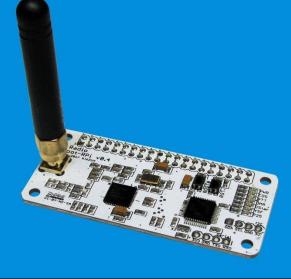
ZUMspot/PiStar ZUMspot/Pi-Star Bring-up and initialization Updated for Pi-Star v4.3.15

David Hull, KC6N



Revised (06/05/2018)

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 IV 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: Setting up your WiFI
 - Part III: Configuring/Customizing Pi-Star
 - Part IV: Configuring your radios
- Appendices: (specific topics and issues)
 - Updating FW, Setting up Brandmeister, Access to special features, etc.

ZUMspot/PiStar

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

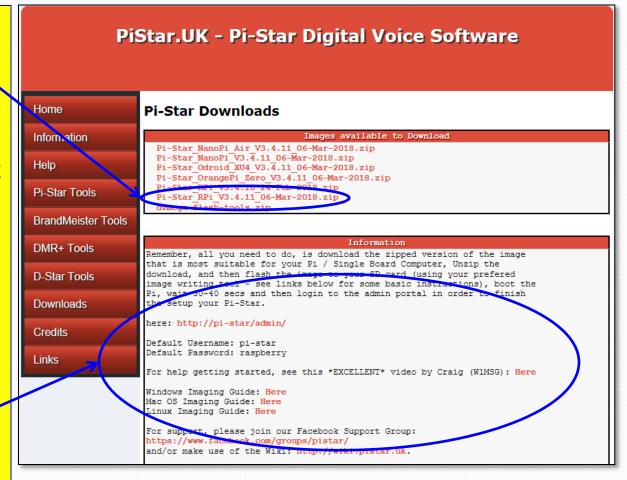
Do this section if you are starting anew with a blank μ -SD card, or you are upgrading to a new version using a new blank card. If you are starting from a kit that came with an imaged card, you can skip to Part II.

Download the Pi-Star Image (1)

	e following URL: w.pistar.uk/index.php	-	Pi	iStar.UK - Pi-Star Digital Voice Software	
		2	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 cant help 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!	
	, and the second s	4	D-Star Tools	Most importantly, have fun using Pi-Star!	
			Downloads	eter 11 of Jenned Street	
Home	Pi-Star Downloads	/	Download Pi-Star	Dashboard Admin Config	
Information Help Pi-Star Tools BrandMeister Tools	Images available to Download Pi-Star NanoPi Air 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 Pi-Star RPi V3.4.10_02-Reb-2018.zip Pi-Star Salas-tools.zip		Credits Links	Active Stander Groups Active Stander Groups Coll stage Coll stage <th col<="" th=""></th>	
DMR+ Tools	Information			Total 4027-455-498 1617-255 5-540	
D-Star Tools	Remember, all you need to do, is download the zipped version of the image 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 Pi, wait 30-40 secs and then login to the admin portal in order to finish			Bit 2014 Bit 2014 Distance Classical Distance Classical Distance	
Downloads	the setup your Pi-Star.			Linke to REFMI (001-05-08 15:14):0 [5-547 (91-08 04;04) [001-05-08 15:04:15 [5-547] (91-08 04;04] [001-05-08 15:04:15 [5-547] (91-05-08 15:04:15 [5-547] [010] [010-05-08 15:04:15 [5-547] [010] [010] [010-05-08 15:04:15 [5-547] [010] [010-05-08 15:04:15 [5-547] [010] [010] [010-05-08 15:04:15 [5-547] [010] [010] [010-05-08 15:04:15 [100-05-08 15:04:15 [100-05-08 15:04] [010] [010] [010-05-08 15:04:15 [100] [010	
Credits	here: http://pi-star/admin/ Default Username: pi-star Default Rasword: raspberry			Image: second	
Links	For help getting started, see this *EXCELLENT* video by Craig (W1MSG): Here			15.2 Description Time (SST) Mode Collsign Torpet Sec Dur(s) H35 TG 9//root Inded 000	
	Windows Imaging Guide: <mark>Here</mark> Mac OS Imaging Guide: <mark>Here</mark> Linux Imaging Guide: <mark>Here</mark>			P. Blar / P. Blar Davisouri, B. Ander Syrar (1983)1982 (2015-2027). FOODEnations (based by the site of the strength of of th	
	For support, please join our Facebook Support Group: https://www.facebook.com/groups/pistar/ and/or make use of the Wiki: http://wiki.pistar.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.

SD Card Formatter		x		1. Set the drive letter for
File Help				
Select card		-		your µ-SD card here
Card information		<u>R</u> efresh		2. Select a format option
Туре	SDHC	5		
Capacity	14.46 GB			
Formatting options Quick format Qverwrite format Volume label		K		3. Leave this blank, the Pi-Star image will change it to "boot" when it loads.
SD Logo, SDHC	Logo and SDXC Logo are trademarks o	Format	[4. Select "Format"

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

Option 1: Writing an image to a µ- SD card using "Win32 Imager".	1. Navigate to your image file (for example): Pi-Star_RPi_V3.4.11_06-Mar-2018.img
	-
Win32 Disk Imager Image File C:/Users/dhull/Desktop/Pi-Star_RPi_V3.4.11_06-Mar-2018.img	
Copy MD5 Hash: Progress Version: 0.8 Cancel Read Write Exit 10.355MB/s	3. Select "Write" and be prepared to wait a while as the 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 (Writing	g: 62 %)
SD drive	
F:\ [FAT, USB: 14	,804 MB]
Volume: Format: Partition:	F: FAT Disk #2, Partition #0
Physical drive: Physical drive size: Model:	\\PHYSICALDRIVE2 14,804 MB Generic- USB3.0 CRW -SD USB Device
Image file	
C:\Users\dhull\De	sktop\Pi-Star_RPi_V3.4.11_06-Mar-2018.img
Operations Read	Write Format Cancel
Progress	
Transfer speed: Bytes remaining: Time remaining:	9.8 MB/s 696 MB 0:01:10
······	

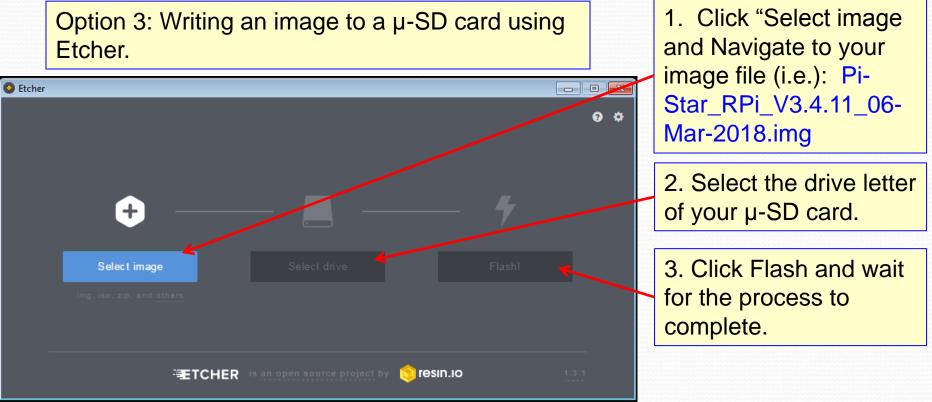
 Set the drive letter of your μ-SD card: "F" (in this case)

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 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 Configuring your WiFi on a pre-Imaged µ-SD card

This section assumes you have performed Part I or your kit came with a pre-imaged card.

Note:

Your hotspot must be able to make a WiFi connection in order to be configured. There are several ways to do this. This section outlines a the "classic" method that will work with any version of Pi-Star. Another (possibly simpler) method referred to as "AutoAP" became available beginning with Pi-Star v3.4.11, and is described in Appendix G.

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.

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 Net 0.8 0% 0.2 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 2017-05-30 16:19:35 DMR Slot 2 4 et 18.1 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 5100 CQCQCQ via REF001 C Net 11.8 0% 0.09 431.187500 MHz 1.4 0% 0.0 DNGL COCOCO via REF001 C CQCQCQ via REF001 C Net 1.4 0% 0.0 CQCQCQ via REF001 C Net 0.7 0% 0.0 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 /d74 CQCQCQ via REF001 C Net 1.9 0% 0.5 /INFO CQCQCQ via REF001 C Net 7.1 0% 0.0 2017-05-30 16:10:44 D-Stor MWRMWZ B MWRMWZ G All you need to do then, is drop this onto the "Boot" volume of your Pi-Star SD 017-05-30 16:10:42 D-Stor BrandMeister Tools 1.2 0% 0.0 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 et 0.1 0% 10. **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 et 0.0 0% 0.0 2017-05-30 15:48:20 RSNC COCOCO et 0.4 0% 0.0 Net 0.2 0% 0.0% 2017-05-30 15:47:01 D-Stor /ID31 CQCQCC **D-Star Tools** SSID: 2353150 2017-05-30 15:40:50 2017-05-30 15:36:33 D-Star /DNGL COCOC PSK: et 6.8 0% 0.0 **Downloads** Last 20 calls that accessed this Gatewa Submit Query TE 91/not linked 2017-05-30 16:10:42 D-Star MIRMAZ/M RF 0.7 0.09 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

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.

PI	Star.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	the 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.

Icon updati			
ppr p p25 trainin astro	Organize Share with Burn New folder		
p25_trainin astro Taxes.docx ATD868UV IMG IC-7610-te Thanksgiving TL-WR802 wpa_suppli	Organize ▼ Share with ▼ Burn New folder		Name Irashes overlays Correctlys Source of the second
PDF Jon HF-Compa		•	issue.txt kernel.img kernel7.img LICENCE.broadcom LICENSE.oracle start.elf

ZUMspot/PiStar

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

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

Before you start:

- Install the ZUMspot onto the Raspberry Pi Zero/W – case not needed at this point.
- Install The ZUMspot's antenna.
- Install the µSD card you just prepared with the image and the "wpa_supplicant.conf" file into the Raspberry Pi Zero/W
- Power up the assembled contraption and wait about 3 minutes for it to complete it's boot sequence.

Once "Boot" is complete:

- Make sure that your PC is on the same WiFi as your ZUMspot/Pi-Star HotSpot
- Open your browser (any browser) and point it to: <u>http://pi-star</u> (on Windows) or <u>http://pi-star.local</u> (on Apple iOS).
- You will get the initial Pi-Star information screen indicating that Pi-Star is ready to be set up (see next page) momentarily followed by a Log-In dialog.

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.	1. Enter the following: User name: "pi-star Password: "raspber 2. Click "OK"	,))

Pi-Star Configuration Screen:

		Catoway Na	are Information	
Eostname	Kernel	Gateway Hardwa	South .	CPU Load CPU Temp
pi-star	4.9.35+	Pi Zero W Rev	- 1.1 (512MB)	0.03 / 0.13 / 0.1 37.9°C / 100.2°
		Control S		
Setting Controller Software:			Value	
Controller Mode:				m Firmware 3.07 Required) huplex on Hotspote)
	C Simplex No	Apply C		uples on Rotspots)
			-	
Setting		General Cor	nfiguration	
Bostname:	pi-star	Do not add a	offixes such as .	local
Node Cellsign:	M1ABC			
Radio Frequency:	431.075.000	MHz		
Latitude:	50.000	degrees (pos)	itive value for N	orth, negative for South)
Longitude:	0.000			ast, negative for West)
Town:	A Town, L0C4	TOR		
Country:	Country, UK			
URL:	http://www.grz	.com/db/M1ABC		🖲 Auto 🔿 Manual 💊
Radio/Modem Type:				~
Node Type:	• Private			
System Time Zone:	Europe/Londo		~	
Dashboard Language:	english_uk	✓		
		Apply C	hanges	
		D-Star Con	figuration	
Setting			Value	
RPT1 Callsign:	міавс В 🗸	·		
RFT2 Callsign: Remote Password:	MIABC G		1	
Defeult Reflector:	REF001 V			0
APRS Host	england.aprs2			Startup OManual
AFRS HOST: ircDDBGeteway Language:	English_(UK)			
Time Announcements:				
Use DPlus for XRF:				Note: Update Required if changed
		Apply C	hanges	
Setting		Firewall Co	Value Value	
Dashboard Access:	@ Private (Public		
ircDDGBateway Remote:	• Private	Public		
SSH Access:	• Private	Public		
Auto AP:	●on ○off			aboot Required if changed
		Apply C	hanges	
		Wireless Co	nfiguration	
Refresh Reset WIFi Ada	spter Configure V	WFi		
Refresh Reset WFI Add			n and Statistics	^
Interf		eless Information		fireless Information
Interf Interface Name : wlan0 Interface Status : Interf	Win face Information	eless Information		fireless Information khull 48:f8:b3:d8:a5:07
Interf Interface Name : wlan0 Interface Status : Interf IP Address : 192.168.1.1	Win ace Information ace is up 134	eless Information	Connected To : di AP Mac Address :	Areless Information khull 48:f8:b3:d8:a5:07
Interf Interface Name : wlan0 Interface Status : Interf	Wir ace Information ace is up 134 255.0	eless Information		it/s
Interface Name : wlan0 Interface Status : Interf IP Address : 192.168.1.1 Subnet Mask : 255.255.2 Mac Address : b8:27:eb: Inte	Win ace is up 134 255.0 55:8a:e0 rface Statistics	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MB Signal Level : -29 Transmit Power :	it∕s)dBm 31 dBm
Interface Name : wlan0 Interface Status : Interf IP Address : 192.168.1.1 Subnet Mask : 255.255.2 Mac Address : b8:27:eb: Inte	Win ace is up 134 255.0 55:8a:e0 rface Statistics	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MB Signal Level : -29	it∕s)dBm 31 dBm
Interface Name : wianO Interface Status : Interf IP Address : 192.168.1. Subnet Mask : 255.255. Mac Address : b8:27:eb: Inte Received Packets : 1041 Received Bytes : 204801 Cransforced Packets : 104	Win ace Information ace is up 134 255.0 55:8a:e0 rface Statistics ((200.0 KiB) 6	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MB Signal Level : -29 Transmit Power :	it∕s)dBm 31 dBm
Interface Name : wlan0 Interface Status : Interf IP Address : 192.168.1.1 Subnet Mask : 252.255.2 Mac Address : b8:27:eb: Inte Received Packets : 1041 Received Bytes : 204801	Win ace Information ace is up 134 255.0 55:8a:e0 rface Statistics ((200.0 KiB) 6	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MB Signal Level : -29 Transmit Power :	it/s I dBm 31 dBm (70
Interface Name : wianO Interface Status : Interf IP Address : 192.168.1. Subnet Mask : 255.255. Mac Address : b8:27:eb: Inte Received Packets : 1041 Received Bytes : 204801 Cransforced Packets : 104	Win ace Information ace is up 134 135.0 55:8a:e0 rface Statistics ((200.0 KiB) 16 114 (208.0 KiB)	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MB Signal Level : -29 Transmit Power :	it∕s)dBm 31 dBm
Interface Name : wianO Interface Status : Interf IP Address : 192.168.1. Subnet Mask : 255.255. Mac Address : b8:27:eb: Inte Received Packets : 1041 Received Bytes : 204801 Cransforced Packets : 104	Win ace Information ace is up 134 135.0 55:8a:e0 rface Statistics ((200.0 KiB) 16 114 (208.0 KiB)	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MBi Signal Level : -29 Transmit Power : Link Quality : 70/	it/s I dBm 31 dBm (70
Interface Name : wianO Interface Status : Interf IP Address : 192.168.1. Subnet Mask : 255.255. Mac Address : b8:27:eb: Inte Received Packets : 1041 Received Bytes : 204801 Cransforced Packets : 104	Win ace Information ace is up 134 135.0 55:8a:e0 rface Statistics ((200.0 KiB) 16 114 (208.0 KiB)	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MBi Signal Level : -29 Transmit Power : Link Quality : 70/	it/s I dBm 31 dBm (70
Literace Name 3 valano Literace Status : Interf IP Address : 192.168.1. Submet Hask: 252.253.5 Nac Address : 192.168.1. Interface Status : 104.27 Rectined Packets : 101.4 Rectined Packets : 101.4 Transferred Bytes : 2130 Uper Hame	Win ace Information ace is up 134 135.0 55:8a:e0 rface Statistics ((200.0 KiB) 16 114 (208.0 KiB)	eless Information	Connected To : dl AP Mac Address : Bitrate : 65.0 MBi Signal Level : -29 Transmit Power : Link Quality : 70/	it/s dBm 33.dBm 70

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"

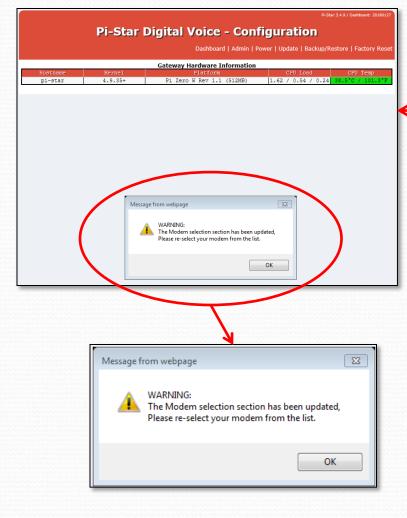
		General Configuration
Setting		Value
Hostname:	pi-star	Do not add suffixes such as .local
Node Cellsign:	M1ABC	
Radio Frequency:	431.075.000	MHz
Letitude:	50.000	degrees (positive value for North, negative for South)
Longitude:	0.000	degrees (positive value for East, ne ative for West)
Town:	A Town, L0C4T0	IR
Country:	Country, UK	
URL:	http://www.grz.co	om/db/M1ABC
Radio/Moden Type:	ZumSpot - Rasp	berry Pi Hat (GPIO)
Node Type:	• Private 0 H	Public
System Time Zone:	Europe/London	✓
Deshboerd Lenguege:	english_uk N	
		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 D	Digital Voice - Conf	iguration	
		Dashboard Admin Expert Pe	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°
	Stopping ser	Working vices and applying your configurat	ion changes	
		Done		
	c	hanges applied, starting services.		
	P	i-Star web config, © Andy Taylor (MW0MWZ) 2014-20 Need help? Click here for the Support Group Get your copy of Pi-Star from here.	D18.	

Modem Warning Pop-Up:



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.

		General	Configuration
Setting			Value
Bostneme:	pi-star	Do not add	d suffixes such as .local
Node Cellsign:	M1ABC		
Radio Frequency:	431.075.000	MHz	
Letitude:	50.000	degrees (j	ositive value for North, negative for South)
Longitude:	0.000	degrees (oositive value for East, negative for West)
Fown :	A Town, LOC41	TOR	
Country:	Country, UK		
JRL:	http://www.qrz.	com/db/M1A/C	Auto OManual
Radio/Moden Type:	ZumSpot - Ras	pberry Pi Hat ((GPIO)
Rode Type:	• Private 0	Public	
System Time Zone:	Europe/Londor	1	~
Deshboerd Lenguage:	english_uk	~	
		Appl	ly Changes

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

Pi-Star Configuration Screen:

Pi	-Star Digital	Voice -	Conf	iguratio		31 / Conferent: 20132334
				wer Update B		ore Fectory Read
		y Herdwere Info				
pi-star 4		viations are w may 1.1 (5		Crt 108	4 / 0.15 1	Cry see
		Control Software				
Secting			value			
ontroller Software: ontroller Mode:	Onitarnepeater @ : @ 2implex mode On	CONTRACT (CONTRACTOR)	or welfer	n rinnware 3.0	7 meguire	4)
	-	Apply Changes	1		,	
		VMHost Configur				
Secting			value			_
NG: Mode: -Star Node:		nr manguine:	20	vet sangtine:	20	_
27 Node:		nr manguina:	20	pet sangtine:	20	_
25 Node:		ar sanguine:	20	wet mangtime:	20	
XDN Mode:		nr sanguina:	20	net sangtime:	20	
SFIDE: NDVN Display Type:	None y rors:	idevityAMAD 🗸 :		0.00 X		
and anything append	Nulle V Pare:	Apply Changes	ALLON 1	Jess: Owner	•	
		nerel Configuret				
Secting			value			
ostrame: ode Callsion:	pi-star ee tu M1ABC	ot add auffirms	such as .	local	_	
ode Callsign: C\$7/DHG: ID:	1234567					
adio Frequency:	431.075.000 peac					
atituda:		ees (positive v				
angitude:	0.000 degre	ese (posicive ve	alue for s	art, negative	for meet)	
own: ountry:	A Town, LOC4TOR Country, UK	_		_	-	
ountry: RL:	http://www.grz.com/db/l	MIABC	-	۵.	10 OHAT	ual
adio/Modem Type:	-			<u> </u>		
ode Type:	Surge London					
ysten Time Tone: ashboard Language:	Europe London english_uk V	~				
		Apply Changes	1			
		MR Configuratio	-			
Secting			VALUE			
NG. Master: NG. Colour Code:	DMRGeteway	~	1			
NR. EnheddedLCOnly:						
19. DumpTAbata:						
		Apply Changes				
Secting	0-	Ster Configurati	on value		_	_
971 Callsign:	siast B 🗸		VALUE			
972 Callsign: anote Password:	elant 9	_				
efault Reflector:	REF001 V C V england.aprs2.net			@ 21a	ттир Он	nual
993 Host: rcDDBGstavay Language:	england.aprs2.net	~				
robbüüstevey Language:	English_(UK)					
ine Announcements:	-	_		mote: update	neguired	if changed
		Apply Changes				
		ewell Configuret				
Secting ashboard Access:			value			
ashboard Access: rcDDGBateway Remote:	<pre> # rrivate O rublic # rrivate O rublic # rrivate O rublic </pre>					
SE Access:	@ private O rublic					
uto X9:	⊛an Oper			boot nequired	if change	d
		Apply Changes]			
		reless Configural	tion	_		
Refresh Reset WFI Adap						^ ^
Interfer	Wireless Information	formation and St	atistics N	ireless Inform	tion	
Interfece Neme : wien0 Interfece Status : Interfec	e ie up	Connec AP Med	ted To : di Address :	da:f5:b3:d5:e3	1:07	
Interfoce Status : Interfoc IP Address : 192.105.1.13 Subnet Mesk : 255.255.25 Moc Address : b5:27:eb:5	4		: 72.2 MB			
Mec Address : b5:27:eb:55	:5e:=0					
Interi Received Pockets : 3061	ece Statistics	Trenam Link Qu	it Power : adity : 70/	31 dBm 70		
Received Sytes : 603572 (Transferred Packets : 277 Transferred Sytes : 93065	648.0 Kis)					
Trensferred Sytes : 93065						
	Information prov	vided by ifconfig as	nd iwconfig			
	Rem	ote Access Pass	word			
Deax Name			as a world			Set Password
	oraci	Conf	im mere	admin nare		Ver masword
4-star 7660	MARNING: this change	as the password				
t-star rate	WARNING: this change and the	a the password "piratar" 25s	account			
t-star rado	WARNING: this change And the	as the password "pi-star" Six Clockey Taylor (MAG) Clockers for the Sup four copy of Fi-Sar from				

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

V	<u> </u>	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/ttyAMA0 ✓ 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:

Pi-S pi-star 4.5.3		jital Voic				
nosciana sciena pi-star 4.9.3		Deshboard A		own I starting I was		
pi-star 4.9.3				wer optate op	ckup/Restor	
pi-star 4.8.3		Seteway Hardwar		Creation of		Cry resp
	5+	Finite Fi sero m nev		0.93 / 0.29 /	0.15 38.	5°C / 101.3°F
Secting		Control So	ftware			
Controller Software: (Cutarnepeas	ar Socrations	(oversega sinis	m rimmare 3.07	nequired)	
Controller Mode:	Simplex not	ie O zuplex zepe	ater (or salf-	mplex on motepo	cs)	
		Apply Ch				
Secting		MMDVMHost Co	value			
DNR: Mode:		ar sange	ine: 20	set sangtime:	20	
D-Star Hode:	•	nr sangu		wet Hangtime:	20	
P25 Node:		RF HANGE		vet sangtine: vet sangtine:		
NUDN Mode:		27 240.92	ine: 20	ret sangtine:	20	
YS72048:						
MODVN Display Type:	None 💙 :	roze: /devityAMA		geus: G4KLX ·	~	
		Apply Ch				
Secting	_	General Conf	iguration		_	
Kostnama: p	ol-star	oo not add aut	fixes such as .	local		
	MABC					
	234967					
	431.075.000 50.000					
	1.000			orth, negative		
Town:	Town, LOC4T	pegrees (posis	ive value for :	man, negative d	OF WEET)	
	Country, UK					
URL:	nttp://www.grz.c	com/db/M1ABC		() AU	CO O HARLIN	41
Radio/Noden Type:	-			~		
Node Type: System Time Tone:	€rrivace O Europe\London	rublic	4			
Dashboard Language:		~	•			
		Apply Ch	inges			
		DHR Config				
Secting		ents coning	valor			
DNG. Master: [DMRGateway		~	_	-	
DNR. EmbeddedL00nly:					-	
DNG. DumpTAData:						
		Apply Chi	inges			
		D-Ster Confi	guration			
	1xeC B ∨		value			
APT2 Callsign: st	GamC G					
Renote Parsword:	REFOD1	0.14			0	
A993 Nost: 5	england.aprs2.r	<u>c v</u>		· dens	тыр Оныл	1081
incoodsteway Language:	English_(UK)	¥				
Time Announcements:						
Jae Dilus for XRF:		And T		mote: update	nequired i	if changed
		Apply Ch				
Secting		Firewall Cont	iguration		_	
Dashboard Access:	Ø ørtvata O	rublic				
ircDDGEstevay Renote: (🖲 wrivana 🔿	rublic				
Auto AD:	Private O	rublic		aboot magnized :		
	€an Ooss	Apply Ch		www.s.meguifed :	. changed	
Contracto Constitution of the	Contract	Wireless Con	iguration		_	
Refresh Reset WFI Adapter	100		and starting to the			22
Interfece Name : wienD Interfece Name : wienD	nformation	ess Information	eno Statistića	fireless Informa	tion	
Interfece Status : Interfece is	up		P Mec Address	firelese Informe khull : 48:f8:b3:d8:e3:	07	
Interfece Status : Interfece is IP Address : 192.105.1.134 Subnet Mesk : 255.255.255.0 Mac Address : b5:27:eb:55:5e:			itrete : 72.2 MB ignel Level : -21			
Interfoce : Received Pockets : 3061	Statistics		renamit Power ink Quelity : 70	31 d6m (70		
Received Sytes : 503572 (645) Transferred Packets : 2770 Transferred Sytes : 230557 (9	LO KIS)					
Transferred Sytes : 930657 (9						
	Informat	lion provided by ife	onlig and inconfig			~~
		Remote Acces				
Usar Name	_		Descripted	_		
pi-star resevord:			Confirm races	ord:		Set Password
	washing: this	t changes the parameters when the "pirater	" 25x account	sumin page		
					_	
	Pi-Gar	veb config. © Andy Tay Need help? Clot. here fo Get your copy of Pi-	the Support Group Day from here.			

	Control Software
Setting	Value
Controller Software:	O DStarRepeater MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	Simplex Node ODuplex Repeater (or Half-Duplex on Hotspots)
	Apply Changes

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>

	i-Star Dig					
		Deshboard A	dmin Export		ekup/Restore	e Fectory React
		Getewey Herdwe				
piratar 4	.9.35+	FI DECO W DAY	1.1 (512mm)	0.83 / 0.29	/ 0.15 38.5	"C / 101.3"#
		Control St	ftwere			
Setting	Opicarmeneat	ter Bangyanget	(concerns stat	inum rismware 3.07	(meruired)	
Controller Mode:	@ Simplex so:	de Ocuplex mep	ater (or salf	inum rizmware 3.07 Prouplax on motepo	(a.2	
		Apply Ch	anges			
Prestor.		MMDVMHost C	onfiguration			
No. Node:		ar sange	1me: 20	set sangtine:	20	
-Star Node:		RF HADGE	ine: 20	net sangtime:	20	
127 Node:		ar sange	ine: 20	net sangtime:	20	
P25 Node:		RF HADGE		wat sangtime:	20	
SIDH Node: ISF2DHR:		ar sange	ime: 20	wet sangtine:	20	
NODVN Display Type:	None M	rers: /devityAM/	V version	anyous: G4KLX	~	
		Apply Ch				
		General Con				
Secting				5 6		
Node Callsign:	pi-star M1ABC	oo not add au	fixes such as	.local		
Note Calleign:	M1ABC 1234567	_				
Radio Frequency:	431.075.000	pasz .	_			
Latitude:	50.000		tive value for	r worth, negative	for South)	
longitude:	0.000	degrees (posi-		r mast, negative i		
Town:	A Town, LOC4T	OR				
Country:	Country, UK					
URL: Radio/Modam Type:	http://www.grz.c	comidb/M1ABC				1
Node Type:	· · · · · · · · · · · · · · · · · · ·	-	-			
System Time Tone:	EuropeLondon		~			
Dashboard Language:	english_uk	~				
		Apply Ch	anges		_	_
		DHR Config	urstion			
Secting	DMRGateway		7.00 V			
DNR Colour Code:	1 1					
DNR EmbeddedLCOnly:						
DMR DumpTAData:						
		Apply Ch				
Secting		D-Ster Conf	iguration val			
9971 Callsign:	siant B 🗸					
0972 Callsign: Renote Pageword:	alant G					
Default Reflector:	REF001				rtup Ommu	-
ADDS Host:	england.aprs2.r	net 🗸				
inclosisteway Language:	English_(UK)	V				
Time Announcements:						
Use DPlus for XRF:		Apply Ch	annes.	mote: update	Required in	e callinged
Ferring		Firewell Con	iguration yal	50		
Dashboard Access:	S rrivace O	rublic				
ircDDGEsteway Remote:	@ private O	rublic				
iik Access: Auto AD:	®rrivaca ○ ®on Opre	rublic		Reboot Required	of channel	
	Jon Core	Apply Ch				
Refresh Reset WFI Adap		Wireless Con	riguration		_	
Herest JL Heset WFI Adap		(F)	and Statistics			^^
Enterfece Neme : wien0	ce Information				tion	
Interfece Status : Interfec	ce is up		AP Mec Addres	Wireless Informs : dkhull = : 48:f8:b3:d8:e5	:07	
Interfece Status : Interfec IP Address : 192,105,113 Subnet Mask : 255,255,25 Mac Address : 55:27:eb:5	5.0		Sitrate : 72.2 M Signal Level : -	46it/s		
Received Packets : 3051	oce Statistics		Irenamit Powe Link Quelity : 7	r:31 d6m 10/70		
Enter Received Pockets : 3051 Received Sytes : 663572 (Transferred Pockets : 277 Transferred Sytes : 93065	(845.0 KiS) 0					
Transferred Sytes : 93065						
	Informat	Cion provided by ife	onlig and incon	0g		~~
		Remote Acces	Pessword			
			Password			
Denz Name			7			
Dear Nona pi-star rass	WADNITHS	change the co	Confirm rad	everd:		Set Password
Dear Same pi-star Face	NARNING: This	e changes the pa- ano the "pi-star	Confirm yas severd for this 22x account	avord: la admin page		Set Password
Diesr Name pi-star reser	WARDING: This	e changes the pa arc the "pi-star web order & Ardy Ta Mand Tany Choi have to	" 22x account	ie admin page		Set Password

		MMDVMHost Configuration		
Setting		Val	ue	
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 V	
		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.

<u>Pi-Star General Config. Setup:</u>

		Fridar 3.4.31 / Darkhard . 2012228
P	i-Star Di	igital Voice - Configuration
		DeaNboard Admin Expert Power Update Bookup/Restore Fectory Read
ROSTOARS	remel	Geteway Herdware Information
pi-star 6	.9.35+	Fiston Crutosi Crutosi Crutosi Fiston may 1.1 (512m) 0.83 / 0.29 / 0.15 38.5°C / 101.3°r
ferring.		Control Software
Controller Software:	Octornepe	eater Sourvoucet (ny-mage minimum rinnware 3.07 mequired)
Controller Mode:	@ Simplex m	rode O muplex mepeater (or salf-muplex on motepote)
		Apply Changes
Secting		MMDVMHost Configuration value
DNR: Node:		mr mangtime: 20 met mangtime: 20
D-Star Node:		nr mangtime: 20 met mangtime: 20
727 Node: 925 Node:		nr mangeine: 20 wet mangeine: 20 nr mangeine: 20 wet mangeine: 20 nr mangeine: 20 wet mangeine: 20
NDW Node:		nr mangrine: 20 ret mangrine: 20
YS72048:		
NODVN Display Type:	None V	rore: IdevityAMAD V maxtion tayout: G4KLX V
		Apply Charges
Secting		General Configuration
Kostname:	pi-star	po not add suffixes such as .local
Node Callsign:	MIABC	
CCS7/DMR ID:	1234967	
Radio Frequency:	431.075.000	enn degress (positive value for worth, negative for Routh)
Longitude:	0.000	degrees (positive value for more), negative for most)
Town:	A Town, LOC4	4TOR
Country:	Country, UK	
URL: Radio/Nodam Typa:	http://www.grz	z.comdb/MABC @www.al
Node Type:	· rrivate (
System Time Tone:	Europe-Londo	on 🗸
Dashboard Language:	english_uk	V
		Apply Changes
Secting		DMR Configuration
DNR. Master:	DMRGateway	y 💙
DNS: Colour Code: DNS: EmbeddedLCOnly:	1	
DMR. DumpTAData:		-
		Apply Changes
		D-Ster Configuration
Secting	HADC B	value
R972 Callsign:	a Daals	
Ranote Password: Default Raflector:	REF001	© V @ Startup Openual
ADDS Host:		
inclosGateway Language:	English_(UK)	
Time Announcements: Use D91us for XRF:		note: update mequired if changed
DES DATES FOR 1841		Apply Changes
Recting		Firewall Configuration Value
Dashboard Access: incDDGBateway Remote:	e rrivate (O mblie
SSE Access:	· rrivate (Orublic
Auto AP:	e private (note: metor meguined if changed
		Apply Changes
	_	Wireless Configuration
Refresh Reset WFI Ada		
Interfe	Wir ce Information	releas Information and Statistics Wireless Information
Interfece Neme : wien0 Interfece Stetus : Interfe	ce is up	Wireless Information Connected To : dkhull AP Mac Address : 45:f5:b3:d5:e5:07
Interfece Status : Interfe IP Address : 192.105.1.13 Subnet Heak : 255.255.25 Mac Address : b5:27:eb:5	14	Sitrete : 72.2 MSit/s Signal Lavel : -25 dSm
Mec Address : b5:27:eb:5	5:56:00	
Enter Received Peckets : 3051	ioce Statistics	Transmit Power : 31 dSm Link Quality : 70/70
Received Sytes : 5051 Transferred Packets : 277 Transferred Sytes : 93051	(845.0 KiS) 70	
Transferred Sytes : 93050		
	Inform	nation previded by ifconfig and inconfig
		Remote Access Possword
Dear Nama pi-star Face	un end -	Confirm reseverd: Set Password
1	MARNING: Th	CONTIN PARAGONIC CONTINUES CONTINUES CONTINUES CONTINUES CONTINUES CONTINUES ACCOUNT AND THE "piretar" Six account
		AND DOB "P1"STAR" DES ACCOUNT
	8-0	Sar was contes & Andy Taylor (HVIAMAT) 2014-2018. Nasel Hell? (Click here for the Support Droup Get your coar of F-Sar from here,
		Get your copy of R-Gar from here.

		General Cont	figuration			
Setting			Va	lue		
Hostname:	pi-star	Do not add suf	ffixes such a	s .local		
Node Callsign:	KC6N					
CCS7/DMR ID:	3106564					
Radio Frequency:	439.025.000	439.025.000 MHz				
Latitude:	32.717	32.717 degrees (positive value for North, negative for South)				
Longitude:	-117.16	degrees (posit	ive value fo	or East, nega	ative for West)	
Town:	San Diego, CA]			
Country:	USA					
URL:	http://www.qrz.	com/db/KC6N			● Auto ○ Manual	
Radio/Modem Type:	ZumSpot - Ras	ZumSpot - Raspberry Pi Hat (GPIO)				
Node Type:	• Private	Public				
System Time Zone:	America/Los_A	Ingeles	~			
Dashboard Language:	english_us	~				
		Apply Ch	anges			

Here is where you will customize Pi-Star for your station. Add your Callsign, your DMR ID, set the ZUM/Pi Operating Frequency, geographic location, etc. Here is how mine is set up, yours will obviously be different. Click "Apply Changes" when done, wait for the reset cycle to complete and the configuration screen to return.

Pi-Star DMR Config. Setup:

Pi					Priller 3 4.31 / Decidence	20122224
	-Star Di	gital Voic	e - Con	figuratior	1	
		Deshboard Ad	imin Export I		skup/Reators Postor	
		Getewey Herdwer	 Information 			
piratar 4.	9.35+	Finite Fi Into W Day 1	100		0.15 38.5°C / 10	2 1.3'r
		Control Se	ftware			
Secting	0.1					
Controller Software: Controller Mode:	© citarnepes	ter ® xxxvxxxxet de ⊖ puplex nepe	(pyrsega sini	run rirnware 3.07	meguired)	_
		Apply Cha	inges			
		MMDVMHost Co				
Secting		ar sangei			20	
D-Star Node:		AF MANGEL	tma: 20	ret xangtine: ret xangtine:	20	_
127 Node:					20	_
925 Node:		RF HADGE	ime: 20	wet Hangtime:	20	
NON Node:		ar sangui	ine: 20	ret sangtime:	20	
YS7250R: MODVN Display Type:		Fors: /devityAMA			-	
NEWN Display type:	None V	Apply Cha		Layout: 04KLK V		
Secting		General Conf	val			
Sacting Kostnama:	pi-star	oo not add auf	firms such as	.local		
Node Callsign:	MIABC					
0097/DHG. ID: Radio Frequency:	1234567	penz .	_			_
Latitude:	50.000		ive value for	worth, negative :	for South)	
Longitude:	0.000			man, negative f		
Town:	A Town, LOC41					
Country:	Country, UK					
URL:	http://www.grz.	comidb1M1ABC		() ALC	o Osanual	
Radio/Nodam Type: Node Type:	errivana C	ente		~		
System Time Zone:	Europe-London	1	V			
bashboard Language:	english_uk					
		Apply Cha	inges			
		DHR Config	uration			
Secting DMR. Master:	DMRGateway		vali			
DNR. Colour Code:	1 1					_
DMR EmbeddedLCOmly:						
DMR DumpTAData:						
		Apply Cha				
Section		D-Ster Confi	guration			
R971 Callsign:	HIADI B V	3				
R972 Callsign: Renote Parsword:	e 2main					_
Default Reflector:	REF001 V			() (rar	cup Osanual	_
A993 Host:	england.aprs2.	net 🗸				
irchhüßsteway Language:	English_(UK)	~				
Time Announcements: Use DW1us for XRF:		Apply Cha	noes.	note: update :	required if change	d
		Apply Cha	-	mote: update :	nequired if change	4
Dae bylus for MDF: Secting		Firewell Conf	-	note: update :	required if change	4
Des DRive for 305: Secular Dashboard Rocase:	e rrivace C	Firewell Conf	-	mote: update :	Required if change	d
Des DPlue for XDF: Reminy Dashboard Acomes: IncDDGBataway Pamota:	errivace C	Firewell Conf	-	mote: update :	nequired if change	d
See DPlue for XRF: Secting Dathboard Access: incDOSEstaway Remote: 24E Access:	errivate C	Firewell Conf	iguration Val	9		d
Tee DPlue for NDF: Persing Deshboard Access: incDDGBsteway Penote:	errivace C	Firewell Conf	iguration valu	mote: tpdate a		4
Jae blus for XXF: Secting Deshboard Access: inclDdSsteway Remote: 202 Access:	errivate C	Firewell Conf	iguration yali note: anges	9		d
See Dôins for XXII: Secting Deshboard Access: LucDDdBatewy Fancts: JSE Access: Anto AD:	e reivate C e reivate C e on O off	Firewall Conf	iguration yali note: anges	9		4
Tee DPice for NDF: Secting Debicer Access: traDioStatewy Pacta SR Access: Anto AD: Reference: R	e privace C e privace C e on O off ter Configure W	Firewall Conf	iguration yals note: nges liguration	Asboot Required 1		4
See 2010 for 337 Sectory Settory Settory Settory Settory Settory Settory Reset Reset Not Address Reset Settory Setory Setory Setory Setory Setory Setory Setory Setory Seto	Protivate C Protivate C Protivate C Pon O dee ter Configure W Wire Information	Firewell Conf Public Public Public Public Apply Chr Wireless Conf (F)	iguration value note: inges figuration	naboor mequired i	f changed	d
See 2010 for 337 Sectory Settory Settory Settory Settory Settory Settory Reset Reset Not Address Reset Settory Setory Setory Setory Setory Setory Setory Setory Setory Seto	Protivate C Protivate C Protivate C Pon O dee ter Configure W Wire Information	Firewell Conf Public Public Public Public Apply Chr Wireless Conf (F)	iguration value note: inges figuration	·	f changed	d
See 2010 for 337 Sectory Settory Settory Settory Settory Settory Settory Reset Reset Not Address Reset Settory Setory Setory Setory Setory Setory Setory Setory Setory Seto	Protivate C Protivate C Protivate C Pon O dee ter Configure W Wire Information	Firewall Conf Public Public Public Public Apply Che Wireless Conf Apply Che Conf Apply Che Conf Conf Apply Che Conf Apply Che Conf Apply Che C	iguration yuli stote: stote: figuration and Statistics connected To : P Mac Address	naboot maquired i Widelens Anformat Albudi a:dabudi	f changed	4
In 2020s for 307: Internet Automs: Internet Au	Protivate C Protivate C Protivate C Pon O dee ter Configure W Wire Information	Firewall Conf Public Public Public Apply Cha Wireless Conf Apply Cha Wireless Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf	rguration sola sola sola sola sola sola sola sola	raboot required i Windows Informat dkhull s 48:f5:63:3d8:e5: 26:d6m	f changed	4
The SPEce for SST: Interface In	Protvace Protvace Protvace Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Ot	Firewall Conf Public Public Public Apply Cha Wireless Conf Apply Cha Wireless Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf	iguration yuli stote: stote: figuration and Statistics connected To : P Mac Address	raboot required i Windows Informat dkhull s 48:f5:63:3d8:e5: 26:d6m	f changed	4
The SPEce for SST: Interface In	Protvace Protvace Protvace Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Ot	Firewall Conf Public Public Public Apply Cha Wireless Conf Apply Cha Wireless Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf	rguration sola sola sola sola sola sola sola sola	raboot required i Windows Informat dkhull s 48:f5:63:3d8:e5: 26:d6m	f changed	d
In 2020s for 307: Internet Automs: Internet Au	Protvace Protvace Protvace Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Ot	Firewall Conf Probine Probine Probine Apply Che Wireless Conf (F)	rguration motes rrges figuration and Statiatics connected To : P Mac Address itrats 72.2 P Mac Address itrats 72.2 P renamit Powe ink Quality : 7	* rabiti raquirai i dahull i 48/053 dises: isi/a 15 dim ; 35 dim ; 73 dism 0/70	f changed	d
The SPEce for SST: Interface In	Protvace Protvace Protvace Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Ot	Firewall Conf Public Public Public Apply Cha Wireless Conf Apply Cha Wireless Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf Apply Cha Conf	rguration motes rrges figuration and Statiatics connected To : P Mac Address itrats 72.2 P Mac Address itrats 72.2 P renamit Powe ink Quality : 7	* rabiti raquirai i dahull i 48/053 dises: isi/a 15 dim ; 35 dim ; 73 dism 0/70	f changed	4
The SPEce for SST: Interface In	Protvace Protvace Protvace Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Pon Otf Ot	Firewall Conf Probine Probine Probine Apply Che Wireless Conf (F)	regeneration water mges Figuration and Statistics P Mec Address inter 27.2 P (manual key 17 remember 27.2 P (manual key 17) remember 27.2 P (manual key 17) re	* rabiti raquirai i dahull i 48/053 dises: isi/a 15 dim ; 35 dim ; 73 dism 0/70	f changed	4
An a Solar for SDF. Analysis of American Analysis of American Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar	Provise P	Final Configuration Configurat	inguration wall mote: mges figuration and Statietics P Mec Address P Mec Address inter 27.2 P Mec Address inter 27.2 P manual Person int Quality : 7 infiguration version Parameter Person Pere	nabot: maguined i variant information datual datual r: 31 datu r: 31 datu	f dlanged inn D7	^ ^ ·
The SPEce for SST: Interface In	Professional Control Cont	Firewall Conf Pattor	roca: mota:	nabot xaquind i uun na Ardoneu dahu dahu 20 dan 20	f changed	^ ^ ·
es 335.5 far 327. Section 2 Section 2 Sec	Professional Control Cont	Final Conf	roca: mota:	nabot xaquind i uun na Ardoneu dahu dahu 20 dan 20	f dlanged inn D7	^ ^ ·
An a Solar for SDF. Analysis of American Analysis of American Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar Solar	e Proves C e Prove C e Prove C e Proves C e Prove C e	Firewall Conf Pattor	restin value rest reges figuration and Statistics connected To : 0 Mac Addres iteras 77.2 M fignal Level - 7 resumt For preserved personnel person	maboot maquined i hydroden a strateging i hydroden a s	f dlanged inn D7	^ ^ ·

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 come up looking a bit different (with a few more options). Once you set the ones shown here, it should return looking like this after the reset.

Pi-Star DSTAR Config. Setup:

					e-3.4.31 / Dechiner 6: 2013233
P	i-Star Di			figuration	
				Power Update Bockup/	Realore Poclory Read
ROSTONDS	remal	Geteway Herdw			Слу тепр
pi-star 4	.9.35+			0.83 / 0.29 / 0.15	34.5°C / 101.3°r
Secting		Control	Software val		
Controller Software:	Ocitarnepe	ater 🖲 xxxxxxxx	t (ovræga sini	num rizzware 3.07 megu	ired)
Controller Mode:	® Simplex m	ode O suplex me Apply C	peacer (or sald	-cuplex on motepote)	
		-	Configuration		
Secting			val		
DMR Mode: D-Star Mode:			rtine: 20 rtine: 20	vet mangtime: 20 vet mangtime: 20	
127 Node:			nter: 20	ret sangtime: 20	_
925 Node:		87 KAD	gaine: 20	wet mangtime: 20	
NIDN Hode: YSF2DNR:		22 882	rtine: 20	met sangtime: 20	
MODVN Display Type:	None 🗸	Fors: /devityAl	MAC V massion	angeus: G4KLX V	
			hanges		
	_	General Co	nfiguration		
Secting Southeme:	pi-star	oo not add a	val uffixes such as	.local	
Node Callsign:	MIABC				
CC47/DMR ID:	1234567				
Radio Frequency: Latitude:	431.075.000	degrees (pos	itive value for	worth, negative for a	outh)
longitude:	0.000	degrees (pos		man, negative for me	
Town:	A Town, LOC4	TOR			
Country: TRL:	Country, UK	.com/db1M1ABC		® Auto C	
Radio/Nodem Type:	-				30871181
Node Type:	errivate (rublic			
System Time Tone: Dashboard Language:	Europe Londo english_uk	n V	Y		
		Apply C	hanges		
		DHR Con	figuration		
Secting DNR Master:	DMRGateway		794ž	1	
DMR Colour Code:	1 1				
DNR. EmbeddedLCOnly: DNR. DumpTAData:					
		Apply C	hanges		
			figuration		
Secting 1971 Calleign:	SLADC B	2	val	50	
RPT2 Callsign:	sianC G		-		
Ranote Password: Default Raflector:	REF001			@ grartup	0
A993 Host:	england aprs.	Lnet 🗸		© startup	
trobbüüsteway Language: Time Announcements:	English_(UK)	~			
Des DPlus for XRF:				note: update megui	red if changed
		Apply C	hanges		
	_	Firewell Co	ofiguration		
Secting Dashboard Access :	· zrivaca	rablic	val		
inclodisteway Remote:	errivate (rublic			
SER Access: Auto AD:	e reivase (Public	2010:	naboot magnized if chu	aged
	Con Corr	Apply C			
			infiguration		
(Refresh) Reset WFI Ada	ster) (Configure)				~~
Total	wir ce Information	eless Informatio			
			Connected To : AP Mac Addres	dkhull : 45:f5:b3:d5:e5:07	
Interfece Status : Interfe IP Address : 192.165.1.1 Subnet Mesk : 255.255.2 Mac Address : b5:27:eb:5	34 55.0		Sitrate : 72.2 M Signal Lavel :		
Mec Address : b5:27:eb:5	5:5e:e0				
Received Pockets : 3061	lece Statistics		Trenamit Powe Link Quelity : 7	r : 31 dBm 0/70	
Received Sytes : 3051 Received Sytes : 663572 Transferred Packets : 271 Transferred Sytes : 9306	(646.0 KiS) 70 57 (905 5 Ki=)				
renaterred bytes : 9306					
	Inform	ation provided by i		10	
Dear Same	_	Remote Acce	Personal Personal		
pi-star rass	vord:		Confirm ras		Set Password
	KARNING: Th	is changes the p And the "pirat	assword for this	a admin page	
	9-9	Need help? Clot here Get your copy of	eylor (MWOMWZ) 2014 for the Support Group R-Star from here.		

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-St	ar Configuration	
Setting		Val	ue
RPT1 Callsign:	ксем В 🗸		
RPT2 Callsign:	KC6N G		
Remote Password:	•••••		
Default Reflector:	REF012 V A V		• Startup • Manual
APRS Host:	socal.aprs2.net		
ircDDBGateway Language:	English_(US) V		
Time Announcements:			
Use DPlus for XRF:			Note: Update Required if changed
	A	Apply Changes	

Pi-Star Firewall Config. Setup:

Rodschand s pi-atar 4 Desting Controller Software: Controller Mode:			Admin Export	Power Update Bockup/Reatore Postory Re
Secting Controller Software:				
Secting	212021		were Information	
Controller Software:	.9.35+	FI INCO W RA	ev 1.1 (\$12em)	0.93 / 0.29 / 0.15 39.5"C / 101.3"
Controller Software:		Control	Software	
Contract Days Made	Ontrarrenas		val	ing rignyare 3.07 meggired)
Conversion Node:	<pre>@ Simplex no</pre>	de O suplex s	sepencer (or salt	- Duplax on motepote)
			Changes	
		MMDVMHoat	t Configuration	
DNR: Node:		27 84	val ngcime: 20	ret mangrine: 20
D-Star Node:	1	17 14	nguime: 20	wet sangtime: 20
727 Node:		72 84	ngzime: 20	met sangtime: 20
925 Node: NUDN Node:		87 84	ngaine: 20	Net Hangtime: 20
NEW Hode: YSF2DNR:		27 14	ngzine: 20	met sangeine: 20
ODVN Display Type:	None 🗸	rore: /devity/	WAG V mextion	sayous: G4KLX V
		Apply	Changes	
	_	General C	onfiguration	
Sacting Kostname:	ci-star		wal auffings such as	ite
Node Callsign:	MIABO			
CCS7/DMR ID:	1234567	5		
Radio Frequency:	431.075.000			
Latituda:	50.000			r worth, negative for South)
Longitude: Town:	A Town, LOC4T	degrees (po	seitive value for	r rast, negative for mest)
Country:	Country, UK			
URL:	http://www.grz.o	comidb/M1ABC		@aues Osanual
Radio/Modem Type:	-			×
Node Type: System Time Sone:	Europe London	rublic	4	
System Time Tone: Dashboard Language:	english_uk	~	*	
		Apply	Changes	
			nfiguration	
Secting MR Nester:	DMRGateway		791	120
DMR Colour Code:	DMRGateway		v	
DNR. EmbeddedLCOnly:				
DNR. DumpTAData:				
		Apply	Changes	
Secting			onfiguration	-
R971 Callsign:	siant B V			
2072 Calleign: Renote Parsword:	SIADC &		-	
Default Reflector:	REF001 v			@gearcup Openual
A993 Host:	england.aprs2	net 🗸		
ircDDDGsteway Language:	English_(UK)	~		
Time Arnouncements: Use D91us for XRF:				mote: update sequired if changed
		Apply	Changes	
			onfiguration	
Recting			791	20
Dashboard Access: incDDGBateway Remote:	O private O	rublic		
SSE Access:	® private O	rublic		
Auto AD:	e on Oper			naboot mequired if changed
		Apply	Changes	
		Wireless C	Configuration	
Refresh Reset WFI Ada	ster) Contigure W	F)		~
Interfece Name : wienD	wire Toformation	less Informati	on and Statistics	Wireless Information
Enterfece Neme : wien0	re is un		Connected To	Wireless Information : dkhull ss : 45:f5:b3:d6:e5:07
IP Address : 192.105.1.1	14			
Subnet Heat - 255 200 -	5:5e:e0		Signal Level :	
Interfece Status : Interfe IP Address : 192.165.1.11 Subnet Mesk : 255.255.25 Mec Address : b5:27:eb:5	iece Statistics		Trenamit Powe Link Quelity : 2	er: 31 dBm 70/70
Inter	(a.a.a. a.a.) = 1		Contraction of the second seco	
Inter	(040.0 Kib)			
Tabad	(948.0 Kib) 70 97 (908.6 Kib)			
Inter		tion provided by	fconfig and incon	n, ~
Inter				ng V
Inter Received Packets : 3061 Received Sytes : 063572 Transferred Packets : 277 Transferred Bytes : 93060	Informa		casa Pesaword Pearword	
Inter Received Packets : 3061 Received Sytes : 063572 Transferred Packets : 277 Transferred Bytes : 93060	Informal vozd:	Remote Acc	Confirm rea	word: Set Password
Inter Received Packets : 3061 Received Sytes : 063572 Transferred Packets : 277 Transferred Bytes : 93060	Informal vozd:	Remote Acc	casa Pesaword Pearword	word: Set Password
Inter Received Packets : 3061 Received Sytes : 063572 Transferred Packets : 277 Transferred Bytes : 93060	Informal vard: NAZUZUG: this	Remote Acc a changes the and the "pire"	Confirm rea	everd: Eet Passwon Se admin page

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 described in Appendix G.

		↓ · · · · · · · · · · · · · · · · · · ·	
	Firew	vall Configuration	
Setting	Value		
Dashboard Access:	Private O Public		
ircDDGBateway Remote:	Private O Public		
SSH Access:	Private O Public		
Auto AP:	⊙on ○off	Note: Reboot Required if changed	
	Α	Apply Changes	

Pi-Star Wireless Setup:

			_		P-8-0.031	/ Carl Sec. 20132228
Pi	-Star Dig	ital Voice	- Conf	iguratio	n	
					ckup/Reators	: Fectory React
		eteway Hardware		Orr cost		Carr Tana
piratar 4.	9.35+	Fi tero # may 1.	1 (512em)	0.93 / 0.29 /	0.15 38.5	"C / 101.3"#
		Control Soft	ware			
Controller Software:	Opitarnepeate	ar 🖲 30027500.041 (:	vite minis agestro	un rinnware 3.07	megaired)	
Controller Mode:	@ Simplex mode	 O suplax mapaar 	er (or salf-	cuplex on motepo	(a)	
		Apply Chan				
Section		MMDVMHost Con	figuration			
DNR: Mode:		ar sangeis	e: 20	ret sangtine:	20]
D-Star Node:		ar sangeis	a: 20	wat sangtime:	20	
797 Node: 925 Node:		ar sanguis		ret sangtine:	20	
NDN Node:		nr sanguis nr sanguis		wet Hangtime: wet Hangtime:		
YSF2DKR:					-	
HODVN Display Type:	None 🗸 🗸	aze: (devityAMAD		ayout: G4KLX	~	
		Apply Chan				
Secting		General Config	unation value			
Kostname:	pi-star	oo not add auff				
Sode Callaign:	M1ABC					
CCS7/DMR ID:	1234567 431.075.000					
Radio Frequency: Latitude:	431.075.000	tegress (positi	a value fro	march, personal	for Smeth	
Langitude:	0.000	degrees (position				
Town :	A Town, LOC4TO					
Country:	Country, UK					
URL:	http://www.grz.co	midb/M1ABC			со Оналиа	1
Radio/Nodem Type: Node Type:	erivate Or	-hite		~		
System Time Tone:	Europe London		4			
bashboard Language:	english_uk v					
		Apply Chan	ges			
Secrico		DMR Configu	retion	_		
DNR. Master:	DMRGateway		~			
DNR Colour Code:	1 🗸					
DNG. EmbeddedLCOnly: DNG. DumpTAData:	-					
		Apply Chan	es			
Secting		D-Ster Config	value			
1971 Calleign: 1972 Calleign:	NIADC B V					
Ranote Pageword:						
Default Reflector:	REFOO1	×		() (Can	тыр Оныли	mal
ADG Host: inclüüüstevay Language:	england.aprs2.ne English_(UK)					
Time Announcements:						
Dae DPlus for XRF:				mone: updace	nequired in	f changed
		Apply Chan	ges			
~ ~ ~		Firewall Config	urstion			
Desting	Bartinata O.	white	valo			
ircDDGEsteway Remote:	Brrivace Orblic Brrivace Orblic					
iii Access: Auto AD:	@ private Op	ublic				
AUGO AD:	€on Oper	Apply Chan		shoot nequired :	is changed	
(Tatan) (Tatan)	and Country of	Wireless Config	urstion	_	_	
(Refresh) (Reset WFI Adap	Concure Wi	an Information of	of Statistics			^^
Interfece Neme unlact	Wirele Enformation	le -	nancted Te	Nireless Informe Ikhull : 45:f5:b3:d5:e5	tion	
Interfece Status : Interfec	e is up				07	
Deterform Name: Deterform States: Deterform States: <thdeterform states:<="" th=""> Deterform States:</thdeterform>						
	tra Statistica					
Interface Statistics Transmit Power : 31 dSm Received Packets : 33051 Link Quality : 70/70						
Attained Pickets : 3032 (84.0 Kib) Rearised Steic : 50332 (84.0 Kib) Trensferred Pickets : 3770 Trensferred Steic : 32082 (90.5 Kib)						
Information provided by feening and weening						
	Informati					
Terr Terr		Remote Access	'essword		_	
pi-star rater	ord:	1	Confirm race	rozd:	1	Set Password
	KARNING: This	changes the pass	for this	admin page		
	Pi-Sary	ets config. © Andy Taylor and help? Clot. New for th Get your copy of Pi-Da	MICHINE) 2014-2 Support Grout	508.		
		Get your copy of PI-Da				

This area shows you what your WiFi is doing. You will have already configured this with the "wpa_suplicant" Step executed earlier. However, at this point you can click "Configure WiFi" to add more SSID/PSK pairs to Allow your ZUM/Pi to automatically find alternate WiFi Access if available. You can set up for your home, your Phone, your wife's phone, etc. it will hunt for what's available.

yirel	ess Configuration	
Refresh Reset WiFi Adapter Configure WiFi		~ ^
Wireless Infor	mation 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)		
Information provide	ed by ifconfig and iwconfig	~ ~

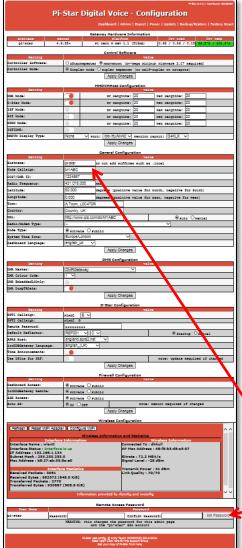
Pi-Star adding additional WiFi:

		Getewey Herdw	ere Information	1	
pi-star	4.9.35+	wier.	form r 1.1 (512em)	Orn Lond Orn Term	
			Software		
Secting				58	
ontroller Software: ontroller Node:	Орісьтара	ACAT ® XXXXXXXX	t (ovræga sini	inum rinnware 3.07 megaired)	_
antroller Hode:	W Simplex m	Apply C		f-puplex on motepote)	
Secting		MMDVMHost		18	
KR. Node:		27 240	cine: 20	met sangtime: 20	
-Star Node:		87 885	gaine: 20	met Hangtime: 20	
27 Node: 25 Node:		27 842	ntes: 20	met mangeine: 20	_
25 Node: XXX Mode:		RT HAD	rtm: 20	met mangtime: 20 met mangtime: 20	
\$720KR:		A.F. 8462		Bet sangtime: 20	_
NDVN Display Type:	None 🗸	Fors: /devityAl	MAC V mexcion	sayous: G4KLX V	_
		Apply C			
		General Co	ofiguration		
Secting			val		
ostnama:	pi-star M1ABC	oo not add a	uffixes such as	.local	
ode Calleign: C#7/DMR ID:	1234967				
adio Frequency:	431.075.000	NHX			_
atitude:	50.000		itive value for	r worth, negative for South)	-
ongitude:	0.000	degrees (pos	itive value for	r mast, negative for mest)	
own:	A Town, LOC4	TOR			
ountry:	Country, UK				
RL: adio/Nodem Type:	http://www.gra	.com/db1M1ABC		@auto Ossanual	
ode Type:		2-011-		•	_
ystem Time Ione:	Europe Londo	0	~		_
ashboard Language:	english_uk	v			
		Apply C	hanges		
		DHR Con	figuration		
Sector	DMRGateway		7951	28	
NG. Colour Code:	1 1				_
MR. EnheddedLCOnly:					_
MR. DumpTAData:					
		Apply C	hanges		
		D-Ster Cor	figuration		
Pacting 971 Callsign:	siant B	7	val	54	7
972 Callsign:	NIADO G		1		
enote Parsword: efault Reflector:	REF001 V			@ gearcup Omany	_
993 Nost:	england aprs	Lnet V		C BEATEUP C HARD	_
robbüsteway Language:	English_(UK)				
ine Announcements:					
as Dilus for XRF:				note: update tequired if change	4
		Apply C			
Serving		Firewell Co	nfiguration		
ashboard Access:	Serivace (rablic .			
rcDDGEsteway Remote:	errivace (rublic			
SE Access: uto AP:	@ rrivate (rublic		nebcot neguired if changed	_
sto AP:	€an Oper	Apply C		Reboot Required if changed	
		Wireless C	figuration		
Refresh Reset WFI Ad					^^
Inter	sce Information	eless In ormatio	n and Statistics	Wireless Information	
Inter Interfoce Name : wienO Interfoce Status : Inter IP Address : 192.105.1. Subnet Mesk : 255.255. Mac Address : b5:27:eb:	ece is up		Connected To :	: dkhull # : 48:f8:b3:d8:e5:07	
IP Address : 192.165.1. Subnet Mesk : 255.255.	134				
Mec Address : b5:27:eb:	55:5e:e0		Sitrate : 72.2 / Signal Level :	25 d5m	
Inte Received Pockets : 3053	rfoce 37 datics		Trenamit Powe Link Quelity : 3	r: 31 d6m 10/70	
Received Sytes : 60357: Transferred Pockets : 2: Transferred Sytes : 930	(645.0 KiS)				
Trensferred Sytes : 930	57 (905.5 KiS)				
	Inform	etion provided by i	fconfig and incon	fig	~~
					-
		Remote Acce	Persword Persword		
Dear Same					
Dear Nama 1-star 764	everd:	is thanges the p and the "pirat	Confirm was	everd: Set Pass	word

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 Configurat	ion
WiFi Info	~~
Network 0 Delete	
SSID : dkhull	
PSK :	
Scan for Networks (10 secs) Add Network Save (and connect)	~~
7	
Wireless Configurat	on
PSK : •••••	
Network 1 Delete	
SSID :	
PSK :	
Scan for Networks (10 secs) Add Network Save (and connect)	× •
7	
Click "Save and Connect" when	done
	<u>36</u>

Pi-Star Password Setup:



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

> User Name: "pi-star" Password: "raspberry"

Here you can customize your password



Your User name 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. the files outside of Pi-St backup yo config files to a Zip file, and allow this Pi-Star or another one System Passwords / Dashboard pass ds are NOT backed Wireless Configuration IS bac 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 card in place of the WPA_suplicant.conf file.

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 <u>http://pi-star</u> or <u>http://pi-star.local</u> 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.

Modes Enabled	1		Gateway A	ctivity				
D-Star DMR	Time (PDT)	Mode	Callsign	Target	Sre	Dur(s)	Loss	BEI
YSF P25	14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LTT	Net	0.8	0%	0.0
YSF2DMR NXDN	14:46:42 Mar 16th	YSF	AAOKM	ALL at AAOKM	Net	0.1	0%	0.0
	14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0%	0.4
Network Status	14:46:05 Mar 16th	D-Star	KC6N/ID51	COCOCO	RF	2.1	0%	0.0
Star Net DMR Net	14:45:38 Mar 16th	DMR Slot 2	KC6N	TG 31066	RF	2.2	0%	0.2
YSF Net P25 Net	14:44:41 Mar 16th	DMR Slot 2	AF6BY	TG 31066	Net	1.2	0%	0.0
F2DMR Net NXDN Net	14:41:36 Mar 16th	DMR Slot 2	VA3RLP	TG 31066	Net	0.8	0%	0.0
Internet	14:39:57 Mar 16th	DMR Slot 2	K7FAY	TG 31066	Net	4.4	0%	0.0
Incerned	14:39:13 Mar 16th	D-Star	KC6N/INFO	COCOCO	Net	6.5	0%	0.0
Radio Info	14:36:15 Mar 16th	D-Star	M1ABC/INFO	COCOCO	Net	2.5	0%	0.0
x Listening YSF								
439.025000 MHz			Local RF A					
439.025000 MHz	Time (PDT)	Mode	Callsign		re Dur(SSI
ZUMspot:v1.3.3	14:46:29 Mar 16th		KC6N-DAVE		F 1.3			+46d
	14:46:05 Mar 16th 14:45:38 Mar 16th	D-Star DMR Slot 2	KC6N/ID51		E 2.1			+46d
D-Star Repeater	14:45:38 Mar 16th	DMR SIGt 2	KC6N	TG 31066	E 2.1	2 0.2%	591	+46d
D-Star Network RS socal.aprs2.net RC rr.openquad.net Linked to REF012 A (DPlus Outgoing) DMR Repeater MR ID 3106564 MR CC 1 TS1 disabled TS2 enabled								
DMR Master M United States 3103								

4-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 reset 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 Up REF012 A DPlus Outgoing KC6N B REF012 A Auto Never 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 TG31066 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 ZUMspot:v1.3.3 ALL at KE4LTT 0.8 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 08 0.08 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 TO 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 0.0% S9+46dB 14:45:38 Mar 16th DMR Slot 2 TG 3106 S9+46dI TG 31066/not linked DMR Master M United States 310 YSF Network Room: Alabama-Link

> ash developed by Kim Huebel (DG9) elo? Click here for the Support Grou

ZUMspot/PiStar

Part IV 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: Hot Spots (Remain 7 memories)											
IF.					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				437.025000 —	— DV	—		Yes	None
	2	DV Simplex	DVAP 438.025				438.025000 —	— DV	—		Yes	None
	New				1	1						

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):

- I do not have a P25 radio but there is information herein on how to access this mode via cross-mode from a Yaesu System Fusion radio like an FT2DR.
- If cross mode, make sure your Fusion radio is set to VW mode so that it's Vocoder is running at 7200 bps (for compatibility with P25 phase 1).
- People seem to be using their DMR ID for the radio ID on P25.

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:

MyHomeWiFi





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

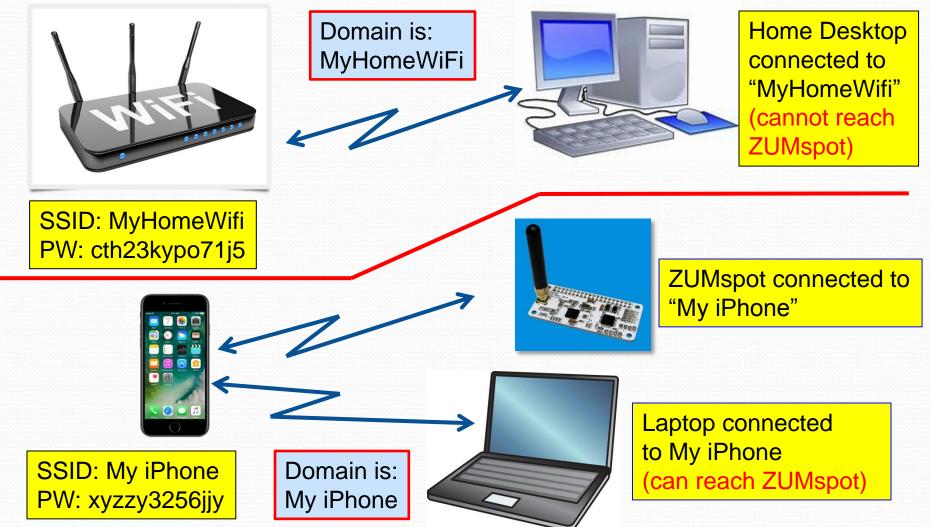
ZUMspot connected to "MyHomeWifi"

Home desktop

connected to

"MyHomeWifi"

Communicating with ZUMspot



ZUMspot/PiStar

Appendix B Setting the "Use DPlus for XRF" switch

Pi-Star DSTAR XRF012A Setup:

	a			Priller 3.4.31 / Dechiner 6.3	
Pi	-Star Dig			figuration	
				Power Update Bockup/Reatore Postory	Read
ROSTING R			ere Information		
pirstar 4.	9.35+			0.93 / 0.29 / 0.15 39.5°C / 101	.1°r
Secting			Software		
Controller Software:	Opitarnepeat	az 🖲 2012/10104	s (cyrnwega sini	imum riemware 3.07 mequired) f-suplex on motepote)	_
Controller Mode:	Simplex rod	 Opuplex me 	peacer (or sals changes	f-puplex on motepote)	
		MMDVMHost			
Secting			val		
DHG. Node: D-Star Hode:		27 242	rtine: 20	met mangtime: 20 met mangtime: 20	
197 Node:		27 242	reine: 20	net sangtime: 20	
925 Node:	0	27 KA2	gnime: 20	met sangtime: 20	
NDN Hode: YSF2DNR:		22 280	nter: 20	met sangtime: 20	_
ODVN Display Type:	None V r	eze: /devityAl	AO V maxtion	sayous: G4KLX V	_
		Apply C	hanges		
		General Co	nfiguration		
Secting Sostname:	pi-star	oo nos add a	uffixes such as	.local	
Node Callsign:	MIABC				
COS7/DNR ID: Radio Frequency:	1234567				
Radio Frequency: Latitude:	431.075.000	degrees (pos	itive value for	r worth, negative for South)	-
longitude:	0.000	degrees (pos		r mast, negative for meet)	
Town:	A Town 1 0C4TE	R			_
Country: URL:	Country, UK	om/db/M1ABC		@auto Osanual	
Radio/Nodem Type:	-			Water Openial	
Node Type:	errivate Or	rublic			
System Time Tone: Dashboard Language:	Europe London english_uk	-	~		
			hanges		-
		DHR Con	figuration		
Specing DNR. Master:	DMRGateway		va1	20	
DMR Colour Code:	1 1				
NG. EnheddedLOOnly: NG. DumpTAbata:					_
Disk DumpTAData:		Apply 0	hanges		
			figuration		
Sacting 1971 Callsign:	uturt D	6 Jul (0)	val	0	
R972 Callsign:	MIARC B V		-		
Ramote Parsword: Default Raflector:	REF001			e. 0	
ADDS Nost:	england.aprs2.n	e V		@ gtartup Openual	
ircDOGGateway Language:	English_(UK)	~			
Time Arnouncements: Dee D91us for XRF:				note: update required if changed	
AN OWING FOR ANY		Apply 0	hanges	www. update sequired if changed	
		Firewall Co			
Santing Dashboard Access:			1 av	20	
inclogesteway Remote:	e rrivate Or	rublic			
SSE Access:	@ rrivate Or	rublic			
Auto AP:	®an Oper	and a	Hanges	meboot mequired if changed	
			-		
(Refresh) Reset WFI Adap			onfiguration		
Contraction of the second second second			n and Statistics		
Enterfore Neme : wienD	a Information		Connected To	Wireless Information : dkhull a : 48:f8:b3:d8:e5:07	
Interfece Status : Interfec IP Address : 192.165.1.13 Subnet Mask : 255.255.25 Mac Address : 55:27:eb:55	e is up 4				
Subnet Mesk : 255.255.25 Mec Address : b5:27:eb:55	5.0 :5e:e0		Sitrate : 72.2 / Signal Level :	45it/s 25 dSm	
		-	Trenamit Powe Link Quelity : 1	er : 31 d6m	
Received Pockets : 3081 Received Sytes : 603572 (Transferred Pockets : 277) Transferred Sytes : 93065	645.0 KiS)		Link Quelity : 3	10/70	
Transferred Sytes : 93065	7 (905.5 KiS)				
-	Informati	ion provided by i	fconfig and iwcon	fig.	~~
		Remote Acce	as Password		
Dier Same pi-star Tasay			Continents	everd: Set Passy	vord
in in its	HARNING: This	changes the p	Confirm was assword for this ar" 20x account	is admin page	
			a was account		
	Pi-Dar	the state of the state	eylor (MNOMNZ) 2014 for the Support Group	-2008.	
		Get your copy of	Pl-Star from hars.		

To make sure that you can work "X" reflectors such as XRF012A (w/o the need for passing ports), 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 then do an "update".

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

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

Pi-Sta	ar U	pd	ate	•
		-		

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

Pi-Star Digital Voice - Coniguration

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

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".



Restoring from a backup:

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

D-Star Configuration							
Setting	Val	lue					
RPT1 Callsign:	KC6N B 🗸						
RPT2 Callsign:	KC6N G						
Remote Password:	•••••						
Default Reflector:	REF012 V A V	• Startup • Manual					
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

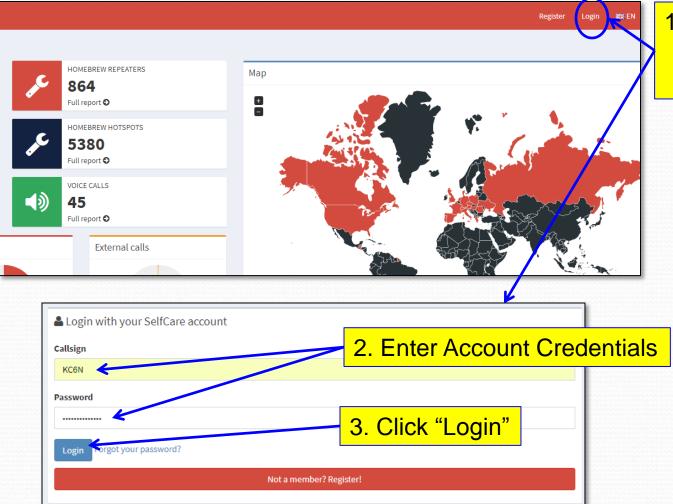
Setting up BM HotSpot Support

- 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

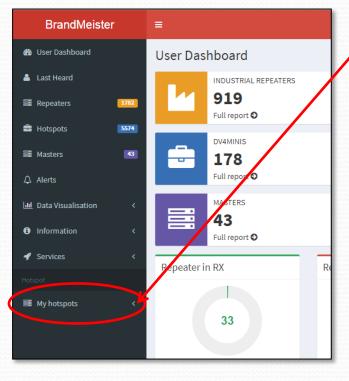
	Register Login ∰ EN ⊄© Settings
A Registration	1. From the front
Do you already have a SelfCare account on <u>dstar.su? Login!</u>	page, Select
General Account Details	"Register"
Callsign	
Callsign	
Email Address	At a second s
Email Address	and the second of the second o
Account type	
Personal User Account	
Repeater Account	
Converter	
Security	
Password	
Password	
Confirm Password	
Confirm Password	
Anti Snam	2. Fill out the registration for
Anti Spam	
What is the wavelength of the UHF band in centimeters?	
Answer with a number	
DMR ID	2 Dan't forget the CADTON
DMR ID Enter one of your DMR IDs to validate your account	3. Don't forget the CAPTCH
Enter one of your DMR IDs to validate your account	
Enter one of your DMR IDs to validate your account	Question.
Enter one of your DMR IDs to validate your account	

Log onto your BM Account

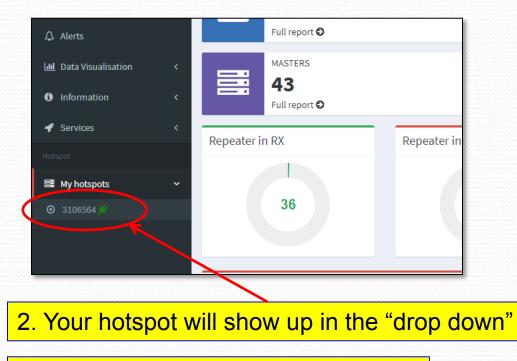


1. Click "Login" to Log onto your BM account

Find your HotSpot settings page



 Click the Left pointing arrow next to "My Hotspots"



3. Click on the number of the hotspot

HotSpot settings page

BrandMeiste	er	i≡ and a second s								
🍘 User Dashboard		Settings of KC6	6N (View)							
👗 Last Heard		General Settings	General Settings							
Repeaters	1778	Priority Message	Priority Message							
Hotspots	5570	Description	Description	Description						
🛱 Masters	43									
🗘 Alerts										
III Data Visualisation	<	Website	http://www.qrz.com/db/KC6N		Location (City)	San Diego, CA				
 Information 	<	Latitude	32.716991		Longitude	-117.160004				
Services	<	Power (EIRP)	0		Gain (dBi)	0.00				
My hotspots	~	Height AGL in m	0							
O 3106564 [€]		0								
				Save of	changes					
		Sysops								
		Callsign	Read Settings	Write Settings		Manage Sysops				
		KC6N	×	~		✓				
		A.11.								
		Actions		-						
		Get IP address D	rop call Drop 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

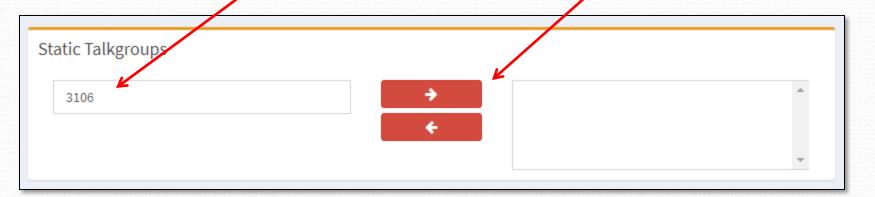
Callsign KC6N	Read Settings ✓	Write Settings		
Actions Get IP address Drop call	Drop dynamic groups Reset connection			Here you can add and drop active Calls drop dynamic talk groups etc.
Reflector Settings Active refle Default refle			ef	Here is where you can set up and manage a reflector if you want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

61

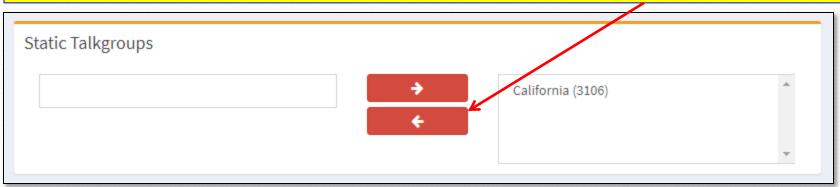
times (a net time for example).

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 multiple HotSpots

- 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 appending sequential digits to the back end of your DMR ID which becomes the ID for your hotspot on Brandmeister.

Multiple HotSpot Example

BrandMeister	=		
🍘 User Dashboard	User Dashboard		
🐣 Last Heard	REPEATERS		
≣ Repeaters 1859	1859 Full report ●		
Hotspots 5884	MASTERS		
🗮 Masters 🛛 44	44		
♪ Alerts	Full report 오		
http://www.communication.com/action.com/action.com/action/	Repeater in RX		
Information <			
🖋 Services 🛛 <	32		
Hotspot			
🗃 My hotspots 🛛 🗸 🗸			
	Latest BrandMeister News		
O 310656402	3/10/2018		
	Introducing User API key		

Here is my setup for two hotspots, an OpenSpot and a ZUMspot:

The top number (3106564) is no longer used (unused numbers disappear from the list after 30 days of inactivity).

The second one (3106564**01**) is my ZUMspot which is on-line (as indicated by the little green "plug" symbol).

The third one (3106564**02**) is my OpenSpot, currently off-line (WRT Brandmeister). FWIW: It is "ON" but set up for DSTAR XRF012A at the moment. It shows in the list because Brandmeister has seen it within the last 30 days.

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



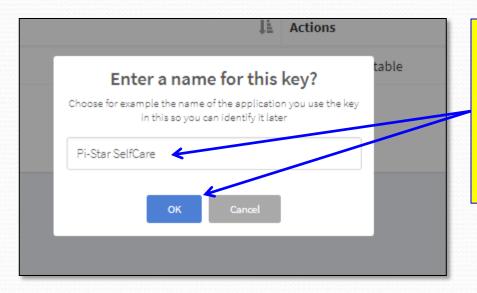
- Log into your account and click on your callsign to see the drop down to the left.
- 2. Click "Profile Settings" in the dropdown.

Adding BM Self Care to Pi-Star

BrandMeiste	r					🗶 KC6N 🛒	∉ EN 🛛 🕰 Settir	gs
🚯 User Dashboard		KC6N's profile (I	Edit mode)			User Dashboard > I	Profile > KC6N > E	dit
💄 Last Heard		Information		Profile Settings				1
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	торо					
Lul Data Visualisation		Last Login	TODO	Security Settings			🕰 API Keys	
Information				Password Password	Click on the "API Keys" Button			
🖋 Services				Confirm Password		1		
Hotspot				Confirm Password				
📑 My hotspots					Update Password			

BrandMeister	≡		🗶 KC6N 🛒 EN 📽 Setting:
🚯 User Dashboard	API Keys		User Dashboard > Profile > API Key
🐣 Last Heard			
Repeaters 1769	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.	
Hotspots 5426	API keys never expire but you can revoke them at anytime.		
Masters 42	Active keys		Add
⊈ Alerts			
📶 Data Visualisation 🛛 <	Show 10 v entries	On the new page, Click "Add"	Search:
Information <			
🖋 Services 🛛 <	Name	1 Actions	11
Hotspot		No data available in table	
르 My hotspots <	Showing 0 to 0 of 0 entries		Previous Next

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 | MMDVM: Nost | DriRGateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Conf g | BM API Key) Cystem 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

6	Pi-Star Dig	jita	l Voic	el	Dashb	oar	d for KC	5N			
					Dashboard	Admin	Live Logs Powe	r Up	odate (Config	uratio
		Gi	ateway Har	dwa	re Informa	tion					
Hostname	Kernel		P	latfo)rm		CPU Load		CPL	J Temp	
pi-star	4.9.35+		Pi Zero W	Rev	1.1 (512MB)		4.39 / 4.71 / 4.	52	42.8°C	: / 10	9°F
			Serv	ice S	itatus						
MMDVMHost	DMRGateway		SFGateway		YSFPanr		P25Gateway			Parrot	
DStarRepeater	ircDDBGateway	T	imeServer		PiStar-Wat	chdog	PiStar-Remote		PiSta	r-Keep	er
Modes Enabled				_	-Star Link					-	>
D-Star DMR		Fault	Auto Time		ink Linke		lode Direction		ast Char	_	
YSF P25	KC6N B REF	012 A	Auto Neve	er I	Jp REF01	ZAU	Plus Outgoing	03	3:49:06	Mar I	στn
YSF2DMR NXDN					D-Star Lin	k Mana	ner				
Notice Chat	Radio Modu	le _		Refle		-	ink / Un-Link		Act	ion	
Network Status	KC6N B		REE		• A •		link Unlink		Request		
Star Net DMR Net YSF Net P25 Net	KCON D	•	KLI	112	· A ·	e e	Link UnLink		Request	. Ghan	Je
F2DMR Net NXDN Net	-	Active BrandMeister Connections									
Internet		BrandMeister Master Default Ref Timeout(s) Active Ref Static TGs Dynamic TGs									
2. Certified	BM United St			REFØ		s)		G3106	_	None	
Radio Info						-/					
x Listening				1	BrandMeist	er Man	ager				
439.025000 MH		Tools Active			ef	Link / Unlink		Ac	tion		
439.025000 MH	Drop QSO	Drop	All Dynamic		None	•	◯ Link ● UnLink		Modify	Reflec	tor
ZUMspot:v1.3.		c Talk	<u> </u>		Slot		Add / Remove			tion	
	2000		P. Oab		0 TS1 0		Add Delete			v Stati	
D-Star Repeater					0151 0	152	Add ○ Delete		Moun	y Stati	<u>د</u>
T1 KC6N B					Gateway	Activit	V				
T2 KC6N G	Time (PDT)		Mode		allsign	Accivit	Target	Src	Dur(s)	Loss	BER
D-Star Network	14,24,20 Map 15	th N	(SF	W40W		ALL at		Net	0.5	0%	0.09
R5 socal.aprs2.net	14.32.40 Mar 15		MR Slot 2	WD6F		TG 3106		Net	0.5	0%	0.09
rr.openquad.net	t 14:28:11 Mar 15	th C)-Star	KC6L	DN	cococo	via REF012 A	Net	0.6	0%	0.69
Linked to REF012 A (DPlus Outgoing)	14:26:12 Mar 15	th \	/SF	К₩4Н	T		BM-Bridge	Net	1.6	0%	0.09
(billas bacgoling)	14:24:59 Mar 15	th N	/SF	KT4R	OY-ALL	ALL at	KE4LTT	Net	0.2	0%	0.09
DMR Repeater	14:21:29 Mar 15	th D	MR Slot 2	W3SM	К	TG 3106	i	Net	0.5	0%	0.09
MR ID 3106564	14:16:48 Mar 15		MR Slot 2	K6WD	E	TG 3106		Net	0.5	0%	0.09
MR CC 1	14:07:55 Mar 15		/SF	_	EKEITH		6Bo at KE4LTT	Net	0.2	0%	0.09
TS1 disabled	14:03:00 Mar 15		'SF	KD7A		ALL at		Net	11.8	0%	0.09
TS2 enabled	14:00:00 Mar 15)-Star	_	/TIME		via REF012 A	Net	3.6	0%	0.09
TG 31066/not linked			MR Slot 2	K7FA		TG 3106		Net	5.9	0%	0.09
DMR Master	13:55:47 Mar 15)-Star		00/51PL		via REF012 A	Net	0.3	0%	0.09
M United States 310	3 13:54:56 Mar 15		MR Slot 2	KA6R		TG 3106		Net	1.2	0%	0.09
	13:46:14 Mar 15 13:45:20 Mar 15	_	MR Slot 2)-Star	N6BB KC7Z		TG 3106	via REF012 A	Net Net	3.7	0% 0%	0.09
YSF Network	13:45:20 Mar 15		MR Slot 2	KC72 W4EN		TG 3106		Net	0.1	0%	0.09
Room: Alabama-Link	13:44:39 Mar 15)-Star	M4EN		_	via REF012 A	Net	0.1	0%	0.0
	13:39:56 Mar 15		/SE	WOAA		ALL at		Net	0.5	0%	0.09
	13:36:40 Mar 15)-Star		FK T/ID31		via REF012 A	Net	0.2	0%	0.09
	19190110 101 19		/SF	W4FS			BM-Bridge	Net	6.5	0%	0.09

Pi-Star / Pi-Star Dashboard, ⊜ Andy Taylor (MWOMWZ) 2014-2018. ircD0BGateway Dashboard by Hans-J. Barthen (DLSDI), MMOVMDash developed by Kim Hubel (DGSYH), Need help? Click here for the Support Group Get your copy of Pi-Star from here. 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 v entries		
Name	IE Actions	
Pi-Star SelfCare		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: 201803

Gateway Activity Modes Enabled Time (PDT) Mode TG 31066 0.0% 15:41:41 Mar 15th DMR Slot 2 K6WDE Net 0.5 0% 15:39:28 Mar 15th DMR Slot 2 AG6PF TG 31066 Net 0.5 0% 0.0% 15:36:55 Mar 15th D-Star C7ZZN 0.9 0% 0.0% CQCQCQ via REF012 A Net. DMR Slot 2 15:33:15 Mar 15th KE 6GVK TG 31066 Net 14.5 0% 0.0% Network Status 15:32:54 Mar 15th DMR Slot 2 KN4KBL TG 31066 0% 0.0% Net. 14.5 15:31:59 Mar 15th D-Star KM6QIP CQCQCQ via REF012 A Net 0.4 0% 0.0% 15:29:38 Mar 15th DMR Slot 2 TG 31066 Net 19.6 0% 0.0% NXDN Ne 15:27:05 Mar 15th TG 31066 DMR Slot 2 C6KGE Net 0.5 0% 0.0% 15:17:14 Mar 15th YSF KT4ROY-ALL ALL at KT4ROY Net 39.0 0% 0.0% KD6AJG TG 31066 0% 0.0% 15:16:29 Mar 15th DMR Slot 2 Net 4.8 Radio Info 15:15:55 Mar 15th DMR Slot 2 (6TFJ TG 31066 Net 26.4 0% 0.0% 15:13:33 Mar 15th DMR Slot 2 X2AEK TG 31066 0.0% Net 0.5 0% 439.025000 MHz Tх 15:13:17 Mar 15th DMR Slot 2 (2MJ TG 31066 Net 0.5 0% 0.0% 439.025000 MHz Rx 15:13:05 Mar 15th DMR Slot 2 TG 31066 Net 5.2 60 0.0% FW ZUMspot:v1.3.3 15:08:41 Mar 15th DMR Slot 2 TG 31066 0.0% W6TUX Net. 0.5 0% 14:57:45 Mar 15th ALL at KE4LTT 0.2 0% 0.0% YSF Net D-Star Repeater 0.0% 14:55:44 Mar 15th DMR Slot 2 KK6GNC TG 31066 Net 2.6 KC6N B 14:50:37 Mar 15th D-Star KM6QMY COCOCO via REF012 A Net. 3.8 0% 1.0 KC6N G *****H51RD at W3ADC 14:44:37 Mar 15th YSF W3ADC Net 1.0 0% 0.0% D-Star Network COCOCO via REF012 A 2.7 0% 0.0% 14:40:33 Mar 15th D-Star Net socal.aprs2.net IRC rr.openguad.net Local RF Activity Linked to REF012 A 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' ao Get your copy of Pi-Star from here.

YSF Network Room: Alabama-Link

Updating Firmware (method 1):

Pis	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_X04_V3.4.11_06-Mar-2018.zip Pi-Star_Odroid_X04_V3.4.11_06-Mar-2018.zip Pi-Star_OrangePi_Zero_V3.4.11_06-Mar-2018.zip		shown here. Pick the latest one
Pi-Star Tools	Pi-Star RPi V3.4.10 24-Feb-2018.zip Pi-Star RPi V3.4.11_06-Mar-2018.zip dvmega-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		
	Nindoua Tanging Cuido, Nono		

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 (instead of the WPA_suplicant.conf file as described in part II) 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 | P25Octoway 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:

PI-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: 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 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 ed help? Click here for the Support Grou Get your copy of Pi-Star from here.

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/ iii by Andy Taylor (MW0MWZ), 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:

Pi-Star: 3.4.11 / Da Pi-Star: Digital Voice - Expert Editors Dashboard Admin Update Backup/Restore M Quick Editors: DStarRepeater ircDDBGateway TimeServer MMDVMHost DMRGateway YSFGateway Full Editors: DMRGateway PiStar-Remote WiFi Config BM API Key System Cron RSSI Dat Tools	In this when complete.
SSH - 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/And/TaylorTweet/Pi-Star_OV_Dash * branch master -> FETCH_HEAD 3d0ald772e4b37 Fast-forward admin/configure.php data admin/cystert/edity-syfgateway.php config/version.php 2 +- dstarrepeater/system.php index.php 192 ++- index.php 192 ++ index.php a + modymbost/functions.php 192 ++ index.php index.php	Now Pi-Star needs to be upgraded.

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), 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 -> FETCH_HEAD
3d0a1d772e4b37 master -> origin/master
Updating 3d0a1d772e4b37
Fast-forward
admin/configure.php 478 +++++++++++++++++++++++++++++++++++
admin/expert/edit_ysfgateway.php 3 +-
config/version.php 2 +-
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 13 +-</pre>
mmdvmhost/tools.php 26 ++
10 files changed, 658 insertions(+), 140 deletions(-)
Done
Updating PiStar-Firewall
Done
Starting Services
Done
Updates complete, sleeping for a few seconds before making the disk Read-Only
mount: / is busy
Finished
pi-star@pi-star(nw):~\$ sudo pistar-upgrade
X
Click-here for fullscreen SSH client
Di-Star web config. € Andy Taylor (MMOMM7) 2014-2018

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.

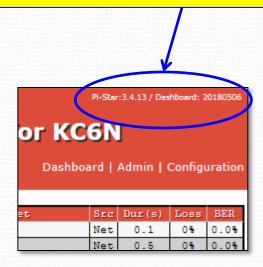
Wait for upgrade to complete:

Pi-Star: 3.4.11 / Dashboard: 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 dstarrepeater/system.php 25 ++ index.php 54 +++++--2 +lang/german de.php mmdvmhost/bm manager.php 3 +mmdvmhost/functions.php mmdvmhost/repeaterinfo.php 13 +mmdvmhost/tools.php 26 ++-10 files changed, 658 insertions(+), 140 deletions(-) Done Updating PiStar-Firewall... Done Starting Services... Done Updates complete, sleeping for a few seconds before making the disk Read-Only mount: / is busy Finished pi-star@pi-star(rw):~\$ sudo pistar-upgrade Detected Di-Star 3.4.11 running on RPi hardware, attached to zumspotgpio modem... Created symlink from /otc/system/cystem/multi-user.target.wants/nxdngateway.timer to /lib/systemd/syste m/nxdngatewry.timer. Created symlink from /etc/systemd/system/multi-user target.wants/nxdnpa/rot.timer to /lib/systemd/system /r.dnparrot.timer. pgraded from 3.4.11 to 3.4.12... Sleeping a few seconds before making the disk Read-Only... mount: / is busy Finished i-star@pi-star(rw):~\$ Click here for fullscreen SSH client Pi-Star web configure Andy Taylor (MW0MWZ) 2014-2018. Manual 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



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

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

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

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 0.0% WJ4P ALL at KE4LTT 0% YSF Net 0.8 14:46:42 Mar 16th ALL at AAOKM Net 0.1 0% 0.0% 14:46:29 Mar 16th ALL YSE C6N-DAVE 1.2 0% 14:46:05 Mar 16th D-Star C6N/ID51 COCOCO 2.1 0% 0.0% Network Statu 14-45-38 Mar 16th DMR_Slot_2 TG 31066 2.2 0% TG 31066 1.2 14:44:41 Mar 16th DMR Slot 2 AF6BY Net 0% 0.09 14:41:36 Mar 16th DMR Slot 2 TG 31066 Net 0.8 0% 0.0% 14:39:57 Mar 16th DMR Slot 2 7FAY TG 31066 Net 4.4 0% 0.0% 14:39:13 Mar 16th D-Star KCEN/TNEO COCOCO Net. 6.5 0% 0.0% 14:36:15 Mar 16th D-Star MIABC/INFO COCOCO Net 2.5 0% 0.09 Radio Info Listening YSF Local RF Activity 439.025000 MHz Time (PDT) Mode Src Dur(s) BER AGO MHZ KC6N-DAVE AT.T. 14:46:29 Mar 16th VSE 1.2 .4% S9+46dB ZUMspot:v1.3.3 D-Star 14:46:05 Mar 16th C6N/ID51 2.1 S9+46dB COCOCO 0.0% 14:45:38 Mar 16th DMR Slot 2 CEN TG 31066 2.2 S9+46dB D-Star Repeater KC6N в KC 6N G r Network socal.aprs2.net rr.openguad.net Linked to REF012 A (DPlus Outgoing) DMR Repeater DMR TO 3106564 DMR CO TG 31066/not linked

Pi-Star Digital Voice Dashboard for KC6N

M United States 3103 YSF Network Room: Alabama-Link

IMR Master

IDVMDash developed by Kim Huebel (DG9VH Need help? Click here for the Support Group Get your copy of Pi-Star from here

44

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 | P25. 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:

PI-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 ed help? Click here for the Support Grou Get your copy of Pi-Star from here.

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.

Hostname: pl-st

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

That's it, all done.

						Dashl	board	Admin	Config	Juri
Modes E	nabled			Gateway A	ctivity					
D-Star	DMR	Time (PDT)	Mode	Callsign	Target		Sre	Dur(s)	Loss	1
YSF	P25	14:47:03 Mar 16th	YSF	WJ4P	ALL at KE4LT		Net	0.8	0%	C
YSF2DMR	NXDN	14:46:42 Mar 16th	YSF	AAOKM	ALL at AAOKN	[Net	0.1	0%	0
		14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL		RF	1.2	0%	C
Network	Status	14:46:05 Mar 16th	D-Star	KC6N/ID51	COCOCO		RF	2.1	0%	C
D-Star Net	DMR Net	14:45:38 Mar 16th	DMR Slot 2	KC 6N	TG 31066		RF	2.2	0%	C
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	DMR Slot 2	K7FAY	TG 31066		Net	4.4	0%	C
		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
Tex Liste	ning YSF									
	25000 MHz			Local RF A						_
P-	2000 1014	Time (PDT)	Mode	Callsign		Src	Dur (s			.SS
	ot:v1.3.3	14:46:29 Mar 16th	YSF	KC6N-DAVE	ALL	RF	1.2	0.4%	S9-	+4
		14:46:05 Mar 16th	D-Star	KC6N/ID51	COCOCO	RF	2.1	0.0%		
D-Star R	operator	14:45:38 Mar 16th	DMR Slot 2	KC 6N	TG 31066	RF	2.2	0.2%	S9-	+4
D-Star I APRS socal IRC rr.opt Linked to (DPlus Of DMR Rej DMR ID DMR CC TS1 TS2 TG 31066/n DMR M EM United S	aprs2.net enquad.net REF012 A trgoing) slock564 1 disabled enabled ot linked aster ttates 3103									
Room: Ala)	bama-Link	ircDD	-Star Dashboard, © And BGateway Dashboard b MDVMDash developed b Need help? Click here f	y Hans-J. Barthen (D y Kim Huebel (DG9V	0L5DI), /H),					

ZUMspot/PiStar

Appendix G Alternative bring up methodology

This works if you have 4.3.11 (or later). If you don't know what you have, I recommend the original WPA_supplicant.conf method outlined in part II.

Alternative bring up method

- If you have Pi-Star v3.4.11 (or later):
 - Configure a µ-SD card as in Part I.
 - Power your HotSpot and search for the WiFi network "Pi-Star-Setup" and join it.
 - Point a browser session to <u>http://pi-star</u> (PC) or <u>http://pi-star.local</u> (MAC/IOS)
 - Log into Pi-Star setup and proceed as in part III.
 - Make sure you set up at least one WiFi

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:	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 V Port: /dev/ttyAMAD 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 DMR TG entry (last line here) determines which DMR 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:		
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.

on

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".

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

Cross-mode YSF to P25

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

	MMDVMHost (onfiguration		
Setting		Value	e	
DMR Mode:	RF Hang	time: 20	Net Hangtime:	20
D-Star Mode:	RF Hang	time: 20	Net Hangtime:	20
YSF Mode:	C C RF Hang	time: 20	Net Hangtime:	20
P25 Mode:	RF Hang	time: 20	Net Hangtime:	20
NXDN Mode:	RF Hang	time: 20	Net Hangtime:	20
YSF2DMR:				
YSF2NXDN:				
YSF2P25:				
DMR2YSF:		Uses 7 pref:	ix on DMRGateway	,
DMR2NXDN:		Uses 7 pref:	ix on DMRGateway	,
MMDVM Display Type:	OLED V Port: /dev/ttyAN	AO 🗸 Nextion L	ayout: G4KLX	~
	Apply C	nanges		

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".

Setting	Value	
YSF Startup Host:	YSF00004 - YSF2P25 - YSF2P25 Bridge 🗸 🗸	
APRS Host:	socal.aprs2.net 🗸 🗲	
(YSF2P25) CCS7/DMR ID:	3106564	
P25 Startup Host:	10200 - dvswitch.org V	

The "P25 Startup Host" selection determines where you will show up on P25.

Cross-mode DMR to YSF/FCS

Turn "on" DMR mode and DMR2YSF 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: 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	atue		
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 V		
	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	i da serie de la companya de la comp	
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 prefi	x on DMRGateway	
DMR2NXDN:		Uses 7 prefi	x on DMRGateway	
MMDVM Display Type:	OLED V Port: /dev	//ttyAMAO 🗸 Nextion La	ayout: G4KLX	✓
	Aj	pply 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	\sim		
DMR Color Code:	1 🗸			
DMR EmbeddedLCOnly:				
DMR DumpTAData:				
		Apply Changes	_	
		NXDN Configuration		
Setting		Value		
NXDN Startup Host:	None	✓		
NXDN RAN:	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:			
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		

Yaesu System Fusion Configuration			
Setting	Value		
YSF Startup Host:	YSF00004 - YSF2P25 - YSF2P25 Bridge		
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).

Final note on cross mode

 There are multiple ways to implement some of these cross-mode features. I have tried to show the most straightforward one in the examples in this section, hence I did not show the use of the "DMR Gateway" which is another option. I will cover that in a future addition when I talk about DMR+.

ZUMspot/PiStar

Appendix I 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 | ircDDDGutaway | TimeServer | MinDVMHost | 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.

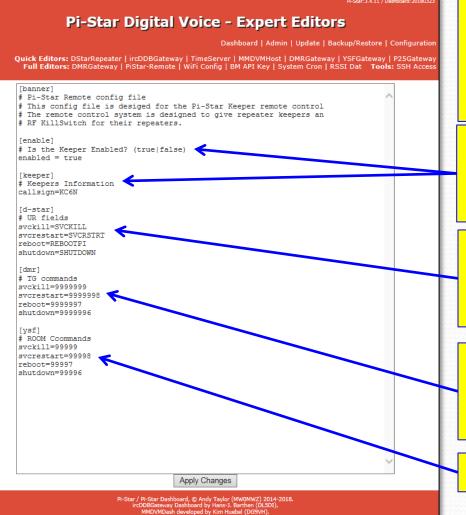
Please keep in mind when making your edits here, that these config files can be updated by the dashboard, and that your edits can be over-written. It is assumed that you already know what you are doing editing the files by hand, and that you understand what parts of the files are maintained by the dashboard.

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"

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 I	пер		
	Your Ce	all Sign (Remain 23 memorie	s)
🖻 💼 Memory CH	No.	Name	Call Sign
🗄 🛅 Program Scan Link	169	link to REF056A	REF056AL
 BC Radio Memory DTMF Memory Digital Your Call Sign Repeater List My Station Transmitted Call Record Received Call Record Digital Setting Common Setting A/B Band Setting 	170	link to REF056B	REF056BL
	171	link to REF056C	REF056CL
	172	link to REF056D	REF056DL
	173	Link to XRF012A	XRF012AL
	174	Link to XRF210D	XRF210DL
	175	PiStar Reboot	REBOOTPI
	176	PiStar Shutdown	SHUTDOWN
	177	CMDR Reboot	REBOOT
	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

[dmr] # TG commands svckill=8999999 svcrestart=8999998 reboot=8999997 shutdown=8999996

shutdown=SHUTDOWN

[ysf]

ROOM Ccommands
svckill=99999
svcrestart=99998
reboot=99997
shutdown=99996

Apply Changes

Pi-Star Dashboard, © Andy Taylor (MWDMVZ) 2014-201 incDDBGateway Dashboard by Hans-1. Barthen (DLSDI), MMDVMDash developed by Kim Huebel (DS9VH), 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 J Solving BER issues using offset adjustments

Pi-Star Offset adjustments

- Pi-Star includes a facility to adjust for the frequency offset of the modem relative to the radio.
- This issue manifests itself as excessive bit error rate (BER) on receive or sometimes an inability to lock to incoming signals.
- These can be accessed from the admin/expert pages by pointing the browser to: <u>http://pi-star/admin/expert/</u>

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 | Backgrip Restore | Configuration

Quick Editors: DStarRepeater | ircDDBGateway | TimeSe ver | MMDVMHost | DK Gateway | YSFGateway | P25Gateway Full Editors: DMRGateway | PiStar-Remote | WiFi Config | 6M 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.

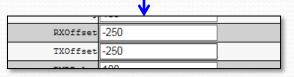
With that warning in mind, you are free to make any changes you like, for help come to the Facebook group (link at the bottom of the page) and ask for help if / when you need it. 73 and enjoy your Pi-Star experiance. Pi-Star UK Team.

> 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 **"MMDVM Host"** To bring up the MMDVM Host page.

Pi-Star Offset adjustments

TXInvert 1 RXInvert 0	n the "Modem" section you will probably see: RXOffset = 0
RXInvert 0	
	RXOffset = 0
PTTInvert 0	
TXDelay 100	
RXOffset 0	TXOffset = 0
TXOffset	As shown here.
DMRDelay 100	to shown here.
RXLevel 50	
IXLevel 100	You can may those positive
	You can move these positive
D-StarTXLevel 50	or negative to optimize the
DMRTXLevel 50	
YSFTXLevel 50	BER issue as shown below.
P25TXLevel 50	
RSSIMappingFile /usr/local/etc/RSSI.dat	
	Be careful with this and
Debug 0	den't change envithing also
RFLevel 100	don't change anything else.
RXDCOffset 0	
TXDCOffset 0	
NXDNTXLevel 50	Apply changes and update
Apply Changes	/our backup.
TMP I y	



ZUMspot/PiStar

Appendix K 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 | DMRGrzeway | YSFGateway | 725Gateway 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

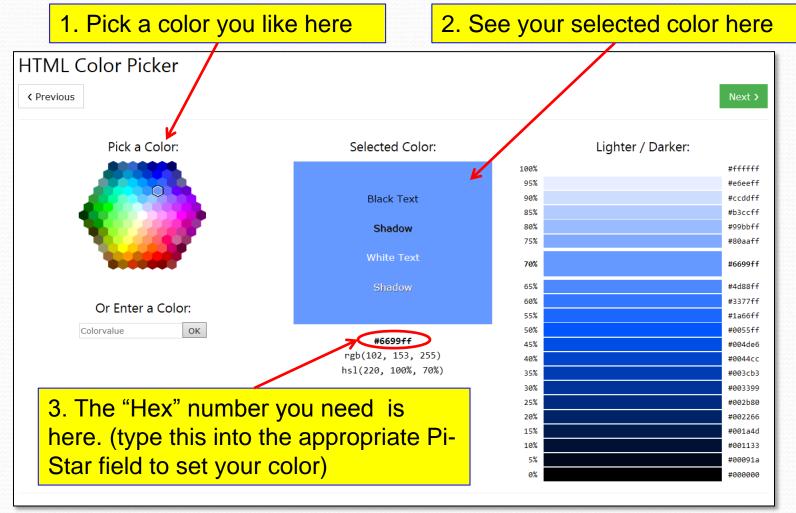
Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuration

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

	Back	ground
Page	edf0f5	
Content	ffffff	
Banners	dd4b39	
7	Apply	Changes
		'ext
Banners	ffffff	
BannersDrop	303030	
	Apply	Changes
	Ta	bles
HeadDrop	8b0000	
BgEven	f7f7f7	
BgOdd	d0d0d0	
	Apply	Changes
	Co	ntent
Text	000000	
	Apply	Changes
		merH2
Enabled	0	
Text	Some Text	
	Apply	Changes
		rExtText
Enabled	0	
Text	Some long text entry	
	Apply	Changes
if you took	it all too far and n <u>ow it m</u>	akes you feel sick, click below to reset.
	Facto	ory Reset
	Pi-Star / Pi-Star Dashboard, © / ircDDBGateway Dashboan MMDVMDash develope Need help? Click he Get your copy d	Andy Taylor (MW0MW2) 2014-2018. d by Hana-3. Barthen (DLSDI), d by Kim Hubel (DG9M), re for the Support Group F #Start 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 bage



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-Sta		ice - Expert Editors
		Dashboard Admin Update Back_p/Restore Configuration
Quick Editors: DStarRepea Full Editors: DMRGatewa	ter 1rcDDBGateway Tir ay PiStar-Remote WiFi	meServer MMDVMHost DMRGetuway YSFGateway P25Gateway BM API System Cron RSCaDat Tools: CSS Tool SSH Access
D	Bac) edf0f5	kground
Content		
	dd4b39	
Danners		Channes
		Changes
Banners	1	
BannersDrop		
	VlaaA	Changes
		ables
HeadDrop	860000	
BgEven	f7f7f7	
BgOdd	d0d0d0	
	Apply	Changes
	1	ntent
Text	000000	
		Changes
	1	nnerH2
Enabled	-	
Text		
		Changes
Enabled	1	
Text	Some long text entry	
		Changes
	1.466.0	onangoo
if vou took	it all too far and now it n	nakes you feel sick, click below to reset.
		bry Reset
	Pi-Star / Pi-Star Dashboard, ©	Andy Taylor (MW0MWZ) 2014-2018.
	ircDDBGateway Dashboar MMDVMDash <u>develop</u> e	d by Hans-J. Barthen (DLSDI), d by Kim Huebel (DGSVH), re for the Support Group of P-Star from here.
	Need help? Click he Get your copy of	re for the Support Group of Pi-Star from here.

Pi-Star Digital Voice - Expert Editors

Dashboard | Admin | Update | Backup/Restore | Configuratio

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

Background								
Page	edf0f5							
Content								
Banners								
Apply Changes								
Text								
Banners	ffffff							
BannersDrop	303030							
	Apply	Changes						
		bles						
HeadDrop	8b0000							
BgEven	f7f7f7							
BgOdd	d0d0d0							
Apply Changes								
	Co	ntent						
Text	000000							
Apply Changes								
	Bar	meyH2						
Enabled	0							
Text	Some Text							
	Apply	Changes						
	Banna	22x07ext						
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. in:DDBGateway Dashboard by Ham-3- Barthen (0LSDI), MM2WDAsh developed by Mir Hubbel (OC9WH), Need help? Click here for the Support Group Get vour core of Pi-Star from here.								

Hostname: pi-star Pj-St	P-Star 3.4.13 / Deebboard: 20180327 -Star Digital Voice Dashboard for KC6N						New dashboard with							
				Das	hboard	Admin	Config	uration		ne	w coloi	ſS.		
Modes Enabled			Gateway Activit	v										
D-Star DMR	Time (DDT)	Mode	Callsign	Target	Sze	Dur(s)	Loss	BER						527
	29:48 May 28th	DMR Slot 2	N2JHJ	TG 31066	Net	0.8	0%	0.0%		Pi-	-Star Digital	Voice - Expe	rt Editors	
YSF XMode NXDN 13:	23:30 May 28th	D-Star	KC6ESW/ID51	COCOCO	Net	2.2	0%	0.0%					dmin Update Backup/Re	
13:	23:14 May 28th	D-Star	WD6FZA/ID51	COCOCO	Net	13.0	0%	0.0%		L E BLOOM DOL		Dasnboard Ad		
Network Status 13:	17:21 May 28th	DMR Slot 2	W6AAX	TG 31066	Net	12.7	0%	0.0%				WiFi BM API System C		
D-Star Net DMR Net 13:	17:08 May 28th	DMR Slot 2	KC6ESW	TG 31066	Net	8.4	0%	0.0%						
	12:33 May 28th	DMR Slot 2	WD6FOX	TG 31066	Net	2.6	0%	0.0%			Page edf0f5	Buchground		-
YSF2DMR NXDN Net 13:	07:34 May 28th	DMR Slot 2	KB9YYN	TG 31066	Net	0.1	0%	0.0%			Content ffffff			-11
YSF2NXDN YSF2P25 13:	06:33 May 28th	DMR Slot 2	N1KN	TG 31066	Net	1.2	0%	0.0%			Banners 6699ff			-16
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	D-Star	KC6N/TIME	COCOCO	Net	3.7	0%	0.0%				Test		
Tex Listening DMR 12:	52:37 May 28th	DMR Slot 2	KKELDW	TG 31066	Net	0.5	0%	0.0%		1	Banners ffffff			
Tx 439.025000 MHz 12:	41:33 May 28th	DMR Slot 2	K6BOS	TG 31066	Net	0.5	0%	0.0%		Banne	ersDrop 303030			
Res 439.025000 MHz 12:	36:47 May 28th	DMR Slot 2	NGARP	TG 31066	Net	0.5	0%	0.0%				Apply Changes		-
2W ZUMspot:v1.3.3 12:	33:04 May 28th	DMR Slot 2	KC6N	TG 31066	Net	5.9	0%	0.0%				Tables		
12:	32:55 May 28th	DMR Slot 2	W6MAT	TG 31066	Net	7.7	0%	0.0%		H	eadDrop 8b0000			 _
D-Star Recenter	25:05 May 28th	D-Star	WGAAX	COCOCO	Net	2.7	0%	0.0%			BgEven f7f7f7			-
RPTI KC6N B	17:49 May 28th	DMR Slot 2	K1NRA	TG 31066	Net	0.5	0%	0.0%			BgOdd d0d0d0			
REFERENCEN G	12:30 May 28th	DMR Slot 2	NGYN	TG 31066	Net	0.5	0%	0.0%				Apply Changes		_
D-Star Network	11:23 May 28th	D-Star	AI6KJ/ID51	COCOCO	Net	2.0	0%	0.0%			Text 000000	Content		-
APRS socal.aprs2.net	07:48 May 28th	DMR Slot 2	KE6GVK	TG 31066	Net	0.8	0%	0.0%				Apply Changes		-1
JRC rr.openguad.net												Apply Changes		
Linked to REF012 A			Local RF Activit	y						1	Enabled 0			
(DPlus Outgoing)	Time (PDT) Mode	e Callsig	n Target	Src Dur	(3)	BER	RS	51			Text Some Text			
												Apply Changes		-
DMR Repeater											le	BannerZrbTerit		
DMR ID 310656401									-	1	Enabled ()			 - 1
DMR CC 1											Text Some long text en			
T51 disabled												Apply Changes		- 8
T52 enabled														
TG 31066/not linked	Change	d vou	r mind		<u>الا مار</u>	Eac	-to	$r_{\rm V}$	Docot	"	bu took it all too for and no	w it makes you feel sick, cl Factory Reset	ick below to reset.	- 8
DMR Master		u you			N,	r au	JUJ	уг	16261			Tactory Reset		-
BM United States 3103			_								Pi-Star / Pi-Star Dasno ircDDBGateway D	ashboard by Hans-J. Barthen (DLSD	.4-2018. I),	
	from the		tooln	and tr	ר ר	actr	nr	the	dofa	ault	MMDVMDash Need help?	developed by Kim Huebel (DG9VH), Click here for the Support Group		
YSF Network				uge n		5510		uit		un	Get yo	a copy of Protar from here.		
Linked to: FCS003-16		1							- (I - 1					
	color sc	neme	. INOT to) wor	rv -	- 11	att	ect	s this					
	naga ar		or 711	Mana	tn	roa	ror	nm	ina					
	page or	iiy, Oli		WISPO	ιρ	10Q	Idl		ing					
						<u> </u>			U					
	remains	unch	anged	Don	'† f	ora	ot t	n h	ack I	In				
			ungeu	. 201	C I	or g				⁴ P.				

That's it !

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.