create the file structure on the final µ-SD card.
- There are several options out there, here are three that all work very well:
 - Win32 Disk Imager
 - SDImager
 - Etcher

Using Win32 Disk Imager

Write

Device

[F:\]

Exit

Option 1: Writing an image to a μ-SD card using "Win32 Imager".

C:/Users/dhull/Desktop/Pi-Star_RPi_V3.4.11_06-Mar-2018.img

Cancel

Read

🛬 Win32 Disk Imager

Copy MD5 Hash:

Version: 0.8

10.355MB/s

Image File

Progress

1. Navigate to your image file (for example): Pi-Star_RPi_V3.4.11_06-Mar-2018.img

2. Set the drive letter of your μ -SD card: "F" (in this case)

3. Select "Write" and be prepared to wait a while as the green progress bar creeps along.

Note: To back up an image, simply reverse the process: In step 1, designate a the path and filename to a spot on your HDD where you want to save the image, in step 2, select the drive letter for the μ -SD card. Click "Read". This will copy an image of the card to an .img file on your HDD. You can then use the "Write" process to "clone" another card. Note: I never do this, I always image a new card.

Using SDImager

Option 2: Writing an image to a µ-SD card using SD Imager.

SD Imager (Writin	g: 62 %)
SD drive	
F:\[FAT, USB: 14	,804 MB]
Volume:	F:
Format:	FAT
Partition:	Disk #2, Partition #0
	\\.\PHYSICALDRIVE2
Physical drive size: Model:	Generic- USB3.0 CRW -SD USB Device
Image file	¥
C:\Users\dhull\De	esktop\Pi-Star_RPi_V3.4.11_06-Mar-2018.img
Onenting	
Operations	
Read	Write Format Cancel
Progress	
Transfer speed:	9.8 MB/s
Bytes remaining:	
Time remaining:	0:01:10

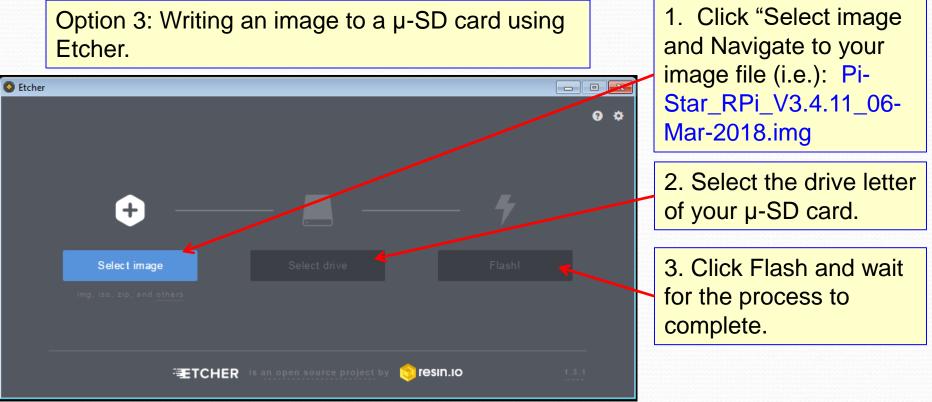
 Set the drive letter of your μ-SD card: "F" (in this case)

2. Navigate to your image file (i.e.): Pi-Star_RPi_V3.4.11_06-Mar-2018.img

3. Select "Write" and be prepared to wait a while as the green progress bar creeps along.

Note: You can back up an image and clone cards as described for Win32 Disk Imager on the previous slide. Note that this application can also format a card. This application does everything you need.

Using Etcher



This is a nice applet that has a very simple interface that a lot of people like. It also validates the image as part of the flash process *and can be initiated from the .zip file*. I prefer the "portable" version since I can take it with me on a thumb drive.

Websites:

• Win32DiskImager:

https://sourceforge.net/projects/win32diskimager/

SDImager:

https://sourceforge.net/projects/sdimager/

- Etcher: <u>https://etcher.io/</u>
- SDFormatter:

https://www.sdcard.org/downloads/formatter_4/

ZUMspot/PiStar

Part II Bringing up ZUMspot/Pi-Star the first time

You now have an imaged card, let's configure pi-star with your customized setup.

Gather up the following:

- Basic ZUMspot kit
 - ZUM Board (w/ Antenna)
 - Raspberry Pi ZeroW (w/ connector)
 - µSD card (w/ Image, v3.4.11 or later)
 - Case (Optional)
- Windows or iOS PC with Internet access
- USB µSD card reader
- WiFI Credentials for at least one WiFi connection (SSID and PSK), DMR ID

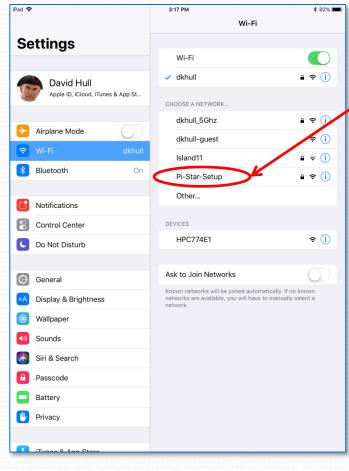
Before you start:

- Install the ZUMspot onto the Raspberry Pi Zero/W – case optional at this point.
- Install The ZUMspot's antenna.
- Install the µSD card you just prepared with the Pi-Star image
- Power up the assembled contraption and wait about 3 minutes for it to complete it's boot sequence.

Pi-Star starts in AutoAP mode

- Pi-Star automatically forms a WiFi access point if it cannot otherwise make a connection after a couple minutes.
- Search for the WiFi network "Pi-Star-Setup" on your PC and join it.
- Point a browser to <u>http://pi-star</u> (PC) or <u>http://pi-star.local</u> (MAC/IOS)
- Log into Pi-Star setup and wait for the Initial Pi-Star info screen.

Example: Pi-Star AutoAP



Using a WiFi enabled device (iPhone, iPad, PC etc.) you should see that Pi-Star has formed a WiFi network called "Pi-Star-Setup". This should appear as one of your WiFi options after 2 to 3 minutes as shown here (on an Apple iPad). Join this network (PW: raspberry).

Point the browser to "http://pi-star.local" (iOS) or "http://pi-star" (Windows) as described on the previous page and log onto your Pi-Star.

Once log'ed on, you should see the Initial Pi-Star info screen shown on the next page. Proceed to set up Pi-Star as directed below. Make sure that you set up at least one WiFi account when directed toward the end so you can connect your hot spot.

Initial Pi-Star Info Screen:

Hostname: pi-star

Pi-Star: 3.4.11 / Dashboard: 20180305

Pi-Star Digital Voice Dashboard for M1ABC

Dashboard | Admin | Configuration

No Mode Defined...

I don't know what mode I am in, you probaly just need to configure me.

You will be re-directed to the configuration portal in 10 secs

In the mean time, you might want to register on the support page here: https://www.facebook.com/groups/pistar/

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DL5DI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Wait about 10 seconds for the security pop-up to appear.

Windows Security Pop-Up:

Hostname: pi-star

Pi-Star: 3.4.11 / Dashboard: 20180305

Pi-Star Digital Voice Dashboard for M1ABC

Dashboard | Admin | Configuration

No Mode Defined...

I don't know what mode I am in, you probaly just need to configure me.

Windows Security	10 secs	
The server pi-star is asking for your user name and password. The server reports that it is from Restricted. Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure. User name Password Remember my credentials	1. Enter the following: User name: "pi-star' Password: "raspber 2. Click "OK"	

Pi-Star Configuration Screen:

			Admin Expert Power Update Backup/Restore Fact	any read
Benteren		Gateway Hardw	are Information	
pi-star 4	.9.35+	Pi Zero W Rev	v 1.1 (512MB) 0.03 / 0.13 / 0.1 37.9°C / 1	amp 100.2°F
Setting		Control	Software Value	
Controller Software:	OStarRepe	ater ® MADVAHos	t (DV-Mega Minimum Firmware 3.07 Required)	
Controller Mode:	Simplex N	ode ODuplex Re	peater (or Half-Duplex on Hotspots)	
		Apply C	hanges	
		General Co	nfiguration	
Setting			Value	
Hostname:	pi-star	Do not add a	uffixes such as .local	
Node Cellsign:	M1ABC			
Radio Frequency:	431.075.000	MHa		
Letitude:	50.000		itive value for North, negative for South)	
Longitude:	0.000		itive value for East, negative for West)	
Town:	A Town, LOC4	TOR		
Country:	Country, UK			
URL:	http://www.qrz	z.com/db/M1ABC	© Auto OManual	
Radio/Moden Type:			~	
Node Type:	• Private			
System Time Zone:	Europe/Londo		~	_
Dashboard Language:	english_uk	✓		
		Apply C	hanges	
		D-Star Cor	nfiguration	
Setting RFT1 Cellsign:	маавс В Х	7	Value	
RFT1 Callsign: RFT2 Callsign:	MIABC G	~		
Remote Password:			1	
Default Reflector:	REF001 V		Startup OManual	
APRS Host:	england.aprs2		o start up o handa	
ircDDBGeteway Language:	English_(UK)	~		
Time Announcements:				
Use DPlus for XRF:			Note: Update Required if chan	ged
		Apply C	Changes	
		Firewall Co	nfiguration	
Setting		The Wall Co	Value	
Dashboard Access:	Private	O Public		
ircDDGBeteway Remote:	• Private			
	Private			
SSH Access:	On Orr			
SSH Access: Auto AP:	Con Our		Note: Reboot Required if changed	
	won Obri	Apply C		
			Changes	
Auto AP:		Apply C Wireless Co	Changes	<u></u>
	pter) Configure \	Apply C Wireless Co WFI	Changes on figuration	^ ^
Auto AP: (Refresh) (Reset WIFI Ada Interfa	pter) Configure \	Apply C Wireless Co	hanges Infiguration n and Statistics	^ ^
Auto AP: Refresh Reset WIFI Ada Interface Name : wlan0 Interface Status : Interface	oter) Configure Wir ce Information	Apply C Wireless Co WFI	hanges onfiguration n and Statistics	^ ^
Refresh Reset WFI Ada Interface Name wieno Interface Status : Interfa	ce is up	Apply C Wireless Co WFI	nnfguration n and Statistics Connected To : Kull AP Mac Address : 48:18:b3:08:	
Auto AP: Refresh Reset WIFI Ada Interface Name : wlan0 Interface Status : Interface	pter) Configure 1 Wir ce Information ce is up 34 55.0	Apply C Wireless Co WFI	hanges Infiguration n and Statistics	
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Refresh Reset WFI Ada Interface Name ; wlan0 Interface Status ; Interfa IP Address ; 192.166.1.1 Subott Mask ; 252.252.2; Mac Address ; b92.7reb.5 Mac Address ; b92.7reb.5	ce is up 55.0 face Statistics	Apply C Wireless Co WFI	hanges Infiguration a and Statistics Wireless Information Connected To : dkhull AP Mac Address : 48:f8:13:48:45:07 Birlynte : 6:5.0 MBirly 8 Signal Level : -29 dBm	
Refresh Reset WFI Ada Refresh Reset WFI Ada Interface Name : wiano Interface Status : Interfa IP Adaress : 192,168.1.1 IP Adaress : 192,168.1.1 Received Packets : 1041 Received Packets : 1041 Received Packets : 1041	oter) Configure 1 Wir ce Information ce is up 34 5:50.0 5:88:e0 face Statistics (200.0 KiB)	Apply C Wireless Co WFI	hanges and Statistics Connected To : dihuli AF Mac Address : dirbuli Birster 6:5.0 MBirja Signal Level : -29 dBm Transmit Power : 31 dBm	
Auto AP: (Refresh) (Reset WFi Ada Interface Name: Wand) IP Address : Wand) IP Address : 192.168.1.1 Nac Address : 192.168.1.1 Nac Address : 192.168.1.1 Received Packets : 204801	oter) Configure 1 Wir ce Information ce is up 34 5:50.0 5:88:e0 face Statistics (200.0 KiB)	Apply C Wireless Co WFI	hanges and Statistics Connected To : dihuli AF Mac Address : dirbuli Birster 6:5.0 MBirja Signal Level : -29 dBm Transmit Power : 31 dBm	
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Refresh Reset WFI Ada Refresh Reset WFI Ada Interface Name : wiano Interface Status : Interfa IP Adaress : 192,168.1.1 IP Adaress : 192,168.1.1 Received Packets : 1041 Received Packets : 1041 Received Packets : 1041	oter) Configure 1 Win ce Information ce is up 45.0 5:8a:e0 (200.0 KiB) (200.0 KiB) (4 (208.0 KiB)	Apply C Wireless Co WFI eless Information	nnfiguration and Statistics Connected To Graduate Statement Konnected To Graduate Connected To Graduate Connec	
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This will bring you the "Pi-Star Configuration Screen" to the right. The default setup is probably going to show DSTAR.

In the "General Configuration" block, select "ZUMspot – Raspberry Pi Hat (GPIO)" as the Radio/Modem Type and click "Apply Changes"

		General Configuration
Setting		Value
Hostneme:	pi-star	Do not add suffixes such as .local
Node Cellsign:	M1ABC	
Radio Frequency:	431.075.000	MHz
Letitude:	50.000	degrees (positive value for North, negative for South)
Longitude:	0.000	degrees (positive value for East, ne ative for West)
Town:	A Town, LOC4TOR	2
Country:	Country, UK	
URL:	http://www.qrz.com	m/db/M1ABC @Auto OManual
Radio/Moden Type:	ZumSpot - Raspb	erry Pi Hat (GPIO)
Node Type:	Private O Put	ablic
System Time Zone:	Europe/London	\checkmark
Dashboard Language:	english_uk 🗸	
		Apply Changes

Pi-Star Apply Changes Notice

After clicking "Apply Changes", please wait for Pi-Star to go through it's update and re-set process. This screen comes up 20 seconds or so after applying new changes followed shortly by the return of the configuration screen with the new changes applied. You will do this several times during this setup and will need to wait out this cycle each time.

			Pi-Star	:3.4.11 / Dashboard: 20180
	Pi-Star I	Digital Voice - Conf	iguration	
		Dashboard Admin Expert Po	ower Update Backup/R	estore Factory Re
		Gateway Hardware Information		
Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.77 / 0.53 / 0.24	31.5°C / 88.7°I
	Stopping ser	Working wices and applying your configurat	ion changes	
		Done		
	(Changes applied, starting services.		
	1	Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-20 Need help? Click here for the Support Group Get your copy of Pi-Star from here.	018.	

Modem Warning Pop-Up:

			Power Update Backup/Restore	Factory
Hostname pi-star	Kernel 4.9.35+	Gateway Hardware Information Platform Pi Zero W Rev 1.1 (512MB)	CPU Load (CPU Temp
	Mess	WARNING: The Modem selection section has been Please re-select your modem from the I		
	Message f	rom webpage WARNING: The Modem selection secti	ion has been updated, em from the list.	x

Once this first reset cycle completes, you will probably be greeted with a message asking you to re-select your modem from the dropdown list. If so, select "ZUMspot – Raspberry Pi Hat (GPIO)" again.

Setting Hostneme: Node Cellsign:	pi-star	-	Val	lue
	pi-star			
Node Cellsign:		Do not ad	d suffixes such a	a .local
-	M1ABC			
Radio Frequency:	431.075.000	MHz		
Letitude:	50.000	degrees ()	ositive value fo	r North, negative for South)
Longitude:	0.000	degrees (ositive value fo	r East, negative for West)
Town:	A Town, L0C4T0F	R		
Country:	Country, UK			
URL:	http://www.qrz.com	m/db/M1A		Nato OManual
Radio/Moden Type:	ZumSpot - Raspberry Pi Hat (GPIO)			×
Node Type:	• Private O P	ublic		
System Time Zone:	Europe/London		~	
Dashboard Language:	english_uk 🗸	'		
		App	ly Changes	

After re-entering the Modem Type, click "Apply Changes" once again and let it reset.

Pi-Star Configuration Screen:

i-Star Digital	Voice - Configuration
Des	Noord Admin Expert Power Update Bockup/Restore Postory Rea
Getewe	y Herdware Information
.0.35+ Fi 18	FARCODE CPU LONG CPU THED ATO W MAY 1.1 (512m) 0.53 / 0.25 / 0.15 38.5"C / 101.3"F
	Control Software
Onitarnepeater @s	value corvonce: (rv-mega minimum rizzware 3.07 meguired)
@ Simplex mode Op	ourneuset (zv-mega minimum rirmmare 3.07 megnired) uplex mepeater (or walf-puplex on motepote)
	Apply Charges
MMD	VMHost Configuration
	nr sangtina: 20 met sangtina: 20
	nr mangnime: 20 met mangnime: 20
	mr mangtima: 20 met mangtima: 20
	sr manguine: 20 met manguine: 20 nr manguine: 20 met manguine: 20
	and and the second to
	dewityAMAD V mextion seyout: G4KLX V
	Apply Changes
Ge	nerel Configuration
pi-star ee n	value of add suffixes such as .local
MIABO	
	ese (positive value for worth, negative for Routh)
0.000 dage	ess (positive value for morth, negative for South) ess (positive value for mast, negative for mest)
A Town, LOC4TOR	
Country, UK	
http://www.grz.com/db/h	MIABC @auto Osanual
Berlines Origina	~
EuropeLondon	Y
english_uk 🗸	
	Apply Changes
	MR Configuration
DMRGeteway	Vilia V
1 1	
_	Apply Changes
	Star Configuration
	value
sixn0 B V sixn0 G	
REFOOL CV	@ grarrup Owanual
English_(UK)	<u></u>
	wors: update mequired if changed
	Apply Changes
fin	ewell Configuration
O private O public	
Sprivate Orublic	
Barivate Osublic Bon Oper	note: meboot mequired if changed
	Apply Changes
wie	release Configuration
wir ster) (Confgure WFI)	
Wie ter) Configure WFI Wireless Inf ce Information	formation and Statistics Wireless Information Connected Ta: 4 Abull
Wie ter) Configure WFI Wireless Inf ce Information	formation and Statistics Windows Information Connected To : Albuli AP New Address : 48:56:53:db:s5:07
Wie ter) Configure WFI Wireless Inf ce Information	formation and Statistics Wireless Information Connected Ta: 4 Abull
wir ster) (Confgure WFI)	Connection and Statistics Wirk was Enformation Romested To : default AP Mee Address : 44/5x50-disasto7 Biferds : 72.2 MBir/s Biferds Level : - 22 MBir/s
win ter Configure WFD Windows 2nd or Information ce is up 14 15.0 SIGE:e0 face Statistics	formation and Statistics Windows Information Connected To : Albuli AP New Address : 48:56:53:db:s5:07
win ter Configure WFD Windows 2nd or Information ce is up 14 15.0 SIGE:e0 face Statistics	Connection and Statistics Wirk was Enformation Romested To : default AP Mee Address : 44/5x50-disasto7 Biferds : 72.2 MBir/s Biferds Level : - 22 MBir/s
wio tata Configure WF) Wireless Info s Information s Information Side and Side a	American and Statistics Ar West Arg (Shad) a St (O') Strokes (72, 1985) (43, 45, 60) Strokes (72, 1985) (43, 45, 60) Strokes (72, 1985) (43, 45, 60) Strokes (72, 1985) (43, 45, 45, 45, 45, 45, 45, 45, 45, 45, 45
wio tata Configure VAR Wireless Info cs Information cs Information 33.0 35.65=0 (c48.0 Kib) 57 (908.8 Kib) Information pro-	Internation and Statistics Conversion 27 No. 10 August Informations Conversion 27 20 Million Conversion 27 20 Million Figure 122 Million Link Quality : 20/70 Million 22 Million Link Quality : 20/70 Million 20 Million
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vice stall Configure Vice Wireless Into ce Information Issa Sisa S	Armanian and Sacialize Ar Reaching and Sacialize Sacialized Structure (Sacialized Sacialized Saci
vice stall Configure Vice Wireless Into ce Information Issa Sisa S	Spenden and Statistics Econocidal To Edibuil AF Rec. Address : 44 (825 address): 67 Biores : 72 (851) Biores : 72 (851) Creaming Transitions : 73 Address : 43 (851) Address : 45 (
vices vices of sources vices	Armanian and Sacialize Ar Reaching and Sacialize Sacialized Structure (Sacialized Sacialized Saci
	Control

The new configuration screen will look something like this: There will be is a new block now that represents the Capabilities of the "ZUMspot – Raspberry Pi Hat (GPIO)" that is installed atop your Raspberry Pi Zero/W.

V	·	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		
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMAD ✓ Nextion Layout: G4KLX ✓		
		Apply Changes		

Here is where you will tell your ZUMspot/Pi-Star what you want it to do for you. Most can leave it as is since DMR and DSTAR is what many will want. If you want YSF (Fusion), APCO P25 and/or YSF2DMR, turn these on. A new configuration block for each will appear (once you click "Apply Changes") and the system does it's reset.

Pi-Star Control SW Setup:

					Priller 3.4.11 / Deckloser	2012223
Pi	-Star Di	gital Voice	- Conf	liguratio	n	
		Deshboord Adm		ower Update Ba	ckup/Restore Pocto	
		Getewey Herdwere	Information			
piratar 4		Firston First may 1.		0.93 / 0.29 /	0.15 38.5°C / 10	1.1"*
		Control Soft				
Secting Controller Goftware:	0		value	•		
Controller Mode:	@ Simplex no	tar ® xxxxxxxxx (n de O muplex mepeet	er (or salf-	cuplex on motepo	neguires)	_
		Apply Chang	es			
		MMDVMHost Conf	iguration			
Secting		ar sangein	* 20	wat mangtime:	20	
D-Star Node:	1	ar sangtin	: 20	wat mangtime:	20	
YSF Node:		ar sangtin	: 20	ret sangtine:	20	
925 Node:		ar sangtin	a: 20	wat sangtime:	20	
NDN Node: YSF2048:		ar sangtin	: 20	ret sangtine:	20	_
ODVN Display Type:	None 🗸	roze: IdevityAMAD	waxaion a	Ares: G4KLX	~	_
	- I	Apply Charg				
		General Config	unstion			
Secting Sostname:	pi-star		value			
Sode Callsign:	pi-star M1ABC	oo not add auffi	the such as	.10581	_	_
CCS7/DMR ID:	1234967					
Radio Frequency:	431.075.000	NH I				
Latitude:	50.000	degrees (positiv				
Longitude:	0.000	degrees (positiv	e value for	mast, negative i	for meat)	
Sown:	A Town, LOC41	roR .				
Country: IRL:	Country, UK	com/db1M1ABC			to Ossanual	-
Radio/Nodem Type:	-					
Node Type:	errivace C	rublic				
System Time Zone:	Europe-London	<u> </u>	1			
bashboard Language:	english_uk					
		Apply Chang				
Secting	_	DMR Configur	ation when			
DNR Master:	DMRGateway		~			
DNG. Colour Code:	1 M					
DNG. EmbeddedLCOmly: DNG. DumpTAData:	_					_
DMR DumpTAData:		Apply Charg				
Secting		D-Ster Configu	ration value	•		
1971 Calleign: 2972 Calleign:	MIADO B V					_
Renote Password:						_
Default Reflector:	REF001 V	C 🗸		() 2 CA	reup Osanual	
A993 Host:	england.aprs2.	net 🗸				
ischübüstevey Language: Time Announcements:	English_(UK)	<u> </u>				_
Tee Dilus for MRT:				NOTe: VDdate	nequired if change	ed .
		Apply Chang				
		Firewell Config				
Secting			valo			
Dashboard Access: SrobbGEstevay Remote:	e rrivace C	rublic				_
222 Access:	errivate C					
Auto AP:	Oon Oper		HOLE: 1	beriupes roodes	if changed	
		Apply Chang				
		Wireless Config	urstion			
(Refresh) (Reset WFI Adap	ter Contoure W					~ ^
	Wire		d Statistics			
Interfece Neme : wienO Interfece Status : Interfer IP Address : 192.105.1.12 Subnet Mesk : 255.255.25 Mec Address : b5:27:eb:5	a Information	Con	nected To : o	dining Enforme dichull - AS-fS-b3-dS-e3	bon	
Interfece Status : Interfec IP Address : 192.165.1.13	a is up 4				:07	
Subnet Heak : 255.255.25 Mec Address : b5:27:eb:5	5.0 5:5e:e0	Sit	nel Level : -2	Bit/s 5 d5m		
			namit Power k Quelity : 70			
Entern Received Pockets : 3051 Received Sytes : 863572 (Transferred Pockets : 277 Transferred Sytes : 93065	645.0 KiS)	Lin	k Quelity : 70	0/70		
Transferred Packets : 277	0 7 (905.5 Kip)					
	Informa	tion provided by	and home			~~
	Informa		fig and inconfi			
Terra Terra		Remote Access P	essword			_
pi-star Fana Pi-star Fasa	ard:		Destroyed	vord:	Set Pas	sword
	MARNING: Thi	a changes the passes	ord for this	admin page		
		the product	Sheven a			
	Pi-2a	ved config. & Andy Taylor (Need help? Clot have for th	MNOMN2) 2014-2	005.		_
		Get your copy of PI-Ste	from here.			

Control Software					
Setting Value					
Controller Software:	ODStarRepeater MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)				
Controller Mode: Ozuplex Node O Duplex Repeater (or Half-Duplex on Hotspots)					

Make sure your "Control Software" Section is set up as Shown above. The default should be good. If you change Something, remember to click "Apply Changes" and wait for the reset cycle to complete and the new changes to appear.

<u>Pi-Star MMDVM Host Setup:</u>

Di	-Star Die	ital Voice -	Conf	iguratio		
PI	-star Dig					
		Deshboerd Admin		wor Updato Be	ckup/Reators	Fectory React
REATONER		isteway Hardware Info stations		Carp Load		Ситу такар
pi-star 6	9.35+	vistform vi tero w nev 1.1 ()	12mm)	0.93 / 0.29 /	0.15 38.5	"C / 101.3"#
Sector .		Control Softwar			_	
Controller Software:	Opitamepeat	az ® xxxxxxxxat (xx***	ega sinima	m rinners 3.07	meguired)	
Controller Mode:	© Simplex mod	ar ® xxxxxxxxat (xv~x a O cuplax mapaatar	(or salf-	uplex on motepo	58)	
		Apply Changes				
Petting		MMDVMHost Configu	ration			
DNR: Node:		ar sanguine:	20	met sangtime:	20	
D-Star Node:		nr sangtine:		wet sangtime:]
797 Node: 925 Node:		ar sanguina:		met sangtine:		
V25 Rode: NOV Hode:		nr mangtine: nr mangtine:		met sangtine: met sangtine:		
19720KR:						
ODVN Display Type:	None 🗸 🗸	eare: (devityAMAD V		geus: G4KLX	~	
		Apply Changes				
		General Configurat	tion			
Secting Rostname:	pi-star	oo not add auffixee	such as .	local		
Node Callsign:	M1ABC					
CCS7/DMR ID:	1234567					
Radio Frequency:	431.075.000	MRE				
latituda: Longituda:	50.000	degrees (positive v				
longitude: Tom:	A Town, LOC4TO	degrees (positive v	aute for s	mai, negative f	or meat)	
Country:	Country, UK					
URL:	http://www.grz.co	omidb/M1ABC				1
Radio/Noden Type:	-			×		
Node Type:	@ rrivate Or	rublic				
System Time Sone: Deshboard Language:	Europe London english_uk	7				
	1000 C	Apply Changes	1			
		DHR Configuratio				
Secting			10000			
DNG. Narter: DNG. Colour Code:	DMRGateway	×]			
DNR. Collour Code: DNR. EmbeddedLCOmly:						
DMR DumpTAData:						
		Apply Changes				
		D-Ster Configuret	ion			
Secting 1971 Calleign:	MARC B V		value			
2972 Callaign:	NIADC 9					
Renote Password:						
Default Reflector: ADD2 Host:	REF001 V (e V		® 2tar	тыр Оныла	a1
ischoldstevey Language:	English_(UK)	<u>v</u>				
Time Announcements:						
Jae Dilus for XRF:				mote: update	nequired in	f changed
		Apply Changes				
Sector	-	Firewall Configure	tion	_		
Dashboard Access:	O private O	rublic				
incloGEsteway Remote:	Orgivane Or	rublic				
332 Access: Auto AD:	Bartivaca On Bon Oper	rublic		aboot mequired i		
AUTO AP:	Con Oper	Apply Changes	NOTE: 20	socot mequired i	er Changed	
			-			
(Tabara) (Tabara)		Wireless Configure	tion			
(Refresh) (Reset WFI Adap	Sector 1	El Information and S	tention inc.			^^
Interfece Name : wian0	a Information		cted To : d	fireless Informat	tion	
Interfece Status : Interfec	e is up	AP Mar	Address :	khull : 48:f8:b3:d8:e3:	07	
Interfece Status : Interfec IP Address : 192.165.1.13 Subnet Mask : 255.255.25 Mac Address : b5:27:eb:55	5.0	Sitrate	: 72.2 MB Level : -20	it/s		
Enterf Received Pockets : 3061	ece Statistics	Link Q	nit Power : uelity : 70,	/70		
Received Pockets : 3051 Received Sytes : 653572 (Transferred Pockets : 277 Transferred Sytes : 93055	645.0 KiS) 0					
Transferred Sytes : 93065						
	Informati	ion provided by ifconfig a	nd iwconfig			~~
		Remote Access Poss	word			
Usar Name			assword.			Out Days with
pi-star rates	WARNING: whis	Con: changes the password	for this	admin page		Set Password
	A A	changes the password on the "pirstar" 22m	Account			
	8.0m	and section in Locks Testing State	MMT 2014-20			
	Pi-Dar	veb config. © Andy Taylor (NNG Need help? Click here for the Sup Get your copy of Pi-Ster from	MWZ) 2014-20 port Group 1 here.			

		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 pr	efix on DMRGateway				
DMR2NXDN:		Uses 7 pr	efix on DMRGateway				
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMA0 ∨ Nextion	n Layout: G4KLX 🗸				
		Apply Changes					

Here is where you will select the communications options that you want your ZUMspot/Pi-Star setup to support. Mine (shown here) is set up for DMR, DSTAR and YSF (Fusion). You have to have at least one mode enabled. The ZUMspot/Pi-Star device will "scan" whatever modes are enabled here. You can change the scan dwell and hang times as desired. The defaults are 20 seconds as Shown above. Click "Apply Changes" when done. NOTE: The image shown here reflects the features in v3.4.15.

Pi-Star General Config. Setup:

						9-86-3.431/D	
P	i-Star I	Digita	al Voice	- Con	figuratio	n	
			leahboard Adm			ockup/Realibre	
		Geter	way Mardware	Information	1		
piratar 6	.9.35+		FACTOR NOT 1.			d Cr / 0.15 38.5 0	/ 101.3"F
			Control Soft				
Secting				val			
Controller Software: Controller Mode:	Opicarn	speacer (B 2012/101041 (2	wrongs stint	num rismware 3.0	7 meguired)	
controller Node:	@ Simples	x zode U	Apply Chan		-cuplex on monep	024)	
Secting		MA	IDVMHost Con				
DNR. Node: D-Star Node:			ar sanguin	: 20	wet sangtime:	20	
D-Star Node: YST Node:			nr manguin nr manguin	at 20	wat mangtina: wat mangtina:	20	
25 Node:			nr sanguin	: 20	wat mangtime:	20	
NON Node:			ar sanguin	: 20	ret sangtine:	20	
79720KR:							
NODVN Display Type:	None	V Fort:	Apply Chan		sayous: G4KLX	¥	
Secting			General Config	urstion val	58		
Kostnama:	pi-star	00	not add auffi	one such as	.local		
Node Callsign:	MIABO						
CCS7/DMR ID:	1234567	_		_		_	-
Radio Frequency: Latituda:	431.075.00		a Come incentria	a value for	worth, negative	for South)	
Longitude:	0.000				mast, negative :		_
Town:	A Town, LC	C4TOR					
Country:	Country, U	к					
URL: Radio/Nodem Type:	http://www	grz comid	b1M1ABC		•	to Osanual	
Node Type:	· ·		(r.		~		
System Time Zone:	Europe Lo	nden	· ·	1			
Dashboard Language:	english_uk	 Y 					
			Apply Chan	ies.			
Casalan			DMR Configu	etion			
DIG. Master:	DMRGster	мау		V	-		
DMR Colour Code:	1 🗸						
DNR. EmbeddedLCOmly: DNR. DumpTAData:	-						
one completence.			Apply Chan	145			
			D-Ster Configu				
Secting 1971 Callsign:			o star comig	val			
2971 Callsign: 2972 Callsign:	SIADC E	• •					
Renote Password:							
Default Raflector:	REF001 england.ap	Y C Y	•		8 21a	rtup Oxanual	
ADDS Host: SucDDBGsteway Language:	English_(U	irszinet IKI VI	~				
Time Announcements:							
Une Dilus for XRF:					mote: update	nequired if o	hanged
			Apply Chan	jes			
Secting		_	irewell Config	urstion	_		
Dashboard Access:	· reivat	• O #461	10	75.1			
inclodistavay Remote:	· rrivace	 Orubit 	10				
332 Access: Auto AP:	· reivate	• O #101	ic		nebcot mequired		
	€an Oa	11	Apply Chan		VANARA VALUES		
			Vireless Config				
(Refresh) Reset WFI Ada	teri Conten		Contraction Contraction			_	
			Information an	d Statistics			
Interfece Neme : wienD	ce Informatic	90	Co	nected To :	Wireless Informs	ition	
Interfece Status : Interfe IP Address : 192,165,1,12	ce is up 14		r			:07	
Interfece Status : Interfe IP Address : 192.185.1.13 Subnet Heak : 255.255.25 Mec Address : b5:27:eb:5	5.0 5:5e:e0		Sit	nel Level : *	15it/s 25 dSm		
Tabar	ece Statis <u>tic</u>						
Received Peckets : 3051 Received Sytes : 663572	(845.0 KiS)		Lin	namit Powe k Quality : 1	0/70		
Received Sytes : 003572 Transferred Packets : 277 Transferred Sytes : 93060	0 57 (905.5 Kis	0					
	Infe		revided by ifeen	Do and twose	(in	_	~~
	100						
Usar Nama	_	R	mote Access P	Password		_	
pi-star rass	ward:			Confirm was	evord:	8	et Password
	HARMING:	this cha AND 1	nges the pass the "pirstar"	for the shire of the secound	a admin page		
		H-Rar value of	antia, C. Andy Taylor Naip? Click have for th	Support Group			
			a poor capy or H-ada				

South)
lest)
Manual

Here is where you will customize Pi-Star for your station. Add your Callsign, DMR ID, set the Zum/Pi Operating Frequency, etc. "Node Type" determines whether the Zum/Pi responds only to your DMR ID or any DMR ID – set "Public" if you expect multiple radios with different ID's to use your hot spot Click "Apply Changes" and wait for the reset cycle to complete.

Pi-Star DMR Config. Setup:

	i-Star I)igital Voice - Configuration
		Deshboard Admin Expert Power Update Bookup/Restore Poetory Reset
		Genevey Hardware Information
pi-star	semal	Geteway Hardware information Ory 10x40 Ory 7 mmp Fileform 0.93 / 0.29 / 0.15 38.5"C / 101.5"#
pi-star	4.9.35+	
Secting		Control Software value
Controller Software:	Opterne	peater @ sourcest (nv-mage minimum rimmware 3.07 mequired)
Controller Mode:	@ 2implex	: mode O puplex mepeater (or malf-puplex on motepote)
		Apply Changes
Perring		MMDVMHost Configuration
DNR: Mode:		nr mangtine: 20 pet mangtine: 20
D-Star Node:		mr mangtime: 20 met mangtime: 20
YSF Node:		mr mangtime: 20 met mangtime: 20
P25 Node:		mr mangtime: 20 met mangtime: 20
NIDN Hode: Y97204R:		nr mangeine: 20 met mangeine: 20
MONN Display Type:	None	vers: IdevityAMAD v maxtion sayous: G4RLX v
		Apply Changes
		General Configuration
Secting		
Kostname: Node Callsign:	pi-star M1ABC	oo not add suffixes such as .local
CCS7/DMR ID:	1234567	
Radio Frequency:	431.075.00	0 pear
Latitude:	50.000	degreess (positive value for morth, negative for South)
Longitude:	0.000	degreese (positive value for mast, negative for mest)
Town:	A Town, LO	
Country:	Country, UK	
URL: Radio/Noden Type:	http://www.c	grz.comdb/MABC @wuto Oseanual
Node Type:	() rrivate	Orubiic
System Time Tone:	Europetion	rdan 🗸
Dashboard Language:	english_uk	×
		Apply Changes
		DMR Configuration
DMR Master:	DMRGstew	value av
DMR Colour Code:	1 🗸	
DNR Embeddedicimly:		
DMR. DumpTAData:		
		Apply Changes
Secting		D-Ster Configuration
2971 Calleign:	MINDC B	Y
2972 Callsign: Renote Password:	XIADC 9	
Default Reflector:	REFOOT	CV @gtartup Oxanual
ADDS Host:	REF001 england.apr	s2.net V
ircDDBGateway Language:	English_(U	
Time Announcements: Use DPlus for XRF:		mone: update maquired if changed
Jas Dying For Asy:		Apply Changes
Secting		Firewell Configuration
Dashboard Access:	· rrivate	Orublic
inclogiateway Remote:	· rrivate	Orablic
	e privace e on Opt	ff note: meboot meguined if changed
SSE Access:	- 0 da U da	Apply Changes
SSE Access:		
128 Access: Auto AP:	alar I. Carl	Wireless Configuration
SSE Access:		Wireless Configuration
228 Access: Auto AP: (Refresh) (Reset WPI Add		Wireless Configuration
28 Access: Auto 39: Refresh (Reset WFI Ado Totofore News WFI	v ace Informatio	Wireless Configuration
28 Access: Auto 39: Refresh (Reset WFI Ado Totofore News WFI	v ace Informatio	Winkss Configuration Winkss Information and Statistics Connected To : shall PlaceAddress: 44.6163.b3.d8.26.07
28: Access: Auto AP: (Refresh) (Reset WFI Add	v ace Informatio	Works Configuration Table Table Table Constant of Statistic Constant of Statistics Constant
258 Access: Auto AD: Refees) (React WRFAC Interface Name : wiend Scharface Name : wiend Dubnet Name : 205-202 Auto-Ad Name : 205-202 Name : Address : 00:27:40/1	W ace Information 34 35.0 55:5e:e0 rfece Statistics	Workes Configuration 2020 Consector of Statistic Consector of Statistic Consector To a Solution Of Nex Address - 44/653/Statistic Of Statistics Consector 7:23/84/0 Consector 7:25/84/0 Co
258 Access: Auto AD: Refees) (React WRFAC Interface Name : wiend Scharface Name : wiend Dubnet Name : 205-202 Auto-Ad Name : 205-202 Name : Address : 00:27:40/1	W ace Information 34 35.0 55:5e:e0 rfece Statistics	Workes Configuration 2020 Consector of Statistic Consector of Statistic Consector To a Solution Of Nex Address - 44/653/Statistic Of Statistics Consector 7:23/84/0 Consector 7:25/84/0 Co
SR Access : Refesh (Reset WF) Add Interface Neme : wiend Daterface Neme : wiend Interface Neme : wiend Interface Neme : wiend Interface : 122,125,1,1 Mac. Address : 102,276,10	W ace Information 34 35.0 55:5e:e0 rfece Statistics	Wirklas Configuration
258 Access: Auto AD: Refees) (React WRFAC Interface Name : wiend Scharface Name : wiend Dubnet Name : 205-202 Auto-Ad Name : 205-202 Name : Address : 00:27:40/1	W ace Information 34 35.0 55:5e:e0 rfece Statistics	Workes Configuration 2020 Consector of Statistic Consector of Statistic Consector To a Solution Of Nex Address - 44/653/Statistic Of Statistics Consector 7:23/84/0 Consector 7:25/84/0 Co
258 Access: Auto AD: Refees) (React WRFAC Interface Name : wiend Scharface Name : wiend Dubnet Name : 205-202 Auto-Ad Name : 205-202 Name : Address : 00:27:40/1	W ace Information 34 35.0 55:5e:e0 rfece Statistics	Wirklas Configuration 2007 Configuration Con
All Alassa Alis 30: Centres Centre view Statistics Centre view Catalogue Statistics Centre Catalogue Statistics Ce	V ace Information ace is up 134 153.0 53:56:e0 face Statistics (343.0 Kis) 70 187 (908.5 Kis) Infor	Windes Configuration 2 (207) 2 (207) Configuration Configurati
All Alassa Alis 30: Centres Centre view Statistics Centre view Catalogue Statistics Centre Catalogue Statistics Ce	V ace Information ace is up 134 135.0 55:56:00 Afface Statistics 70 10 10 10 10 10 10 10 10 10 10 10 10 10	Wirklas Canfiguration
All Alassa Alis 30: Centres Centre view Statistics Centre view Catalogue Statistics Centre Catalogue Statistics Ce	V ace Information ace is up 134 135.0 55:56:00 Afface Statistics 70 10 10 10 10 10 10 10 10 10 10 10 10 10	Windes Configuration 2 (207) 2 (207) Configuration Configurati
All Alassa Alis 30: Centres Centre view Statistics Centre view Catalogue Statistics Centre Catalogue Statistics Ce	voord: NAATING: : :	Wirklas Canfiguration

Set up the DMR specifics here. Select your DMR Master Server, set your Color Code, etc. Turning on the last switch will allow your ZUM/Pi to pass Talker Alias data to your radio, if it supports it (Hytera, MD-380 w/tools). Click "Apply Changes" when done.

	DMR Configuration
Setting	Value
DMR Master:	BM_United_States_3103
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR Color Code:	1 🗸
DMR EmbeddedLCOnly:	
DMR DumpTAData:	
	Apply Changes

Note: This block may initially come up looking a bit different. Once you Apply Changes it should return looking like this once the reset cycle completes.

Pi-Star DSTAR Config. Setup:

	i-Star	Digi				iguratio		
			Deshboord A	dmin	Expert Pe	wor Updato B	ockup/Realions Poch	ny Read
ROATONDA	semal		ewey Hardwa	0.00		Crty LON	d Carp and	
pi-star .	1.9.35+	1	1 INTO W NAV	1.1	\$12m)	0.83 / 0.29	/ 0.15 38.5"0 / 1	01.3"#
Secting			Control S	oftwe	value			
Controller Software:	Opicars	apeases		(201	wega sinis	n rinners 3.0	7 megaired)	
Controller Mode:	@ Simple	ax zode	Apply Ch	aacaz	(or salf-	uplex on motep	ots)	
Secting			MDVMHeat C		value			
DNG. Node: D-Star Node:			nr sangt			ret sangtine: ret sangtine:	20	
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Set up the DSTAR specifics here. Enter your RPT1 module letter ("B" in most cases). RPT2 will be generated for you. <u>DO NOT change the Remote Password</u>. Set a default reflector (this is where your DSTAR configuration will land on startup). Pick an APRS Host and language. Turn on Time Announcements (optional). Leave "Use DPIus for XRF" off for now (there is info later on what to do with this switch). Click "Apply Changes" when done.

	D-Star	Configuration	
Setting		Va:	lue
RPT1 Callsign:	ксем В 🗸		
RPT2 Callsign:	KC6N G		
Remote Password:	•••••		
Default Reflector:	REF012 V A V		• Startup O Manual
APRS Host:	socal.aprs2.net 🗸		
ircDDBGateway Language:	English_(US)		
Time Announcements:			
Use DPlus for XRF:	\bigcirc		Note: Update Required if changed
	App	oly Changes	

Pi-Star Firewall Config. Setup:

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These settings determine who can see your ZUMspot. I set all of these to private. If this pi-star were running on an MMDVM driving a multi-mode repeater you might Want to make some of these public. But for a private node, I'd keep them private.

AutoAP: When set to "On" (default) the ZUMspot will automatically revert to "access point" mode if it finds no accessible WiFi networks. This allows direct programming of the ZUMspot WiFi as we are doing here.

	Firew	all Configuration
Setting		Value
Dashboard Access:	Private O Public	
ircDDGBateway Remote:	• Private O Public	
SSH Access:	Private Public	
Auto AP:	⊙on ○off	Note: Reboot Required if changed
	A	Apply Changes

Pi-Star Wireless Setup:

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This area shows you what your WiFi is doing. At this Point your Pi-Star is operating in "Auto AP" mode and there should be no WiFi network specified. At this point you need to click "Configure WiFi" to add one (or more) SSID/PSK pairs to so your ZUM/Pi can connect to a WiFi network. You can set up for your home, your Phone, your wife's phone, etc. Pi-Star will sequentially hunt for an available WiFi network.

X	fireless Configuration	
Refresh Reset WiFi Adapter Configure WiFi		~ ^
Wireless I	nformation and Statistics	
Interface Information	Wireless Information	
Interface Name : wlan0	Connected To : dkhull	
Interface Status : Interface is up	AP Mac Address : 48:F8:B3:D8:A5:07	
IP Address : 192.168.1.134		
Subnet Mask : 255.255.255.0	Bitrate : 65 Mb/s	
Mac Address : b8:27:eb:55:8a:e0	Transmit Power : 31 dBm	
Interface Statistics	Link Quality : 70/70	
Received Packets : 75681	Signal Level : -33 dBm	
Received Bytes : 7226054 (6.8 MiB)		
Transferred Packets : 19430		
Transferred Bytes : 6062376 (5.7 MiB)		
	ovided by ifconfig and iwconfig	

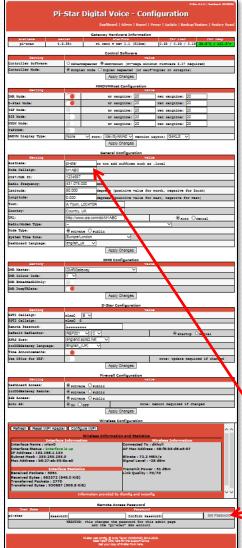
<u>Pi-Star adding additional WiFi</u>:

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		Wireless Configuration							
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	Wire	Wireless Information							
Interfece Name : wien0		Connected To : dkbull							
Interfece Status : Interfe IP Address : 192.165.1.13	te is up 14								
Interface Name : wiend Interface is up IP Address : 192,165.1.134 Subnet Mask : 255.255.255.0 Mac Address : 16:27:sb:15:56:s0		Sitrete : 72.2 MBit/s Signal Level : -25 dSm							
	ece Statistics								
Received Pockets : 3061 Received Sytes : 663577	(sas pikis)	Trensmit Power : 31 dBm Link Quelity : 70/70							
Received Sytes : 003572 Transferred Packets : 277 Transferred Sytes : 93000	0								
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		Remote Access Possword							
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Click "Configure WiFi" then Click "Add Network" to open up the add network dialogue. Add the additional SSID and PSK for the new network. Repeat as needed.

Wireless Configuration	
WiFi Info Network 0 Delete SSID : dkhull PSK :	<u>^</u> ^
Scan for Networks (10 secs) Add Network Save (and connect)	~~
Wireless Configuration	
PSK : •••••••••••••••••••••••••••••••••••	^ ^
Scan for Networks (10 secs) Add Network Save (and connect)	× •
Click "Save and Connect" when done.	

Pi-Star Password Setup:



This dialog allows you to personalize your Pi-Star Credentials by changing the password. Initially your Credentials are:

> HostName: "pi-star" Password: "raspberry"

Here you can customize your log on credentials.



Your HostName is set at the top of the General Configuration block.

Change Password here if you want something different.

Pi-Star Backup/Restore:

Now that you have everything set up, it would be a good idea to back up your configuration.

Selecting "Backup/Restore" at the top of the configuration page will bring up the dialog shown on the right.

Select "Download Configuration" which will create a "zip" file containing all the information you just so painstakingly entered. Save this file somewhere you will remember (you can rename it if you like).

Later you can restore the configuration by referencing the file in the RH plane and clicking the green up arrow.

Pi-Star Digital Voice - Backup/Restore Dashboard | Admin | Power | Update | Configuration Download Configuration Restore Configuration Browse. Editing the files outside of Pi-St backup yo config files to a Zip file, and allow you to restore them later tool, will this Pi-Star or another one System Passwords / Dashboard pass ds are NOT backed Wireless Configuration IS bac nfig, © Andy Taylor (MW0MWZ) 2014-201 let your copy of Pi-Star

Note: if you have a previous back-up "zip" file stored, you can skip everything in this section and just copy that "zip" file to the boot sector of a newly imaged μ SD card if you like.

Pi-Star Dashboard:

At this point you are done. Click "Dashboard" at the top of the page to switch to see your customized landing page.

This is the page that will come up when you call up http://pi-star or http://pi-star.local from your browser.

Your "Gateway Activity" and "Local RF Activity" lists may be empty at first, but will fill out as time progresses.

There is no "Log-In" needed for this page.

				Das	hboard	Admin	Config	urat				
Modes Enabled	Gateway Activity											
D-Star DMR	Time (PDT)	Mode	Callsign	Target	Sre	Dur(s)	Loss	BE				
YSF P25	14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LTT	Net	0.8	0%	0.				
YSF2DMR NXDN	14:46:42 Mar 16th	YSF	AAOKM	ALL at AAOKM	Net	0.1	0%	0.				
	14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0%	0.				
Network Status	14:46:05 Mar 16th	D-Star	KC6N/ID51	COCOCO	RF	2.1	0%	0.				
-Star Net DMR Net	14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0%	0.				
YSF Net P25 Net	14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066	Net	1.2	0%	0.				
F2DMR Net NXDN Net	14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066	Net	0.8	0%	0.				
Internet	14:39:57 Mar 16th	DMR Slot 2	K7FAY	TG 31066	Net	4.4	0%	0.				
	14:39:13 Mar 16th	D-Star	KC6N/INFO	COCOCO	Net	6.5	0%	0.				
Radio Info	14:36:15 Mar 16th	D-Star	M1ABC/INFO	COCOCO	Net	2.5	0%	0.				
x Listening YSF												
x 439.025000 MHz			Local RF A									
x 439.025000 MHz	Time (PDT)	Mode	Callsign					SSI				
ZUMspot:v1.3.3	14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL RE		-		+460				
	14:46:05 Mar 16th	D-Star	KC6N/ID51	CQCQCQ RE				+460				
D-Star Repeater	14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066 RB	2.1	2 0.24	S94	+460				
T1 KC6N B												
T2 KC6N G												
D-Star Network												
RS socal.aprs2.net												
RC rr.openguad.net												
Linked to REF012 A												
(DPlus Outgoing)												
DMR Repeater												
DMR ID 3106564												
DMR CC 1												
TS1 disabled												
TS2 enabled												
G 31066/not linked												
DMR Master												
1 United States 3103												
VSF Network												
YSF Network Room: Alabama-Link												

9-Star: 3.4.11 / Dashboard: 201

Pi-Star Admin Dashboard:

Click "Admin" at the top of the page to switch to see your "Admin" page. You will need to provide your credentials to get here:

> UN: pi-star PW: raspberry

Assuming you haven't changed from the defaults.

There are various other options: Live Logs: allows you to start a log Power let's you power down and reboot Update: initiates a SW refresh Configuration: we already looked at

-Star: 3.4.11 / Dashboard: 2018 **Pi-Star Digital Voice Dashboard for KC6N** Dashboard | Admin | Live Logs | Power | Update | Configuration **Gateway Hardware Information** Platform 4.9.35+ Pi Zero W Rev 1.1 (512MB) pi-star 4.91 / 2.78 / 1.41 Service Statu D-Star Link Information Default Link Linked to KC6N B REF012 A Auto Never Up REF012 A DPlus Outgoing 21:39:09 Mar 16th D-Star Link Manager Radio Module Network Status KC6N B 🗸 REF012 ✓ A ✓ ● Link ○ UnLink Request Change Active BrandMeister Connections BrandMeister Master Default Ref | Timeout(s) | Active Ref Static TGs BM United States 3103 REFO 0(s) TG3106 Radio Info Gateway Activity 439.025000 MHz Callsign KI6KTG/D74A 439.025000 MHz 14:47:33 Mar 16th D-Star Net 1.9 0% 0.0 ALL at KE4LTT 0.8 ZUMspot:v1 3 3 14:47:03 Mar 16th YSF Net 0% 0.0% 14:46:42 Mar 16th YSF ALL at AAOKM Net 0.1 0% 0.0% 14:46:29 Mar 16th YSF KC6N-DAVE 1.2 0% 14:46:05 Mar 16th D-Star KC6N/TD51 COCOCO 2.1 0% 0.0% 14:45:38 Mar 16th DMR Slot 2 TG 31066 2.2 0% 14:44:41 Mar 16th DMR Slot 2 AF6BY TG 31066 Net 1.2 0% 0.08 PRS socal.aprs2.net 14:41:36 Mar 16th DMR Slot 2 TG 31066 Net 0.8 0% 0.0% 14:39:57 Mar 16th TG 31066 Net 4.4 IRC rr.openquad.net DMR Slot 2 K7FAY 0% 0.0% Linked to REF012 A 14:39:13 Mar 16th D-Star C6N/INFO Net 6.5 0% 0.0% COCOCO (DPlus Outgoing) 14:36:15 Mar 16th Net 2.5 D-Star M1ABC/INFO cococo 08 0.08 Local RF Activity 3106564 DMR ID Time (PDT DMR CC 14:46:29 Mar 16th ALL YSF C6N-DAVE 1.2 S9+46dB COCOCO D-Star KC6N/ID51 14:46:05 Mar 16th 2 1 S9+46dB 0.0% 14:45:38 Mar 16th DMR Slot 2 TG 3106 S9+46dI TG 31066/not linked DMR Master f United States 310 YSF Network Room: Alabama-Link

> IDash developed by Kim Huebel (DG9) help? Click here for the Support Grou

ZUMspot/PiStar

Part III Setting up your radios

DSTAR (ID-51 example):

For DSTAR, you need to create a channel in the form of a DV Repeater with the receive frequency being your ZUMspot frequency (439.025 MHz in this case), set –DUP (or +DUP will work as well) and an Offset Frequency of "0.00" as shown below. Add your RPT1 callsign (KC6N^^B in my case) and your RPT2 callsign (KC6N^^G in my case). You should also fill out the remainder of the channel information including the geographic coordinates which will allow your hot spot to show up in your Near Repeater search.

*	20: H	ot Spots (Remain 7 memories)									
					Call Sign		Frequency		Tone			
	No.	Туре	Name	Sub Name	Repeater Call Sign	Gateway Call Sign	Operating Freq DUP	Offset Freq Mode	Tone	Repeater Tone	USE (FROM)	Posit
	0	DV Repeater	ZumSpt 439.025		KC6N B	KC6N G	439.025000 - DUP	0.000000 DV	—	_	Yes	Exact
	1	DV Simplex	OpSpt 437.025	1		_	437.025000 —	— DV	_		Yes	None
	2	DV Simplex	DVAP 438.025				438.025000 —	— DV	—		Yes	None
	Nev	<u>/</u>			I							

Note that I also have an OpenSpot and a DVAP each of which can be set as a simple simplex channel as shown but the ZUMspot/Pi-Star requires a duplex setup as shown above. This is an Icom ID-51 Plus example.

DMR:

- Duplicate a Zone in your radio
- For each channel in the new Zone:
 - Set TX and RX to the ZUMspot frequency
 - Set the Color Code to "1"
 - Set the Time Slot for all channels to "2"
 - Set Admit Criteria to "Always"
 - Set the Talk Group (Group Call Code) to the TGID you want.

Yaesu System FUSION:

- Set up a channel in your radio that is simplex on the ZUMspot Frequency
- That's it.
- None of the HotSpots do Wires-X
- The latest versions (3.4.12 and later) support FCS reflectors.
- There is no hotspot access to WiresX (complain to Yaesu)

APCO Project 25 (P25):

- Using Motorola terminology here:
- Build a personality in your radio with a simplex channel on your hot spot frequency for each of your reflectors.
- Make sure that the NAC on your Hot Spot agrees with your radio (probably 293).
- Build a zone referencing each of these channels – pretty much the same as DMR

NXDN:

- I do not have an NXDN radio but there is information herein on how to access this mode via cross-mode from Yaesu System Fusion and DMR radio.
- One thing you will need is an NXDN ID.
 Follow the instructions found here: http://nxmanager.weebly.com/
- NXDN provides a "Talker Alias" feature, it is recommended that you turn that on and add your Ham Radio Callsign.

ZUMspot/PiStar

Appendix A Communicating with your ZUMspot

The computer that you want to use to control the ZUMspot must be joined to the same WiFi network that the ZUMspot is joined to. Be careful of firewalls, routers etc.

Communicating with ZUMspot

- In order to log onto your ZUMspot, your computer must be operating in the same WiFi domain as your ZUMspot
- Next page shows all devices logged into "MyHomeWiFi" so all can reach ZUMspot
- The subsequent page shows two domains, MyHomeWiFi and My iPhone. ZUMspot is on My iPhone so it cannot be seen by devices operating in the MyHomeWiFi domain.

Communicating with ZUMspot

Domain is:





Home desktop connected to "MyHomeWifi"

ZUMspot connected to "MyHomeWifi"

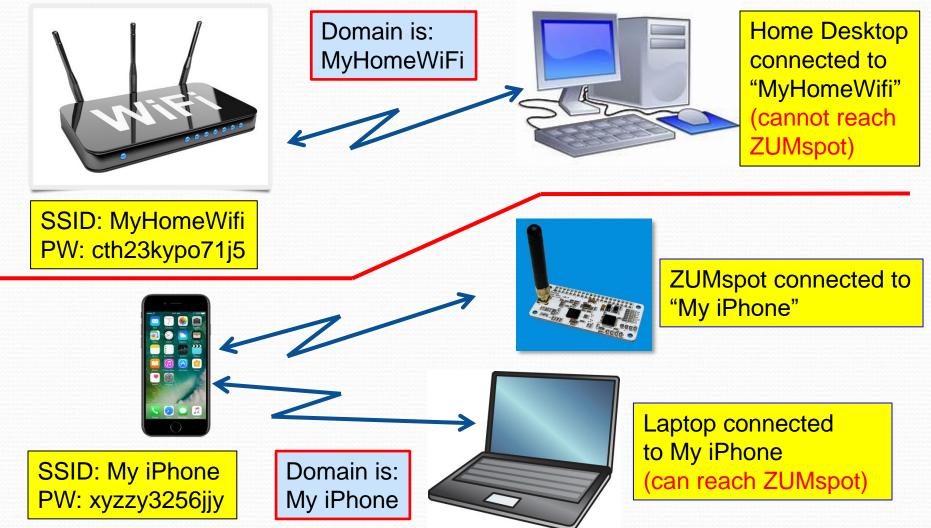
SSID: MyHomeWifi PW: cth23kypo71j5

Devices wanting to talk to the ZUMspot must be logged into The same internet domain as the ZUMspot as shown. Both computers can communicate with the ZUMspot here.



Laptop connected to "MyHomeWifi"

Communicating with ZUMspot



A couple other things:

- Be careful about Typo's in your WiFi SSID and Password this can cause problems.
- Be careful about "Guest" Networks these networks do not necessarily allow you to reach a control computer that is also in the "Guest" network, creating a problem similar to that on the previous page.

ZUMspot/PiStar

Appendix B Setting the "Use DPlus for XRF" switch

Pi-Star DSTAR XRF012A Setup:

Pi	-Star D	igital \	/oice	Cor	nfiguratio	n	
						ockup/Reators Posto	
			erdwere Ini				
piratar 4	amal .					d Cry sm / 0.15 38.5°C / 1	-
			trol Softwa				
Berting				74	lue -		
Controller Software: Controller Node:	Opicarnep	satar © met	VORCAE (DV-	orga stir	imum rizmware 3.0 f-suplex on moteps	7 meguired)	_
	- support		pply Changes		- separate on average		
			Host Config				
Secting			sangaine:		wet sangtime:	20	
D-Star Mode:			manguine:	20	ret sangtine:	20	
Y27 Node:			sanguine:	20	ret sangtine:	20	_
925 Node:			sanguine:	20	net sangtime:	20	
NODH Hode: YSF206R:			sangtine:	20	met sangtine:	20	
ODVN Display Type:	None	vars: /de		maxior	sayous: G4KLX	~	_
	0		pply Changes				
	_	Gene	el Configura	tion			
Secting Rostname:	pi-star	00 545	add euffine	va. e euch e	.local		
Node Callsign:	MIABO						
CCS7/DMR ID:	1234567						
Radio Frequency:	431.075.000						
Latituda: Longituda:	50.000				r worth, negative		
Longi tude: Tovn:	A Town, LOC		(Downerses	value fo	r mast, negative :	COR HEAD)	
Country:	Country, UK						
URL:	http://www.q	rz.com/db1M1/	ac	_		to Osanual	
Radio/Nodam Type:	-	0			×		
Node Type: System Time Sone:	Europe Long	Orublic	~	_			
Dashboard Language:	english_uk						
		A	pply Changes				
	_	DH	Configurat	on			
Secting DMR Master:	DMRGatewa			71 71	550		
DMR Colour Code:	1 1						
DNR. EmbeddedLCOmly:							
DMR DumpTAData:			and Change				
			pply Changes				
Secting		D-56	r Configure	tion VA	los		
R971 Calleign:	SIADC B	¥					
2972 Calleign: Remote Parsword:							
Default Raflector:	REF001 v				() 2cm	rtup Oxanual	
ADGS Host:	england apr	s2.net 🗸		_			
ischübüstevey Language: Time Announcements:	English_(UK	V M					
Use DPlus for XRF:					mote: update	nequired if chang	ed .
		A	pply Changes				
		Firew	all Configure	tion			
Secting Dashboard Access:	· rrivace			73	28		
troDOGEstevay Renote:	e private	Orublic					
SSE Access:	· rrivace	Orabiic					
Auto AP:	€on Oos				neboot nequired	if changed	
			pply Changes	-			
			as Configur	ation			
(Refresh) Reset WFI Adap							^^
Interfece Neme : wienD	es Information	ireless Infor	nation and :	statistics	Wireless Informe	tion	
Interfece Name : wien0 Interfece Status : Interfec	e is up		AP Ma	cted To c Addre	Wireless Informs : dkhull s: : 48:f8:b3:d8:e3	:07	
Interfece Status : Interfec IP Address : 192.165.1.13 Subnet Mesk : 255.255.25 Mec Address : b6:27:eb:55	5.0				MBit/s -25 dSm		
Mec Address : b5:27:eb:51	5:5e:e0						
Received Packets : 3061	oce Statistics		Link C	mit Pow Juelity :	er: 31 d6m 70/70		
Received Bytes : 003572 (Transferred Packets : 277	Resived System 30372 (545.0 Kib) Transferred Packets: 2770 Transferred System 33057 (505.8 Kib)						
Transferred Sytes : 93065							
	Infor	mation provide	d by ifconfig	and iweo	nîng (ji)		~~
		Remote	Access Pes	word			
Dear Name				Part Income		Set Pas	
pi-star rase	NARNING: T	his changes	the passwor	firm ra	ie admin page	odt Pas	anioro .
		And the "	d-star" 25	Account			
		Char veb config. () Head heij? () Get your	Andy Taylor 244	0MWZ) 201	-2018		_
		Need help? C	States for the P	poort Group			
		Get your	apy of PI-Star In	m here.			

To make sure that you can work "X" reflectors such as XRF012A (w/o the need for passing ports on your router), Turn on "Use Dplus for XRF" (this forces the system to use the "Dplus" protocol for the XRF reflectors). You will need to do an "update" after applying this change. Click "Apply Changes" when done <u>then do an "update"</u>.

"Update" can be found at the top of the configuration page (note that it may run for a while).

D-Star Configuration					
Setting Value					
RPT1 Callsign:	KC6N B 🗸				
RPT2 Callsign:	KC6N G				
Remote Password:	•••••				
Default Reflector:	REF012 V A V	• Startup O Manual			
APRS Host:	socal.aprs2.net				
ircDDBGateway Language:	English_(US)				
Time Announcements:					
Use DPlus for XRF:		Note: Update Required if changed			
	Apply Changes				
Set "Use DPlus for XRF" to "ON" Do an Update					

Pi-Star	U	bd	at	:e:

Click "Update" at the top of the configuration page:

Pi-Star Digital Voice - Coniguration

Dashboard | Admin | Expert | Pow r | Update | Fackup/Restore | Factory Reset

	Gateway Hardware Information				
Hostname	Kernel	Platform	CPU Load	CPU Temp	
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	4.48 / 3.94 / 2.32	48.2°C / 118.8°F	

The update window will open and it will ⁻ run for a while, depending on how long it has been since the image was built. Once done, you will see:

"Starting Services" "Done" "Update Complete, Sleeping...." "Finished".

Pi-Star - Digital Voice Dashboard - Update Dashboard | Admin | Power | Backup/Restore | Configuration Update R nning Services dating DV Binaries... https://github.com/AndyTaylorTweet/Pi-Star_Binaries ranch master -> FETCH HEAD eady up-to-date. ating Pi-Star Binaries... m https://github.com/AndyTaylorTweet/Pi-Star_Binaries_sbin branch master -> FETCH HEAD readv up-to-date. lating Hostfiles... ating Dashboard... a https://github.com/AndyTaylorTweet/Pi-Star_DV_Dash canch master -> FETCH HEAD dv up-to-date g PiStar-Firewall. tarting Services.. dates complete, sleeping for a few seconds before making the disk Read-Only Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2018 Need help? Click here for the Support Group Get your copy of Pi-Star from here

9-Star:3.4.11 / Dashboard:2018

Restoring from a backup:

Note that "Backup" (as described earlier) <u>does</u> not save the setting of this switch.

D-Star Configuration					
Setting	Val	lue			
RPT1 Callsign:	KC6N B 🗸				
RPT2 Callsign:	KC6N G				
Remote Password:	•••••				
Default Reflector:	REF012 V A V	⊙ Startup OManual			
APRS Host:	socal.aprs2.net				
ircDDBGateway Language:	English_(US) V				
Time Announcements:					
Use DPlus for XRF:		Note: Update Required if changed			
	Apply Changes				

If you restore from a previously saved backup, you will need to reset "Use Dplus for XRF" to ON and then do the update again. In other words repeat the process described in this section.

This would become necessary if you were to build a fresh image on a new card (a version upgrade perhaps) and you restore your previous configuration settings from a backup. In this case the restored settings will come up with "Use Dplus for XRF" turned "OFF". Switch it to "ON", Apply Changes, and do the update.

ZUMspot/PiStar

Appendix C Setting up HotSpot support on Brandmeister

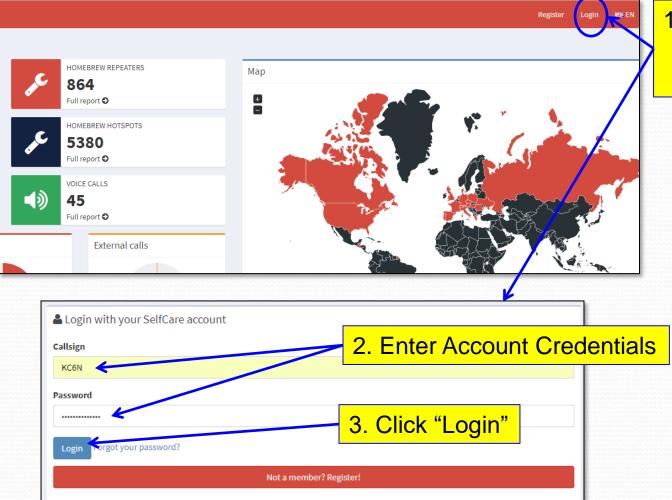
Setting up BM HotSpot Support

- Once you have your HS running you will want to set up Brandmeister support.
- This will allow you to do the following:
 - Designate Static talk groups
 - Kill QSO's on dynamic TG's and delete these quasi-static TG's as needed
- First you need to create an account. If you have done that, skip the first slide.

Create a Brandmeister Account

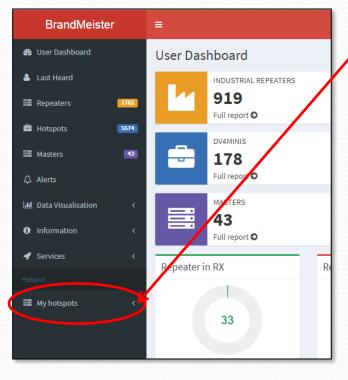
	Register Login 新EN 🗳 Settings
& Registration	1. From the front
Do you already have a SelfCare account on <u>dstar.su</u> ? <u>Login!</u>	page, Select
General Account Details	"Register"
Callsign	
Callsign	
Email Address	and the second
Email Address	and the second s
Account type	
Personal User Account	
Repeater Account	
Security	
Password	
Password	
Confirm Password	
Confirm Password	
	2. Fill out the registration form
Anti Spam	
What is the wavelength of the UHF band in centimeters?	
Answer with a number	
DMR ID	
Enter one of your DMR IDs to validate your account	3. Don't forget the CAPTCH
l'm not a robot	Question.
reCAPTCHA Privacy-Terms	
reCAPTCHA Privaç-Tema	4. Select "Register"

Log onto your BM Account

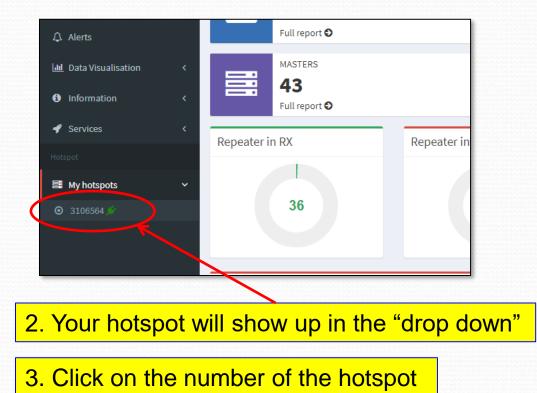


1. Click "Login" to Log onto your BM account

Find your HotSpot settings page



 Click the Left pointing arrow next to "My Hotspots"



HotSpot settings page

BrandMeiste	er	=						
🚯 User Dashboard		Settings of KC6N (View)						
👗 Last Heard		General Settings						
Repeaters	1778	Priority Message	Priority Message					
🖶 Hotspots	5570	Description	Description					
🚍 Masters	43							
♪ Alerts								
Data Visualisation	<	Website	http://www.qrz.com/db/KC6N		Location (City)	San Diego, CA		
 Information Services 	< <	Latitude	32.716991		Longitude	-117.160004		
Hotspot	``	Power (EIRP)	0		Gain (dBi)	0.00		
My hotspots	~	Height AGL in m	0					
O 3106564 🖉		0		Save change	ae			
				Jave change				
		Sysops						
		Callsign	Read Settings	Write Settings		Manage Sysops		
		KC6N	*	✓		✓		
		Actions						
			rop call Drop dynamic groups Reset connection					
		Get iP address	rop call brop dynamic groups Reset connection					

Fill out the information on the form (part of which is shown here). We'll focus on the Bottom part of the page where you will actually set up how your HS behaves on BM.

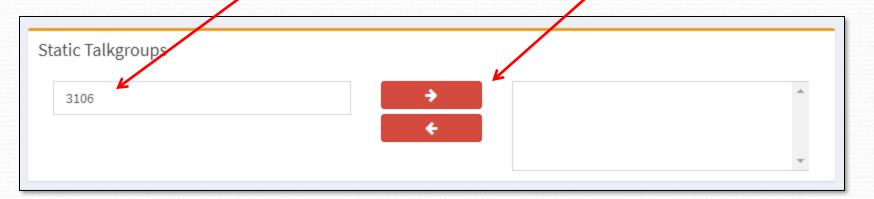
HotSpot settings management

Callsign	Read Settings	Write Settings	
KC6N Actions Get IP address Drop call Drop	o dynamic groups Reset connection	•	Here you can add and drop active Calls drop dynamic talk groups etc.
Reflector Settings Active reflector Default reflector		lef	Here is where you can set up and manage a reflector if you want one
Static Talkgroups	← California (3106) SoCal (31066) SoCal (31066)	*	Here is where you set up and manage static talk groups. I have "SoCal" (31066) and CA
Scheduled static Active Timed Statics:		+ Add Scheduled Static	"StateWide" (3106) set in this example.
	Remove		You can set timed static talk groups here which are talk groups you

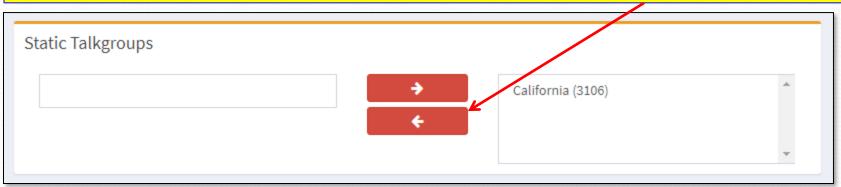
times (a net time for example).

Managing static talk groups

To make California Statewide a Static on your hot spot, simply enter the TGID In the entry box on the left as shown below and click the right arrow



Now the entry, California (3106) has been moved to the right hand box and is static on your HotSpot. To delete it, highlight it and use the left arrow.



Managing Talk Groups

- You can set up additional ones as you like
- It is probably best to limit this to a couple that you really want to monitor since activity on static TG's will lock up your HS.
- If you key up on another TG, not in your list, it will be added as a dynamic TG. On HotSpots, these do not expire after 15 minutes like on repeaters. If one becomes annoying, you may need to kill it using the management tools.

Setting up HotSpot Security

- Brandmeister <u>now requires</u> that users set a personalized security password. Without this, anyone can configure a HS with your DMR ID and show up as you. Not good.
- If you are a multiple HotSpot user (see Appendix N) you only need one PW for all of them.
- Here's how to do it:

HotSpot Security Brandmeister

KC6N KC6N	 A Settings 1. Log into your account and click on your callsign to see the drop down to the left. 2. Click "SelfCare" in the dropdown.
🛔 Profile	SelfCare Settings
Profile Settings	▲ 3106564 (KC6H)
🎽 🔅 SelfCare	Brand Motorola • Language English
👌 😃 Logout	APRS Interval 150 sec APRS Callsign KC6N
2 Turp on "Llotonot	APRS Icon 🖈 In Call GPS 100 APRS Text David
 Turn on "Hotspot Security" here: 	AirSecurity / TOTP OF
4. Enter a password for	Hotspot Security 💿 Password Enter new Hotspot Password
your HotSpot(s) here:	Save
5. Click "Save"	

HotSpot Security Pi-Star

		Pi-Star: 4.0.0-RD4 / Dealboard: 20190709
Р	i-Star I	Digital Voice - Configuration
		Dashboard Admin Expert Power Update Backup/Restore Factory Reset
		Gateway Hardware Information
	Kernel	Platform CPU Load CPU Temp
pi-star3 4	.14.79+	Pi Zero W Rev 1.1 (51238) 3.77 / 1.32 / 0.57 40.1°C / 104.2°F
Setting		Control Software
Controller Software:	OpstavRe	peater MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:		Node ODuplex Repeater (or Half-Duplex on Hotspots)
		Apply Changes
		MMDVMHost Configuration
Setting		Value
DNR 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:		
DMR2YSF: DMR2NXDN:		Uses 7 prefix on DMRGateway
DMRZNXDN: POCSAC:		Uses 7 prefix on DMRGateway POCSAG Paging Features
MMDVM Display Type:	OLED	
мырум різріаў тура:	OLED	
		Apply Changes
		General Configuration
Setting Rostneme:		Value
	pi-star3	Do not add suffixes such as .local
Node Cellsign:	KC6N	
CCS7/DMR ID:	3106564	
Radio Frequency:	439.075.00	
Letitude:	32.717	degrees (positive value for North, negative for South)
Longitude:	-117.16	degrees (positive value for East, negative for West)
Town:	San Diego,	CA
Country:	USA	
URL:		qrz.com/db/kcôn Okuto @ Manual
Radio/Modem Type:		Raspberry Pi Hat (GPIO)
Node Type:		Public
APRS Host:	socal.aprs2	
System Time Zone:	America/Lo	
Dashboard Language:	english_us	
		Apply Changes
		DMR Configuration
Setting DMR Mester:	2 11 11 2 1	Value States 3103
Notspot Security:	•••••	Repeater Information Edit Repeater (BrandWeister Selfcare)
BrandMeister Network: DMR ESSID:	3106564 03	✓
	310656403	×
DMR ESSID:		✓
DMR ESSID: DMR Color Code:		<u> </u>
DMR ESSID: DMR Color Code: DMR EmbeddedLCOnly:		
DMR ESSID: DMR Color Code: DMR EmbeddedLCOnly:		Apply Changes
DMR ESSID: DMR Color Code: DMR EmbeddedLCOnly: DMR DunpTAData:		Apply Changes
DMR ESSID: DMR Color Code: DMR EmbeddedLCOnly:		Apply Changes D-Star Configuration V2100
DMR ESSID: DMR Color Code: DMR EmbeddedLConly: DMR DumpTADete: Setting		Apply Changes D-Star Configuration V2100
DMR ESSID: DMR Color Code: DMR EmbeddedCOnly: DMR DumpTAData: Sotting RFT1 Callsign:		Apply Changes D-Star Configuration V2100
DAR ESSID: DAR Color Code: DAR RobeddetCOnly: DAR DumpTAData: Secting RFT1 Callsign: RFT2 Callsign: RFT2 Callsign: Default Ref2actor:		Apply Changes D-Star Configuration V2100
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Apply Changes

- 1. On the configuration page for Pi-Star, Locate the "DMR Configuration" section (see left).
- 2. Enter your chosen password in the "Hotspot Security" section.

		DMR Configuration
	Setting	Value
DMR M	ter:	BM_United_States_3103
Hotspot Security:		*****
Brand	deister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR E	BBID:	3106564 D3 🗸
DMR C	olor Code:	1 🗸
DMR EmbeddedLCOnly:		
DMR DumpTADete:		
		Apply Changes

- 3. Click "Apply Changes"
- 4. Confirm that your HotSpot appears in the Brandmeister list on your BM page and make sure that it works.

HotSpot Security Pi-Star (cont)

Pi-Star Digital Voice - Expert Editors

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | YSG W | NXDN GW | DAPNET GV
Full Edit: DMR GW | DiStar-Remete | WiEi | BM AP| | DADRET AP| | Sectam Cron | PSSI | Dat | Tongle - SSI | Acres

General					
Callsign	KC6N				
Id	3106564				
Timeout	240				
Duplex	0				
RFModeHang	300				
NetModeHang	300				
Display	OLED				
Daemon	1				

Note: Should you forget your password, you can find it at EXPERT > MMDVMHOST in the DMR Network block as shown below.

Daemon	1	
	Apply	Changes
		nfo
RXFrequency		
TXFrequency	439075000	
Power	1	
Latitude	32.717	
Longitude	-117.16	
Height	0	
Location	San Diego, CA	
Description	USA	
URL	http://www.grz.com/db/kc	
	Apply	Changes
		Log
DisplayLevel	0	
FileLevel	2	
FilePath	/var/log/pi-star	
FileRoot	MMDVM	
	Apply	Changes
	a	f Id
Enable	0	
Time	10	
		Changes
		i Lookup
	/usr/local/etc/DMRIds.dat	
Time		
		Notwork
Enable		NGOROTA
	74.91.118.251	
	62031	
Jitter		
Password		
Slot1	1	
Slot2	1	
Debug		
ModeHang	20	
-		

	DMR 1	letwork
Enable	0	
Address	74.91.118.251	
Port	62031	
Jitter	360	
Password	XYZZY	
Slot1	0	
Slot2	1	
Debug	0	
ModeHang	20	
7	· · ·	

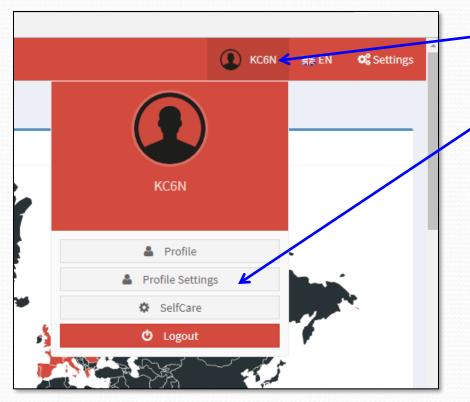
ZUMspot/PiStar

Appendix D Adding a Brandmeister Self Care Panel to Pi-Star

Adding BM Self Care to Pi-Star

- For those using Brandmeister, it is possible to add the self care features.
- This will allow you to manage your BM connected hotspot from the Pi-Star admin dashboard.
- This section assumes you will log into your established Brandmeister account, if you don't have an account, you will need to create one.

Generate BM Pi-Star API Key



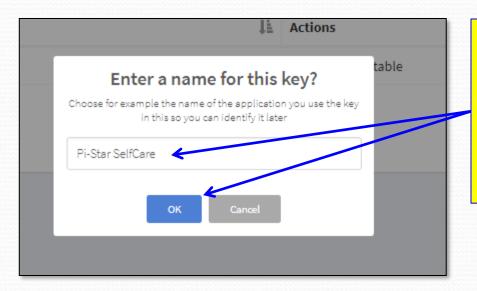
- Log into your account and click on your callsign to see the drop down to the left.
- 2. Click "Profile Settings" in the dropdown.

Adding BM Self Care to Pi-Star

BrandMeiste	r	=			💽 KC6N 💥 EN 📽 Settings
🚯 User Dashboard		KC6N's profile (Edit mode)		User Dashboard > Profile > KC6N > Edit
🛔 Last Heard		Information		Profile Settings	
Repeaters	1769	Name		Email Address	
🛱 Hotspots	5426	Email Confirmed	NO	dhull1@san.rr.com	
Masters	42	Created On	0000-00-00 00:00:00	Save Changes	
众 Alerts		Last Edit	TODO		
📶 Data Visualisation		Last Login	TODO	Security Settings	API Keys
Information				Password Click on the "API Keys" Bu	utton
🖋 Services				Confirm Password	
				Confirm Password	
🗃 My hotspots				Update Password	

,		💽 KC6N 💥 EN 📽 Settings
API Keys		User Dashboard > Profile > API Keys
By creating API key(s) below, you are taking full responsibility for their usage.	rams and individuals to access and change your BrandMeister account information, as well as making any action on your behalf.	
API keys never expire but you can revoke them at anytime.		
Active keys		Add
Active Reys		Add
Show 10 • entries	On the new page, Click "Add"	Search:
		Search
Name	\downarrow_{\pm}^{L} Actions	11
	No data available in table	
Showing 0 to 0 of 0 entries		
ananuB o ro o curres		Previous Next
	API Keys These keys are unique to your account and you must protect them carefuly as they will allow progress By creating API key(s) below, you are taking full responsibility for their usage. API keys never expire but you can revoke them at anytime. Active keys Show 10 rentries	API Keys These keys are unique to your account and you must protect them carefuly as they will allow programs and individuals to access and change your BrandMelster account information, as well as making any action on your behalf. By creating API key(s) below, you are taking full responsibility for their usage. API keys never expire but you can revoke them at anytime. Active keys Show 10 • entries Don the new page, Click "Add" Name

Adding BM Self Care to Pi-Star



When you click OK, BM will create an "API Key" that is unique to you. You will need to copy this to your clipboard to paste it into Pi-Star. Click "Copy" then click "OK" At this point you will get a pop-up asking for a name for the key that will be created. Put one in and click OK. I used "Pi-Star SelfCare" as shown



Adding API key to Pi-Star

- Open Pi-Star in expert mode: by entering "http://pi-star/admin/expert" into your browser.
- 2. Click on "BM API Key" in the menu.

Pi-Star: 3.4.11 / Dashboard: 20180

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMKost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Conf g | BM API Key | System Cron | RSSI Dat Tools: SSH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DL5DI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Adding API key to Pi-Star

1. Paste your API Key in the box labeled "Key" in the resulting dialogue. 3. Click "Admin" to return to your admin dashboard

Pi-Star:3.4.11 / Dashboard:20180310

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access

> apikey VLxGEvj5f6en6CyTh4goJZm9UfNd0nIw5daKIuPYA1jHDRxVWOgCLDMCTwP UTvoZIyGo@tkAvDe5rM.kyeXgSGSI9FA07Y\$QuEbu4v1z5gFw0DRzSLPHpF nzhYzpTxck

> > Apply Changes

key

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2016.

ircDDBGateway Dashboard by Hans-J. Barthen (DL5DI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

 Click on "Apply Changes". Wait for the box to clear.

New BM Self Care Panel

D-Star Network 14:34:20 Mar 15th VSF H40WE ALL at H40WE Net 0.5 0% 0.0% 14:32:240 Mar 15th VSF H40WE ALL at W40WE Net 0.5 0% 0.0% 14:32:240 Mar 15th DVR Slot 2 M06F2A TG 31066A Net 0.5 0% 0.0% Linked to REF012 A (DPLUS Outgoing) 14:28:11 Mar 15th D-Star KGCDV CQCQC via REF012 A 0.0% 0.0% 14:22:12 Mar 15th D-Star KG6UN CQCQC via REF012 A 0.0% 0.0% 14:22:12 Mar 15th DVS F K14R0V-ALL ALL at 8M-Entridge Net 0.5 0% 0.0% 14:22:12 Mar 15th DVS F K14R0V-ALL ALL at K54LTT Net 0.5 0% 0.0% MR CC 1 14:21:24 Mar 15th DVR Slot 2 V300F 16 306 Net 0.5 0% 0.0% T51 disold Mar 15th DVF G3M26FEXTH 0233466Bo at KEALTT Net 3.6 0.0% T52 embled 14:0:00 Mar 15th D-Star KC60/TIMC CQCQCQ via REF012 A Net 3.6 0.0% <t< th=""><th></th><th></th><th></th><th>Dashboard</th><th>d Admi</th><th>n Live Logs Pow</th><th>er Up</th><th>odate C</th><th>Configu</th><th>uratio</th></t<>				Dashboard	d Admi	n Live Logs Pow	er Up	odate C	Configu	uratio
pi-stan 4.9.35+ Pi Zero и Rev 1.1 (512%) 4.39 / 4.71 / 4.52 42.8% / 198*F MDWHost DHRGateway YSFGateway YSFArnot P256ateway P257arnot MDWHost DHRGateway TimeServer Pitar-MacCodog P256ateway P257arnot Modes Enabled Distar-Meeper D-Star Link Information Radio Default Auto Time Link Linked to Mode Direction Last Change (PDT) VSF.2008 NOON Radio Default Auto Time Link Manager Network Status Star Link Monager Artive BrandMeister Connections Request Change Star Net DVB Net DrandMeister Master Default Ref Timeout(s) Active RandMeister Connections Status Timemet BrandMeister Master Drand Keister Manager Addio Info KC6H G Drop QSO Drop All Dynamic None Gateway Active Ref Static Time (PDT) Static Talkgroup Stot Add / Remove Action Static Talkgroup Stot Add / Remove Action Static Talkgroup Stot Add / Remove Ac			Gateway Har	dware Informa	ation					
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mr.openquad.net 14:32:40 Mar 15th D/H Slot 2 MOBFZA TG 31066 Net 0.5 0% 0.0% Linked to REF012 A Net 10.5 0% 0.0% CQCQC via REF012 A Net 0.6 0% 0.0% Linked to REF012 A Net 10.5 0% 0.0% CQCQCQ via REF012 A Net 0.6 0% 0.0% Linked to REF012 A Net 10.5 0% 0.0% CQCQCQ via REF012 A Net 0.6 0% 0.0% Linked to REF012 A Net 10.5 0% 0.0% CQCQCQ via REF012 A Net 0.6 0% 0.0% Lizeizi 2M an 15th VSF CM4HT ALL at K04LTT Net 0.2 0% 0.0% 0.0% Lizeizi 2M an 15th DMR Slot 2 VSF KIADV-ALL ALL at K04LTT Net 0.2 0% 0.0% MR C1 Lisisolo Lisisolo DMR Slot 2 VSF KIADV-ALL Net 0.2 0% 0.0% 0.0% 151 Dissolo Mar 15th D/SF to Dissolo Net 0.2 0% 0.0% 0.0% 152 Denbled 13:56:56 Mar 15th D/S to Dissolo KG6QO/SIAL CQCQCQ via REF012 A <t< td=""><td></td><td>14:34:20 Mar 15th</td><td>YSF</td><td>W4OWE</td><td>ALL at</td><td>W40WE</td><td>Net</td><td>0.5</td><td>0%</td><td>0.0%</td></t<>		14:34:20 Mar 15th	YSF	W4OWE	ALL at	W40WE	Net	0.5	0%	0.0%
Linked to RF012 A (DPLus Outgoing) L4:28:11 Mar 15th D-Star KGLDN CQCQCQ via REF012 A L4:28:12 Mar 15th VSF KIAHT ALL at BH-Bridge Net 0.6 08 0.60 MR DD 3106564 L4:22:12 Mar 15th VSF KIAHT ALL at KF4LTT Net 0.2 08 0.66 WR ID 3106564 L4:21:29 Mar 15th DVR Slot 2 VSFN TG 3106 Net 0.5 08 0.60 WR ID 3106564 L4:21:29 Mar 15th DVR Slot 2 VSFN TG 3106 Net 0.5 08 0.60 WR ID 3106564 L4:07:55 Mar 15th DVR Slot 2 KOPAT ALL at KD7AAT Net 1.8 0.60 0.60 TS1 dis080 Mar 15th D'SE tar KG6U/TIME CQCQCQ via REF012 A Net 0.6 08 0.60 G31066/not linked 13:54:56 Mar 15th D'R Slot 2 KG6Q/S1PL CQCQCQ via REF012 A Net 0.6 0.8 0.80 13:54:56 Mar 15th D'R Slot 2 KA660/S1PL		14.32.40 Mar 15th	DMR Slot 2	WD6FZA	TG 310	66	Net	0.5	0%	0.0%
Upper Constraint Constraint </td <td></td> <td>14:28:11 Mar 15th</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.6%</td>		14:28:11 Mar 15th								0.6%
DMR Repeater MR TD 1105564 3106564 14:121:29 Mar 15th DMR Slot 2 XSFK TG 3106 Net 0.5 0% 0.00 MR TC 1 116:48 Mar 15th DMR Slot 2 XSFK TG 3106 Net 0.5 0% 0.00 MS CC 1 116:48 Mar 15th DMR Slot 2 KGNDE TG 3106 Net 0.5 0% 0.00 TS1 disploted embled 0 0% 0% 0% 0.00		14:26:12 Mar 15th								0.0%
Dim Rip Dim SideS64 H4:16:48 Mar 15th DMR Slot 2 Kohle TG 3106 Net 0.5 0% 0.08 MR CC 1 L4:07:55 Mar 15th YSF GSMGEKEITH 02034F0650 at KE4LTT Net 0.2 0% 0.08 TS1 disabled L4:07:55 Mar 15th YSF KDAMEKEITH 02034F0650 at KE4LTT Net 0.2 0% 0.08 TS1 membled Dim Side Sch YSF KDATAT ALL at K07AAT Net 1.8 0.8 0.08 G 31066/not 1inked L3:58:56 Mar 15th D-Star KCGM/IME CQCQCQ via REF012 A Net 3.6 0% 0.08 United States 3103 United States 3103 L3:46:14 Mar 15th DMR Slot 2 KASHL TG 31066 Net 1.2 0% 0.08 13:46:14 Mar 15th DMR Slot 2 KASHL TG 31066 Net 1.2 0% 0.08 13:46:14 Mar 15th DMR Slot 2 KASHL TG 31066 Net 1.2 0% 0.08 13:46:14 Mar 15th D-Star KGGQ/21PL CQCQCQ via REF012 A Net 0.3 0.8 0.08 13:43:20 Mar 15th D-Star <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td>0.0%</td>							_			0.0%
Num CC 1 1	DMR Repeater									
Visc 1 14:03:00 Mar 15th VSF KD7AAT ALL at KD7AAT Net 11.8 0% 0.04 152 disabled 14:00:00 Mar 15th VSF KD7AAT ALL at KD7AAT Net 11.8 0% 0.04 152 disabled 14:00:00 Mar 15th D-Star KC6H/TIM CQCQC Via REF012 A Net 3.6 0% 0.06 13:55:67 Mar 15th DVR Slot 2 K7FAV TG 31066 Net 1.2 0% 0.06 10 United States 313 D-Star KE66Q0/51PL CQCQCQ via REF012 A Net 0.3 0% 0.06 13:45:61 Mar 15th D/R Slot 2 K66BP TG 31066 Net 1.2 0% 0.06 13:45:20 Mar 15th D/R Slot 2 K68BF TG 3106 Net 0.1 0% 0.06 13:45:20 Mar 15th D/R Slot 2 MEEC TG 3106 Net 0.1 0% 0.08 13:45:20 Mar 15th D/R Slot 2 MEEC TG 3106 Net <t< td=""><td></td><td></td><td></td><td></td><td></td><td colspan="2"></td><td></td><td>0.00</td><td>_</td></t<>									0.00	_
Instruction Construction Constructin Construction Construction <td></td> <td>44, 62, 66, 8,</td> <td></td> <td></td> <td colspan="2"></td> <td></td> <td></td> <td></td> <td></td>		44, 62, 66, 8,								
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DMR Master 13:55:47 Mar 15th D-Star KE66Q0/51PL CQCQCQ via REF012 A Net 0.3 0% 0.0% 10 inited States 3103 13:45:56 Mar 15th DMR Slot 2 KAGRNL TG 31066 Net 1.2 0% 0.0% YSF Network 13:45:20 Mar 15th DMR Slot 2 N689F TG 31066 Net 1.2 0% 0.0% YSF Network 13:44:39 Mar 15th DMR Slot 2 N689F TG 3106 Net 0.1 0% 0.0% 13:44:39 Mar 15th D-Star KC7ZZN CQCQCQ via REF012 A Net 0.1 0% 0.0% 13:44:39 Mar 15th D-Star MAX CQCQCQ via REF012 A Net 0.1 0% 0.0% 13:39:56 Mar 15th D-Star M63FK T/ID31 CQCQCQ via REF012 A Net 0.2 0% 0.0% 13:36:40 Mar 15th D-Star M465FK T/ID31 CQCQQ via REF012 A Net 0.3 0.8 0.0% 13:29:58 Mar 15th VSF M4FSH ALL at EM-Bridge Net		43 50 56 H 45H					_			0.0%
United States 3103 13:54:56 Mar 15th DMR Slot 2 K.46RNL TG 31066 Net 1.2 0.8 0.08 YSF Network 13:45:14 Mar 15th DMR Slot 2 16809F TG 31066 Net 3.7 0.8 0.08 SySF Network 13:45:20 Mar 15th D-Star KC72ZN CQCQCQ via REF012 A Net 0.1 0.8 0.08 13:45:20 Mar 15th DMR Slot 2 MENC TG 3306 Net 0.1 0.8 0.08 13:45:20 Mar 15th D/R Slot 2 MENC TG 3306 Net 0.1 0.8 0.08 13:43:20 Mar 15th D/R Slot 2 MENC TG 3306 Net 0.3 0.8 0.08 13:43:30 Mar 15th D/Star M6A/X CQCQCQ via REF012 A Net 0.3 0.8 0.08 13:36:40 Mar 15th D-Star M6A/FK T/ID31 CQCQQ via REF012 A Net 0.3 0.8 0.08 13:29:58 Mar 15th VSF MAFSH ALL at BM-Bridge Net 6.5 0.8 <t< td=""><td></td><td>13:55:47 Mar 15th</td><td>D-Star</td><td>KE6GQ0/51PL</td><td>cococo</td><td>via REF012 A</td><td>Net</td><td>0.3</td><td>0%</td><td>0.0%</td></t<>		13:55:47 Mar 15th	D-Star	KE6GQ0/51PL	cococo	via REF012 A	Net	0.3	0%	0.0%
YSF Network 13:46:14 Mar 15th D/R Slot 2 V/88/F TG 3106 Net 3.7 0% 0.08 13:45:120 Mar 15th D-Star KG727U CQCQCQ via REF012 A Net 0.1 0% 0.08 13:44:39 Mar 15th DFStar KG727U CQCQCQ via REF012 A Net 0.1 0% 0.08 13:44:39 Mar 15th D-Star MGAXX CQCQCQ via REF012 A Net 0.1 0% 0.08 13:43:20 Nar 155th D-Star MGAXX CQCQCQ via REF012 A Net 0.3 0% 0.08 13:36:40 Mar 15th D-Star MAGFK T/ID31 CQCQCQ via REF012 A Net 0.3 0% 0.08 13:36:40 Mar 15th D-Star MAGFK T/ID31 CQCQCQ via REF012 A Net 0.3 0% 0.08 13:36:40 Mar 15th VSF MAFSH ALL at 5M-Bridge Net 6.5 0% 0.08					TG 310	66	Net	1.2		0.0%
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Notifier Aladama-Link 13:43:20 Mar 15th D-Star M6AAX CQCQCQ via REF012 A Net 0.3 0% 0.60 13:39:56 Mar 15th D-Star MM4VSU ALL at KE4LTT Net 0.2 0% 0.60 13:36:40 Mar 15th D-Star MA6JFK T/ID31 CQCQCQ via REF012 A Net 0.3 0% 0.60 13:29:58 Mar 15th D-Star MA6JFK T/ID31 CQCQCQ via REF012 A Net 0.3 0% 0.60 13:29:58 Mar 15th VSF M4FSH ALL at BM-Bridge Net 6.5 0% 0.60	YSF Network						_			0.0%
13:39:56 Mar 15th YSF M44VSU ALL at KE4LTT Net 0.2 0% 0.08 13:36:40 Mar 15th D-Star MA65FK T/ID31 CQCQCQ via REF012 A Net 0.3 0% 0.08 13:29:58 Mar 15th VSF MAFSH ALL at BM-Bridge Net 6.5 0.09	Room: Alabama-Link									0.0%
13:36:40 Mar 15th D-Star MAGJFK T/ID31 CQCQCQ via REF012 A Net 0.3 0% 0.00 13:29:58 Mar 15th YSF MAFSH ALL at BM-Bridge Net 6.5 0% 0.00										
13:29:58 Mar 15th YSF M4FSH ALL at BM-Bridge Net 6.5 0% 0.09									0.0	-
										0.0%
Local RF Activity		19.29.90 Har 19th	1.51	N 11 211	per ar	ou or tage	mee	0.5	0/0	10.00
Time (PDT) Mode Callsign Target Src Dur(s) BER RSSI										

You will see a new "BrandMeister Manager" panel here.

This provides most of the same BrandMeister "SelfCare" functionality without having to "fire up" (no pun intended*) Brandmeister.

*Brandmeister is "Fire Chief" in German.

Revoking a key

API Keys

These keys are unique to your account and you must protect them carefuly as they will allow programs and individuals to access and change your BrandMeister account information, as well as making any action on your beha

By creating API key(s) below, you are taking full responsibility for their usage. API keys never expire but you can revoke them at anytime.

Active keys		
Show 10 • entries		
Name	IL Actions	
Pi-Star SelfCare	\frown	Revoke
Showing 1 to 1 of 1 entries	(!)	
	Are you sure?	
	Are you sure that you want to revoke this key?	
	No, cancel! Yes, revoke it!	
	/	

Should you change your mind, you can clear the key in Pi-Star and "Revoke the Key" in Brandmeister and you are back to where you began.

ZUMspot/PiStar

Appendix E Updating the Pi-Star firmware NOTE: This does NOT update the ZUMspot board FW. That is covered in a subsequent appendix.

Checking your Firmware:

Pi-Star Digital Voice Dashboard for KC6N

Dashboard | Admin | Configuration

Pi-Star: 3.4.11 / Dashboard: 2018031

Modes Enabled Gateway Activity Time (PDT) Mode Loss BER 15:41:41 Mar 15th TG 31066 0.0% DMR Slot 2 K6WDE Net 0.5 0% 15:39:28 Mar 15th DMR Slot 2 TG 31066 0.5 0% 0.0% G6PF Net 15:36:55 Mar 15th D-Star C7ZZN COCOCO via REF012 A Net 0.9 0% 0.0% DMR Slot 2 15:33:15 Mar 15th TG 31066 0% 0.0% Net 14.5 Network Status 15:32:54 Mar 15th DMR Slot 2 KN4KBL TG 31066 Net 14.5 0% 0.0% 15:31:59 Mar 15th KM6QIP COCOCO via REF012 A 0.4 0% 0.0% D-Star Net 15:29:38 Mar 15th DMR Slot 2 TG 31066 Net 19.6 0% 0.0% 15:27:05 Mar 15th DMR Slot 2 C6KGE TG 31066 0% Net 0.5 0.0% 15:17:14 Mar 15th YSF T4ROY-ALL ALL at KT4ROY Net 39.0 0% 0.0% 15:16:29 Mar 15th DMR Slot 2 KD6AJG TG 31066 Net 4.8 0% 0.0% Radio Info 0.0% 15:15:55 Mar 15th DMR Slot 2 K6TFJ TG 31066 Net 26.4 0% Trx 15:13:33 Mar 15th DMR Slot 2 X2AEK TG 31066 0% 0.0% Net 0.5 Тx 439.025000 MHz TG 31066 15:13:17 Mar 15th DMR Slot 2 (2MJ Net 0.5 0% 0.0% 439.025000 MHz Rx 15:13:05 Mar 15th DMR Slot 2 ID6FOX TG 31066 Net 5.2 0% 0.0% ZUMspot:v1.3.3 1710 15:08:41 Mar 15th TG 31066 DMR Slot 2 6TUX Net 0.5 0% 0.0% 14:57:45 Mar 15th YSF ALL at KE4LTT Net 0.2 0% 0.0% D-Star Repeater 14:55:44 Mar 15th TG 31066 2.6 0.0% DMR Slot 2 KK6GNC Net 40% KC6N RPT1 В 14:50:37 Mar 15th D-Star KM60MY COCOCO via REF012 A Net. 3.8 0% 1.09 KC6N G 14:44:37 Mar 15th YSF W3ADC *****H51RD at W3ADC Net 1.0 0% 0.0% D-Star Network 14:40:33 Mar 15th CQCQCQ via REF012 A Net 2.7 0% 0.0% D-Star APRS socal.aprs2.net rr.openguad.net Local RF Activity Linked to REF012 A Time (PDT) Mode (DPlus Outgoing) DMR Repeater DMR ID 3106564 DMR CC 1 enabled TG 31066/not linked DMR Master BM United States 3103

Pi-Star: 3.4.11 / Dashboard: 20180310

To find the latest firmware go here:

KC6N

http://www.pistar.uk/downloads/

The quickest way to get there is by clicking "here" (literaly ⁽ⁱ⁾).

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MWOMWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DLSDI). MMDVMDash developed by Kim Huebel (DGAVH) Need help? Click here for the Support G' up Get your cooy of Pi-Star from here.

YSE Network Room: Alabama-Link

Updating Firmware (method 1):

Pi	Star.UK - Pi-Star Digital Voice Software		
Home	Pi-Star Downloads		
Information	Images available to Download Pi-Star NanoPi Air V3.4.11 06-Mar-2018.zip		The current release versions are
Help	Pi-Star NanOPi V3.4.11 06-Mar-2018.zip Pi-Star Odroid XU4 V3.4.11 06-Mar-2018.zip Pi-Star Odroid XU4 V3.4.11 06-Mar-2018.zip Pi-Star OrangePi Zero V3.4.11 06-Mar-2018.zip	ļ	shown here. Pick the latest one
Pi-Star Tools	Pi-Star_RPi_V3.4_10_24-Peb-2018.zip Pi-Star_RPi_V3.4.11_06-Mar-2018.zip dwmega-flash-tools.zip		that starts with "Pi-Star RPI".
BrandMeister Tools			
DMR+ Tools	Information Remember, all you need to do, is download the zipped version of the image that is most suitable for your Pi / Sindle Board Computer, Unzip the		
D-Star Tools	download, and then flash the image to your SD card (using your prefered image writing tool - see links below for some basic instructions), boot the		
Downloads	Pi, wait 30-40 secs and then login to the admin portal in order to finish the setup your Pi-Star.		
Credits	here: http://pi-star/admin/ Default Username: pi-star		
Links	Default Password: raspberry For help getting started, see this *EXCELLENT* video by Craig (W1MSG): Here		
	Windows Treating Cuido, Noro		

If you decide you need an update, follow the instructions in Parts I, II and III to prepare a new card. Note that if you have a backup "zip" file from a previous setup (with working WiFi credentials), you may simply copy this file into the root directory of the freshly minted card and start your boot up. If you had set the "Use Dplus for XRF" switch (see appropriate appendix) you will need to do that again <u>and do the update step</u>.

Updating Firmware (method 2)

- Log onto the Pi-Star admin expert page:
 - http://pi-star/admin/expert/

Pi-Star:3.4.11 / Dashboard:20180310

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Coteway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Cools: SSH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> Pi-Star / Pi-Star Dashboard,
> Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DLSDI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Click **"Tools:** SSH Access" To bring up the built in SSH Editor. If you don't see it, try a different browser.

Note: the method shown here (using SSH) is probably the best method if you already have a working build and just want to move to the latest version.

Log into the SSH editor:

-Star: 3.4.11 / Dashboard: 20 Log into the SSH Editor: **Pi-Star Digital Voice - Expert Editors** User "pi-star" <enter> Dashboard | Admin | Update | Backup/Restore | Configuration Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGatew Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Creating Base Date To Tools: SSH Acces Password: "raspberry" <enter> - Pi-Sta pi-star login: pi-star Password: PI-Star: 3.4.11 / Dashboard: 201803) **Pi-Star Digital Voice - Expert Editors** Dashboard | Admin | Update | Backup/Restore | Configuration Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access SSH - Pi-Star pi-star login: pi-star The Pi-Star SSH editor Password: Linux pi-star 4.9.35+ #1014 Fri Jun 30 14:34:49 BST 2017 armv61 will open up as shown Here, with the command prompt: From your Windows Computer: pi-star@pi-star(ro):=\$ < Pi-Star Dashboard: http://pi-star/ From your Apple iPhone, iPad, Macbook, iMac etc. Pi-Star Dashboard: http://pi-star.local/ pi-star@pi-star(ro):~\$ < Click here for fullscreen SSH client Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2018. Need help? Click here for the Support Group Get your copy of Pi-Star from here.

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Updating/Upgrading using SSH

- To update the operating system and upgrade Pi-Star to the latest version (whatever it may be) do the following:
- From the command prompt issue:
 - sudo pistar-update <ENTER>
 - sudo pistar-upgrade <ENTER>
- Do these in the sequence shown.
- The first line updates the raspian OS, the second line upgrades Pi-Star.

Enter the "update" command:

Pi-Star: 3.4.11 / Dashboard: 20180310 **Pi-Star Digital Voice - Expert Editors** Dashboard | Admin | Update | Backup/Restore | Configuration Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access SSH - Pi-Star pi-star login: pi-star ~~ Password: Login incorrect pi-star login: pi-star Password: Linux pi-star 4.9.35+ #1014 Fri Jun 30 14:34:49 BST 2017 armv61 From your Windows Computer: Pi-Star Dashboard: http://pi-star/ From your Apple iPhone, iPad, Macbook, iMac etc. Pi-Star Dashboard: http://pi-star.local/ iit by Andy Taylor (MW0MW4), star tools all star -star@pi-star(ro):~\$ sudo pistar-update Click here for fullscreen SSH client Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2018. Need help? Click here for the Support Group Get your copy of Pi-Star from here.

At the command prompt, pi-star@pi-star(ro):=\$, enter the string "sudo pistar-update" Without the quotes as shown here and hit enter. This will update the OS.

Wait for update to complete:

PF-Star: 3.4.11 / Destboard: 20180310 Pi-Star Digital Voice - Expert Editors Dashboard Admin Update Backup/Restore Configuration Quick Editors: DStarRepeater ircDDBGateway TimeServer MMDVMHost DMRGateway YSFGateway P25Gateway Full Editors: DMRGateway PiStar-Remote WiFi Config BM API Key System Cron RSSI Dat Tools: SSH Access	Let the flash process run to completion, You will see something like this when complete.
Bit = Pi-Star Receiving objects: 100% (617/617), 213.38 KiB 0 bytes/s, done. Resolving deltas: 100% (437/437), completed with 21 local objects. From https://github.com/AndyTaylorTweet/Pi-Star_DV_Dash * branch master > branch master > origin/master Updating 3dbald772e4b37 Fast-forward admin/configure.php admin/configure.php config/version.php 2 + dstarrepeater/system.php 1ang/german.de.php 1ang/german.de.php 1ang/german.de.php 1ang/german.de.php 1bl files changed, 658 insertions(+), 140 deletions(-) Done Updating PiStar-Firewall Done Updates complete, sleeping for a few seconds before making the disk Read-Only Pinished pinished	Now Pi-Star needs to be upgraded.
M∹star web config, © Andy Taylor (MW0MWZ) 2014-2018. Need help? Click here for the Support Group Get your copy of Pi-Star from here.	

Enter the "upgrade" command:

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access

	SSH - Pi-Star	
Receiving objects: 100% (617/617),		
Resolving deltas: 100% (437/437),		^ ^
From https://github.com/AndyTaylor		
	FETCH HEAD	
	origin/master	
Updating 3d0a1d772e4b37		
Fast-forward		
admin/configure.php	478 ++++++++++++++++++++++++++++++++++++	
admin/configure.php admin/expert/edit ysfgateway.php	3 +-	
config/version.php		
dstarrepeater/system.php		
index.php	54 +++++	
lang/german de.php	2 +-	
mmdvmhost/bm manager.php		
mmdvmhost/functions.php	192 ++++++++++++++++++++++++++++++++++++	
mmdvmhost/repeaterinfo.php	13 +-	
mmdvmhost/tools.php	26 ++	
10 files changed, 658 insertions(
Done	+); 140 delections(-)	
Updating PiStar-Firewall		
Done		
Starting Services		
Done		
	ew seconds before making the disk Read-Only	
mount: / is busy	ew seconds before making the disk kead-only	
Et Lisned		
pi-star@pi-star(rw):~\$ sudo pistar	-ungrade	~ ~
/		>
	Click here for fullscreen SSH client	/
	Cheminere for fulliscreen SSH client	_

Pi-Star web config, © Andy Taylor (MWOMWZ) 2014-2018 Need help? Click here for the Support Group Get your copy of Pi-Star from here. At the command prompt, pi-star@pi-star(ro):=\$, enter the string "sudo pistar-upgrade" Without the quotes as shown here and hit enter. This will update Pi-Star to the latest version (whatever that may be). Note that it may be later than the one shown on the Pi-Star download site.

This procedure should always get you the latest build.

Wait for upgrade to complete:

Pi-Star: 3.4.11 / Dashboard: 2018031

Pi-Star Digital Voice - Expert Editors

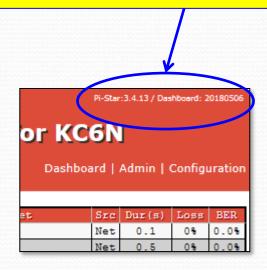
Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access

	SSH - Pi-Star			
dstarrepeater/system.php	25 ++			
index.php	54 +++++			
lang/german_de.php	2 +			
mmdvmhost/bm_manager.php	3 +-			
mmdvmhost/functions.php	192 ++++++++++++++++++++++++++++++++++++			
<pre>mmdvmhost/repeaterinfo.php</pre>	13 +-			
mmdvmhost/tools.php	26 ++			
10 files changed, 658 insertions(+), 140 deletions(-)			
Done				
Updating PiStar-Firewall				
Done				
Starting Services				
Done				
	ew seconds before making the disk Read-Only			
mount: / is busy Finished				
<pre>pi-star@pi-star(rw):~\$ sudo pistar</pre>	ungnada			
Detected Pi-Star 3.4.11 running on RPi hardware, attached to zumspotgpio modem Created symlink from <u>dete/systemd/system/multi-user.target.wants/nxdngateway.timer</u> to /lib/systemd/syste				
m/nxdngatews, timer.				
	system/multi-user_target.wants/nxdnparrot.timer to /lib/systemd/system			
/r.dnparrot.timer.				
Upgraded from 3.4.11 to 3.4.12				
Sleeping a few seconds before making	ng the disk Read-Only			
mount: / is busy				
Finished				
pi-star@pi-star(rw):~\$				
<	>			
	Click here for fulls reen SSH client			
Pi-Star web confirm of Andy Taylor (MWOMWZ) 2014-2018.				
Musi nelp? Click here for the Support Group				
	Get your copy of Pi-Star from here.			

Let the flash process run to completion, You will see something like this when complete.

Now you can return to the dashboard and check the revision number at the top of the page. Note: I had to run this twice to get from 3.4.11 to 3.4.13



Version 3.4.15 and forward:

					PI-Star:3.4.15 / Dashboard: 2018062
	Pi-Star	Digital Voice -	Conf	iguration	
		Dashboard Adm n	Expert Po	C Hindate I Back	p/Restore Factory Rese
		Gateway Hardware Inf	ormation		
Hostname	Kernel	Platform		CPU Load	CPU Temp
pi-star	4.9.35+	Pi Zero W Rev 1.1 (512MB)	0.34 / 0.28 / 0	.23 41.7°C / 107.1°F
		Control Softwar	e		
Setting			Value	2	
Controller Software:	er Software: ODStarRepeater MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)				
Controller Mode:	Controller Mode: One O Duplex Repeater (or Half-Duplex on Hotspots)				
		Apply Changes			
		MMDVMHost Configu	ration		
Setting		this trinost comp	Value	2	
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:		DF Hangtime	20	Net Hangtime: 20	

PI-Star: 3.4.15 / Dashbr ...d: 20180

Pi-Star Digital Voice - Expert Editors

Dashboard | Adr in | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintend by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018 ircDD0Gateway Dashboard by Hans-J. Barthen (DLSOI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click hers for the Support Group Get your copy of Pi-Star from here.

From the configuration page, click "Expert" or enter the command line: <u>http://pi-star/admin/expert/</u> to get the expert screen.

You will find "Update" and "Upgrade" here. Use them the same way, execute "Update" followed by "Upgrade" as many times as needed you get to the latest version. It will tell you when you are done.

ZUMspot/PiStar

Appendix F Updating the ZUMspot board firmware

Updating the ZUMspot FW

- The ZUMspot Pi Hat has it's own microcontroller with it's own firmware.
- This section will cover:
 - How to determine the installed ZUMspot FW version
 - How to determine the latest release FW version
 - How to update the ZUMspot flash memory with new FW using Pi-Star

Checking your ZUMspot FW ver

YSF Networl

Room: Alabama-Link

The ZUMspot's currently installed Firmware is shown here on the main dashboard.

You can check the current release version here: <u>https://github.com/juribeparada/MM</u>

DVM_HS/releases

If you are ready for an update, Pi-Star has a built in methodology for doing this.

Dashboard | Admin | Configuration **Gateway Activity** Modes Enabled 14:47:03 Mar 16th ALL at KE4LTT YSF WJ4P Net 0.8 0% 0.0% 14:46:42 Mar 16th YSF ALL at AAOKM Net 0.1 0% 0.0% ALL 14:46:29 Mar 16th C6N-DAVE 1.2 0% 44 14:46:05 Mar 16th D-Star C6N/ID51 COCOCO 2.1 0% 0.0% Network Status 14:45:38 Mar 16th 2.2 DMR_Slot_2 TG 31066 0% TG 31066 1.2 14:44:41 Mar 16th DMR Slot 2 AF6BY Net. 0% 0.0% 14:41:36 Mar 16th DMR Slot 2 TG 31066 0.8 0% 0.0% Net 14:39:57 Mar 16th DMR Slot 2 7FAY TG 31066 Net 4.4 0% 0.08 14:39:13 Mar 16th 6.5 D-Star CEN/INFO COCOCO Net 0% 0.0% 14:36:15 Mar 16th M1ABC/INFO D-Star COCOCO Net 2.5 0% 0.0% Radio Info Listening YSF Local RF Activity 439.025000 MHz Time (PDT) Mod ALL 14:46:29 Mar 16th YSF KC6N-DAVE 1.2 . 4% S9+46dB ZUMspot:v1.3.3 14:46:05 Mar 16th D-Star S9+46dB COCOCO 2.1 0.0% 14:45:38 Mar 16th DMR Slot 2 TG 31066 S9+46dB KC6N 2.2 D-Star Repeate: KC 6N в KC 6N G ar Network socal.aprs2.net rr.openguad.net Linked to REF012 A (DPlus Outgoing) DMR Repeater DMR TO 3106564 IMR CO TG 31066/not linked **TMR** Master M United States 310;

Pi-Star Digital Voice Dashboard for KC6N

i-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans J. Barthen (DLSDI), MMDVDAsh developed by Kim Hubel (DGSVH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

ZUM board FW update Process

- Log onto the Pi-Star admin expert page:
 - http://pi-star/admin/expert/

PI-Star:3.4.11 / Dashboard:20180310

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Coteway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Cools: SSH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DLSDI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Click **"Tools:** SSH Access" To bring up the built in SSH Editor. If you don't see it, try a different browser.

Log into the SSH editor:

-Star:3.4.11 / Dashboard:20 Log into the SSH Editor: **Pi-Star Digital Voice - Expert Editors** Dashboard | Admin | Update | Backup/Restore | Configuration UserName: "pi-star" <enter> Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGatew Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cross | 55ar Dat | 1 Tools: SSH Acces Password: "raspberry" <enter> - Pi-Sta pi-star login: pi-star Password: PI-Star: 3.4.11 / Dashboard: 201803) **Pi-Star Digital Voice - Expert Editors** Dashboard | Admin | Update | Backup/Restore | Configuration Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access SSH - Pi-Star pi-star login: pi-star The Pi-Star SSH editor Password: Linux pi-star 4.9.35+ #1014 Fri Jun 30 14:34:49 BST 2017 armv61 will open up as shown Here, with the command prompt: From your Windows Computer: pi-star@pi-star(ro):=\$ < Pi-Star Dashboard: http://pi-star/ From your Apple iPhone, iPad, Macbook, iMac etc. Pi-Star Dashboard: http://pi-star.local/ pi-star@pi-star(ro):~\$ < Click here for fullscreen SSH client Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2018. Need help? Click here for the Support Group Get your copy of Pi-Star from here.

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Enter the flash command:



Wait for flash complete:

PI-Star: 3.4.11 / Dashboard: 2018031

Pi-Star Digital Voice - Expert Editors Dashboard | Admin | Update | Backup/Restore | Configuration Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Acces SSH - Pi-Star remote: Total 163 (delta 0), reused 0 (delta 0), pack-reused 163 Receiving objects: 100% (163/163), 3.16 MiB | 818.00 KiB/s, done. Resolving deltas: 100% (55/55), done. Checking connectivity... done. Raspberry Pi 2 or Pi Zero W detected stm32flash Arduino STM32 0.9 http://github.com/rogerclarkmelbourne/arduino_stm32 Using Parser : Raw BINARY Interface serial posix: 57600 8E1 Version : 0x22 Option 1 : 0x00 Option 2 : 0x00 Device ID : 0x0410 (Medium-density) RAM : 20KiB (512b reserved by bootloader) Flash : 128KiB (sector size: 4x1024) Option RAM : 16b System RAM : 2KiB Write to memory Erasing memory Wrote and verified address 0x0800a47c (100.00%) Done. Starting execution at address 0x08000000... done Flashing your rpi modem complete, press any key to reboot your Pi-Star System. Click here for fullscree Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2018. Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Let the flash process run to completion, follow any instructions presented. It will likely ask you to hit a key to begin a reboot. As usual, give the reboot about 3 minutes.

Verify new ZUMspot FW ver.

Once the boot cycle completes you can verify the ZUMspot's new FW version on the main dashboard.

That's it, all done.

D-Star	inabled			Gateway A	ctivity					
	DMR	Time (PDT)	Mode	Callsign	Target	;	Src	Dur(s)	Loss	BE
YSF	₽25	14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4L1	Т	Net	0.8	0%	0.
YSF2DMR	NXDN	14:46:42 Mar 16th	YSF	AAOKM	ALL at AAOKN	1	Net	0.1	0%	0.
		14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL		RF	1.2	0%	0.
Network	Status	14:46:05 Mar 16th	D-Star	KC6N/ID51	COCOCO		RF	2.1	0%	0.
D-Star Net	DMR Net	14:45:38 Mar 16th	DMR Slot 2	KCEN	TG 31066		RF	2.2	0%	0.
YSF Net	P25 Net	14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066		Net	1.2	0%	0.
(SF2DMR Net	NXDN Net	14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066		Net	0.8	0%	0.
Inte	rnet	14:39:57 Mar 16th 14:39:13 Mar 16th	DMR Slot 2 D-Star	K7FAY KC6N/INFO	TG 31066 CQCQCQ		Net Net	4.4	0%	0.
		14:35:13 Mar 16th	D-Star D-Star	M1ABC/INFO			Net	2.5	0%	0.
Radio		14.36.15 Mar 166M	D-Star	FILABC/ INFO	000000		Nec	2.0	0.8	0.
	ening YSF			Local RF A	rtivity					
	25000 MHz	Time (PDT)	Mode	Callsign		Sre	Dur (s	s) BER	R	SSI
	25000 1017	14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2		S9-	46
FW ZUMsp	ot:v1.3.3	14:46:05 Mar 16th	D-Star	KC6N/ID51	COCOCO	RF	2.1	0.08	S9-	+46
D. 64 7	2t	14:45:38 Mar 16th	DMR Slot 2	KC 6N	TG 31066	RF	2.2	0.28	S9-	46
D-Star F RPT1 KC	C6N B			•						
	CEN G									
D-Star										
	.aprs2.net									
	enquad.net									
	REF012 A									
Linked to										
Linked to (DPlus O	utgoing)									
	utgoing)									
	peater									
(DPlus O DMR Rej DMR ID	peater 3106564									
(DPlus O DMR Re DMR ID DMR CC	peater 3106564 1									
(DPlus O DMR Rej DMR ID DMR CC TS1	peater 3106564 1 disabled									
(DPlus O DMR Rep DMR ID DMR CC TS1 TS2	peater 3106564 1 disabled enabled									
(DPlus O DMR TD DMR CC TS1 TG 31066/r	peater 3106564 1 disabled enabled not linked									
DPlus O DMR Re DMR ID DMR CC TS1 TS2 TG 31066/r DMR M	peater 3106564 1 disabled enabled not linked aster									
DPlus O DMR Re DMR ID DMR CC TS1 TS2 TG 31066/r DMR M	peater 3106564 1 disabled enabled not linked									
(DPlus O DMR Re DMR ID DMR CC TS1 TS2 TG 31066/r DMR M EM United S	peater 3106564 1 disabled enabled not linked aster States 3103									
DPlus O DMR Re DMR ID DMR CC TS1 TS2 TG 31066/r DMR M	peater 3106564 1 disabled enabled not linked aster States 3103 etwork									

Star:3.4.11 / Dashboard: 20

ZUMspot/PiStar

Appendix G Alternative bring up methodology

This works for any version of P-Star. While the AutoAP mode can only be used with version 3.4.11 (or later).

Note:

Your hotspot must be able to make a WiFi connection in order to be configured. This section outlines the "classic" method that will work with any version of Pi-Star. This is useful for people attempting to bring up a hot spot using a computer w/o WiFi. This might be a situation where a wired workstation is used for set-up that does not have it's own WiFi. Both PC and hot spot must be in the same domain.

Gather up the following:

- Basic ZUMspot kit
 - ZUM Board (w/ Antenna)
 - Raspberry Pi ZeroW (w/ connector)
 - µSD card (w/ Image)
 - Case (Optional)
- Windows PC with Internet access
- USB µSD card reader
- WiFI Credentials for at least one WiFi connection (SSID and PSK), DMR ID

Setting up your WiFi (Slide 1)

Go to the following URL: **PiStar.UK - Pi-Star Digital Voice Software** http://www.pistar.uk/index.php Home Home Pi-Star is a software image built initially for the Raspberry Pi (produced by the Raspberry Pi Foundation). Information Click Pi-Star Tools, select "WiFi Builder The design concept is simple, provide the complex services and configuration for Digial Voice on Amateur radio in a way that makes it easily accessable to anyone just starting out, but make it configurable enough to be interesting for those of us who cant help but tinker. Pi-Star can be what ever you want it to be, from a simple single mode hotsport running simplex providing **Pi-Star Tools** you with access to the increasing number of Digital Voice networks, up to a public duplex multimode repeater! The world is at your fingertips, and the choices are yours! i-Star Usage Stats If you like to get your hands dirty, delve beneath the simple to use web based dashboard, Pi-Star provides some unique tools to make administration easy, but we also encourage those who want to understand what the system is and how it works to be as involved as they want to be! Most importantly, have fun using Pi-Star! BrandMeister Tools PiStar.UK - Pi-Star Digital Voice Software DMR+ Tools Pi-Star Digital Voice Dashboard for MW0MWZ **D-Star Tools** Active Starnet Groups Pi-Star User Group on D-Star Downloads CHECK II and Club Meebaas Geou CN6CH B Home Pi-Star WiFi Builder Last 20 calls heard via this Gatewa Credits 2017-05-30 16:30:19 D-Star This tool is used to create your "wpa_supplicant.conf" for use with Pi-Star. DAVE COCOCO via REF001 C Information 2017-05-30 16:27:55 DMR Slot 2 2017-05-30 16:25:15 DMR Slot 2 All you need to do is enter your SSID (this is the name of your Wireless Network) and Links the matching PSK (this is the Pre-Shared Key, or Password) for this network, when you 2017-05-30 16:24:52 DMR Slot 2 Help hit "Submit" the generated config file will download to your computer. 2017-05-30 16:17:56 D-Star 2017-05-30 16:17:23 D-Star CQCQCQ via REF001 C CQCQCQ via REF001 C Net 11.8 0% 0.005 CQCQCQ via REF001 C Net 1.4 0% 0.005 CQCQCQ via REF001 C Net 1.4 0% 0.005 CQCQCQ via REF001 C Net 0.7 0% 0.005 CQCQCQ via REF001 C Net 0.7 0% 0.005 431.187500 MHz DNGL COCOCO via REF001 C If you require a config to connect to any available open network, leave the SSID and PSK Libre:2017 Pi-Star Tools 2017-05-30 16:16:36 D-Star lines empty, the generated config will allow your Pi to connect to any available open network. 2017-05-30 16:11:39 D-Star 1/d74 CQCQCQ via REF001 C Net 1.9 0% 0.5 //NFD CQCQCQ via REF001 C Net 7.1 0% 0.0 2017-05-30 16:10:44 D-Star MWRMWZ B MWRMWZ G All you need to do then, is drop this onto the "Boot" volume of your Pi-Star SD 2017-05-30 16:10:42 D-Star BrandMeister Tools WIN COCOCO via REF001 2017-05-30 16:09:28 D-Star card - this will appear as you complete writing the SD Card. uk.aprs2.net 2017-05-30 16:05:55 /NEIL COCOC 2017-05-30 15:56:09 D-Star /DVAP CQCQCQ DMR+ Tools Once the Pi-Star system boots up, it will add the config file for the WiFi and reboot. inked to REF001 (DPlus Outgoing) 2017-05-30 15:54:49 D-Star 1051 COCOC 2017-05-30 15-49-35 D-Stor CQCQCQ 2017-05-30 15:48:20 RSNC COCOCO 2017-05-30 15:47:01 D-Stor /ID31 CQCQCQ **D-Star Tools** SSTD: 2353150 2017-05-30 15:40:50 ZSUN COCOC 2017-05-30 15:36:33 D-Stor /DNGL COCOC PSK: Downloads Last 20 calls that accessed this Gatewa Submit Querv TE 91/not linked 2017-05-30 16:10:42 D-Star MIRMAZ/M Credits bn-dne-uk website designed and developed by Andy Taylor (MW0MWZ) - andy@mw0mwz.co.uk © 2017-2018 MW0MWZ. All rights reserved. All trademarks acknowledged. wiff_builder.php last modified on 23/10/17 at 20:12 + 0000 pistar.uk website designed and developed by Andy Taylor (MWOMWZ) - andy@mw0mwz.co.uk © 2017-2018 MWOMWZ. All rights reserved. All trademarks acknowledged. index.php last modified on 12/09/17 at 19:14 + 0000

Net 0.8 0% 0.2

1.2 0% 0.0

et 0.1 0% 10.

et 0.0 0% 0.0

et 0.4 0% 0.0 Net 0.2 0% 0.0%

et 6.8 0% 0.0

RF 0.7 0.0

et 18.1

Setting up your WiFi (Slide 2)

1. Enter your WiFi Credentials: SSID, and Password (PSK) for the network you want to use for bring-up.

2. Click "Submit Query"

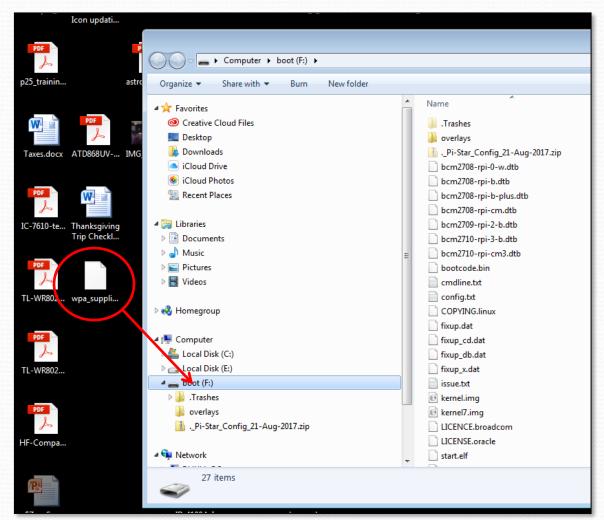
3. When the save dialogue appears, save the resulting "wpa_suplicant.conf" file in a location you will remember.

You will move this to your imaged card so that your WiFi will start up in the subsequent steps.

PiStar.UK - Pi-Star Digital Voice Software			
Home	Pi-Star WiFi Builder		
Information	This tool is used to create your "wpa_supplicant.conf" for use with Pi-Star. All you need to do is enter your SSID (this is the name of your Wireless Network) and		
Help	Ne matching PSK (this is the Pre-Shared Key, or Password) for this network, when you hit submit" the generated config file will download to your computer.		
Pi-Star Tools	If you require a config to connect to any available open network, leave the SSID and PSK lines empty, the generated config will allow your Pi to connect to any available open network.		
BrandMeister Tools	All you need to do then, is drop this onto the "Boot" volume of your Pi-Star SD card - this will appear as you complete writing the SD Card.		
DMR+ Tools	Once the Pi-Star system boots up, it will add the config file for the WiFi and reboot.		
D-Star Tools	SSID:		
Downloads	PSK: Submit Query		
Credits			
Links			
pistar.uk website designed and developed by Andy Taylor (MW0MWZ) - andy@mw0mwz.co.uk © 2017-2018 MW0MWZ. All rights reserved. All trademarks acknowledged. wifi_builder.php last modified on 23/10/17 at 20:12 +0000			

Setting up your WiFi (Slide 3)

- 1. Place your card containing the Pi-Star image in a μ SD card reader in your PC.
- 2. Drag and Drop the "wpa_suplicant.conf" file into the root directory of your µSD card.
- 3. Install the µSD card containing your image and the wpa_suplicant file into your Raspberry Pi Zero W.
 4. Power the hot spot, wait about three minutes then proceed with bring-up as described in Part III



ZUMspot/PiStar

Appendix H Cross Mode Operation

Cross-mode operation

- Pi-Star offers the ability to operate crossmode between many (but not all) modes.
- This is achieved using bridges built into the pi-star framework.
- Each of the next few pages shows the setup needed to initialize a specific cross mode scenario.
- This section will be updated periodically as new capability is added to PiStar.

Cross-mode YSF to NXDN

Turn "on" YSF mode and YSF2NXDN In the MMDVM Host Dialog as shown Below.

MMDVMHost Configuration			
Setting		Value	
DMR Mode:		RF Hangtime: 20 Net Hangtime: 20	
D-Star Mode:	0	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:	0		
YSF2NXDN:	•	_	
YSF2P25:			
DMR2YSF:		Uses 7 prefix on DMRGateway	
DMR2NXDN:	Uses 7 prefix on DMRGateway		
MMDVM Display Type:	OLED V Port: /dev/ttyAMAO V Nextion Layout: G4KLX V		
Apply Changes			

Note: For this mode to work, your Fusion radio must be in DN mode. The reason for this is that NXDN runs its vocoder at a rate of 3600 bits/s. This is the vocoder rate used by Yaesu System Fusion in its DN mode.

Click "Apply Changes" and wait for the reset to complete. Once it does, Fill out the Yaesu System Fusion Dialog as shown below. Select "YSF00003 – YSF2NXDN – YSF2NXDN Bridge" as your YSF Startup Host. Set your APRS Host, enter your NXDN ID (mine is shown). Select your desired NXDN "talk group" (last line) and "Apply Changes".

Yaesu System Fusion Configuration				
Setting	Value			
YSF Startup Host:	YSF00003 - YSF2NXDN - YSF2NXDN Bridge 🗸 🗸			
APRS Host:	socal.aprs2.net			
(YSF2NXDN) NXDN ID:	6564 -			
NXDN Startup Host:	65000 - 176.9.1.168 🗸 🗲			
	Apply Changes			

The NXDN Startup Host (last line here) determines which talk group you will be using on NXDN.

Cross-mode YSF to DMR

Turn "on" YSF mode and YSF2DMR in the MMDVM Host Dialog as shown Below.

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:	2P25:		
DMR2YSF:	Uses 7 prefix on DMRGateway		
DMR2NXDN:	Uses 7 prefix on DMRGateway		
MMDVM Display Type:	OLED V Port: /dev/ttyAMAO V Nextion Layout: G4KLX V		
Apply Changes			

Note: For this mode to work, your Fusion radio must be in DN mode. The reason for this is that DMR runs its vocoder at a rate of 3600 bits/s. This is the vocoder rate used by Yaesu System Fusion in its DN mode.

Click "Apply Changes" and wait for the reset to complete. Once it does, Fill out the Yaesu System Fusion Dialog as shown below. Select "YSF00002 – YSF2DMR – YSF2DMR Bridge" as your YSF Startup Host. Set your APRS Host, enter your DMR ID (mine is shown) and DMR Master. Select a DMR "talk group" (last line) and "Apply Changes".

	Yaesu System Fusion Configuration	
Setting	Value	The DMR TG entry (last line
YSF Startup Host:	YSF00002 - YSF2DMR - YSF2DMR Bridge 🗸 🗸	
APRS Host:	socal.aprs2.net V	here) determines which DMR
(YSF2DMR) CCS7/DMR ID:	3106564 ←	talk group you will be using on
DMR Master:	BM_United_States_3103	DMR.
DMR TG:	31066	
	Apply Changes	102

Cross-mode YSF to P25

Turn "on" YSF mode and YSF2P25 in the MMDVM Host Dialog as shown Below.

		MMDVMHost Configura	ation			
Setting			Value			
DMR Mode:		RF Hangtime: 20	0	Net Hangtime:	20	
D-Star Mode:		RF Hangtime: 2	0	Net Hangtime:	20	
YSF Mode:		RF Hangtime: 2	0	Net Hangtime:	20	
P25 Mode:		RF Hangtime: 2	0	Net Hangtime:	20	
NXDN Mode:		RF Hangtime: 20	0	Net Hangtime:	20	
YSF2DMR:						
YSF2NXDN:						
YSF2P25:						
DMR2YSF:		Uses	s 7 prefix	on DMRGateway		
DMR2NXDN:		Uses 7 prefix on DMRGateway				
MMDVM Display Type:	OLED 🗸	Port: /dev/ttyAMA0 🗸 N	extion Lay	out: G4KLX	~	
		Apply Changes				

Note: For this mode to work, you need to set your Fusion radio to VM mode. This forces the Fusion radio to run its vocoder at 7200 bits/s which is the P25 vocoder rate (and one reason that P25 audio is so good).

Click "Apply Changes" and wait for the reset to complete. Once it does, Fill out the Yaesu System Fusion Dialog as shown below. Select "YSF00004 – YSF2P25 – YSF2P25 Bridge" as your YSF Startup Host. Set your APRS Host, enter your DMR ID (mine is shown). Select your desired P25 "talk group" (last line) and "Apply Changes".

	Yaesu System Fusion Configuration	
Setting	Value	
YSF Startup Host:	YSF00004 - Link YSF2P25 🗸 🗸	The "P25 Startup Host"
UPPERCASE Hostfiles:	Note: Update Required if changed	selection determines your talk
WiresX Passthrough:		group on P25.
(YSF2P25) CCS7/DMR ID:	3106564 -	group off 1 20.
P25 Startup Host:	31077 - 216.240.173.55 🗸 🗲	
	Apply Changes	

Cross-mode DMR to YSF/FCS

Turn "on" DMR mode and DMR2YSF in the MMDVM Host Dialog as shown Below.

		MMDVMHost Configu	uration		
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:		Us	ses 7 prefi	x on DMRGateway	
DMR2NXDN:		Uses 7 prefix on DMRGateway			
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMA0 ✓ Nextion Layout: G4KLX ✓			
		Apply Changes			

Note: This page illustrates the simplest of two ways to bridge DMR to YSF. This requires the MMDVMHost settings shown to the left and the DMR master setting of DMR2YSF shown below. In this mode all you need for your DMR radio is a talk group (any TG ID will do) that is on the correct frequency, color code and timeslot.

Click "Apply Changes" and wait for the reset to complete. Once it does, change the DMR Master to "DMR2YSF" in the "DMR Configuration" pane. This mode uses the "YSF Startup Host" to determine the target room for YSF. Click "Apply Changes.

	DMR Configuration	
Setting	arue	
DMR Master:	DMR2YSF	
DMR Color Code:	1 🗸	
DMR EmbeddedLCOnly:		
DMR DumpTAData:		
	Apply Changes	
	Yaesu System Fusion Configuration	
Setting	Value	
YSF Startup Host:	YSF02034 - Alabama-Link - Alabama-Link 🗸	
APRS Host:	socal.aprs2.net	
APRS HOSC.		
APRS HOST.	Apply Changes	

The setting chosen for the "YSF Startup Host" determines the room you will be talking into. This mode works in both networks, YSF and FCS.

Cross-mode DMR to NXDN

Turn "on" DMR mode and DMR2NXDN as shown Below.

MMDVMHost Configuration					
Setting	Value				
DMR Mode:	RF Hangtime: 20 Net H	Hangtime: 20			
D-Star Mode:	RF Hangtime: 20 Net H	Hangtime: 20			
YSF Mode:	RF Hangtime: 20 Net H	Hangtime: 20			
P25 Mode:	RF Hangtime: 20 Net H	Hangtime: 20			
NXDN Mode:	RF Hangtime: 20 Net H	Hangtime: 20			
YSF2DMR:					
YSF2NXDN:					
YSF2P25:					
DMR2YSF:	Uses 7 prefix on D	Uses 7 prefix on DMRGateway			
DMR2NXDN:	Uses 7 prefix on D	Uses 7 prefix on DMRGateway			
MMDVM Display Type:	OLED V Port: /dev/ttyAMA0 V Nextion Layout:	G4KLX V			
	Apply Changes				

Note: This page illustrates the simplest of two ways to bridge DMR to NXDN. This requires the MMDVMHost settings shown to the left and the DMR master setting of DMR2NXDN shown below. You will need to program channels in your DMR radio for the NXDN talk groups that you intend to use. The DMR Channel TGID will be the NXDN TGID.

Click "Apply Changes" and wait for the reset to complete. Once it does, change the DMR Master to "DMR2NXDN" in the "DMR Configuration" pane. The DMR2NXDN gateway passes the talk group set in the DMR radio so it doesn't really matter how the NXDN Host is set. Click "Apply Changes.

		DMR Configuration	
Setting		value	
DMR Master:	DMR2NXDN		I '
DMR Color Code:	1 🗸		t
DMR EmbeddedLCOnly:			
DMR DumpTAData:			f
		Apply Changes	_
		NXDN Configuration	
Setting		Value	
NXDN Startup Host:	None	✓	
NXDN RAN:	1		1
		Apply Changes	

For example: To talk on the World Wide NXDN talk group, set a talk group in your DMR radio for TGID=65000.

In this mode, the NXDN Startup Host setting is ignored, I recommend setting this to "None".

Cross-mode operation Notes

- You can have other modes operational while using cross-mode and the ZUMspot will scan.
- The mode you are crossing over to should not be enabled. In other words if you are setting up DMR2NXDN set the NXDN switch to "off".
- You may want to create backup files for specific "setups". Simply create a backup and re-name it for clarity.

Cross-mode operation notes

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:	\bigcirc					
YSF2NXDN:						
YSF2P25:						
DMR2YSF:		Us	es 7 prefix	on DMRGateway		
DMR2NXDN:		Uses 7 prefix on DMRGateway				
MMDVM Display Type:	OLED 🗸	Port: /dev/ttyAMA0 🗸	Nextion La	yout: G4KLX	~	
		Apply Changes				

Yaesu System Fusion Configuration					
Setting	Value				
YSF Startup Host:	YSF00004 - YSF2P25 - YSF2P25 Bridge V				
APRS Host:	socal.aprs2.net				
(YSF2P25) CCS7/DMR ID:	3106564				
P25 Startup Host:	10200 - dvswitch.org				
	Apply Changes				

Here the ZUMspot is set up to scan for signals on DMR, DSTAR, and YSF but the YSF is actually listening for signals coming in from P25 reflector 10200 (P25 North America).

Control via WiresX Commands

 Recent versions of Pi-Star (v4.x.x) have added a WiresX Pass-through feature to the Fusion Panel as shown below:

Yaesu System Fusion Configuration				
Setting	Value			
YSF Startup Host:	YSF00004 - Link \	YSF2P25		
UPPERCASE Hestfiles:	Note: Update Required if changed			
WiresX Passthrough:				
(ISF2F25) CCS7/DMR ID:	3106564			
P25 Startup Host:	10200 - dvswitch.	org 🗸		
		Apply Changes		

 This allows a user to switch reflectors in P25 and NXDN modes just like you change rooms in Yaesu System Fusion.

WiresX Pass-through setup

		MME	WMHost Config	uration			
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:			Us	ses 7 prefix	x on DMRGateway	,	
DMR2NXDN:			Us	ses 7 prefix	x on DMRGateway	,	
POCSAG:				POCSAG Pag	ing Features		
MMDVM Display Type:	OLED 🗸	Port:	/dev/ttyAMA0 🗸	Nextion La	yout: G4KLX	~	
			Apply Changes	•			
		Yaesu S	ystem Fusion Co	nfiguration			
Setting				Value			
YSF Startup Host:	YSF00004 -	Link YSF2	2P25		~		
UPPERCASE Hostfiles:	Note: Update Required if changed						
WiresX Passthrough:							
(YSF2P25) CCS7/DMR ID:	3106564						
P25 Startup Host:	10200 - dvsv	vitch.org	~				
Apply Changes							

Here we have a simple configuration for YSF2P25. Startup host will be 10200 (Nationwide) but (once WiresX passthrough is "ON" you can change P25 reflectors just like you would change WiresX rooms. This also works for NXDN, and, of course Yaesu System Fusion and YSF Rooms (reflectors).

How to use it

Set your Pi-Star as shown on the previous page. Set your Fusion radio to your Hot Spot channel and make a brief transmission using your radio. This will get the hot spot's attention and stop any scan that may be in progress. The HS needs to be ready for fusion before you hit the " D_x " or "X" key on your radio.



Making WX Pass-through work

4. After a bit of a wait, you will see this screen.

5. Touch "ALL", which after a brief wait will launch the screen on the right.



You can use the channel selector to scroll through the list if you like, but you will still need to touch the one you want, once you get there.

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BAND

Gv A/B V/M

Simply touch to select the reflector you want to change to. "TOP" takes you to the top of the list, the up/down arrows load other pages from the list. When done, hold down the "X" key for a second or so to cancel out of select mode. This is for P25 but it works for NXDN, Fusion and YSF. Make sure your radio is in VM mode for P25, it may switch back to DN during this process. Use DN mode for NXDN.

Where to find the reflector ID's

PiStar.UK - Pi-Star Digital Voice Software

ome	Home
nformation	Pi-Star is a software image built initially for the Raspberry Pi (produced by the Raspberry Pi Four The design concept is simple, provide the complex services and configuration for Digial Voice or
Help	radio in a way that makes it easily accessable to anyone just starting out, but make it co enough to be interesting for those of us who cant help but tinker.
Pi-Star Tools	Pi-Star can be what ever you want it to be, from a simple single mode hotsport running simplex you with access to the increasing number of Digital Voice networks, up to a public duplex n repeater!
BrandMeister Tools	
DMR+ Tools	If you like to get your hands dirty, delve beneath the simple to use web based dashboard provides some unique tools to make administration easy, but we also encourage those who
D-Star Tools	understand what the system is and how it works to be as involved as they want to be! Most importantly, have fun using Pi-Star!
D-Star Tools YSF/FCS Tools	
	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools	Most importantly, have fun using Pi-Star!
YSF/FCS Tools P25 Tools 25 Reflector List	Most importantly, have fun using Pi-Star! Pi-Star Digital Voice Dashboard for MWOMZ Dathoud J Arms Config Network Statist U-Star Mit 28 has U-Star Mit 28 has
YSF/FCS Tools	Most importantly, have fun using Pi-Star! Pi-Star Digital Voice Dashboard for MWOMWZ Dashbaed Admin Coving Notes Institute Notes Insti

Go to: <u>http://www.pistar.uk/</u> and check the "Tools" pulldown specific to the mode you are interested in. There you are likely to find an option to list the reflectors currently available for the mode. Select the reflector list option to see what is available (updated regularly). Most of these modes operate in reflector mode. This includes P25, NXDN, DMR+ and YSF/FCS (yea, they call them "rooms"). Pi-Star maintains updated lists for these reflectors on the home page.

PiStar.UK - Pi-Star Digital Voice Software

Home	P25 Reflector Lis	st			
Information		lectors is pulled from the Pi-Star P25 Database (updated hourly).			
	P25 TG Number	Description			
Help	TG 10100	World Wide, 1010x			
110.0	TG 10200	North America, 1020x			
Di Otari Tarala	TG 10201	North America TAC1			
Pi-Star Tools	TG 10300	Europe, 1030x			
	TG 10301	Europe TAC1			
BrandMeister Tools	TG 10400	Pacific, 1040x			
	TG 10401	Pacific TAC1			
DMR+ Tools	TG 10402	pacific TAC2			
Dirict roois	TG 10403	pacific TAC3			
	TG 28299	America-Ragchew, 28299			
D-Star Tools	TG 31010	Alabama Link			
	TG 31665	31665 P25-DMR Gateway			
YSF/FCS Tools	TG 31672	31672 P25 Pi-Star chat			
	TG 50525	50525 Bridge to YSF, NXDN and DMR			
P25 Tools	TG 9999	Disconnect			
NXD: Tools					
in the rest of the second					
Downloads					
Credits					
Links					
	pistar.uk website designed and developed by Andy Taylor (MWOMW2) - andy@mwOmwz.co.uk @ 2017-2018 MWOMW2. All rights reserved. All trademarks acknowledged. p25_reflectors.php last modified on 31/05/18 at 21:06 +0100				

Final note on cross mode

 I have tried to show the simplest connection method in this section, I did not show the use of the "DMR Gateway" which is somewhat more complicated.

 There is an excellent paper on the use of the DMRGateway by John Fields titled "XLX and XRF Reflectors, DMR and use with DMRGateway" which can be found on the web.

ZUMspot/PiStar

Appendix I DMR+ Setup and Operation

DMR+ Background Info

- The DMR+ network is another group of networked repeaters, like Brandmeister.
- DMR+ is mostly deployed in Europe with a few repeaters and servers in the US.
- While communication on Brandmeister takes place primarily via talk groups with its available reflectors being used rarely, communication on DMR+ is mostly via reflectors with talk-groups used rarely.

DMR+ Background Info

	General Configu	ration
Setting		Value
Hostname:	DMR+_EA-DISTRITO-5 DMR+ EA-DISTRITO-7	such as .local
Node Callsign:	DMR+_EA-GLOBAL-MASTER	
CCS7/DMR ID:	DMR+_EA-MASTER-CAT DMR+ EA-NAVARLIK	
Radio Frequency:	DMR+_EA-RC-VELETA	
Latitude:	DMR+_FRANCE-ATLANTIQUE DMR+ FRANCE ALSACE	lue for North, negative for South)
Longitude:	DMR+_FRANCE_SUD-EST	lue for East, negative for West)
Town:	DMR+_FREMONT DMR+ GR-DMRPLUS2021	
Country:	DMR+_HU-MASTER1	
URL:	DMR+_IT-CAMPANIA DMR+_IT-MASTER	Auto O Manual
Radio/Modem Type:	DMR+_ITALY5-TUSCANYSERVER	✓
Node Type:	DMR+_JAPAN-MASTER	
System Time Zone:	DMR+_KC9UHI-1 DMR+ OE-VIENNA	
Dashboard Language:	DMR+_OH-MASTER DMR+_PEPEPLUS DMR+_PHOENIX-F DMR+_PL-MASTER DMR+_PEUNION	
Setting DMR Master:	DMR+_SWEDEN-DMR DMR+_USA-CALIFORNIA	Value
DMR+ Network:	DMR+_USA-DALLAS DMR+_USA_FLORIDA	serLink=1;TS1_1=9;
DMR Color Code:	DMR+_USA-MINNESOTA	×
DMR EmbeddedLCOnly:	DMR+_USA-MINNESOTA2	
DMR DumpTAData:		
bai baipinbata.	Apply Change	es

The DMR+ network can be accessed by selecting one of the DMR+ servers listed in the DMR Master pulldown in the DMR Configuration dialog.

I would suggest picking one close to your geographical area.

Pi-Star DMR+ Setup

Turn "on" DMR mode in the MMDVM Host Dialog as shown Below.

	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:		Us	ses 7 prefi	x on DMRGateway		
DMR2NXDN:		Uses 7 prefix on DMRGateway				
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMA0 ∨	Nextion La	yout: G4KLX	~	
Apply Changes						

Note: DMR+ makes extensive use of reflectors. The DMR+ Network Options entry (discussed below) allows the system to start with a specific reflector designated. You can also start with the UNLINK command "4000" as shown in the example below. This will start the system with no reflector connected.

Click "Apply Changes" and wait for the reset to complete. Once it does, fill out the DMR Configuration Dialog as shown below. Select one of the DMR+ servers near your location. I have selected "DMR+_USA-CALIFORNIA" which is close to me. You may want to add the string "StartRef=****;RelinkTime=60;UserLink=1;TS1_1=9;" as shown below. Replace the "****" with the ID of your desired start-up reflector.

	DMR Configuration	
Setting	Value	U
DMR Master:	DMR+_USA-CALIFORNIA	Ш
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;	Ш
DMR Color Code:		I
DMR EmbeddedLCOnly:		Ш
DMR DumpTAData:		I
	Apply Changes	1

Set "DMR DumpTAData to "ON" to if you use talker alias. Make sure the color code is correct.

Linking to a DMR+ Reflector

- Set up your ZUMspot for DMR+ operation as described on the previous pages
- Set your DMR radio to communicate with your ZUMspot on DMR Talk-Group 9
- Using your DMR radio, issue a "Private Call" to the reflector ID of the reflector you want to use. This links you to the reflector.
- The reflector will respond with a connect announcement.

Using the DMR+ Reflector

- Once connected you will communicate with the reflector using Talk-Group 9
- Example: to use USA-Nationwide, set your radio to TG 9, Make a private call to ID 4639. After the connect response, use TG9 for calls
- To switch reflectors, simply make another private call to the new reflector ID.

Where to find the reflector ID's

PiStar.UK - Pi-Star Digital Voice Software

Home Home Pi-Star is a software image built initially for the Raspberry Pi (produced by the Raspberry Pi Foundation). Information The design concept is simple, provide the complex services and configuration for Digial Voice on Amateur radio in a way that makes it easily accessable to anyone just starting out, but make it configurable Help enough to be interesting for those of us who cant help but tinker. Pi-Star can be what ever you want it to be, from a simple single mode hotsport running simplex providing Pi-Star Tools you with access to the increasing number of Digital Voice networks, up to a public duplex multimode repeater! BrandMeister Tools The world is at your fingertips, and the choices are yours! If you like to get your hands dirty, delve beneath the simple to use web based dashboard, Pi-Star DMR+ Tools Provides some unique tools to make administration easy, but we also encourage those who want to udderstand what the system is and how it works to be as involved as they want to be! IR+ REF List Most importantly, have fun using Pi-Star! Pi-Star Digital Voice Dashboard for MW0MWZ D-Star Tools **YSF/FCS** Tools TSTAR R PTSTAR | Pi-Star User Group on D-Sta GNISCH U CNEGH B Last 20 calls heard via this Gat P25 Tools DAVE COCOCO via REF001 C 0.8 0% 0.2 7-05-30 16:27:55 DMR Slot 2 040 7-05-30 16:25:15 DMR Slot 2 040 NXDN Tools

Go to: <u>http://www.pistar.uk/</u> and select "DMR+ REF List" in the "DMR+ Tools" pull down. This will bring up the list of currently available DMR+ reflectors similar to what is shown to the right.

lome	DMR+ R	eflector List		
nformation	No.	Reflector	I D	^
lelp	0	4000 No Link	4000	
icip	1	4001 Germany	4001	
Pi-Star Tools	2	4002 Hamburg	4002	
	3	4003 Elbe-Weser	4003	
BrandMeister Tools	4	4004 Hessen	4004	
	5	4005 Rhein-Main	4005	1
MR+ Tools	6	4006 Ruhrgebiet	4006	
	7	4007 NRW	4007	1
)-Star Tools	8	4008 Wuerttemberg	4008	
SF/FCS Tools	9	4009 Baden	4009	1
SF/FCS TUUIS	10	4010 DMRplus-Chat	4010	
25 Tools	11	4011 Heide	4011	
2010013	12	4012 DSTAR DCS001_V	4012	
XDN Tools	13	4013 Rheinland-Pfalz	4013	1
	14	4014 Test	4014	
Downloads	15	4015 Bayern	4015	1
	16	4016 Berlin	4016	
Credits	17	4017 Niedersachsen-Ost	4017	1
	18	4018 DL-Mitte	4018	
inks	19	4019 Germany test	4019	
	20	4020 Weserbergland	4020	
	21	4021 Neuwied-Mayen-Koblenz	4021	
	22	4022 White-Sticker	4022	
	23	4023 Rhein-Neckar	4023	1
	24	4025 Bayern-Ost	4025	1
	25	4026 Franken	4026	
	26	4027 Inntal	4027	
	27	4028 Thueringen	4028	
	28	4029 Sachsen-Anhalt	4029	
	29	4030 Harz	4030	
	30	4031 Niedersachsen-Sued	4031	
	31	4033 Geestland	4033	1
	32	4034 Workshop -Digital-	4034	
<u> </u>	33	4035 DV4mini-Treff	4035	1
~	34	4037 DL-Nordwest	4037	
	35	4040 Osthessen & MKK	4040	\sim
	36	4041 Mecklenburg-Vornommern	/0/1	

PiStar.UK - Pi-Star Digital Voice Software

star.uk website designed and developed by Andy Taylor (MWOMWZ) - andy@mwOmwz.co.uk @ 2017-2018 MWOMWZ. All rights reserved. All trademarks acknowledged. dmr_t_reflectors.php last modified on 17/09/17 at 22:15 +0100

A few more DMR+ notes

- To disconnect from a reflector, issue a private call to ID 4000.
- To determine where you are currently connected, make a private call to ID 5000.
- Note that there is a set of reflectors on Brandmeister that mirror the set on DMR+ but while they may have the same number, they are not the same and are not connected. Similarly for talk-groups.

ZUMspot/PiStar

Appendix J XLX, XRF Reflectors, DMR and DMRGateway

DMR Gateway Operation (1)

- This appendix will take a look at the DMR Gateway option and will provide an overview of what you can do with it.
- The DMRGateway is yet another option in the DMR configuration panel and provides the ability to simultaneously connect to the XLX reflector, Brandmeister and DMR+ infrastructures using a single Pi-Star DMR configuration (without scanning).

DMR Gateway Operation (2)

- The current incarnation of the Gateway allows one to maintain a simultanious connection to the Brandmeister and DMR+ networks as well as a single XLX Master.
- This mode provides yet another way to set up cross-mode as well. However, IMO, the method covered in Appendix H is much more straightforward and easier to use.

DMR Gateway Operation (3)

- Brandmeister: With the DMRGateway, you will access Brandmeister exactly as you always have.
 - Program a zone with the talk-groups you want to use and select talk groups using the normal procedure on your radio.
 - Whatever setup you already have should work fine in this mode.

DMR Gateway Operation (4)

- DMR+: DMR+ is a reflector based network which, once configured, is accessed and controlled via talk-group 8.
 - Switch reflectors by issuing a "Private Call" (PC) to 8xxxx where "xxxx" is the ID of the desired reflector (for example: 84639)
 - To see where you are connected, issue a PC to 85000
 - To disconnect, issue a PC to 84000

DMR Gateway Operation (5)

- XLX Servers: This is a reflector based network which, once configured, is accessed and controlled via talk-group 6.
 - Select an XLX Master in PiStar, then switch modules (reflectors) on the selected master by issuing a "Private Call" (PC) to 6xxxx where "xxxx" is the reflector ID.
 - To see where you are connected, issue a PC to 65000
 - To disconnect, issue a PC to 64000

DMR Gateway Operation (6)

- An XLX Master can have up to 26 modules. These can be set up for either DMR or DSTAR. In the DSTAR case they are referenced as A trough Z. In the case of DMR, they are referenced as 4001 through 4026.
- Note that many XLX modules seem to be configured for DMR. However XRF210D is definitely configured for DMR, and can be used to validate your setup.

DMR Gateway Operation (7)

- Note that there does not appear to be as much DMR activity on XLX and activity in general on DMR+ seems to be less than for Brandmeister and MARC. Reflector 4639 on DMR+ is a good place to start.
- For more info, please refer to the excellent paper by John Fields titled: "<u>XLX and XRF</u> <u>Reflectors, DMR and use with</u> <u>DMRGateway</u>" (which can be found on the web) for more information.

DMR Gateway Setup

	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:		Us	ses 7 prefi	x on DMRGateway	,	
DMR2NXDN:		Uses 7 prefix on DMRGateway				
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMA0 ✓	Nextion La	yout: G4KLX	~	

Turn on DMD Mode in the MMD\/M Heat Dialog

Note: For Brandmeister, all communications are carried out normally using talk groups in a zone. For DMR+ all communications are carried out on talk group 8. Reflector selection requires a Private Call to the reflector ID prefixed by "8" i.e. 84639. For the XLX network all communications are carried out on talk group 6. Module selection requires a Private Call to the Module ID prefixed by "6" i.e. 64004 (sets Module D on the master selected in PiStar).

Click "Apply Changes" and wait for the reset to complete. Once it does, Set the DMR Master selection in the DMR configuration dialog to "DMRGateway" and "Apply Changes" This will return a new version of the DMR Configuration dialog as shown:

DMR Configuration						
Setting	Value					
DMR Master:	DMRGateway V					
BrandMeister Master:	BM_United_States_3103 V					
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)					
DMR+ Master:	DMR+_USA-CALIFORNIA V					
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;					
XLX Master:	XLX_210 V ←					
XLX Master Enable:	● ←					
DMR Color Code:	1 🗸					
DMR EmbeddedLCOnly:						
DMR DumpTAData:						
	Apply Changes					

Set your "BrandMeister Master", your desired "DMR+ Master", your "DMR+ Network Options" String (optional), your "XLX Master", and set the "XLX Master Enable"="ON". Set your Color Code ("1" usually). Turn on DMR DumpTAData if you use talker alias on BM.

DMR Gateway Examples

- You should be able to talk into XLX210D by executing a Private Call (PC) on TG 6 to 64004 to set module D. Then use Talk Group 6 to communicate to BM TG 31210.
- You should be able to use reflectors on DMR+ (such as 4639) by executing a PC to 84639 on TG 8 then use TG 8 to communicate normally.
- Brandmeister operation works as always with your standard zone and talk groups.

DMRGateway DMR to NXDN

The DMRGateway provides yet another way to do the DMR2NXDN cross-mode

-		MMDVMHost Configuration	
Setting		Valu	16
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 pre:	fix on DMRGateway
DMR2NXDN:		Uses 7 pre:	fix on DMRGateway
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMA0 ∨ Nextion	Layout: G4KLX 🗸
		Apply Changes	

	DMR Configuration
Setting	Value
DMR Master:	DMRGateway V
BrandMeister Master:	BM_United_States_3103 V
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR+ Master:	DMR+_USA-CALIFORNIA
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;
XLX Master:	XLX_210 V
XLX Master Enable:	
DMR Color Code:	1 ¥
DMR EmbeddedLCOnly:	
DMR DumpTAData:	
	Apply Changes

		NXDN Configuration	1
Setting		Value	
NXDN Startup Host:	None	<	_
NXDN RAN:	1		
-		Apply Changes	-

Note: In my opinion, the methodology outlined in Appendix H is easier to use and more straightforward.

To operate cross mode to NXDN using a DMR radio with the DMRGateway to, set the MMDVMHost settings shown to the left. Use the DMRGateway setup we have been using throughout this section. DMR+ and XLX will work as described earlier (or you can turn them off). You will need to program channels in your DMR radio for the NXDN talk groups that you intend to use. The DMR Channel Group Call ID will be the desired NXDN TGID, prefixed by "7".

For example: To talk on the World Wide NXDN talk group, 65000, set a talk group in your DMR radio for TGID=765000 (add a "7" ahead of the TG ID of 65000). For NXDN North America, TG 10200, program a channel in your DMR radio with a group call TG ID = 710200.

In this mode, the NXDN Startup Host settings are ignored, Set these to "None". If you have an NXDN ID, Load it into "NXDN RAN".

DMRGateway DMR to YSF/FCS

The DMRGateway provides yet another way to do the DMR2YSF cross-mode

		MMDVMHost Config	uration			
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:	0					
DMR2YSF:		تو	ses 7 prefix	x on DMRGateway		
DMR2NXDN:	Uses 7 prefix on DMRGateway					
MMDVM Display Type:	OLED '	✓ Port: /dev/ttyAMA0 ✓	Nextion La	yout: G4KLX	~	
		Apply Changes				

	DMR Configuration					
Setting	Value					
DMR Master:	DMRGateway V					
BrandMeister Master:	BM_United_States_3103 V					
BrandMeister Network:	Repeater Information Edit Repeater (BrandMeister Selfcare)					
DMR+ Master:	DMR+_USA-CALIFORNIA V					
DMR+ Network:	Options=StartRef=4000;RelinkTime=60;UserLink=1;TS1_1=9;					
XLX Master:	XLX_210 V					
XLX Master Enable:						
DMR Color Code:	1 🗸					
DMR EmbeddedLCOnly:						
DMR DumpTAData:						
	Apply Changes					

Yaesu System Fusion Configuration				
Setting	Value			
YSF Startup Host:	YSF02034 - Alabama-Link - Alabama-Link 🗸 🗸			
APRS Host:	socal.aprs2.net			
	Apply Changes			

In my opinion, the methodology outlined in Appendix H is more straightforward and easier to use. To operate cross mode to YSF/FCS with a DMR radio, using the DMRGateway, use MMDVMHost settings shown to the left. Use the DMRGateway setup we have been using throughout this section (as shown to the left). DMR+ and XLX will work as described earlier (or you can turn them off). You will need to program a channel in your DMR radio for DMR2YSF. In this case, the actual number doesn't matter but it must be in the range 700001 to 799999. Where you come out on YSF/FCS is determined by the settings in the "Yaesu System Fusion Configuration" dialog as shown at the bottom left and discussed below:

In this mode, the DMR radio talk group is ignored but it must be a Group Call in the range of 700001 to 799999. If you do NXDN, your channel for TG ID 765000 will do nicely. The setting for "YSF Startup Host" in the "Yaesu System Fusion Configuration" dialog determines where you will come out on YSF.

ZUMspot/PiStar

Appendix K Controlling Pi-Star from your radio

Pi-Star Remote Control

- Pi-Star includes features which allow your hotspot to be controlled remotely over the air.
- Codes for Reboot, Power Down, etc. are available in each mode.
- These can be accessed from the admin/expert pages by pointing the browser to:
- http://pi-star/admin/expert/

Pi-Star remote control modes

- Log onto the Pi-Star admin expert page:
 - http://pi-star/admin/expert/

/ Dashboard:20180310

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDDGuteway | TimeServer | MHDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WX config | BM API Key | System Cron | RSSI Dat Tools: SSH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

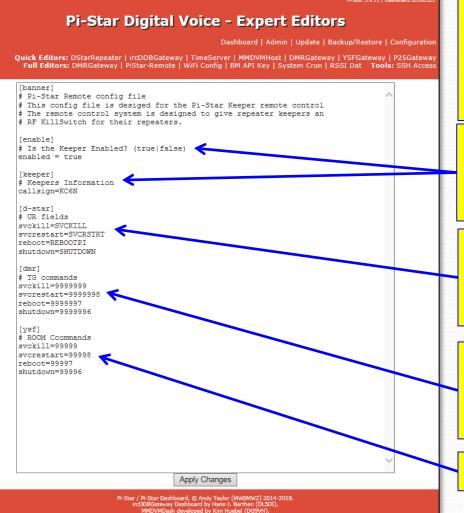
Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DLSDI), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Click "**PiStar Remote**" To bring up the remote control code page.

Pi-Star remote control modes



Here is where you will find all of the "mode compatible" commands needed to operate your hotspot remotely via your radio.

Make sure that "Keeper" is enabled here, make sure that your callsign is set as the "Keeper" in UPPER CASE.

For DSTAR: you need to make these commands available in the "UR Call" field of your radio.

For DMR: you need to these talk group commands and create channels for these in your zone.

Fusion uses "room codes" of course

Pi-Star remote control DSTAR

e View COM Port Clone Option ☞ 🔲 +⊟ +曾 +曾	Telp		
D-51	Your Ca	all Sign (Remain 23 memorie	s)
Memory CH GALL CH	No.	Name	Call Sign
🗄 🚰 Program Scan Link	169	link to REF056A	REF056AL
BC Radio Memory DTMF Memory	170	link to REF056B	REF056BL
	171	link to REF056C	REF056CL
← 📓 Your Call Sign ⊕ 🔤 Repeater List	172	link to REF056D	REF056DL
	173	Link to XRF012A	XRF012AL
Transmitted Call Record	174	Link to XRF210D	XRF210DL
Received Call Record	175	PiStar Reboot	REBOOTPI
I GPS	176	PiStar Shutdown	SHUTDOWN
Common Setting	177	CMDR Rebect	REBOOT
A/B Band Setting	New		

Add the commands to the "UR Call" (or Your Call) memory of your DSTAR radio so that they are accessable in DR mode. The commands REBOOTPI and SHUTDOWN are shown here. You may have these for other devices as well as shown.

Pi-Star Remote Control DMR

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | BM API Key | System Cron | RSSI Dat Tools: SSH Access

[banner] # Pi-Star Remote config file # This config file is desiged for the Pi-Star Keeper remote control # The remote control system is designed to give repeater keepers an # RF KillSwitch for their repeaters. [enable] # Is the Keeper Enabled? (true|false) enabled = true [keeper] # Keepers Information callsign=KC6N [d-star] # UR fields svckill=SVCKILL svcrestart=SVCRSTRT reboot=REBOOTPI shutdown=SHUTDOWN [dmr] # TG commands svckill=8999999 svcrestart=8999998 reboot=8999997 shutdown=8999996 [ysf] # ROOM Ccommands svckill=99999 svcrestart=99998 reboot=99997 shutdown=99996

Apply Changes

Pi-Star / Pi-Star Dashboard, © Andy Taylor (MWDMWZ) 2014-201 ircDD8Gateway Dashboard by Hans-J. Barthen (DK5D), MMDVMDash developed by Kim Huebel (DG9VH), Need help? Click here for the Support Group Get your copy of Pi-Star from here. The default commands for DMR begin with "9" as shown earlier. You will need to change these to avoid conflicts with some commands that Brandmeister uses internally. So, for example, edit svckill to "8999999" (from "9999999"), etc. ... as shown here. There may be other options as well (thanks to Michael Rickey, AF6FB for this one).

It would appear that you can edit any of these to be anything you want as long as it doesn't create a conflict somewhere. As always don't forget to "Apply Changes" when done.

Do a back up so these are saved.

Pi-Star Remote Control DMR (2)

- You will need to add 2 Private Call ID's
 - PiStar Reboot, PCID=8999997
 - PiStar Shutdown, PCID=8999996
- Access these in whatever way works best for you.
 - I create a couple PC ID's as shown above
 - You can add these to a zone or just search for them in your contact list. You can also "Manual Dial" the numbers if you remember them.

Pi-Star Remote Control FUSION

- Similarly to DMR, You will make a manual call to the appropriate "room number"
 - Reboot PiStar, TGID=99997
 - Shutdown PiStar, TGID=99996
- To run this:
 - Connect to your HotSpot in YSF mode
 - Key in the code using DTMF mode.

ZUMspot/PiStar

Appendix L Solving BER problems. Offsets and Hot Spot Calibration

Pi-Star Offset adjustments

- Pi-Star includes a facility to adjust for the frequency offset of the modem relative to the radio.
- These adjustments can resolve issues with excessive bit error rate (BER) on outbound transmissions (local radio transmitting to the hot spot).
- These can be found in the admin/expert area as shown on the following pages.

Pi-Star Offset adjustments

- Log onto the Pi-Star admin expert page:
 - http://pi-star/admin/expert/

Pi-Star:3.4.11 / Dashboard:20180310

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Bacharpi Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeSever | MMDVMHost | D.G.Gateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | DM API Kcy | System Cron | RSSI Dat Tools: SSH Access

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Once there, click "**MMDVM Host**" To bring up the MMDVM Host page.

Pi-Star Offset adjustments

	Mo	odem
Port	/dev/ttyAMA0	
TXInvert	1	
RXInvert	0	
PTTInvert	0	
TXDelav	100	
RXOffset	0	
TXOffset	0	
DMRDelay	100	
RXLevel	50	
TXLevel	100	
CWIdTXLevel	50	
D-StarTXLevel	50	
DMRTXLevel	50	
YSFTXLevel	50	
P25TXLevel	50	
RSSIMappingFile	/usr/local/etc/RSSI.dat	
Trace	0	
Debug	0	
RFLevel	100	
RXDCOffset	0	
TXDCOffset	0	
NXDNTXLevel	50	
	Apply	Changes
		TMP

In the "Modem" section you will probably see: RXOffset = 0 TXOffset = 0 As shown here.

Adjust the RXOffset positive or negative to optimize the BER issue as shown below.

You will need to Apply changes, check the error rate in the dashboard and repeat until it is good enough. Rather tedious.

RXOffset -250 TXOffset -250

Note: An offset of -250 will cause the synthesizer in the AD2071 chip to set its actual frequency 250 Hz below the programmed hot spot frequency.

Calibration Program

- One way to resolve the frequency offset error is to try different values of RX offset while watching the reported BER on the dashboard. This is tedious but does work.
- However, Pi-Star also provides a built-in tool called MMDVMCAL which provides all the functionality you need to fully calibrate your device. Not only BER but other things as well.

Performing Calibration

- Log onto the Pi-Star admin expert page:
 - http://pi-star/admin/expert/

Pi-Star:4.1.3 / Dashboard:20201205

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW | DADNET CW. Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat Tools: CSS (col | SSH Access

Expert Editors

WARNING

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Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

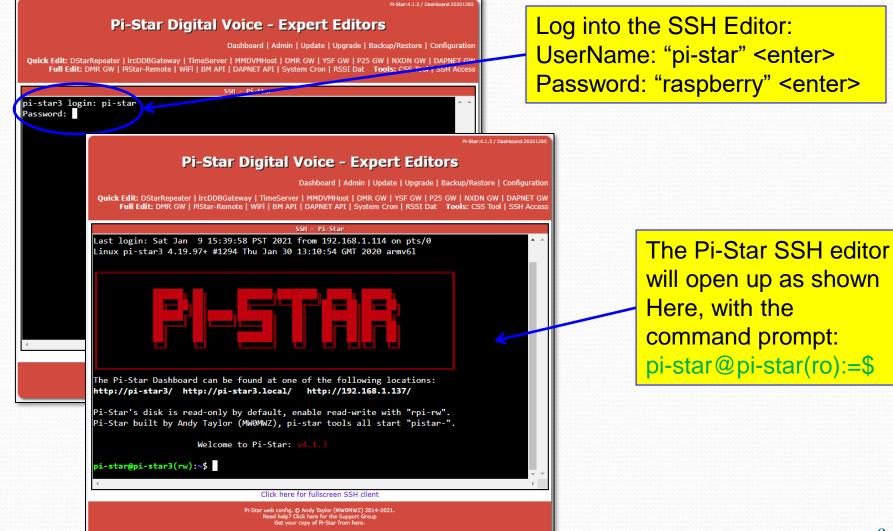
With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

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Click **"Tools:** SSH Access" To bring up the built in SSH Editor. If you don't see it, try a different browser.

Initialization is the same as with any of the other options which require SSH Access, (FW update, file snooping etc.)

Preparing for Calibration (SSH)



Launch mmdvmcal via SSH

Pi-Star:4.1.3 / Dashboard:2020120

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW | DAPNET GW Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

SH - Pi-Star Last login: Sat Jan 9 15:39:58 PST 2021 from 192.168.1.114 on pts/0 Linux pi-star3 4.19.97+ #1294 Thu Jan 30 13:10:54 GMT 2020 armv6l The Pi-Star Dashboard can be found at one of the following locations: http://pi-star3/ http://pi-star3.local/ http://192.168.1.137/ Pi-Star's disk is read-only by default, enable read-write with "rpi-rw".

Welcome to Pi-Star: v4.1.3

Pi-Star built by Andy Taylor (MW0MWZ), pi-star tools all start "pistar-".

pi-star@pi-star3(rw):~\$ sudo pistar-mmdvmcal

Click here for fullscreen SSH client

Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2021. Need help? Click here for the Support Group Get your copy of Pi-Star from here. At the command prompt, pi-star@pi-star(rw):=\$, enter the string "sudo pistar-mmdvmcal" Without the quotes as shown here and hit enter.

After some preliminaries, you will see the MMDVMCAL Linux style menu shown on the following page.

The menu provides a wealth of calibration and engineering test features. We will only cover a couple of them here.

ZUM board Calibration Setup

Pi-Star:4.1.3 / Dashboard:20201205

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW | DAPNET GW Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

SSH - Pi-Star

Starting Calibration...

Version: 1, description: ZUMspot-v1.5.2 20201108 14.7456MHz ADF7021 FW by CA6JAU GitI D #89daa20

The commands are:

- H/h Display help
- Q/q Quit
- W/w Enable/disable modem debug messages
- E/e Enter frequency (current: 433000000 Hz)
- F Increase frequency
- f Decrease frequency
- Z/z Enter frequency step
- T Increase deviation
- t Decrease deviation
- P Increase RF power
- p Decrease RF power
- C/c Carrier Only Mode
- K/k Set FM Deviation Modes
- D/d DMR Deviation Mode (Adjust for 2.75Khz Deviation)
- M/m DMR Simplex 1031 Hz Test Pattern (CC1 ID1 TG9)
- K/k BER Test Mode (FEC) for D-Star
- b BER Test Mode (FEC) for DMR Simplex (CC1)
- B BER Test Mode (1031 Hz Test Pattern) for DMR Simplex (CC1 ID1 TG9)
- 1 RER Tact Made (EEC) for VSE

Click here for fullscreen SSH client

Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2021. Need help? Click here for the Support Group Get your copy of Pi-Star from here. As can be seen by the menu, there are all sorts of things that can be "adjusted" here.

H/h (upper/lower case) reloads the command list menu.

Q/q will exit the calibration routine. Use this when you are finished

Note: Once MMDVMCAL is active, your hot spot is stopped and disconnected from whatever network you normally use.

HotSpot RX offset optimization

- This will adjust the frequency of the hot spot receiver to yield optimal BER with the specific radio used in the calibration.
- This works best when a specific hot spot is used with a specific radio in a single mode. For your dedicated P25 hot spot with your XTS 5000 radio, for example.
- You can also calibrate a multi-mode / multi-radio setup, but you will need to find a compromise offset number.

- Select the frequency that you want to use. This is the frequency that the hot spot will listen on and must be the frequency your radio will transmit on.
- Enter "E" (or 'e") to start the frequency entry routine.
- Then input the frequency (in Hz) at the prompt. And hit <Return>
- See following page.

Quick Edit: DStarRepeater ircDDBGateway TimeServer MMDVM	F API System Cron RSSI Dat Tools: CSS Tool SSH Access Star Star SiKhz Deviation) C1 ID1 T69) < (CC1)	 entry. 2. Enter the frequency in Hz as show and hit <return></return> 3. Select the BER test mode, that yo want to calibrate. 4. I'll select 'j' for P25 to calibrate P2 			
I/i Interrupt Counter Mode V/v Display version of MMDVMCal <space> Toggle transmit Enter frequency (current 433000000 Hz): 439075000 ∢ Click here for fullscr PrStar web config. @ Andy Tayle Meed heig? @ Andy Tayle Get your copy of Prs</space>	Dashbard A Ordek Edit: Distancessed erigination of the provided of the prov	System Cron RSSI Dat Tools: CSS Tool SSH Access Deviation) ID1 TG9) C1) or DMR Simplex (CC1 ID1 TG9) SH client	15		

Pi-Star:4.1.3 / Dashboard:20210111

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW | DAPNET GW Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

SSH - Pi-Star	
TX frequency: 439075200	^
P25 HDU received	
P25 LDU1 audio FEC BER % (errs): 0.243% (3/1233)	
P25 LDU2 audio FEC BER % (errs): 0.973% (12/1233)	
P25 LDU1 audio FEC BER % (errs): 0.162% (2/1233)	
P25 LDU2 audio FEC BER % (errs): 0.730% (9/1233)	
P25 LDU1 audio FEC BER % (errs): 0.162% (2/1233)	
P25 LDU2 audio FEC BER % (errs): 0.406% (5/1233)	
P25 LDU1 audio FEC BER % (errs): 0.162% (2/1233)	
P25 LDU2 audio FEC BER % (errs): 0.000% (0/1233)	
P25 TDU received, total frames: 8, bits: 9864, errors: 35, BER: 0.3548%	
TX frequency: 439075250	
P25 HDU received	
P25 LDU1 audio FEC BER % (errs): 0.243% (3/1233)	
P25 LDU2 audio FEC BER % (errs): 0.406% (5/1233)	
P25 LDU1 audio FEC BER % (errs): 0.081% (1/1233)	
P25 LDU2 audio FEC BER % (errs): 0.162% (2/1233)	
P25 LDU1 audio FEC BER % (errs): 0.162% (2/1233)	
P25 LDU2 audio FEC BER % (errs): 0.162% (2/1233)	
P25 LDU1 audio FEC BER % (errs): 0.324% (4/1233)	
P25 TDU received, total frames: 7, bits: 8631, errors: 19, BER: 0.2201%	

Click here for fullscreen SSH client

Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2021. Need help? Click here for the Support Group Get your copy of Pi-Star from here.

Note: you can change the frequency step using "Z" or "z" if you want finer adjustment here.

- Now perform a few transmissions (talk group, CC, NAC, etc. are irrelevant)
- 2. Use F/f to move the frequency Up/Down in increments of 50 Hz
- 3. Do this until you see the best BER reading and record the offset value.
- 4. Enter "Q" or "q" to exit the routine and re-start your hot spot.
- 5. Type "exit" at the Linux command prompt to exit the SSH routine.
- 6. Select MMDVMHost in the configuration panel.

	Modem
Port	/dev/ttyAMA0
TXInvert	1
RXInvert	0
PTTInvert	0
TXDelay	100
RXOffset	250
TXOffset	250
DMRDelay	0
RXLevel	50
TXLevel	50
RXDCOffset	0
TXDCOffset	0
RFLevel	100
CWIdTXLevel	50
D-StarTXLevel	50
DMRTXLevel	50
YSFTXLevel	50
P25TXLevel	50
NXDNTXLevel	50
POCSAGTXLevel	50
RSSIMappingFile	/usr/local/etc/RSSI.dat
Trace	0
Debug	0

Note: You have now optimized a single radio to a single MMDVM Hotspot. If you have several radios and several modes, you might want to repeat this for the other radios and modes and strike a compromise.

- Enter the newly determined optimal offset value in both the RXOffset and TXOffset spots, as shown.
- 2. Click "Apply Changes" to enforce the change.

What's going on: This offset value is telling the AD2071 chip in your MMDVM hot spot to program its on-board frequency synthesizer to use an "actual" frequency 250 Hz higher (+0.57 ppm) than the hot spot's programmed frequency to achieve the best error rate.

ZUMspot/PiStar

Appendix M Customizing Pi-Star Dashboard Colors

- Pi-Star includes the capability to customize the dashboard display colors.
- This can be accessed from the admin/expert pages by pointing the browser to: <u>http://pi-star/admin/expert/</u>, logging into Pi-Star and selecting "Tools: CSS Tool" from the expert options.
- This will open the CSS menu shown on the following page.

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Pi-Star: 3.4.13 / Dashboard: 20180527

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGr.away | YSFGateway | "25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi | BM API | System Cron | RSSI Dat Tools: CSS Tool | S SH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> Pi-Star / Pi-Star Dashboard, © Andy Taylor (MW0MWZ) 2014-20 ircDDBGateway Dashboard by Hans-J. Barthen (DL5D1), MMDVMDash developed by Kim Huebei (DC9VH), Need help? Click here for the Support Group Get your coay of Pi-Star from here.

Entries specify the color for various aspects of the user interface dashboard in terms of six digit hexadecimal entries representing the color in terms of (Red value, Green value, Blue value). Pure red would be (ff0000) representing (255, 0,0). The banner default, for example, is (dd4b39).

Click "**Tools:** CSS Tool" To bring up the CSS Tool page.

i-Star:3.4.13 / Dashboard:2018052

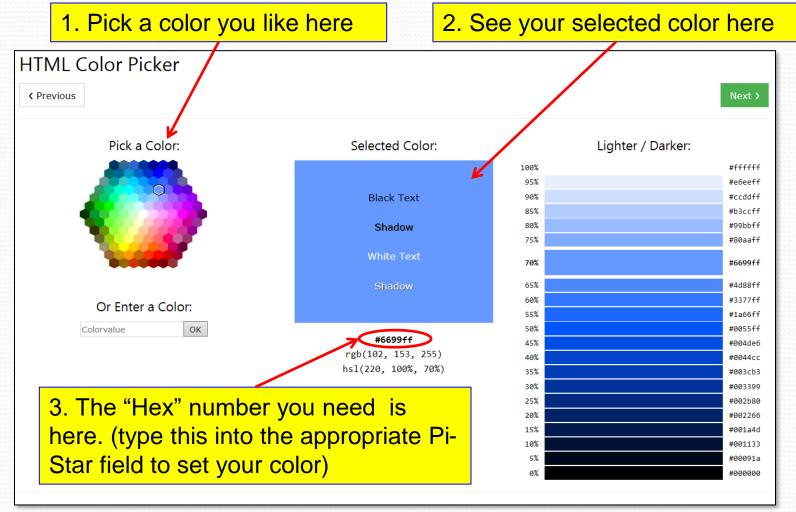
Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configurat

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gatewa Full Editors: DMRGateway | PiStar-Remote | WiFi | BM API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

	Bacl	ground
Page	edf0f5	
Content	ffffff	
Banners	dd4b39	
7	Apply	Changes
		lext
Banners	ffffff	
BannersDrop	303030	
	Apply	Changes
		ables
HeadDrop	8b0000	
BgEven	f7f7f7	
BgOdd	d0d0d0	
/	Apply	Changes
		ntent
Text	000000	
	11.7	Changes
		mer#2
Enabled	-	
Text	Some Text	
	11.2	Changes
Enabled		rExtText
	-	
Text	Some long text entry	
	Apply	Changes
if you took		nakes you feel sick, click below to reset. ny Reset
	ircDDBGateway Dashboar MMDVMDash develope Need help? Click he	Andy Taylor (MW0MW2) 2014-2018. d by Hans-3. Barthern (DLSOI), d by Kim Hubel (DGSVH), re for the Support Group F P-Star from here.

- Use a color picker (many available) to calculate the color values.
- One can be found here: <u>https://www.w3schools.com/colors/colors_picker.asp</u>
- This will allow you to pick a color and it will give you the proper hexadecimal numeric value to load.
- See example on next page



https://www.w3schools.com/colors/colors_picker.asp

So let's change the background banners to the blue color we picked on the previous page. Change the default from "dd4b39" to "6699ff" and Apply Changes.

Pi-Star Digital Voice - Expert Editors Dashboard | Admin | Update | Back p/Restore | Con Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRG=".sway | YSFGateway | P25Gat Full Editors: DMRGateway | PiStar-Remote | WiFi | BM API | System Cron | RS% Dat Tools: CSS Tool | SSH A Tools: CSS Tool | SSH Ac Page edf0f5 Content ffffff Banners dd4b39 Apply Changes Banners ffffff BannersDrop 303030 Apply Changes HeadDrop 8b0000 BgEven f7f7f7 BgOdd d0d0d0 Apply Changes Text 000000 Apply Changes Enabled 0 Text Some Text Apply Changes Enabled 0 Text Some long text entry Apply Changes if you took it all too far and now it makes you feel sick, click below to reset. Factory Reset ashboard by Hans-J. Barthen (DL5DI) developed by Kim Huebel (D<u>G9VH)</u>,

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMRGateway | YSFGateway | P25Gatewa Full Editors: DMRGateway | PiStar-Remote | WiFi | BM API | System Cron | RSSI Dat Tools: CSS Tool | SSH Access

Baskground							
Page	edf0f5	disonum					
Content							
Banners	6699ff						
	Apply	Changes					
		ext					
Banners	ffffff						
BannersDrop	303030						
	Apply	Changes					
		bles					
HeadDrop	860000						
BgEven	f7f7f7						
BgOdd	d0d0d0						
	Apply Changes						
	Co	nbenb					
Text	000000						
Apply Changes							
	Bur	nerll2					
Enabled	0						
Text	Some Text						
	Apply	Changes					
	Banne	-Ext/lext					
Enabled	0						
Text	Some long text entry						
Apply Changes if you took it all too far and now it makes you feel sick, click below to reset. Factory Reset							
Pi-Star / Pi-Star Dashboard, @ Andy Taylor (MW0MWZ) 2014-2018. ircD0BGateway Dashboard by Hanro-J. Barthen (0LSDI), MM0VIDeat developed by Nim Hubbel (0C99H), Need help? Click here for the Support Group Get your copy of Pi-Star from here.							

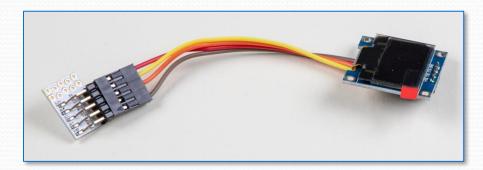
ostname: pi-star Pİ-	-Star Digita	l Voice D	ashboar		(C6	Star: 3.4.13 / N Admin			New dashboard with new colors.
Modes Enabled			Gateway Activi	ty					
D-Star DMR	Time (9DT)	Mode	Callsign	Target	Sze	Dur(s)	Loss	BER	Pi-Star:3.4.13 / Deshboerd:20
YSF P25	13:29:48 May 28th	DMR Slot 2	N2JHJ	TG 31066	Net	0.8	0%	0.0%	Pi-Star Digital Voice - Expert Editors
F XMode NXDN	13:23:30 May 28th	D-Star	KC6ESW/ID51	COCOCO	Net	2.2	0%	0.0%	Dashboard Admin Update Backup/Restore Configur
	13:23:14 May 28th	D-Star	WD6FZA/ID51	COCOCO	Net	13.0	0%	0.0%	
Network Status	13:17:21 May 28th	DMR Slot 2	W6AAX	TG 31066	Net	12.7	0%	0.0%	Quick Editors: DStarRepeater ircDDBGateway TimeServer MMDVMHost DMRGateway YSFGateway P25Gat Full Editors: DMRGateway PiStar-Remote WiFi BM API System Cron RSSI Dat Tools: CSS Tool SSH A
Star Net DMR Net	13:17:08 May 28th	DMR Slot 2	KC6ESW	TG 31066	Net	8.4	0%	0.0%	Declaration
SF Net P25 Net	13:12:33 May 28th	DMR Slot 2	WD6FOX	TG 31066	Net	2.6	0%	0.0%	Page edf0f5
SF2DMR NXDN Net	13:07:34 May 28th	DMR Slot 2	KB9YYN	TG 31066	Net	0.1	0%	0.0%	Content
SF2NXDN YSF2P25	13:06:33 May 28th	DMR Slot 2	N1KN	TG 31066	Net	1.2	0%	0.0%	Banners 6699ff
	13:04:09 May 28th	D-Star	WONWA R	COCOCO	Net	0.3	0%	0.0%	Apply Changes
Radio Info	13:00:00 May 28th 12:52:37 May 28th	D-Star DMR Slot 2	KC6N/TIME KK6LDW	CQCQCQ TG 31066	Net Net	3.7	0%	0.0%	Texts
🛃 Listening DMR	12:52:37 May 28th	DMR Slot 2 DMR Slot 2	K6BOS	TG 31066	Net	0.5	0%	0.0%	Banners IIII
439.025000 MHz	12:36:47 May 28th	DMR Slot 2 DMR Slot 2	NGARP	TG 31066	Net	0.5	0%	0.0%	BannersDrop 303030
439.025000 MHz	12:38:47 May 28th	DMR Slot 2 DMR Slot 2	KC6N	TG 31066	Net	5.9	0%	0.0%	Apply Changes
ZUMspot:v1.3.3	12:33:04 May 28th	DMR Slot 2 DMR Slot 2	W6MAT	TG 31066	Net	7.7	08	0.08	HeadDrop 8b0000
	12:25:05 May 28th	D-Star	WEAAX	CQCQCQ	Net	2.7	0%	0.0%	BgEven f7f7f7
D-Star Repeater	12:17:49 May 28th	DMR Slot 2	K1NRA	TG 31066	Net	0.5	0%	0.0%	Bgodd ddddd
1. KC6N B	12:17:45 May 28th	DMR Slot 2	NEYN	TG 31066	Net	0.5	0%	0.0%	Apply Changes
2 KC6N G	12:11:23 May 28th	D-Star	AI6KJ/ID51	COCOCO	Net	2.0	08	0.0%	Content
D-Star Network	12:07:48 May 28th	DMR Slot 2	KE6GVK	TG 31066	Net	0.8	0%	0.0%	Text 000000
Socal.aprs2.net									Apply Changes
rr.openquad.net			Local RF Activit	ty					Enabled 0
inked to REF012 A (DPlus Outgoing)	Time (PDT)	Mode Callsig	n Target	Src Dur	(s)	BER	RS	51.	Text Some Text
(Drids outgoing)				•	-				Apply Changes
DMR Repeater									BunnerZubVexts
MR ID 310656401									Enabled 0
AR CC 1									Text Some long text entry
751 disabled									Apply Changes
752 enabled									
G 31066/not linked	Chanc	<mark>jed you</mark>	r mind	2 Clic	12 "	'Ear	oto		Pacat" I took it all tooy of and now it makes you feel sick click below to reset.
DMR Master		jeu you			N,	F au		уг	
United States 3103		· · · · · · · · · · · · · · · · · · ·						-	Photar / Photar Dashiwa
	trom th	ne CSS	tooln	age to	\circ r	estr	re	the	e default
YSF Network				<u> </u>					
nked to: FCS003-16		ahama	Not t		K 1	4.	off	00+	a thia
		cheme	. INOL L		IV ·	- IL	all	ecl	
	nage (only, oth	ner 711	Msno	nt n	roa	rar	nm	ing
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	<u>remair</u>	is unch	anged	Don	ТТ	ord	et i	O r	back up.

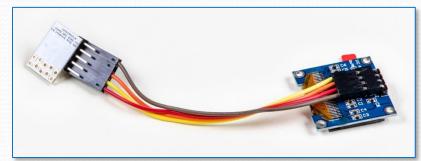
ZUMspot/PiStar

Appendix N Adding an OLED Display

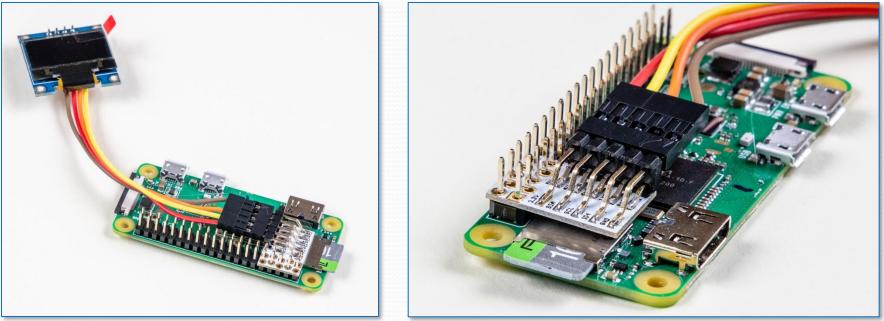
Adding an OLED Display (1)

- Some may find a small display a nice improvement over the on-board LED's.
- This appendix will show how to connect the small 0.96" or the 1.3" OLED display sold by ZUM Radio through Ham Radio Outlet in the US (shown below):



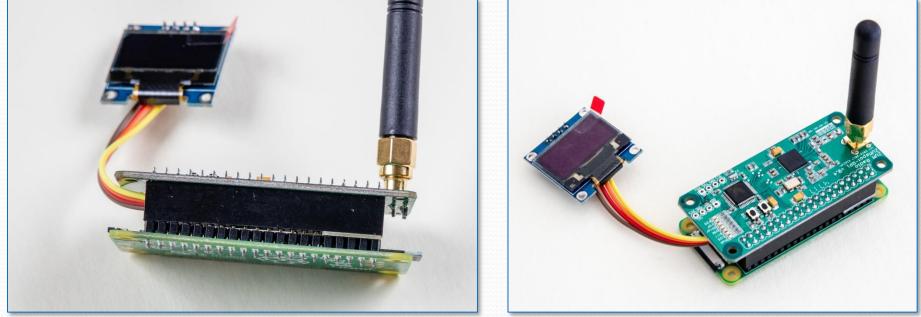


Adding an OLED Display (2)



The OLED display is designed such that no soldering is required. The small PCB holes are drilled in a slightly offset pattern such that it can slip down over the pins on the Raspberry Pi ZeroW's GPIO connector. It is held in place by the tension of the pins and the female connector on the ZumSpot board itself. Simply align the holes of the display PCB over the pins on the GPIO connector (at the μ SD card end) and press it flush with the GPIO connector as shown in the photos above. Make sure that all connections ae properly secured.

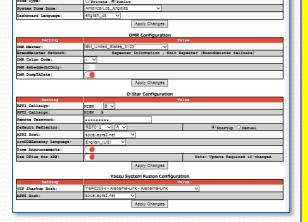
Adding an OLED Display (3)



Finally, align the ZumSpot connector to the Raspberry Pi ZeroW GPIO header and press the ZumSpot board down onto the connector as shown. Because of the space required by the display PCB, there will be a bit of a gap between the two connectors in the space not occupied by the display PCB This is not an issue. If you use spacers to secure the Pi and Zum boards together you may need to add a washer to compensate for the height added by the new board. At this point you can power the system and set up Pi-Star (next page).

Setting up Pi-Star

	Pi-Star	Digitz	Voice	- Conf	iguratio	n	
	i i otali i	Digite	in voice	Com	igaiado		
		D	ashboard Admin	Expert Po	wer Update Ba	ckup/Restor	e Factory Res
		Gatew	ay Hardware In	formation			
Rostname	Kernel		Platform		CPU Load		CPU Temp
pirater	4.2.35+	21	Laro N Rev 1.1	(51205)	0.9 / 0.61 /	0.25 32.	5°C / 88.7°3
			Control Softwa				
Setting				Value			
					m Firmware 3.07		
Controller Node:	@ Simple	ex Node 🔾	-	_	Suplex on Notapo	ta)	
			Apply Changes	s			
		мм	DVMHost Config	uration			
Setting				Value			
DKR. Mode:			RJ Hangtime:	20	Net Mangtime:	20	
D-Star Node:			RJ Mangtime:	20	Net Mangtime:	20	
YSF Node:			RF Mangtime:	20	Net Mangtime:	20	
F25 Node:			RF Hangtime:	20	Net Mangtime:	20	
NCON Mode:			PJ Mangtime:	20	Net Mangtime:	20	
YSF2CMR:					-		
Y 5#200000 :							
YSF2F25:							
CMR2YSF:				ana 7 prefi	x on DGGstevay		
DMR2NKCN:			0	ses 7 prefi	x on DiRictoray		
POCSAS:				POCSAG Pag	ing Testures		
MODIAN Display Type:	OLED	V Port:	None 🗸	Nextion Lo	yout: G4KLX	~	
			Apply Changes				
Setting		G	eneral Configur	Value			
Nostnere:	ol-star	20	not add suffixe				
Node Callsion:	KCEN						
CCS7/DMR ID:	31065640	13					
Padio Frequency:	439.025.0						
Latitude:	32,717						
					forth, negative		
Longitude:	-117.16		rees (positive	value for 1	last, negative i	or West)	
Town:	San Diego	o, CA		_		_	
Country:	USA						



		MMDVMHost Config	uration					
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:	OLED	✓ Port: None	Nextion La	ayout: G4KLX	~			

At this point, I'll assume that you have a working Pi-Star configuration that you are happy with and you are simply adding the OLED display. In this case it is quite straightforward (and it is probably already set up by default). In the MMDVMHost Configuration block, make sure that the first entry "MMDVM Display Type" line is set to "OLED" as shown. You can set the Port to "None" and "Nextion Layout" to "G4KLX" if you like but it doesn't really matter as these two entries are actually ignored when OLED is selected.

OLED Display Expert settings

		Pi-S			
Rese	estore Factory Re	115			
	CPU Temp	Kernel	Hostname		
.2°F	37.9°C / 100.2°	4.9.35	pi-star2		
		ing	Setting		
Controller Software: OpstarRepeater MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)					
	Controller Mode: Simplex Node O Duplex Repeater (or Half-Duplex on Hotspots)				
	.red)	tware: C	Controller Software		

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update / Opgrade | Backup/Restore | Configuration

Quick Edit: DStarRepeater | ircDDBGateway | TimeServel | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDN GW Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Crop (RSSI Dat Tools: CSS Tool | SSH Access

Expert Editors

WARNING

Pi-Star Expert editors have been created to make editing some of the extra settings in the config files more simple, allowing you to update some areas of the config files without the need to login to your Pi over SSH.

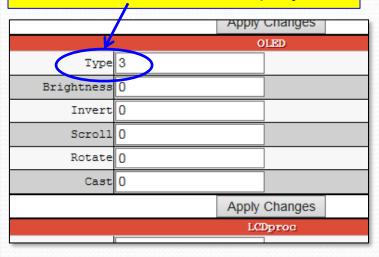
Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

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> Pi-Star / Pi-Star Dashboard, ⊜ Andy Taylor (MW0MWZ) 2014-2018. ircDDBGateway Dashboard by Hans-J. Barthen (DLSDI), MMDVMDash developed by Kim Husbel (DGSVH), Need help? Click here for the Support Group Get your copy of Pi-Star from here.

To set up your display:

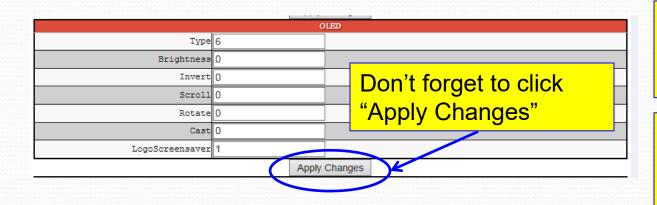
- Go to the configuration page and select "Expert" as shown.
- 2. Select MMDVMHost
- Find the OLED section and set "Type" = 3 for a 0.96 inch display or "Type" = 6 for a 1.3" OLED display.



OLED Display settings (cont.)

There are a few additions to this block in the latest Beta (v4.10 RC4). I am not sure when these came in but here's what they do.

Type: set depending on your display type, as described earlier



LogoScreenSaver: This is the one that caused me to add this slide. If you set this to "0" the "screen saver" disapears (you probably didn't know it had one). This means that the Idle state display that says MMDVM will be blanked which looks strange. If this happens, check this bit and make sure it is set to "1" Brightness: Adjusts the display brightness (slightly on OLED)

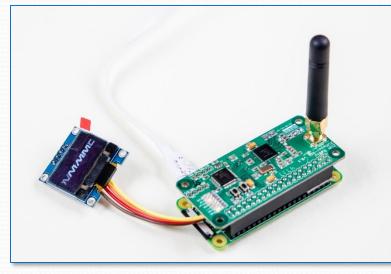
Invert: Setting this to "1" changes display to white background

Scroll: No effect seen

Rotate: Flips display test 180 degrees

Cast: No effect seen

Check out and operation







If all is well, you should see "MMDVM" scrolling across your little display when idle (upper left). As signals are received the display will give you information showing current activity (YSF, DMR, DSTAR, NXDN and P25). For example, Fusion (above right) and *D-STAR* (adjacent right).

ZUMspot/PiStar

Appendix O Using Multiple ZumSpots

Create unique DMR ID's (1)

- You can build up a ZumSpot with a nice case and all the trimmings for around US \$150
- Eventually you may end up with more than one, for any of a number of reasons. This section will show you how to configure them so that they work together.

Create unique DMR ID's (2)

- You can set up multiple HotSpots in Brandmeister by giving them different DMR ID numbers based on your DMR ID.
- If your DMR ID is 3107XXX, for example:
 - Your first one would be 3107XXX01
 - Your second one would be 3107XXX02
 - Your third one would be 3107XXX03
 - ...and so forth. Pi-Star now takes care of appending the digits for you. You just need to tell it what to append. Here's how:

Give each a unique Host Name

		General Configuration
Desting		
Hostname:	pi-star3	Do not add suffixes such as .local
Node Cellange.	KC6N	
CS7/DMR ID:	3106564	
adio Frequency:	439.075.000	MHr
letitude:	32.717	degrees (positive value for North, negative for South)
Longitude:	-117.16	degrees (positive value for East, negative for West)
Town :	San Diego, CA	
Country:	USA	
URL:	http://www.qrz.	com/db/kcôn Oxeco @ Manual
Radio/Modem Type:	ZumSpot - Ras	pberry Pi Hat (GPIO)
Node Type:	O Private @	Public
APRS Host:	socal.aprs2.net	
System Time Zone:	America/Los_A	ngeles V
Dashboard Language:	english_us	✓
	•	Apply Changes

This is taken care of in the "General Configuration" dialog block on the "Configuration Page" by changing the "Hostname". Here I have set one to pi-star2.

Note: Put your regular DMR ID here, don't append anything.

Note that this only changes how you will address the device when you hunt it down on the internet. For example you will address this one from your browser as http://pi-star3/ (windows) or http://pi-star3.local (iOS). His does not change the pi-star login for the device which will still be UN: pi-star, PW: raspberry (unless you changed it).

Note that you can use the color editor here to make the dashboards look different as well. Red for pi-star1, Green for Pi-star2 and Blue for pi-star3 (for example).

Setting the unique hotspot ID

		Pi-Star: 4.0.0-RC4 / Davidsord: 20190709
l de la companya de l	Pi-Star D	Digital Voice - Configuration
		Dashboard Admin Expert Power Update Backup/Restore Factory Reset
Hostname	Kernel	Gateway Hardware Information Platform CPU Load CPU Temp
pi-star3	4.14.79+	Pi Sero W Rev 1.1 (512MB) 3.77 / 1.32 / 0.57 40.1°C / 104.2°F
		Control Software
Setting		Velue
Controller Software:		peater MMDVNRost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	() Simplex	Node ODuplax Repeater (or Half-Duplax on Hotapota)
		Apply Changes
Setting		MMDVMHost Configuration
DNR 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:		and annual sector and annual sector s
YSF2NXDN:		/
YSF2925:		
DMR2YSF:		Uses 7 prefix on DMRGateway
DMR2NXDN:		Uses 7 prefix on DMRGateway
POCEAG:		POCSAG Paging Features
MMDVM Display Type:	OLED	✓ Port: /dev/ttyAMA0 ✓ Nextion Layout: G4KLX ✓
		Apply Changes
Setting		General Configuration
Hostname:	pi-star3	Do not add suffixes such as .local
Node Callsign:	KC6N	
CCS7/DMR ID:	3106564	_
Radio Frequency:	439.075.000) MEre
Letitude:	32.717	degrees (positive value for North, negative for South)
Longitude:	-117.10	degrees (positive value for East, negative for West)
Town:	San Diego, O	
Country:	USA USA	
URL:		grz.com/db/kc8n Okuto @Manual
Radio/Modem Type:		Raspberry Pi Hat (GPIO)
Node Type:	O Private	
APRS Host:	socal.aprs2.	
System Time Zone:	America/Los	
Dashboard Language:	english_us	
		Apply Changes
Setting		DMR Configuration
DNR Master:	BM United	States 3103 V
Rotspot Security:		
BrandMeister Network:		Repeater Information Edit Repeater (BrandMeister Selfcare)
DMR ESSID:	3106564 03	
DMR Color Code:	1 🗸	
DMR EnbeddedLCOnly:		
DMR DumpTAData:		
		Apply Changes
		D-Star Configuration
Setting		Value
RPT1 Callsign:	KC6N C	✓
RPT2 Callsign:	KC6N G	
Remote Password:	••••••	
Default Reflector:	REF012 N	
1		
ircDDBGateway Language: Time Announcements:	English_(US	5) 🗸

Apply Changes

- 1. On the configuration page for Pi-Star, Locate the "DMR Configuration" section (see left).
- 2. Set the desired two digit extension for this specific hotspot in the "DMR ESSID" section.

DMP. Configuration					
Setting	Value				
DMR Mester:	BM_United_States_3_03				
Hotspot Security:	•••••				
BrandMeister Network:	R peater Information Edit Repeater (BrandMeister Selfcare)				
DMR ESSID:	310656403 🚧				
DMR Color Code:	1 🗸				
DMR EmbeddedLCOnly:					
DMR DumpTADete:					

- 3. Click "Apply Changes"
- 4. Confirm that your HotSpot appears in the Brandmeister list on your BM page and make sure that it works. See Next Page.

BM Multiple HotSpot Example

BrandMeister	=
🚯 User Dashboard	User Dashboard
💄 Last Heard	REPEATERS
≣ Repeaters 3447	3447 Full report ●
Hotspots 9621	MASTERS
Masters 45	45
♪ Alerts	Full report O
ဖြာ Data Visualisation <	Repeater in RX Repe
 Information 	
🖋 Services 🛛 🔇	39
Hotspot	
⊙ 3106564 😃	Latest BrandMeister News
⊙ 31065401 ()	6/11/2019
⊙ 310656401 ⁽¹⁾	6/11/2019
⊙ 310656402 ⁽¹⁾	BrandMeister DMR at Ham Radio Fri

Here is my setup for three hotspots, an **OpenSpot and a pair of ZUM Spots:**

The top two numbers are no longer used (these disappear eventually). The last three are my currently active ZUMspots.

The last one (310656403) is the only ZUMspot which is on-line at the moment (note the little green "plug" symbol).

The remainder, are "ON" and in use but are doing other things like TGIF, DSTAR XRF012A, etc. If I Activate DMR on one of them it will go green like the last one.

edrichshafen 2019 -

BrandMeister will be present at the Ham Radio Friedrichshafen (

Multiple ZumSpots for DSTAR

	D-Star Configuration
Setting	
RPT1 Callsign:	ксат В 🗸
RPT2 Callsign:	KC6N G
Remote Password:	•••••
Default Reflector:	REF012 V A V
APRS Host:	socal.aprs2.net
ircDDBGateway Language:	English_(US) V
Time Announcements:	
Use DPlus for XRF:	
	Apply Changes

In the DSTAR case, give each of your ZumSpots a different "Module ID" using the Module ID pull down in the D-Star Configuration Panel located on the Configuration Page as shown to the left. Then, create separate channels in your radio as in the example below.

KC6N_20181222.icf - CS-51PLUS			
File View COM Port Clone Option H	łelp		
D 😂 🖬 📲 🙀			
⊡- 🔓 ID-51	20: Hot Spots (Remain 7 memories)		
Memory CH GALL CH		Call Sign	Frequency
Program Scan Link BC Radio Memory DTMF Memory	No. Type Name	Sub Name Repeater Gateway	Operating DUP Offset Mode Ton
😑 🫅 Digital	0 DV Repeater ZumSpt 1 438.050	KC6N A KC6N G	438.050000, -DUP, 0.000000 DV -
	DV Repeater ZumSpt 2 439.025	KC6N B KC6N G	439.025000, -DUP, 0.000000 DV
Group Name	2 DV Repeater ZumSpt 3 439.075	, KC6N C , KC6N G	439.075000, -DUP, 0.000000 DV —
01: Africa 02: Asia	New		
- 📓 04: Canada - 📓 05: Europe Eastern			
			Multiple ZumSpot
07: Europe Southern 08: Europe Western			
- 🔲 09: Germany			channels in an ICOM
			ID-51. Note different
- 🔛 13: Netherlands 			ID-31. Note different
- 📓 16: USA Midwest - 📓 17: USA Northeast			Module ID's A, B and C
- 📕 18: USA Southeast			······································
19: USA West 20: Hot Spots			
- 21:	11		

ZUMspot/PiStar

Appendix P Using Configuring for the TGIF Network

Using the TGIF DMR Network

- The TGIF DMR network is another network like DMR+, DCI, MARC, Brandmeister, etc.
- TGIF has its own servers, Talk Group List and cast of characters. Info below:
- Info: <u>http://www.k9npx.com/2018/11/the-tgif-network.html</u>
- Dashboard: <u>http://tgif.network/lastheard/index.html</u>
- Forum: <u>https://tgifnetwork.createaforum.com/</u>

Pi-Star DMR TGIF Config. Setup:

	-Star Die	uital Voi	re - Con	figuration					
P	r-star Dig								
				Power Update Bos	kup/Restore F	octory Read			
		Getewey Herdwo							
piretar 6	.9.35+	FI INTO W NAV	1.1 (512em)	0.93 / 0.29 /	0.15 30.5"0	/ 101.3"#			
		Control 5							
Secting			valu						
Controller Software: Controller Node:	Opitarrepeat		(cyraega sini	num minnyara 3.07	negaired)				
controller Hode:	W Simplex son	Apply C		-cuplex on socapo	:# }				
Perring		MMDVMHost C							
DNR. Mode:		27 8422	cine: 20	net sangtine:	20				
D-Star Mode:		22 842.0	sine: 20	wet sangtime:	20				
YSF Node:		27 2402	zime: 20	ret sangtime:	20				
925 Node:			sine: 20	wat sangtime:					
NDN Hode: YSF2DNR:		27 8400	time: 20	met sangtine:	20				
NGDVN Display Type:	None ad a	identity and	40 x d annual an	angeus: G4KLX N	2				
	regine •	Apply C		Lagent: Decos	1				
Secting		General Cor	figuration value						
Rostname:	pi-star	oo noo add au	ffings such as	.local					
Node Callsign:	MIABO								
CC97/DMR ID:	1234567								
Radio Frequency:	431.075.000	No. 2							
Latituda:	50.000			worth, negative					
Longitude:	0.000	degrees (post	tive value for	man, negative fo	IT MARE)				
Town:	A Town, LOC4T	0R	_						
Country: IRL:	Country, UK http://www.grz.c	omith 3/1 ABC		C	0				
Radio/Noden Type:	-	Servatine in BC			o Osanual				
Node Type:	@ rrivate O	rublic		-					
System Time Tone:	Europe London		~						
Dashboard Language:	english_uk	~							
		Apply C	anges						
		DMR Confi	ourstion						
Secting			valu						
DNG. Master: DNG. Colour Code:	DMRGstewsy		×						
DNR. EmbeddedLCUnly:	1 *	1 9							
DMR DumpTAData:									
		Apply C	tanges						
		D-Ster Con							
Secting			valu						
2971 Calleign: 2972 Calleign:	NIADC B V								
Remote Password:									
Default Raflector:	REF001	c 🗸	<u> </u>	@ gtar	cup Oxanual				
A993 Host:	england.aprs2.r	net 🗸							
ischobistevay Language:	English_(UK)	<u> </u>							
Time Announcements:									
Use Dilus for XRF:		444		mote: update :	sequired if ch	anged			
		Apply C							
Sector		Firewall Cor	figuration		_	_			
Dashboard Access:	Serivate O	rublic	944						
incoodisteway Remote:	@ rrivate O	rublic							
SSE Access:	@ rrivace O	rublic							
Auto AD:	®on ⊖ore			Reboot Required i	f changed				
		Apply C	langes						
		Wireless Co	nfiguration						
(Refresh) Reset WFI Ada	ter) Contoure W	F1				~ ~			
		less Information	and Statistics						
Interfece Name : wien0	ce Information		Connected To :	Wireless Informet dkhull	ion				
Montess 2 de la del del la del la del la del la del del del la del la del la del la del la del del la del del la del la del la del la del del la d									
Subnet Heak : 255.255.25	15.0		Sitrate : 72.2 M Signal Lavel : -	Bit/s					
Inter	oce Statistics		Trenamit Power Link Quelity : 7	0/70					
Received Sytes : 5051 Tronsferred Pockets : 277 Tronsferred Sytes : 93050	(645.0 KiS) 0								
Transferred Sytes : 93055	7 (905.5 KiS)								
	Informat	tion provided by if	config and inconf	•					
Remote Access Possword									
	pi-star resevord: Confirm resevord: Bet Password								
pi-star Pass	vord:			NABHING: this changes the password for this admin page and the "pirecas" Six account					
pi-star Tass	NARNING: This	thanges the pr							
pi-star rase	Ward: NARNING: this	a changes the po and the "pi-sta							
pi-star Taas	NAME OF THE	a changes the per-	r" 22x account	e admin paga					

Set up for this network is as simple as selecting the "TGIF Network option in the DMR Master Pull-down. As before, Turning on the last switch will allow your ZUM/Pi To pass Talker Alias data to your radio, if it supports it. Click "Apply Changes" when done.

		and the second sec	
	DMR	Configuration	
Setting			Value
DMR Master:	TGIF_Network	▼ <u></u> ~	
DMR Color Code:	1 🗸		
DMR EmbeddedLCOnly:			
DMR DumpTAData:			
	Ар	ply Changes	

Once you Apply Changes and the reset cycle completes this network will be in effect. It works pretty much the same as Brandmeister with a large list of talk groups available. TG switching is achieved in the same manor as Brandmeister. Program your radio for these new talk groups in exactly the same way you would for MARC or Brandmeister. You might want to make a new zone.

TGIF Last Heard List:

TGIF Lastheard Active T	alkers Talkgroups Se	elf Care Server Status		
NEW! Key talkgroup 777 for S	CAN			
oggle column: Callsign - Nan	ne - DMR ID - Talkgroup - Ti	imestamp		
Show 10 🗸 entries				Search:
Callsign	♦ Name	DMR ID		Timestamp
KF6S	James R Valle	1107132	TGIF (31665)	16:49:11
K4WZV	Robert B Bretzman	1112526	TGIF (31665)	16:48:55 (9 seconds)
KF6S	James R Valle	1107132	TGIF (31665)	16:48:41 (7 seconds)
KG5RDF	David D Houser	1148168	North Central Texas Connection (189)	n 16:48:28 (3 seconds)
WW6E	Ed Sierra Amateur R Dx And Contest Club		NorCalBridge-Multimode (3063	9) 16:48:11 (6 seconds)
W7TOA	ArthurB	3116653	YLSYSTEMS (319)	16:48:07 (1 seconds)
K4WZV	Robert B Bretzman	1112526	TGIF (31665)	16:47:51 (5 seconds)
WW6E	Ed Sierra Amateur R Dx And Contest Club		NorCalBridge-Multimode (3063)	9) 16:47:35 (0 seconds)
N5OGD	Gerald G Dugan	3148922	TGIF (31665)	16:47:34 (2 seconds)
N5OGD	Gerald G Dugan	3148922	TGIF (31665)	16:47:24 (9 seconds)
Showing 1 to 10 of 65 entries			Previous	1 2 3 4 5 6 7 Ne

LH List URL: http://tgif.network/lastheard/index.html

TGIF Active Talkers/Talk Groups

TGIF Lastherd Active Talkers	Takgroups Self Care Server Status
Search Talkgroup	Active Callsigns
Northern NH AllStar Link (31331)	N1PCE - John-UHF Ryan
Carolina 440 (440)	K4JDR - Ronnie Casey
Black Sheep Lounge (3933)	W4DOG - DOG Kirby K8JET - Jimmy Shaffer
North Central Texas Connection (189)	KG5RDF - David D Houser
WC3PS-WEARS (65911)	KA3UTD - TerenceR
America-RC (28299)	KF4TIM - Timothy Bernard
TX Misfits (5323)	KI1ORD - PaulM
No Transmit (4000)	KI10RD - PaulM
No Name (16777215)	K6YZF - Robert Jimenez
NorCalBridge-Multimode (30639)	WW6E - Ed Sierra Amateur Radio Dx And Contest Club
TheGuild (31674)	KM4SZU - World Wide ARG
New York Link (212)	KD2KMP - Shmuel Sin
DigiComm Cafe (203)	KD5DLJ - Denny Johnson
TGIF (31665)	K4WZV - Robert B Bretzman
	K5GU - Leland R Harrell
	KA9HHH - Bob. Schiff

TGIF Lastheard Active Tak	ers Talkgroups Se Care	Server Status	
103 Talkgroups Name			Talkgroup Number
Parrot (PRIVATE CALL)			100
TAC-101			101
TAC-102			102
TAC-103			103
North America			110
Europe	<u> </u>	· · · ·	111
Asia Pacific	One popul	ar talk group	112
World Wide English	to try is "T(GIF" which is	113
World Wide			114
Over The Road	TG ID = 31	600	115
United Kingdom			116
Celtic Cluster			117
The Milliron Suffolk			118
North West Radio Group			120
North Central Texas Connection	1		189
RWK			190
TEST 201			201
TEST 202			202
DigiComm Cafe			203
Technology First			204
New York Link			212
Philadelphia			215

That's all!

For now, anyway, Thanks. Please contact me at the address below with questions and comments, corrections, etc.

> Dave Hull, KC6N dhull1@san.rr.com

Revision List:

- 01/20/2018: Original Release presented at the PAPA San Diego Luncheon Sat Jan 20 2018
- 03/27/2018: Extensive rework incorporating suggestions received since original release
- 04/03/2018: Added Appendix J, a page on Etcher, and this revision list.
- 05/12/2018: Updated Appendix E to include SSH update/upgrade methodology. Complete rewrite of Appendix H to address cross-mode Fusion to P25 and NXDN. Added some setup info for NXDN and P25 to part IV. Made cosmetic edits to quite a few pages (mostly for clarity).
- 06/02/2018: Added Appendix K, Customizing Pi-Star Colors, Completely rewrote Appendix H to cover the cross-mode options included as part of 3.4.15. Does not cover cross mode with DMR Gateway. (second release, 06/05/2018) fixed a couple typos. 06/07/2018 typo in Pi-Version #.
- 07/04/18: Added comment about Node Type on page 27, Moved the Note on SW Versions to page 7, Changed WiFi setup method to Auto-AP which allowed the slides to be streamlined a bit by combining the old sections II and III. Moved the former WiFi pages to Appendix G so the "supplicant" method is still documented but it looks like most people are taking advantage of AutoAP these days. Added Reflector "Find it" page at end of Appendix H. Added Appendix I which discusses use of the DMR+ network. Added Appendix J which covers the DMRGateway.
- 10/23/18: Added Appendix M (OLED Display), added a couple warnings at the end of Appendix A, added Appendix M (multiple ZumSpots) and fixed a couple of ever-present typos ☺.
- 12/22/18: Added a instructions for using multiple ZumSpots with typical DSTAR radios to Appendix M.
- 02/20/19: Added Appendix O covering configuring for the TGIF DMR network
- 07/16/19: Removed multiple hotspot slides from Appendix C and added HotSpot security. Updated Appendix N (multiple HotSpots).

Revision List:

- 10/20/2019: Added a slide to the OLED display section describing the additional expert settings that appeared in v4.x.x. Added slide to HotSpot Security section showing where the password can be found.
- 11/05/2019: Added a few slides in the "cross-mode" section describing the WiresX Pass-through feature and WiresX style control for cross mode from a Fusion radio. Thanks to Toshen, KE0FHS for some of this one. FWIW: He has a great site, lots of good info on Pi-Star.
 https://amateurradionotes.com/pi-star.htm
- 10/06/2020: Changed bottom of page 103 to show PAPA talk group 31077 instead of 10200 so it is clearer for the PAPA crowd.
- 12/04/2020: Edited Page 41 Re APCO P25 (now that I have a P25 radio). Rewrote appendix "K" on calibration to cover the MMDVMCAL feature. Edited the Brandmeister Setting up Hotspot Security page in appendix C to note that a hotspot password is NOW REQUIRED.
- 11/12/2021: All I changed here was the version # on the cover page. It was 4.1.3 which I changed to 4.1.5 to reflect the current version. Pi Star has been stable for a while.
- 11/15/2021: Edits recommended by Rutger, PA3CQJ: Fixed replicated appendix J so appendix entries after J got incremented by one letter. Edits on page 177. Revised what is now Appendix "L" to focus just on RX Offset calibration.